

**Kaunas Forestry and Environmental Engineering
University of Applied Sciences**

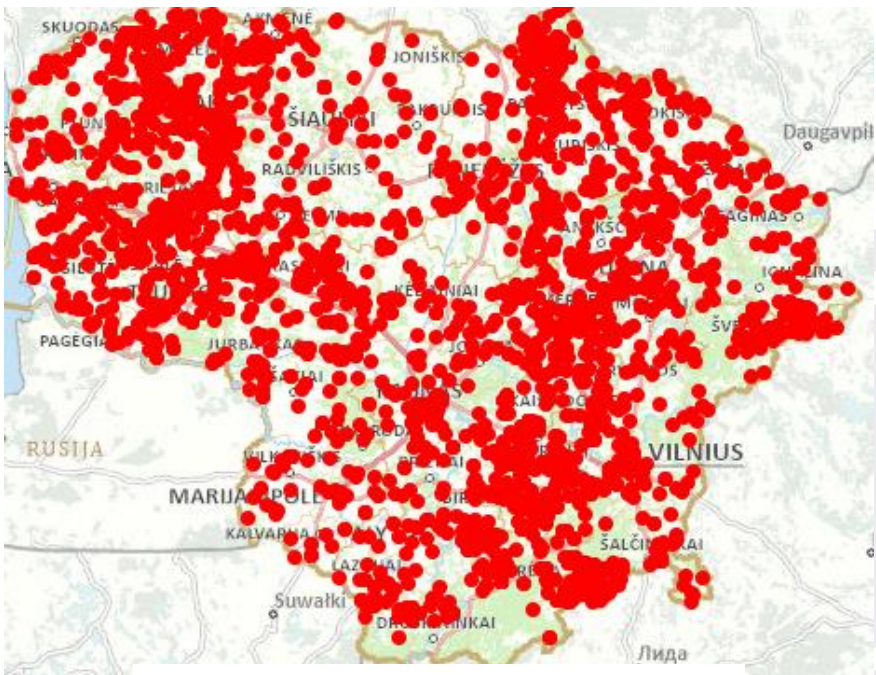
***ANALYSIS OF AGRICULTURAL DEVELOPMENT
OPPORTUNITIES USING GIS TECHNOLOGIES***

Students:

