Urban Renewal & Revitalization

EC-Link Position Paper

January 2018
What is EC-Link?

Europe-China Eco cities link project (EC-LINK,) is a European Union founded project, a key element of the EU-China Partnership on Sustainable Urbanisation, which was signed by the European Commission and the Chinese government in May 2012.

It aims to assist Chinese cities in implementing energy and resource-efficient measures by sharing European cities’ experiences in sustainable urbanisation. Meanwhile, EC-Link has created a platform of experience for easy accessible exchange between Chinese and European cities on low carbon/eco city development issues.

Enhancing communication and providing training to Chinese related organizations and its’ staff on policy making, giving technical advices on specific sustainable urban development projects will contribute a lot to China sustainable urbanization.

EC-Link has produced Eco city toolboxes, a Knowledge platform and is organising city-to-city cooperation in the frame of City Network Units’ activities (CNU). CNU activities are focussed on pilot actions implementation based on the joint work of Chinese and EU experts for a common objective, chosen in the frame of sustainable urbanisation issues.

Our aim is to increase learning curve from European cities’ good examples & techniques, strategy and methods. These activities enhanced the communication between Chinese cities and European cities, which formed a solid base for the further cooperation.  

http://eclink.org/en/
PREFACE

China’s Commitment to Mitigate Climate Change

In 2015, China was one of the first Asian countries – besides Japan and South Korea – to come out strongly with a commitment to combat climate change, and to adapt to eventual future impacts.

Context. With its population of about 1,300 million people, China is one of the world’s major emitters of greenhouse gases (GHG), and at the same time it is also one of the most vulnerable countries to the negative impacts of climate change.

Commitment. In preparation for the 2015 United Nations Climate Change Meeting (COP21) in Paris, the government of China has announced that its GHG emissions will peak in 2030. Equally, it is committed to reduce by 2030 by 60-65% the intensity of its carbon usage in relationship to its gross domestic product (GDP), compared to 2005 levels. It will take on the responsibility to increase substantially its forest cover, and will ensure that by 2030 some 20% of its energy requirements will be covered by renewable energy.

Actions. The country’s measures will include mitigation of its contributions to GHG emissions, and it will introduce adaptations measures to cope with negative impacts of climate change in food production, protection of its population, and in climate-proof infrastructure. China aims at biding climate change agreements under the COP21. The international community sees the proposed measures as ambitious but achievable. Since several years, China has started with low-carbon development. Today it is working towards a full-fledged program of green development of its economy.

Eco-Cities and Climate Change

China’s activities to create eco-cities must be seen as part of its contributions to low-carbon development with aim to mitigate climate change. Among the various support mechanisms which exist, to support low-carbon development, the Ministry of Housing, and Urban-Rural Development (MoHURD), is being supported by the European Union (EU) through the Europe-China Eco-Cities Link Project (EC Link).

Background. The main objective of the EC Link project is to serve as a support mechanism to the Ministry of Housing and Urban-Rural Development to implement its sustainable low-carbon urbanisation agenda. The project will support the Ministry in 4 strategic areas:

1) Demonstrate best approaches to implement low carbon solutions by introducing appropriate urban planning tools. Best practice low carbon planning will be identified in both Europe and China and made available nation-wide to municipal governments.
Advanced planning tools will be deployed at the local level with the support of the project, with a view to refining proposed low-carbon planning models and to scaling them up across Chinese provinces.

2) Serve as testing ground for innovations in specific low-carbon policies (e.g. energy performance labelling for buildings, intelligent transport systems, smart cities, GIS planning tools, eco city labelling schemes) and technologies (in the 9 sectors selected by the project: compact urban development, clean energy, green buildings, green transportation, water management, solid waste treatment, urban renewal and revitalization, municipal financing, green industries).

3) Improve Chinese Municipalities' potential to finance low carbon solutions and notably their ability to attract private sector financing in the form of public private partnerships. The EC Link will support MoHURD to define innovative financial schemes, support feasibility studies and the formulation of finance and investment proposals, better coordinate and leverage investments undertaken by EU Member States, or to link projects to European financing institutions (e.g. European Investment Bank) and to European companies.

4) Establish knowledge networks and test the functionality of the support mechanism by leveraging, scaling up, and integrating transformative actions supported by the policy and technology tools developed under the project. The Knowledge Platform will demonstrate how strategic objectives have been translated at local level and how results have been integrated at national level for the definition of long-term best practices. Results will be shared via training and capacity building at local level, and via the knowledge platform set-up by the project at national and international level.

**The EC Link Position Papers.** MoHURD and the EC Link Technical Assistance Team (TAT) have identified 9 specific sectors for the deployment of technology based tool boxes. In all of these, Europe has a lot of knowledge and best practice to contribute to support the deployment of these solutions in China. These 9 sectors include:

- compact urban development,
- clean energy,
- green buildings,
- green transportation,
- water management,
- solid waste treatment,
- urban renewal and revitalization,
- municipal financing,
- green industries.

MoHURD’s Department of Science and Technology, EC Link’s direct counterpart, has issued targeted objectives for the deployment of policy, research and development and engineering agendas.

Users and Target Groups of Position Papers. The EC Link position papers will be utilized by personnel of the cities which are covered by MoHURD’s eco-city programme. This covers
technical and managerial staff of these cities. Additionally, at central government level, MoHURD and other ministries may also make use of these position papers for the purpose of staff training and briefing.

Since these position papers are also going to be published in the EC Link website (www.eclink.org), also the general public is invited to make use of these position papers.

**Content of Position Papers**

**Sector overview:** The EC-Link position papers provide an overview of each thematic sector (compact urban development, clean energy, green buildings, green transportation, water management, solid waste treatment, urban renewal and revitalization, municipal financing, green industries). It begins with a state-of-the-art review of the sector, and presents sector challenges as development objectives.

**Sector policy analysis:** As part of the sector overview, the EC-Link position papers provide sector policy analysis, and a comparison of EU and Chinese sector policies.

**Comparison of European and Chinese experiences:** The comparison of real-life EU and Chinese project experiences are used to illustrate innovations and progress in the respective sector. Both for EU and Chinese cases, there is an overview of good practices, technologies and products, performance indicators, technical standards, verification methods, and lessons learnt from best eco-city practices.

**Tools:** This position paper contains four primary tools. Throughout the text of this position paper there are flags to point at these primary tools (Tool CUD1, Tool CUD 2, Tool CUD 3, Tool CUD 4). At the end of the position paper there is an Annex with short summary descriptions of these primary tools.

The primary tools for Urban Renewal and Revitalization (URR) are:

- Tool URR 1: Environmental instruments for neighbourhood revitalization.
- Tool URR 2: Economic instruments for neighbourhood revitalization.
- Tool URR 3: Social instruments for neighbourhood revitalization.
- Tool URR 4: Green building and retrofitting in neighbourhood revitalization.

It is understood that these primary tools, do contain numerous secondary tools which cannot be elaborated in the context of this position paper.
Position Paper - a living document: This position paper will be updated based on city-level real-life project experiences in the EC-Link pilot cities.

Possible misconceptions: These position papers shall not be mistaken for ‘cook books’, or ‘how to do’-manuals like we know them from other subject fields (car repair, computer servicing, etc.). Urban development is too complex for such an approach. Upon request of MoHURD these position papers are addressing good practices and seek to provide tools for complex issues of urban planning and implementation.

DISCLAIMER

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Abbreviations

BMUB  German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
CLLD  Community-Led Local Development
CPTED Crime Prevention through Environmental Design
CSUS  Chinese Society for Urban Studies
DRM   Disaster Risk Management
EC Link Europe-China Eco-Cities Link Project
ERDF  European Regional Development Fund
EU    European Union
GDP   Gross Domestic Product
GHG   Green House Gases
GIZ   German International Cooperation Agency
IBA   International Building Exhibition
KFW   German Development Bank
MDGs  Millennium Development Goals
MoHURD Ministry of Housing, and Urban-Rural Development
OECD  Organization of Economic Cooperation and Development
SDGs  Sustainable Development Goals
SUDS  Sustainable Urban Drainage System
ToD   Transit-Oriented Development
UDN   Urban Development Network
UNDP  United Nations Development Program
URR   Urban Renewal And Revitalization
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# Glossary of terms

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<th>Term</th>
<th>Description</th>
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<tr>
<td><strong>Adaptive reuse</strong></td>
<td>Adaptive reuse describes the usage of renovated or rehabilitated buildings after urban renewal and revitalization.</td>
</tr>
<tr>
<td><strong>Historic centres</strong></td>
<td>Historic centres are city centres which have historic and architectural value, often representing a long urban history.</td>
</tr>
<tr>
<td><strong>Retrofitting</strong></td>
<td>Retrofitting is a technical term that indicates that renewal and revitalization is being done to a level which permits modern use and modern operations of buildings and infrastructure.</td>
</tr>
<tr>
<td><strong>Smart cities</strong></td>
<td>Smart cities stands for the use of digital and modern information technologies in city applications, for instance for management of energy consumption, traffic surveillance, or for billing of public services (water, energy use, use of toll roads, city centre congestion charges, garbage management, etc.).</td>
</tr>
<tr>
<td><strong>Urban regeneration</strong></td>
<td>Urban regeneration is a term often used for urban rehabilitation or urban revitalization.</td>
</tr>
<tr>
<td><strong>Urban renewal</strong></td>
<td>Urban renewal is the renovation and renewal of older dilapidated groups of buildings or entire neighbourhoods or urban 'areas'. In many cases urban renewal has been associated with sweeping demolition of entire neighbourhoods and their reconstruction. Therefore, in some countries the term is charged with negative meaning. However, in China no such attributes are associated with urban renewal. It China it stands for time-proven age old process of a continuous renewal.</td>
</tr>
<tr>
<td><strong>Urban heritage</strong></td>
<td>Urban heritage describes monuments or entire areas or neighbourhoods of historic and architectural value.</td>
</tr>
<tr>
<td><strong>Urban rehabilitation</strong></td>
<td>Urban rehabilitation is very similar to urban regeneration. It describes the process of restoring conditions (physical, economic and social) which have experiences decay and loss.</td>
</tr>
<tr>
<td><strong>Urban revitalization</strong></td>
<td>Urban revitalization aims to inject new life and new development opportunities into buildings or entire neighbourhoods through urban renewal and revitalization measures.</td>
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1 THEMATIC BACKGROUND

Urban renewal and revitalization receiving less attention. Over the past 70 years, since the end of World War II, the urban development focus of most governments in the developing world—as well as that of most international aid agencies—has been on new construction. This is particularly true of development policy as it relates to residential areas, including those built through authorized channels as well as those that have emerged through informal processes rather than government initiative. Typically, most of this housing stock was constructed in a hurried manner.1

Similarly, the desire for modernization by governments and decision makers in developing countries has often led to a view that only "modern" housing of new construction is a worthwhile investment. As a result, housing complexes of earlier vintage construction or those erected in the traditional style are often considered to be of little value. They are mostly torn down or, at best, ignored. Older-style housing, which is typically concentrated in the urban core, is often left in a state of physical deterioration and overcrowding, and tend to be poorly served by urban infrastructure. Therefore, it is easy to label such areas as "slums" and to slate them for demolition at the earliest opportunity.

Further, as a result of rapid population growth, many large cities in the developing world have undergone wholesale transformation of their urban economies, a phenomenon that has led to a dramatic shift in the composition of economic activity and the spatial pattern of land use in the urban core. The historic areas of such cities become transformed into tracts of land highly valued by commercial users. This increases the pressure to eliminate any remaining vintage housing stock.

For all of the reasons cited above, most cities in the developing world have paid—and continue to pay—very little attention to urban renewal and revitalization (URR) of their historic urban cores,2 including the housing stock that exists within them. As a result, these areas continue to decline, both in terms of their overall quality and their potential contribution to the city's housing market and overall economy.

Most cities have urban heritage. In fact, the potential contribution of these historic urban areas is vastly greater than is commonly realized. Nearly all of Asia's cities, even the fastest-growing ones, contain a vintage housing area that has existed for centuries, the large cities of today having simply grown up around this urban core. For example, the vintage housing stock of Beijing and Shanghai, Mumbai, Ha Noi, Lahore, Old Delhi, Penang is—in quantitative terms—still significant, since it constitutes a large portion of the centrally located housing stock. In other cities such as Jakarta, Malacca, and the Intramuros area of Manila, the number of residences or office buildings constructed for the colonial elite was smaller than in the previously named cities, which made the scale of the quarters built for the “native” civil service personnel smaller, which comprise today’s historic urban areas.

1.1 What is Urban Renewal?

**Defining urban renewal.** In recent years, urban renewal and revitalization (URR) have emerged as important issues in urban planning and design, mainly because of the economic, cultural, technological, and physical benefits it confers. In this context, “urban renewal” refers to comprehensive reinvestment in the social, economic, cultural, and physical infrastructure of urbanized areas. Many have started to see URR not only as a necessary and permanent part of the transformation of cities, but it is also being argued that URR activities or ‘preservation’ gives important stimulus for the future of cities. ³

URR has been described as the intention to recover idle investment, employment, and consumption and to enhance the quality of life within urban areas.⁴ Others have added "growth" and "progress" to the definition of what they refer to as “urban revitalization” and stated that, as with earlier labels (e.g., “urban redevelopment”, and “urban regeneration”) urban revitalization implies growth, progress, and infusion of new economic activities into stagnant or declining cities that are no longer attractive to investors or middle-class households.⁵

Ultimately, cities have always been in a state of progressive transition. They are in a continuous process of becoming larger, smaller, better, or worse—in one way or another, and different than they were in the past. This process of continuous transition occurs largely in response to the political, industrial, economic, and social changes. Decay of inner urban space often occurs within the context of such transformation. Inner urban decay, crime, racial tension, riots, mass unemployment, and falling standards in the provision of urban services are some of the more obvious and disturbing indicators of a general and deep-seated deterioration in the social, economic, political, and financial fabric of a city. It has been observed that such decline can lead to out-migration of younger and more skilled members of urban populations as they seek employment elsewhere.⁶

1.2 What is Urban Revitalization?

In recent decades, urban revitalization initiatives have enjoyed increasing public and private support in industrialized countries—both addressing the historical texture of grown old urban centres and also to improve social problems in other neighbourhoods. However, in developing countries, interest in it—both intellectually and professionally—has rarely extended beyond heritage campaign groups, a relatively small number of foreign-trained local professionals, and external advisors who advocate adaptive reuse of heritage structures. For the most part, the legal and administrative framework for conservation of historic areas in developing countries—insofar as it exists at all—very often consists of a set of prohibitions against construction within historic areas, although effective enforcement of such provisions is rather rare. In developing countries, housing areas of more than average age are, for the most part, still seen as "problems" rather than as an asset for urban life that can make an important contribution to growth in national income and cultural identity.

³ Meer, S., Murphy, K.C. 2016. The Past and Future City: How Historic Preservation is Reviving America’s Communities. Island Press. [https://islandpress.org/]
1.3 How do these two concepts relate to eco-cities?

**URR and sustainable urban development.** This position paper document intends to overlay the benefits of eco-city development with those of urban renewal and revitalization (URR) concepts. Both represent different instances of sustainable urbanism... In Europe multiple experiences of ecological urban renewal have been accumulated, and it is felt that also China can extend its still fresh eco-city approach to ventures in renewal and revitalization of historic or older urban areas which warrant investment and upgrading. The objective of this position paper is to display tested instruments, explain their purposes in the context of URR eco-city concepts and to illustrate them with life experiences elsewhere. There should be scope to build into URR elements of clean energy, green building technologies, resource-conserving means of water supply, energy-efficient and chemically un-harmful means of waste water treatment, environmentally friendly means of solid waste management, and green industries – many of which are being discussed in detail in the complementary position papers also published by the EC-LINK program.

"Much of the world has begun to recognize the interrelationship and the interdependency between sustainable development and heritage conservation. Maintaining as much of the original fabric as possible is maintaining the character of the historic neighbourhood. That's cultural sustainability, also part of sustainable development. Historic preservation in urban renewal and revitalization can enhance environmental responsibility. Historic buildings represent embodied energy. Embodied energy is defined as the total expenditure of energy involved in the creation of the building and its constituent materials. When we throw away an historic building, we are simultaneously throwing away the embodied energy incorporated into that building. How significant is embodied energy? ...In Australia, they've calculated that the embodied energy in the existing building stock is equivalent to ten years of the total energy consumption of the entire country. Much of the “green building” movement focuses on the annual energy use of a building. But the energy consumed in the construction of a building is 15 to 30 times the annual energy use... Razing historic buildings results in a triple hit on scarce resources. First, we are throwing away thousands of dollars of embodied energy. Second, we are replacing it with materials vastly more consumptive of energy. What are most historic houses built from? Brick, plaster, concrete and timber. What are among the least energy consumptive of materials? Brick, plaster, concrete and timber. What are major components of new buildings? Plastic, steel, vinyl and aluminium. What are among the most energy consumptive of materials? Plastic, steel, vinyl and aluminium. Third, recurring embodied energy savings increase dramatically as a building life stretches over fifty years... for many developers, real estate owners, architects, and city officials, the response to functional obsolescence is demolition. But the alternative environmentally responsible response is adaptive reuse."

**Smart cities.** The smart city movement also has a clear statement of principles which all mirror elements of the eco-city concept: (i) create range of housing opportunities and choices; (ii) create walk-able neighbourhoods; (iii) encourage community and stakeholder collaboration; (iv) foster distinctive, attractive places with a sense of place; (v) make development decisions predictable, fair, and cost effective; (vi) mix land uses; (vii) preserve open space, farmland, natural beauty and critical environmental areas; (viii) provide variety of transportation choices;

(ix) strengthen and direct development toward existing communities; and (x) take advantage of compact built design.

As indicated above, much of the URR agenda can be seen as multi-sectorial and city-wide. In the following however, we are viewing this agenda with a perspective of urban neighbourhoods, and (historic) inner-city districts.
2 URBAN RENEWAL AND REVITALIZATION

OBJECTIVES

Benefits of URR. In the contemporary Chinese context, urban renewal and revitalization (URR) will address the historic urban core of large and middle-sized cities in the first place. The benefits are manifold – but in order make them happen, the underlying economic feasibility and efficiency must be highlighted and secured rather than sentiment or other considerations can be discussed. The most important economic benefits of preserving a city’s historic heritage include employment creation, stimulating commerce, and the occasional fact that it can cost less to rehabilitate a building than to construct a new one.\(^8\) To this one can add the psychological benefits of urban revitalization initiatives. “First, we seek to preserve because our historic resources are all that physically link us to our past. Second, we strive to save our historic and architectural heritage simply because we have lived with it and it has become part of us. Third, we save our physical heritage partly because we live in an age of frightening communication and other technological abilities, as well as in an area of increasing cultural homogeneity. Fourth, we preserve historic sites and structures because of their relation to honour and understanding. Fifth, we seek to preserve the architecture and landscapes of the past simply because of their intrinsic value as art.”\(^9\)

URR revalidates neglected areas. Benefits of urban revitalization can be seen in its contribution to cultural education. Architectural heritage can play an important role in education. Today, when visual appreciation and first-hand experience play a decisive role in education, it is essential to keep alive the evidence of different periods and their achievements to provide a wealth of material for explaining and comparing forms, styles, and their applications (European Charter of the Architectural Heritage 1975).\(^10\) It must also be remembered that historic cities rarely are made of buildings dating from the same age, but they rather evolved incrementally over decades if not centuries. Therefore it is fully justified to complete a historic plan with high quality modern buildings as long as they respect the scale and townscape of the environment,

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2.1 How Should Historic City Centres Be Revitalized?

Urban centres are important assets. There exist a set of rules and values in urban development which apply to renewal and revitalization in the same way as the construction of new towns and neighbourhoods. Keeping in mind the interests of our future, the UN sustainable development goals (SDGs), which replace the Millennium Development Goals (MDGs) serve well as a guide. They can be grouped in line with environment-ecological, economic, and social goals. Further below, the instrumental tools for URR planning and implementation will be presented in line with these goals.

Development potentials of centres. The previous views notwithstanding, historic urban areas are not necessarily worthy of revitalization simply because they are old. While it is absolutely justified to consider social and aesthetic values when appraising cultural heritage, these should not dictate all aspects of the future well-being of towns and cities.\(^{11}\) Conservation initiatives must be assessed critically and not merely in terms of the chronological age of the artefact or tradition in question. Economic consequences and opportunities need to be realistically calculated and become part of a government’s transparent policy when it comes to decide about revitalization of urban centres... More often than not, current government policy towards the existing housing stock is marked by uncertainty internationally. But in general, governments do realize that it is counterproductive to remove large portions of existing housing stock while facing a rapidly expanding housing demand and recognizing the inability of existing institutions to provide new housing at the pace required locally. By default, political success is measured by the provision of new housing units rather than dwellings preserved. This often induces the demolition of older housing areas, or deterioration through neglect.

URR may not cover entire city centres, but only pilot project areas. Even in developing countries where urban renewal and revitalization has been attempted, such efforts are usually conducted only on a small scale and often focus on the most profitable projects, such as those portions of historic areas with tourist potential. This, in parts, reflects the widely held view that tourism is often the sector with the greatest potential for rapid growth in national income.

Once the decision to revitalize a historic urban area has been taken, the participation of current residents and other stakeholders is of utmost importance for the success of the venture. It goes without saying that the impact of conservation of historic towns and urban areas affects the life of the local residents in the first place. In return, their active support, or resistance, can make the difference between success or failure of an urban renewal venture. Hence, early consultation and inclusion of the resident population is mandatory in any such initiative.

Conflicts of interest. In any urban projects, different stakeholders tend to experience conflicts of interests and at the end not everybody will benefit the same. Therefore, any negative impacts on residents that result from urban renewal and revitalization initiatives (such as mandatory relocation) must be addressed at the project design stage rather than during implementation if optimal results are to be expected. Broken promises will not only discredit the project in question but will certainly trigger of public suspicion and distrust against any follow-up project venture the responsible authority will embark upon in the future.

Generally speaking, urban renewal and revitalization efforts involving historic areas typically employ or combine one or more of the following approaches:

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Adaptive reuse and cost recovery. A key concern is raising the funds necessary for securing the necessary dynamics of initiatives from the start right through to completion. One approach to raising such funds is adaptive reuse. Under this approach, private entities and/or nongovernment institutions are allowed to lease historic facilities for commercially viable uses that respect and upkeep their historical value apart from earning a profit from the use of the facilities. However, adaptive reuse is not a universal solution to the problem of financing urban revitalization initiatives. Its usefulness is often limited when dealing with listed monuments and heritage objects, since these, while requiring expensive restoration works and being restricted from fundamental architectural adaptations, usually generate only modest revenues. Investments in monuments and related heritage objects thus often require not only political backing, but also financial support in form of tax incentives, loans on concessional terms, free leaseholds or even subsidies.

Commercialization of historic city centres. Few cities have followed an entirely commercial model in revitalizing historic urban areas. Singapore provides one example of this approach: the local redevelopment authority was given powers acquire all plots of land located within the designated conservation areas. These plots were then sold to commercial entities for adaptation of the historic buildings to be used as shops, restaurants, tourist hotels, or offices. Singapore’s experience is that urban revitalization leads to a significant increase in property values. Rehabilitation of the shop houses in Singapore’s heritage areas have caused property values to increase to nearly eight times their pre-rehabilitation levels, but completely changed the land use pattern as well as the social fabric.
3 KEY ISSUES – KEY CONCEPTS

3.1 Basic Concepts

Having discussed the guiding principles of urban renewal and valorisation in general, the focus has been directed on the challenges of revitalization of old and historic centres which appears to be the most relevant interest of the concept for China at present. In the following we will now explore the range of specific objectives which any urban renewal program may be requested to achieve – and these are by no means the same between two or more projects.

3.2 Sustainable development through urban renewal

Within the frameworks of sustainable development, which is considered an overriding principle for all future interventions in the environment since the 1992 UN Conference on Environment and Development, urban planning ideally should enable a fair balance between economic, social and environmental concerns.

Source: [https://upload.wikimedia.org/wikipedia/commons/thumb/7/70/Sustainable_development.svg/240px-Sustainable_development.svg.png](https://upload.wikimedia.org/wikipedia/commons/thumb/7/70/Sustainable_development.svg/240px-Sustainable_development.svg.png)

The application of sustainable development principles are main characteristics of eco-cities. Hence, the fulfilment of eco-city requirements will be measured upon the satisfaction of the various sustainability objectives – which generally can be achieved in the combination of different reinforcing or complementary instruments or planning tools. Those will be explained to greater detail in the eco-city tool box further below.

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3.2.1 Environmental Sustainability Objectives

3.2.1.1 Climate Change Mitigation

Climate change (including global warming) is currently one of the biggest threats to mankind. Modern urban development is one of its biggest causal factors. Hence, urban renewal has an important role to play in combating climate change. In such process, two different strategies need to be distinguished: Mitigation aims at reducing, stopping and eventually reversing climate change in the long run. The common logic of all mitigation strategies is to cut CO\textsubscript{2} emissions – mainly through stopping the use of non-renewable energy resources. On the other hand, Adaptation strategies aim at reducing the vulnerability of human settlements against the effect of climate change.

a) Reduction of Non-Renewable Energy Demand

The argument is as simple as it is convincing: less combustion of non-renewable energies (coal, petroleum, ‘natural’ gas) means less CO\textsubscript{2} emission which can stop global warming (by reducing the greenhouse effect).

b) Energy – Recycling

Recycling embodied energy in all kind of materials reduces the need for new generation of energy, but also energy transformation by means of heat exchangers, biogas plants, etc. Is equally beneficial for the environment.

c) Clean and renewable energy

Not all energy sources impact directly on global climate. For example, biogas, wind or electricity generated through electro-voltaic can be considered clean energy which do not produce Green House Gas. The same applies to man-powered mobilization energy like cycling or walking.

d) Combined measures

More sophisticated measures ask for an interdisciplinary approach, like in the case of district heat-power plants (using waste energy in electricity production for heating purposes), or exploiting solar energy gains through house orientation, capturing of sun radiation energy or benefitting from night time cosmic cold radiation for cooling purposes.

e) Land recycling and brownfield redevelopment

As long as global population continue growing, additional land resources will be needed which invariably reduce the space for greens and natural forests which would have the capacity of transforming CO\textsubscript{2} into oxygen.

f) Land reclamation

Following the same logic, additionally needed land reserves can be created on shallow flood lands on swimming structures, palaffites (traditional houses on stilts over water), or traditional house boats. Some experts believe that water surfaces represent our most important ‘land reserves’ for the future.
3.2.1.2 Climate Change Adaptation

Climate change mitigation efforts can only show visible results on the long run, if at all. Above all, they require simultaneous solidarity action by all nations, which so far has not materialized yet. In the meantime the most affected regions will have to bank on local defence mechanisms to secure their own survival (the so called adaptation strategy).

a) Micro climate / heat island reduction

Cities tend to develop higher ambient temperatures than the countryside around them. This phenomenon is known as the ‘heat island effect’. Combined with seasonal hot periods (heat waves), inner city temperatures may become insupportable for many and can be the cause of seasonally high death rates.

In addition, individual blocks or streets may show higher temperatures than the city average – typically due to lack of ventilation, heat absorbing wall and floor surfaces or lack of greenery. Air conditioning may improve the indoor situation but simultaneously worsens outdoors temperatures, and makes the poor, who cannot afford air conditioning, suffer for the well-being of the rich.

b) Flood protection

Possible flood hazards to cities may have different origins. In some regions, like the Amazon or South Asia they occur seasonally and are part of the habitual eco system, but occasionally turn out much stronger as usual – mostly accentuated through climate change – and can cause serious disasters. Cities can protect themselves through only to limited extent, as their supplies depend on surrounding regions, and through which most of the transportation links to more distant places are also channelled. Other causes may include careless deforestation for agricultural purposes or the construction of dams and reservoirs in earthquake prone areas etc.

In coastal areas human settlements may be affected by the rise of sea water level due to the melting of ices around the globe’s poles as a consequence of global warming. This is sallow but steady process but turns especially hazardous in combination of high tides and storms. If no other effective measures are found and taken those settlements would have to be abandoned in 10, 20 or 50 years.

c) Drought prevention

When too much rain is falling in one region of the world it is no surprise that water is missing in others. Desertification has hit wide zones of Africa and Asia. But also in Europe water shortages occur more frequently than in the past. Water is an essential need for life and also the base for agricultural production. Rainwater catchment, recycling and simple water saving systems have become important requests in urban renewal projects around the globe.

d) Disaster prevention and erosion control

Most, but not all environmental hazards are a direct consequence of climate change. Disasters, like tsunamis and earthquakes are examples; other are man-made like huge industrial accidents, fires, war damages all cause a need for urban reconstruction and renewal efforts in the aftermath – and for provisions to reduce damages in case that a similar disaster should struck again.
3.2.1.3 Ecological Sustainability

a) Combating resource depletion

The fact that the mineral oil reserves will be exhausted in a few decades is perhaps good news in face of climate change and can be substituted by other kind of energy instead. But the planet possesses other essential resources which may be more difficult to replace, or need protection from all kind of pollution. Also land is becoming a scarce resource in urban development. Therefore urban reconstruction will have to be conscious of this fact in its own design, but also for its educative potential.

b) Preserving Biodiversity

Species extinction is a natural part of Earth's history. Human activity has increased the extinction rate by at least 100 times compared to the natural rate. Paradoxically in Europe, which has undergone an important industrialization process in agriculture, urban areas nowadays count a higher diversity of species than the surrounding countryside. In urban renewal care must be taken to preserve, or even better: increase, this biodiversity.

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Source: [http://www.surfbirds.com/mb/media/living-planet-0207.jpg](http://www.surfbirds.com/mb/media/living-planet-0207.jpg)

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3.2.1.4 Human Health concerns

a) Healthy cities – healthy living

Mankind forms part of bio-diversity. Extinction is not an evident threat (though not impossible as a result of scientific or political mistake), but signs of degeneration cannot be denied. The built environment and urban lifestyles play a considerable part in this development, but are difficult to control by the individual. This is what the concern for WHO-supported Healthy Cities network\textsuperscript{14} is all about. In Scotland\textsuperscript{15}, but also other parts of Europe, Healthy City concerns have become an integral part of urban renewal strategies.

b) Clean and ecologically suitable building materials

The science of Building Biology provides an interesting theoretical reference framework also for urban renewal projects world-wide. But particularly important in the context of energy conservation in urban renewal initiatives is the embodied portion of CO\textsubscript{2} in the building materials consumed.

c) Air pollution control

Many cities which do not happen to be located in a windy location suffer from smog these days – with serious consequences for public health and quality of life. Smog control has therefore become an important secondary goal of urban renewal projects in many places.

d) Noise pollution control

Equally disturbing can be noise pollution in cities. Most urban renewal projects, consciously or not, result in lower noise emissions locally.

3.2.2 Economic Sustainability Objectives

By today all planners and architects should have understood that no urban renewal plan will be implemented if the financial aspects have been worked out and settled beforehand. Economic sustainability means that both investment costs and operational expenses have been calculated and the financial sources been identified and confirmed. This does not necessarily mean that each investment must be economically profitable, but any subsidies must be justified by its social, ecological or similar value.

a) Green economy / Green Finance / Local Currency

The term \textit{green economy} often only refers to low or non-carbon industries which may require some temporary financial regulation mechanisms to keep CO\textsubscript{2}-free production competitive with conventional products and services.\textsuperscript{16} \textit{Green Finance} investment schemes are set up (especially in Britain) to spread the higher investment cost of low-carbon production or consumption over a longer period and to offset them against long-term savings. UNEP, however, also includes other sustainability factors in the Green economy concept: ‘\textit{UNEP has developed a working definition of a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy}\textsuperscript{17}\textit{.}'


\textsuperscript{15} http://www.sphsu.mrc.ac.uk/Evidence/Research/Review%2009/Slides09.pdf, visited 10/07/2015

can be thought of as one which is low carbon, resource efficient and socially inclusive.'\(^{17}\)

According to this interpretation, local solidarity economies and even local currency are being considered to offer more sustainable economic undertakings in contrast to profit maximising economies.

