Regional fact sheets – VON - area

Deliverable D4.2

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1 Spatial Analysis

1.1 Short overview of the area characteristics

The region of VON in the Federal German State Saxony is the area in responsibility of the Transport Association Upper Lusatia - Lower Silesia (ZVON). The region includes the districts of Görlitz and Bautzen, but the district of Bautzen only partially. Focus of industrial development in the district of Bautzen is the construction of railway vehicles and the production of photovoltaic systems. The economic power of the district of Görlitz is ensured by steel production, production of railway vehicles and turbines. In particular, the district Görlitz has a relatively strong tourist attraction: Lusatian Mountains and the district is output region for transportation links to the Krkonoše (Giant Mountains) and Jizera Mountains (Czech Republic).

The VON - area is bordered on the north by the Federal German State Brandenburg. In the east and south it is bounded by the attached neighbours Poland and the Czech Republic. In the western area, the border exists within the district Bautzen between the cities of Bautzen, Weißwasser and Bischofswerda (inside the ZVON region) and Kamenz, Hoyerswerda (outside). The south-western corner area is bordering to the German areas Saxon Switzerland and East-Erzgebirge (Eastern ore mountains).

Picture 1.1: The location of the VON area (coloured field) in Germany
The VON-area in the 2 Saxon districts covers 3,067 km² with about 430,000 inhabitants (State of knowledge 2008). So the area belongs in Germany to the “sparsely populated regions”.

Table 1.1: Population and area statistics (2010)

<table>
<thead>
<tr>
<th></th>
<th>Federal Republic Germany</th>
<th>Free State Saxony</th>
<th>VON-region /2/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area in km²</td>
<td>357.112</td>
<td>18.420</td>
<td>3.067</td>
</tr>
<tr>
<td>Population</td>
<td>81.758.000</td>
<td>4.153.631</td>
<td>418.728</td>
</tr>
<tr>
<td>Inhabitants/km²</td>
<td>229</td>
<td>226</td>
<td>137</td>
</tr>
</tbody>
</table>
1.2 Settlement structure in the VON-region

The VON-area consists of the regions from the district Görlitz, and from a part of the district Bautzen (without the area of the former district Kamenz). Both districts are part of the Euro-Region Neisse, a socially accepted form of cross-border cooperation between Germany, Poland and the Czech Republic with the aims of improving the living standards of residents in the Euro-Region. The district of Bautzen is the geographically largest county in Saxony.

With regard to the natural spatial structure the whole territory can be divided from north to south into three units:

- a plane in the lowland area Niesky, Löbau, Weißwasser with dispersed settlement structure, heath, forest and agriculture
- Upper Lusatia Mountains in the area Löbau / Zittau / Bautzen with forest use and tourism focus
- Wooded hills with forest use in the district of Bautzen and north of Löbau

As a central place classification following breakdown was considered / 3 /

- Top centers (Upper Centers) : Bautzen, Görlitz
- Upper central City Compound: Bautzen – Görlitz - Hoyerswerda (Hoyerswarda is located outside of the VON-area)
- Medium centers: Zittau, Weißwasser
- Medium-centers located as a supplement in rural area: Niesky, Löbau

Table 1.2 Economic focus in the ZVON-area

<table>
<thead>
<tr>
<th>Bautzen</th>
<th>Production of railway vehicles, conveyor systems, baking oven construction, medical systems, administrative center and cultural center (Sorbs – a little nation in the Lusatia)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niesky</td>
<td>Production of railway vehicles, Steel construction</td>
</tr>
<tr>
<td>Zittau</td>
<td>Tourism, winter sports, mountain recreation spaces, garden industry, automotive supplier</td>
</tr>
<tr>
<td>Görlitz</td>
<td>Engine- and railway vehicle industry, tourism, administrative center, service sector</td>
</tr>
</tbody>
</table>

In total the area is characterized by agriculture and forestry and also by gardens and parks (Bad Muskau). By the recultivation of coal mining areas caused lakes (Berzdorf) the tourism industry is well developed.
1.3 Transport and mobility infrastructure offered

