Integrative approaches in housing & neighborhood development

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HMW- Short Course 2012 -Towards new sustainable communities : Integration in Brazil’s cultural framework
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- 1 HMW Case study // Cape town // Scottsdene / neighborhoods upgrading strategies
- 2 H Case study // Valparaiso // Polanco / neighborhoods upgrading strategies

CONTENTS

- Urgencies of integrative housing strategies
- Urgencies of integrative neighborhood upgrading strategies
- Community based design
- // Empower communities
- // Make resilient space
- // Sustain public amenities
- Conclusions
Urban settlements are driving global changes
Social revolution usually starts in cities, neighbourhood's
Social inequality is particularly evident in urban settlements – But it is here, too, that most of the world’s micro-economic growth takes place.
Urban settlements are responsible for 70% of all resource consumption & 75% of CO2 emissions.

Transformation is about more than mere change.
It is a radical process to which political, cultural, social, ecological and economic change all contribute.
( GIZ/ Germany, 2012, Director General)
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- Urgencies of integrative housing strategies

‘ticking time bombs’
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN...

- Urgencies of integrative housing strategies

‘ticking time bombs’

- energy
- water
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- Urgencies of integrative housing strategies

‘ticking time bombs’

- energy
- water
- waste
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- Urgencies of integrative housing strategies

interrelated ‘ticking time bombs’

energy

water

waste

food security
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN...

- Urgencies of integrative housing strategies

South Africa carbon reduction target: 34% by 2020

Carbon intensive energy mix
/// RSA 960gr of CO₂ per kilowatt of electricity, European average of 630gr., Switzerland 143gr.

Cities morphology
/// Sprawling cities, primarily individual car based mobility, mono-use zoning

Intercity distances
/// reliance of travel building materials

Need for local economy growth
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- Urgencies of integrative neighborhood upgrading strategies

South Africa by 2012

//60 % of upgrading are done by the dwellers themself ...

//90 % stating that they are loosing time by waiting for states programs to realize properly proposed targets...
## FACTS

### SOUTH AFRICA

<table>
<thead>
<tr>
<th>General Information</th>
<th>CAPE TOWN</th>
<th>SCOTTDENE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total area</td>
<td>1 221 037 km²</td>
<td>2461 km²</td>
</tr>
<tr>
<td>Total population</td>
<td>49.99 mil</td>
<td>3.4 mil (2007)</td>
</tr>
<tr>
<td>Average Density</td>
<td>49 /km²</td>
<td>1424 /km²</td>
</tr>
<tr>
<td>Unemployment:</td>
<td>23.8 %</td>
<td>16%</td>
</tr>
</tbody>
</table>

### Racial Makeup

<table>
<thead>
<tr>
<th>Race</th>
<th>SOUTH AFRICA</th>
<th>CAPE TOWN</th>
<th>SCOTTDENE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coloured</td>
<td>8.8%</td>
<td>44.0%</td>
<td>44.0%</td>
</tr>
<tr>
<td>Black African</td>
<td>79%</td>
<td>34.9%</td>
<td>34.9%</td>
</tr>
<tr>
<td>White</td>
<td>9.2%</td>
<td>19.3%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Indian &amp; Asian</td>
<td>2.6%</td>
<td>1.8%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

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### Maps

- **South Africa**
- **Cape Town**
- **Scottdene**
1 in 4 people are unemployed in Scottdene.

26% of the population has an income below the poverty line.

13% of the population is illiterate.

84% of the population have trained non-professional jobs.

20% of the population have a matric (Abitur).

17% of the population stay in informal settlements.

1500 people per km² is the current density.

3,076 current household holds in Scottdene.

15,875 Scottdene residents.
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

NEIGHBOURHOOD >> TYPOLIGIES
NEIBOURHOOD >>

TYPOLIGIES
Actor Network Diagram

TOP-DOWN AS ECONOMIC CAPITAL

GOVERNMENT

DEVELOPER

BUILDING INDUSTRY

FINANCING INSTITUTION

NGO & ARCHITECT

PLANNING PHASE

SITE & INFRASTRUCTURE

FRAME & SERVICE

MODULAR FILL-IN

HOUSE AS GENERATOR!

COMMUNITY LEADER

ASSOCIATIONS

LOCAL BUSINESS

SAVINGS GROUP

COMMUNITY
The design focuses on a simple **modular construction** method that uses mainly prefabricated concrete building elements. To lower costs and to promote ownership identity only the concrete skeleton and sanitation core are provided. Walls, windows, doors become **self fill-in** elements. The prefab concrete elements are **manufactured locally** as a new type of business within the community. Skills training programs are established to provide the necessary knowledge to make this possible. **Material vendors** become an integral part of the building process, by expanding their choice of products to include the self fill-in elements.
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN...

