



International Conference  
Sustainable Real Estate Development and Green Skills  
Swiss-Czech comparative perspective II

**SUSTAINABLE URBAN DEVELOPMENT**  
Theory und Practice

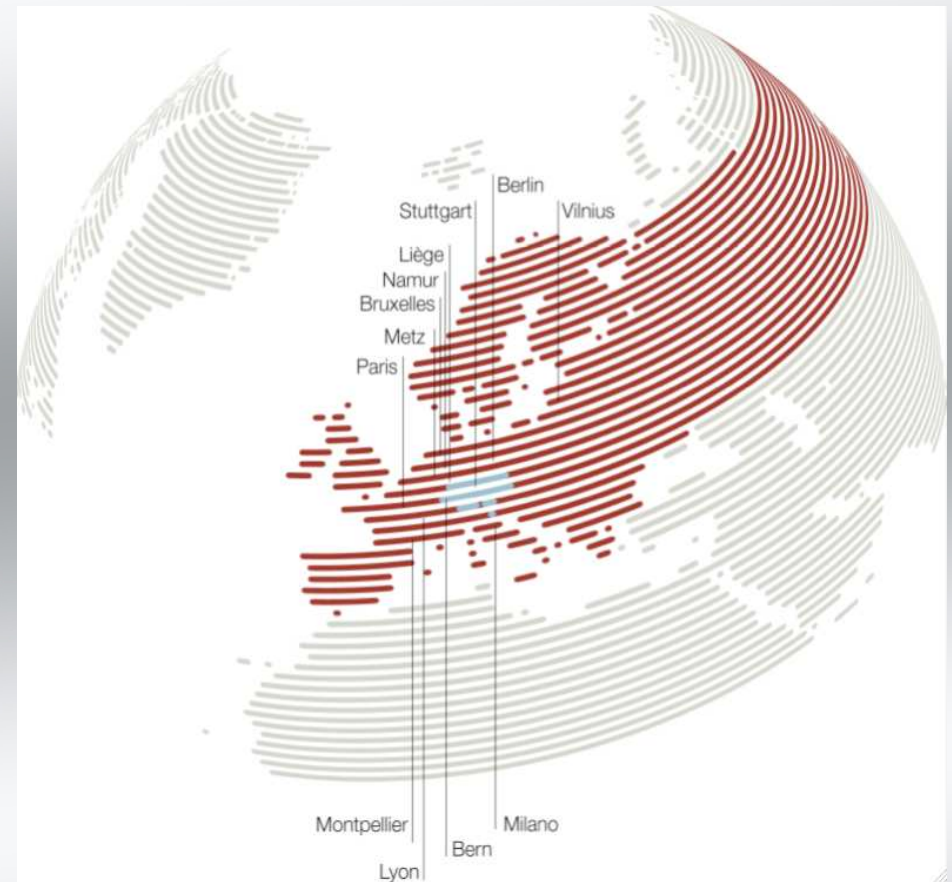
[www.csd.ch](http://www.csd.ch)

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## **The CSD – Group**

- Swiss independent engineering consultancy enterprise
- Network of 30 branches in Switzerland, France, Belgium, Germany, Italy and Lithuania
- Interdisciplinary team with 450 employees coming from 60 different areas of expertise
- Activities encompass the fields of construction, environment and natural resources



## **1. Introduction**

## **2. Theory**

2.1 Holistic approaches

2.2 Elements and methods

## **3. Practise**

3.1 Example “Torfeld - Süd”, Aarau, Switzerland

3.1.1 Vision

3.1.2 Certification as an instrument

## Global challenges

Protection of habitat and quality of life while world population explodes

Use of land and energy

Immissions

Conservation of resources

Disaster control

Sociocultural aspects

Value retention



## **Sustainable development as national and international objective**

- UNO - conference 1992 in Rio de Janeiro:  
Switzerland and 178 other countries committed to develop and implement a policy for sustainable development at national and international levels
- Sustainable development is fixed in the Swiss federal constitution as well as in the constitutions of the cantons
- Urban development planned and built today has to be dealt with for centuries
- Structures which are not flexible to adjust will be abandoned

