playful learning environment

marija mateljan CP 2014
megacities on the move

your guide to the future of sustainable urban mobility in 2040
6% of earth’s surface
55% of population

75% of economic activity
80% scientific research

85% of pollution
80% crime and violence

source: nc. Lean Hazel. Mega city Challenges
Since 1980 number of the megacities, **agglomeration with a population of 10 million and more**, grew from 4 to 21.
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<table>
<thead>
<tr>
<th>City</th>
<th>Population (in millions)</th>
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<td>Tokyo</td>
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<td>Delhi</td>
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<td>Mumbai</td>
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<td>São Paulo</td>
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<td>Calcutta</td>
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<td>Shanghai</td>
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<td>Guangzhou</td>
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<td>Lima</td>
<td>5</td>
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<tr>
<td>Lahore</td>
<td>5</td>
</tr>
</tbody>
</table>

source: UN, World Urbanisation Prospects: 2009
GUANGZHOU 1980
Chicago's population drops to a low not seen since 1910.
Extract from article “Fox News on Chicago’s Gang Violence” about gangs and drugs in South Chicago

“It’s mostly drug gangs and they are fighting over smaller and smaller scraps because the economy is bad. And white people aren’t buying as many drugs now. So the profits are down. So they’re trying to fight over turf, property and respect.”
FOOD DESERT
PROBLEM STATEMENT
PROBLEM STATEMENT

How to develop a sustainable and productive strategy in an area experiencing rapid decline and recession, without resorting to traditional, and perhaps antiquated techniques of Masterplanning?
SPONTANEOUS GROWTH
STRATEGIC INCERTION POINTS
RESEARCH
**CHICAGO**
POP: 2,714,856
AREA: 606.1 km²
DENS: 4,447 p/km²

**SOUTH CHICAGO**
POP: 31,198
AREA: 4.57 km²
DENS: 3,600 p/km²

**SOUTHWORKS**
POP: ----
AREA: 2.8 km²

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Chicago
South Chicago
Southworks
USE OF EXISTING GRID
fixed system that encourages spontaneous activity

EXTRA LAYER
adding additional element into an existing context

CONTEXT
existing context used as a role model for the project
successor afterwards used as role model for the predecessor
1: tradition of fairground in Zagreb
2: fair moves across the River Sava
3: fair extended infrastructure across the river
4: experimental housing is being built
5: shopping pavilions are deployed in the city
6: self service consumption becomes practice

performance of each settlement is analysed in order to inform the design of sub
neighbourhoods are like introverted villages

dislocation of public functions

contact zones as social generators
gradient linking interaction
never ending repetition of types and views

catalyst is the tension between elements

spontaneous growth

tension complexity in relation to complexity and diversity
D.I.Y urbanism MRVDV

Individual
- 18%
- 8%
- 13%
- 2%
- 59%

Collective
- +
- +
- +
- +
- +
REFERENCES
Borneo Sporenburg
Amsterdam, Netherlands 1993-97
Investor: New Deal
Architects: West 8
BORNEO
SPORENBURG

amsterdam netherlands 1993-97
investor new deal
architects west 8

site area 25 ha
built area 50 000 m2

residences 7 500
jobs 500

residence units 2,500
workspaces 300
BORNEO SPORENBERG

Amsterdam, Netherlands 1993-97
Investor: New Deal
Architects: West 8

Site area: 25 ha
Built area: 50,000 m²

Residents: 7,500
Jobs: 500

Residence units: 2,500
Workspaces: 300
Retail
Office
Public Amenities
Working: Living = 1:12
BORNEO SPORENBURG

amsterdam netherlands 1993-97
investor new deal
architects west 8

site area 25 ha
built area 50 000 m2

residences 7 500
jobs 500

residence units 2,500
workspaces 300
Retail
Office
Public Amenities
working : living = 1: 12
HAFEN CITY

