ASP FINAL EXAMINATION
December, 14th

TEAM A
Housing Policies and Planning
Matteo Bolognesi
Zlatina Kalaydzhieva
Luca Maccarinelli

Academic tutor
Prof. Marina Molon

TEAM C
Open Source and Living Condition
Stella Cattani
Andrea Cominola
Ambra Romano
Veronica Vasilescu
Francesca Vigotti

Academic tutors
Prof. Paola Bellaviti,
Prof. Piero Fraternali

TEAM B
Resources Management and Natural Hazard
Giulia Borghi
Raffaella Cocchi
Stefano Gallazzi
Francesca Mapelli
Vittoria Paramithiotti
Dimitrije Radosavljevic
Elisabetta Rossi

Academic tutors
Prof. Emanuela Colombo,
Prof. Fabio Inzoli,
Prof. Maurizio Tiepolo
PROBLEM SETTING

1. Issues
   - Growing Housing Need (A)
   - Growing Housing Need (B)
   - Lack of Interest of Main Actors in the Formal Market
   - Ineffective Housing Policies (A)
   - Ineffective Housing Policies (B)

2. Needs and Requirements
   - Qualitative and Quantitative Housing Deficit

3. Proposed Strategies
   - Specific Objectives
     - Case Studies
   - Land
   - Construction
   - Credit
   - Overall Economic Evaluation

4. Conclusions
1 PROBLEM SETTING
ISSUES

TEAM A
Inadequate housing conditions

WEAK RELATION BETWEEN NEEDS AND SUPPLY IN THE MARKET:
- Quantitative and Qualitative housing deficit
- Illegal house construction and tenure
- Social segregation

1. Growing housing need
   - Demographic trends
   - Poverty and inequality

2. Lack of interest of main actors in the formal market

3. Ineffective housing policies
   - National housing subsidy system
   - Housing programs in Guayaquil

Lack of information and empowering of the poor
- Self organization
- Domestic safety and hygiene

MAIN CAUSES

SPECIFIC PROBLEM of team A
QUANTITATIVE AND QUALITATIVE HOUSING DEFICIT

ECUADOR

Population: 14,483,499 [2010]

- Total number of families: 4,654,054
- No issues: 58.11%
- Total housing deficit: 41.89%
- Quantitative deficit: 15.21%
- Qualitative deficit: 26.68%

Source: INEC, “Censo de Población y vivienda,” 2010

GUAYAQUIL

Population: 2,350,915 [2010] → 3,000,000 [unofficial]

- Total number of families: 614,453
- No issues: 49.52%
- Total housing deficit: 50.48%
- Quantitative deficit: 13.08%
- Qualitative deficit: 37.40%

**GROWING HOUSING NEED (A)**

### DEMOGRAPHIC TRENDS

#### Migration to urban areas

- **Graph 1:**
  - Title: Migration to urban areas
  - Description: Comparison of urban population growth in Latin America & Caribbean (all income levels) LCN vs. Ecuador.

#### Reduction of family size

- **Graph 2:**
  - Title: Average Household Size
  - Description: Graph showing the reduction in average household size from 1994 to 2010.

#### High birth rate

- **Graph 3:**
  - Title: High birth rate
  - Description: Graph showing birth rates and death rates from 1960 to 2008.
  - Data source: World Bank databank 2012.

#### Population growth in Guayaquil

- **Graph 4:**
  - Title: Population growth in Guayaquil
  - Description: Graph showing population growth in Guayaquil from 1950 to 2010.
  - Data source: INEC.

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At present, migrations from rural areas have slowed down.

GROWING HOUSING NEED (B)

POVERTY AND INEQUALITY

<table>
<thead>
<tr>
<th>Share of income between the richest and the poorest in Ecuador</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of income held by richest 40% of population (2010)</td>
</tr>
<tr>
<td>Share of income held by poorest 40% of population (2010)</td>
</tr>
</tbody>
</table>

Source: World Bank databank 2010

<table>
<thead>
<tr>
<th>Unemployment and sub-employment rate in Ecuador</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working condition</td>
</tr>
<tr>
<td>Employed</td>
</tr>
<tr>
<td>Sub-employed</td>
</tr>
<tr>
<td>Unemployed</td>
</tr>
<tr>
<td>(Not classified)</td>
</tr>
</tbody>
</table>

Source: INEC “Encuesta Nacional de Empleo, Subempleo y Desempleo” 2012

GUAYAQUIL’S POVERTY REFERENCE LINE definition

<table>
<thead>
<tr>
<th>Considered Poverty Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official (Reference Line 1)</td>
</tr>
<tr>
<td>UCSG Estimate (Reference Line 2)</td>
</tr>
</tbody>
</table>

Sources: INEC “Encuesta Nacional de Empleo, Subempleo y Desempleo” 2012
R. E. Rada “Las Soluciones Habitacionales y las Caracteristicas Socio Economicas y Fisico Espaciales de las Familias de Menores Ingresos” 2011
LACK OF INTEREST OF MAIN ACTORS IN THE FORMAL MARKET