The establishment of green economy enterprises tend to work best in clusters, which hints to the need for shared infrastructure provision. Sometimes such clusters are integrated in brown field redevelopment projects.

b) Employment and Income generation

A major proportion of urban revitalization programs are being proposed for zones in which an important local employer has folded down or where there is a concentration of unemployed residents for other reasons. In consequence, the creation of new employment becomes a central objective of such projects, aiming at fixing the root problem of such areas and securing sustainability to the venture.

c) Reduced cost of infrastructure

Compared to new green field development, urban renewal can turn out to be more economical if existing infrastructure (roads, sewers etc.) can be integrated. Also for residents the possibility to remain in the same neighbourhood tends to be highly beneficial, since transportation cost from most likely less central locations can be spared and residential communities are not torn apart.

d) Internationalization

In the light of Globalization, many urban renewal initiatives are conceived like a shop window towards the world and expected to facilitate an upward move on the World Cities scale.\(^{18}\)

3.2.3 Social Sustainability

Since physical decay of urban quarters can be interpreted as being not more than a symptom of other social and economic difficulties, an intelligent urban renewal program will try to analyse and cure the roots of the observed problematic. Most likely, as a result the envisaged measures will try to tackle the physical symptoms together with their social (and possibly economic) roots.

a) Location and ease of mobility

The greater a city, the more important becomes the aspect of accessibility of both residential areas and commercial zones. By definition urban renewal as a preferential alternative to green field development aims at preserving the established accessibility qualities of a neighbourhood given by its location. But many renewal projects additionally include an improvement in mobility opportunities – either by providing car parking facilities or allowing for reserved circulation space for pedestrians and cyclists.

b) Sufficient and good quality of housing

Due to a typically aged physical texture of renewal zones, building structures tend to be deficient which attracts a certain share of low- and least-income sections of society and who often bring with them the problem of overcrowding in addition. Therefore houses (residential or commercial) tend to require considerable repair and modernization. In addition, densification or overspill areas may become an additional necessity.

\(^{18}\) [http://www.lboro.ac.uk/gawc/](http://www.lboro.ac.uk/gawc/) reviewed 11/07/2015
c) **Responding to demographic change**

Family structures have changed over time – today there are more single households and the population is getting older. Migration results in greater cultural diversity but also bears the danger of ethnic conflicts. Not only dwelling sizes need to be adjusted but specialized infrastructure support may be needed – and sometimes provided within urban renewal or revitalization schemes like in the German case on the ‘Social City’ (chapter 4.2.5.4).

d) **Poverty reduction, education & skills**

Well-to-do neighbourhoods dispose of the necessary economic means to keep their living environment in good shape. On the other hand, those quarters of the city earmarked for urban renewal programs tend to display problems of poverty and limited educational skills which must be addressed in one way or another in the interest of sustainability in the achievements of the program in question.

e) **Social inclusion**

Several European renewal programs attempt to overcome the observed stigmatization of run-down urban quarters through improving the social mix or the physical appearance of public space. Sometimes mixing residents with different social backgrounds has been attempted to promote inclusion, but more often than not failed—especially where the mix was enforced from outside. The case on South Rotterdam (Chapter 4.2.5.6) shows a positive example where ‘higher standard’ residents were given incentives to move into poorer neighbourhoods.

f) **Cultural identity**

Whereby social exclusion is related to the view by outsiders, reinforcing cultural identity of a neighbourhood is primarily meant to raise the self-esteem of the residents themselves and support mutual aid initiatives. These may be monument of a local hero, physical landmarks, a traditional market or even an old and huge tree on a square. If no historical or popular piece of identification is at hand, a new ‘iconic building’ (or even an invented old one) can be constructed like in the Case of Bilbao (Case chapter 4.2.4.3)

g) **Conviviality, well-being, image improvement**

Irrespective of the social status of the residents, almost all urban renewal programs try to raise the living standards and especially outdoors environmental qualities. Parks, urban forests, beaches, pedestrian streets stand for examples.

h) **Crime and Violence prevention**

Urban crime and violence are on the increase in many parts of the world, and counter measures are usually welcome by residents and politicians. Crime Prevention through Environmental Design (CPTED) theories enjoy, possibly unjustified, high popularity and are, by definition, urban valorisation programs.
### KEY ISSUES --- KEY CONCEPTS

<table>
<thead>
<tr>
<th>Key issues to be addressed</th>
<th>Key concepts recommended</th>
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<tbody>
<tr>
<td>Inner-city neighborhoods of historic, architectural and environmental quality</td>
<td>Need for government leadership</td>
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<tr>
<td>High appreciation of residents and businesses of inner-city neighborhoods</td>
<td>Need for participatory mechanisms: residents and businesses</td>
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**Adaptive re-use**

Potential for green retrofits: clean energy, green building technologies, resource-conserving means of water supply, energy-efficient and chemically un-harmful means of waste water treatment, environmentally friendly means of solid waste management, and green industries

Need to mix commercial development with protective strategies for existing residents and small businesses

Revenue collection

Making use of smart technologies

Ensuring resilience to climate change impacts

Retain original population where possible and wanted. Increase floor space ratios and densities where viable to allow for economy of scale. Use increased revenues for subsidies and continued interventions. Smart technologies can help to reduce energy spending. Build disaster risk management (DRM) into neighbourhood planning.
Many urban renewal projects have been planned, executed and somehow concluded around the world. However, this document we will restrict itself to the European context, where the richest spectrum of urban renewal projects can be found. Certainly, transferability of European project experiences to China is limited, but most of the tools are generic and can be adapted to serve different objectives and, above all, to different settings.

4.1 Evolvement of European Urban Renewal Concepts and Policy Analysis

In Europe, as everywhere else on the Globe, urban renewal in significant numbers and size is post-World War II history. Different programs have been consecutively developed over the past 70 years – following changing needs (and objectives), strategies, policies and political ideologies or prejudices. A policy overview of European experience will hence be presented by periods:

4.1.1 1950-70 Post-War reconstruction

More than any other wars before, World War II targeted the civil population and city-based industries of the enemy countries. Especially in Germany, but also in its enemy countries, important parts of urban texture were completely destroyed by air raids. When the war was over, large-scale urban renewal turned to more or less provisional repair of damaged buildings, but otherwise massive reconstruction mostly on the existing block pattern in order to take advantage of remaining infrastructure and also to avoid solving any ownership queries.

<table>
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<tr>
<th>World War II destruction in Berlin, Germany</th>
<th>Apartment blocks in Gera, eastern Germany</th>
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<tbody>
<tr>
<td>![World War II destruction in Berlin, Germany](Bundesarchiv Bild 183-J31399)</td>
<td><img src="http://www.spiegel.de/fotostrecke/photo-gallery-an-endless-sea-of-concrete-apartment-blocks-fotostrecke-56825-5.html" alt="Apartment blocks in Gera, eastern Germany" /></td>
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</tbody>
</table>

Source: Bundesarchiv Bild 183-J31399

Much of what was built during the initial, chaotic recovery phase after 1945 was not successful from an architectural and urban planning point of view.

Particularly interesting is the subsidized West German social housing reconstruction program, which combined affordable housing for all and simultaneously fuelled the post-war economy – which later on became known as the ‘German Economy Miracle’ (*Wirtschaftswunder*)

4.1.2 Modernization of older housing stock (‘rehabilitation’) (1970→)

Once the post-war housing deficit was resolved there remained a quality contrast between the modern new built housing units and the repaired pre-war stock -- especially in the urban periphery and in smaller towns who had been less hit during the war. Special modernization subsidies were made available to individually modernize the existing buildings.

4.1.3 Cautious urban renewal/ preservation of listed building (1978→)

Now that a strong construction industry had been built up, a massive drop in orders would have caused a serious recession and possibly also caused social unrest. The strategic answer was the creation of a nation-wide area-based participatory urban renewal program which also extended to the public space and to smaller villages. Apart from a specially created subsidy line, further interest in the program was fuelled by a recurring national competition for the most beautiful village. The reconstruction of historic monuments of that period followed more a concept of open-air museums.

German competition for the most beautiful village: Gemeinde Heiming, Altotting Municipality


4.1.4 Ecological Building and renewal (1982→)

The idea of building ecologically began to spread in Europe from the early 1980’s onwards. Although the first global energy crisis of 1973 had been overcome in the meantime, the importance of natural and local resource preservation had been understood, but practical implementation of the principles depended on private initiative and the academic avant-garde. Due to technocratic building regulations new ‘ecological’ buildings were difficult to erect inside
urban centres, where the reconstruction of traditional timber frame and even mud buildings can occasionally been seen.

A parallel but relatively independent movement of the period was the concept of ‘biological construction’ – a synonym of today’s healthy building and healthy cities concept.

**Berlin-Kreuzberg, Germany - Ecological urban renewal.** In the 1980s, the German City-State of Berlin implemented the International Building Exhibition (Internationale Bauausstellung – IBA) which focused on careful urban renewal of old residential blocks. One of its demonstration blocks, Block 103, became a model for ecological urban renewal. The green building measures covered (i) water savings and rainwater catchment; (ii) reduction in solid waste, solid waste reduction, and waste recycling; (iii) application of renewable energy; use of centralized neighbourhood heating as energy-efficiency measure; (iv) biologically friendly building materials; (v) greening of building exteriors. The impacts of the measures are reduced energy consumption and a reduction of Green-House-Gas (GHG) emissions.

<table>
<thead>
<tr>
<th>Bathroom in mud building, Kassel, Germany</th>
<th>Ecological urban renewal in Berlin–Kreuzberg, Block 103</th>
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<tr>
<td><img src="https://www.google.com/search?newwindow=1&amp;site=imghp&amp;tbm=isch&amp;source=hp&amp;biw=1067&amp;bih=539&amp;q=lehmhaus+minke&amp;oq=lehmhaus+minke&amp;gs_l=img.3...297691.302594.2.303697.8.6.1.0.0.0.120.570.5j1.6.0....0...1ac.1.64.img..3.13.1104.NTOxuASTzY#imgrc=" alt="Bathroom in mud building" /></td>
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<td><img src="http://fliba.de/fotos-block-79-103-104-82-naunynstr-adalbertr-oranienstr-mariannenstr-manteuffelstr-skalitzer-str-heinrichplatz/" alt="Ecological urban renewal in Berlin–Kreuzberg, Block 103" /></td>
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**4.1.5 Revalorization of large scale housing estates (1984→West /1990→East)**

Like elsewhere on the world, East and West Europe had experienced a hype in industrialized building – especially large panel construction for social housing from the late 1960’s onwards. With the spread of neoliberal politics in Europe social housing became a service not for all anymore but an assistance exclusively to the poor, which damaged the connotations of this building typology. Unresolved building physics and maintenance problems, plus building failures after 20 years of intensive use triggered off comprehensive renewal programs of those settlements from the mid-1980s onwards. In Germany after reunification 1990, massive renewal and de-densification programs were begun, including also partial or full demolition in response to marked demand and population loss.

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4.1.6 Social focus and target groups (1995)

Globalization widened the gap between the rich and the poor also in Europe during the 1990s, and area based social assistance programs replaced the former programs more focusing on physical improvement. This tendency to earmark neighbourhoods with special assistance needs is a global phenomenon, has brought about a number of good results but also bears the risk of area stigmatization.

4.1.7 Sustainability projects (2000 → MdG)

The year 2000 brought us the *millennium development goals* for sustainability which should be achieved by 2015, but were recently reformulated as Sustainable Development Goals to be attained in a follow-up period after 2015. As not unusual in politics, this may not necessarily
stipulate new and more intense efforts but may turn into a mere re-labelling of on-going programs now promoted to be ‘sustainable projects’ with no fundamental changes.

### 4.1.8 Climate Change Mitigation and Adaptation (2010→)

Since 1992, United Nations Climate Change Conferences have been held on a yearly basis. The 2009 Conference agreed on the Copenhagen Protocol, which was signed by 141 member states and set the aim to limit global warming to 2°C by 2010. It was also agreed that the industrialized countries should assist the poorer regions to obtain the necessary capacity for doing so by means of technology transfer. Although the commitment to the goals remained voluntary, the agreement at least provided large-scale publicity about the problematic situation among politicians which filtered down to the level of urban renewal programs. Many programs set the reduction of CO₂ emission as the top objective.


**Mazdar City in Abu Dhabi**

Source: Azimuth Project, [http://math.ucr.edu/home/baez/diary/masdar.jpg](http://math.ucr.edu/home/baez/diary/masdar.jpg)

### 4.1.9 ‘Smart’urban renewal 2013→

The call for technology transfer, combined with the request for private sector initiatives, was eagerly taken up by international companies such as Cisco, Siemens or Mercedes to promote the Smart City concept all over the world, and especially in context with urban (re)development. The promise tells us that with the help of digital information technology an optimization of all urban activities it will be possible to minimize urban energy demand and that the internet will facilitate democratic decision making. However, the globally best-publicised smart city project, Mazdar City in Abu Dhabi has not advanced as intended and accounts from implementation show reason for scepticism.

### 4.1.10 European Union perspectives on Urban Renewal and Revitalization

The European Union (EU) has a number of important programmes for the urban sector. The 2007 Leipzig Charter has placed special attention on deprived neighbourhoods as a whole,
and recommended an integrated areas approach. The 2010 Toledo Declaration repeated this emphasis on urban regeneration for a smarter, more sustainable and socially inclusive urban development in Europe. The Toledo declaration highlighted the need to consolidate the urban agenda of European cities in the future.

**Importance of urban development.** “The EU Cities are seen as both the source of and solution to today's economic, environmental and social challenges. Europe's urban areas are home to over two-thirds of the EU's population, they account for about 80% of energy use and generate up to 85% of Europe's GDP. These urban areas are the engines of the European economy and act as catalysts for creativity and innovation throughout the Union. But they are also places where persistent problems, such as unemployment, segregation and poverty, are at their most severe. Urban policies therefore have wider cross-border significance, which is why urban development is central to the EU's Regional Policy.”

**Urban dimension of cohesion policy.** The 2014-2020 period has put the urban dimension at the very heart of Cohesion Policy. At least 50% of the ERDF resources for this period will be invested in urban areas. This could increase even further, later in the period. Around 10 billion euros from the ERDF will be directly allocated to integrated strategies for sustainable urban development. And about 750 cities will be empowered to implement these integrated strategies for sustainable urban development.

**What is integrated sustainable urban development?** The various dimensions of urban life – environmental, economic, social and cultural – are interwoven and success in urban development can only be achieved through an integrated approach. Measures concerning physical urban renewal must be combined with those promoting education, economic development, social inclusion and environmental protection. It also calls for strong partnerships between local citizens, civil society, industry and various levels of government.

Such an approach is especially important at this time, given the seriousness of the challenges European cities currently face, ranging from specific demographic changes to the consequences of economic stagnation in terms of job creation and social progress, and to the impact of climate change. The response to these challenges is critical for achieving the smart, sustainable, inclusive society envisaged in the Europe 2020 Strategy...

**The EU Urban Agenda.** Cities are one of the major players as they directly or indirectly implement EU policies on the ground and therefore contribute to EU's major policy objectives. Action is needed at EU, national and city level to ensure that cities are able to fulfil their potential in this role. For this reason, an EU Urban Agenda is being established.

Several political agendas have been developed in the past. The Leipzig charter and Toledo Declaration are carried forward in the EU Urban Agenda: Leipzig Charter (Leipzig Charter); Toledo declaration (Toledo declaration); and the EU Urban Agenda.

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Objectives for 2014-2020. During the 2014-2020 programming period, European cities will benefit even more from the EU's Regional Policy:

- Urban areas are directly targeted by several of the European Regional Development Fund (ERDF) investment. This means greater opportunity for sustainable urban mobility, regeneration of deprived communities and improved research and innovation capacity.
- In each EU Member State, a minimum 5% of the ERDF is earmarked for integrated sustainable urban development; its on-the-ground deployment will be decided and directed by urban authorities.
- EUR 371 million is set aside for innovative actions in the field of Sustainable Urban Development over a seven-year period.
- An urban development network (UDN) is responsible for reviewing on-the-ground deployment of European funds and boosting knowledge-sharing between cities involved in integrated sustainable urban development and in Urban Innovative Actions.
- Cities are encouraged to use Community-Led Local Development (CLLD), which paves the way for local stakeholders, businesses, the public sector and civil society to get more involved in urban neighbourhood regeneration.
- Integrated territorial investments may be used to implement area-based strategies that rely on investments across different fields.
- The URBACT III programme - which acts as a European exchange and learning programme promoting sustainable urban development – has been financially strengthened and expanded, enabling European cities to work together to develop better solutions to urban challenges.
- The TAIEX REGIO PEER 2 PEER tool is designed to share expertise between bodies that manage funding under the European Regional Development Fund (ERDF) and the Cohesion Fund.

Cooperation and exchange of experience between cities

URBACT. URBACT is a European exchange and learning programme promoting sustainable urban development, which integrates economic, social and environmental dimensions. It enables cities to work together to develop new, pragmatic and sustainable solutions to major urban challenges, reaffirming the key role they play in facing increasingly complex societal changes.

UDN. The Urban Development Network is made up of more than 500 cities/urban areas across the EU responsible for implementing integrated actions based on Sustainable Urban Development strategies financed by ERDF in the 2014-2020 period.

4.2 Case Studies of Applied Eco-City Tools in Europe

In the following chapters we will portray specific tools and instruments which have been introduced in Europe in the recent past and which had been developed specifically to attain the urban renewal objectives listed in the previous section. Examples of their practical application are given in the context of brief and illustrated Case Studies from Europe. Furthermore, Internet links lead to more comprehensive documentation of the reference cases for further information.

4.2.1 Strategy: Environmental Sustainability through Climate Change Mitigation

Given the overall Objective has been identified as stopping Global Warming, different strategies can be followed. The first one to be covered here is C.C. mitigation. Each strategy has its own set of objectives.

4.2.1.1 Objective: Reduction of Non-Renewable Energy Demand

**APPROACH: Thermal roof insulation by adding extra floor**

The most common tool for CO₂ reduction in Europe consists in improving the thermal insulation of walls and roofs of old buildings (saving non-renewable fuel). In order to avoid condensation of moisture within the walls the insulation is normally fixed on the outside of the building skin. In historic buildings with facing bricks or decorated facades special techniques, like the incorporation of a moisture barrier or a thick layer of light mud plaster allow to place the insulation on the inner side of the wall construction. 

**Case 1 Copenhagen, Denmark: Ryesgade**

This listed building in central Copenhagen was poorly insulated and needed to improve its thermal performance. Since this measure required a new roof anyway, the addition of a supplementary floor incorporated the additional roof insulation, provided the finance for the remainder insulation and allowed densification of land use at the same time. In addition, photovoltaic panels alone, fixed on the penthouse roof, reduced energy demand by 5%. Altogether, the energy demand of this property can be reduced by 73% through the combination of different measures.

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Case 2 Berlin, Germany: Berlin-Kreuzberg Ecological Urban Renewal– Block 103

Block 103 in the urban renewal and rehabilitation zone of Berlin-Kreuzberg has been modernized and rehabilitated as a demonstration project of ecological 'experiments'. In 1981 these buildings had been illegally occupied (squatted) by homeless Berliners in search for alternative residential opportunities. Since the legalization of the project, the Cooperative Property Administration Luisenstadt eG became the project owner. Ecological innovations have been a concern from the beginning. The administration of the district of Kreuzberg and the urban renewal agency S.T.E.R.N. (Gesellschaft der behutsamen Staderneuerung Berlin mbH = Careful Urban Renewal Corporation) was able to channel a great deal of creativity and participatory initiatives of these residents into the rehabilitation of the residential buildings of Block 103. The project was initiated in 1983 and completed in 1991. The green building measures covered the following:

(i) **Water and wastewater.** Water savings and rainwater catchment: making use of new technologies which reduce water consumption; rain water catchment; use of treated grey waters for greenery on roof tops and on building facades; Water saving of up to 30% achieved.  

(ii) **Solid waste management.** Reduction in solid waste, solid waste reduction, and waste recycling; composting of biodegradable wastes; recycling of building wastes.

(iii) **Energy.** Energy savings through community heating facility at the block level, and generation of renewable energy through photo-voltaic collectors; energy-efficient neighbourhood heating system and warm water generation through gas-powered heating technologies; about 86% of energy requirements are covered through the decentralized energy production on site. Surplus electricity is being sold to the city grid.


29 Berlin-Kreuzberg: project location covering Oranien-, Naunyn-, Manteuffel-, and Mariannenstraße.
(iv) **Green building technologies.** Use of environment friendly building materials, especially insulation materials (Isofloc, rockwool, woodwool products, cork Tectalan). Better insulation of buildings has reduced substantially the heating and cooling requirements of the buildings. A catalogue of recommended building materials has been compiled. In brick and mortar construction, additional insulation materials were used (hemp). All timber elements have been treated with Balsit B. Many of physical rehabilitation works have been built through residents’ self-help. ➔ Tool URR 1, ➔ Tool URR 4

(v) **Outdoor green.** Greening of building exteriors (backyards, facades, and roofs). The impacts of outdoor greening on the micro climate (air temperature, relative humidity; and presence of toxins like SO$_2$, NOX, NO$_2$) are being monitored. 30 ➔ Tool URR 1

The project has been considered a model both for its ecological experiments and for its participatory model of self-administration through the cooperative of residents. Its impact has been improved energy performance of the rehabilitated building stock, and lastly reductions in carbon emissions.

**Ecological Urban Renewal - Block 103, Berlin-Kreuzberg**


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**Ecological rehabilitation – Block 103**


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**Ecological rehabilitation – Block 103 – mixture of residences and factories**


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In a Berlin traditional working-class Quarter, Berlin-Kreuzberg, an old hospital dating from the 19th century became out of use and was replaced by a modern concrete monster nearby. The vacant old and obsolete buildings, now protected as listed buildings, were bought by an initiative of local residents who redeveloped it as a car-free residential community. All buildings were completely remodelled in line with the residents’ preferences and well insulated with the assistance by the government subsidy program for energy saving housing construction. To preserve the appearance of the facing-brick facade, internal insulation was provided through a 10cm layer of light mud mortar which does not require a –usually unreliable – damp proof insulation. At the same time the risks were avoided of common polystyrene insulation material which had caused 17 death victims in the 1996 Düsseldorf airport fire in 1996.

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### Case 3 Berlin, Germany: Berlin-Kreuzberg “Am Urban“ 2012

In a Berlin traditional working-class Quarter, Berlin-Kreuzberg, an old hospital dating from the 19th century became out of use and was replaced by a modern concrete monster nearby. The vacant old and obsolete buildings, now protected as listed buildings, were bought by an initiative of local residents who redeveloped it as a car-free residential community. All buildings were completely remodelled in line with the residents’ preferences and well insulated with the assistance by the government subsidy program for energy saving housing construction. To preserve the appearance of the facing-brick facade, internal insulation was provided through a 10cm layer of light mud mortar which does not require a –usually unreliable – damp proof insulation. At the same time the risks were avoided of common polystyrene insulation material which had caused 17 death victims in the 1996 Düsseldorf airport fire in 1996.

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**Berlin: Light mud plaster for insulation, Am Urban**

![Photo: Kosta Mathéy](Image)

**Berlin: Listed Building Am Urban**

![Photo: Kosta Mathéy](Image)

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31 [https://www.umweltbank.de/kredit/index_kreditbeispiel_40.html](https://www.umweltbank.de/kredit/index_kreditbeispiel_40.html) seen 22/08/2015
APPROACH: High tech energy furbishing

Theoretically, a high-tech combination of insulating the building skin with other climate active measures, such as solar collectors, electro-voltaic cells, heat pumps, grey water recycling, green facades or roofs, can make the difference between a zero-energy house and a an energy-plus building. 

Case 4: Urban Neighbourhood Renewal: Experiences from 63 German Pilot Cities

The programme of energy-efficient urban renewal is a program sponsored by the German federal government. It is in existence since 2011, and is attending to local governments which have expressed their interest to participate. The programme has two components: integrated neighbourhood renewal, and urban renewal management. The program was developed by the former federal Ministry of Transport, Construction and Urban Development (BMVBS) and the German Development Bank (KFW), today this programme is continued under the newly established Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The programme is being funded through the National Climate Initiative, established in 2010. Since 2012 it does have 50 million Euros funding support available. Till late 2015 some 573, of which 484 covered integrated neighbourhood renewal, and the remaining 89 for programme management at municipal levels. Programme management was considered necessary for lack of such capacities within the municipalities to communicate at the same time with residents, building owners (private owners, housing agencies, or housing cooperatives), and utility providers. Management support was also seen as a means to ensure quick results and showcases which would stimulate more interest in the programme by dwellers and building owners. The programme generated an interface for funding from different sources: KfW, European Union subsidies, city budgets, and the citizens´ own contributions (of up to 30%).

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34 Case Study presented by Langenbrinck, G. 2016. Experiences from 63 German pilot cities of KfW432 program on energy efficient urban quarter renewal, at: International Green Building Conference (IGBC), Urbanizers, Berlin and GIZ – Ministry of Housing, Urban-Rural Development (MoHURD), Beijing, see also: www.energetische-Stadtsanierung.info


36 Programme information is available at https://www.kfw.de/inlandsfoerderung/%C3%96ffentliche-Einrichtungen/Energetische-Stadtsanierung/Finanzierungsangebote/Energetische-Stadtsanierung-Zuschuss-Kommunen-%28432%29/#
### Urban Neighbourhood Renewal: Experiences from German Pilot Cities

#### Urban Renewal Area in Bad Pforzheim


#### Urban Renewal Area in Prenzlau


#### Urban Renewal Area in Berlin Falkenhagen

#### Renewal Measures of Building Envelope

#### Renewal of Structural Elements

#### Greening of Neighbourhoods

Case 5 Grenoble, France: Eco-Quartiers 2009

Obviously, true and comprehensive energy saving and ecological urban development cannot be developed on an individual site. Therefore, The French ministry of Ecology called for a competition between cities to build an Eco Quarter – which was won by the city of Grenoble in 2009. In this inner city brown field redevelopment scheme the 8.5 hectare site of former military barracks was redeveloped into a compound comprising 850 flats, student residences, a school, cinema and shopping units. All buildings had either green roofs or photovoltaic cells and solar collectors to satisfy 50% of the hot water demand; all building materials were 100% ecology proof. However, after occupation in turned out that the estimated energy demand of (42.5 kWh/m²/year) was overrun by 5 to 70%, most likely due to wrong calculations at the outset. ➔ Tool URR 1

In 2011, there was a second call in the French Eco-Cities program, which was won for the Plateau de Haye next to Nancy, where 14,600 people found new homes in a 440 ha redevelopment project. Apart from the obvious measures to reduce carbon dioxide emission (certified low energy buildings, gas-timber heating, car-sharing, bicycle lanes, reinforced public transport, community gardens) also social sustainability was sought through participatory democracy rules, mixed land uses, community building activities) and similar efforts. ➔ Tool URR 1

Eco-district “ZAC de Bonne”, Grenoble


Source:  http://www.dailymotion.com/video/xb6z8t_ecoquartier-de-la-zac-de-bonne-a-gr_news

Nancy. Plateau de Haye. 2014


TOOL: Stakeholder participation through social media and the Internet

Stakeholder participation is a mandatory practice in sustainable green politics and works best in communities small enough for everybody to know each other. Participation becomes a challenge when communities grow bigger up to the size of a city quarter or even a metropolis. A feasible practice is to involve social media and the Internet in order to reach such large numbers of stakeholders. ➔ Tool URR 3

38 http://www.dailymotion.com/video/xb6z8t_ecoquartier-de-la-zac-de-bonne-a-gr_news
39 http://eco-quartiers.fr/fr/espaces/etudes-de-cas/zac-de-bonne-1/ visited 02/06/2015
40 http://www.developpement-durable.gouv.fr/IMG/pdf/DP_EcoQuartier_-_partie_3.pdf visited 02/06/2015
**Case 6 Bristol, United Kingdom: European Green Capital 2015**

The city of Bristol in Southwest England, which is currently known to be the greenest city in the United Kingdom, has developed an innovative approach to sustainable urban development and citizen involvement. Some of its success relies on making use of the social media and interactive websites and involving residents and local companies in the city’s green development. For example, Bristol has organized *live lab conferences* via social media and interactive websites in conjunction with George Ferguson’s (Mayor of Bristol for Architecture) idea to make the city a “Laboratory for Change”. The conferences invited Bristol residents to participate actively in the city's development. A *You Tube Video* was produced where locals were stopped in the street and were thanked for their efforts with a song.

*Future Bristol* is one among many interactive websites, which will encourage people to get involved and to understand what it means to be a "low carbon city" resident. The site provides an opportunity to vote for or against potential projects in the city. This will give a picture of what solutions the people of Bristol would like to see in the future.

**Bristol’s Green City initiatives are integrating the stakeholders vita the internet**

![Future Bristol](source: www.BristolGreenCapital.org)

During Bristol's BIG Green Week car traffic is completely blocked from the city centre. Bristol Green Doors is an event, in which everyone interested is invited to visit private homes, which were built in accordance with environmental standards or which contain green and sustainable solutions.

In addition, Bristol is well advanced in terms of reducing air and sound pollution, energy planning, waste separation and a green transport network, which includes CO₂-free hydrogen boats. 

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42 [https://www.bristol2015.co.uk/](https://www.bristol2015.co.uk/) viewed 30/05/2015


44 [https://www.at-bristol.org.uk/livelabforschools.html](https://www.at-bristol.org.uk/livelabforschools.html) visited 22/08/2015


46 [https://www.youtube.com/watch?v=wa7oCBnTYS0](https://www.youtube.com/watch?v=wa7oCBnTYS0) viewed 30/05/2015

47 [http://www.futurebristol.co.uk/](http://www.futurebristol.co.uk/) visited 16/07/2015


49 [http://www.bristolgreendoors.org/](http://www.bristolgreendoors.org/) seen 30/05/2015
4.2.1.2 Objective: Energy – Recycling

Since energy recycling is one of three basic principles of energy saving (avoiding, recycling, clean production), many different variations of applications exist and one or another tool is incorporated in most case studies.  

**APPRAOCH: Reuse of embodied energy**

Within the scope and duration of an urban renewal process the embodied energy of any existing constructions is best recovered by adapting, modernizing or transforming the same rather than demolishing and replacing them.

After completion of the renewal works and during the subsequent utilization period recycling of embodied energy requires the (previous or/and posterior) separation and controlled removal of household and other waste – which at least requires adequate storage and transportation facilities. In Europe this process is standard practice in most municipalities and large variety of technologies are in use.

**APPRAOCH: Heat exchangers**

Where the regional climate requires heating or cooling of indoor living space, much energy is lost during the necessary exchange of used air for fresh air. However, direct exchange of heat (or cold) between two air streams is relative simple by use of heat exchangers in which both air streams are separated through a membrane over a larger area. Commercial heat exchangers can recover 70% of the heat normally lost through necessary room ventilation. The same principle can also be applied for warm water but only makes sense where larger quantities of hot water are being consumed – like saunas, swimming pools, canteen kitchens etc.

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**APPROACH: Capturing biogas of organic waste**

Biogas is produced in fermentation of organic material. It contains methane, a potent greenhouse gas with a warming effect that is 21 times greater than that produced by carbon dioxide.\(^{51}\) When biogas is burnt it still releases CO\(_2\), but with much less impact on global warming which can even be neutralized in production of new organic matter. Therefore it is a good idea to capture and use the biogas which is generated in the context of urban greening and organic waste collection – for example in a local heat-energy plant within an urban eco-block as part of an urban or brown field renewal project. \(\rightarrow\) **Tool URR 1**

**4.2.1.3 Objective: Clean and renewable energy**

Quantitative reduction of energy consumption is a virtue in the context of oil-based economies, but energy in itself is not a bad thing. After all, life is energy and nothing else. And in fact, the term ‘renewable energy’ is misleading since even crude oil is renewable – but the cycle length takes several million years and we have to deal with the short term effects of over consumption, to which our ecosystem, and even less our human organisms, may be unable to adapt. Therefore, to enable mankind to survive, we must take care and stop or even better: reverse the phenomenon of climate change. Stopping CO\(_2\) emissions is the most significant single measure to achieve this aim. \(\rightarrow\) **Tool URR 1**

**APPROACH: Autonomous energy supply**

Electric power is highly versatile but suffers from the high-energy losses connected to generation technology and to the resistance of transmission cables and transformers. Many factors are involved but as a general figure we can assume that less than 30% of the originally inserted energy reaches the consumer.\(^{52}\) Therefore it makes a lot of sense to decentralize power production and furthermore to capture the unavoidable electricity energy losses in the form of heat (a conventional light bulb only transforms 1% into light but 99% into heat!). Decentralized energy production also has the charm that it can be mostly powered through renewable energy sources such as photovoltaic cells, wind power generators, small hydroelectric generators and, last but not least, conventional water solar collectors.