Viktoras Cernenko, Mantas Dauksas, Edgaras Grigaitis

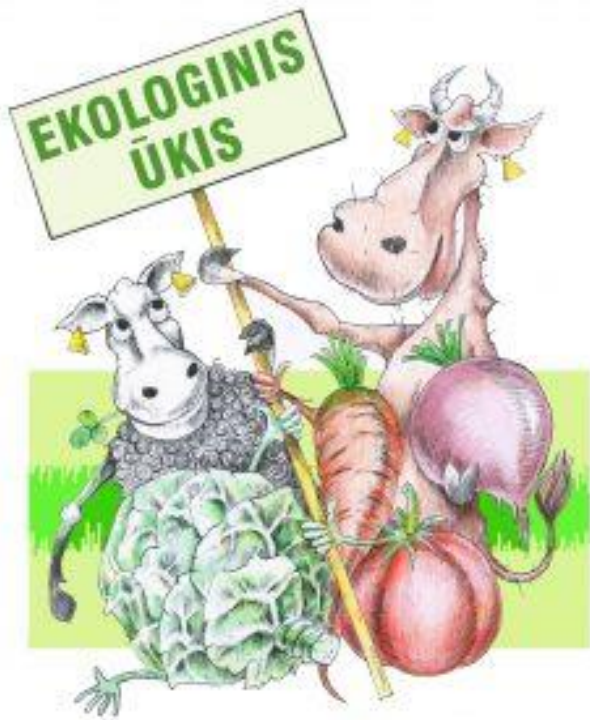
Supervisor: Lect. Gitana Vyciene

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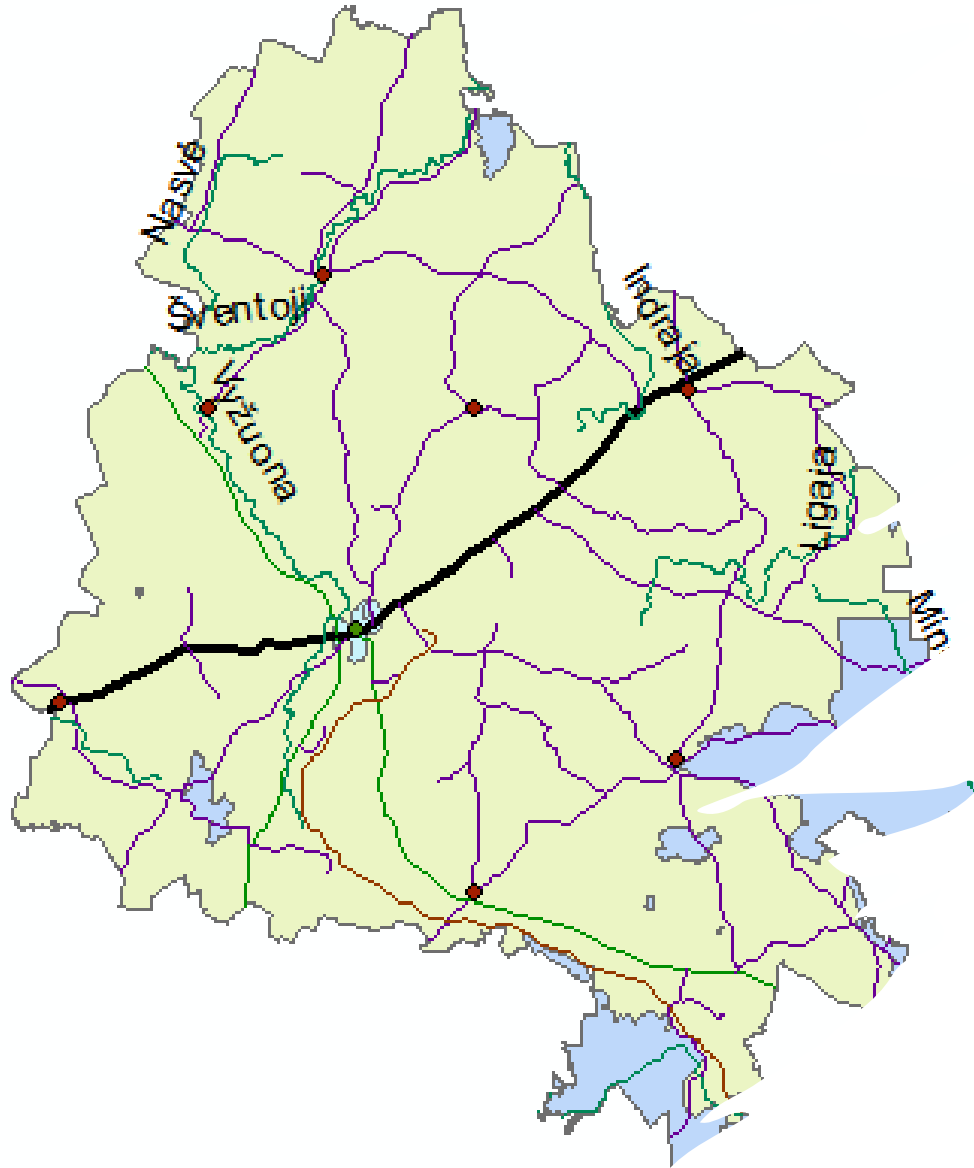


Since ancient times, Lithuania has been an agrarian country where agriculture occupies an important part of the economy. In order to improve traditional farming, a new branch was formed - ecological farming.

After Lithuania became a member of the European Union, the popularity of organic farming did not overtake Lithuania either, the pace of this farming grew steadily until 2007, currently there are 2855 organic farms throughout Lithuania, which deal with organic fisheries and complete organic production, recycling.



An important aspect of organic farming is the selection of a suitable location, which is closely dependent not only on the soil but also on infrastructure or environmental factors.



- The aim of the research is to demonstrate the possibilities of applying GIS technologies in determining the territories of the selected district, where, according to the legal regulations, organic farming is possible.

