STRATEGIES FOR SUSTAINABLE

URBAN RENEWAL

URBAN RENEWAL IN EUROPE

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APPROACH FOR URBAN RENEWAL ,TOOL BOX'

- a) 68 European urban renewal experiences investigated
- b) 32 Sustainability objectives identified in European urban renewal projects
- d) Grouping of renewal instruments (,tools') according to objectives and annotations about implementation in the respetive locations

nrban sustainability does not happen on its own



<i>Objectives & Results</i>	Tools or Instruments	Case study	Annotations
Clean and fair building materials	Green Public Procurement policy	Frankfurt Europe Clean Capital finalist 2012	banned the use of tropical timber in 1999 and the use of PVC is also forbidden
Air Polution control	Smog reduction through subsidies to industry	Graz ECOPROFIT Program	subsidies to industries reduce smog by 70%
Noise polution control	Road closures	DK: City of Odense Traffic calming 2009	closure of the city main street for cars
Economic Sustainabilty			
Green economy	Local green currency	Bristol European Green Capital Finalist 2014	Bristol Pound available both on paper and electronically
	Application for international award (and winning it)	Copenhagen European Green Capital 2014	green economy drivers: Urban Form. Innovation, Foreign Investment, Skills and Employment, Enterprise, Energy and resource efficiency, Low carbon, Environmental quality
Green Finance	Green Banking and Green Bonds	Copenhagen	public-private 'Green Bank
	City competition for subsidies	Flanders Urban Renewal Funds	Professional assistance granted Danger: the most needy municipalities may be insuficiently equipped to prepare a winning competition entry

1. Climate Change Mitigation (Reduction of CO₂ Emissions)

- 2. Climate Change Adaptation
- 3. Ecological Sustainability
- 4. Economic Sustainabilty
- 5. Social Sustainability

URBAN RENEWAL IN EUROPE



1.Objective: Environmental Sustainability through Climate Change Mitigation Result: Reduction of Non-Renewable Energy Demand

Instrument: Thermal roof insulation by adding extra floor



Case Study: Copenhagen: Ryesgade 2012

MITIGATIONC

Energy consumption in the property in Ryesgade has been reduced by 73%.

Copenhagen Ryesgade. Photo: Carsten Ingemann (same website as text reference DAC- Cities)

Result: Reduction of Non-Renewable Energy Demand

MITIGATIONC

Instrument: 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 Study: France; <u>Eco-Quartiers</u>, Grenoble 2003



Grenoble, Eco Quartier ZAC de Bonne,	Nancy. Plateau de Haye. 2014
2003	Source. http://projets-architecte-
Source: http://www.placegrenet.fr/wp-	urbanisme.fr/images-
content/uploads/2013/06/Bepos-Zac-	archi/2011/12/ecoquartier-
Bonne.jpg?d1dac0	union.jpg

Result: Reduction of Non-Renewable Energy Demand

<u>Instrument:</u> <u>Stakeholder participation through social media and the internet</u>

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

Case Study: Bristol European Green Capital 2015

https://www.youtube.com/watch?v=wa7oCBnTYS0



Result: Energy – Recycling

Instrument: Reuse of embodied energy

the embodied energy of any existing constructions is best recovered by adapting, modernizing or transforming the same rather than demolishing and replacing them

Instrument: Heat exchangers



Instrument: Capturing biogas of organic waste

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

MITIGATIONC

Result: Clean and renewable energy

Instrument: Autonomous energy supply

Case Study: Graz public - private partnership programme ECOPROFIT, 1990





The UNU Zero Emission Approach in the ECO PROFIT program

Local Streetcar is advertising the ECOPROFIT private sector partners.

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!

Result: Reduction of Non-Renewable Energy Demand Instrument: Zero Energy Urban Quarter

2nd Case Study Graz; Smart City Project, 2016

follow-up initiative to the ECO PROFIT project of the 1990. By 2016, it is intended to almost reach the energetic self-sufficiency basically by use of photovoltaic's and geo thermal energy



Result: Reduction of Non-Renewable Energy Demand

Instrument: 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

Case Study: Denmark: Albertslund, 2011-12



Photo: Albertslund Municpality

Typology of prefabricated houses to be refurbished

The solar prism energy generation unit

Result: Reduction of Non-Renewable Energy DemandMITIGATIONCInstrument:District heating: Integrated heat-and-energy management