The basic road network of the VON-area is comprised by /5/:

<table>
<thead>
<tr>
<th>District</th>
<th>Total /km/</th>
<th>Highways /km/</th>
<th>Federal roads /km/</th>
<th>State roads /km/</th>
<th>County roads /km/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bautzen</td>
<td>1.738,6</td>
<td>90,7</td>
<td>254,9</td>
<td>583,2</td>
<td>809,8</td>
</tr>
<tr>
<td>Görlitz</td>
<td>1.262,5</td>
<td>33,4</td>
<td>242,6</td>
<td>485,7</td>
<td>500,8</td>
</tr>
</tbody>
</table>

The railway infrastructure in the VON-area can be seen from bullet point 3.2.

2 Socioeconomic and demographic structure

2.1 Population`s development in the VON-area (Upper-Lusatia – Lower Silesia)

The service area of VON includes the district Görlitz and a part of the rural district Bautzen. As the statistically detectable data refer to the districts, here the age and employment data from the two districts (Bautzen and Görlitz) are shown.

Population trends:
The population of the various districts in the service area of the VON developed as follows (statistics and comment from /2/):

<table>
<thead>
<tr>
<th>Region</th>
<th>Area km²</th>
<th>Inhabitants</th>
<th>Population`s Density (Inh./km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Bautzen (VON)</td>
<td>961</td>
<td>141,804</td>
<td>148</td>
</tr>
<tr>
<td>City Görlitz</td>
<td>67</td>
<td>55,986</td>
<td>830</td>
</tr>
<tr>
<td>District Görlitz</td>
<td>2,039</td>
<td>221,328</td>
<td>109</td>
</tr>
<tr>
<td>VON-region</td>
<td>3,067</td>
<td>418,728</td>
<td>137</td>
</tr>
</tbody>
</table>

The population`s development structure was not equal in the districts.

The population`s development structure is not equal in the districts and in the Görlitz-city.
In the Saxon statistical sources /4/ and /5/ you can find further information for the development of the population in the districts of Bautzen and Görlitz:

**Figure 2.1**: Populations development in the districts Bautzen and Görlitz /4/ and /5/  

![Population Development](image)

It can be seen that the population in the area has been continuously reduced. It is expected that this trend will continue in the future.

In the same extent, the average age of the population is also increasing (you can see this trend in the following diagrams):
Figure 2.2: Age structure in the district Bautzen /4/

![Pie chart showing age distribution in Bautzen]

Figure 2.3: Age structure in the district Görlitz /4/

![Pie chart showing age distribution in Görlitz]

The average age in the districts of Bautzen and Görlitz increased over the last 20 years to almost 9 years (average living age), or 2.5 years more than the Saxon average living age increased.
This includes the tendency of population aging and the departure of young people from less attractive areas.

**Figure 2.4:** Structure of the average living age in the districts Görlitz and Bautzen and in the whole State Saxony

![Average age graph]

The next two figures show the employment structure in the VON-region. It can be seen that the numbers of "non-working population" are very high.

**Figure 2.5:** Employment structure in the district Bautzen

![Employment structure pie chart]
2.2 Summary and conclusions for public transport according to the demographic development in the region

For the VON-area the following determinations can be made

- The population numbers decrease, but in the rural areas much more than in the cities
- In the same time the population density decreases
- The average living age of the population rises steadily
- The number of students is decreasing
- The number of jobs declines and the commuter rate to external employment opportunities increases.

As result of this development, new ways must be found to obtain the public transport upright and to meet the demand for mobility for the population!