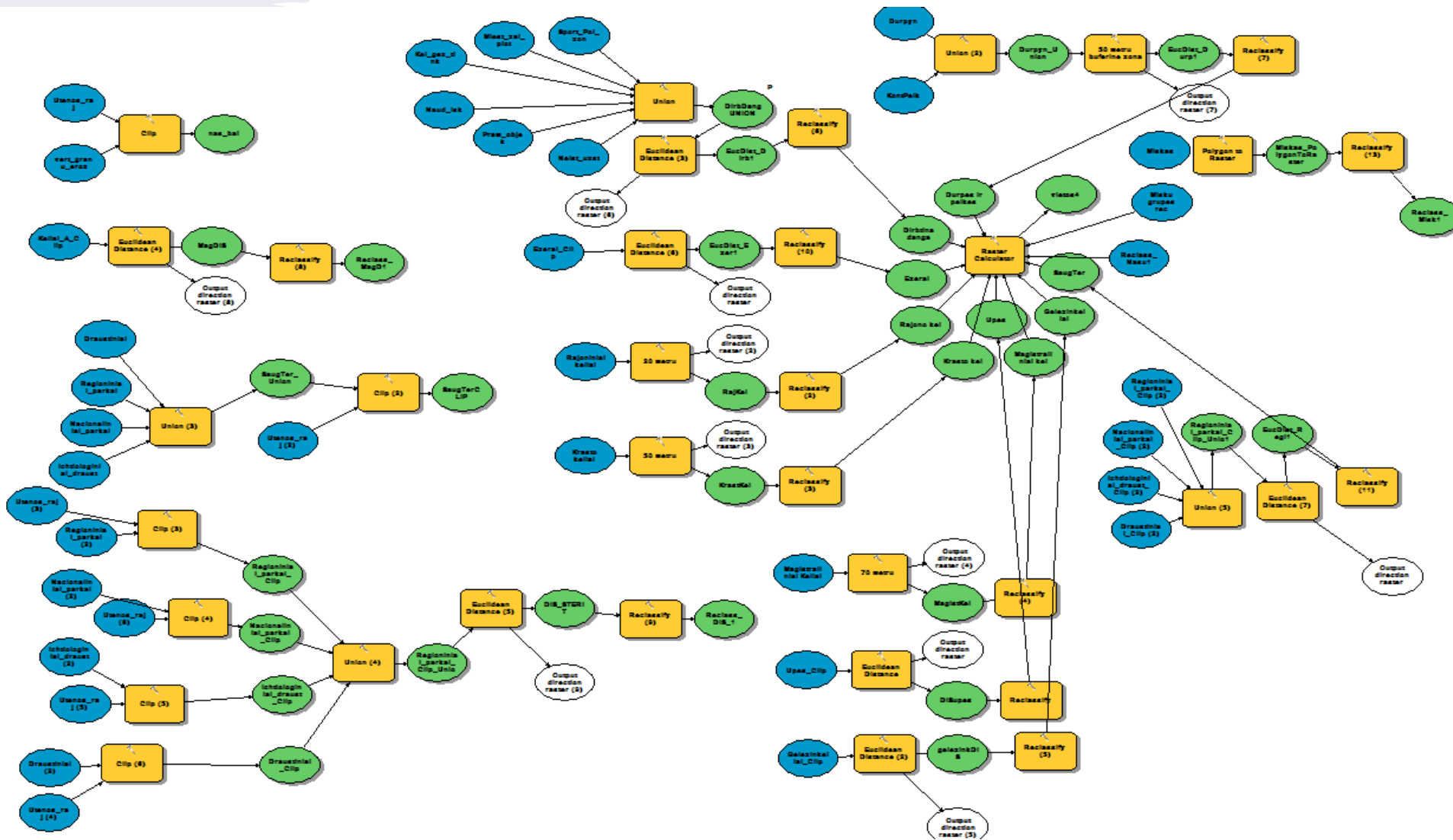
The first stage is the collection of initial data and their evaluation