Many urban renewal and revitalization projects in Europe include local energy production whether on the house/dwelling unit or on a district level. \(\rightarrow\) **Tool URR 1**

**Case 7 Graz, Austria: Graz public-private partnership programme ECOPROFIT, 1990**

The city of Graz with about 250,000 inhabitants is situated in a basin shape topography. At the same time Graz is an important industrial area. The combination of these two conditions, associated with inversion weather, used to cause heavy smog especially in winter. Smog is partly caused by excessive burning of non-renewable energy and therefore, in 1989, the municipality decided that it was time for a change and started an initiative to ‘purify’ industrial energy use within the city. A public - private partnership programme was born and given the name ECOPROFIT. The objectives of the program was to reduce emissions and increase

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\(^{52}\) [https://electricalnotes.wordpress.com/2013/07/01/total-losses-in-power-distribution-transmission-lines-part-1/](https://electricalnotes.wordpress.com/2013/07/01/total-losses-in-power-distribution-transmission-lines-part-1/) Visited 15/07/2015
resource efficiency through measures inside the companies - allowing cost savings in the production line as well as achieving the Kyoto environmental targets.\(^{53}\)

Since both, smog and high-energy consumption directly relate to efficiency of production processes, the municipality’s central strategy was to convince the private sector companies to invest in cleaner energies and in energy savings. In fact, the Graz experience shows that 50% of those investments have amortized in less than 2 years!

The extraordinary success of the ECO PROFIT program already convinced more than 60 cities to adopt the program for their own purposes – involving more than 1000 companies.

\(\rightarrow\) Tool URR 1

### The UNU Zero Emission Approach in the ECO PROFIT program

**Source:**
[http://www.tf.uns.ac.rs/tempusIV/documents/presentations/04/GE-10-2010-04_Retraining_Industrial_%20MFM.pdf](http://www.tf.uns.ac.rs/tempusIV/documents/presentations/04/GE-10-2010-04_Retraining_Industrial_%20MFM.pdf), visited 16/07/2015

### Local Streetcar is advertising the ECOPROFIT private sector partners

**Source:**
[https://www.google.com/search?newwindow=1&biw=1067&bih=539&site=imghp&tbm=isch&sa=1&q=%C3%B6koprofit+graz&oq=%C3%B6koprofit+graz&gs_iimg.12...2524.3058.0.6201.2.0.0.0.103.198.1t1.2.0...0...1c.1.64.img._2.0.0.xcJ7zFpFlJ0#imgrc=iOVpIHNYsIX8M%3A](https://www.google.com/search?newwindow=1&biw=1067&bih=539&site=imghp&tbm=isch&sa=1&q=%C3%B6koprofit+graz&oq=%C3%B6koprofit+graz&gs_iimg.12...2524.3058.0.6201.2.0.0.0.103.198.1t1.2.0...0...1c.1.64.img._2.0.0.xcJ7zFpFlJ0#imgrc=iOVpIHNYsIX8M%3A)

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\(^{53}\) [http://ec.europa.eu/clima/policies/g-gas/kyoto/index_en.htm](http://ec.europa.eu/clima/policies/g-gas/kyoto/index_en.htm) seen 15/07/2015
As a kind of follow-up initiative to the ECO PROFIT project of the 1990, Graz has recently started an urban renewal project on the quarter level surrounding the railway station. By 2016, it is intended to almost reach the energetic self-sufficiency basically by use of photovoltaic’s and geo thermal energy plus other ‘smart’ green technologies. A landmark will be 40-meter high chimney with in-built wind generators.  

**Case 8 Graz, Austria: Smart City Project, 2016**

![Graz Science Tower with in-built chimney](http://www.graz.at/cms/beitrag/10230840/1618648/)

**Source:** Graz municipality.

![Graz Science Tower with in-built chimney](http://www.skyscrapercity.com/showthread.php?t=1504686)

**Source:**


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**APPROACH: Modular energy saving kits for house refurbishment**

In mass housing schemes most units tend to have the same construction and typology and were built to low or medium standards. When it comes to urban renewal and revalorization the energy standards invariably have to be improved. By definition mass housing refers to a large number of units involved and therefore cost savings can be achieved through standardization and mass production of solutions which not only cater for insulation demand but also for the capture of natural energies.

**Case 9 Albertslund, Denmark: Upgrading of the Residential Quarter 2011-12**

In the city of Albertslund, close to Copenhagen, a residential quarter of 2200 dwellings built between 1960 and 1980 needed to be upgraded to modern energy standards with the aim of achieving 73% energy savings. Apart from standard solutions involving passive wall and roof insulation, active solar gain shall be added by means of also prefabricated ‘Solar Prisms’ to be placed on the roofs. These elements will contain solar water collectors, electro-voltaic cells, heat pumps, heat exchangers and roof lights.

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55 http://www.stadtentwicklung.graz.at/cms/beitrag/10191841/4631044/ viewed 24/05/2015

56 http://www.smartcitygraz.at/ seen 22/07/2015


58 http://www.nordicenergymunicipality.org/ seen 02/06/2015

Typology of prefabricated houses to be refurbished

The solar prism energy generation unit

Source: Albertslund Municipality

Source: Albertslund municipality

APPROACH: District heating: Integrated heat-and-energy management

Individual house- or dwelling-based heating/cooling systems are less efficient than larger collective heat generation installations, also known as ‘co-generation’ of heat and power. The larger ones not only have lower investment cost per unit of energy but can also shift from one energy source (solar, natural or biogas, timber pellets etc.) to another dependent on cost and availability. They also have less consumption peaks and interruptions. Like in the case of autonomous energy supply described above they can make best use of waste heat invariably generated in the production process of electricity. ➔ Tool URR 1

Case 10 Hamburg, Germany: HafenCity district heating

In the huge renewal project of the former Hamburg harbour area; all buildings are connected to a district co-generation plant located within their reach, powered by solar-, geo-power and bio-gas in combination with heat storage facilities. This way, the CO₂ emission can be reduced from the typical 240g/kWh to only 175g/kWh. ➔ Tool URR 1

Hamburg HafenCity 10 Megawatt district heating plant

Photo: Kosta Mathéy
4.2.1.4 Objective: Land recycling, brown field redevelopment

In a throw-away culture it seems normal to replace a torn product with a new one. This is fine where the resources are seemingly unlimited and affordable. Land, however, is a limited resource and is almost impossible to replace; or is even less capable of being moved from one place to another. This is a particularly painful experience in highly urbanized areas which all run out of land reserves. As it is the case with other resources, recycling is the second obvious solution to the problem after the first – acquisition of fresh land – has become almost impossible. The classical model of land recycling was dispossession of land reserves occupied by poor and powerless citizens, which is not only a humanitarian crime and even illegal in many places. A more practical answer would be to recycle unused and or abandoned land – like industrial plants or military camps.

**APPROACH: Concentration of smart solutions enterprises**

Typical brown fields tend to be either defunct industrial sites or land formerly used by the military. A hazard can be soil pollution but the same may have developed a stable eco system with larger variety of species than elsewhere because no recent ‘cultivation’ history. Also now central location within the city may count on the positive side when considering renewal of brown fields offer attractive opportunities.

**Case 11 Berlin, Germany: EUREF-Campus, 2013**

The EUREF venture is one of the most remarkable and successful Brownfield renewal projects in Europe. It is located on the former City energy service field where the listed former gas tank with a height of 78 meters still remains and functions as a landmark or Icon of the new campus. The area covers 5.5 hectares and will eventually house more than 5000 workers in all kind of research and science companies engaging in energy, sustainability, environmental protection and mobility – some of them subsidiaries of big companies such as Cisco. Also a dependency of Berlin Technical University is present and runs three M.Sc. programs on site. The campus is planned as a living experiment for CO$_2$ free ‘intelligent’ or ‘smart’ cities. Already today in 2015, between 80 and 90 of all energy used on the campus are produced on-site and fed by sun, wind, biogas and geo-heat. Especially interesting is the Micro Smart Grid project which is connected to high capacity electrical battery and all energy users on the campus – including a fleet of e-cars.

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60 [http://www.businesslocationcenter.de/euref](http://www.businesslocationcenter.de/euref), seen 16/07/2015;
61 [https://www.youtube.com/watch?v=8i78cPev1BQ](https://www.youtube.com/watch?v=8i78cPev1BQ), seen 16/07/2015;
[https://www.youtube.com/watch?v=ilJ_a3Y8Kho](https://www.youtube.com/watch?v=ilJ_a3Y8Kho), seen 16/07/2015;
4.2.1.5 Objective: Land reclamation

Coastal cities often can enjoy the privileged location on the waterfront but this location also cuts the land reserve for expansion by half. Through land reclamation on shallow water extra and usually centrally located terrain can be created for urban development and provide resettlement reserves for historic and centrally located urban renewal programs. The term ‘land reclamation’ is sometimes also used for brown field development; redevelopment of harbour areas combines both interpretations. ➔ Tool URR 1

**APPROACH: Creation of external overspill areas to accommodate greenery and/or housing as part of urban renewal programs**

Land reclamation usually implies filling up the ground on shallow water with rocks or even sand – whatever is available and affordable. Obviously construction on this kind of land is more expensive than on solid land and usually requires pile foundation which can go rather deep. ➔ Tool URR 1

**Case 12 Venice, Italy: San Giuliano Park** 62,63

San Giuliano reclamation area is a large urban park south of Maestre, overlooking the lagoon in front of Venice. The San Giuliano Park have been created in the first decade of this century. With seven hundred hectares of greenery in front of Venice, the San Giuliano Park is the largest park in Europe and a recovered environment, cleaned up and used for the study of the lagoon’s environment. Since there is a lack of green space in Venice, this area is to compensate for this deficit and is mainly used sports, recreational and cultural activities. ➔ Tool URR 1

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63 http://www.veneziasi.it/content/view/?id=452&lang=en visited 22/08/2015
4.2.2 Strategy: Environmental Sustainability through Climate Change Adaptation

Contrary to Climate change mitigation, which attempts to reduce greenhouse gas emissions, Adaptation Strategies also aim at reducing the vulnerability of cities against the negative effects of climate change. →Tool URR 1

4.2.2.1 Objective: Micro climate / Heat island reduction

‘Urban areas generally have a lower humidity level than the surrounding countryside due to much absence of vegetation and the increased absorption of energy from the sun caused by dark asphalted or concrete surfaces. This also explains why inner city areas are often many degrees warmer than their surroundings. This phenomenon, known as the urban heat island effect, can have serious consequences for vulnerable people, such as those who are chronically ill or the elderly, particularly during heat waves. The moist air generated by natural vegetation helps to counter this phenomenon. Humidity levels can also be artificially increased using electricity to evaporate water, but this would cost significantly more than using natural vegetation (around €500,000 per hectare). Working with nature and using Green infrastructure in an urban environment, for example by incorporating biodiversity-rich parks, green spaces, green roofs and walls and fresh air corridors, is generally a much cheaper and more versatile option to help mitigate the urban heat island effect. It can also help to absorb CO₂ emissions, improve air quality, reduce rainfall runoff and increase energy efficiency’. →Tool URR 1

http://www.gardening.cornell.edu/weather/microcl.html seen 22/08/2015
http://www.metoffice.gov.uk/media/pdf/n/9/Fact_sheet_No._14.pdf seen 22/08/2015
**APPROACH: Greening of streets, backyards and roofs**

Urban greenery through evaporation can cool down ambient temperature. Secondly, by filtering the air fine dust particles can be retained, which are a major cause of smog, which caused by ‘heavy’ air building a sort of lid over the city and hinders natural thermal air circulation. Thirdly, psychologically the visual impact but also the movements of the leaves of plants give the impression of flowing air which the mind associates with a cooler environment.

**Case 13 Frankfurt, Germany: Frankfurt green belt**

The GreenBelt is Frankfurt's “green lung” extending over 8,000 hectares cover around one-third of the surface area of the city and extending along some 70 km around it. It reveals the wide range of local landscapes and its orchard meadows, natural conservation areas, streams, farmland, parks, gardens, sports and leisure areas are a microcosm of the different landscapes in the Rhine-Main Region.

Although having existed as a concept for long time before, only in 1991 it was decided to develop the area as a municipal green space and to place it under permanent protection. The medium-term goals are to give the Green Belt improved access and better connections to inner city green spaces and open areas as well as to the recreation areas in the region. Already some green corridors have been driven into the inner city to facilitate air exchange and provide coherent corridors for the fauna.

**Frankfurt Green Belt plan, 2006**


**Frankfurt green corridor plan to complement the existing greenbelt**

Source: [https://www.eopinio.de/beteiligung/stadt/36/karte/14/seite/141](https://www.eopinio.de/beteiligung/stadt/36/karte/14/seite/141)

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70 [http://www.scp-knowledge.eu/sites/default/files/R%C3%B8m%C3%B8%202012%20Green%20roofs%20worldwide_0.pdf](http://www.scp-knowledge.eu/sites/default/files/R%C3%B8m%C3%B8%202012%20Green%20roofs%20worldwide_0.pdf) seen 21/07/2015

4.2.2.2 Objective: Flood protection

Due to rising sea level or flooding of river basins many cities suffer from flooding every couple of years, whereby the frequency of those events tend to become closer due to climate change or deforestation (river basins). ➔Tool URR 1

APPROACH: Sustainable Urban Drainage System (SUDS):

In the case of very heavy rains, which tend to occur more frequently now due to climate change, urban sewage system – especially in cities which don’t operate a separate sewage and rain water drainage evacuation - are not capable of absorbing the masses of rain water and the resulting flooding causes not only material damage but also presents a health hazard after spilling of sewage into the floods. Comprehensive sewage systems aim at retaining rain water in open basins, for example football fields located slightly below street level, for a couple of hours. Other cities located on more permeable ground, now oblige owners of houses to provide for penetration of all rain water into the subsoil of the plot and do not tolerate rainwater to be led into the collective sewage system at all. ➔Tool URR 1

Case 14 Wolverhampton, United Kingdom: Bilston Urban Village72 73

Bilston Village is a good example for comprehensive Climate Change adaptation but stands out for the rain water retention aspect of it. The city is located in the West Midlands of the UK, close to Wolverhampton for which is serves as a residential overflow reserve for urban renewal. It occupies a 41 hectare site which is highly susceptible to flooding. In addition, 34 hectares consist of impermeable surfaces which make the land more vulnerable to surface water flooding. Several severe floods in the past led to high consideration of sustainable drainage features and attention to the contouring of the land. The specific Climate Change adaptation responses74 to climate change include, among others, the following,

- Modification of pavement material designs to increase resistance to summer temperatures and by warmer winters. This required specific means to avoid cracking of concrete as a result of an increase in thermal expansion for concrete roads in summer.
- In order to deal with expected increase in rainfall intensity, additional flow paths for excess run off where installed and consideration was given to the levels of verges and surrounding topography.
- Drainage strategies where put into place to tackle possible weakening of the soil due to potential ground movements and change in soil moisture.
- Sustainable Urban Drainage Systems (SUDS) were implemented to potentially reduce inflow to retention ponds and allow control flooding in other areas.
- The landscaping strategy implemented trees and plants selected for tolerance to anticipated changes in conditions. The landscape was also utilised in close relation to its built element during the construction phase.
- Future increase in demand for water supply was considered in the water features.

 ➔Tool URR 1

72 http://www.bilstonurbanvillage.co.uk/ visited22/08/2015
73 http://www.slideshare.net/chikoNcube/climate-change-adaptation-in-urban-regeneration-projects , P. 47
74 http://www.dudley.gov.uk/easysiteweb/getresource.axd?assetid=13080&type=full&servicetype=a... visited22/08/2015
Proposed comprehensive drainage strategy

Source: Wolverhampton City Council, 2010

**APPROACH: Waterproof ground floors and pedestrian access above street level.**

Dykes around the city were a traditional remedy against flood damage, but they are not always feasible or would separate the city from the waterfront. Steel shutters are a feasible alternative and additionally provide physical protection against break-ins and damage in connection with violent mass manifestations.  

**Case 15 Hamburg, Germany: HafenCity redevelopment**

The new HafenCity brown field mixed use redevelopment covers the former harbour site and extends the downtown area by about 50% connecting it to the river Elbe. Occasional high tides of the North Sea also reach Hamburg and then drown parts part of the city. For this eventuality the ground floor openings of the new adjacent buildings can be shut and protected by steel shutters. Additionally, car traffic and pedestrian movement have been separated by adding a pedestrian circulation system above street level.

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75 [http://www.hamburg.de/stadtplanung/projekte/hafencity/](http://www.hamburg.de/stadtplanung/projekte/hafencity/) visited 27/05/2015

Historical Hamburg Harbour - recently added to the acknowledged the World Heritage List by UNESCO. Note the high basement for flood protection.

Photo: Kosta Mathéy

A recently redeveloped part of Hamburg Hafen City, introducing a wide pedestrian promenade with coffee shops on the ground that can be closed by waterproof doors and shutters in case of high floods.

Photo: Kosta Mathéy

**APPROACH: Floating homes.**

“Special planning for floating apartments is one way to adapt to the effects of rising sea levels and increasing rainfall due to climate change. According to experts from the Dutch government's Delta Commission, the sea level will rise in the country by 1.3 meters (4.3 feet) in the next century, and up to 4 meters (13 feet) over the next 200 years. One-third of the Netherlands is situated either at sea level, or below it”.

‘There are two types of floating homes, permanently floating homes and homes that float only when flood waters swell, but sit on the ground during the dry season. Requiring floatability for new construction within floodplains, and considering same for threatened shorelines, is one way to plan for the future. Although floating homes near the coast need protected waters, like wave attenuation through wave walls and dykes (as used in Europe) they represent a future urbanization possibility’.

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Case 16 Amsterdam, The Netherlands: Ilborg and Steigereiland floating housing.
2009

The idea for Amsterdam’s floating city was born during a land shortage. However, Amsterdam carries a long tradition of houseboat living—about 2,300 converted barges float along the capital’s canals—and reimagine it as a contemporary community.

Whilst planning IJburg dates from 2009 onwards, the urban expansion project to the east of Amsterdam, Steigereiland (‘jetty island’) was designated as experimental area. IJburg lies on man-made islands in the IJmeer, without the ring-dike that is common in conventional reclamation practices. At Steigereiland, the base of the building is filled with cement and heavy-duty foam. Rings attached to sunken posts make sure the house stays up. They also allow the structure to move up and down, depending on water level. As a result, the water is present all around, giving the district its unique and distinct character as city archipelago.

4.2.2.3 Objective: Drought precaution

Climate change not only brings too much water to certain regions, but takes it away from others which were used to receive sufficient quantities in the past. We know from history that complete cities were abandoned when the water supply ceased. Given size of modern cities, and the vanishing of land reserves on habitable land, the solution of just moving a city is not feasible any more.

APPROACH: Rainwater harvesting and Green Roofs

 Ancient cities in dry regions were used to collect rainwater and store it in cisterns for the months with little rainfall. Of course, it is not very easy to store the water needs for an entire
season in a cistern, but since most of the collected water is not meant for drinking anyway but mostly for watering gardens, storage can also happen in the subsoil and pumped from there again. ➔Tool URR 1

<table>
<thead>
<tr>
<th>Different types of Green Roofs</th>
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<tr>
<td><strong>Type of green roofs</strong></td>
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<tr>
<td>Use</td>
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<td>Type of vegetation</td>
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<td>Watering</td>
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<tr>
<td>Depth of substrate</td>
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<td>Weight</td>
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<td>Costs</td>
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</table>

The choice of plants, thickness, weight, and maintenance are connected. Source: Copenhagen Adaptation and resilient infrastructure

Case 17 Copenhagen, Denmark: Copenhagen Green Roofs Program, 2010

Already in 2008 the City of Copenhagen began exploring alternative ways to handle rainwater in the city. In 2009, Denmark was in charge of the UN Climate Change Conference COP15 which defined the framework for the strategies that can be implemented for meeting the challenges of climate change. During that period, the focus on green roofs intensified setting a goal for urban design with green roofs in the Climate Plan of the City of Copenhagen. Since then Green Roofs have become integrated in different guidelines such as the Guidelines for Sustainability in Constructions and Civil works, which mandates green roofs for all the Municipalities buildings. Green roofs are also a part of the city’s Strategy for Biodiversity. Already from 2010 onwards, green roofs are mandated in most new local plans. A calculation based on approved new local plans mandating green roofs gives a total of 200,000 m² of green roofs to be installed. ➔Tool URR 1

In Europe, green roofs can absorb between 50% and 80 % of the annual rainfall. Some of the water evaporates and cools the air in that way. Rainwater from the roof will be collected and utilised on the property for watering, recreational purposes or similar, while rainwater from certain areas is redirected to flush the sewage system given that it is badly polluted.

84 [https://vimeo.com/69160394/](https://vimeo.com/69160394/) seen 02/06/2015
85 [http://www.klimatilpasning.dk/media/631048/green_roofs_copenhagen.pdf](http://www.klimatilpasning.dk/media/631048/green_roofs_copenhagen.pdf) seen 21/07/2015
86 [http://video.denmark.dk/video/2316953/green-rooftops](http://video.denmark.dk/video/2316953/green-rooftops) seen
Green roofs also support biodiversity. They lead to larger quantities of rainwater being absorbed in a sustainable way and can curb the rise in temperature at the same time. Green roofs are therefore part of the City of Copenhagen’s Climate Plan and Climate Adaptation Plan. Green roofs also create habitats for animals and plants and in this way support biodiversity. For these reasons, they have become integrated in the City of Copenhagen’s Strategy for Biodiversity. 

### Green Roof in Copenhagen, Denmark


### First Climate Adjusted Neighbourhood in Copenhagen


#### 4.2.2.4 Objective: Integrated flood prevention and erosion control

The previous example which focuses on the improvement of the microclimate where water resource conservation will improve the comfort levels in cities but is not enough to prevent and handle serious disaster scenarios. This requires a combination of many different measures together with a tested emergency plan. An example of such integrated and cooperative strategy can exist of different elements such as:

- **a)** Roadways redesigned for water management
- **b)** Shift away from ‘grey’ towards ‘blue and green’ infrastructure
- **c)** Responsibility of private property owners

**APPROACH: Integrated disaster prevention planning**

Where rainwater harvesting or retention or infiltration technologies are applied individually, disaster prevention requires a concertized intervention plan for the worst-case scenario. This means that efforts to reduce the impact of climate change are not enough but a possibly necessary rescue plan must be elaborated in parallel.
Case 18 Copenhagen, Denmark: Copenhagen Climate Adaptation Plan 2011

Copenhagen is taking the lead in combining green roofs, rainwater drainage and flood control with other key plans for green, sustainable, social and economic development. The principle strategies can be summarized in three points:

- Minimizing potential damage arising from climate change.
- Warning and response systems to deal with abnormal conditions.
- Preventive infrastructure to cope with damage, loss and traffic disruption

For example: In heavy rains the green roof delays the water on its way to the sewers and thus reduces the hazard of flooding at the peak of a rainfall. For this reason, green roofs form part of the Climate Plan and the Climate Adaptation Plan of the City of Copenhagen.

The Copenhagen Climate Adaptation Plan recognises the need to combine and reinforce the ‘green’ and ‘blue’ infrastructure in order to manage and retain storm water flows. This leads to more surface conveyance and retention of water in the future, and less reliance on subsurface systems. Challenges remain in respect to governance, management and financing issues in terms of Public-Private Partnership.

- Roadway design plays an important role because roads are the principal corridors through which the population at risk can be evacuated and over which assistance can be brought in.
- Utility companies are publicly owned but operate as corporations in Denmark and investments are normally captured through charges paid by ratepayers. Planning regulations already favour a shift away from ‘grey’ towards ‘blue and green’ infrastructure, but as a new tool require constant monitoring and adjustment.
- Lastly, private property owners need to accept the responsibility for providing adequate installations on their individual plot, such as backflow valves and storm water resilient roof or ground vegetation.

Taken together, the Climate Adaptation Plan sets the framework for Danish designers, architects and engineers cooperating in designing solutions for a climate resilient metropolis of the 21st century. The Danish capital Copenhagen received INDEX: Award 2013 for the city’s climate adaptation plan, a plan that provides a unique and robust framework for a massive influx of sustainable design solutions in the future. 

4.2.3 Strategy: Environmental sustainability

Climate change is only one factor which has an influence on the environment and on the material and on the spiritual base of our well-being. Ecological diversity and air quality also impacts on mankind future living chances and conditions. When a food chain is broken, the consequences can be much bigger than removing a single link in the chain. If we use up certain mineral resources they will be missing for our grandchildren.

4.2.3.1 Objective: Combating resource depletion

Measured by the relatively short period that mankind has conquered our planet, the speed in which we use up the earth’s ‘non-renewable’ resources is irresponsible, nor economically sensitive. Most of resource depletion is linked to the urban economy and development. This is why stopping this process, in general, has to begin in the cities first. Tool URR 1

APPROACH: Municipally led waste and resource management

Priorities in resource preservation go from avoidance to recycling and only in the last consequence to safe disposal. In fact, the most active municipalities in fighting Climate Change include some waste directed modules in their strategy. Tool URR 1
Case 19 Malmö, Sweden: Environmental Programme 2009 – 2020

Malmö is working towards becoming a leading Eco City and plans to achieve 100% use of renewable energy by 2010. Apart from other remarkable city-wide initiatives, some more neglected areas have been selected for area-based urban renewal initiatives, like one of the city’s Priority Urban Development areas called Ekostaden Augustenborg (dating from 1948) with some 3000 inhabitants and a number of industries. The applied measures combine energy saving campaigns, social and infrastructure assistance. The garbage issue was only a minor component but nevertheless was able to achieve a 70% reduction in waste that had to be removed from the area. In another Priority development Area, Bo1-City of Tomorrow, organic waste and municipal wastewater is used for the production of Biogas which satisfies 3% of all municipal heat supply. 

Energy production from bio waste in Malmö


4.2.3.2 Objective: Preserving Biodiversity

Every day species’ extinctions are ascending up to 1,000 times or more of the natural rate. 18,788 species out of 52,017 so far assessed are threatened with extinction – and most of them directly or directly due to anthropogenic disturbance in the world ecological balance. Paradoxically, sometimes there still is a larger variety of species inside cities than in the

89 [http://www.movium.slu.se/sites/default/files/course/9904/files/documentation/peter_orn_nr_2.pdf](http://www.movium.slu.se/sites/default/files/course/9904/files/documentation/peter_orn_nr_2.pdf) viewed 22/05/2015
91 [https://www.iucn.org/iyb/about/biodiversity_crisis](https://www.iucn.org/iyb/about/biodiversity_crisis/) seen 7/22/2015
countryside where monoculture and heavy use of pesticides still dominate. But even so, urbanization is not a safeguard against biodiversity loss, since farm products are mostly consumed in cities and pesticides are produced there too. Nevertheless, consciousness building as well as practical support to conservation can start from the cities.  

**APPROACH: Community gardens and diversity of species**

The promotion of school and community gardens follows an education effort in the first place, community building in the second and food production last. Usually there is some social staff taking care of attendance, and collective activities stand in the centre.  

**Case 20 Brussels, Belgium: L’îlot Fontaines**

As part of the city wide quarter renewal program several 'lighthouse projects' have been realized right at the beginning of the initiative, one of which is the settlement *Jardin des Fleurs at Ilot Fontainois*. It stands for sustainable urbanization but goes a step further and foresees a public park specifically designed to preserve local species of flora and fauna. Locally indigenous trees and other plants are being planted with the idea that they will also attract the native fauna.  

**APPRAOCH: Urban Forestry**

Forests usually provoke the association with wilderness and incompatible with urban civilisation. Nevertheless for many urbanites, hiking through the forest ranks among the most exciting Sunday afternoon occupations. For some 20 years there already exists an initiative to complement the urban gardening movement by advocating the alternative of urban forestry – even some M.Sc. programs on the topic have opened recently in European Universities. It must be remembered though that urban forest already existed centuries ago when they were attached to Baroque Palaces (Versailles in France, Tiergarten in Berlin Germany) and functioned as hunting grounds for the nobles while not being open to the public. Only with the French revolution this exclusiveness changed: the Paris Bois de Boulogne was arranged for

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public use of citizens and in Northern Europe (Skandinavia, Netherlands, Britain) they used to be commons. 

Case 21 Leipzig, Germany: Urban Forestry

After German reunification, the former socialist part of the country was quickly depopulated because of the better income opportunities in the West. The second biggest Eastern German city, Leipzig, lost more than a third of its former population and many houses fell into decay and had to be demolished. A new land use was to be found for the empty sites and for that reason the interest for urban forestry started there in the 1990s. One argumentation in favour of urban forestry were significantly less maintenance costs compared to conventional urban green areas. The proposal was to generally introduce urban forestry as a new and additional the land use category in Germany. Initially three urban plots were to be prepared for urban forestry and the feedback from the users collected and evaluated.

Leipzig: selected wood typologies suitable for urban forestry

Source: [http://www.mil.brandenburg.de](http://www.mil.brandenburg.de)
Case 22 Halle, Germany: Forest City Halle Silberhöhe

Halle is an industrial city in Eastern Germany. For the industry workers a huge mass housing district was built for some 40,000 inhabitants. After reunification the local industries closed down and the population declined to less than half. Part of the depopulated housing blocks were pulled down and the recovered space was transformed into a forest with many different kind of trees, following the new concept of a ‘forest city’. In fact, for each remaining resident two new trees were planted.

| Partial demolition of mass housing in Halle Silberhöhe after reunification | Vision of future Forest City Siberhöhe |
| Source: [Image](https://www.google.com/search?newwindow=1&biw=1024&bih=698&site=imghp&tbm=isch&q=waldstadt+silberh%F6he+abriss&oq=waldstadt+silberh%F6he+abriss#imgrc=DP9L8_tZY_PepM%3A) | Source: [Image](http://cad.burg-halle.de/typo3temp/pics/90a9f40be3.jpg) |

4.2.3.3 Objective: Healthy cities – healthy living

Flora and fauna are not the only endangered species, but also mankind. Back in the 1970s and 1980s there was a growing criticism against living in buildings which had been conceived as a machine by its architects, and some (mostly underground) architects in Berkley (US) and Germany promoted Biological Building instead. They avoided cancer genic and other dangerous chemical substances as components in building materials, concentrations of electromagnetic fields. Most buildings were either individual houses or settlements at the fringe of the city, but some coherent urban renewal programs also adopted biological building principles, like in Germany the International Building Exhibition (IBA) in its urban renewal site. The WHO (World Health Organization) also took up the issue and discussed it in the context of the Healthy Home.

More recent projects – mostly in overspill areas and not in the city centres, combine certain ecological building principles with other sustainable settlement features, like car sharing.

