MAMBA map descriptions

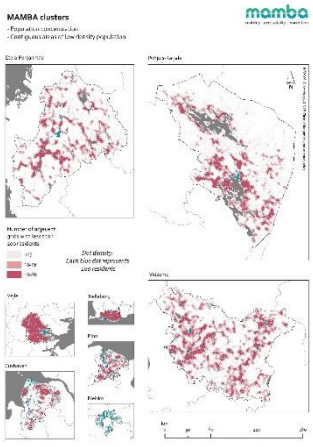
The following maps are showing population distribution and indicators on accessibility in the eight case study regions of the MAMBA project: South Ostrobothnia (Etelä-Pohjanmaa), North Karelia (Pohjois-Karjala), Vidzeme, Bielsko, Ploen, Cuxhaven, Vejle and Trelleborg.

The geographical scale in these MAMBA wide maps is uniform so that the statistical resolution is similar. This is a prerequisite to be able to conduct intra-regional comparisons.

'MAMBA clusters'

The level of population density is one of the most important factors for providing attractive public transport without experiencing high tax increase. It is easier to provide good transport with many paying passengers in densely populated areas than in sparsely populated areas. The size of the land area to be covered by transport also has an influence to the planning. The larger the areas to be covered, the more demand kilometres it takes to maintain good services. For instance, in a Swedish context 40 people per hectare is a bench-mark. Above this threshold, a new transport stop is clearly motivated economically. Below the threshold of 40, some other factor (than population density alone) is needed to motivate the allocation of a transport stop. Below the threshold of 20 people per hectare it is usually out of scope for the provision of scheduled public transport services.

To analyse how well these criteria are met in the MAMBA regions Nordregio has used high resolution population data at a 1000 x 1000-meter grid level[1]. The focus has been on analysing the areas that have below 20 residents per hectare, i.e. 200 residents per 1000-meter grid.



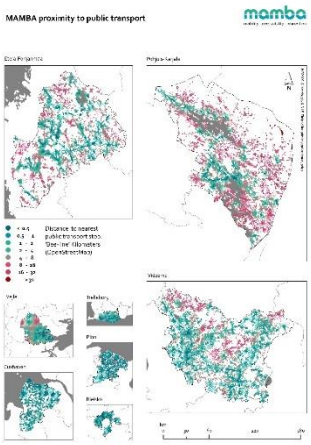
To display where there are large areas of low density population Nordregio has used a GIS-clustering method to calculate how many low-density grids are adjacent. The map 'MAMBA clusters' shows these areas in shades of red depending on the total size of contiguous low-density population. The darkest red has the largest total area of contiguous low density. The actual population density is indicated with dots. Each blue dot represents 200 inhabitants. Dark grey areas indicate water bodies (lake or marine water)

1 GEOSTAT population grid data 2011

'MAMBA proximity'

For some residents, private vehicle transport might not be an option. This could be due to several reasons, like no car ownership or high overall driving cost. In rural areas where services are more distant, these people will be more dependent on public transport. The distance to access public transport from people's home(s) will influence the ease of access to many services needed in the daily life. Therefore, this is a relevant measure to map.

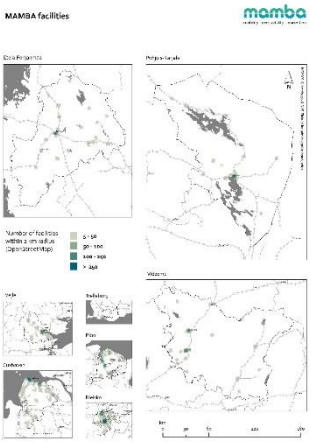
The proximity map shows the distance from all the inhabited places in the regions to the nearest access point for public transport (bus, rail or tram). The coloured points are showing where there is population and the colours represent the distance in kilometres from those places to the nearest access point. The redder the marked areas, the longer the distance to the nearest public stop (up to 32 km). Blue and green stands for shorter distances (0,5- 4 km). Dark grey areas indicate water bodies (lake or marine water)



The data used to proxy population residence comes from Eurostat/geostat[2]. Data on the location of public transport stops comes from OpenStreetMap. OpenStreetMap is an open source of geospatial data registered by the public and free for all to use[3]. The distance measure is bee-line, meaning a straight line from start to end. Bee-line calculations should be viewed as a proxy for distance. Road network analysis is obviously more accurate because it is more accurate to how we travel. It would also enable time as cost instead of distance. The transport stops are not displayed in the map.

MAMBA 'facilities'

Another way to examine the centrality of a place is to find out how many service facilities you can reach from it. This map displays an overall centrality for all the inhabited locations in each region. From the OpenStreetMap database. Nordregio has filtered out facilities that people visit or need on a regular basis. These could be food stores, libraries, pharmacies, schools, leisure or culture etc. The facilities are all bulked together and weighted equally.



The calculations are done with circular buffer areas with a fixed radius of 2 kilometers around each populated location. Again, to establish the populated locations,Nordregio has used the Geostat population grid data for 2011.

Green areas indicate frequency of facilities within 2 kilometers. The darker the green, the larger number of facilities is within the threshold. Dark grey areas indicate water bodies (lake or marine water)

2 GEOSTAT population grid data 2011
3 https://www.openstreetmap.org/about