The second stage is the definition of criteria and the creation of new data

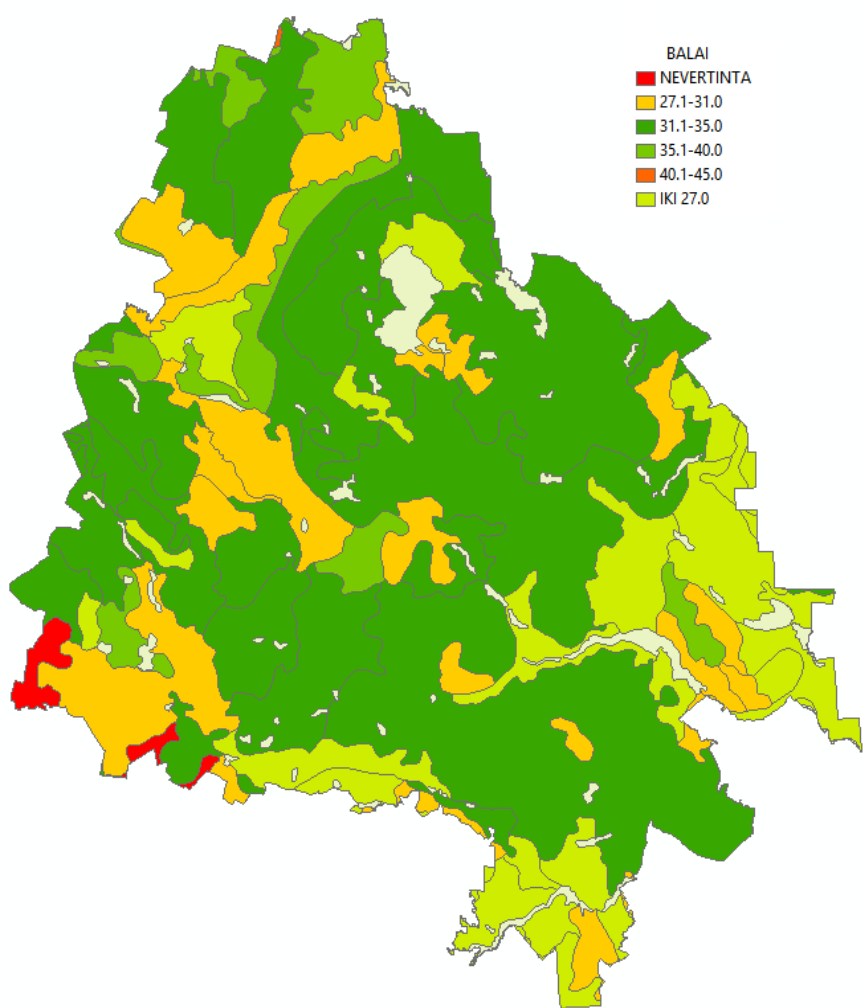
**Methodology
of investigation**

The third stage is data aggregation and systematization

The fourth stage is the right places to find and present the results

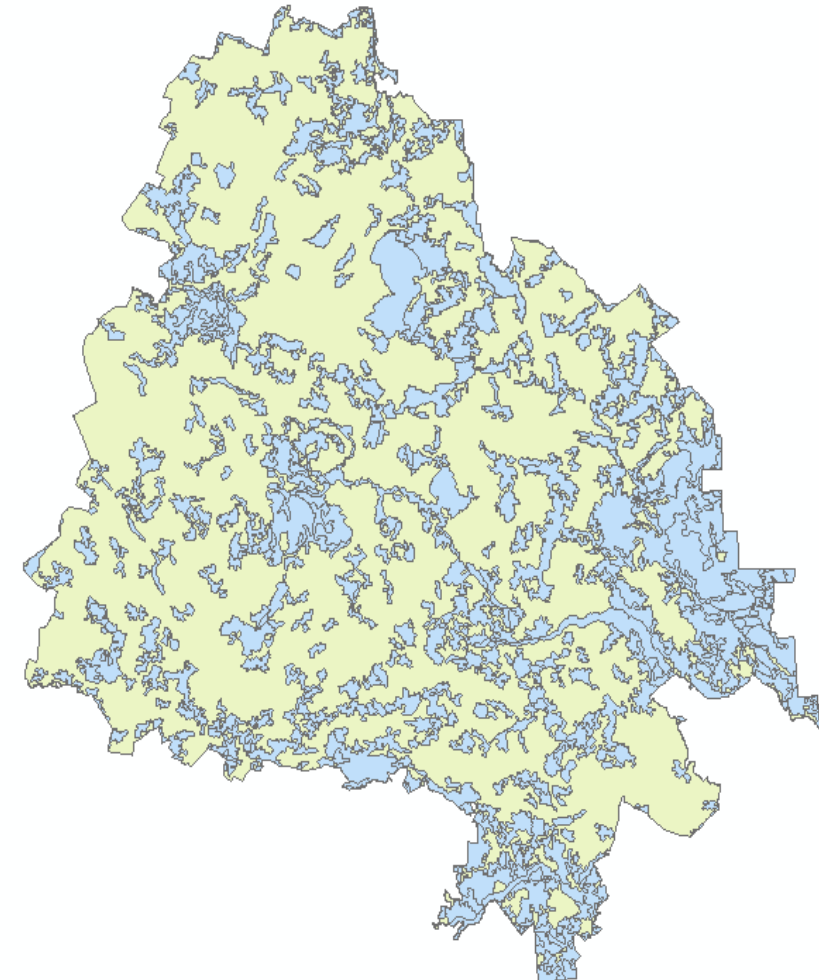


An analysis model for finding suitable areas for agricultural development



The least fertile areas are rated with a land productivity score of 17 to 31, where farming is not recommended.