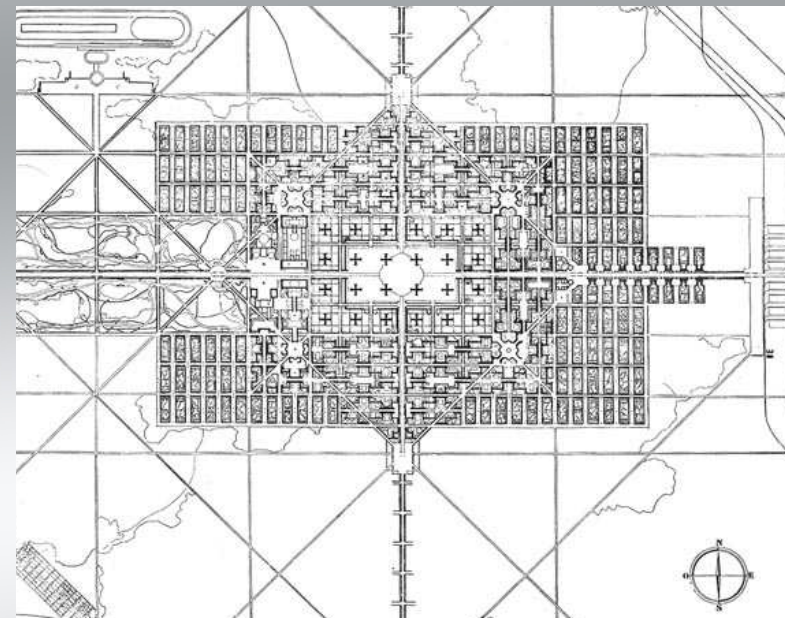
## Milestones of urban planning

Congrès International d'Architecture Moderne (CIAM) 1933

Athens Charter published by Le Corbusier in 1943



Radiant City 1935



## Milestones of urban planning

Influence and achievements of the Charter of Athens

Quality of residential living

(e.g. sizes of flats, open space, provision of services)

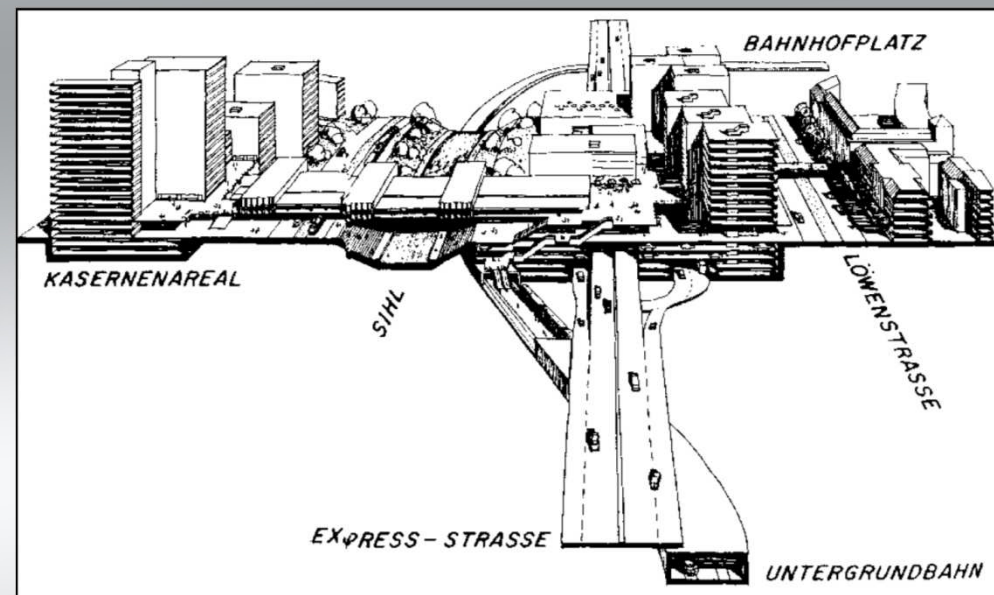
Reorganization of the “European City” according to new industrialized society

Idea of the “City adapted to cars”:

Separation of uses

Expressways to city centre

Transection of existing patterns



Zürich, Planning Sihlraum 1973

## Milestone of urban planning Metabolism (Kurokawa 1959)



Helix-City 1961



Nakagin Capsule Tower 1972

## Future developments

Purposes and destinations of human settlements altered in the history of cultural, economical, social and ecological changes

Future orientations  
will replace previous models

Visions of European cities:

CO<sub>2</sub> – Neutrality?