- Group concepts for Scottsdene
WHAT IF WE COULD?
EMPOWER OURSELVES

1. URBAN AGRICULTURE
2. PLACE MAKING AND INCLUSIVE HOUSING
3. FOOD SECURITY SUSTAINABLE ECONOMY
4. SELF-GOVERNING COMMUNITY

EXISTING SCENARIO

DEVELOPER LED GROWTH
PERCEIVED ECONOMIC GROWTH
NGO

SELF-ORGANIZED SYSTEM
WHAT IF WE COULD?
SUSTAIN PUBLIC AMENITIES

573 kg
OF WASTE GENERATED
PER PERSON PER YEAR

DISLOCOATED PUBLIC AMENITIES AND COMMUNITY

84%
TRAINED NON-PROFESSIONAL JOBS

52%
OF FOOD PRODUCED TO BE STORED IN FOODBANK OR PROVIDE INCOME

POSITIVE HOUSING TYPLOGIES WITH RECREATION AMENITIES

CONNECTING COMMUNITIES TO PUBLIC AMENITIES

FOODANK
22,089 m²
URBAN AGRICULTURE FOR FOOD SECURITY

EXISTING SCENARIO

NEW GRAFT SCENARIO
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

- Group concepts for Scottsdene

Strengthening existing social engagement within the community, while reestablishing existing links between residents in formalised social housing and informal dwellings.

Shared expertise and practical capacity building for regional solutions with urban agriculture; to establish a local seed exchange program with active food banks, providing food security for the City of Cape Town.

With adjacent Stellenbosch farmers and academics: capacity building through shared knowledge of commercial agriculture, water reuses and neighbouring conservation, generating new income opportunities for the local community of Scottsdene.

The critical engagement between local government and the project team is key to the success of community led resilient urban design.
Housing
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN...

**Housing**

**ADOBE HOUSING**
- Structure: load-bearing steel concrete skeleton structure is filled with adobe bricks.
- Comfort: adobe bricks provide different qualities such as humidity control and temperature phase shift.

**GREEN ROOFTOPS**
- Factory: on-site adobe factory produces raw material for housing, market stands, further building activities.
- Microclimate: heat reduction through evaporation.
- Filtration: rainwater cleaned running through soil.
- Agriculture: supporting ground-based urban farming.

**WATER CONCEPT**
- Rainwater: collection and use in the building for various purposes.

**URBAN FARMING**
- Greywater gardens: 14.376m², 12.736m², 17.778m².
- Rooftop gardens: 44.890m².
- Ground gardens: 22.127m².
- 25% Food, 75% Sale or Storage.

**MARKET HALL**
- Section: gallery cafe, storage stalls, flexible stalls, plaza.

**HOUSING • MANUFACTURING • WATER**
- Adobe stalls: planks, adobe bricks.
The purpose

Community Engagement

A practice led environmental and housing action group,

Working with the existing context to initiate new organic food growing systems within the urban context

Promoting building social capital, self-help job creation, poverty alleviation, local food security, self-building process and urban renewal

Community engagement occurs on multiple levels between various participants and actors to achieve the core principles
As social spatial innovation within urban areas.

It derives from the local agenda, the need to foster innovation, facilitate local enterprise and built social capital demands a responsive urban fabric.

Social innovation through a self-organised and integrative system of people, agriculture, micro-fabrics, water integrative (re)-uses, housing and governance.
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN...

WHAT IF WE COULD?
EMPOWER OURSELVES

1. URBAN AGRICULTURE
2. PLACE MAKING AND INCLUSIVE HOUSING
3. FOOD SECURITY/SUSTAINABLE ECONOMY
4. SELF-GOVERNING COMMUNITY

DEVELOPER LED GROWTH
PERCEIVED GROWTH

NGO

Water

Housing

Manufacturing
Integrated approach to housing and neighbourhood Development

Realising the increasing role of the built-environment professions, at the building and urban scale when it comes to sustainable Design

Breaking the silos of the current professional practice

Truly multi-disciplinary professional teams are:

- Adding value on a project specific basis through community based design
- Seeing solutions collectively beyond the box
- Increasing the potential for cross-pollination of thoughts and technical solutions
- Providing a fertile ground for the inquisitive quality that prevails in sustainable approach to design
chile - extremos habitados

design class | habitat unit | tu berlin
paola alfaro d'alencôon | oliver sachse

curanipe
la buena onda | massima sean pepe
work 1 | christine boehnke + diego uribe
work 2 | sarah timmermann + killian allmann

molino-polanco
work 1 | montse pastor nicolau + olivia grandi + carolin kuhn
work 2 | sara busnardo + felix wierschbitzki (not shown)

costa brava
WHAT IF WE COULD?