98 [https://de.wikipedia.org/wiki/Halle-Silberh%C3%B6he](https://de.wikipedia.org/wiki/Halle-Silberh%C3%B6he), viewed 7/24/2015
99 [http://www.diercke.de/content/halle-silberh%C3%B6he-umbau-zurwaldstadt-978-3-14-100700-8-39-4-0](http://www.diercke.de/content/halle-silberh%C3%B6he-umbau-zurwaldstadt-978-3-14-100700-8-39-4-0), viewed 7/24/2015
100 [http://f-iba.de/](http://f-iba.de/)
arrangements or energy self-sufficiency. Famous examples include the French Quarter in German Tübingen\(^\text{102}\) or Freiburg-Vauban.\(^\text{103}\)

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<thead>
<tr>
<th>Ecological Settlement in Darmstadt-Kranischstein, Germany</th>
<th>Ecological settlement Vauban in Freiburg, Germany</th>
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<td>![Image](source: Kosta Mathéy)</td>
<td>![Image](Photo: Florian Steinberg)</td>
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**APPROACH: Provision of space for urban agriculture**

Over the last 30 years there has been a revival of urban farming practices – though less for the pure material need to supplement personal food supply (as it was in the post war period of WWI and II), but rather in the intention to improve living standards through close contact to nature and possibly also consuming healthier food. ➔ Tool URR 1

**Case 23 Brussels, Belgium: Les potagers de Canal-Midi \(^\text{104}\)**

As part of the city wide quarter renewal program several ‘lighthouse projects’ have been realized right at the beginning of the initiative, one of which is the ‘sustainable quarter’ Canal Midi at Anderlecht which cannot be perceived without the availability of sustainable food supply and nutrition. Therefore an area of 3500 m\(^2\) was converted into productive gardens for the residents of large housing estates, and an organic food restaurant was also added to stimulate residents to reflect their eating habits. ➔ Tool URR 1

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<thead>
<tr>
<th>Les potagers de Canal-Midi</th>
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\(^{102}\) [http://www.geolinde.musin.de/stadt/stadt/franzviertel/](http://www.geolinde.musin.de/stadt/stadt/franzviertel/) seen 7/23/2015

\(^{103}\) [http://www.freiburg.de/pb_/Lde/208732.html](http://www.freiburg.de/pb_/Lde/208732.html) seen 7/23/2015

\(^{104}\) [http://vertdiris.net/contrat-de-quartier-durable-canal-midi/](http://vertdiris.net/contrat-de-quartier-durable-canal-midi/) seen 7/23/2015
Case 24 Copenhagen, Denmark: Organic food promotion

City of Copenhagen set an initial goal of procuring at least 75 percent organic food in 2012. This target was met and it now aims to procure 90 percent organic food by 2015. This organic purchasing objective is seen as an important source of creating food literacy among children and young people, and for promoting healthier eating amongst the population in general. Increasing the demand for organic food is also viewed as a tool in maintaining groundwater quality in areas adjoining Copenhagen, as the organic goal is coupled with initiatives to source locally. ➔Tool URR 1

Case 25 Vienna, Austria: ‘Sargfabrik’ Urban Renewal Project 105

Sargfabrik is a residential complex for 120 people, located on a former coffin manufacture built in 1895. It is one of the pioneer projects in creating apartments on former factory sites. In Sargfabrik environmental aspects are strongly taken into account. Applied concepts are: optimized energy consumption (energy-saving technology, good insulation), composting, solar water heating, heating for the pool is secured by PV panels, large windows allow maximum use of sunlight. Parking spaces are reduced to minimum.

In the inner courtyard and a rooftop garden fruits and vegetables are grown by residents. Benefits of a green roof are reductions in energy consumption and carbon emission, reduced risk of flooding (due to absorption by the substrate and plants), improved local climate, pleasant and healthy environment, reduced traffic for transportation of goods, reduction in the transportation of the food (since part of food grown directly on the site), use of local compost, high degree of self-sufficiency, more control over the products, maintenance of biodiversity and the natural environment, as well as reduction of visual pollution caused by the light and provision of recreational activities on the location. An integrated irrigation system and rainwater collection were not provided since that technology was not available at the time of the construction. ➔Tool URR 1

Sargfabrik in Vienna with urban gardening on rooftop and inner courtyards


Sargfabrik settlement by bkk-2 Architektur

Photo: Müry Salzmann Verlag

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4.2.3.4 Objective: Clean and fair building materials

Ecological construction defines certain standards, such as the absence of poisonous ingredients and complying with basic workers' rights including healthy working conditions. With accelerating globalization it becomes more difficult to assure the compliance with the standards as a large number of products or their components are imported from far away countries with little possibilities to enforce fair standards. ⇒Tool URR 1

APPROACH: Green Public Procurement policy

Urban infrastructure and public buildings are mostly paid by the exchequer and represent a large proportion of the construction sector. Since these works normally must be tendered, this is the opportunity to enforce the desired ecological standards, if intended, by the politicians. ⇒Tool URR 1

Case 26 Frankfurt, Germany: Green public tendering

Frankfurt, the Europe Clean Capital finalist of 2012, has published a Green City Agenda including energy saving guidelines and regulations to include ecological criteria in the tendering of Municipal Buildings. Binding environmental procurement rules have been adopted e.g. a ban of tropical wood and PVC, use of recycled paper etc. Local utilities have adopted guidelines following ISO 14001 or similar and are regularly audited. ⇒Tool URR 1

4.2.3.5 Objective: Air pollution control

Air pollution may have many causes, including industries, road traffic, smog and sand storms (still very rarely in Europe) and others. Specific tools must be chosen carefully.

⇒Tool URR 1

APPROACH against pollution generated by local industries

Typical remedies are subsidies or loans to the industries to modernize their production process or relocation:

Case 27 Graz, Austria: the ECOPROFIT Program (also mentioned above)

The city of Graz with about 250,000 inhabitants is situated in basin topography. And Graz is an important industrial area. The combination of these two reasons associated with inversion weather caused great troubles with smog especially in winter. In 1989 the city of Graz decided, that it was time for a change. The target was the reduction of emissions and impacts on the environment. The environmental department worked together with the Technical University of Graz to find possibilities to guarantee ecological success for the region as well as economic success for the companies to get them involved.

The public-private partnership programme ECOPROFIT was born. The combination of corporate training of the companies by consultants and authorities as well as consultancy in the companies succeeded. These successes increased by cooperation and communication among the companies.

ECOPROFIT substantially contributed to the attainment of the target in Graz, to stop the smog. That has been yielded in the winter 1995/96. Since then in Graz there has not seen any smog any more. → Tool URR 1

**Air pollution in Graz, Austria**

Graz on a clear day


**APPROACH against pollution caused by heavy traffic**

The best remedy against smog is stopping through traffic all together, like the car free zones like the CBDs of Milan, Florence or Lisbon. The second best option would be to reduce the speed of traffic, i.e. by uneven road surface (bumpers), non-synchronised traffic lights, mixed use of road space by cars and pedestrians. Especially bad are exhaust fumes from gas oil cars without filters. → Tool URR 1

**Car free zone in the historic centre of Lisbon**

Photo: Kosta Mathéy

**Rome, Italy. Traffic calming near railway station**

Photo: Kosta Mathéy


108 [https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0CDcQFjAEahUKEwiW26iWoPLGAhWEFCwKhCrCkg&url=http%3A%2F%2Flibrary.ite.org%2Fpub%2Fe277e2354-d714-519bfdd0b9f70d7d&ei=6WOxVdbCIIpsAHa16DACq&usg=AFQjCNHOL8ja2RHii4VORdUW3HrJBEkNJJQ&cad=rja]
Case 28 Bologna, Italy: Area-wide traffic restraint

Motor vehicle traffic in many Italian cities has become unbearable for residents and visitors alike in the last decade. The impact of traffic accidents, congestion and extremely destructive air pollution has prompted a number of cities to close off large downtown areas to all but essential traffic---i.e. non-commuters (tourists) and those with a final destination in the downtown such as residents and merchants. The first and also most successful of the Italian cities to introduce this kind of area-wide traffic restraint was Bologna – initially only restricting individual traffic in the historical centre. Under a slogan of "A City for Living" the authorities have recently tightened again access to streets in the historic central district while improving bus, trolley, and metro services. In the restricted area, "Zona Traffico Limitato" (ZTL) in the centre of the city access is authorized only to local inhabitants or to individuals destined for a hotel in the restricted zone. The ZTL zone is controlled by video cameras.

Pedestrianized historic centre of Bologna, Italy

Source: http://www2.robertharding.com/preview/RM/RH/HORIZONTAL/849-1337.jpg

Bologna Zona Traffico Limitato

Source: http://www.car-parking.eu/images/italy/bologna-centro.jpg

APPROACH against smog:

Smog is partly an effect of air pollution and not a cause. Therefore the last two tools will also remove smog. Complementary to that air circulation through the city can be improved (where topography allows) through cutting green corridors through the city.

4.2.3.6 Objective: Noise pollution control

Noise pollution can cause disruption, interference and irritation and can in some cases lead to the development of stress or loss of sleep. So maintaining the comfort and well-being of people

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in their own homes is important — not just to protect human rights but also to help sustain a happy, healthy and productive society.\textsuperscript{110} \ref{toolurr1}

**APPROACH: Traffic calming, road closures**

If quiet zones are included in the master plan, then traffic planners can direct traffic to arterial roads and ensure that traffic stays outside the residential neighbourhood. Alternatively they can regulate traffic speeds to reduce noise levels during specific hours of the day or at night.

The European Noise Directive \textsuperscript{111} regulates the assessment and management of environmental noise. Another EU document\textsuperscript{112} states, "First conservative and partial estimates show that at least 1.600.000 Disability Adjusted Life Years are lost every year in the EU, mostly due to road traffic (noise)." The directive requires all cities and agglomerations of more than 100,000 inhabitants to assess the noise exposure of people in their residence. Buses, city utility vehicles and garbage trucks can be noisy, and it is expensive to replace them with quieter models.

To set a policy in place, the planning department of a community needs to present a cost/benefit analysis to enforce the improvements. A noise analysis and prognosis can pinpoint which school, hospital and neighbourhood is improved by what margin for a variety of noise solutions.\textsuperscript{113} \ref{toolurr1}

**Case 29 Odense, Denmark: Traffic calming 2009**\textsuperscript{114,115,116}

Odense is the 3rd biggest city in Denmark, and used to be the traffic nerve centre of Denmark. The attempt to keep cars out of the city centre represents a break from 50 years of urban planning. The main street through the city centre, previously used by 35,000 cars per day, was closed for motorized traffic. The reminder of Odense’s central area was divided into four zones, and motorists may not cross directly between one to the next zone. Instead
a new Parking route was established in surrounding streets and motorists are being guided to the nearest free parking lot. A speed limit is enforced on the Parking Route to reduce noise and air pollution. This measure counted on inducing a traffic modal split and aimed 60% more bike rides and 60% fewer traffic deaths by 2025, an increase of public transport by 200%, to have 75% less people burdened by harmful pollution and 90% less burdened by traffic noise.

**Case 30 Frankfurt, Germany: Noise Action Plan 2010**

Frankfurt is assumed to be Germany’s central traffic hub, therefore noise protection is a key topic in the municipal strategies with the public being involved in the noise abatement plan. The Frankfurt Noise action plan of 2010 concerns mostly mobility, with the goals established at "reducing noise pollution so as to maintain and improve the city’s residential quality". Envisaged measures include low noise road surfaces, upgrading of rail routes, increasing the share of bicycles, and traffic management including an impressive catalogue of aircraft procedures for air traffic noise abatement.

**Noise emission plan and possible noise abatement measures in Frankfurt**

Source: [http://www.frankfurt-greencity.de](http://www.frankfurt-greencity.de)

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### 4.2.4 Strategy: Economic Sustainability

If urban renewal projects fail, it is mostly because of economic reasons. This may be during the actual project implementation period, or in the long run because the incomes by the resident population are insufficient to keep up with the improved standards and induce gentrification or renewed decay for lack of maintenance (maintenance costs are not covered). This is not the fault of the target group but the lack long-term economic foresight on behalf of the planners. This is not really a surprise since urban planners never learned about economics nor have any powers to interfere in this field. There are, however, also some positive experiences in economically sustainable urban renewal which will be discussed in the following section.

**4.2.4.1 Objective: Public-private partnerships**

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For quite an extended period already, disposable state income tends to decrease while at the same time neoliberal local authorities are less prepared to finance public services and investments. It is also true that private investors are more flexible and less bureaucratic in project administration, at the cost of lacking social accountability and the need to be able to withhold a compatible profit margin. A possible third player in municipal governance is the social sector who represents the resident population. Well managed cooperation of the three sectors: state, private and social sectors, in known as participatory governance, where part of the costs can be covered by community itself. ➔ Tool URR 2

Approach: Soft Renewal:

Urban renewal is expensive; but it also creates economic values which accrue to the house owner’s assets. Soft renewal means animating landlords to invest without using the instrument of expropriation. ➔ Tool URR 2

Case 31 Vienna, Austria: ecological block renewal program 1996-2001

The Project "Ecological Block Renewal" is a key project of the Viennese URBAN program and is winner of the UN Habitat best Practice award. Developed by the Vienna Land Procurement and Urban Renewal Fund (WBSF), this project aims at connecting the objectives of soft urban renewal with ecological measures and activities for local business enterprises. Technically speaking the approach is the so-called "inner urban development" as a more economical alternative compared to urban expansion with much higher infrastructure costs. In this particular case, some of blocks within the program had been originally constructed around the turn of the century (1900) and are situated along the western Guertel road in a very densely built up quarter. The technical equipment of most dwellings in these areas is still very poor. There is a significant lack of green spaces and the unemployment rate is higher that the Viennese average.

As part of the project, house based renewal opportunities are being discussed with the individual owners and supported projects may receive a maximum 30 % financial contribution from the EU URBAN fund. ➔ Tool URR 2

References:
120 https://books.google.de/books?id=nTQAAgAAQBAJ&q=richard+stren,+participatory+governance&lr=&source=gbs_navlinks_s visited 23/08/2015
122 http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp_id=2402 accessed 22/05/2015
123 http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp_id=2402 accessed 22/05/2015
122 http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&ved=0CAUQjhxqFQoTCKvBxs7e4cYC FVEr2wodARsQ&url=http%3A%2F%2Fwww.wohnbauforschung.at%2Findex.php%3Finc%3Ddownload%26id %3D5552&ei=rruoVauy9HW7aBt0iCw&psig=AFQjCNH48hUFBXsG6Aal9aSBYqRk4cdaGg&ust=1437207782 757146 accessed 17/07/2015
123 http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp_id=2402 accessed 22/05/2015
Three kinds of projects have been proposed for the period 1996 to 1999 and were realised thereafter:

a) Demolition of buildings in the centre of blocks (Entkernung) to lower the density and to help create new green open spaces in connection with the rehabilitation of existing dwellings

b) New construction of buildings and adaptation of vacant ground floors for small enterprises (mixing land uses) compatible with residential areas in connection with sound insulation and greening of roofs

c) Improvement of public space

As the name of the project suggests, ecological aspects were prominent in the entire program: the objective of a „city of short ways“ is secured by a mixed land use structure and by the block-wise approach. Also the greening of backyards and roofs are part of the philosophy in the same way as the modernization of the technical equipment within the individual dwellings. Local business received logistical assistance and gaps between buildings or minor streets were transformed into attractive public spaces or parks - especially for social groups that were neglected in the past, like older people, children and young people who need room for noisy activities etc. ➔Tool URR 1; ➔Tool URR2

4.2.4.2 Objective: Green economy

Internationalization often removes decision making power, even on business matters from the local context and can lead to absurd situations or destroys the local economic base. An example would be if Portugal with a labour intensive traditional wine production was overrun with cheap industrially produced wine from California or from South Africa and local producers cannot compete. ➔Tool URR 2

Approach: Local green currency (small is beautiful)

An obvious solution would be some kind of exchange economy for local goods whose values represent the true labour input. ➔Tool URR 2

Case 32 Bristol, United Kingdom: The Bristol Pound (2012)

Bristol, a European Green Capital Finalist in 2014, suffers from the devaluation of its own labour force after the closing down of its conventional industries. Having lost its stake in the
international economy, the city decided to rely on the **green economy**, and has initiated the **Bristol Pound**, a local unit of currency, which is available both on paper and electronically. By encouraging people to use this local form of payment (e.g. via mobile phone), the city gives residents a collective sense of their own city, thus strengthening the local economy.  

The Bristol Pound has gained international attention as a flagship local currency, with the aim of keeping money within the city, and supporting the local community.  


**APPROACH: Playing the globalization game: international awards**

If you can't beat them, then join them. International awards usually will give you less direct financial returns than what you invest in the application. But the points earned in publicity can be high and pay back in the long run. Even more important is an award when it comes to convince local politicians about future orientation.  

**Case 33 Copenhagen, Denmark: 8 green economy drivers of European Green Capital 2014**

Copenhagen’s goal is to become carbon neutral by 2015. The instrument to achieve this is a set of **eight green economy drivers**:

1. **Urban Form** (compact city, finger plan)
2. **Innovation** (education, research and development amounts to 3.1% of national GDP)
3. **High of Foreign Direct Investment** (FDI) amounting to about 50% of GDP.
4. **Skills and Employment** (46% of population with university degree; unemployment rate 2.5% less than European average)
5. **Enterprise** (Copenhagen capital region accounts to 50% of national business exports). The annual growth of the Copenhagen CleanTech sector 2012 was estimated 28% in the combined following sectors:

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124 [http://bristolpound.org/](http://bristolpound.org/) viewed 30/05/2015
a. Building efficiency materials  
b. Smart grids  
c. Clean water  
d. Solid waste  
e. Clean road transport (electric vehicles and plug-in hybrid electric vehicles)  
f. Onshore and offshore wind power generation  
g. Solar power capture with photovoltaic cells  
h. Geothermal energy  
i. Biomass energy (electricity production and biofuel)

6. **Energy and resource efficiency.** (household energy consumption fell by 10% between 2005 and 2011; water consumption fell by 36% [1989/2010]; waste production fell by 19% [2006/2010] with only 2% ending up in landfills)

7. **Low carbon.** (District heating expansion and national wind energy deployment allowed to drop carbon emission per inhabitant from 7.9 to 3.2 tonnes 1991/2012). Carbon taxes and subsidies for biomass fuels have made it cost effective for Copenhagen’s utilities to shift away from fossil fuels.

8. **Environmental quality.** SO2 pollution fell by 83% during 1990 to 2000; carbon monoxide fell by 72% between 2004 and 2007. ➔ Tool URR 1; ➔ Tool URR 2; ➔ Tool URR 3

**APPROACH: Green Banking and Green Bonds**

Green Bonds are short-hand for Qualified Green Building and Sustainable Design Project Bonds, i.e. a tax-exempt bonds which are issued by federal-qualified organizations and/or municipalities for the development of brownfield sites. The tax-exempt status makes purchasing a green bond a more attractive investment when compared to a comparable taxable bond. The public sector can facilitate a bank’s development by creating the institutional framework and rules while feeding the institution with public capital can then attract greater shares of private funds. The World Bank has been a leader in the market, and has issued over $USD 5.3 billion in Green Bonds since an initiating activity in 2008. The Climate Bonds Initiative, an international NGO, reports that issuances grew by 25% between 2011 and 2012 globally; that the market is overwhelmingly populated by investment grade bonds; and that issuers come from both the municipal, corporate, and institutional sectors. ➔ Tool URR 2

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125 [https://www.idfc.org/Our-Program/green-finance-mapping.aspx](https://www.idfc.org/Our-Program/green-finance-mapping.aspx) visited 7/31/2015  
35 organizations in 2014 issued $36.6 billion in green bonds, more than triple the amount in 2013.

Development banks dominate green bond issuance, led by the European Investment Bank.
Source: [http://www.climatebonds.net/2015/01/](http://www.climatebonds.net/2015/01/)

Another option for scaling up the available capital for green technology and infrastructure investments is the creation of a public-private ‘Green Bank.’ Creating this type of institution can leverage public funds with private sources that are attracted to the long-term returns of infrastructure projects from investors motivated by a low-carbon or green innovation ethos. Pension and insurance funds are often cited as ideal investor candidates. ➔Tool URR 2

Case 34 Gothenburg, Sweden: the first city in the world to issue green bonds

In 2013 the City of Gothenburg was the first in the world to introduce green bonds starting with the issue of SEK 500 million and can lead to two billion. In May 2014 there was an announcement of a second bond from the City of Gothenburg. The issue of SEK 1.8 billion ($273 million) received “tremendous” interest.

The Green Bond Programmes and funds are used primarily to support projects that counter or help adaptation to climate change. For investors there is no difference in credit quality – but a big difference exist in transparency as investors get a picture of what the funding is used for. There is a huge international interest in green bonds reaching up to international agencies, like in the case of Gothenburg opening a bond jointly with the United Nations Environment Programme

As part of the environmental programme, the City of Gothenburg continues to issue bonds for financing various environmental projects in the areas of renewable energy, public transport, water treatment, energy efficiency, smart grids, urban planning and waste management. The projects are financed, in whole or in part, by the City of Gothenburg to promote the transition to low carbon dioxide and climate-resilient growth as determined by the City of Gothenburg. ➔Tool URR 2

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APPROACH: Urban Renewal Funds.

Smaller municipalities and districts, who eventually carry the responsibility for local action, normally don’t have the resources to engage in the issue of bonds. Nevertheless, Competition between these institutions to access Urban Renewal Funds issued by large municipalities or governments can work as stimulation to execute sustainable renewal schemes on the local level. Tool URR 2

Case 35: Belgium: Flanders Urban Renewal Fund\(^{129}\)

Urban development programs were mostly directed towards poverty reduction until 1999, when a new liberal government won the elections and introduced new policy concepts based on competitiveness and more space for private sector involvement. Since 2002 the Flanders provincial government subsidised urban renewal initiatives in the inner parts of towns, whereby the selection criteria for funding mostly referred to high urban and architectural quality and community participation – all of them subordinated under the abstract principles of competitiveness, safety and quality of life. The financial instruments were the so-called ‘Stedenfonds’, a substantial reserved share within the state budget for which the different municipalities had to enter a stiff competition (typically one winner among three applicants).\(^ {130}\) Public private partnership was favoured as applicants, but smaller municipalities can apply for logistical assistance (training, consultancies) in the application phase and before to develop a competitive proposal. Typical project types include conversion of former industrial sites, railway stations, harbours, etc.

To summarize, the provincial government subsidy consisted of three elements:


a) The actual competition for the urban renewal project
b) Capacity building and consultancies to improve the quality of competition entries
c) The final awards for the best realization of projects.

4.2.4.3 Objective: Economic revitalization and stronger global integration

Investors and manufacturers are becoming more and more international and, like tourists, tend to operate between a limited number of ‘global cities’. These are characterised by certain rational characteristics, like proximity to ports and airports, political and urban security, cultural or natural attraction etc. Also simple reference in the news to the city, positive mention in the media, connotation with international events make an indirect contribution to global popularity. Higher ranking on the global cities scale have shown to attract more international investment and/or attraction for tourists. Both imply more jobs locally and higher incomes for the municipality and region.

APPROACH: Place branding and iconic architecture

Commercial city marketing, usually referred to as ‘place branding’, actively promote the international reputation of a city – or sometimes of an entire region where individual cities are not strong enough on their own. Apart from world scale events, like Olympic Games or World Exhibitions, an iconic Building designed by a famous architect can have a supporting effect, like the Siney Opera House, the Sony Centre in Berlin and, of course, the Tower Bridge in London or the Eiffel Tower in Paris serve for promotion.

Case 36 Bilbao, Spain: the Guggenheim Museum

Bilbao – once an important port city and industrial centre for the region - was badly affected by the industrial crisis of the 1970s. Within the metropolitan area, 80,000 jobs in industry were lost. Finally, its politicians, institutions, and citizens decided to switch to delivery of

\[\text{Source: }\text{http://eprints.lse.ac.uk/3624/1/Bilbao_city_report_(final).pdf}\]

131\[\text{http://www.bilbao.net/ingles/bilbaonegocios/invertir/eng/1_regeneracion.htm} \text{viewed 27/05/2015}\]
132\[\text{http://urban-complexity.blogspot.de/2010/01/entrepreneurial-urban-regeneration-of.htmlviewd}\ 27/05/2015\]
133\[\text{http://www.bilbao.net/ingles/bilbaonegocios/invertir/pdf/cityforinvestment.pdf} \text{visited 29/05/2015}\]
services to become the principal economic activity for Bilbao, offering a high quality of life, turning brown fields into parks and other green infrastructure. The harbour area was to undergo an innovative urban renewal effort that would engage the public interest and make the city more attractive as a site for international forums. New installations include, among others, the Euskalduna Conference Hall, the Airport, the Metro, the tramway and the Uribitarte promenade along the Estuary River and of course, the Guggenheim Bilbao Museum – all built by world-renowned architects. The names include Gehry, Foster, Pelli, Legorreta, Isozaki, Calatrava, Sterling, Soriano and others. The Bilbao Renewal Program received the UN Habitat Best Practice award in 2014.

The most well-known development on the site is the landmark Guggenheim Museum designed by the architect Frank Gehry. The museum opened in 1997 attracting over a million visitors in its first year and it immediately became a major tourist attraction. Bilbao’s recovery from industrial decline has by now become one of the most well-known success stories in Europe. It has been said that Bilbao is a city “actively engaging in globalisation strategies and getting transformed in the process”.

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<tr>
<th>Bilbao Metro Entrance designed by William Forster</th>
<th>Bilbao department of Health</th>
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<td><img src="http://mic-ro.com/metro/metroart.html" alt="Bilbao Metro Entrance" /></td>
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<th>The Bilbao Arena, designed by Idom architects, UK.</th>
<th>Guggenheim Museum Bilbao by F Gehry.</th>
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<td><img src="http://www.e-architect.co.uk/bilbao/" alt="The Bilbao Arena" /></td>
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134 [https://www.metrobilbao.eus/](https://www.metrobilbao.eus/) seen 01/08/2015
There was also a big increase in airport passengers from 1.4 million in 1994 to 3.8 million in 2005. The sheer scale of added tourist numbers seems certain to have created many smaller service outlets, bars, shops, cafes, small hotels, restaurants, guides, tourist mementos and so on. The indirect knock-on effects in the city are extremely wide if immeasurable, which has been referred to as ‘Guggenheim effect’ on Bilbao’s city economy, which many other cities try to replicate. ‘Due to a successful image change, the city is now internationally recognised as a successful example of urban recovery. Some voices have however criticised the strong focus on urban marketing that prioritises ‘putting the city on the map’, for example the costly subsidies to the city’s only really global attraction, the Guggenheim Museum.’

New housing was also built to replace the congested living quarters close to river, but criticism was formulated in respect to the low number of flats provided – and even more of the emerging new social segregation pattern created that way. On the positive side it is worth mentioning that the Bilbao Urban renewal effort was able to overcome the burden of administrative fragmentation by founding the development agency Bilbao Ría 2000, S.A., to co-ordinate and carry out regeneration initiatives in Bilbao. Set up in November 1992 as a private firm of public shareholders (50 percent central and 50 percent local and regional administration), Ría 2000 operates in practice as a quasi-public agency, a planning and executive body in charge of specific urban renewal operations in the metropolitan area of Bilbao. The Development Corporations were first tested successfully for the New Towns in Britain, like for Milton Keynes.

In sum, the significance of Ría 2000 lies in its considerable potential as a co-ordinating and executive agency and its capacity to act as a unified body in urban redevelopment schemes in metropolitan Bilbao. However, Ría 2000’s status as a private firm poses critical questions regarding the ‘privatization’ of planning and lack of political accountability. Moreover, the imperative of short-term profit logic introduces a speculative bend to the agency’s operation, which severely undermines its regeneration objectives. If urban regeneration means something more than physical renewal, then equity and redistributive considerations must mediate efficiency criteria.

Case 37 Turin, Italy: Torino Internazionale and Porta Palazzo Regeneration Area 2001-2006

Located in the North West of Italy, Turin is one of Italy’s most industrial cities, known also as the "Italian Detroit" or "one company city". Indeed, until recently, FIAT (car manufacturer), and its automotive industry spin offs, have had a significant impact on urban growth, economic development and social transformations of Turin. FIAT has also been an important social welfare actor in Turin providing housing and a range of social benefits to its workers, most of whom migrated to Turin from impoverished Southern Italian regions after World War II.

Since the mid-1970s FIAT began to shift production out of Turin to regions with lower production costs, which caused a sudden burden of very high unemployment in the city and triggered off further economic and social decline. Tool URR 2
In 1999, accepting the need for an economic paradigm shift, the city managed to secure hosting the 2006 Winter Olympic Games which marked a turning-point in its regeneration trajectory, with a growing emphasis being laid by local politico-economic elites on internationalization and inter-city competition. Relying on the so-called ‘Barcelona effect’, the Olympic games were seen as an opportunity for urban change, the urban landscape was enriched with futuristic buildings designed by renowned architects, while the construction of a new subway line revolutionized the city’s transportation network. Turin was given the chance start its ‘second life’.

Also following the Barcelona recipe, Turin was the first city in Italy to adopt an urban strategic plan. The adoption of a strategic rationale for urban planning introduced a process of re-scaling the city’s identity while consolidating its international connections at the same time. A public-private partnership led by the municipality and the provincial government with the involvement of local companies, private foundations and entrepreneurial organizations gave rise to Torino Internazionale, a formalized coalition aimed at creating a shared vision for enhancing the city’s competitiveness in a context of globalization. The renovation of the historic centre has been at the heart of the process of Turin’s widely celebrated renaissance. Those working class neighbourhoods still suffered a lot from the economic crisis and were stigmatized by assumed high level of crime and a predominantly immigrant population.

Urban renewal and revitalization programs were launched and also included reinforcing the social texture in urban semi-central neighbourhoods such as Porta Palazzo the centrally located open market – the biggest in Europe – by making use of extraordinary public and even EU funds. Also the former industrial site close to the city centre was transformed through a public-private enterprise. The master plan was imitating a historical city texture while the individual buildings were designed by some of the most famous international architects of the time. The Porta Palazzo quarter has become an international showpiece

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144 http://www.uclg.org/en/issues/urban-strategic-planning visited 23.08.2015
project without any further social ambitions. ➔ Tool URR 2

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<tr>
<th>Porta Palazzo – Europe’s biggest open air market</th>
<th>Regional Government of Piernont in Turin</th>
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<td><img src="http://www.coopsette.it/files/coopsette/piemonte_gallery.jpg" alt="Porta Palazzo" /></td>
<td><img src="http://www.coopsette.it/files/coopsette/piemonte_gallery.jpg" alt="Regional Government of Piernont in Turin" /></td>
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<th>Torino art Gallery – extension designed by Renzo Piano, 2002</th>
<th>Urban tree house in Torino, Italy</th>
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**APPROACH: Green business and leadership**

Economic successes in navigating a city within the ocean of global economy merit recognition but do not necessarily contribute to the reduction of global warming. Ecological approaches to urban economies rather suggest a certain independence from global markets but still need income levels to cover all operational costs and redemption. ➔ Tool URR 2
The Italian municipality Varese Ligure is small but the lessons it can teach the world are very exciting. At the end of the 1980s, the municipality's population had diminished from 6,000 to 2,250 citizens, due to a lack of jobs, no industry, decaying properties, and a lack of essential services. The municipality was geographically isolated, it had a lack of modern industry, and the farming practices were antiquated. Then the new mayor at the time, Maurizio Caranza, refused to give up and drew up a recovery plan which, with the active support of the residents, was then put into practice from 1990 onwards.

Since the municipality was falling apart, an agreement was reached between the municipality and the citizens. The municipality was to organize funding for upgrading the urban infrastructure, partly with EU assistance, and the community would take care of renovating their own old houses. The deal worked out and became the base for future production initiatives – basically relying on organic farming and renewable energies.

Since 1996, an Environmental Education Center (CEA) educates the local young generation about organic agriculture, renewable energy, and sustainability. Also courses are provided about energy consumption and climate change. Organic farming practices were taught to the local farmers, who can't afford chemical fertilizers anyway: in practice they were already organic, but they weren't officially certified. With EU grants for organic farms, they became interested in certifying the farms as organic. Today there are 108 organic farms that supply 98% of the municipality's produce, including organic porcini mushrooms, chestnuts, cheeses, honey, fruit, vegetables, meat and dairy products. Good restaurants opened. Artists and craftspeople arrived. The Vara valley is now known as the "Organic Valley", and in 1999 it became Europe's first valley to be certified for environmental management under ISO 14001.