Investor: Hafen City GmbH
Architects: KCPA
HAFEN CITY

Investor: Hafen City GmbH
Architects: KCFA

- Site area: 165 ha
- Built area: 2,000,000 m²
- Residences: 15,000
- Jobs: 60,000

- Residence units: 5,800
- Workspaces: 45,000

- Buildings:
  - Elbphilharmonie Pavilion
  - Kesselhaus Info Center
  - Primary School
  - Spiegel Headquarters
  - Elb Philharmonic Hall
  - HafenCity University
  - Cruise Center
  - Science Center
  - Intelligent Quarter

- Working: Living = 4:1

- Southworks: SOM
  - 224 ha / 31,000 people

- South Chicago:
  - 570 ha / 32,000 people
EUROMÉDITERRANÉE

marseille france 1995 - 2013
investor City of Marseille

area 295 ha
existing built surface 3 600 000 m²
added built area 100 000 m²

existing population 20 000
added jobs 10 000
residences 15 000

2 000 000 m²
4000 new housing units
6000 renovated housing units
500 000 m² working space
100 000 m² public facilities
100 000 m² retail space
200 000 m² public spaces
working:living = 1:1

SOUTHWORKS SOM
224 ha / 31 000 people
SOUTH CHICAGO
570 ha / 32 000
PROGRAM

commerce (tertiary sector)

production (secondary sector)

leisure (quarterly sector)
**COMMERCE**
1: manufacture mall
   - crafts stores
   - crafts production
   - exhibition space
2: IT store
   - IT store
   - technical service
   - show room
3: market hall
   - market
   - restaurant
   - exhibition space

**PRODUCTION**
1: reuse factory
   - reuse factory
   - outlet store
   - exhibition space
2: IT factory
   - IT factory
   - outlet store
   - exhibition space
3: packaging factory
   - packaging factory
   - outlet store
   - training polygon

**LEISURE**
1: performance centre
   - theatre/music hall
   - acting/music school
   - props/ factory
2: visual art centre
   - exhibition space
   - workshops
   - gallery
3: sport centre
   - sport hall
   - sport school
   - sport equipment store
combined vocational center

Architect: JHK Architecten
Status: Built
Location: Rotterdam, The Netherlands
Year: 2012
Area: 22000 m²

Program: A vmbo school for preparatory secondary vocational education and an mbo school for senior secondary vocational education. Two schools have diverse and sometimes contradictory ideals. The strength of the design lies in the collectivity of the two schools and the emphasis on shared functions.
combined function
research/production/headquarters

Architect: Foster + Partners
Status: Built
Location: Woking, Surrey
Year: 2011
Area: 34,500 m²
Program: combined function of advanced manufacturing, production and research
hybrid building
farmer's market/library

Architect: RDH Architects Inc. with David Premi Architects
Status: Built
Location: Hamilton, Ontario, Canada
Year: 2010
Area: 200 m²
Program: a combination of two programs:
market hall and city public library
performance theatre

Architect: Jean Nouvel
Status: Built
Location: Minneapolis, Minnesota
Year: 2006
Area: 25,500 m²
Program: three theaters (1 100, 700, and 250 seats), with administration, education and production program spaces
Creative Incubator

Architect: Studio Daniel Libeskind
Status: Built
Year: 2011
Area: 273,000 ft²

Program: Multipurpose theatre, laboratories, classrooms, studios, library, study areas, exhibition spaces, and a cafe and restaurant, 2 sound stages, 2 THX screening rooms, one with dubbing facilities, 3 additional screening rooms, Virtual reality immersive research lab, Box-in-box sound recording studio, Television studio, Computer labs and classrooms for production and research, Wood/metal shop, Electrical shop, Restaurant, Cafe, Landscaped garden
CONCEPT
PROPOSAL
INFRASTRUCTURE
INFRASTRUCTURE
LANDSCAPE
PROGRAM
“Self-motivation, rather than external motivation, is at the heart of creativity, responsibility, healthy behavior, and lasting change.”
Research Question

How to incorporate the existing water canal into the building design in order to create an attraction point?