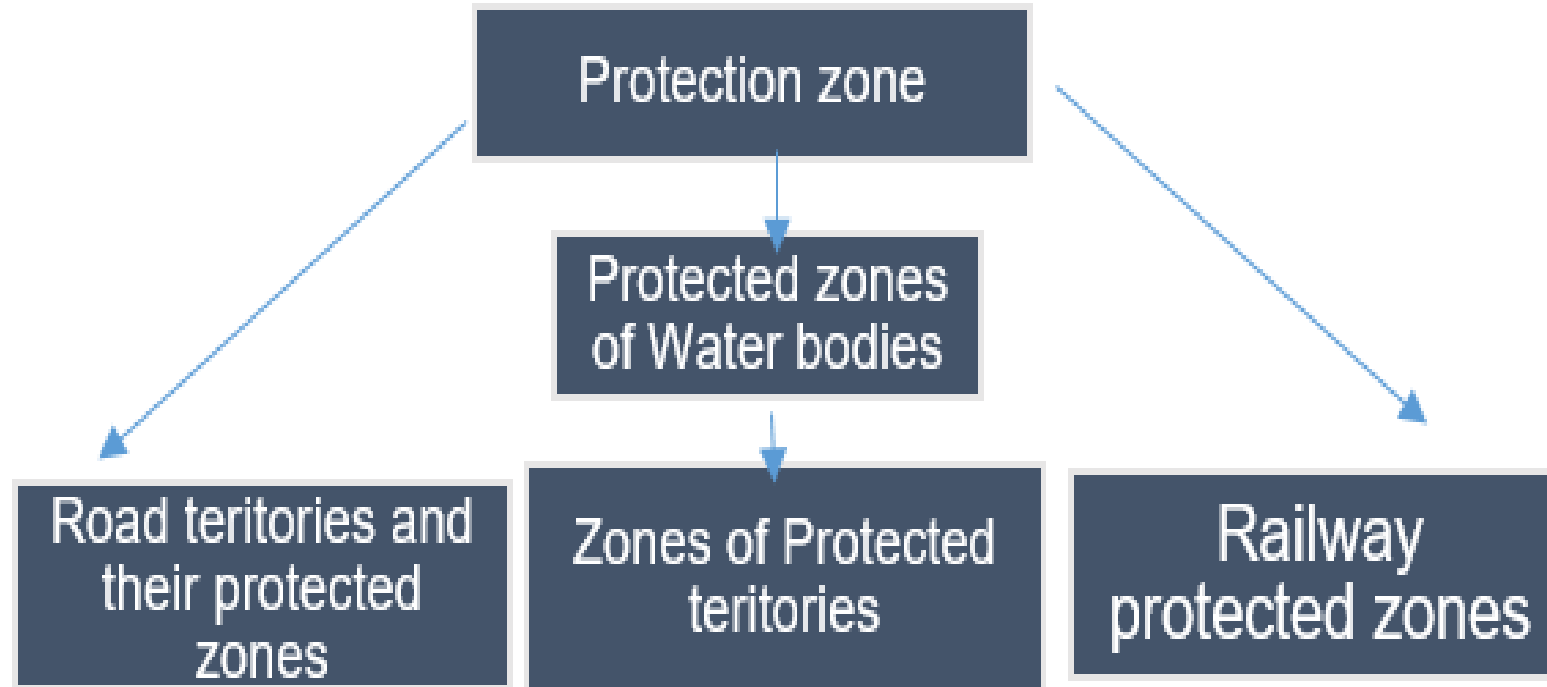
The number of areas that would be suitable for the development of organic farming was 36 (productivity score is 31.1-45), which makes up 42 % the total area of the district.