90% urban population?

Shrinking society of elderly?

Social segregation?



Zurich 2100, Visualisation Jan Halatsch ETH Zürich, ETH Globe

## Elements of sustainable urban planning

According to specific location

*water and soil conservation*    *vegetation*    *urban climate*    *regional / renewable materials*  
*erosion and sedimentation control*  
*biodiversity*    *biotope network*    *matter cycles*    *waste*    *food production*  
  
*immission control*    *air purity*    *local / national climate factors*  
*density*    *natural disasters*    *brownfields*  
*land use*    *consumption of resources*    *energy efficiency*    *flexibility*  
*urban sprawl*    *durability*    *megatrends*  
*innovation*    *education*    *marketing*    *image*    *value enhancement*  
*comfort*    *transport*    *mobility*    *monitoring*    *optimization*  
*building typologies*    *life cycle cost*    *maintenance*  
*demographic mix*    *security*    *communication*  
*noise protection*    *existing structures*    *cross-linked surroundings*    *fiscal impact*  
  
*accessibility for all*  
*zoning regulations*    *design*    *participation*    *competing procedures*  
*development phases*    *employment*    *land value*  
*regional planning*    *mixed use quarters*    *shared identity*    *variety of ownership*

## Elements of sustainable urban planning

### Examples of interdependencies/synergies

Land use

Brownfields

Urban density

Transport

Existing structures

Economic, ecologic, social network

Identification

Levels of densification, Amt für Städtebau Zürich



Development Kalkbreite, Aussersihl  
Müller Sigrist Architekten 2011-2014



Zürich Aussersihl 2009

## Elements of sustainable urban planning

Examples of interdependencies/synergies/conflicts

Open space

Common space

Participation

Flexibility for future developments

Vitality, functional mix

Safety, noise protection

Image



“Basislager” Zürich, interim use for intra - urban space

## **Elements of sustainable urban planning**

Example Hunziker Areal, Zürich, building cooperative “mehr als wohnen”

For non-profit housing, competition 2007

DUPLEX architekten  
Futurafrosch  
Müller Sigrist Architekten  
Pool Architekten  
Architekturbüro Miroslav Šik

### **Common space**

High quality with  
modern mobility concept

### **Participation**

Echo chambers

### **Different typologies**

New models + ways of life

### **Vitality**

Social and functional mix

### **Safety**

Social control

### **Beacon project**

Integrative approach



## Elements of sustainable urban planning

Examples of interdependencies/synergies/conflicts

Disaster prevention

Matter cycles

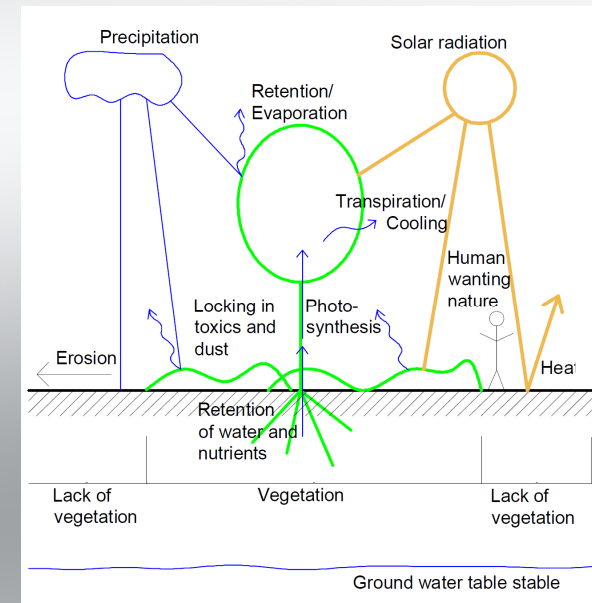
Alternative transport

Urban climate, energy efficiency

Immission control

Comfort

Marketing



Role of vegetation in urban areas



Gundeldinger Feld, Basel



## **Elements of sustainable urban planning**

### Method of Integral Planning

1. Interdisciplinary team + coordinator, active during complete planning, building and commissioning process
2. Involvement of all stakeholders
3. Integration of sustainability criteria and experts at early stage
4. Planning based on differentiated transdisciplinary analysis of the situation
5. Holistic approach: Life Cycle Assessment

## **Torfeld – Süd**

Location:

Aarau, Switzerland

Since 19th century  
important industrial area  
and economic driver

1,5 km distance to  
historical centre

Brownfields recycling

Integration of existing  
and protected structures



## Torfeld – Süd

Owners:

Mobimo AG, HRS Real Estate AG, Implenla AG

Area Mobimo AG: 5 ha  
(DGNB pre-certified)  
incl. 4 sections and park

Competition 2011  
for urban masterplan  
and high-rise  
Gastrosocial tower

Construction period and  
interim use 2012 - 2015

Feasibility study Burkard Meyer Architekten



## Torfeld – Süd

### Vision:

The diversity of the “*Urban Village*” forms social, economic and ecologic synergies and offers choices for an enhanced quality of life, identification and sense of safety to the people.



### Vitality:

Visitors, commuters, residents

### Mixed-use:

Industry, culture,  
leisure, residential

### Distinctive elements:

Park, axis, central market

### Identity:

Historical and new structures



## Torfeld – Süd

1st price Masterplan by KCAP

**MOBIMO**  
Leidenschaft für Immobilien



## Torfeld – Süd

Symbols of identification:

New free-standing  
Gastrosocial Tower -  
**Urban Village entrance**



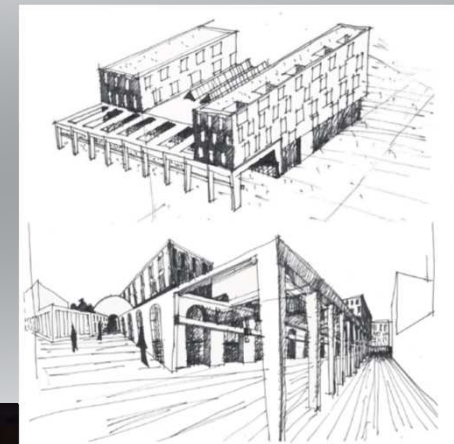
1st price Schneider & Schneider

Historical re-used  
Aeschbachhalle -  
**Urban Village centre**



**MOBIMO**  
Leidenschaft für Immobilien

1st price KCAP



## Torfeld – Süd

### Qualities of urban planning

#### 1. Efficiency

- Compactness of infrastructure and building volumes
- Main axis and perpendicular grid provides short and direct lines of supply saving resources during construction as well as operation
- Large volumes with good access gives possibilities for large-scale concepts
- Spacing for ventilation and daylight, although difficult against sound / draught
- Sequence of different open spaces avoids monotony, allows variety of uses

