A family of recreational accessibility indicators

Forest Recreation & Tourism Serving Urbanised Societies
International Conference
28 - 31 May 2008, Hämeenlinna, Finland

Hans Skov-Petersen
hsp@life.ku.dk
Forest & Landscape Denmark
Faculty of Life Science
University of Copenhagen
Programme of the presentation:

- Definition of Accessibility
- Meet of the family...
  - Users vs. facilities, time vs. utility
  - Further characterisation of parameters
- Cases
  - The EU populations access to forests
  - Regional assessment of accessible forest resources at Zealand Denmark
  - Local assessment of accessibility and barriereffect at Vestvolden – a suburban nature area og Copenhagen Denmark
- Conclusions
Indicators of Accessibility

Defining accessibility in the present context:

- Accessibility is about access
- (Physical) access is about how, how easy, or to what extent one (or more) locations can be reached from others
- Measures of accessibility expresses the transport-cost required to obtain a given effect or the optional opportunities available within a given transport-cost
- Accessibility is about the interrelation of users and facilities
- Accordingly - indicators of accessibility can be
  - user-oriented (origin/supply) or facility-oriented (destination/demand)
### A family of indicators - ways to combine users, facilities, and transport

<table>
<thead>
<tr>
<th>Unit of measure:</th>
<th>Parameter kept constant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time</td>
</tr>
<tr>
<td>User-oriented</td>
<td>Amount of resource (or presence/absence)</td>
</tr>
<tr>
<td>Facility-oriented</td>
<td>Number of users (or presence/absence)</td>
</tr>
</tbody>
</table>
Further characteristics

Phenomena in relation to spatial behavior (movement) involve:

- Origins (users)
- Destinations (facilities)
- Spatial relations (nearness, infrastructure)

Geographic objects are characterised by:

- Thematic characteristics (what is it...)
- Temporal characteristics (when is it...)
- Spatial characteristics (where is it, what shape...)

Combining the two (examples)....

<table>
<thead>
<tr>
<th></th>
<th>Thematic</th>
<th>Temporal</th>
<th>Spatial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origins</td>
<td>Families with car?</td>
<td>Origin from home or from work?</td>
<td>A single dwelling or a population region?</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Applicable for bicycles?</td>
<td>Public transport service during weekends?</td>
<td>Euclidian distance or network travel time?</td>
</tr>
<tr>
<td>Destinations</td>
<td>Area with mountain bike tracks?</td>
<td>Open in November?</td>
<td>To the entrance or the core of the park?</td>
</tr>
</tbody>
</table>
Accessibility to forests in EU-countries:

- **Type:**
  - User-oriented
  - Distance constrained
- **Origin:**
  - Whole population
- **Destination:**
  - All forests
- **Spatial:**
  - Euclidian distance
  - 50x50 km
Accessibility to forests in EU-countries

**Proportion of the population**

**Type:**
- User-oriented
- Distance constrained

**Origin:**
- Whole population

**Destination:**
- All forests

**Spatial:**
- Euclidian distance
- 50x50 km
Type: User-oriented indicators.
Time (driving in car) kept constant
Origos: Entire population
Destinations: Topographic forests

Sqr. km forest
- 5 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- 200 - 250
- 250 - 300
- 300 - 350
- 350 - 400
- 400 - 450
- 450 - 500
- >500
User-oriented indicator: Time kept constant

Accessible forest land within 15 minutes drive by car
Distributed over population
Type: User-oriented indicators.

Resource (km² forest) kept constant

Origos: Entire population

Destinations: Topographic forests
Time required to access 100 km$^2$ forest

Distributed over population
Local assessment of accessibility and barrier effect

Type:
- Facility-oriented
- Distance constrained

Origin:
- Whole population

Destination:
- Parking lots

Spatial:
- 2 km
- Network (soft transport only) vs. euclidian

Vestvolden
Copenhagen, DK
Local assessment of accessibility and barrier effect

Type:
- Facility-oriented
- Distance constrained

Origin:
- Whole population

Destination:
- Parking lots

Spatial:
- 1 and 2 km
- Network (soft transport only) vs. euclidian
Local assessment of accessibility and barrier effect

Type:
- Facility-oriented
- Distance constrained

Origin:
- Whole population

Destination:
- Parking lots

Spatial:
- 1 km
- Network (soft transport only) vs. euclidian

Vestvolden, Copenhagen, DK
Concluding remarks

What have been provided in the presentation...

- A framework of issues and terms – including accessibility type and objects characteristics
- A set of different applications and interpretations of different types of accessibility analysis

So... what to state:

- Type of accessibility measure: User- and facility oriented
- Characteristics of origos, destination and infrastructure
- ... with respect to theme, time and space

And... when should statements be applied:

- When describing analytical tasks and needs
- When describing what you as an analyst intent to carry out
- When creating standard indicators
- When formulating and communication results
- When reading, comprehending and appreciating results
Thank you for your attention

If any one should be interested in more readings on recreational behavior, may be you should have a look at


Hans Skov-Petersen
Skov & Landskab
Københavns Universitet
hsp@life.ku.dk