The conclusions from the demographic development in sparsely populated regions are:

- The demographic changes (age structure, travel reasons) and the low population density in the sparsely populated regions create new travel demand and travel needs, and the "general interest" in the form of Public Transport is given a higher priority
• This will make it difficult in sparsely populated regions offering traditional regional scheduled services on a fixed schedule
The goal must be to ensure a very high mobility for the population by economic working Public Transport services

Basics:
- Accurate economic calculation and comparison of variants
- Planning of transport services in variants in accordance with demographic demand and regional conditions (sources and targets of Transport demand)

Problems:
- Communicate new system of Public Transport facilities to the population
- Achieving a positive attitude for these flexible programs
- Use of modern communications technology to order the drives and Information on the vehicle arrivals (in real times)

• The planning of public transport forms in a region should be based on the following principle:
  - Identify the main axes (railways or standard buses)
  - Organize shuttle and area distribution of traffic by Public Transport with different service types
  - The organization of public transport in the region and the connection to the central and regional centers must have a uniform and efficient Public Transport system

The principles are the following:
- Local transport plans form the basis
- Funding must be secured
- Achieve clear legal regulations
- Citizens’ buses and possible private forms (car pooling, etc.) should have a "complementary function".
3 Regional public transport systems

3.1 General information

The Transport Federation Oberlausitz-Niederschlesien GmbH (VON) acts as the comprehensive public transport coordinator in the administrative districts Görlitz and Bautzen. Moreover, it is responsible for the public transport connections to the neighboring German counties in Saxony as well as for cross-border connections to Poland and the Czech Republic.

The VON acts as the responsible authority for rail-based public transport in the region. VON also coordinates the interaction between the public rail transport and regional bus services. (Authority for the bus are the administrations of the districts).

Thus, the VON has diverse tasks for the design of public transport in the region (design of timetables, the transfer connections between different modes of transport, unification of the entire public transport in the region, agreements with neighboring regions and PTAs, configuration of the population’s information about public transport, standardization of tickets etc).

Further tasks are to inspire people to use public transport more often in order to keep the number of passengers stable or increasing. Thereby, the improvement of the transport system includes better technical solutions such as alternative rolling stock-concepts.
3.2 Public rail transport

The backbone of public transport in the VON-area is the public rail transport. The following figure shows the railway net (together with the main regional bus lines/blue coloured) in the VON-region covering the districts Bautzen (partly) and Görlitz.

**Figure 3.1**: Transport-network with the main transport-lines in the VON-area

The number of passengers on the routes depends on the development tasks of the railway line and is quite different for the individual courses. This can be seen from the figure 3.2.
Figure 3.2: number of passengers on the railway routes in VON-area / 2 /
In 2010, the following public transport services were registered in rail transport in the VON-region /2/

**Figure 3.2:** Public rail transport in the VON-region /2/

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course book route</td>
<td>train line</td>
<td>Start station</td>
<td>on the way station</td>
<td>End station</td>
<td>route length in the VON area / km /</td>
<td>traffic service /1,000 train-km per year/</td>
<td>vehicle Type</td>
<td>number of seats in the vehicle</td>
</tr>
<tr>
<td>220</td>
<td>OE 65</td>
<td>Cottbus</td>
<td>Görlitz</td>
<td>Zittau</td>
<td>98,7</td>
<td>1,220</td>
<td>Desiro Classic</td>
<td>124</td>
<td>18</td>
</tr>
<tr>
<td>229</td>
<td>OE 64</td>
<td>Görlitz</td>
<td>Niesky</td>
<td>Hoyerswerda</td>
<td>72,2</td>
<td>480</td>
<td>RS 1</td>
<td>72</td>
<td>9,5</td>
</tr>
<tr>
<td>230</td>
<td>RE 1</td>
<td>Dresden-Hbf</td>
<td>Bautzen</td>
<td>Görlitz</td>
<td>77,3</td>
<td>440</td>
<td>BR 612</td>
<td>146</td>
<td>8</td>
</tr>
<tr>
<td>230</td>
<td>RE 100</td>
<td>Dresden-Hbf</td>
<td>Bautzen</td>
<td>Görlitz (Wroclaw)</td>
<td>77,3</td>
<td>170</td>
<td>BR 642</td>
<td>122</td>
<td>3</td>
</tr>
<tr>
<td>230</td>
<td>RB 60</td>
<td>Dresden-Hbf</td>
<td>Bautzen</td>
<td>Görlitz</td>
<td>77,3</td>
<td>630</td>
<td>BR 642</td>
<td>122</td>
<td>11</td>
</tr>
<tr>
<td>230</td>
<td>OE 60V</td>
<td>Bischofswerda</td>
<td>Bautzen</td>
<td>Görlitz</td>
<td>64,9</td>
<td>330</td>
<td>RS 1</td>
<td>72</td>
<td>9</td>
</tr>
<tr>
<td>235</td>
<td>RE 2</td>
<td>Dresden-Hbf</td>
<td>Bischofswerda-Wilthen</td>
<td>Zittau</td>
<td>76,2</td>
<td>500</td>
<td>BR 612</td>
<td>146</td>
<td>9</td>
</tr>
<tr>
<td>235</td>
<td>RB 61</td>
<td>Dresden-Hbf</td>
<td>Bischofswerda-Wilthen</td>
<td>Zittau</td>
<td>76,2</td>
<td>550</td>
<td>BR 642</td>
<td>122</td>
<td>10</td>
</tr>
<tr>
<td>236</td>
<td>SBE</td>
<td>Zittau</td>
<td>Varnsdorf-Seifhennersdorf</td>
<td>21,3</td>
<td>190</td>
<td>VT 798</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>236</td>
<td>SOEG</td>
<td>Zittau</td>
<td>Bertsdorf</td>
<td>Jongsdorf/Öybin</td>
<td>60</td>
<td>Schmalspurbahn</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| alle |         |         |         |         | 641,4   | 4,510   |         |         |         |      |      |