Case Study: Hamburg HafenCity district heating



Hamburg HafenCity 10 Megawatt district heating plant

MITIGATIONC

Result: Land recycling, brown field redevelopment Instrument: Concentration of smart solutions enterprises

Case Study: Berlin EUREF-Campus, 2013

1 Haus 1 2 Magazingebäude 3 Science Center 4 Haus 4 5 Haus 5 6 Haus 6 7 Haus 7 8 Haus 8 9 Schmiede 10 Messelbau 11 Gasometer 12 Wasserturm 3 Schleusenhaus 14 15 Haus 15 16 Reglerhaus 17 Ladestation für Elektrofahrzeuge 18 Öffentliche Parkanlage an der Nordspitze 19 Cheruskerpark,

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

1. Climate Change Mitigation (Reduction of CO₂ Emissions)

Reduction of Non-Renewable Energy Demand

Energy – Recycling

Clean and renewable energy

- **1. Climate Change Mitigation** (Reduction of CO₂ Emissions)
- 2. Climate Change Adaptation
- 3. Ecological Sustainability
- 4. Economic Sustainabilty
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URBAN RENEWAL IN EUROPE

2. Strategy: Environmental Sustainability through Climate Change Adaptation

Result: Micro climate improvement, heat island reduction

TOOL: Green belt, greening of streets

Case study: Frankfurt green belt

Frankfurt Green Belt plan, 1991

Frankfurt green corridor plan to complement the existing greenbelt 2006

MITIGATIONC

Result: Land reclamation

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

Example: Venice San Giuliano Park, Italy

S, Guiliano Perk Venice, 1994-99 74 ha, including 30ha land reclamation

Result: Flood protection

Instrument: Sustainable Urban Drainage System (SUDS)

Case Study; Wolverhampton: Bilston Urban Village

ADAPTATION

Result: Flood protection

Instrument: Water proof ground floors and pedestrian access above street level.

Case Study: Hamburg HafenCity redevelopment

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

Result: Flood protection

Instrument: Floating homes.

Case Study: Amsterdam, 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 re-imagine it as a contemporary community

ADAPTATION

Result: Integrated flood prevention and erosion control

TOOL: Integrated disaster prevention planning

Case Study: Copenhagen Climate Adaptation Plan 2011

Flooding of the streets of Copenhagen after an extraordinary storm

Illustration of sustainable Water management

Result: Drought precaution

Instrument: Rainwater harvesting and Green Roofs

Case study; Copenhagen Green Roofs Program, 2010

Green Roof in Copenhagen, Denmark

First Climate Adjusted Neighborhood in Copenhagen

2. Climate Change Adaptation

Micro climate / Heat island reduction

Flood protection

Drought prevention

Disaster prevention and erosion control

1. Climate Change Mitigation (Reduction of CO₂ Emissions)

2. Climate Change Adaptation

3. Ecological / Environmental Sustainability

4. Economic Sustainabilty

5. Social Sustainability

3. Strategy: Environmental sustainability

Result: Combating resource depletion

Instrument: Municipally led waste and resource management

Case Study: Malmö Environmental Programme 2009 – 2020

By 2020, the City of Malmö will be climate neutral and by 2030 the whole municipality will run on 100% renewable energy

ECOLOGY

Energy production from bio waste in Malmö

ECOLOGY

Result: Preserving Biodiversity

Instrument: Community gardens and diversity of species

Case Study: Brussels: L'îlot Fontainas – Contrat de Quartier Durable

Participatory Planning at Ilot Fontainas

Model of llot Fontainas

As part of <u>the city wide quarter renewal program</u> several 'lighthouse projects' have been realized right at the beginning of the initiative and foresees a <u>public park specifically</u> <u>designed to preserve local species of flora and fauna</u>. Locally indigenous trees and other plants are being planted with the idea that they will <u>also attract the native fauna</u>.

Result: Preserving Biodiversity

Instrument: Urban Forestry

Case Study: Leipzig, Urban Forestry

Hoher Wald Mehrschichtig dicht HoherWald Mehrschichtig licht YNYTT

dicht

SBC OF

Hoher Wald Einschichtig licht Niedriger Bestandmit einzelnen Bäumen Niedriger Bestand aus Gebüsch und Niederwaldarten

Stadt Leipzig "Urbaner Wald"

Freiräume in der schrumpfenden Stadt

Potsdam 7. April 2011

ECOLOGY

Result: Preserving Biodiversity

Instrument: Urban Forestry

Case Study; Forest City Halle Silberhöhe

Partial demolition of mass housing in Halle Silberhöhe after reunification

Vision of future Forest City

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 <u>population declined to less than half</u>. Part of the depopulated housing blocks were pulled down and the <u>recovered space was transformed into a forest</u> 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.