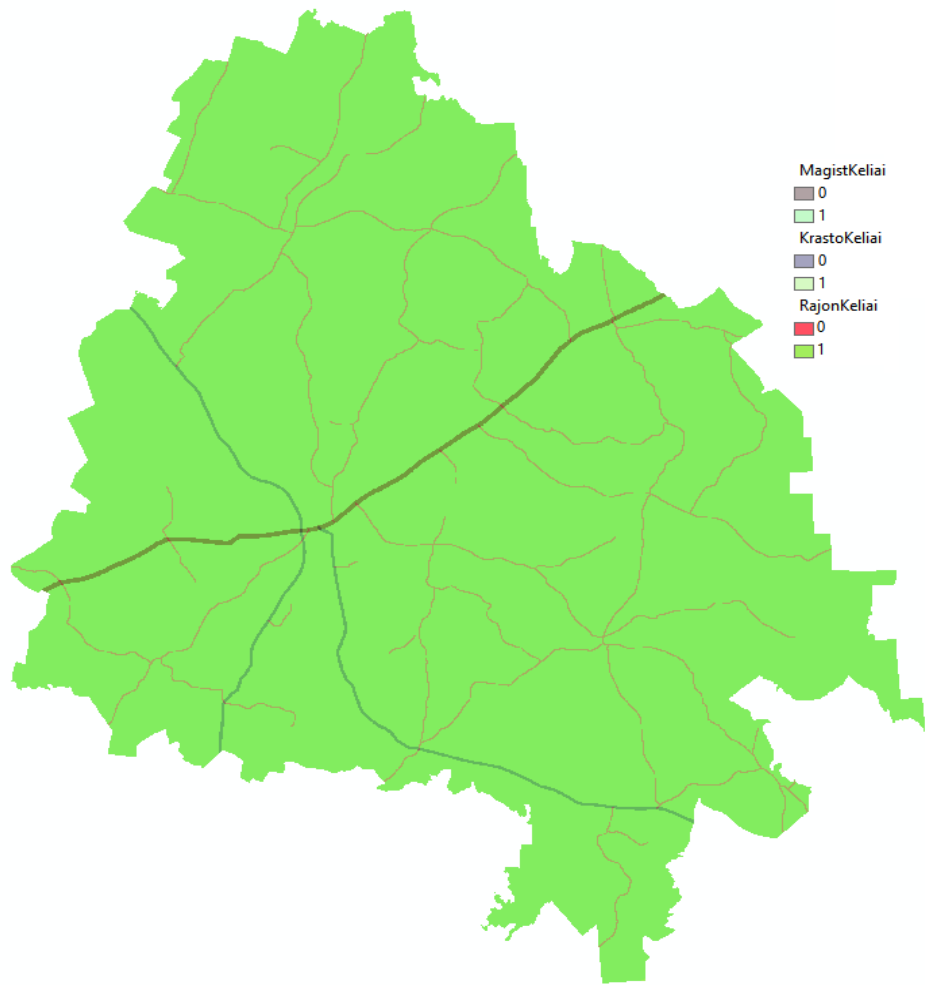


In order to identify areas for development of economic activity, it is also necessary to assess built-up areas.

That's 43 % from the total area of the district.

Schematic diagram of selected criteria



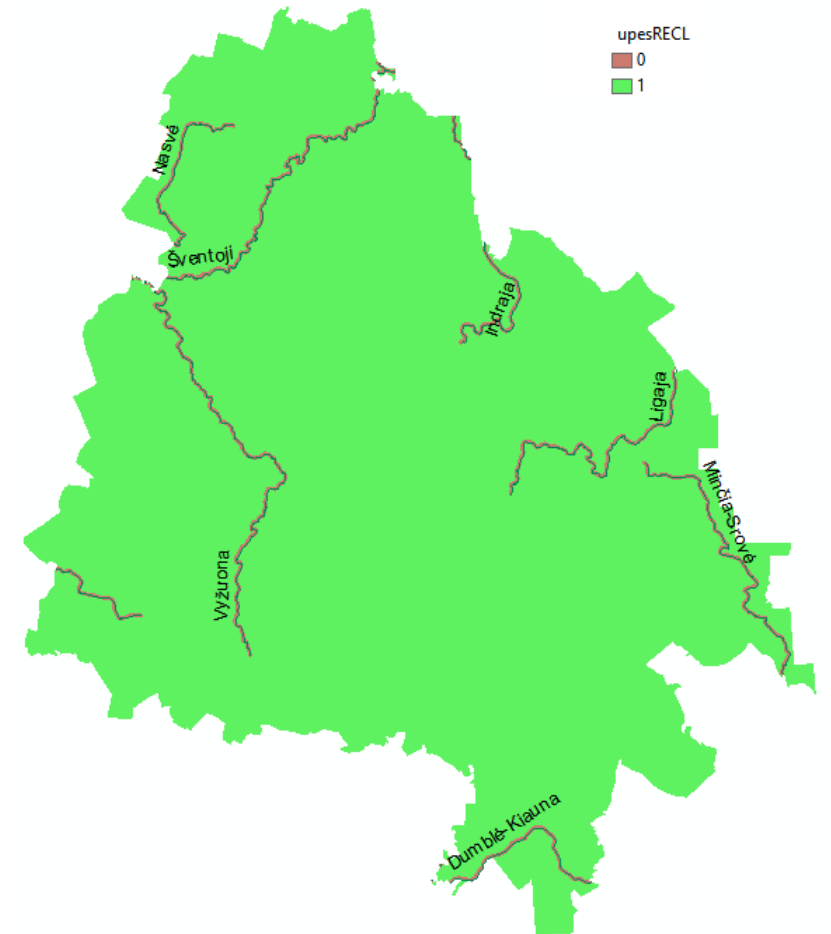
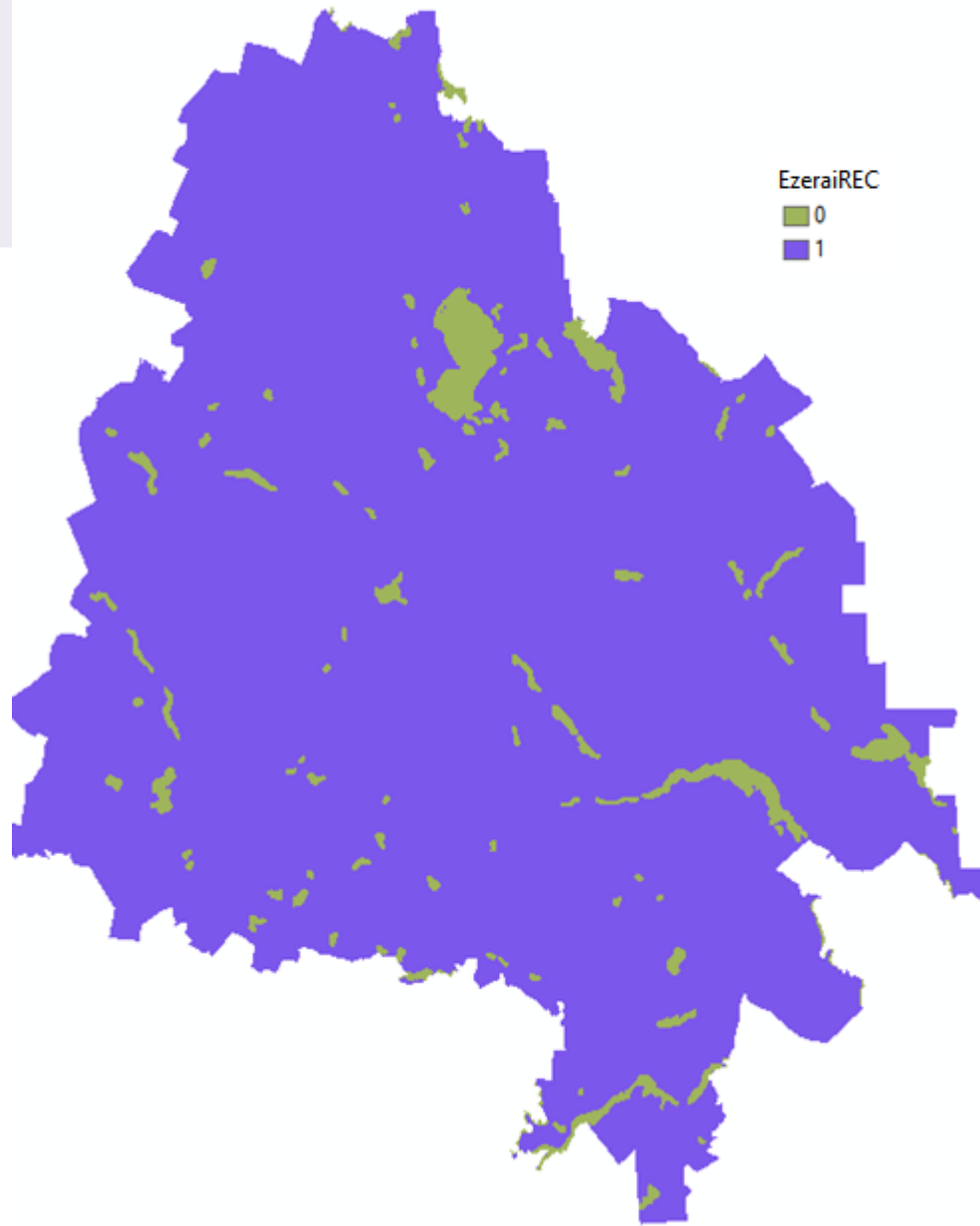