The numbers in the first line are defined as follows:

1 Course book route  
2 train line  
3 Start station  
4 on the way station  
5 End station  
6 route length in the VON area / km /  
7 traffic service /1,000 train-km per year/  
8 vehicle Type  
9 number of seats in the vehicle  
10 pairs of trains a) Monday to Friday  
   b) Saturday  
   c) Sunday and holiday

Thus, the authority for public rail transport services ordered annually about 4 million train kilometers in the VON area

D4.2: Regional fact sheets – Area of the Transport Association Upper Lusatia – Lower Silesia (VON)  
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3.3 Public transport (road)

The network for public transport (road) in the VON-area includes the area in the districts Bautzen (partly) and Görlitz and can be seen in the figure below:

**Figure 3.3:** Network public transport (road) in the VON-region /6/
The following operation services in public transport (road), can be identified in the VON-area /2/:  

**Table 3.1**: Operation service in public transport (road) in the VON-area /2/  

<table>
<thead>
<tr>
<th>Operation service</th>
<th>Operation service /timetable-km per year/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public city-transport in Görlitz</td>
<td>946.000 km/a</td>
</tr>
<tr>
<td>Public city - transport in Bautzen, Löbau, Bischofswerda und Zittau</td>
<td>313.000 km/a</td>
</tr>
<tr>
<td>Regional public transport (road) in district Bautzen</td>
<td>5,141.000 km/a</td>
</tr>
<tr>
<td>Regional public transport (road) in district Görlitz</td>
<td>2,997.000 km/a</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,397.000 km/a</strong></td>
</tr>
</tbody>
</table>

### 3.4 Transport and mobility prognosis

The forecast in VON-area is determined by the development of population, the location of schools and the supply of jobs. It is expected that the number of young population goes back in the future, however, different trends in urban centers and in rural areas are predicted (In urban centers is expected a more stable situation of the population structure).

For the availability of public transport following consequences could result /2/:  

- The development of demand for the **public rail transport** is stable expected - here improvements of travel time and infrastructure-improvements will strengthen the demand  
- In **public transport (road)**, a decline in demand is expected, especially in rural areas. The decline is not so strongly expected in the more urban areas (for instance in the city transportation in Görlitz).
3.4 Area in the VON region, which is provided for the AMC campaign

According to the current state of knowledge, is provided to carry out the AMC campaign (in the project Smart Move) to achieve a better utilization of the bus lines 147 between Görlitz and Herrnhut. The line is located in area southeast of Görlitz.
4 References

2. Masterplan Public Transportation in the ZVON area (State of knowledge 2010)
4. Statistical Office of the Free State of Saxony (various sources)
5. Statistical Yearbook of Saxony 2013
6. Website ZVON