Result: Healthy cities – healthy living

Instrument: 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.

Case Study: Brussels - Anderlecht: Les potagers de Canal-Midi, 2010-14

Les potagers de Canal-Midi

Les potagers de Canal-Midi

ECOLOGY

Result: Healthy cities – healthy living

Instrument: Roof gardening

Case Study: 'Sargfabrik' Urban Renewal Projects in Vienna, Austria

Sargfabrik in Vienna with urban gardening on roof top and inner courtyards

Sargfabrik settlement by bkk-2 Architektur

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.

Result: Clean and fair building materials

Instrument: Green Public Procurement policy

Case study: Green public tendering in Frankfurt/Germany

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.

Result: : Air pollution control

Instrument against pollution generated by local industries

Case study: the ECOPROFIT Program in Graz. (also mentioned above)

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

Air pollution in Graz, Austria,

Graz on a clear day

ECOLOGY

Result: Air pollution control

TOOLS against pollution caused by heavy traffic

Case Study: Bologna, Italy (1970's)

Pedestrianized historic centre of Bologna, Italy

Bologna Zona Traffico Limitato.

Result: Noise pollution control *Instrument: Traffic calming, road closures*

Case study: City of Odense (Denmark) Traffic calming 2009

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

Odense city transformed main street

Result: Noise pollution control **TOOL: Noise mapping**

Case study: Noise Action Plan in Frankfurt, Germany 2010

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

3. Ecological Sustainability	Biosphere
Combating resource depletion	
Preserving Biodiversity	Biome
Healthy cities – healthy living	
Air pollution control	AL
Noise pollution control	Ecosystem
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and a state of the	Company the same
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Population	And the second and a second se
	3. Ecological Sustainability Combating resource depletion Preserving Biodiversity Healthy cities – healthy living Air pollution control Noise pollution control Substant of the pollution control

With its dense urban Fabric, iconic monuments and continually evolving cityscape, Barcelona epitamises the European city.

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URBAN RENEWAL IN EUROPE

Result: GREEN ECONOMY

Instrument: Green local currency

Case study: The Bristol Pound

ECONOMY

Result: GREEN BANKING and GREEN BONDS

Instrument: Public-private Green Bank

Green Bond Issuance by Year

<u>ECONOMY</u>

Result: GREEN ECONOMY

Instrument: International awards

Case study: Flanders City competition for Subsidies

Input of regional stakeholders for the development of the regional energy strategy

South West Flanders Energy neutral in 2050. Towards a regional energy strategy

Result: EMPLOYMENT GENERATION

Instrument: Place branding, iconic architecture impacts of globalisation: economic recession

- global economy world cities
- competition between cities
 - events, presence in media through games, expos etc. ('festivalization of cities')

Guggenheim Museum

The Bilbao 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, a Conference Hall, the Airport, the Metro, the tramway and the 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 hptts://www.metrobilbao.eus/ seen 01/08/2015

Result: INTERNATIONALIZATION Instrument: International Events and Iconic Architecture, Tourism

Case study: Turino Internacionale 2001-2006

Measures 2006 Winter Olympic Games, futuristic buildings (copy of Bilbao Effect) Strategic plan (copy Barcelone), Renovation of historic centre

Loss of employment 1981-2001

in Torino, Italy

Giovanni and Marella Agnelli Art Gallery,

Torino, Italy, Renzo Piano Building Workshop, 2002

ECONOMY

ECONOMY

Result: EMPLOYMENT GENERATION

Instrument: Green business and mayor leadership

Case study: Varese Ligure, Italy

2400 residents (formerly 6000)

<u>measures:</u> Citizens involvement

Education Center Organic farming now 108 organic farms, (98% of all) <u>Renewable energy</u> 30,000 \$US saving in Energy + Sale of Surplus

Saving 8000 tons CO2 emissions, Increase in tourism by 500%, 500.000 US\$ tax income from new employment & business

Result: SAVINGS IN COST OF INFRASTRUCTURE

Instruments: Land use mixing, city of short ways, greening

Case study: Vienna ecological block renewal 1996-99

Measures: 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

4 . Economic Sustainabilty	
Green economy	
Green Finance	
Income generation effects, employment	
Cost of infrastructure	
Building and maintenance cost control (also includes financing costs)	
Cost recovery	