To supply the municipality with renewable electricity, four wind turbines were installed on a ridge 1,100 meters above sea level. These turbines generate 8 million kWh of electricity per

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year: three times the amount needed by the municipality; the surplus is fed into the local grid. The municipality hall and the secondary school roofs are covered by solar photovoltaic panels, which supply 98% and 62% of their electricity needs, respectively. This output is complemented by a number of small-scale hydropower generators – and the municipal piscine is directly heated through solar collectors. The shift to renewable energy has added 140 jobs and added an additional $514,000 USD in annual tax revenues for the municipality. Last but not least, the success of this village development, together with the UN-HABITAT awarded in 2014, helped to increase the number of visiting tourists by 500% since the late 1990s, many coming just to see the renewable energy achievements.

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<th>Varese autonomous energy supply</th>
<th>Organic Food Festival in Varese</th>
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<td><img src="http://3.bp.blogspot.com/_HFeJw58JbFs/TAN_tnO7hSI/AAAAAAAAA1A/nqb8-wRwVvU/s1600/wind+power.jpg" alt="Varese autonomous energy supply" /></td>
<td><img src="http://www.animalieanimali.it/rubriche/31538_a_varese_ligu.re_arriva_il_primo_festival_del_bio" alt="Organic Food Festival in Varese" /></td>
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**APPROACH: Mix of several land uses**

Replacing old and decaying old housing stock and building fresh again can be more economical than renewal—especially on virgin land at the outskirts of the city where land prices are more economical. However, considering all monetary and other costs, it makes more sense to densify inner city areas since the urban infrastructures already exist, the distances are shorter and the urban footprint is reduced. This is particularly true when different land uses are combined as the time and transportation needs are less (city of short ways). → **Tool URR**
Case 39 Vienna, Austria: ecological block renewal 1996

"Ecological Block Renewal" is a key project of the Viennese urban renewal strategy. It is partly financed through the Vienna Land Procurement and Urban Renewal Fund (WBSF) and combined the aims of the older soft urban renewal policy with ecological measures but also includes fostering local business apart from only housing improvements. It particularly addresses those urban quarters constructed at the turn of the century (1900) situated along the western belt ("Guertel") road where the blocks are densely built up. The technical equipment of houses in these areas is still very poor. In addition, there is a significant lack of green spaces and the unemployment rate is higher that the Viennese average which justifies the use of public subsidies. Tool URR 1; Tool URR 2

<table>
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<th>Vienna: Inner city block, street view</th>
<th>Vienna Block renewal program: inside of block</th>
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<td><img src="image" alt="Photo: Kosta Mathey" /></td>
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Single measures transforming one or several neighbouring houses are preferred to entire blocks because this approach is expected to have optimum benefits with low expenses at the same time. Apart from that of the fragmented ownership structures would make entire block renewal very complicated and time consuming. Each funded project may receive a maximum 30 % financial contribution for all expenses from the European Union URBAN fund. Ecological aspects are followed by securing a mixed land-use structure and the greening of backyards and roofs are part of this philosophy. In most cases there is a combination of improving the technical equipment of dwellings, measures for local business and steps toward more attractive public spaces - including gaps between buildings or minor streets. Projects which improve the situation for hence neglected social groups are given special attention, like close-by parks for the elderly or playgrounds for children and young people who need room for noisy activities etc.

Technically speaking, three kinds of projects were earmarked in particular:

- Demolition of buildings in the centre of blocks (Entkernung) in order to lower the density and to help create new green open spaces in connection with the rehabilitation of existing dwellings

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4.2.5 Strategy: Social Sustainability

The well-being of a neighbourhood depends on the interplay between its physical, economic and social structures. If the residents are poor, they cannot maintain their dwellings. If they lack skills and education or if they are stigmatized, they may find it more difficult to find employment or earn an honest income otherwise. If the buildings are in a poor estate, the residents may suffer stigmatization etc. Therefore it is essential to look at a neighbourhood with a comprehensive understanding – otherwise no renewal program can be sustainable.

4.2.5.1 Objective: access to adequate shelter

For the residents, the ultimate objective of urban renewal schemes is the creation and adaptation of adequate living space, of which housing, though not exclusively, is the principal element. The perceived lack of housing units usually is the leading argument, although the official numbers tell very little. Size, location, and typology may be inadequate but can be adapted – which is also true for the problem of affordability.

APPROACH: Neighbourhood contracts and other governmental subsidy schemes

Almost all European urban renewal and revalorization schemes imply subsidies in which the state attempts to rectify defects in past and current housing and urban policies or practices. The subsidy programs usually reflect the changing ideologies of the state, which in Europe tend to be determined by the political parties in power.

Case 40 Brussels, Belgium: Sustainable Neighbourhood Contracts 1989

Faced with significant problems of physical and socio-economic decay in the centre and the older suburban areas, the Brussels Capital Region has been implementing an integrated renewal and development policy for deprived neighbourhoods. The major instrument in this revitalisation policy is the Neighbourhood Contract. A Neighbourhood contract must define a clearly limited area, address housing provision, the renovation of buildings or public spaces, but also include socio-economic actions, like the setting up, or remodelling of infrastructure or services (social, cultural, sporting and others), at the local or district level.

A neighbourhood contract proposal is normally written by a consultant under the supervision of the local authority. To ensure that the programme best meets the needs of the district, the Commune has to organise ways in which the people who live, work and visit the district are kept informed and involved. Operations deal with three large action areas – housing, public spaces and socio-economic development. Actions may consist of:

- upgrading existing housing;
- creating new housing units;

149 http://www.quartiers.irisnet.be/
- upgrading or creating spaces reserved for handicraft or industrial activities, associated with complementary housing initiatives;
- refurbishing public spaces;
- creation or upgrading of the infrastructure and equipment present in the district, whether socio-cultural, sporting or other;
- setting up social and economic activities

The formal contract is signed between the Brussels regional government and the eligible districts of execution, which must belong to the list of neighbourhoods in deprivation. This list includes 13.8% of the capital region or 30% of its population. More than 50% of the funds were invested in (mostly social) house building or improvement, 20% for upgrading of public space, about 25% for socio-economic measures.

Since 2010 also measures to reduce climate change can be financed. Individual house owners can also apply for improvement grants funded from a different source. Remarkable is the high degree of community participation in all measures of the program. The rotating principle in the distribution of funds assures a wide coverage within the region and avoids the nutrition of a customary grant recipient mentality.

**Participation is part of the Neighbourhood Contract**

![Participation is part of the Neighbourhood Contract](http://www.quartiers.irisnet.be/)

Source: [http://www.quartiers.irisnet.be/](http://www.quartiers.irisnet.be/)

**Proposal for improvement in the Albert “Dalle” quarter**

![Proposal for improvement in the Albert “Dalle” quarter](http://quartieralbertwijk.blogspot.de)

Source: [http://quartieralbertwijk.blogspot.de](http://quartieralbertwijk.blogspot.de)

**Invitation for a public hearing for the neighbourhood contract**

![Invitation for a public hearing for the neighbourhood contract](http://www.quartiers.irisnet.be/)

Source: [http://www.quartiers.irisnet.be/](http://www.quartiers.irisnet.be/)

**Apartment house renovated by neighbourhood contract**


APPRAOH: Adaptation of unpopular mass housing typology

Particularly uniform mass housing estates can become unpopular with its residents and turn into ghettos of the disadvantaged who don’t have the means or connections to transfer to other neighbourhoods or typologies. Physical transformation of those housing blocks can be a solution.  

Case 41 Leinefelde, Germany: House type adaptation, 2004\(^{150,151,152}\)

In Leinefelde, Eastern Germany, massive prefabricated housing blocks had been built for the workers of a huge factory which closed down soon after reunification of Germany and the former workers left looking for jobs in West Germany. This process called for partial demolition of the prefabricated large panel housing blocks and transformation of the remaining structure into highly attractive town houses with more popular floor plans, gardens, balconies and rooftop terraces. At the same time, modern energy saving standards have been achieved through 10cm external wall insulation (20cm roof insulation) and new double glazing windows. Existing district heating is relatively inexpensive but heat losses remain a problem during the summer months when the entire system must be kept operational for hot water supply.  

Leinefelde mass housing

Source: http://www.baunetzwissen.de


Marzahn is Germany’s largest housing estate with originally more than 58,000 units built 1977 – 1989, which suffered increasing problems of under-occupation after reunification due to its negative social image, low technical standards and its peripheral location in respect to the now united Berlin. Given the predictable medium and long term need for housing in the united

\(^{150}\) http://www.baunetzwissen.de/objektartikel/Altbaumodernisierung_Rueckbau-einer-Plattenbauzeile-in-Leinefelde_69134.html, visited 04/06/2015

\(^{151}\) http://www.leinefelde-worbis.de/stadtumbau/files/publish/Energriegerechte_Sanierung_DETAIL_Buch_07.pdf  viewed 04/06/2015


\(^{153}\) http://www.staedtebauforderung.info/StBauF/DE/Programm/StadtumbauOst/Praxis/Massnahmen/Marzahn/Marzahn_node.html
German capital, a combination of new building, remodelling, renovation and partial demolition was chosen and successfully applied to turning Marzahn into an attractive quarter again - with only about 5% availability of empty flats (normal fluctuation rate). Adding extensive recreation areas the suburb was marketed as a ‘Garden City within the Metropole’. The monotonous architecture was given a facelift by employing architects from other continents to guide the renovation and to create, for example, a ‘Brazilian Quarter’ or a Japanese Garden’. Some houses were especially adapted for the needs of old age residents, with medical surgeries attached and a formal reception desk (‘concierge’) at the entry downstairs.  → Tool URR 4; → Tool URR 1

4.2.5.2 Objective: Tackling the land question

When it comes to discussing housing affordability and location, the cost of the land invariably turns out to be the key issue. Differential land values fuel social segregation, and land speculation makes decent housing unaffordable even to middle income groups in major urban centres. Since more than a hundred years different reformers have tried to find a solution to this problem, or at least a way to combat excesses of land speculation.

→ Tool URR 3
Approach: Cooperative housing

Land speculation tends to be perpetuated in conditions where housing property changes hands between different occupants a dwelling. But similar as in the classic government owned social housing schemes, a permanent ownership can be achieved in certain types of housing cooperatives in which its members are not allowed to materialize increased land values when moving flats. ➔ Tool URR 3

Case 43 München, Germany: Wagnis Cooperative Housing 2005

In Munich, the city with highest rent levels in Germany, this cooperative has opted the third tenure apart from renting and outright ownership. By now, it has already built four passive-energy housing projects on brown field sites. Apart from promoting cooperative as an instrument to release more urban land from speculative property market, an ambitious set of social and ecological aims can be realised by this group. Since the termination of the pioneer project in 2005, two other housing estates have been built by the same cooperative in Munich. The project won the Cooperative Award for housing in 2010. ➔ Tool URR 3

4.2.5.3 Objective: Location and ease of mobility

Poorer people are more dependent on mobility since they are less likely to afford individual transport (at least in cold climates) – either own or hired – and they find it more difficult to find a new or first home after accepting a workplace far away from their previous residence. ➔ Tool URR 3

APPROACH: Better and affordable public transport

Transportation is expensive and if several family members of less affluent families need to move for work or education this may imply a substantial share of their household income. Therefore urban renewal needs to take the mobility question into consideration – especially keeping in mind that a considerable part of the population, like old age persons, handicapped and children cannot switch to car, bicycles of hiking. ➔ Tool URR 3

154 http://www.rohn-verlag.de/26.html viewed 23/05/2015
155 http://www.wagnis.org/genossenschaft.0.html viewed 23/05/2015
Case 44 Talinn, Estonia: Ticket-free public transport 2013

The 400,000 inhabitants-city Talinn decided upon the introduction of ticket-free public transportation, not only to stimulate car drivers to switch to public transport, but also to improve social cohesion. Although time is needed to evaluate if the anticipated amount of car drivers really switch to public transport, the measure also aims to improve social cohesion through offering equal mobility opportunities for all strata of society. Improved social welfare, safer and calmer streets and cleaner air - this is what the local municipality hopes to achieve with this measure.

Bus in Tallinn costs zero fare for residents


Tallinn – Capital of Free Public Transport


A considerable number of other European, North American and Brazilian cities also operate or consider free fare public transportation systems. In all places the success in attracting passengers was overwhelming, in some cases more than 10-fold and more (In Lemgo, Germany, the increase was even 50-fold from 40,000 to 2 million plus passengers per year!), which creates a challenge to the economic feasibility of the scheme for the municipalities. Now several cities, including Berlin, propose a mandatory flat rate for all citizens who may work out at €1,- per day.

Case 45 France: Tramway revival in cities

Having scrapped tramways in the 1950s, the first French towns to reintroduce trams in the mid-1980s, were Nantes and then Grenoble. Usually this measure went hand-in-hand with major urban renewal schemes to help the local population to accept their reappearance on the streets. Tramways are a means of transport which offer certain proven advantages:

- a capacity beyond 3,000 passengers per hour per direction of travel;
- an average commercial speed of 18-22 km/h;
- a regular transport service;
- a high level of comfort;

• optimal accessibility;
• enjoying daylight and smooth movement (for reading)
• lower cost than an underground system: an average cost of 13-22 million Euros per km for the transport component in France.

Currently, 27 French urban areas have at least one tramway line. Trams have also become a tool for promoting a town, because building a tramway implies a desire to renew the image of the town where it is located.

In 2007, the French state launched the Environment roundtable to draw up a French road map for ecology, sustainable development and planning. Within this framework the state plans to achieve a target of 1,800 km of tram lines by 2020. In May 2010, the state made 590 million euros available to support 78 new projects backed by 54 transport management authorities: 45 high service level buses, 29 tramways, 2 underground systems and 2 sea links. Nearly 1,000 km of lines will already have been built or launched by late 2013. Tramways reshape the urban landscape.

Tram in Grenoble, France

Photo: Kosta Mathéy

Tram in Marseille

Photo: Kosta Mathéy

APPROACH: pro-cycling planning and infrastructure

On short to medium distance trips in town, say from 0.5 to 5km, the bicycle is still the fastest and certainly most ecological means of transport. It is non-polluting and in addition keeps the body fit. Local governments can do a lot to encourage the use of bicycles but also to protect cyclists from accidents.

Source: [www.copenhagenize.com](http://www.copenhagenize.com) seen 8/2/2015
Case 46 Copenhagen, Denmark: City of cyclists

Every day people cycle 1.2 million km in Copenhagen, while thousands of people travel by bus, train, and underground or on foot. Copenhagen is in the midst of a historic expansion of its public transport system, and there has been massive investment in more cycle-only paths, bridges and underpasses. Good conditions for cycling are also part of the city’s official health policy. The number of kilometres cycled has risen by around 30% since 1998 and the bicycle’s modal share for trips to work or educational institutions has also risen to over a third in the same period. This makes the bicycle the most popular transport form for commuting in Copenhagen. Copenhageners choose the bicycle because it’s the fastest and easiest way to get around.

The pro-cycling planning policy involves in particular the provision of more space to cyclists on the main arteries and to improving cycling travel times through short cuts like tunnels and bridges over water, railways and large roads. In addition, it requires many small speed improvements, such as allowing contra-flow cycling on one-way streets, allowing cycling across squares, implementing more Green Waves for cyclists with traffic lights, etc. Also traffic calming for cars increases the comparative advantage for bicycles. Statistically, the risk of being involved in a serious accident has fallen by 72% per cycled kilometre since 1996.

Copenhagen bicycle express network

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161 [http://www.copenhagenize.com](http://www.copenhagenize.com), visited 8/2/2015
Case 47 Münster, Germany: German bicycle capital 163,164,165

The bicycle is the most commonly used means of transport in the small town of Münster, Germany. A daily total of more than 100,000 people travel the roads by bike, and there are twice as many bicycles than residents, namely 500,000. Special facilities include 300 km of designated bicycle paths, preference at traffic lights, 3,500 parking lots for bikes have been provided just alone at the railway station. Münster has won awards for its high share of bicycle trips which amount to more than 37.6% of all trips – the highest in 2007.

At the same time, Münster also suffers the highest rate of bicycle thefts among all German speaking countries. Münster police is tough on bicycle infractions, up to taking your driving licence in heavy cases or drunk driving. Nevertheless Münster continues to win numerous awards for being bicycle friendly. ➔Tool URR 1
APPRAOCH: Pedestrianization

Although pedestrian streets are now a very common feature in main shopping areas all over Europe, a lot needs to be done in secondary streets where motor vehicles still enjoy far reaching preference even where they represent a clear minority in numbers. To make things even worse, there is a tendency in some commercial zones and in public transport installations to remove existing benches or other horizontal surfaces to inhibit comfortable resting for non-consumers out of an irrational phobia against possibly appearing vagrants or drunkards.

Case 48 Frankfurt, Germany: Greening of High Street Zeil

The Zeil is the traditional high street in the city centre of Frankfurt, Germany. The name, which dates back to the 14th century, is derived from the German word Zeile ‘row’ and originally referred to a row of houses on the eastern end of the north side; the name was not extended to the entire street until much later.

Since the end of the 19th century it has been one of the most famous and busiest shopping streets in Germany. Before World War II it was also known for its grand buildings, but most of them were destroyed and not rebuilt. Representing on the first main street in Europe, Zeil was partly pedestrianised as early as 1972, but improved with tree planting above the underground railway in 1983, before it finally underwent a major renovation in 2008/09 with an extension of the pedestrian zone. This brought about a drastic shift in traffic modal split from individual motorized mobility to mass public transport whose main interchange is underneath Hauptwache at the Western end of Zeil which is now completely closed for individual traffic.
Case 49 Lisbon, Portugal: Riverside Regeneration

“Everyone in Lisbon says that, since Portugal’s great age of exploration, the city has looked far out to sea. … In 1497, Vasco da Gama’s first expedition to the Malabar coast inaugurated Portugal’s brief heyday as a maritime superpower and began an affair with India (above all in Goa, Portuguese until 1961) that persists until now. Antonio Costa, Portugal’s prime minister, comes from a part-Indian family that still has an ancestral house in the south Goan town of Margao. Costa helped clear the path for the latest, and boldest, project to restore the links between the city’s hilly, labyrinthine old quarters and the waterfront that runs along the river Tagus to the sea. By the river at Belém, not far from the exuberant Jerónimos monastery built to celebrate Vasco da Gama’s return, the new Museum of Art, Architecture and Technology (MAAT).

If this riverside boasts an imperial heritage, it also has a gritty industrial past. The MAAT site lies next door to the Central Tejo, a hulking, handsome power plant-turned-exhibition space, already Lisbon’s answer to Tate Modern. Together, these twin centres will form a 38,000-square metre artistic “campus”. Central Tejo merits a visit in itself. In contrast to the Tate, its gargantuan turbines and pipes sit proudly intact within a red-brick cathedral of electricity.
As with many European ports, Lisbon spent much of the late 20th century turning its back on the messy, and increasingly redundant, tangle of docks and wharves that had given it pomp and wealth. Now – as with Liverpool or Marseille, Bristol or Bilbao – culture and the leisure economy that partners it have driven the revival. [As] the regeneration game gathers pace, and nowhere faster than at the LX Factory. In the shadow of the bridge, this barrack-like complex was built to house textile workshops in 1846. Now there’s a warren of new businesses, from design studios and courtyard cafés to the cavernous Ler Devager (“Read Slowly”) bookshop. Housed in a former print works, with a bar inside, this temple to the arts shelves its eclectic stock high up into lofty rafters in a vast hall presided over by a flying-bicycle sculpture.

Compared to the studied cool of its post-industrial counterparts in Shoreditch, Barcelona or Berlin, the LX still has sacks of the offbeat, slightly reclusive, charm that old Lisbon made its trademark – and the renovated waterfront will surely retain.

APPROACH: Integrated mobility concept

In those cases where an urban renewal scheme suggests a change in the mobility modal split, this plan will only function if alternatives to the current situation are offered, and the attractiveness of the favoured solution is increased. Therefore public transport, road and parking planning, pricing etc. need to be well synchronized.

Case 50 Hamburg, Germany: HafenCity development

The first step to facilitate mobility in the new quarter in place of the old harbour is the fine-tuned interweaving of different land uses – living – working – culture – leisure – commerce, which minimizes the distances and reduced the transportation needs. The envisaged modal split reduces the habitual individual car use from 74% to 20%. All public parking lots are connected to an electronic guidance system to avoid unnecessary cruising for an empty parking lot – 30% of them equipped with fast currency charging facilities for electric cars –

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which are also available as part of the quarter-wide car sharing scheme. The electrical cars also serve as buffer-energy storage for the district heating-plus-energy power plant. A new metro line was built to connect the new quarter with the rest of the city and will be able to move 35,000 passengers daily. Public transport is complemented by several hydrogen powered bus lines and three piers for fetching the water taxis. Several bicycle lending stations have been installed. 70% of pedestrian and cyclist connections are independent (and undisturbed by) car traffic, 30% are located along the riverbanks. 4.2.5.4 Objective: Poverty alleviation

**APPRAOCH: Urban renewal programs targeting the poorest neighbourhoods**

Upgrading a poor neighbourhood, frequently facing a suspicious community, requires extra public relation resources which often are not available in conventional urban renewal programs. This way, the neediest population is easily left out unless special programs are targeting this problem.

**Case 51 Ireland: National RAPID programme, 2001**

The programme ‘Revitalising Areas by Planning, Investment and Development’ (RAPID) is aimed at improving the quality of life and employment opportunities for residents of the most disadvantaged communities in Irish cities and towns. It aims, in a focused and practical way, to reduce the deprivations commonly faced by residents of disadvantaged communities. It attempts to do this through targeting significant state resources at the needs of disadvantaged areas. Intertwined problems characterise the addressed communities suffering from personal and social deficits – also including the vicious circle of poverty:

- a lack of income;
- a lack of respect between generations;

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167 [https://www.pobal.ie/FAQ/Pages/RAPID.aspx](https://www.pobal.ie/FAQ/Pages/RAPID.aspx) viewed 8/3/2015
169 [http://www.clarecoco.ie/community/rapid/](http://www.clarecoco.ie/community/rapid/) viewed 04/06/2015
170 [https://www.pobal.ie/Beneficiaries/RAPID/Pages/default.aspx](https://www.pobal.ie/Beneficiaries/RAPID/Pages/default.aspx) viewed 04/06/2015
• pockets of criminal activity;
• vandalism including destruction of public and private property.

The residents of those quarters often also witness other forms of negative and destructive behaviour towards self and others, ranging from depression, addiction, self-harm, suicide, lack of constancy, inability to negotiate and participate, anti-social behaviour, family and social violence, physical and sexual abuse and antagonism towards neighbours and members of the general public. The rapid RAPID program aims to address these problems by

• increasing the investment made by Government departments and state agencies in the 46 communities;
• Improving the delivery of public services through integration and coordination
• Enhancing the opportunities for communities to participate in the strategic improvement of their areas.

The programme also offers additional facilities and services and/or re-design current facilities and services so that they are better equipped to the needs of the community. The programme works within a community development approach where the full participation of the community is seen as essential in order to: (a) increase the quantity and quality of public goods and (b) enhance the capacity for self-organising and self-advocacy of individuals, families and community. More concrete examples of public goods and public services provided within RAPID include, among others:

• environmental goods (development and maintenance of green spaces, public buildings, the appearance of houses, the removal of litter and rubbish
• public safety (road alignment, traffic calming, regular patrols, protection of residents, parking, CCTV addressing anti-social behaviour, personal visits to re-assure older people)
• cultural, sport and recreational facilities (community venues, all weather floodlit facilities, playgrounds, games pitches)
• transport (extending public and community transport facilities)
• family support (parental involvement, family relationships, addressing addiction, dealing with disruptive behaviour, providing home support systems)
• education (school retention and performance, adult and life-long learning)
• health promotion (community and personal health strategies for all age groups)
• enhancing the capacity of individuals, families and the community
• stimulating participation in cultural, social, political, sporting and leisure activities

The RAPID programme started 2001 in 51 neighbourhoods and has been combined with the larger network of 54 local development companies all over the country.
The Ballybane Neighbourhood Revitalization project in Ireland, part of the RAPID program, became finalist for UN-HABITAT Award 2007.


### Case 52 Germany: Social City Programme (Soziale Stadt) 2000

This program integrates the efforts of various departments and administrative levels in German municipalities in order to tackle the complex issues of urban development programmes in neighbourhoods and quarters with ‘specific needs’. It aims at physical and social “rehabilitation” at the same time but is extremely flexible in respect to the measures to be taken. Social segregation can be an issue to address. The funding proposals have to demonstrate the need for a complex urban development and also need to present a detailed plan of planned and integrated measures. So far (2013) a total 617 areas had been included in the program, distributed between 378 German municipalities.

Source: [http://www.worms.de/de-wAssets/img/mein-worms/bauen_wohnen/gruenflaechen/Soziale-Schiene-Bild2.jpg](http://www.worms.de/de-wAssets/img/mein-worms/bauen_wohnen/gruenflaechen/Soziale-Schiene-Bild2.jpg)

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171 [http://www.innovateballymun.org/sites/default/files/socialinnovation/Social%20Sustainabilityand%20Urban%20Regenerationreport_0.pdf](http://www.innovateballymun.org/sites/default/files/socialinnovation/Social%20Sustainabilityand%20Urban%20Regenerationreport_0.pdf), page 34, visited 18/05/2015


172 [http://www.staedtebaufoerderung.info/StBauF/DE/Programm/SozialeStadt/soziale_stadt_node.html](http://www.staedtebaufoerderung.info/StBauF/DE/Programm/SozialeStadt/soziale_stadt_node.html) accessed 22/05/2015
Case 53 Dortmund, Germany: Clarenberg Social City Program 1992

Around 1970, a large housing estate with buildings up to 17 floors high had been constructed in Dortmund with the purpose to house more than 3,000 people in social housing units. Twenty years later, a high percentage of unemployed or low-salary tenants combined with high fluctuation rates exposed serious social problems within the estate which called for urgent action on behalf of the municipality. A first and mostly physical improvement program started in 1992 and continued until 1998. After the estate had been sold to a commercial property company as result of a neo-liberal housing policy shift, Clarenberg was included in the Social City Program which promoted environmental improvement and a large number of social sub-projects. For example, 8 meters high house numbers were placed in front of the entrances understood as pieces of art, care takers named ‘Concierges’ were sitting at reception desks in the lobby but also helped with minor repairs. Even if the financial situation of the residents may not have improved, the social problems were alleviated and even the social stigma that was attached to the housing estate before renovation was overcome. It is interesting to observe that a simple measure like new clothing for the tower blocks can help to dilute stigmatization if is accompanied with an adequate social works programme.

**Approach:** Income generation programs

The formal labour market prefers applications from people who already have relevant work experience. This makes it very difficult to find employment for young people who are just entering the job market. However, many of those applicants are very talented and imaginative – a capital which can be exploited. In urban renewal schemes, the provision of cheap work space is an asset which may be developed into a busy start-up economy nucleus. In many cities empty ware houses have been adapted to provide such opportunities, with the rent covered through a subsidy for the first couple of years.

Case 54 Berlin, Germany: CUCULA


**Source:**

Dortmund Clarenberg after revalorization program

[Dortmund Clarenberg House Entries after revalorization program](http://www.brandeins.de/fileadmin/_processed_/csm_126_133_L1045312_ef60c6f26e.jpg)
In response to the increasingly critical situation of African refugees who have arrived in Berlin, the Internationale JugendKunst- und Kulturhaus started an initiative providing ‘shelter against the cold’. Among the first beneficiaries, five young men from West Africa obtained accommodation and started to construct the needed furniture on their own to equip their rooms. This marks the birth of CUCULA. The CUCULA Refugees Company for Crafts and Design is a model operation empowering refugees to earn their income and build their own career. As a factory for design furniture CUCULA creates training programmes, thereby creating real prospects. The CUCULA furniture pieces are not only design classics, they also represent the stories of their makers. The 19 DIY furniture design plans from Enzo Mari’s book ‘Autoprogettazione’ in 1974 mark an important milestone in the history of product design. Positioned in contrast to the formalism of the time, Enzo Mari suggests the democratization of design, provoking a stronger identification with our own furniture and fostering a learning and reflection process. 40 years later Enzo Mari grants the team of CUCULA the rights to sell furniture based on his plans.

CUCULA found accommodation in a former warehouse belonging to an industrial revitalization zone on the banks of Spree river in Berlin, which 10 years ago has been converted into an international youth art and culture centre which is a registered non-profit organization supported by funding from Berlin based companies, the municipality and individuals.

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<thead>
<tr>
<th>CUCULA Office, Berlin</th>
<th>CUCULA team, Berlin</th>
<th>CUCULA production, Berlin, Germany</th>
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<tr>
<td>![CUCULA Office, Berlin](source: FredMoseley)</td>
<td>![CUCULA team, Berlin](source: Verena Brüning)</td>
<td>![CUCULA production, Berlin, Germany](source: Bambino)</td>
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**APPROACH: Neighbourhood service centres**

Public institutions can be a great thing and are supposed to assist the resident population who pays for them anyway through their taxes. But often they maintain a bureaucratic tenure, are accommodated far away from their clientele in some institutional premises with annoying opening hours and possibly staff exposing quite a hostile tune. Fortunately a new generation of ‘real’ public service centres are popping up, often located right within socially critical urban renewal settings, where citizens are not sent from one office to another but find all type of assistance underneath one roof and can even turn up at late hours. Under the same roof you may also find innovative interpretations of public libraries, where you can watch videos, take the books to the coffee shop or can take evening classes. Obviously, kids from less educational family background feel more attracted to these establishments than to classical borough libraries, and will voluntarily learn ‘the easy way’.
Case 55 London, United Kingdom: Idea Stores - culture-led revitalization 2002

Idea Stores are a transformation of conventional public libraries into service oriented one-stop information and learning centres – housed in identity creating flagship buildings on the local high street. The most welcoming characteristic is the character of a real customer care and ‘retail feel’. The commercial model is the inspiration here too, albeit the purpose remains to deliver a free, not for profit, public service. The newer ones of the 5 existing ‘Idea Stores’ also incorporate a One Stop Shop - a customer facing service point dealing with local residents’ enquiries relating to housing. Another important factor for the success of Idea Stores, it is that as much effort was put in the concept as on the design of the new buildings.

London Idea store


4.2.5.5 Objective: Social inclusion

With the widening gap between the poor and the rich, accompanied by progressing privatization of public space, socio-spatial segregation becomes more evident and turns very conflictive where it leads to expulsion and gentrification of traditionally low-income neighbourhoods. In urban renewal schemes these processes can always be an unintended side effect and should be avoided at all cost. Tool URR 3

Approach: Positive discrimination

Many urban renewal schemes in Europe are specifically targeted to low-income and otherwise disadvantaged (i.e. Sinti or refugee) groups. Under the condition that there are not enough funds to offer all services to the entire population indiscriminately this is a wise strategy – but bears the risk of automatically stigmatizing the population living in the concerned area. Tool URR 3

Case 56 Scotland: Community-led urban renewal

177 https://www.ideastore.co.uk/ viewed 31/05/2015
179 http://www.gov.scot/Topics/Built-Environment/regeneration
In 2011, the so called new urban regeneration strategy was launched by the Government of Scotland under the title “Achieving a Sustainable Future” in Scotland is considered a necessary ingredient of economic growth strategies. It is targeted to country’s most disadvantaged communities. Reliance on reinforcing endogenous potentials in poor neighbourhood the risk of stigmatization is being reduced.

In 2014, the first 50 community-led organisations have been identified to receive investment of up to £3 million which will support the regeneration of areas throughout Scotland. Of particular interest is the enouncement about an “Investment in a new community capacity building programme. This will focus on areas where there are currently few local organisations, weak networks amongst local people and where local people’s skills and confidence need to be nurtured. It will have a focus on helping people to decide how budgets in their areas are spent”. There are no details yet on how this will work, or who will nominate an area as having low capacity\(^{180}\). Tool URR 3

Kilwinning Town Centre Regeneration Plan (Scotland)

The Main Street is the key open space in Kilwinning and the project aims to transform the historic setting of the Town Centre and the Abbey with high quality, design led public space improvements. The creation of an attractive, robust and adaptable streetscape will encourage the wider regeneration of the town. New paving, seating, lighting and landscaping all contribute to make this a dynamic space that will attract new business, create jobs and increase visitor numbers. The project was developed in close consultation with the Kilwinning community and key stakeholders over a period of two and a half years and is designed to provide a contemporary streetscape whilst capturing the unique history of the town.