**FORMAL MARKET**

**Banks**
- High baseline interest rates: 12-13%*
- Low-income families have no collateral

* Source: Banco Pinincha

**Large construction companies**
- Growing demand from wealthier, more profitable market segments
  - Construction Licenses: +100% from 2000 to 2010 (source: INEC)
  - Economic Growth: +140% from 2000 to 2010 (source: Banco Central del Ecuador)
- Unaffordable cost for low income families
  - From $15,000, including the cost of land (source: Construction Chamber of Guayaquil)

**SUBURBS’ INFORMAL MARKET**

**Landowners and illegal land dealers**
- Higher than market land price
  - Oligopoly: 16,000 ha out of 33,000 ha owned by 2 families (source: Registrador de la Propiedad de Guayaquil)
- Legal land purchase, but illegal house building and tenure
- No infrastructures and services

**POSITIVE**
- Split payments over time
- Freedom on housing construction
  - Not-for-profit organizations (price start from $950: bamboo house)
  - Micro-enterprise in the barrio (construction + materials)
INEFFECTIVE HOUSING POLICIES (A)

NATIONAL HOUSING SUBSIDY SYSTEM

<table>
<thead>
<tr>
<th></th>
<th>% of beneficiary families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside quintiles 1-2-3</td>
<td>19.2</td>
</tr>
<tr>
<td>Above 3 minimum salaries</td>
<td>67.4</td>
</tr>
</tbody>
</table>

Source: L. Marcano, "La Política de Vivienda Social y su Impacto en el Bienestar: el caso de Ecuador," 2010

Source: Economic commission for Latin America and the Caribbean 2010
**HOUSING PROGRAMS IN GUAYAQUIL**

**Governmental**
- Socio Vivienda
- Ciudad Victoria

**Municipal**
- Mucho Lote
- Mucho Lote II
- Mi Lote

**Focus and Coverage**

**The financial barrier for poorest families**

Source: Authors' elaboration on data provided by Municipality of Guayaquil and MIDUVI

**Evolution of Housing Deficit in Guayaquil (2001-2010)**

Source: Authors’ elaboration on data provided by Municipality of Guayaquil, MIDUVI

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**INEFFECTIVE HOUSING POLICIES (B)**
2 NEEDS AND REQUIREMENTS
NEEDS AND REQUIREMENTS

LOW-INCOME FAMILIES

Affordable housing
- low cost of urbanized land
- low cost of construction
- access to affordable credit
- higher quality of construction materials
- access to basic infrastructures
- environmental safety
- secure context

Improved quality of the house and surrounding areas

PRIVATE MARKET AGENTS

Profitability
- strategies that increase the economic convenience of addressing the low-income market

NOT-FOR-PROFIT ORGANIZATIONS

Economic sustainability
- strategies that regulate the housing-related markets

In addition costs for public institutions must be considered as well
3 PROPOSED STRATEGIES
### SPECIFIC OBJECTIVES

1. Increase the supply of low-cost lands
2. Reduce the cost of infrastructures
3. Increase supply in the housing market of solutions that reduce the construction-related costs
4. Increase the low-income families access to credit
5. Improve the quality of the settlements (services, public spaces, etc.)

<table>
<thead>
<tr>
<th>LAND</th>
<th>CONSTRUCTION</th>
<th>CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>bare land</td>
<td>initial investments</td>
<td>access</td>
</tr>
<tr>
<td>- material</td>
<td>- labour</td>
<td></td>
</tr>
<tr>
<td>- other costs (taxes, energy, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>urbanization</td>
<td>future expenditures</td>
<td>interest rate</td>
</tr>
<tr>
<td>- expansion of the house</td>
<td>- ordinary maintenance</td>
<td></td>
</tr>
<tr>
<td>- substitution / extraordinary maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>loan maturity</td>
</tr>
</tbody>
</table>
# CASE STUDIES

## LAND

<table>
<thead>
<tr>
<th>Bare-land strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ negotiated land recovery</td>
</tr>
<tr>
<td>- illegally owned land (e.g. Brazil)</td>
</tr>
<tr>
<td>- incomplete or obsolete land ownership titles (e.g. Bolivia)</td>
</tr>
<tr>
<td>- land ownership involved in taxes payment arrears (e.g. Colombia)</td>
</tr>
<tr>
<td>→ expropriations for “social function” (e.g. Brazil; Dominican Republic)</td>
</tr>
<tr>
<td>→ taxation / incentive systems (e.g. many Latin American countries)</td>
</tr>
</tbody>
</table>

### Urbanization strategies
- → densification (e.g. Chile)
- → low-cost infrastructure technology (Prosaner Pilot Project in Brazil)