EMPOWER COMMUNITIES

- Developer Led Growth
- Negative Urban Space
- Existing Scenario

- Community Led Growth
- Public/Private Partnerships
- Build Social & Recreational Activities

- Create and Sustain Income Opportunities
- Sustain Food Production
- Take Ownership of Public Space
- Create Own Positive Public Space

- New Graft Scenario
Probleme Müll

Menschen kennen keine Mülltrennung

Visuelle Belästigung

Geruch

Futterquelle für Straßenhunde und Ratten

Krankheiten

Brandgefahr

Giftstoffe werden ausgespült und gelangen ins Grundwasser

Lösungsansätze

Menschen Anreiz bieten den Müll zu trennen

Kinder bringen Müll und bauen in der Werkstatt daraus Spielzeug

Umweltbewusstsein

Aufklärung|Bildungsauftrag Schule, Kita
Cartoneros


Preisliste von Vina del Mar:

<table>
<thead>
<tr>
<th>Arten des Papiers</th>
<th>Preis $/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>weißes Pappier</td>
<td>86</td>
</tr>
<tr>
<td>Wellpappe</td>
<td>12</td>
</tr>
<tr>
<td>Tageszeitung</td>
<td>10</td>
</tr>
<tr>
<td>Packpapier</td>
<td>12</td>
</tr>
<tr>
<td>Magazine</td>
<td>54</td>
</tr>
</tbody>
</table>


Aus dem eingesammelten Papier werden in der Firma folgende Mengen an neuen Papier hergestellt:

<table>
<thead>
<tr>
<th>Arten der Pappe</th>
<th>Millionen Tonnen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papeles para Corrugar</td>
<td>568</td>
</tr>
<tr>
<td>Papeles de Impresion y Escritura</td>
<td>230</td>
</tr>
<tr>
<td>Cartulinas</td>
<td>60</td>
</tr>
<tr>
<td>Papel para Periódicos</td>
<td>80</td>
</tr>
<tr>
<td>Papeles Tissue</td>
<td>150</td>
</tr>
<tr>
<td>Papeles de Envolver</td>
<td>30</td>
</tr>
<tr>
<td>Otros Papeles</td>
<td>20</td>
</tr>
</tbody>
</table>

Die Firma nutz die Cartoneros aus, um sehr billig an die Alte Pappe zu kommen. Diese Menschen haben keine andere Möglichkeit um zu arbeiten und fangen an Pappe zu sammeln, aber der Lohn dafür ist viel zu gering.

Phasen der Papierarbeitung:

Einbinden der Cartoneros in System:
Die Cartoneros können in der Werkstatt Piaggios gegen einen kleinen mieten. Dies ermöglicht ihnen auf dem Berg Müll zu sammeln, was zu Fuß nicht möglich gewesen wäre. Zudem schaffen sie so viel mehr Mengen an Papier zu sammeln und bekommen so beim verkauf mehr Geld. Dadurch rentiert es sich für sie die Piaggios zu benutzen.
Cerro Molino Polanco | Städtebauliches Konzept
molino-polanco

christine boehnke + diego uribe
CLOSING THE LOOP WITH COMMUNITY BASED DESIGN…

WHAT IF WE COULD?
SUSTAIN PUBLIC AMMENITIES

- 573kg of waste generated per person per year
- Dislocated public ammenities and community
- 84% trained non-professional jobs
- 52% of food produced to be stored in foodbank or provide income
- Positive housing typologies with recreation ammenities
- Connecting communities to public ammenities
- 22,089m² urban agriculture for food security

EXISTING SCENARIO

NEW GRAFT SCENARIO
CHILE PROJECT INTEGRATED WATER MANAGEMENT, URBAN FARMING, PUBLIC SPACES
MOLINO POLANCO

WATER SYSTEM - IMPLEMENTATION

FLOW CHART

INFRASTRUCTURE

"BACHEL", FREIBURG

CONSTRUCTED WETLANDS
molino-polanco
kilian allmann + sarah timmermann
Thank you

Integrative approaches in housing & neighborhood development

Habitat unit

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