How to utilize an existing landscape element as a generator of urban development?
“not necessarily to exercise, but **primarily to socialize, play** and enjoy the sun. Water should be able to accommodate more interactive and playful activities”

**Reference**

Harbour Baths
Copenhagen Public Baths, BIG
“the 40 meter long swimming pool has been designed in such a way that it can be converted into an ice rink during the winter months.”

Leisure Platform with a swimmingpool

Badboot Lido, Antwerp
ferry converted into leisure platform
A. bad education

B. bad health

C. lack of activities

low educated people

high child obesity rate

lack of leisure activities
family profile
South Chicago

3 family types

75% afro-american
22% hispanic
3% white

2.8 average household size
target population kids (5-14) and parents (25+)

aim to make a fundamental change in awareness since early age and through raising parental awareness
why US educational system doesn’t work?

- knowledge is **static** and **complete**
- children are experts in consuming knowledge (**passive learning**)
- school is mainly focused on **academic pursuits**
- lack of motivation + knowledge is expensive
- many kids **dropout** school
“U.S. students falling behind other countries in science and math, combined with the ever-more-intense competition to get kids into college, make parents rush to sign up their children for piano lessons and test-prep courses instead of just leaving them to improvise on their own; playtime versus résumé building.”

(NY Times: Taking Play Seriously, by R. Marantz Henig, February 17, 2008)
what kind of Learning is suitable?

The Serious Need for Play
By Melinda Wenner • Scientific American Mind • January 28, 2009

Free, imaginative play is crucial for normal social, emotional and cognitive development. It makes us better adjusted, smarter and less stressed.

Thinking Skills and Creativity
journal homepage: https://www.sciencedirect.com

Creative and playful learning: Learning through game co-creation and games in a playful learning environment
Marjaana Kangas

SciVerse ScienceDirect
Procedia Social and Behavioral Sciences

Effective learning environments in relation to different learning theories
Ali Guney, Selda At

Procedia Social and Behavioral Sciences
WCES 2012

Edutainment? No Thanks. I Prefer Playful Learning
playful learning environment (PLE)
“Play promotes healthy development of parent-child bonds, establishing social, emotional and cognitive developmental milestones that help them relate to others, manage stress, and learn resiliency.”

(Ginsburg, Clinical Report, doi:10.1542/peds.2006-2697)

“Public health officials link insufficient playtime to a rise in childhood obesity.”

(NY Times: Taking Play Seriously, by R. Marantz Henig, February 17, 2008)
alternative educational models

A. Waldorf
B. Montessori
C. Vittra International
learning parameters?

- it has to be driven by **intrinsic motivation**
- focused on **play-based** interactive creativity
- **technology-enhanced** learning environment
- individualism and curiosity ‘**discovery model**’
- active learning through ‘hands-on’ and ‘body-on’ physical activities
- academic, **practical** and **artistic** pursuits
- discovering **talents** from early age
- encouraged **individualism**
- freedom of movement on innovative **playgrounds**
typology for playful learning

1. Children’s Museums and Science Centers
2. Schools (alternative models)
   a. Waldorf
   b. Montessori
   c. Vittra
3. Mediatheques
1. Children’s Museum

Nemo Science Center, Amsterdam
Renzo Piano (1997)

various exhibitions
and interactive learning

**Phenomena**

Science and technology are everywhere. Explore them yourself.

**Search for life**

Where do we come from? Discover the secrets of life, terrestrial and extra-terrestrial.

**Machine park**

Become a logistics expert and send parcels around the world.

**Water Power**

Tame the power of water and build a dam.

**Teen Facts**

Get a grip on your raging hormones with facts and occasionally hilarious tests.

**Laboratory**

Lab coat? Check! Safety glasses? Check! It’s experiment time.