4.2.5.6 Objective: Fighting stigmatization

Stigmatization generally leads to exclusion, but can be stronger than just economic exclusion since it adds other, for example cultural or ethnic prejudices to exclusion. Quite frequently, parts of the disadvantaged or poor population, in order not to admit that they at the losing end of society, look out for minority groups which they can consider of less value. Sometimes the mere fact of living in a certain neighbourhood can lead to stigmatization. In that case, the

objective of urban revalorization scheme may include generating a better image of the neighbourhood. **Tool URR 3**

**APPRAOCH: Social engineering**

*Where an area suffers stigmatization because of the decaying architecture, it may be enough to embark on an uplifting of the facades. If the stigmatization is based on a racial, religious or other personalised argument then physical interventions are not enough. Specific magnets must be found to convince ‘respectable’ members of society also to move to the area in question as part of the renewal process. **Tool URR 3***

**Case 57 Rotterdam, The Netherlands: Rotterdam South Pact 2004**

As part of a privatization policy the city of Rotterdam tried to sell part of its renovated housing portfolio in low-income neighbourhoods to prospective home owners, but without much success. For the resident population, mostly migrant, the price was too high and the better off were heading to better zones. In a second attempt the houses were offered without previous renovation at a minimal cost to self-builders who were obliged to live in the house for certain minimum number of years. These self-builders were mostly born Dutch citizens and were widely welcome in the neighbourhood since they were seen as a sign of social upgrading also for themselves. So far, no gentrification has been manifest, but local shops now also include higher value products in their displays. **Tool URR 3**

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181 http://www.innovateballymun.org/sites/default/files/socialinnovation/Social%20Sustainabilityand%20Urban%20Regenerationreport_0.pdf visited 18/05/2015
Leipzig East encompasses several suburbs to the East of Leipzig's city centre and accommodates a population of 27,000 within an area of 347 ha. This mainly residential area is characterised by dense, late nineteenth-century block structures and large-panel construction development of the 1970s. Historically, the area was known as the 'graphics quarter' due to the dominance of publishing companies and printing works and the residents were mostly 'working class'. During World War II, the area suffered considerable damage, from which the industrial sector never recovered. During the GDR regime only limited resources for reconstruction and maintenance of the built environment were available which led to further physical decay.184

Economic decline in East Germany after reunification caused a downturn in housing markets and a movement away from certain neighbourhoods (like the large panel prefabricated housing estates) towards the more affluent parts of the city of Leipzig. In the same way, poorer households moved into the historical Eastern part of Leipzig which recently presents a characteristic of an ageing population, but also families with a high proportion of children and adolescents. Among the less well-off new arrivals we observe a larger number of migrant households and ethnic German immigrants from Eastern Europe. Hence the proportion of migrants in East Leipzig is higher than for the city as a whole. Due to segregation and social disintegration the social structure of East Leipzig - especially the borough of Volkmarsdorf - displays serious problems.

In order to face the evident problems of this area a comprehensive urban regeneration program was started in the 1990s. Soft end land uses were decisive in changing the image of the district. Also the opening of new green spaces (both public and private) as well as cultural events in the district helped considerably and became focal points of community life today.

184 http://www.leipziger-osten.de/content/stadt-umbauen/ueberblick/ accessed 04/06/2015
With the start of programme implementation, the Leipzig municipality reformed its organisational and management in a three level structure: city-wide administration, an operative district level and participatory neighbourhood levels. Now it is generally accepted that East Leipzig can be considered an example of successful integration.

**Approach: Diversification of housing mix**

In the European culture, large and homogeneous housing estates are not liked very much, even by its own residents. People like to be different from others which is expressed, for example, in the desire for an individualized front door. Furthermore, in countries where social housing is not available to everyone any more but only poor families with small or no income, those estates are easily stigmatised. This may extend to the entire neighbourhood if this only consists of similar housing typology. Therefore it is only logical that in order to fight stigmatization, a greater variety of housing types – and status of residents at the same time – is a good answer to the problem.

**Case 59 Amsterdam, The Netherlands: Bijlmermeer 1992 & 2007-12**

This large housing estate had become a ghetto of migrants with their associated problems of drug consumption and dealing, general delinquency and unemployment. Physical renovation of the neighbourhood concentrated on partial demolition and a wider mix of housing typology, land uses and tenure variety. This strategy helped to conquer stigmatization of the area and to attract other residents as well, though demanding for higher standards and home ownerships. Social control also helped to reduce the police statistics about criminality. The aspired effect took place, but other critical voices talk about black gentrification.


Photo: [verwoerd@architectural-photographer.eu](mailto:verwoerd@architectural-photographer.eu)

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4.2.5.7 Objective: Cultural identity

Approach: Participation

The concept of sustainability implies the survival and stable operation of a project after its formal ending – when a project turns into a practice. In urban regeneration this requires that the local population identify itself with the project which is best achieved through active participation in the planning and decision making right from the beginning. This is part of community building and contributes to the formation of neighbourhood identity.

Case 60 Copenhagen, Denmark: Kvarterloeft initiative 1997-2007

Kvarterloeft was a large scale initiative to revitalize deprived urban areas and to improve their public image through a holistic initiative based on public participation and through public-private partnership. It began in 1997 and concluded in 2007 reaching a total population of about 120,000 people in two types of problematic situation: One were large non-profit housing estates mostly built in the period 1960-80 and the other were older parts of the bigger cities (especially in Copenhagen) with low housing standards, traffic problems or with industrial sites that can be used for new functions.

Map of Kvarterloeft projects in Copenhagen

Source: Danish Ministry of Migration and Integration

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188 [http://webhost.ua.ac.be/ugis/results/udps/DK_kvarterloeft.pdf](http://webhost.ua.ac.be/ugis/results/udps/DK_kvarterloeft.pdf) seen 02/06/2015
In the selection of the projects there was an increasing focus on urban competition. Each urban community is positioning itself, striving for growth and attracting residents with strong resources. This not only mirrors global competition trends but also explains the big differences between the goals set up in the plan for each area and the social composition of the same.

An important feature was the institutional set-up and community participation. The funding came from the Dutch government and was administered by the Ministry of Refugees, Immigration and Integration Affairs. Local municipalities identified the quarters and made bids for funding which were granted under the condition that the local authority was providing matching funds. Each scheme had a local operational office staffed by the municipality and supervised by a steering committee of 20 to 25 people representing local bodies and resident initiatives. Public meetings were held regularly and individual projects were prepared by working groups including the residents.¹⁹⁰

Although it is not easy to change a negative stigma, a survey of the 50 projects shows that the previously negative image of most of the involved neighbourhoods was improved. The conclusion is that participation and transparent processes play important roles. Another survey shows that the Kvarterloeft projects have helped to reduce the scope of vandalism – especially graffiti – and to some extent violence and burglaries in houses. The list of reported program achievements is impressive:¹⁹¹

- a reduction in the scope of vandalism
- an improvement of residents’ perception of each other and the areas
- a strengthening of society cohesion through the formation of traditional societies and networks
- evolution of cross-neighbourhood networks
- a strengthening of social capital in the areas
- development of attractive district plans with residents and experts which have been successfully implemented with a high rate of completion
- the projects were appreciated to be of high quality by residents and experts alike
- successful regeneration of large recreational areas
- increased familiarity with and participation in resident-led initiatives
- a holistic approach has been adopted by various administrations
- involvement of universities in terms of advice, research and publications
- creation of a lively debate about the initiative among professionals
- innovation Danish urban planning practice
- mainstreaming of the kvarterloeft concept in urban renewal legislation and social housing programs
- a new and more user-friendly attitude has evolved in the relation between government and local communities.

¹⁹⁰ https://books.google.de/books?id=3sLudUajwTc&Cpg=PA48&pg=PA48&dq=Kvarterloeft&source=bl&ots=OKf_baDdhI&sig=4rdI4iGsGqK5mNvXnPv8y7pkeYULil=env=sao=X&ved=0CFUEw6AEwGGoVChMIDwLwYaPwIVTAAYsCh2SrbW7#v=onepage&q=Kvarterloeft&f=false seen 8/4/2015
4.2.5.8 Objective: Crime and violence prevention

Over the last years, urban violence has been perceived a problem also in certain European cities – for example in immigrant quarters with high rates of unemployment and in relation to vagrants loitering in public space. Hence, violence reduction and prevention is being frequently included in the list of expected outcomes of urban renewal projects. The three principal strategies in violence reduction and prevention include policing, physical provision and community building. ➔ Tool URR 3

Approach: Conventional policing

The classical response to deviant behaviour is repression by the state and is still occasionally effective in extreme situation – the main reference case is the strong arm policing initiative promoted by the mayor of New York in the 1990s. A precondition, however, is that the state itself and its police strictly follow democratic principles which is not always the case even in Europe. ➔ Tool URR 3
Since their introduction in 2012, a total of 80 Priority Security Zones have been declared all over France, with a total population of 1.6 million people. These zones have been chosen according to the concerns of population living within, and the objective is to reduce the levels of delinquency through a concerted action of between the concerned state institutions, and the employment of 500 additional policemen. The targeted forms of delinquency include burglary, violence, drugs, alcohol, underground economies, gatherings of youth in public spaces of housing estates. More recently, prevention of terrorism and drug trafficking has also been included in the argumentation for establishing the ZSPs (Zones de sécurité prioritaire).

First claims of success have been voiced by politicians, like a 32% decrease in reported violence in Amiens, or 28% decrease in the department Gard, but there are contradicting accounts as well. For example, no information is available whether delinquency has simply displaced to surrounding areas.

**APPRAOCH: Shared space streets**

Lonely places are often perceived as unsafe, even if there is no statistical evidence to support it. The same applies to streets in which delinquents with cars and motos can escape quickly and easily. On the other hand, a reasonably frequented urban pedestrian area is believed to be relatively safe because there are many potential helpers around who can intervene in case of an attack. Therefore pedestrian areas and traffic speed reduction can reduce the fear of violence and crime.

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The seaside city of Brighton & Hove on the South coast of England attracts millions of visitors every year. However, over time the historical high street leading from the harbour into the city centre was run down and neglected – most people try get away from it as quick as possible. The Danish landscape planner Jan Gehl was commissioned to redesign the street but did not come up with a standard pedestrian road but proposed a new street typology instead: a shared space between cars (faced with a number of obstacles to reduce their velocity to walking speed) and pedestrians.

The implemented physical improvements – including high quality urban landscaping - significantly increase the frequency of pedestrians and contribute to social control over potential criminal vagrants previously concentrating in this space. Traffic levels have dropped by 93%, the number of pedestrians has increased by 62%, and there has been a 600% increase in 'good' lingering activities. People apparently enjoy being here. Today 86% would like to see more areas like New Road in their city. ➔ Tool URR 3

Brighton New Road transformed into shared space by the Danish architect Jan Gehl

Approach: Community building and participation

A strong community is the best safeguard against public violence, and when people know each other they are more likely to assist you when threatened by foreigners and intruders. Therefore community building is an effective means of violence prevention and has been introduced in

195 http://gehlarchitects.com/cases/new-road-brighton-uk/ visited 17/05/2015
projects where safety is an issue. ➔ Tool URR 3

Case 63 Belfast, Northern Ireland: The URBAN II Renewal Program and The Neighbourhood Renewal Strategy “People and Place” 197,198,199

Belfast, the capital of Northern Ireland experienced a long history of urban violence. The worst years, locally referred to as ‘The Troubles’, were the period 1969-98, during which over 1,900 citizens were killed while sporadic violent events continued up to 2014.200 The conflict is said to have evolved between protestants and Catholics – but the thriving interests were rather political than religious.

After ‘the troubles’ were settled in a peace treaty 1998, the ‘URBAN II Community Initiative Programme’ was launched for 2000-2006. A different and complementary program Neighbourhood Renewal Programme “People and Place”, was added in 2003. Neighbourhoods in the most deprived 10% of wards across Northern Ireland were identified to possibly being included in the program using a Multiple Deprivation Measure. Following extensive consultation, a total of 36 areas have been included finally in the program, representing a population of approximately 280,000 – or one person in 6 in the country. ➔ Tool URR 3

The URBAN II Renewal Program201 must be interpreted in a post-conflict context. The emergence of peace, after nearly three decades of conflict, opens new possibilities especially in areas blighted by fear and violence. Rigid patterns of segregation, increasing territoriality and the growth in the number of interfaces represent the brutal scars of division and mistrust especially in inner North Belfast. The area contains a range of ethno-religious, economic and inner-city problems that characterise its distinctiveness as a place of fear stratified by six peace lines, with the highest rates of deaths during the Troubles and high rates of neighbourhood conflict and intimidation. The area’s problems can be traced back to the mass-movement of the civilian population that followed the outbreak of violence in Northern Ireland in 1969. This left ‘jagged’ edges to ethnic territory, some communities trapped in enclaves and a landscape blighted by rising segregation. Intervening to regenerate and renovate this landscape is one of the key priorities in this operational Programme.

Program activities aimed at combining inner-city change with issues of de-segregation of formerly hostile territories. The URBAN II Programme allowed for visionary responses to: interface areas, contested land blighted by fear and violence, community participation in deeply divided areas, the opportunity to construct cross-community approaches to shared environmental problems, how to rescue and redirect part of the urban economy drifting further and inexorably away from the city fabric, building hope and opportunity for the youth. A priority for URBAN II will be the renewal of the physical environment blighted by economic decline and the legacy of violence. This will include actions to remove the worst

199 https://books.google.de/books?id=DWgeAwAAQBAJ&pg=PA88&lpg=PA88&dq=violence+urban+renewal+belfast&source=b&ots=_wBTkCtYz3&sig=t9avBmTCZ0tpZPUXqU1XidWJuQ&hl=en&sa=X&ved=0CEYQ6AEwBmoVChMi57DSIO2PxwVBZdyCh1snQUn#v=onepage&q=violence%20urban%20renewal%20belfast&f=false
environmental eyesores, improve the quality of arterial routes and attractiveness of access points to the area. Specific problems to be addressed include:

- Pervasive sense of fear, danger and direct violence to people and property
- Death and injury, high rates of death and violence
- Land and housing near interface areas blighted by fear, violence and lack of investment confidence
- The Lower North area of Belfast experiences some of the highest rates of physical dereliction, neglect and vandalism. It is fractured by a number of interfaces that have been the scene of recent paramilitary violence and inter-community disturbances.

The Neighbourhood Renewal Strategy “People and Place” was launched in June 2003 and managed through North Belfast Partnership who had been contracted as facilitators the 36 Neighbourhood Renewal Areas (NRAs). Its strategy set out 4 interlinking objectives:

- Community Renewal – to develop confident communities that are able and committed to improving the quality of life in the most deprived neighbourhoods;
- Economic Renewal – to develop economic activity in the most deprived neighbourhoods and connect them to the wider urban economy;
- Social Renewal – to improve the lives of people in the most deprived neighbourhoods through better coordinated services and the creation of safer districts;
- Physical Renewal – to help create attractive, safe, sustainable environments in the most deprived neighbourhoods.

It is interesting to note that two of the seven success indicators were related to violence:

- Number of recorded crimes and offences per 1,000 population.
- Percentage of residents who are afraid to go out alone after dark.

The program is also focusing on delivering Domestic Violence training in the area and has built a link with the local Domestic Violence Unit to look into a more structured Local Community Safety plan. The coordinator has worked in collaboration with local organisations to deliver ‘One Stop Shops’ that run twice a month. These promote education, training services and job opportunities in Belfast to the local residents.

As a concluding remark it should be highlighted that the specific character neither of public violence nor of domestic violence can be resolved through police intervention. Conflict resolution is only conceivable through dialogue and joint personal experiences.
The fencing on the Belfast "peace line"

The peace lines were a series of high border barriers in Northern Ireland that separate Irish nationalist and the rest of the country.

Source: https://upload.wikimedia.org/wikipedia/commons/thumb/0/04/Belfast_peace_line_Cupar_Way.jpg/400px-Belfast_peace_line_Cupar_Way.jpg

Loyalist Mural, Belfast, Northern Ireland, 2012

Photo: Marc Gautier.
Source: http://farm8.static.flickr.com/7120/7704508126_2d4767f435_m.jpg

4.2.5.9 Objective: Conviviality, well being

So far, all presented urban renewal activities were designed to support deprived neighbourhoods with serious urban and social problems. Of course, better off parts of the city are also being renewed – usually funded by the ordinary municipal budget – and therefore special programs are not necessary. There are also cheaper since only the physical works need to financed and the positive long-term effects in the sense of place branding are even bigger since international visitors more likely to visit these zones rather than deprived neighbourhoods. ⇒ Tool URR 3

APPROACH: Multi-centrality and the enhancement of public open space

Whereas the up-keeping and modernization of individual houses usually are the responsibility of the owner, the valorisation of public and semi-space (smaller streets and places, de-densification of street blocks, attractive public spaces) fall into the responsibility of the municipality. Investments in this field pay back in the long and medium term as quality of life in a city influences the choice of residence for investors, high rank decision makers of companies but also of well-off old age pensioners. ⇒ Tool URR 3

Case 64: Italy Bologna: Bella Fuori 2007

In the history of urban renewal Bologna occupies a high popularity since it was the first city in Europe\(^\text{202}\) which barred the historic centre for individual motor traffic and kept on refining}

\(^\text{202}\) https://books.google.de/books?id=xJHKeXEhn4MC&pg=PA679&dq=bologna+traffic+calming&hl=en&sa=X&ved=0CDkQ6AEwBqUahUKEwi70daq5DHAHvQnXIkJHBrJAEo&f=false seen 8/4/2015
Whereas initial urban regeneration projects centred on the historical precincts of Bologna, a more recent initiative ‘Bella Fuori’ aims at revitalizing peripheral areas of the city, located “outside” the city centre and are a joint venture between the municipality of Bologna and the „Del Monte Foundation” (financing the project). The basic assumption was based on the idea of multi centrality and was to valorise „new urban centralities”. In practice this aim was applied to the rearrangement of the two public garden areas in via Garavaglia: the “Renato Bentivogli” public garden and the new „Francesco Zanardi” civic centre area (2010-12).

A second call, in 2012, shifted more away from the initial esthetical approach by addressing the use value of public space (‘commons’) and was started in the neighbourhood San Donato but then spread to different areas with political emphasis on participation setting new rules in the collaborations between the public administrations and citizens in respect to the regeneration of urban commons.

A third phase (2013-15), intended to address eco-ethic dimensions of public space, added ecology as a third dimension in the program.

The three editions of the program well illustrate the global shift in urban renewal priorities: from physical and beautification concerns to public participation and accountability and from there to ecological improvements.

Another, maybe even more interesting project of the city of Bologna is named ‘Competition Autorecuperò’. The idea is that some empty buildings originating from the early 19th century will be leased to a cooperative of self-builders who will renovate the premises under professional guidance and later live in it.

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203 http://transit.gencat.cat/web/content/articles/arxius_ponencies_v_congres/giancarlo_sgubbi_experiencia_de_la_ciutat_de_bolonya.pdf seen 8/4/2015
204 http://www.comune.bo.it/news/croce-del-biacco-arriva-bella-fuori-30 visited 05/06/2015
205 http://fondazionedelmonte.it/progetti/progetti-strategici/bella-fuori visited 05/06/2015
207 http://www.comune.bologna.it/casa/servizi/8:1035/3913/ visited 05/06/2015
Historic buildings, whether listed or not, account largely for the cultural identity of a city. Furthermore, due to a less competitive land market at their time of origin, the plan can be more generous and the rooms can be higher than modern buildings can afford. Ecologically speaking, the recycling of existing building structures is more sustainable than demolition and new construction anyway. 

**APPRAOCH: Conversion with change of land use**

Listed historic buildings, maybe even with UNESCO certification, are intended to tell us and future generations about our historical past and should therefore be authentic; substantial alterations should be avoided. Conversions, on the contrary, generally maintain the outer skin of a building while the interior can be modified and adjusted to the future occupants need – either residential or commercial.

**Case 65: Copenhagen: Carlsberg City 2009**

Revitalization of a listed historical industrial site. The Carlsberg District, the former site of Carlsberg brewery, has been appointed one of Denmark’s most important industrial memories with a very important science history. The master plan for the transformation of Carlsberg City District, in 2009, was awarded the prize for ‘Best Master Plan in the World’ at the World Architecture Festival in Barcelona. The authors of the plan (Entasis) say that they were inspired by the qualities of historic city centres – which is identical as what characterizes the New Urbanism movement.

Once Carlsberg City District is fully developed it will comprise 600,000 square metres of floor space divided into private residences, retail and business premises as well as cultural, sporting and educational venues. The historical buildings only form a small section of the entire development, which softens the elitist character of conservation works. Transport-wise, Carlsberg City District will be well connected by its new modern commuter railway station, “Carlsberg Station”, and a new metro station, which is only a few hundred metres from the neighbourhood. Furthermore, a web of bike lanes will provide quick and safe transport for the district’s many cyclists.
Carlsberg City outside Copenhagen – a New Town in former industrial premises.

Case 66: Bristol Temple Quarter

Bristol Temple Quarter, one of the largest urban regeneration projects in the UK, is set right in the heart of Bristol. With Bristol Temple Meads at its core, it is already home to rapidly growing clusters of small and start-up businesses, particularly in the creative, digital and hi-tech sectors. The 70 hectare site was officially declared open for business by the Chancellor in April 2012, and the project will last for 25 years.

Enterprise zones have been set up by the government to drive local growth and create jobs. They offer a range of incentives to businesses, such as business rates relief, simplified planning and superfast broadband. They also offer benefits to the communities surrounding them by unlocking key development sites, consolidating infrastructure, attracting business and creating jobs. All business rates growth generated by the enterprise zones is kept by the relevant local enterprise partnership and local authorities for 25 years, allowing them to reinvest in local economic growth.

Aims: The Bristol Temple Quarter aims to attract 4,000 jobs by 2017 and around 17,000 over the 25 year lifespan of the project. In 2015, the 2,000 jobs mark was reached and over 300 businesses are already in the Zone.

Key Projects:
1. Temple Meads redevelopment
Temple Meads is one of the last remaining unimproved mainline train stations in the UK. Its redevelopment is needed to become a twenty-first century integrated regional transport hub. Network Rail are investing over £2 billion into the electrification of the Great Western route. This will result in faster and more frequent services between Bristol and London.

2. Paintworks

Paintworks is a 12 acre mixed-use development aimed at creative people and companies. It is based in the south of the Enterprise Zone, run by Verve Properties and opened in 2006. Four phases of work have been planned to develop the site: phases I and II took place between 2005 and 2008, phase III is currently underway and phase IV is due to be complete by 2018. Phase IV of Paintworks will see the demolition of the Endemol building and partial demolition of Building 6 to enable the creation of four new buildings and associated public space. In total, the developments will contribute a total of 250,000sqft of active space.

3. Arena

The Bristol Arena is a new, world-class 12,000 capacity entertainment venue for hosting over 100 large scale spectator events a year, due to be located on the former diesel depot site near Bristol Temple Meads station. A catalyst for development, the arena will bring the adjacent riverside land back into use and draw tens of millions pounds of additional money to the region.

4. Temple Gate

Located to the east of Bristol city centre, next to Temple Meads station, Temple Gate was one of several gateways into the medieval city of Bristol and one of the key arrival points to the city. The area has undergone massive changes primarily due to the expansion of the railway in the nineteenth century and road construction in the twentieth century. This has left a fragmented layout that is difficult to navigate. The project aims to begin addressing this problem by creating:

- A direct road layout and changes to access: removing the Temple Circus roundabout and replacing it with a simplified, signal-controlled intersection.
- More space for people
- Better public transport facilities
- Space freed up for regeneration and renewal, including new buildings and a public square
- A new MetroBus stop

This first phase of this work is part of a £21 million programme of road, cycle and pedestrian route improvements across the zone.

5. Temple Greenways

The new routes these improvements will create have been called Temple Greenways, a name which reflects their ecological design and how they link to Totterdown Basin, a 'green heart' for Temple Quarter. Once these new routes are in place, the streets and spaces
around Temple Quarter will be safe, friendly and attractive, and getting around the area will be an easy and pleasant experience.

6. Heat Networks and Broadband

£3 million is being invested in heat networks (sometimes referred to as District Heating) that will provide businesses in the Enterprise Zone with a cost-effective and lower carbon energy source; putting them in place will reduce carbon emissions from the Zone by around 1,300 tonnes per year.

£11.3 million from the Government’s Urban Broadband Fund to ensure that a world-class digital infrastructure was in place to benefit businesses across the city. This ultra-fast broadband project forms the basis of Bristol Is Open, derived from Bristol’s Super Connected Cities programme.

7. Engine Shed

Engine Shed is a collaboration between Bristol City Council, the University of Bristol and the West of England Local Enterprise Partnership. It is an enterprise hub providing workspace for a range of high-tech, creative and low carbon businesses. Set in Brunel’s original train station, a Grade I listed building built in 1841 and since given a £1.7 million transformation, Engine Shed aims to drive inward investment, create jobs and encourage a new generation of high growth businesses. Its prime location next to Bristol Temple Meads makes it one of the world’s most connected enterprise hubs, and experts predict it will generate 5,000 high-value jobs in the next 15 years.

8. Infrastructure

Brock’s Bridge, is 63m long, 18 metres wide, eventually open to cars, pedestrians and bikes, will vastly improve the access to the future Bristol Arena.

MetroBus, the citywide rapid bus scheme connecting the zone to the rest of the city, £200 million is being invested in MetroBus.

MetroWest will be key to the wider connectivity of the Temple Quarter Enterprise Zone. From 2017, MetroWest will link up major growth areas in the Enterprise Zone and the five Enterprise Areas in the West of England. The project will be split into several phases until 2028.

Source: http://www.bristoltemplequarter.com

4.3 Standards

Some European countries are more committed to standards than others. With the DIN Norms Germany was one of the first countries to establish an internationally accepted set of technical norms, but Urban Renewal has to do with people which by definition cannot be classified by a norm. On the other hand certain standards can help to guarantee equal rights to all individuals which may become an issue where developers try to enforce urban renewal projects without the consent of the resident population. In the following we will comment only on a small selection of norms to illustrate the spectrum of issues which can benefit from regulation.
4.3.1 Standards for the selection of renewal areas and beneficiaries

Standards for the selection become necessary in cases where different neighbourhoods or municipalities are competing for public funds and criteria are needed to decide for the allocation of the – always limited – subsidies. Dependent on the political preferences either structural deficits (like physical decay or prevailing sanitary equipment standards) or social indicators (level of unemployment, income or educational levels) are taken into consideration, or a combination of both.

In other cases, the professional quality or expected effectiveness of proposed measures are taken as a base for allocating funds to competing applicants (districts or municipalities). In some cases funding for each case is limited to very few years which allows to reach more and other beneficiaries in a subsequent call.

4.3.2 Standards for the protection of cultural heritage

In the case of conservation of cultural heritage, the historical importance or architectural values are guiding rules, and the main criteria may be the legal recognition as a cultural monument through the respective agency. However, if the guiding policy intention behind a conservation program was ‘place branding’ in the first place, authentic conservation may be valued less than touristic appeal and attractiveness for shop owners of hotel managers, and creativity may become more important than authenticity. Coming back to poorer areas, residents in ancient industrial zones may not be very amazed about the idea to reconstruct an authentic early capitalist slum. Their need may be rather to gain a new and positive identity for their neighbourhood which helps to overcome stigmatization and develop civil pride.

In the context of preserving architectural heritage a general trend can be observed on a global scale: Whereas initially only individual buildings (churches, castles, birthplaces of famous personalities) enjoyed legal protection and recognition, nowadays such buildings are seen its special context and the preservation of cohesive conservation areas has almost become a rule.

Case 67: European Charter of the Architectural Heritage 1975211

The European Charter of the Architectural Heritage has been adopted by the Committee of Ministers of the Council of Europe and was solemnly proclaimed at the Congress on the European Architectural Heritage held in Amsterdam from 21 to 25 October 1975:

a) The European architectural heritage consists not only of our most important monuments: it also includes the groups of lesser buildings in our old towns and characteristic villages in their natural or manmade settings.

b) For many years, only major monuments were protected and restored and then without reference to their surroundings. More recently it was realized that, if the surroundings are impaired, even those monuments can lose much of their character.

c) Today it is recognized that entire groups of buildings, even if they do not include any example of outstanding merit, may have an atmosphere that gives them the quality of

211 Adopted by the Council of Europe, October 1975
works of art, welding different periods and styles into a harmonious whole. Such groups should also be preserved.

d) The architectural heritage is an expression of history and helps us to understand the relevance of the past to contemporary life.

e) *The past as embodied in the architectural heritage provides the sort of environment indispensable to a balanced and complete life.*

f) In the face of a rapidly changing civilization, in which brilliant successes are accompanied by grave perils, people today have an instinctive feeling for the value of this heritage.

g) This heritage should be passed on to future generations in its authentic state and in all its variety as an essential part of the memory of the human race. Otherwise, part of man's awareness of his own continuity will be destroyed.

h) *The architectural heritage is a capital of irreplaceable spiritual, cultural, social and economic value.*

i) Each generation places a different interpretation on the past and derives new inspiration from it. This capital has been built up over the centuries; the destruction of any part of it leaves us poorer since nothing new that we create, however fine, will make good the loss.

j) Our society now has to husband its resources. Far from being a luxury this heritage is an economic asset which can be used to save community resources.

k) *The structure of historic centres and sites is conducive to a harmonious social balance.*

By offering the right conditions for the development of a wide range of activities our old towns and villages favoured social integration. They can once again lend themselves to a beneficial spread of activities and to a more satisfactory social mix.

l) *The architectural heritage has an important part to play in education.*

The architectural heritage provides a wealth of material for explaining and comparing forms and styles and their applications. Today when visual appreciation and first-hand experience play a decisive role in education, it is essential to keep alive the evidence of different periods and their achievements.

The survival of this evidence will be assured only if the need to protect it is understood by the greatest number, particularly by the younger generation who will be its future guardians.

m) *This heritage is in danger.*

It is threatened by ignorance, obsolescence, deterioration of every kind and neglect. Urban planning can be destructive when authorities yield too readily to economic pressures and to the demands of motor traffic. Misapplied contemporary technology and ill-considered restoration may be disastrous to old structures. Above all, land and property speculation feeds upon all errors and omissions and brings to nought the most carefully laid plans.

n) *Integrated conservation averts these dangers*
Integrated conservation is achieved by the application of sensitive restoration techniques and the correct choice of appropriate functions. In the course of history the hearts of towns and sometimes villages have been left to deteriorate and have turned into areas of substandard housing. Their deterioration must be undertaken in a spirit of social justice and should not cause the departure of the poorer inhabitants. Because of this, conservation must be one of the first considerations in all urban and regional planning.

It should be noted that integrated conservation does not rule out the introduction of modern architecture into areas containing old buildings provided that the existing context, proportions, forms, sizes and scale are fully respected and traditional materials are used.

o) **Integrated conservation depends on legal, administrative, financial and technical support.**

- **Legal.** Integrated conservation should make full use of all existing laws and regulations that can contribute to the protection and preservation of the architectural heritage. Where such laws and regulations are insufficient for the purpose they should be supplemented by appropriate legal instruments at national, regional and local levels.

- **Administrative.** In order to carry out a policy of integrated conservation, properly staffed administrative services should be established.

- **Financial.** Where necessary the maintenance and restoration of the architectural heritage and individual parts thereof should be encouraged by suitable forms of financial aid and incentives, including tax measures. It is essential that the financial resources made available by public authorities for the restoration of historic centres should be at least equal to those allocated for new construction.