## CONSTRUCTION

<table>
<thead>
<tr>
<th>Prefabrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ bamboo-and-wood houses</td>
</tr>
<tr>
<td>- Hogar de Cristo (Ecuador)</td>
</tr>
<tr>
<td>→ prefabricated concrete</td>
</tr>
<tr>
<td>- Servivienda (Colombia; Ecuador)</td>
</tr>
<tr>
<td>- Elemental (Chile)</td>
</tr>
</tbody>
</table>

### Reinforced masonry
- Mutirao (Brazil)

### Self-help construction
- Hogar de Cristo
- Elemental
- PEER Africa (South Africa)
- Mutirao

## CREDIT

<table>
<thead>
<tr>
<th>Supply-side strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ insurance against debt default (e.g. Peru)</td>
</tr>
<tr>
<td>→ direct provision of loans with subsidized interest rates (e.g. many Latin American countries)</td>
</tr>
<tr>
<td>→ public funding of lenders in the private market (e.g. Peru)</td>
</tr>
</tbody>
</table>

### Demand-side strategies
- → voucher on monthly loan installments (e.g. Brazil)
- → conditionally subsidized interest rate (e.g. Peru)
- → subsidies (e.g. many Latin American countries)

### Collaboration
- PEER Africa
- Mutirao
## STRATEGIES ORIENTED TO REDUCE THE URBANIZED LAND COSTS

<table>
<thead>
<tr>
<th>Bare land</th>
<th>Urbanization</th>
</tr>
</thead>
<tbody>
<tr>
<td>expropriation/negotiation strategies</td>
<td>densification of existing settlements</td>
</tr>
<tr>
<td>landlords' properties taxation</td>
<td>planning new settlements for low income families</td>
</tr>
</tbody>
</table>

### Current price in peripheral areas ($/m²)
- 4

### Obtainable land price ($/m²)
- 1.5-2.5

### Estimated Savings
- 37.5-62.5

<table>
<thead>
<tr>
<th>Roads</th>
<th>Water/Sewarage</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.8-25%</td>
<td>6.7-15%</td>
</tr>
</tbody>
</table>

Source: R. Camagni; M. Gibelli; P. Rigamonti "I Costi Collettivi della Città"
STRATEGIES ORIENTED TO REDUCE THE CONSTRUCTION COSTS

Provision of densification-ready concrete foundations
- support long-term densification process in the new settlements
- 2 scenarios considered:
  - Mild densification (Scenario 1): support max 2-story houses
  - Strong densification (Scenario 2): support max 4-story houses

Technical supervision from the Municipality
- adequate construction standards and safety
- predisposition for future vertical expansion

Self-help and collaborative construction
- estimated savings: -17%

Promotion of local construction materials
- estimated savings: -10%

Local materials + collaborative construction
- estimated savings: -25%
### STRATEGIES ORIENTED TO IMPROVE THE ACCESS TO CREDIT

#### Public coverage of loans subscribed by low-income families

- almost zero-cost strategy for the public
- Expected default rate: 0.5%
  
  [Source: CIUDAD]
- possibility to reduce the interest rate

<table>
<thead>
<tr>
<th>Current average interest rate</th>
<th>12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtainable interest rate</td>
<td>8%</td>
</tr>
</tbody>
</table>

#### Subsidies

- reduction of the amount of debt required
- unrecoverable expenditures, diverted from other relevant activities (public works, social services)
- the current subsidies could be provided exclusively to socially vulnerable subjects (e.g. physically impaired, elderly people)
ECONOMIC EVALUATION FOR A NEW LAND PLOT

Land and urbanization cost [$/m²]

<table>
<thead>
<tr>
<th></th>
<th>Best</th>
<th>Medium</th>
<th>Worst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>1.5</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>Urbanization</td>
<td>15</td>
<td>19.5</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>16.5</td>
<td>21.5</td>
<td>26.5</td>
</tr>
<tr>
<td>Cost of the Land Plot</td>
<td>1584</td>
<td>2064</td>
<td>2544</td>
</tr>
</tbody>
</table>

Loan monthly payments [$/month]

- **Case 1 **: best case of scenario 1 (only area A is built)
- **Case 2 **: worst case of scenario 2 (areas A+B are built)

**Without House**

- Monthly Instalment (Interest Rate: 8%)
- Monthly Instalment (Interest Rate: 12%)
- Sustainability Threshold (Reference Line 1)
- Sustainability Threshold (Reference Line 2)

**With House**

- Monthly Instalment (Interest Rate: 8%)
- Monthly Instalment (Interest Rate: 12%)
- Sustainability Threshold (Reference Line 1)
- Sustainability Threshold (Reference Line 2)

- Loan maturity: 13 years
- No initial payment needed

Case 1: best case of scenario 1 (only area A is built)
Case 2: worst case of scenario 2 (areas A+B are built)
4 CONCLUSIONS
CONCLUSIONS

not a single “optimal” solution, but several potentially effective strategies

BASIC PRINCIPLE:

• Pragmatism
  - mirror the relevant informal market mechanisms

• Flexibility
  - split payments
  - minimal starting construction

a house that grows with the needs of its inhabitants
THANK YOU FOR YOUR ATTENTION!