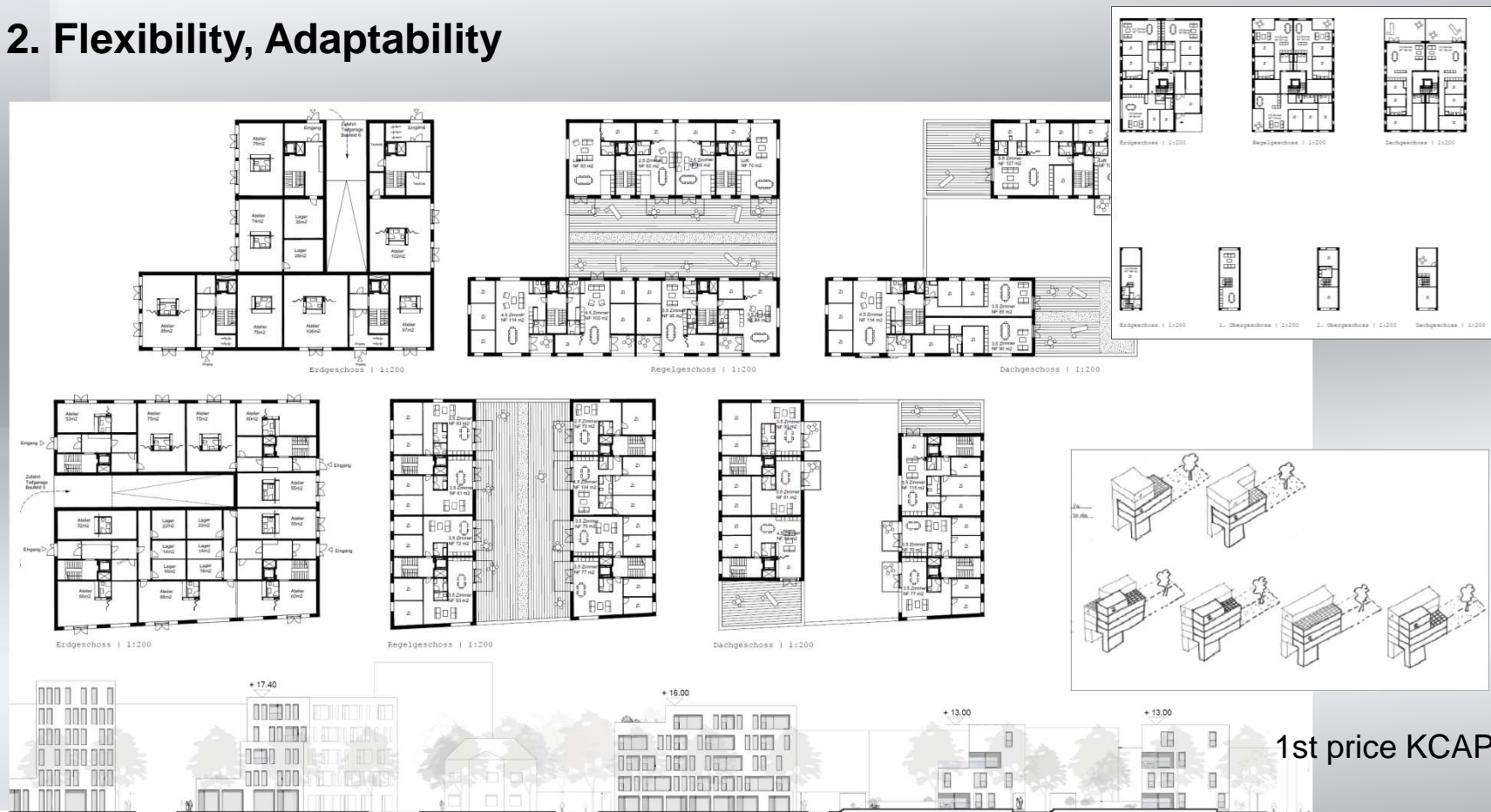


1st price KCAP

## Torfeld – Süd

### Qualities of urban planning

## 2. Flexibility, Adaptability



1st price KCAP

## **Torfeld – Süd**

Qualities of urban planning



### **3. Participation**

- Voting, cooperation, involvement of all stakeholders at the earliest stage (e.g. zoning plan)
- Workshops integrating investors, experts, authorities, users and the public for discussions
- Surveys among all interested parties, evaluation of objections and proposals
- Constant flow of information

## Torfeld – Süd

Qualities of urban planning

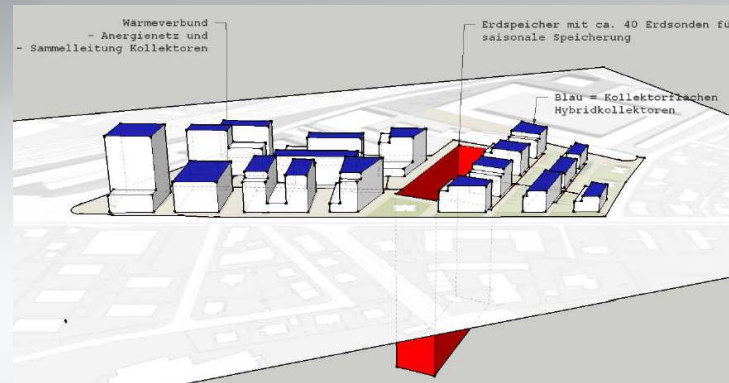
### 4. Integral concepts

will be continuously defined to optimize synergies among relevant fields

#### Water



#### Energy



#### Transport



## **Torfeld – Süd**

### Advantages of DGNB (Pre-) Certification

- Independent label as an instrument for marketing
- Early definition of targets regarding sustainability
- Comprehensive list of requirements for all parties involved
- Enhanced planning reliability and transparency
- Possibility for project optimization at early stages

The certification process does not replace, but it rather encourages and supports “Integral Planning”.

## **Conclusion**

Cities are the locations with the highest metabolic rate on the planet.  
They can only be sustainable if

- they are flexible to adapt
- they do not neglect rules of nature
- they do not loose human scale
- they are synergetically efficient.

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