- **Technical.** There are today too few architects, technicians of all kinds, specialized firms and skilled craftsmen to respond to all the needs of restoration. It is necessary to develop training facilities and increase prospects of employment for the relevant managerial, technical and manual skills. The building industry should be urged to adapt itself to these needs. Traditional crafts should be fostered rather than allowed to die out.

p) **Integrated conservation cannot succeed without the cooperation of all.**

q) **Although the architectural heritage belongs to everyone, each of its parts is nevertheless at the mercy of any individual.**

r) **The public should be properly informed because citizens are entitled to participate in decisions affecting their environment. Each generation has only a life interest in this heritage and is responsible for passing it on to future generations.**

s) **The European architectural heritage is the common property of our continent.**

Conservation problems are not peculiar to any one country. They are common to the whole of Europe and should be dealt with in a coordinated manner. It lies with the Council of Europe to ensure that member states pursue coherent policies in a spirit of solidarity.
4.3.3 Standards for energy conservation

With the pressing concern for CO₂ reduction and mitigation of Climate Change there is a new political will to enforce adequate standards in that direction. In Europe space heating is the most important energy consumer in the built environment and therefore standards have been introduced first to measure the insulation quality of the building skin and their components. However, as the entire energy demand for a building depends on many factors, including for example also the size and shape of a building, or the efficiency and energy source of a heating system it has become mandatory in Germany, for example, that suppliers of housing provide an energy passport for each dwelling. At least in theory, as the energy demand boils down to operation costs of the dwelling, it is assumed that the higher demand for energy efficient buildings induces the house builders to increase the energy standards of their product.

Even if two houses look very much the same, they can be valued much differently according to their energy saving standards: Two houses in a German renewal area, one (on the left) before and the other (on the right) after energetic retrofitting. In fact, the requirement of preserving the architectural appearance while improving the energy performance can be an important, and often very expensive, requirement which justifies public subsidies for urban renewal.

Photos: Florian Steinberg

4.3.4 Standards for ecological buildings

In many countries the environmental qualities – which in fact should be larger than just the energy demand and can include the expected lifetime of a building, the ecological qualities etc.– are of interest for the construction industry as a selling argument. They have been pushing for a certification system (‘labelling’) in many countries referring to the British „BREEAM“ (Building Research Establishment Environmental Assessment Method) or the German Council of Sustainable Construction (DGNB) for Retrofitting of Urban Quarters, or the „MINERGIE-ECO“ label for public buildings and multi-family buildings in Switzerland. Germany, which is known for certain perfectionist tendencies, has developed a set of more demanding standards with about 65 different measurable criteria including for example also ecological, economic, socio-cultural, location, technical and process oriented criteria.²¹²

In this documentation we just intend to demonstrate the variety standards and their different criteria. The housing-construction position paper will provide more specific information in this respect. ➔ Tool URR 4

4.4 Technologies and Products

Technologies and products applied in urban renewal mostly refer to building construction and infrastructure provision – both of them are being dealt with considerable detail in other EC-Link Tool Boxes. Therefore in this section we will only refer to certain principles which repeatedly are being discussed in the context of urban renewal and urban revitalization.

4.4.1 Energy saving for appliances

Energy efficiency of electrical and other power appliances has fortunately improved considerably over the past couple of decades, like in the case of LED lamps just to name an example. It remains important, however, not to forget zero energy design elements in the buildings, such as natural lighting for bathrooms and kitchen and cross ventilation to reduce the need for air conditioning at least for part of the year.

4.4.2 Passive energy conservation / Passive or Solar houses\(^2\)\(^3\)\(^4\)

The original concept of passive energy use refers to capturing environmental heat and cooling gains just through adequate design and positioning – in contrast to active heating -- through ovens or cooling by use of air conditioning.

Passive houses were first introduced in Germany and in Scandinavia from 1990 onwards, but today the concept is known and applied all over the world. Its characteristics are very high energy saving standards, requiring only 10% of typical energy demand compared to customary construction. For example, In the UK, an average new house built to the Passive House standard would use 77% less energy for space heating, compared to the circa-2006 Building Regulations.\(^2\)\(^5\) Primary energy demand for heating, warm water and electricity must not be more than 120 kWh/m\(^2\) per year (37900 btu). This is normally achieved through hyper insulation and heat recovery for air exchange.

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213 http://passipedia.org/basics seen 18/08/2015;
4.4.3 Active energy conservation

The concept of active energy use in housing relies on in-house energy generation instead of relying on the grid or non-renewable energy resources. In the case of a zero energy house all energy needed for the operation and use of a house are self produced, whereas a Plus Energy house produces extra energy which can be used for productive activities or fed into the grid. However, in none of these house building concepts the incorporated energy during construction is being accounted for, nor is there a single authority providing a universal definition. On the contrary, there are numerous persons of institutions claiming authorship of the concept.

4.4.4 Zero energy house

The concept of the zero energy house goes back to Alexander Pike and some other scholars working at Cambridge University in the UK in the 1970s. They called it the ‘Autonomous House’ \(^\text{216}\) and extended it also to other means of self-sufficiency apart from energy.

Modern zero energy houses mostly incorporate large areas of photovoltaic panels apart from possibly other energy generating appliances and feed electric energy into the grid during daytime, which they recover back during the night, when there is no sunlight to produce home energy.

4.4.5 Energy Plus houses

Finally, a Plus Energy house is designed to use more energy than it would use up in a 24-hour cycle. The surplus can be used, for example, to charge the batteries of an electric car, which is the case of the demonstration energy plus house built by the German Government in Berlin, 2011.217

There are a number of means how to achieve an energy+ performance and which combine two complementary strategies.218

a) Create an energy-efficient building:
   • Design a compact building
   • Optimum orientation
   • Thermal zoning
   • Thermal insulation
   • “Super windows”
   • Avoid thermal bridging
   • Airtightness
   • Screens to depict behaviour visually
   • Low system temperature
   • Short pipe runs
   • Hydronic balancing
   • Efficient operating systems
   • Demand-controlled systems
   • Efficient appliances
   • Efficient lighting
   • Heat recovery

b) Use renewable energy
   • Solar gains through the windows
   • Use daylight
   • Solar collectors
   • Biogenic fuels
   • Geothermal or ambient heat
   • Heat recovery
   • Photovoltaics
   • Wind turbines

217 http://www.buildup.eu/cases/40001 seen 18/08/2015
The following graph shows the achievements in energy saving housing in Germany.

The graph shows how the primary energy demand for semi-detached houses has developed over the last 30 years. The bottom curve shows exemplary research projects that were instigated to introduce a better energy level to the market, whereas the top curve records the statutory minimum requirements. Innovative construction practice is somewhere between these two curves. It can be seen that a market launch phase of 10 to 15 years between different standards being piloted and becoming a legal requirement is common.


4.4.6 Decentralized energy generation

This topic directly relates to the precedent paragraph as long as we are concerned with individual building. Eventually we can conceive a city of 100,000 houses as a concentration of 100,000 small scale and sustainable power stations – and stop worrying about climate change in the future. Nevertheless, more efficient are combined district power-heating (or: cooling) plants. These already form part of many urban renewal projects in Europe.

As cities tend to grow rapidly, we may find it more sensitive to break down not only administration but also technical infrastructures in smaller decentralized units. Local needs can be better catered for, and transmission losses cut to a minimum.

→ Tool URR 1; → Tool URR 4

4.5 Indicators and Verification Methodologies

Urban renewal programs are mostly promoted in the shape of a larger or regional development program or project funded through public funds. In the field of international cooperation, a good program design should be clear about its objectives and provide milestones at which the achievements of the project can be evaluated and the strategy adjusted, if needed. In municipal urban renewal projects such evaluation is rarely projected and budgeted for, and the only proof of success in that case is the fact that the funds have been disbursed in time. This of course does not tell anything about quality of sustainability.
Therefore some more meaningful evaluation and adjustment mechanisms should be built into any funding program for urban renewal projects. In most international organizations some variation of the *Logical Frame Analysis*\(^{219}\) has been maintained, which is a very useful instrument to design and later on to follow up the success of a project. In Germany, the GIZ had developed a more sophisticated version of the same principle and named it ‘Project Oriented Project Planning’ (ZOPP).\(^{220}\) After some years they discovered that the focus just on planning is not good enough, since project execution and evaluation require similarly rigorous quality standards. This why they went a step further and introduced Project Cycle Management (CPM)\(^{221,222}\) as an adequate methodology to guide projects from beginning to end. Most other European countries’ cooperation agencies also use similar though less detailed quality control methodologies.

4.5.1 Criteria and Indicators for the selection of a renewal area:

When it comes to urban renewal projects the first initiative may come from the municipality or district concerned in which case only the individual beneficiaries may require a fair selection process. In Europe, most urban renewal projects belong to programs with more than one project and which is partially funded by the central or provincial government. In that case there must exist clear criteria for the selection of benefitting neighbourhoods, and indicators may become necessary where the criteria cannot easily be measured – like in the case of ‘disadvantaged neighbourhoods’

*Example: Kwarter Loeft Program in Denmark (see chapter 4.2.5.7)*

The indicators in the map are of both physical and social character:

With respect to **physical indicators**, the map can identify/analyse the areas with a high proportion of:

- small flats (under 60 m\(^2\))
- flats which lack basic installations (toilet/bath/central heating)
- residents who live in few m\(^2\)

With respect to **socio-economic indicators**, the map identified the areas with a high proportion of:

- residents outside the workforce
- residents with a short educational background
- residents with low incomes

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4.5.2 Indicators for success of renewal measures

Once all the objectives of a program have been decided upon it makes sense to be able to confirm and measure whether these have been achieved at the end of a program – or even better already during the process so that corrective measures can be taken in the process. Therefore each objective must be associated with one or several indicators which can be quantified and are easily verifiable. For that purpose, also the sources for verification need to be defined at the same time.

Example: Belfast success indicators for urban renewal:

Most important Outcome Indicators include:

- Number and percentage of population of working age who are registered unemployed,
- Economically inactive and in workless households.
- Levels of qualifications in the adult population.
- School examination attainment figures.
- Standardised Mortality Rates (by sex and age).
- Number and percentage of disabled, incapacitated and long-term sick.
- Number of recorded crimes and offences per 1000 population.
- Percentage of residents who are afraid to go out alone after dark.

4.6 Some Lessons Learnt

4.6.1 Participation and PPP

In order to become sustainable, urban infrastructure and public space improvements require regular care and maintenance beyond the day inauguration. In most cases, the local authorities are unable to guarantee this service all over the city to the same extent. Furthermore, many urban renewal projects require some residents or business to be relocated which creates great dissatisfaction unless a fair and reasonable solution can be negotiated between the different stakeholders. In the same way care and maintenance by the community can only be achieved if the same is already involved in the planning phase and can identify themselves with the renewal outcome. Certainly, participation takes more time than top-down decisions but helps to overcome civic resistance and brings political rewards to the decision makers.

4.6.2 Need for subsidies

The reason why a neighbourhood may slip into a state of disrepair and show certain social difficulties is the lack of investment capacity, either by the local authority or by the residents. Therefore almost all European urban renewal and revitalization projects involve public funding to a certain degree. A 100% funding is almost never achieved and often not wanted in order to encourage the participation of the beneficiaries' right from the beginning. It has also been observed that in general public source infrastructure and services improvement encourage private house owners – which are the rule in Europe – to invest in parallel.

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4.6.3 Neighbourhood contracts

In Europe politicians are sometimes over optimistic in their declarations and executing administrative agencies are not always very eager to engage in tasks that fall outside their day-to-day routine. Or, on the other hand, once they have accustomed themselves to work with public funding they expect the availability of such funding to continue forever and do not feel any stimulation to push for early completion of a renewal program. Therefore some governments have integrated mutually binding contractual obligations in urban renewal programs. A good example are the ‘Contrats de Quartier’ in Brussels or in different cities in Switzerland. Another interpretation of the concept are the Green Contacts in Murcia, Spain, for fighting climate change or the public - private partnership programme ECOPROFIT in Graz, Austria to stimulate private business investments (see case in section 4.2.1.3 )

**Example for Neighbourhood contracts in Brussels, Belgium**

Belgium has a large number of run down urban quarters and was searching for transparent and fair mechanism to achieve visible results in short time while reaching the maximum number of neighbourhoods.

Their response were the so called Neighbourhood Contracts between the provincial government and the local authorities and were in operation between 1994 and 2008 (after that they were replaced by Sustainable Neighbourhood contracts which added a focus on ecological improvement). The program was extremely flexible to adapt to local conditions; therefore instead of rigidly fixing the type of eligible investments the purpose was negotiated in detail between the government and local administration, with the results documented in a contract. In that period 52 neighbourhood improvement programs were executed and funded with about 10 Million Euros each, to which the local authorities contributed another 10% to 30% from their own funds. More than half of the sum was invested in housing construction and improvements.

The Neighbourhood Contracts all aim at integrated quarter development. They address the creation and renovation of housing, public buildings and spaces, but also socio-economic actions or infrastructure and services (social, cultural, sporting and others), at the level of the local district. Public participation is mandatory. Above all, they were supported by a partnership between public authorities (local and regional), private partners, investors, NGOs and the inhabitants of the areas in question. The Neighbourhood Contracts comprise three clearly defined different stages:

225 [http://www.lausanne.ch/thematiques/vivre-a-lausanne/residents/vie-de-quartier/contrats-de-quartier.html](http://www.lausanne.ch/thematiques/vivre-a-lausanne/residents/vie-de-quartier/contrats-de-quartier.html) visited 19/08/2015
a) The preparation stage, lasting nine months, during which the programme is drawn up by the local authority or the research bureau selected;

b) The implementation of the programme, lasting four years;

c) A possible extension of two years for rounding off the last projects.

A programme is designed by a consultant under the supervision of the local authority for each Neighbourhood Contract. All individual Neighbourhood Contract programmes must be executed over a maximum period of four years (with a possible extension of two years to complete the last projects). The definition of a maximum length of funding was intended to discipline slow public administrations and to reach a larger number of communities.

4.6.4 Risk of gentrification and expulsion

In Europe many people prefer to live in a central or historic part of the city and if such a zone is being upgraded as part of an urban revitalization program. Higher income citizens move in and replace poorer sections of society who cannot compete in a liberal housing market. This process is known as Gentrification\(^\text{232}\) and has been observed in many parts of the world. This is a real danger in urban renewal programs. The example of the Brussels neighbourhood contracts is an important reference of how to avoid gentrification through positive discrimination, integrated social development and a coverage over many low-income neighbourhoods in the first place.

<table>
<thead>
<tr>
<th>Neighbourhood Contract in Belgium</th>
<th>Redeveloped docks in Marseille, France</th>
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</thead>
<tbody>
<tr>
<td><img src="http://www.r2d2architecture.be/images/Projects/256_BROCHET/256%20(3).jpg" alt="Neighbourhood Contract in Belgium" /></td>
<td><img src="http://www.abitare.it/en/habitat-en/urban-design-en/2015/03/05/explore-newly-renovated-docks-revitalized-marseille/?refresh_ce-cp" alt="Redeveloped docks in Marseille, France" /></td>
</tr>
<tr>
<td>11 social housing units and a kindergarten were built as part of the Neighbourhood Contract in Ixelles, Belgium. Source: <a href="http://www.r2d2architecture.be/images/Projects/256_BROCHET/256%20(3).jpg">http://www.r2d2architecture.be/images/Projects/256_BROCHET/256%20(3).jpg</a></td>
<td>The project transforms the 19th century warehouses that surround the port into a social, cultural and commercial space with upper class housing in the upper floors. Source: <a href="http://www.abitare.it/en/habitat-en/urban-design-en/2015/03/05/explore-newly-renovated-docks-revitalized-marseille/?refresh_ce-cp">http://www.abitare.it/en/habitat-en/urban-design-en/2015/03/05/explore-newly-renovated-docks-revitalized-marseille/?refresh_ce-cp</a></td>
</tr>
</tbody>
</table>

On the other hand, private initiative can sometimes get interested in the rehabilitation of historic factory buildings and invest to a higher standard than public programs can do. Examples include The Carlsberg City (see case in chapter Error! Reference source not found.) is one example; another would be part of the old Port in Marseille, France where one defunct warehouse is being converted into luxury flats and commerce.

4.7 Outlook

Can we envision a future where our European cultural heritage is not lost, but brought to the present, considered and enriched in each and every aspect, without losing touch with the current, "modern" (or post-postmodern, already) context? Villages, cities, communities, Community. Europe. The mesmerizing whole built up from diverse, but yet converging cultural identities. So then, why not think of the best combination of them all for Europe? In the very basic sense of the world, why not build a citizen and community-centric architectural renaissance, both for rural and urban Europe? It would be based on so-called intelligent buildings and infrastructures - which actually means nothing more than using the powerful new materials that researchers are already offering us. This can be the way to both develop and retain the significant cultural heritage Europe as a whole, and the European local cultures have been building ever since the myth of charming Europa started being a geopolitical reality.\textsuperscript{233}

5 PERSPECTIVES FROM CHINA

5.1 Sector Overview and policy analysis

“Making all of China’s buildings energy-efficient through weatherization is a colossal task, but also one that must be done and will go a long way to reducing China's energy intensity. Currently, the government has requirements that all new buildings must meet energy efficiency standards, and a recent report found that 20 percent of buildings in Beijing and Shanghai were energy efficient. The same report found that more than 90 percent of new buildings met those standards, but what about old buildings? It seems these regulations are focused on getting new buildings up to par, but there needs to be more money invested in retrofitting and weatherizing old buildings, which make up the vast majority. This can be done through a system of tax incentives, subsidies and punitive measures much in the same way the government is attempting to phase out aging industrial infrastructure. Also, this type of project is very labour-intensive, which is ideal for a developing economy.”

Legal Basis. The legal basis for urban renewal and revitalization is provided by the existing urban planning legislation of the People’s Republic of China (PRC), and other guidelines of the Ministry of Housing, and Urban-Rural Development (MoHURD), particularly those pertaining to eco-city development. The relevant legal reference documents are:

- Land Management Law. 1998. And based on the law, the detailed Enforcement Regulation has been developed, and undergone revisions for several times. The latest is the 2014 version.

Specifically for urban renewal and revitalization the following legal instruments apply:

- Urban Planning Law (as above)
- State Council. 2013. Policy Guidelines for accelerating the redevelopment of shanty area
- MoF and MoHURD. 2013. Application for Subsidies on National Scenic Landmarks and Historic and Cultural City.

The 13th Five Year Plan has no specific statements about urban renewal and revitalization, but it is the new urbanization policy of 2016 which has a brief statement which indicates a new found interest in “historic cultural blocks” and buildings.

The New Urbanization Policy 2016. The new policy has pointed out that urban renewal and revitalization is an issue of city form and features.235

- **City form and features.** Within about 5 years, *identify historic cultural blocks & historic building in all cities.*

- **Improve the urban building.** Within 10 years, increase the rate of prefabricated buildings to 30%.

- **Promote the development of energy conservation in the city.** Promote the district combined heat and power (CHP), green lighting, energy conservation in government departments; improve heat production efficiency; newly built residential buildings must be equipped with individual measurement of household heating consumption, while that shall be gradually provided for existing residential buildings.

- **Complete urban public service.** The development of public transport enjoys priority. Until 2020, the share of super- and ultra-large public transport will reach 40%. Newly built communities would get open rail systems (instead of closed ones).236

- **Build comfortable and livable environment.** Within 5 years, set up the system of collection and reutilization of kitchen and building waste. Until 2020, in all cities above prefecture level, waste water shall be 100% collected and treated; for water deficient cities, the reclaimed water rate shall reach 20%.

MoHURD Strategic Objectives, Pronounced at the 2015 Central Urban Work Conference. In December 2015, the following directives were issued in regard to urban renewal and rehabilitation:

- Complete the ongoing renovation of urban substandard housing, underdeveloped areas in cities, and dilapidated housing by 2020;

- Enhance urban management to build smart cities;

- **Adapt the historical heritage into urban strategies.** Overall city planning shall consider reforms, technology and culture in order to improve urban sustainability. Cities shall strive to promote the reform of the planning, construction, management, household participation, and other aspects of planning. Cities shall consider the promotion of stable employment and life of the resident population as the primary task... Cities shall protect the traditional Chinese culture, and rehabilitate the city’s historical context, as well as protect the cultural heritage. To combine their historical heritage, regional culture, cities shall promote their own profile.

- Accelerate the reconstruction of urban shantytowns and the transformation of the old districts. Urban development shall take into account nature and ecological restoration. This implies control of the intensity of urban development, promotion of the formation of green low-carbon production. Urban transport, energy, heating, waste water management shall act according to the concept of low-carbon green development.

- Encourage private enterprises and citizens to participate in development and management of their cities.237

5.1.1 China’s History of Urban Renewal and Revitalization.

China’s unprecedented urban extension has drawn in recent years again the attention to urban renewal and revitalization (URR), especially in historical cities.238 URR in China has been

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235 Extracted and translated from: [http://www.gov.cn/zhengce/2016-02/21/content_5044367.htm](http://www.gov.cn/zhengce/2016-02/21/content_5044367.htm)


237 MoHURD. Meeting notes. 20-21 December 2015.

discussed since the creation of the People’s Republic of China. Many studies and attempts have existed to launch larger URR programmes in Beijing, Shanghai and other cities. Many Chinese cities have a historic city centre left, though such historic urban areas may be rapidly disappearing under the pressures of real estate development, or the influx of migrant workers which bring their village to the city. The dramatic urban surge which China has experienced, however, has meant massive destruction of old neighbourhoods across all cities. The advent of the car for mass transit, the need for more circulation space has meant the end for many old neighbourhoods (hutongs) in Beijing and tenement housing areas in Shanghai.

Prior to the Olympics in 2008 the international attention was drawn to wholesale destruction of entire neighbourhoods. This has happened despite the Beijing Municipal Government (BMG)’s plan for the conservation of 25 historic areas in Beijing’s Old City, which had been endorsed in 2002.

Also in other cities, the path to urban revitalization is a complicated one. This can also be illustrated by the case of Baishizhou, Shenzhen. After large parts of Baishizhou were destroyed, in 2016 intervened and stopped further destruction. It seems that MoHURD’s interest in urban renewal and revitalization of valuable historic areas has had some positive impact.

Case 68 Shenzhen, Guangdong Province: The Destruction of Baishizhou - Inside the Fall of One of China’s Most Important Urban Villages

“Baishizhou neighborhood in Shenzhen. The planned destruction of Baishizhou will impact its roughly 1509,000 residents, many of them recent migrants looking for a new life in one of China’s most prosperous cities. But it also stands to erase a neighborhood whose dynamism rivals that of any in the world. Baishizhou is a labyrinthine dream on 0.23 square miles of mixed-use residential space, with a population density more than 20 times the city average. Start with Cannery Row, then jerry-rig it to accommodate half the population of Iceland, and you’re close to Baishizhou. A tangle of damp alleyways opens at odd intervals onto wider avenues of frenzied commerce—fruit carts, shoe repair, blind massage, hot pot, pig’s feet on rice, coal-roasted sweet potato, fortune tellers, handymen for hire, smartphone engravers, karaoke parlors, smoke shops, love hotels, furniture dealers, street-side lamb butchers, elementary schools, mahjong rooms, communal laundry wells, open-air billiard halls, and a vast number of hair salons where customers can get a head massage, a cut, and a wash for about four dollars. All of it hustles by under a sun-blocking canopy of braided telephone wires. …

Shenzhen’s government has slated Baishizhou for renewal, and the current proposal from Hong Kong-based developer LVGEM aims to replace it with 59.2 million square feet of high-rises, malls, and hotels, along with a skyscraper billed as a new icon for the district. LVGEM posters explain the importance of the surveying work that’s underway to sort out who exactly

has an ownership stake in Baishizhou’s cramped apartment buildings, in advance of the coming buyout.

Baishizhou also includes a densely built industrial area that’s populated with small- and medium-sized businesses—from kitchen-supply companies to surface-mount technology workshops—and skirted with shops and restaurants. Another developer, the state-owned Shum Yip, has begun tearing down buildings to construct an up-market housing development. Plans for this area, which houses Wang’s underwear store, moved forward quickly because, unlike most of the neighborhood, a state-owned enterprise has long owned it.

Wang says he never signed a contract in his 10 years in the location; he compared his informal rental agreement with one you might make when borrowing a phone from a friend who can decide at any time that she’d like to take it back. This type of agreement is typical of Baishizhou’s renters, who are estimated to make up more of the neighborhood’s residents, and who have no claim to compensation when the renewal begins.

Baishizhou is a dense maze of alleys on 0.6 square kilometers (0.23 square miles) of mixed-use residential space, with a population density more than 20 times the city’s average. Many of the renters interviewed for this story see Baishizhou’s demise as manifest destiny, an inevitable part of Shenzhen’s story of unbridled development. But there’s a widespread view among them that the obstacles remaining for a large-scale renewal, both financial and human, are enormous. Meanwhile, Baishizhou properties grow more valuable, new businesses open, the children of renters enroll in local schools, property owners continue to upgrade their investments against an eventual buyout, and the promise of a monumental hassle looms larger.

In August [2016], the city government shared a draft of new guidelines for urban renewal efforts, with sections that seemed to allude to Hubei. Along with making special allowances for urban villages with special historical value, the guidelines also broadly recommend that future renewals of chengzhongcun use renovations and quality-of-life improvements as a first approach, over whole-sale demolitions.

Whether the proposed new guidelines will impact Baishizhou’s future remains to be seen. Buildings are already coming down in the neighborhood’s industrial area. But a policy shift could change the dynamic in negotiations over the rest of Baishizhou.”


5.1.2 General Features of China’s Experiences with Urban Renewal and Revitalization.
Problems of land values. The explosion of urban land values since the early 1990s has meant that historic residential areas have become an object of speculation and investment interest of private developers who have developed many new real estate schemes on the sites of historic residential areas. For many if not most of these this has meant that original population has been compensated and resettled to other, mostly far-off, alternative locations.

Tendency of gentrification. In URR, gentrification is a quite controversial outcome of renewal and revitalization processes. “Gentrification” means that the nature of social and economic character of an urban renewal area is radically changed with the effect that higher class social and economic standards are being introduced which usually are associated the exclusion of the former resident population and small or medium businesses.

Government sponsorship needed. To avoid and control the possible impact of gentrification, government’s support is very much needed if URR is to succeed, and if continuity of the original resident population and small or medium-sized businesses is aimed at. Obviously, most URR schemes intend to introduce higher quality of urban spaces into the old urban fabric, a renewed quality of technical infrastructure, housing, and social services. The tendency will be to bank on the concept of mixed-use compact development which will be adaptable for modern uses and new clients. However, such mixed-use development should ensure a place for the original resident population and small or medium-sized businesses. This is not easy under the pressure to maximize the returns on development of precious, well-located inner-city land, and even if the government will attempt to enforce such policy or approach, in reality it may be difficult to achieve.

5.1.3 Linking Urban Renewal and Revitalization with Eco-City Development

As already indicated in the 13th Five Year Plan, the removal of illegal construction and shanties was a priority for urban renewal. Hence, the programme of removal of illegal construction and restoration of traditional appearance, initiated in 2017, is a logical consequence.

Beijing’s Removal of Illegal Construction and Restoration of traditional appearance

In 2017, the most dramatic and city-wide modifications of post-Olympic Beijing started to change the character of traditional hutongs and other residential area of Beijing, and other Chinese cities. Although the bricking has been “in the works for some time, officially through Dongcheng District Government’s 57th Executive Meeting of August 2014, this is known as a “larger push to recalibrate Beijing’s image and function as a capital, which includes shaving down its inner-city population over the next three years – and capping its overall population at 23 million by 2020”, a decision of the 2016’ Two Sessions’ plenary meetings. “What has been labelled as “beautification” of the city, or to “further enhance the quality of the urban environment”, to “maintain historical characteristics” of Beijing is a programme to ‘bid farewell to illegal construction in 2,435 hutongs’ by the end of 2019, with 567 hutongs to be remodelled in 2017, 615 in 2018, and 495 in 2019, on a budget of roughly 10 billion RMB.


Zero tolerance. By the end of July [2017], more than 23,390 sites with unauthorized openings had been dealt with around the city, and the municipal government has stated that new unauthorized constructions will not be tolerated. In addition to removing safety hazards, the citywide campaign is also expected to make central Beijing less crowded and provide
room for improvements, such as the construction of parks and facilities to make people’s lives more comfortable. The goal is to develop Beijing into world-class capital city and improve the general standard of living, according to a draft of the Beijing Overall Urban Development Plan, which was published in March. The process, which began last year, will continue until 2030.

In February [2017], President Xi Jinping said the urban planners must think deeply about how the city should look and devise ways to strengthen its function as the capital. According to the draft, Beijing will further restore the traditional appearance of neighborhoods during the campaign. In August, the revised plan was approved by the central government, the Beijing Municipal Commission of Development and Reform said.


**New guidelines help to preserve old features** In December [2016], with the help of the local government, Nanluoguxiang [Beijing] became the first and only hutong neighborhood to issue detailed guidelines to preserve the original features of the city’s signature architectural style. All businesses owners and residents of 24 other hutong in the area have to follow the guidelines, which clarify the application procedures people have to follow if they intend to carry out renovation works.

The guidelines provide information about the types of doors that are permissible and the sort of tiles that should be used to repair or replace roofs. To meet the requirements, all 154 businesses on Nanluoguxiang have carried out renovation work. So far, 33 wall openings have been blocked.

Ji Hong lives in Yu'er hutong, which is connected to Nanluoguxiang. She said the change has been obvious since the renovation. "The nasty smell of deep-fried food no longer lingers over the neighborhood. The street is much cleaner too," the 60-year-old said. Though some of Ji's neighbors in her crowded courtyard decided to move to apartment buildings after receiving relocation incentives from the government earlier this year, she chose to stay. "I love the atmosphere of the hutong, which is unique and precious. My roots are here," she said. "The guidelines have revived the old alleyway, which has existed since the Yuan Dynasty (1271-1368). I hope business owners in other commercial hutong will adopt similar mechanisms as quickly as possible because this system works."
MoHURD’s eco-city programme and the work of some cities (Luoyang, Zhuhai, etc.) to preserve historic areas has brought to the fore the possibility of “ecological” urban renewal and revitalization in old neighborhoods.

This will be no easy task since it will mean to confront the pressures of market development, the commercialization of land, and the aims of developers. Instead it will have to deal with the resident population which is under threat of relocation and poor compensation by the conventional URR approach. Ecological URR is (still) a theoretical possibility, it needs yet to be put in practice in China.

Some of the recent URR projects in Beijing seem to clearly to be illustrations of gentrification, replacing old building stock, and generating as per the old pattern high-end replicas for economically more advanced owners (examples in Nanluoguxiang, Beijing) and an outright conversion into “culture streets” and shopping malls (Dashilar/Qianmen area, Beijing). None of these seem to have considered eco-principles (yet).

Entry point for the “greening” of today’s URR can be: (i) renewable energy with solar elements (challenge to marry architectural conservation guidelines with technology requirements); (ii) utilization of “Passivhaus” technology (better insulation of walls, windows, and roofs), (iii) rain water collection (rain water harvesting) facilitated by sloping roofs and open courtyard spaces; (iv) neighbourhood-based waste separation and participation in ecological waste management schemes; and (v) greening of industries through the use of renewable “new” energy sources, and clean(er) production processes. Additionally, there seems to be reasonable good scope for urban agriculture activities in such traditional inner-city areas.
**Green Roofing Technology Innovation**

In 2009, a prototype of photovoltaic (PV) roofing tiles was presented at the Universities of Minho and Universidad Nova de Lisboa in Lisbon, Portugal. They are likely to fill a gap in a technology field where so far only rectangular PV elements. This new product which has started to come onto the market since 2016 is likely to have an important impact on the European private housing market. Likewise, it is also expected to be a technology which can innovate the rehabilitation and retrofitting of traditional Chinese Hutong houses.  

Roofing tiles with Inbuilt Photovoltaic Technology match conventional tiles in size.

