Advanced Visualisation Modules for Impact Assessment

Bernhard Snizek, besn@life.ku.dk
Ian Jørgensen, iajo@life.ku.dk

Impact Assessment of Land Use Change,
April 6th-9th, 2008
Visualisation modules for SIAT

Visualisation modules for SIAT were designed

Purpose:

• Provide an overview of all indicator values at the same time including visual data mining features

• Embed the 3D visualisations from TUM and Lenné3D within an easy to use interface which focuses on highlighting landscape change

• Provide with an intuitive solution for mapping of one indicator at a time, enabling easy comparison of spatial values to known places (regional embodiment)
Modules - overview

MATRIX

THEMATIC MAPS

3D SCENE DIALOGUE
Explanatory overlays

- Complex applications need to provide with help, guiding the user through the functionality of interactive elements.

- Within the VIZAPP we recommend EXPLANATORY OVERLAYS (EO)
  - EOs are semitransparent, emphasising interaction elements (mouse-overs, buttons etc.)
  - EOs are displayed at initial application start
  - EOs can be displayed any time upon user request
# MATRIX – Visual & Interactive Elements

|   | 3D |       |       | AT | BE | BG | CY | CZ | DE | DK | EE | ES | FI | FR | HU | IE | IT | LT | LU | MT | NL | PL | PT | RO | SE | SI | SK | UK |
|---|---|-------|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| SOC | 1.1 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1.2 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 2.1 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 10.1|       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| ENV | 1.1 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1.2 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1.3 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 2.1 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 2.4 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| FCON | 1.1 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1.2 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|     | 1.4 |       |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
MATRIX – Member States

[Image of matrix diagram with various categories and colors representing data]

09.04.2008
MATRIX – Country Order Selector

- by alphabet
- by year of EU entry
- geographically (north-south and east-west)
- population-size-wise
- by area
MATRIX – 3D Visualisations

Click to open the 3D Scene Dialogue
### MATRIX - Sustainability Dimensions

<table>
<thead>
<tr>
<th>SOC</th>
<th>1.1</th>
<th>1.2</th>
<th>2.1</th>
<th>10.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>FCON</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Sustainability dimensions
As indicator names might not fit on the screen, we propose an indicator slide-out widget.

Setting the mouse pointer over the indicator labels slides out the full name of the indicator.
MATRIX – Fact Sheet

Link to fact sheet
MATRIX – Data Area
MATRIX – Colour Ramp

![Colour Ramp Matrix](image-url)
**MATRIX – Data Inspector**

![Data Inspector Diagram](image-url)

**FOREST & LANDSCAPE**

IALUC 2008
Clicking / setting the cursor over the cells in the data inspector shows detailed information:

- the full indicator name
- relative numbers
- absolute numbers
- a pictogram, visually explaining the units of the indicator (here: person per person = tourist / inhabitant
- exit to fact sheet
THEMATIC MAP DIALOGUE – Map Area

Google Map Area
- shows 1 indicator at a time
- pan and zoom
- switch background (map / aerial photo)

<table>
<thead>
<tr>
<th>Country</th>
<th>Value (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>10,000</td>
</tr>
<tr>
<td>CH</td>
<td>4,000</td>
</tr>
<tr>
<td>CZ</td>
<td>9,000</td>
</tr>
<tr>
<td>DE</td>
<td>0</td>
</tr>
<tr>
<td>HU</td>
<td>8,000</td>
</tr>
<tr>
<td>IT</td>
<td>3,000</td>
</tr>
<tr>
<td>SK</td>
<td>500</td>
</tr>
</tbody>
</table>
THEMATIC MAP DIALOGUE – Data

Country data appears according to the number of countries visible within the Google Map Area.

Click to switch between absolute and relative numbers.
GOOGLE MAP DIALOGUE – Spatial Comparator

**SPATIAL COMPARATOR**
- only visible with spatial indicators
- can be dragged onto map to show the size of change compared to an area known to the user
GOOGLE MAP DIALOGUE – Spatial Comparator

SPATIAL COMPARATOR
- only visible with spatial indicators
- can be dragged onto map to show the size of change compared to an area known to the user
3D SCENE DIALOGUE – Country Selector

Country selector
3D SCENE DIALOGUE – 3D Visualisation Area

Other indicators

3D Visualisation area

FOREST & LANDSCAPE

IALUC 2008
3D SCENE DIALOGUE – Scene Selector

Scene Selector

SCENE

DATA INSPECTOR

RAMP

Scene Selector

FOREST & LANDSCAPE

IALUC 2008
3D SCENE DIALOGUE – scenarios

Switch between base and policy scenarios

FOREST & LANDSCAPE
3D SCENE DIALOGUE – image source selector

Switch between Lenné3D’s and TUM’s visualization.
3D SCENE DIALOGUE – image generating ind.

- Placed close to the picture
- Only indicators are shown, which were used to generate 3D visualization

Image generating indicators

- Placed close to the picture
- Only indicators are shown, which were used to generate 3D visualisation
3D SCENE DIALOGUE – other indicators

Other indicators

FOREST & LANDSCAPE
IALUC 2008
3D SCENE DIALOGUE – data inspector

Data inspector
EXPLANATORY OVERLAY

Policy Scenario Information
Mouse over me to retrieve detailed information about the policy scenario including policy settings.

3D Exits
Click to open the 3D dialogue for the given country.

Country Order Selector
Advanced data mining feature. Mouse over to see a list of choices for ordering the matrix.

Indicator Slideout
Mouse over me to see the name of the indicator and get to a factsheet.

Click on me to open the thematic map dialogue.

Data Area / Indicator Values
Mouse over or click to show the value and more information about the indicator in the data inspector.

Colour Ramp
Shows you what’s up and down in the colour scheme.

Data Inspector
Shows values and further information, when you click on a square within the data area.

GET HELP
Show this overlay, anytime you need help.