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URBAN RENEWAL IN EUROPE

SOCIAL Result: SOLVING MULTIPLE SOCIAL ISSUES: 'VerticalSlum' Upgrading

Instrument: Image improvement of social housing

Case study: Dortmund Clarenberg 1992 (originally built 1969)

measures: 17 floor high-rise buildings to house 3000 people given into private management environmental improvement Concierges, artwork

Result: COMPENSATION FOR LOCALITY, MOBILITY

Instrument: PRO CYCLING PLANNING AND INFRASTRUTURE

Case study: Copenhagen

Every day 1.2 mill. km moved by bicycle Since 1998 decrease of accidents by 72% over 30% increase in modal split

Cycling is the fastest and easiest way to get around

SOCIAL

Trips to work and educational institutions in the City of Copenhagen by mode (average 2008-2010, TU-data).

Instrument Pedestrianization and greening of high street ZEIL

FRANKFURT / ZEIL (GERMANY), 1960's

Result: COMPENSATION FOR LOCALITY, MOBILITY

Case study:

in

FRANKFURT / ZEIL (GERMANY) 2000

CIAL

Former high street pedestrianized 1972. improved 83 and 2008/9

Result: Conviviality. Quality of Life, Co-housing Instrument: Cooperative Housing

Case study: München. Wagnis Art 2005

measures:

4 passive energy houses on brownfield site

Result: PROMOTION OF EDUCATION AL SKILLS

Instrument: Idea stores, culture led revitalization, One-Stop shops

*Do we still need public libraries?" Case study: Britain, ca 2000

measures

Result: SUFFICIENT GOOD QUALITY OF HOUSING

Instrument: Neighbourhood contracts

Case study: Brussels. Renovation of buildings and housing provision. Since 1993 Measures: *Positive discrimination through neighbourhood improvement limited to 4 to 6 years – mini projects 52 quarters in <u>14 years</u>*

Result: CONSERVATION OF <u>CULTURAL HERITAGE</u> Instrument: Conservation area (but with gentrification)

SOCIAL

Case study: Copenhagen: Carlsberg City, Revitalization of a listed historical site, 2009 onwards

Result: : IMAGE IMPROVEMENT THROUGH SOCIAL MIX

Instrument: Subsidised ownership transfer to self builders

Case study: Rotterdam do-it-yourself houses, 2004

measures: empty houses in a lowincome neighbourhood were sold to lower middle class buyers for self-built renovation purposes

Result: : CRIME AND VIOLENCE PREVENTION

Instrument: Shared space streets

Measures: Street redesign in Brighton, UK; by Jan Gehl architects, 2005

Result: CRIME AND VIOLENCE PREVENTION

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Instrument: 'Spaces of Tolerance''. Case study: Lisbon pedestrian area

Instrument: 'Spaces of Tolerance' Case study: Lisbon pedestrian area, 2000

Result: ETHNIC CONFLICT MANAGEMENT

TOOL: Valorisation of cultural differences

Case study: Intercultural Garden, Marzahn. 2002

BERLIN MARZAHN (GERMANY)

SOCIAL

Result: DEMOCRATIC SPACE TOOL: Referencium, Non-intervention

Case study: Berlin, Tempelhofer Feld

Case study:

5. Social Sustainability

Multiple social issues

Sufficient and good quality housing

Demographic change (ageing, migration and mobility);

Poverty reduction

Educational & skills

Social inclusion

Cultural identity

Image improvement

Conviviality, well being

Crime and violence prevention

URBAN RENEWAL IN EUROPE

Historical sequence of urban renewal efforts (Europe)

- 1. Post war reconstruction (1950-70)
- Modernization of remianing substance (,Sanierung') (1970→)
- Cautious' urban renewal / built heritage conservation (1978)
- 4. Ecological improvement (1982)
- 5. Uplifting of large housing estates (1984/1990)
- 6. Social engineering and patching-up (1995)
- 7. Sustainability (2000 \rightarrow MdG / 2015 \rightarrow SdG)
- 8. Climate change mitigation/adaptation $2010 \rightarrow$
- 9. Urban digitalization (,Smart City') $2013 \rightarrow$

Urban renewal efforts (Global South)

Consolidation of informal settlements
Land regularization / security of tenure
Social housing (new estates)
Participatory Budegeting
Urban Farming
Safer Cities
Post conflict reconstruction