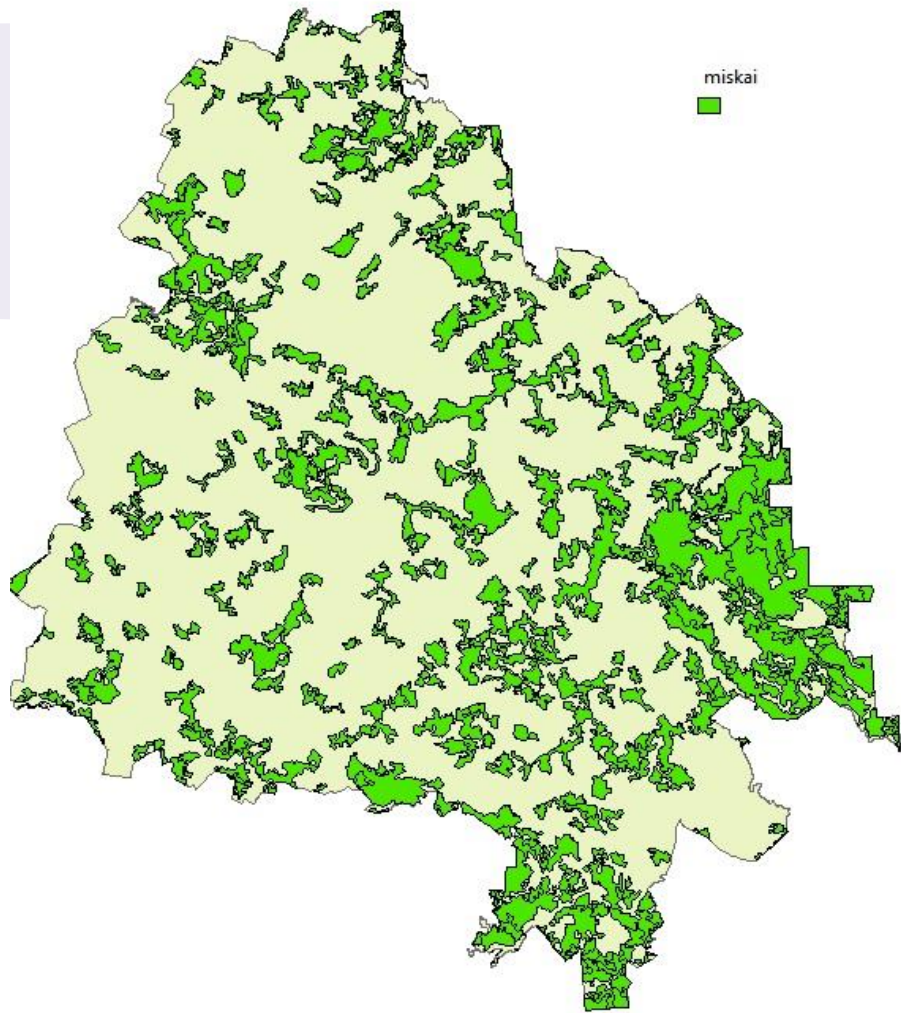
The area occupied by roads in the analyzed area is -25005 ha. It has been established that this area together with their protection zones in the district is 2.1 % of the total area of the district.