Source: http://www.agroalimentando.com/nota.php?id_nota=2963
### Case 69 Beijing: Rehabilitation of Dashilar Area

<table>
<thead>
<tr>
<th>Beijing: Preparing for rebirth, Dashilar</th>
<th>Beijing: Shopping in the new Hutong, Dashilar</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="source" alt="Image of Dashilar before rehabilitation" /></td>
<td><img src="source" alt="Image of Dashilar after rehabilitation" /></td>
</tr>
<tr>
<td>Source: Florian Steinberg</td>
<td>Source: Florian Steinberg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development plan for Dashilar, Beijing</th>
<th>Secondary commercial areas, Dashilar, Beijing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="source" alt="Development plan image" /></td>
<td><img src="source" alt="Secondary commercial areas image" /></td>
</tr>
<tr>
<td>Source: Florian Steinberg</td>
<td>Source: Florian Steinberg</td>
</tr>
</tbody>
</table>
Case 70 Beijing: Modernization and Gentrification of Courtyard House - Paizi hutong

This courtyard house of 162 sqm in Beijing’s Dashilar urban renewal area has been modernized with double glazing windows, new heating and water facilities, and a fresh redefinition of its interior and exterior spaces. The objective of the modern design is replace the solemn impression of classic house design (Siheyuan) with a modern concept of transparency and light, redefining a modern life style.
Case 71 Beijing: Renewal of Courtyard house - QianLiang Hutong

View of Main Room

Section of living room and sleeping rooms
Case 72 Beijing: A Plug-in House to Revitalise Hutong Neighbourhoods


Case 73 Beijing: The Courtyard House Plug-In: A House within the House
5.1.4 Resilience to climate change impacts

Historic towns in disaster-risk areas. Some of the historic old town centres in China, particularly in its long coastal belt are at risk to climate change-related risks of flooding and extreme weather. Through disaster risk mapping it need to be assessed which old towns are most at risks.

5.2 Good Practices in China - Illustrations

5.2.1 Guangzhou

Large-scale Urban Renewal in Guangzhou. Guangzhou City plans to create up to 539 Sq. Km of building land in the next 10 years. Much of the old town and up to 200 old factories will be demolished as part of the urban renewal project. The authorities in Guangzhou announced another ambitious 100 billion yuan ($14 billion) facelift in January, which means demolishing more than 10 percent of the old town's built-up areas and relocating up to 600,000 people. "Old buildings are torn down. For those of us affected by the renewal, the renovation means an end to long-term friendships with neighbours. We cannot visit old friends as often as before," 65-year-old Li said. Under the plan, a total of 10.5 million square meters of old buildings will be demolished, according to sources with the Guangzhou urban planning authority. Public opinion on the project has been solicited by the authority which placed on its website a preliminary urban renewal framework for 2010-2030. Initial results from the consultation …indicate that a majority of the people who responded are in support of the renewal plan… The authority stressed that public participation will be encouraged in drawing up a comprehensive renewal plan, as protecting Guangzhou's monuments and heritage was a long-term and challenging goal. It is the largest old town renovation plan by the local government, which aims to free up land and beautify the urban landscape, since the government announced a massive urban redevelopment project in downtown Haizhu district two years ago. ➔ Tool URR 4

Under the plan, old buildings in Haizhu were scheduled for repair on the south bank of the Pearl River, which required the relocation of some 20,000 people. Meanwhile, the new renewal plan will cover many historic heritage sites and monuments and will revitalize 54 sq. km of old towns stretching across Yuexiu, Liwan and Haizhu districts. Cultural heritage projects and the protection of monuments are paid for by the district and municipal government. Accordingly, the new plan will be financed by the municipal government, though authorities are considering bringing in outside investments. ➔ Tool URR 4

244 http://www.demotix.com/news/415299/massive-urban-renewal-project-guangzhou-china#media-415290
5.2.2 Chengdu

Case 74 Chengdu, Sichuan Province: Sino-Ocean Taikoo Li

Sino-Ocean Taikoo Li is the living urban heart of future Chengdu. Set in the context of the Buddhist Daci Temple, the low-rise, project provides a unique mix of shopping, dining, drinking, entertainment, live performance, workplace, and hotel accommodation in an exciting and enjoyable setting of lanes, squares, streets, alleys and courtyards. Interwoven into this master plan for urban regeneration is the strategic conservation and adaptive reuse of six preserved buildings and ancient lanes associated with ancient Daci Temple at the heart of the development. The project has evolved out of a unique retail planning concept of “Fast Lane” and “Slow Lane” (play fast, live slow), delivering a diverse shopping and spatial experience to visitors. The “Fast Lane” incorporates luxury brands and high-end contemporary fashion while the “Slow Lane” comprises a line-up of outdoor diners, al fresco cafes and lifestyle stores.

The architectural style adopted is both timeless and contemporary, embracing the local spirit and reflecting the details and language of the traditional Sichuan style without resorting to pastiche. It is inspired by the architectural tradition of great shopping streets - the charismatic
retail buildings, colorful signage, and attractive shopfronts serve to create a vibrant atmosphere. The layout of the streets and lanes further reinforces the historical context of the project. The ground level buildings create a level of transparency that allows shops and restaurants to express their individual brand and identity. The main structure of the buildings is steel with high quality cladding and glass curtain wall systems. The beauty of Dacisi architecture is manifested in well-proportioned low-rise buildings and sensitive landscape design, creating great public open spaces.

The project is positioned as an Urban Retail and Entertainment Destination. The developer aims to recreate a whole-day city-centre shopping and entertainment experience in the town centre by providing everything a modern Chinese consumer could possibly need or want in one complex while maintaining the intimate feel of a boutique-lined side street. The project’s design team focused on creating an environment that would attract and retain consumers, and the leasing team set ambitious targets for brands that are not yet in Chengdu. The Oval Partnership is the Master planner for the Daci Temple Project and Lead Architect for the Retail Complex of Sino-Ocean Taikoo Li Chengdu.  

246 https://acdn.architizer.com/thumbnails-PRODUCTION/c8/44/c84413da742588e9e5683d270db78c8f.jpg

5.2.3 Kashgar

Case 75 Kashgar, Xinjiang: Kashgar Old Town Urban Renewal and Revitalization

The project. The renewal and revitalisation of the old town of Kashgar, Xinjiang province was initiated after the deadly and massive earthquake of 2008 in Sichuan province. The old town consisting mostly of old and decaying adobe brick houses was considered unsafe and ripe for renewal and revitalisation. The city government, with help from the national government initiated the project which was implemented during 2010-2014. Many critical or cautious voices about the destruction of the character of the Kashgar Old Town have been wronged by the overall physical and economic impacts of the project. “Many of the old houses in the old town were built without regulation, and as a result, officials found them to be overcrowded and non-compliant with fire and earthquake codes. When the plan started, 42% of the city’s residents [220,000] lived in the old town. With compensation, residents of faulty buildings are being counseled to move to newer, safer buildings that will replace the historic structures in the $448 million plan, including high-rise apartments, plazas, and reproductions of ancient Islamic architecture. The EU Parliament issued a resolution in 2011 calling for “culture-sensitive methods of renovation.”

The interventions. Major focus of the $448 million renewal and revitalisation project was on (i) improvement of infrastructure services; (ii) consolidation of adobe hills to prevent unexpected collapsing of hillocks; (iii) widening of access roads to permit better fire brigade access; and (iv) and opening of a central plaza in front of the main mosque, and (v) creation of a city park near the old eastern gate.

Infrastructure improvement. The intention of the renewal programme was to bring benefits of modern infrastructure services to all old town neighbourhoods. This included piped water; indoor toilet facilities and sewage disposal; paved tarmacked roads and brick-surfaced footpaths; electricity and gas supply (for cooking and heating).

Home improvement. Home improvement was mostly left to the home owners. They were given guidelines for earthquake resistance of their houses. Where roads were widened, setbacks and new building limits were established; most houses affected by this had to surrender floor space to public roads and footpaths but were compensated by permits to increase buildings vertically, thus maintaining their floor-space indexes. Home owners were provided subsidies (60-70%), while remaining costs had to be paid by themselves. Many home owners, particularly the economically better off, felt encouraged to invest substantial amounts in the decoration of the homes (facades, terraces, interiors, and facilities).

Funding. Since the project was government initiated, the majority of the funding has come from the public sector, i.e. the national government. However, home improvement was only partially funded, and owners had to contribute a substantial share themselves. Only those who have regular employment in well-paid positions, were able to access loan financing for their share of financial contributions.

Sources:
249 https://en.wikipedia.org/wiki/Kashgar
Participation of inhabitants. The city government of Kashgar consulted the population in the preparation and during the implementation of the project. Those not willing to participate or unable to mobilise the required funds, were given the option of relocation to modern apartments outside the old city. Generally, it is being reported that residents were happy with the choices given to them.

Project impact. The old town area has become again an attractive and economically vibrant part of Kashgar city. Many hotels, shops, restaurants, cafes, are offering their goods and services, and the national and foreign visitors are seen in Kashgar Old Town, contributing to the local economy whose foremost income earner is tourism itself.

Source: F. Steinberg, October 2017

Kashgar Old Town – Renovated area
Kashgar Old Town – Renovated homes
Kashgar Old Town – Renovated alleys
Kashgar Old Town – Infrastructure
Kashgar Old Town – Neighbourhood green area
Kashgar Old Town – Renovated area
5.2.4 Luoyang

Luoyang: Urban Renewal Site – Potential for preservation of urban fabric

Source: Florian Steinberg

Luoyang: Urban Renewal Site in Luoyang – Potential for preservation of urban fabric

Source: Florian Steinberg

Luoyang: planned preservation of historic heritage

Source: Florian Steinberg

Luoyang: planned preservation of historic heritage

Source: Florian Steinberg

Luoyang: planned revitalization of old town

Source: Florian Steinberg

Luoyang: planned revitalization of old town

Source: Florian Steinberg
5.2.5 Zhuhai

<table>
<thead>
<tr>
<th>Urban Renewal Area, Beishan Village, Zhuhai</th>
<th>Perspective of Urban Renewal, Beishan Village, Zhuhai</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image](source: Florian Steinberg)</td>
<td>![Image](source: Florian Steinberg)</td>
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</tbody>
</table>

Source: Florian Steinberg

<table>
<thead>
<tr>
<th>Ancestral Home in Beishan Village, Zhuhai</th>
<th>Urban Renewal and Real Estate Development, Beishan Village, Zhuhai</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image](source: Florian Steinberg)</td>
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Source: Florian Steinberg

5.2.6 Beijing

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<tr>
<td>![Image](source: Florian Steinberg)</td>
<td>![Image](source: Florian Steinberg)</td>
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</table>

Source: Florian Steinberg
Beijing: Potential for green retrofit - Housing renewal?

Source: Florian Steinberg

Beijing: Potential for green retrofit - Housing renewal?

Source: Florian Steinberg

5.3 Retrofitting of Modern Heritage.

Besides URR in historic neighborhoods, the retrofitting of built environments of lesser historic value, is another potential area of green development. While Europe has implemented a number of retrofitting projects in 1950s or 1960s public housing schemes, most of them prefabricated construction technologies, this kind of retrofitting seems not be known has been started recently in China, inspired by the Germany KfW program for Urban Renewal of Urban Quarters. However, in China, the programme focus is on all residential areas, older than year 2000.  

Energy Efficiency in Urban Renewal Projects

The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) sponsors an energy efficiency project which supports the province of Jiangsu, also specifically targeting urban renewal cases. The aim is to introduce the concepts and start implementation of low energy or even plus energy in existing older buildings and city quarters, as well as existing stock of older enterprises and industrial parks. The “Low-carbon compound projects in city networks in Jiangsu Province” (Jiangsu II, 2015-2018), is now promoting a holistic approach to identify, plan and implement integrated and interactive energy concepts in cities and industrial areas. The know-how provided is much needed to reach the even higher targets set by the 13th Five-Year Plan. The project, currently being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Jiangsu Development and Reform Commission (JDRC).

Jiangsu Province is working with GIZ towards various innovative solutions in urban renewal demonstration projects which showcase German expertise in urban renewal. The current 13th Five-Year Plan is targeting stricter objectives: Jiangsu wants to achieve a 45 to 48% reduction in the intensity of carbon emissions by 2020 (relative to 2005 data). Jiangsu’s cities have very good political conditions for developing into low-carbon cities. Energy efficiency has been identified as the most cost-effective and climate-friendly low-carbon strategy. There are also plans to incorporate unconventional, decentralised and renewable energy sources by using integrated energy strategies for buildings, urban districts, enterprises and industrial estates.
Examples of Energy-efficient Urban Renewal Demonstration Projects

<table>
<thead>
<tr>
<th>Energy Retrofit - People's Bank of China, Zhenjiang 2015</th>
<th>Rehabilitation of an urban quarter - Zhenjiang plan 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Energy Retrofit - People's Bank of China, Zhenjiang 2015" /></td>
<td><img src="image2.png" alt="Rehabilitation of an urban quarter - Zhenjiang plan 2020" /></td>
</tr>
</tbody>
</table>

Source: GIZ

<table>
<thead>
<tr>
<th>Retrofitted Green Manufacturing Workshop Liberty Co. Inc., Jin Tan, Jiangsu</th>
<th>Industrial park in Jiangsu Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Retrofitted Green Manufacturing Workshop Liberty Co. Inc., Jin Tan, Jiangsu" /></td>
<td><img src="image4.png" alt="Industrial park in Jiangsu Province" /></td>
</tr>
</tbody>
</table>

Source: GIZ
The project objective will be achieved through the following measures: (i) drafting of replicable strategies for the holistic planning of complex compound energy systems; (ii) identification of pilot projects and provision of support for planning and implementing compound systems in several development stages; and (iii) activities to develop the capacity of key actors in cities and industry (members of low-carbon working groups, for instance) to put integrated energy strategies into effect.

The project results will be available for use by other cities in Jiangsu Province and beyond, especially provinces with a similar climate characterised by hot summers and cold winters. Apart from NDRC and JDRC with their affiliate institutions, to the partner organisations also belongs the Jiangsu Science & Technology Department of the local branch of the Ministry of Housing and Urban-Rural Development (MOHURD). 250

5.4 Resilience to Climate Change Impacts

**Historic towns in disaster-risk areas.** Some of the historic old town centres in China, particularly in its long coastal belt are at risk to climate change-related risks of flooding and extreme weather. Through disaster risk mapping it need to be assessed which old towns are most at risks.

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250 Adapted from: www.lowcarbonismyway.com
5.5 Smart City Management

Smart green technologies. As green technologies will be applied, this will open opportunities for the use of smart technologies to more efficiently use environmental resources: for instance this can cover better control of renewable energy (for room heating and cooling, water heating, and electricity generation), or “Passivhaus” technology (remote control of shading or day light), water management (supply management). As smart technologies are being introduced to the general public through the Internet of things, this can also extend to more energy-efficient usage of household light and electrical equipments.

5.6 Community Participation

Facing up to the challenge. In modern China, the issue of community participation has emerged like in the rest of the world. Techno-savvy China has developed its own approach to this topic through the use of the internet as a platform to solicit the views of community members and to request constructive inputs for planning and development of public interest schemes. As shown below in the case of the urban renewal programme in Guangzhou, the local planning authorities have encouraged public participation for the drafting of a comprehensive renewal plan. However, as experiences of other URR has shown, there can be property owners who would not relent and would not like, for instance, to sell their property. This shows the limitation of the internet-based community participation, and indicates that there is ultimately no substitute for direct communication, particularly in cases of conflict management.

The development of mobile applications (apps) may also offer additional opportunities for citizens to participate and be regularly consulted and involved.

5.7 Urban Renewal and Revitalization Standards.

For URR, China’s construction standards for new construction seem to prevail. There seem not to exist any specific standards for the retrofitting and conservation of older buildings [verify]. In the European cases simplified energy-efficiency standards used to exist for building retrofits. However, as the case of Germany illustrates, these standards are currently undergoing an upward revision, and adjustment towards standards at par with new buildings [verify]. In case that China engages on a larger scale in urban renewal and revitalization, of course there may be scope for the formulation of specific standards. Expand Write-up

However, there are cases where cities have developed a so-called negative list of interventions which are not permissible: Negative lists require specifying the investments amount as well as a development schedule, and setting punishment mechanisms, in a bid to prevent certain giant developers from developing real estate under the pretext of conserving ancient towns”. 251 The city of Kunming used a negative list to introduce 20 bans on urban planning in 2009, including one that the height of newly constructed buildings should not exceed 35 meters. While the intentions may be positive and based on the desire to preserve heritage, there is also criticism,

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that rigid rules may leave little room for development, and that inflexible rules have “suffocated the diversity of architecture”. \(^{252}\)

### 5.8 Technologies and Products

**Opportunities for innovation.** The conservation of historic and valuable building stock, and its conversion to green buildings, does present many new opportunities for the building industry, as requirements for better and more energy-efficient construction materials have emerged, for instance for insulation in walls, windows, roofing materials. Renewable energy elements (Photovoltaic panels, solar water heaters) need to be better fitted to suit the aesthetic context of historic building stock. Likewise, less obstructive rainwater collectors and garbage recycling separation bins need to be installed in harmony with the built environment and their functions.

It can be observed that residents of historical neighbourhoods have started to use solar technologies, and will eventually use more “ecological” or green building technologies once these are more suitable to their environment, the historic built environment. ➔ **Tool URR 4**

<table>
<thead>
<tr>
<th>Solar Water Heaters in the Hutong, Beijing</th>
<th>Potential for Photovoltaic technology on roof landscape of the Hutong</th>
</tr>
</thead>
</table>

### Water Harvesting Potentials in the Hutong

In the 2015 Beijing Design Week, the work of the Dashilar Platform has been highlighted in Beijing’s Dashilar area, west of the Qianmen commercial area. The ‘Dashilar Project’ has launched in 2011 a series of creative initiatives to develop a participatory context for urban renewal and revitalization in Dashilar. The core of the various architectural proposals is creation of additional space through additions and vertical expansions of the existing built fabric. Thus, densification will be in the interest of the residents who live in extremely compact residential circumstances, and for the creation of new economic activities in the field of commerce, cafes, restaurants, art galleries and cheap hotels. The community is intended to become the early beneficiary of these economic revitalization activities. However, the larger revitalization program will have to funded through real estate development, for instance through the Xicheng District of Beijing Municipality and the Beijing Dashilar Investment Ltd. The range of architectural proposal of the Dashilar platform is wide and marked by a lot of creativity. However, it is noted also that ecological or environmental concern are not yet part of the planning parameters.

The approach of the Dashilar Pilot Project highlights the following preservation and redevelopment principals:

1. Athens Charter, drafted by Congress International D’Architecture Moderne (CIAM) 1933 at Athens;
2. The Venice Charter for Conservation and Restoration of Monuments and Sites, second international Congress of Architects and Specialists of Historic Buildings, Venice May 1964;
3. The Charter of Macchu Piccu, December 1977;

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253 The Dashilar Project has been presented in the 2014 Architectural Biennale in Veniec, Italy as part of the Across Chinese Cities’ program (‘Venice 100 in Beijing’). See the respective publication: Dashilar Platform (ed.). 2014. Dashilar Project. Beijing. www.dashilar.org


5.8.1 Green building and green energy indicators.

The prevailing indicators for green buildings, for green energy, water, waste water treatment and waste management will need to apply if URR projects are to be considered as compliant with national standards.
Proposed Urban Renewal and Revitalization KPIs

<table>
<thead>
<tr>
<th>Indicator Category</th>
<th>Indicators: indicative values</th>
<th>Current achievements / Time frame for accomplishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Identify cultural heritage areas and buildings in all cities [1]</td>
<td>100% [1]</td>
<td>By 2020 [1]</td>
</tr>
</tbody>
</table>
| 2 Retrofitting of existing buildings | ≥15% [2]  
| 3 Annual heat demand: Existing buildings | ≤ 45 kWh/(m²a) [15] | |
| 4 Use of non-fossil energy [2]  
≥20% [3]  
≥30% [6]  
≥60% [7] | By 2020 [3]  
By 2030 [6] |

Sources:

5.8.2 Verification Methodology

Industry standards. Depending on the course of the eco-cities development, and its coverage of URR, it must be expected that the prevailing indicators for green buildings, for green energy, water, wastewater treatment and waste management will determine which verification methodology will be applied. It is currently open, to what extent the eco-city concept will influence the URR of Chinese cities.

5.8.3 Lessons Learnt from pilot projects

The current URR projects in China seem to lack the dimension of eco-city development. Nevertheless, as the eco-city developments spread through China, it can be expected that very soon pilot projects of Eco-city URR will emerge. The URR initiatives in Luoyang, presented above, may be cases where the eco-city approach is being applied.
5.9 Outlook

Ecological URR - a new dimension of urban renewal and revitalization. The eco-city approach offers something like a new opportunity for historic inner-city areas, and for modern heritage districts. The first wave of URR has affected many heritage areas with the impact of modernization and gentrification. The new potential of new approaches to URR, guided by eco-city principles can mean new chances and opportunities for urban heritage areas. In the absence of clear policies, it will require bold local initiatives by city administrators and investors to promote the eco-approach in urban renewal and revitalization. As soon as “eco” will be universally fashionable (“chic”), there is good scope that this new approach will have large(r) scale applications.

“China has achieved notable results and gained extensive experience in this area, particularly in: prioritizing urban regeneration, and strengthening top-level design and planning; focusing on regenerating specific types of cities, such as old industrial cities and resource-based urban areas; integrating the renewal of old city districts with the development of new urban areas, optimizing the distribution of urban space, and enhancing the functions of cities; stressing the role of industries and innovations in urban regeneration; and promoting green urban development and preserving cultural heritage of across cities.”

### 6 VALUE ADDED and CROSS CUTTING THEMES

<table>
<thead>
<tr>
<th>Value added</th>
<th>Cross-cutting themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive use facilitated through viable URR projects</td>
<td>Governance</td>
</tr>
<tr>
<td>Environmental quality improved through green development approach</td>
<td>Municipal capacity/technical capacity</td>
</tr>
<tr>
<td>Historical assets revalued and preserved</td>
<td>Threat of gentrification and over-commercialization</td>
</tr>
<tr>
<td>New economic and social initiatives through revitalization effects</td>
<td>Threat of relocation of original residents and businesses</td>
</tr>
<tr>
<td>Disaster resilience improved</td>
<td>Improved resilience to climate change impacts</td>
</tr>
<tr>
<td>Preservation of “modern-historic” assets as viable option</td>
<td>Livelihoods of residents and businesses protected</td>
</tr>
</tbody>
</table>
7 AVAILABLE RESOURCES AND TOOLS

  

  
  http://www.usearchmedia.com/download/?kw=The%20Economics%20of%20Historic%20Preservation:%20A%20Community%20Leader%20s%20Guide&ad_domain=ads.ad-center.com&ad_path=/smart_ad/display&prod=141&ref=5022292&sub_id=ipdf.website&seed=3799210938&sf=books_c&adserver=0.16.0-rc1&m=books&system_controller=signup&system_action=index

  
  https://openlibrary.org/works/OL9592422W/Feasibility_Assessment_Manual_for_Reusing_Historic_Buildings
8 RECOMMENDED READING


ANNEXES

Annex 1: Tool URR 1 - Environmental instruments for neighbourhood revitalization.

Name: ENVIRONMENTAL INSTRUMENTS FOR NEIGHBOURHOOD REVITALIZATION

What this tool does: This tool lists and describes a number of approaches of environmental instruments which can be used for neighbourhood revitalization. These approaches draw upon extensive European and Chinese experiences in urban renewal.

How does it work: Environmental approaches can be converted into a large variety of project initiatives, as listed in the second column, below. These environmental initiatives can be applied in historic neighbourhoods, or in more recent modern heritage contexts. These environmental approaches can be part of an integrated ‘area approach’, or they can be implemented as single-sector interventions.

<table>
<thead>
<tr>
<th>Area of Activity</th>
<th>Type of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of Non-Renewable Energy Demand</td>
<td>Retrofitting through thermal roofs; Additional floors with new high quality roofs</td>
</tr>
<tr>
<td>Energy – Recycling</td>
<td>Area conservation with high-tech energy concepts</td>
</tr>
<tr>
<td>Clean and renewable energy</td>
<td>Use of embodied energy through heat exchangers; Biogas from waste products; Smart solutions for district heating</td>
</tr>
<tr>
<td>Land recycling, brown field redevelopment</td>
<td>Redevelopment through adaptive use of industrial land</td>
</tr>
<tr>
<td>Land reclamation</td>
<td>Reclamation of unutilized land for expansion of settlement</td>
</tr>
<tr>
<td>Micro climate improvement / Heat island reduction</td>
<td>Greening of streets and outdoor spaces; Greening of roofs; Greening of facades</td>
</tr>
<tr>
<td>Flood protection</td>
<td>Sustainable urban drainage system; Water proofing of ground floors and access above street levels</td>
</tr>
<tr>
<td>Drought prevention</td>
<td>Rainwater harvesting; Green Roofs; Climate Adaptation Action Plans</td>
</tr>
<tr>
<td>Combating resource depletion</td>
<td>Municipal waste and resource management</td>
</tr>
<tr>
<td>Preserving Biodiversity</td>
<td>Community gardens; Promotion of diversity of species; Urban forestry;</td>
</tr>
<tr>
<td>Healthy cities – healthy living</td>
<td>Urban agriculture; Urban outdoor spaces for communities</td>
</tr>
<tr>
<td>Clean and fair building materials</td>
<td>Green procurement of building materials</td>
</tr>
<tr>
<td>Air pollution control</td>
<td>Control of air pollution from local industries; Reduction of motorized traffic in residential neighbourhoods through traffic barriers, and outdoor land use</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Noise pollution control</td>
<td>Traffic calming; Road closures; Noise action plans.</td>
</tr>
<tr>
<td>Neighbourhood infrastructure</td>
<td>Improved water, sanitation and waste collection services; Improved district heating and cooling services; Improved information technology (IT) services – TV and internet</td>
</tr>
<tr>
<td>Transport</td>
<td>Improved access to public transport; Pedestrianization; Pro-cycling infrastructure (cycle paths); Bicycle rental stations</td>
</tr>
</tbody>
</table>

**Process:** The preparation of urban renewal and revitalization projects follows the following procedure:
- Preparation of a project brief, for inclusion in the city’s urban master plan (or similar planning document);
- Preparation of draft project design;
- Public consultation with local stakeholders (residents; local business; infrastructure service providers; business associations, etc.);
- Endorsement of urban renewal/revitalization project as part of master plan;
- Preparation of detailed project design;
- Second round of public consultations;
- Preparation of improved urban renewal-revitalization plan.

**Literature / further information:**

Name: **ECONOMIC INSTRUMENTS FOR NEIGHBOURHOOD REVITALIZATION**

**What this tool does:** This tool lists and describes a number of approaches of economic instruments which can be used for the economic neighbourhood revitalization. These approaches draw upon extensive European and Chinese experiences in urban renewal.

**How does it work:** Economic approaches can be converted into a large variety of project initiatives, as listed in the second column, below. These economic initiatives can be applied in historic neighbourhoods, or in more recent modern heritage contexts. These economic approaches can be part of an integrated ‘area approach’, or they can be implemented as single-sector interventions.

| Public-private partnerships | Soft renewal through private owners, encouraged by public Agencies |
| Green economy | Promotion of local green business enterprises; Playing the globalization game: international awards; Green banking; Green bonds |
| Economic revitalization and stronger global integration | Place branding and iconic architecture; Green business and leadership; Mixed land use |

**Process:**
The preparation of urban renewal and revitalization projects follows the following procedure:

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**Literature / further information:**

Annex 3: Tool URR 3 - Social instruments for neighbourhood revitalization.

<table>
<thead>
<tr>
<th>Name: SOCIAL INSTRUMENTS FOR NEIGHBOURHOOD REVITALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What this tool does:</strong> This tool lists and describes a number of approaches of social instruments which can be used for the social revitalization of neighbourhoods. These approaches draw upon extensive European and Chinese experiences in urban renewal.</td>
</tr>
<tr>
<td><strong>How does it work:</strong> Social approaches can be converted into a large variety of project initiatives, as listed in the second column, below. These social development initiatives can be applied in historic neighbourhoods, or in more recent modern heritage contexts. These social approaches can be part of an integrated ‘area approach’, or they can be implemented as single-sector interventions.</td>
</tr>
</tbody>
</table>
| **Access to adequate shelter** | • Neighbourhood contracts and other governmental subsidy schemes;  
• Mass housing projects; |
| **Tackling the land question** | • Cooperative housing schemes |
| **Location and ease of mobility** | • Better and affordable public transport connectivity;  
• Revival of urban tramways;  
• Planning and Infrastructure for cycling;  
• Pedestrianisation  
• Integrated mobility concept |
| **Poverty alleviation** | • Targeting of Urban Renewal and Rehabilitation programs to the poorest neighbourhoods;  
• Social City Programs  
• Focused income generation programs |
| **Social inclusion** | • Neighbourhood service centres |
| **Fighting stigmatization** | • Positive discrimination;  
• Community-led urban renewal programs;  
• Social engineering,  
• Mix of housing programs |
| **Cultural identity** | • Participation in preparation and implementation of community events |
| **Crime and violence prevention** | • Conventional policing approach;  
• Shared community space concept  
• Community centres and promotion of community participation |

**Process:** The preparation of urban renewal and revitalization projects follows the following procedure:
- Preparation of a project brief, for inclusion in the city’s urban master plan (or similar planning document);
- Preparation of draft project design;
- Public consultation with local stakeholders (residents; local business; infrastructure service providers; business associations, etc.);
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- Preparation of detailed project design;
• Second round of public consultations;
• Preparation of improved urban renewal-revitalization plan.

**Literature / further information:**
Annex 4: Tool URR 4 - Green building and retrofitting in neighbourhood revitalization.

Name: **GREEN BUILDING AND RETROFITTING IN NEIGHBOURHOOD REVITALIZATION**

**What this tool does:** This tool lists and describes a number of approaches of green building instruments which can be used for improved energy-efficiency of older neighbourhoods. These approaches draw upon extensive European and Chinese experiences in urban renewal.

**How does it work:** Green building approaches can be converted into a large variety of project initiatives, as listed in the second column, below. These green building initiatives can be applied in historic neighbourhoods, or in more recent modern heritage contexts. These green building approaches can be part of an integrated ‘area approach’, or they can be implemented as single-sector interventions.

**Entry point for the “greening” of neighbourhoods:**

1. Renewable energy with solar elements (challenge to marry architectural conservation guidelines with technology requirements);
2. Utilization of “Passivhaus” technology (better insulation of walls, windows, and roofs);
3. Rain water collection (rain water harvesting) facilitated by sloping roofs and open courtyard spaces;
4. Neighbourhood-based waste separation and participation in ecological waste management schemes;
5. Greening of industries through the use of renewable “new” energy sources, and clean(er) production processes;
6. Urban agriculture activities.

<table>
<thead>
<tr>
<th>Area of Activity</th>
<th>Type of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of Non-Renewable Energy Demand</td>
<td>• Retrofitting through thermal roofs;</td>
</tr>
<tr>
<td></td>
<td>• Additional floors with new high quality roofs</td>
</tr>
<tr>
<td>Energy – Recycling</td>
<td>• Area conservation with high-tech energy concepts</td>
</tr>
<tr>
<td>Clean and renewable energy</td>
<td>• Use of embodied energy through heat exchangers;</td>
</tr>
<tr>
<td></td>
<td>• Biogas from waste products;</td>
</tr>
<tr>
<td></td>
<td>• Smart solutions for district heating</td>
</tr>
<tr>
<td>Micro climate improvement / Heat island reduction</td>
<td>• Greening of streets and outdoor spaces;</td>
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<tr>
<td></td>
<td>• Greening of roofs;</td>
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<td>• Greening of facades</td>
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<td>Flood protection</td>
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</tr>
<tr>
<td></td>
<td>• Climate Adaptation Action Plans</td>
</tr>
<tr>
<td>Clean and ecological building materials</td>
<td>• Green procurement of building materials</td>
</tr>
</tbody>
</table>
Process: The preparation of urban renewal and revitalization projects follows the following procedure:

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- Second round of public consultations;
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Literature / further information:

The Europe-China Eco Cities Link (EC-Link) Project is funded by the European Union in cooperation with the Ministry of Housing and Urban-Rural Development (MoHURD), implemented the European Consortium led by GIZ.

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