MOR€CO – Mobility and Residential Costs

Improving the settlement development in the Transnational Alpine Space Region

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Structure

• Introduction

• Conditions in the alpine space region

• The intended MOR€CO Tool Kit

• Munich Case Study
  • Vulnerability assessment on a regional level
  • Cost calculation for individuals and households

• Conclusion and Outlook
Introduction

- EU Alpine Space project
- 10 project partners in Austria, France, Germany, Italy, Slovenia
- Runs until July 2014
Introduction

General aims of MOR€CO

• Mobility and residential cost transparency
• Influencing people to a more sustainable mobility behavior
• Good governance for a sustainable regional settlement pattern in the pilot sites

→ By Adapting and implementing already existing tools and knowledge
Conditions in the alpine space region

• The Alpine Space Region extends over approx. 200,000 km²

• Eight Countries (Slovenia, France, Germany, Switzerland, Italy, Austria, Liechtenstein, Monaco)

• Very heterogenous region
  • Population density between 4500 and 74 people/km²
  • Various settlement and traffic conditions
  • Co-existing different trends: f.e. growing and shrinking regions
Conditions in the alpine space region

Dense areas
- Increasing costs for housing and mobility
  - Importance of providing an effective technical infrastructure
  - Need for affordable real estate

Rural areas
- Increasing costs for the individual mobility
  - Importance of maintaining the quality of the public (transport) infrastructure
  - Need for developing and structuring the (existing) settlement in a sustainable way
The intended MOR€CO Tool Kit

Three main target groups

- Househunting citizens and other private households
- Planners and public transport organisations
- Politicians, decision makers and municipalities
The intended MOR€CO Tool Kit

Househunting citizens and other private households

Challenge: Increasing citizen’s awareness of the relation between residential location decision and induced mobility costs

Possible solution: cost calculation tool for the whole alpine region (like already realized in other regions, f.e. Munich Residential and Mobility Cost Calculator)
The intended MOR€CO Tool Kit

Planners and public transport organisations

Challenge: Rising the awareness of spatial and traffic planners concerning settlement structure and induced mobility needs and behavior

Possible solution: a GIS-based tool to analyze planning decisions concerning future settlement and traffic development

→ using the knowledge of already existing tools like the “was kostet mein Baugebiet”-calculator GGR)
The intended MOR€CO Tool Kit

Politicians, decision makers and municipalities

Challenge: providing effective information and recommendations for decisions concerning sustainable settlement and traffic development

Possible solutions: “soft” tools like

- Governance and cooperation strategies
- Consulting material
- Workshops and seminars
Munich Case Study

Sharp increase in mobility costs due to peak oil and scarcity of fossil fuel

Impact on regional level

- Vulnerability assessment on a regional level

Impact on individual and household level

- Cost calculation for individuals and households
Methodological approach

Vulnerability definitions:

„The degree to which a person, system, or unit (such as a human group or place) is likely to experience harm due to exposure to perturbations or stresses“ (Kasperson et al. 2006)

• „The ability or inability of individuals or social groupings to respond to, in the sense of cope with, recover from or adapt to, any external stress placed on their livelihoods and well-being“ (Kelly and Adger 2000)
Three dimensions of vulnerability

- **Exposure** is the contact between system and stress
- **Sensitivity** is the degree to which sth./so. is affected by exposure to stress
- **Resilience** is the ability of sth./so. to absorb stresses wo. changes in its fundamental structure or function

(Kaspersons et al. 2006)
Exposure: VKT per capita

Stress tests for a sustainable mobility

Exposure:
Vehicle-km per capita
- < 32 km
- 32 - 38 km
- 38 - 42 km
- 42 - 50 km
- > 50 km

- EMM
- Adjoining area
- Forest
- Sea
- Administrative districts

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Sensitivity: Monthly Income EMM

Stress tests for a sustainable mobility

Sensitivity:
Monthly income
- < 1800 €
- 1800 - 2000 €
- 2000 - 2500 €
- 2500 - 3000 €
- > 3000 €

Adjoining area
Forest
Sea
Administrative districts

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Resilience

Stress tests for a sustainable mobility

Resilience:
Accessibility by PT
Jobs within 1h
- < 20000
- 20001 - 50000
- 50001 - 100000
- 100000 - 300000
- > 300000

Adjoining area
Forest
Sea
Administrative districts

Garmisch-Partenkirchen
Kaufbeuren
Rosenheim
Augsburg
Ingolstadt
Landshut
München

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Vulnerability

Stress tests for a sustainable mobility

Vulnerability
- very low
- low
- medium
- high
- very high

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## Households and Storylines (e.g. suburban)