**Amazing constructions**

Learn how you can harness the forces of nature to build gigantic structures.

**Water world**

Use this system to make your own clean and precious water.

**The joy of science**

Carry out these historical experiments and become a 19th-century scientist.

**Journey through the mind**

What’s inside your head? Take a new look at the brain.

**Smart Technology**

Combat pollution by using technology with smart energy-saving designs.
reference

2. School

Belair Primary School, Texas
Caudil, Rowlett, Scott (1955)
no classes or classrooms – instead, the students are taught in groups according to level based on the school’s pedagogical principles of ‘the wateringhole’, ‘the show-off’, ‘the cave’, ‘the campfire’ and ‘the laboratory’ – didactic approaches that create different types of learning and teaching situations.
2. School

Krk Kindergarten, Croatia
Randic & Turato (2009)

kids pedal through building > combination of learning, excercise and fun!
"kids who enrolled in play-oriented preschools are more socially adjusted later in life than are kids who attended play-free preschools where they were constantly instructed by teachers."

(Scientific American Mind: The Serious Need for Play by Melinda Wenner, January 28, 2009)
“Public library situated there and combined with an attractive facility such as a swimming pool would not only allow the integration (for activities and attractions for all age groups see the diagram) of the new community (a phenomenon typical of small towns, the so-called city bedrooms), but also make new social groups interested in books.”
“Mission is to create a community where play and learning connect. The museum’s primary audiences are children up through fifth grade including their families, along with school and community groups that support and influence children’s growth and development.”
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The idea of children’s museum should be reinterpreted positioned in an area surrounded by low educated communities. Interactive learning could make a greater impact on the overall education.
CHANGE through PLAY!

learning through PLAY <=> PLAY through learning

recreation through PLAY <=> PLAY through recreation
Elementary Schools
a. public
b. charter
c. private

building

a. technology
b. equipment
c. fun recreation

Playful Learning Environment
experimentation - finding talents - individualism
TOTAL: cca 7000 m²

learning + sport: 3800 m²
swimming pool: 2400 m²
infrastructure: 1720 m²
architectural topics

architecture as framework for play

designing playGROUND

recreation and learning at the same time?

quick learning ‘along the way’
INFRASTRUCTURE
GREEN INTERVENTIONS

Glowing Canals In Amsterdam

THURSDAY MAY 10, 2012 | by CLEMENT ADAM

The area of Falmouth close to Montego Bay in Jamaica is famous for its Luminous Lagoon, where water naturally illuminates due to the micro-organisms living in the shallow, warm area where salt and fresh water meets. The fish and giant rays can even be observed from a boat, creating a certain discomfort if one is afraid of big fish. There are only four places in the world where this phenomenon can be observed, but the Italian architect Carlo Morsiani is determined to change that...

Morsiani, who presented his work at our last PechaKucha in Amsterdam on 24 April, has come up with this brilliant idea for urban decoration. The concept: using luminescent bacteria to turn Amsterdam’s canals into glowing turquoise water. The bacteria would illuminate the canals and purify
bridge!

- linear
  - movement
    - learning along the way
    - excercising

- crossing water
  - vertical relation
    - water sports
    - attraction

- connecting
  - public and recreational
    - public or wall path
    - park on the North
elevation
canal
bridge structure
excavation
swimming pool
swimming pool
infrastructure
double truss
showoff
learning cave
learning cave
entrance atrium
walkthrough
jungle

Diagram showing various spaces including "jungle greenhouse," "cooking workshops," "restaurant," "garage," "swimming pool utilities," and "garden."
elements
outside
prefabricated triple IGU cassette system
some cassettes contain convex glass
(triple glazing in steel frames)

puzzle construction

cassette system is self-supporting
verticals act as load-bearing elements

various glass treatments depending on function behind
(transparent, translucent, milky)
modes of use

weekends

learning

recreation