<table>
<thead>
<tr>
<th>Person</th>
<th>Age</th>
<th>Regular Activity</th>
<th>Short-periodic Activity</th>
<th>Long-periodic Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband</td>
<td>39</td>
<td>Job (full time)</td>
<td>Bowling</td>
<td>Barber</td>
</tr>
<tr>
<td>Wife</td>
<td>35</td>
<td>Job (full time)</td>
<td>Shopping for daily goods</td>
<td>Yoga</td>
</tr>
<tr>
<td>Son</td>
<td>9</td>
<td>School</td>
<td>Football</td>
<td>Doctor</td>
</tr>
<tr>
<td>Daughter</td>
<td>4</td>
<td>Kindergarten</td>
<td>Doctor</td>
<td>Birthday parties</td>
</tr>
</tbody>
</table>

All activities have to be georeferenced
<table>
<thead>
<tr>
<th>Households</th>
<th>Exposure</th>
<th>Sensitivity</th>
<th>Resilience</th>
<th>Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 2</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

**Haar**

**Work:**
5 days/week

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**Multimodal route**

**Mode**
- S-Bahn
- U-Bahn
- Walking
- Regionalbus

**Home**

- Cost: 66 Euro/month
- Distance: 15.7 km
  - Time: 49 minutes
- CO2: 6 kg/month

- Cost: 53 Euro/month
- Distance: 23.8 km
  - Time: 72 minutes
- CO2: 13 kg/month

- Cost: 152 Euro/month
- Distance: 12.1 km
  - Time: 16 minutes
- CO2: 139 kg/month

**Work, husband**

- Cost: 175 Euro/month
- Distance: 16.3 km
  - Time: 19 minutes
- CO2: 159 kg/month
Conclusion

• Taking residential as well as mobility costs into account for a sustainable development of urban and transport structure

• Testing the vulnerability on a regional and on an individual level

• By means of shock scenarios guidelines and strategies for future planning will be developed

• MOR€CO tool kit in combination with stress testing the study regions will lead to a more sustainable way of transport and spatial planning
Outlook

Next steps

• Finishing the analysis phase (June 2012)
• Developing first drafts of the tools (October 2012)
• Implementing them in the Pilot Sites (2013)

For further information see http://www.moreco-project.eu/
Thank you very much for your attention
Conditions in the alpine space region

City of Munich and Munich Transport and Tariff Association Area

Legend
- Munich
- Monochromatic
- Primary road
- Secondary and tertiary roads
- Munich Region (within region)

Inhabitants
- Munich City
- Rest of Region
- Munich Region

Development Trend
- Growing population

Area of Pilot Site
- Munich City
- Rest of Region
- Total

Structure
- > 1,500,000 inhabitants
- 1 municipality
- Metropolitan areas in total
- Counties in total

Location in the Alpine Space Region

Main Challenges
- Public transportation network is still strongly focused on the city center of Munich

Number of workers by place of work
- Munich City
- Rest of Region
- Munich Region

Commuting
- Year
- Munich City
- Rest of Region
- Munich Region

Traffic Key Data
- Journeys in the year 2008 given in percentages

Real Estate
- Munich City
- Rent (€/m²)
- Property (€/m²)
- Trend: prices are heavily increasing

Main Potentials
- High number of people making their daily ways by bike or foot
- Dense network of the different transportation means within Munich region
- Good public transportation network

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Conditions in the alpine space region

Val Belluna and Val Boite e Ciento Cadore

Inhabitants

2010 Val Belluna 155,107
Val Boite e Ciento Cadore 25,445
Total 180,552

Area of Pilot Sites

Val Belluna 1,628 km²
Val Boite e Ciento Cadore 620 km²
Total 2,448 km²

Legend

Population
Primary roads
Secondary and tertiary roads
Pilot region Val Belluna
Pilot region Val Boite e Ciento Cadore

Source: moreco-project.eu

Main Challenges

- Accessibility issue isn't based on overall and strategical methodology
- Low public rail transport quality
- Development of high-valued service and industrial sectors

Main Potentials

- Settlements framework distributed on well-defined, hierarchically structured areas
- Settlements distribution along few areas
- Parts of the Pilot Sites have good connection to the highway network

Commuting

Traffic Key Data

<table>
<thead>
<tr>
<th>Mode</th>
<th>Val Belluna</th>
<th>Val Boite e Ciento Cadore</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>69.2 %</td>
<td>60.7 %</td>
<td>65.7 %</td>
</tr>
<tr>
<td>Public Transport</td>
<td>15.8 %</td>
<td>14.9 %</td>
<td>15.5 %</td>
</tr>
<tr>
<td>Bike</td>
<td>2.9 %</td>
<td>0.4 %</td>
<td>1.3 %</td>
</tr>
<tr>
<td>Walking</td>
<td>10.1 %</td>
<td>24.0 %</td>
<td>16.5 %</td>
</tr>
</tbody>
</table>

Real Estate

<table>
<thead>
<tr>
<th>Property Size</th>
<th>Val Belluna</th>
<th>Val Boite e Ciento Cadore</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 - 1,000</td>
<td>1,000 - 2,500</td>
<td>700 - 10,700</td>
<td>2 - 28</td>
</tr>
<tr>
<td>2,500 - 2,700</td>
<td>0.7 - 1,000</td>
<td>20 - 25</td>
<td>2 - 28</td>
</tr>
</tbody>
</table>

Factsheet

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