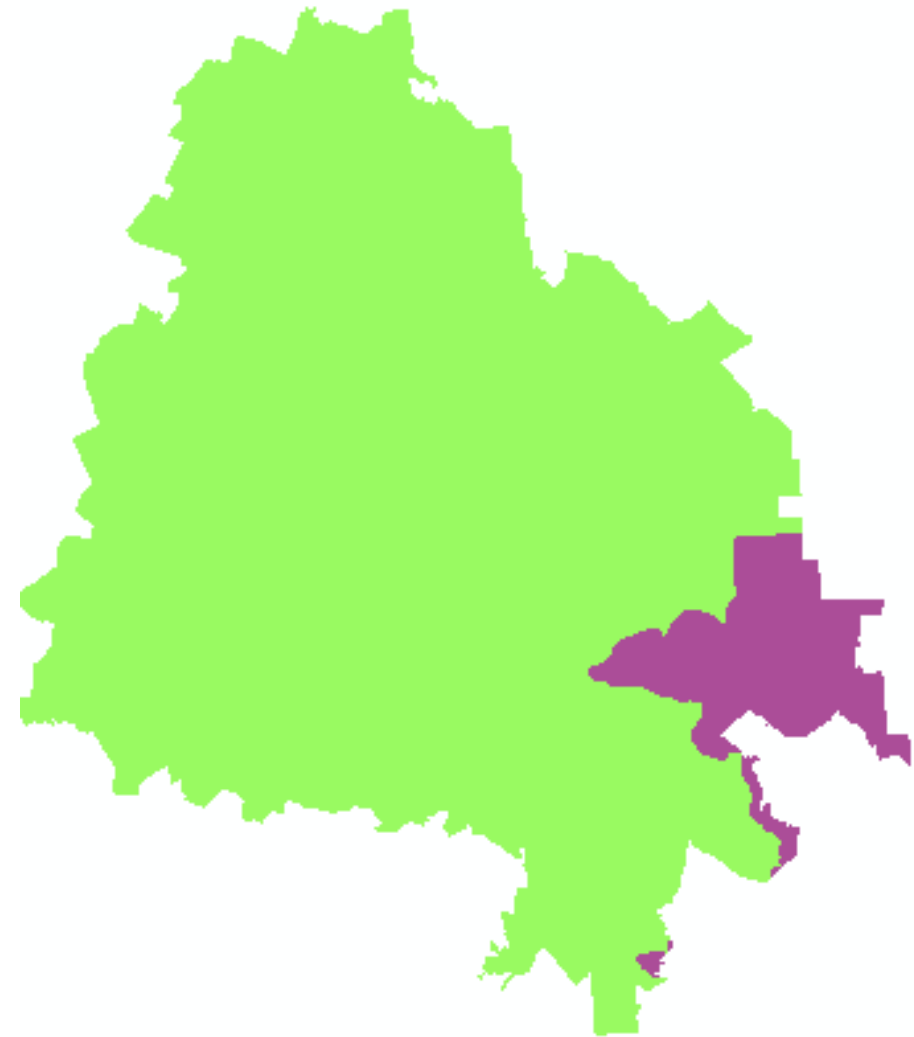
Similarly, as for roads, a layer of railway was generated and then reclassified on the assumption that the track gauge and protection zones of 20 m are unsuitable for economic development.

Water bodies are sensitive to chemicals, pollution or other damage, lakes and rivers are covered by a protection zone to avoid these problems. Lakes with their protection zones (50 m) occupy - 4.38%, rivers and their protection zones (100 m) occupy 2.43% district area.





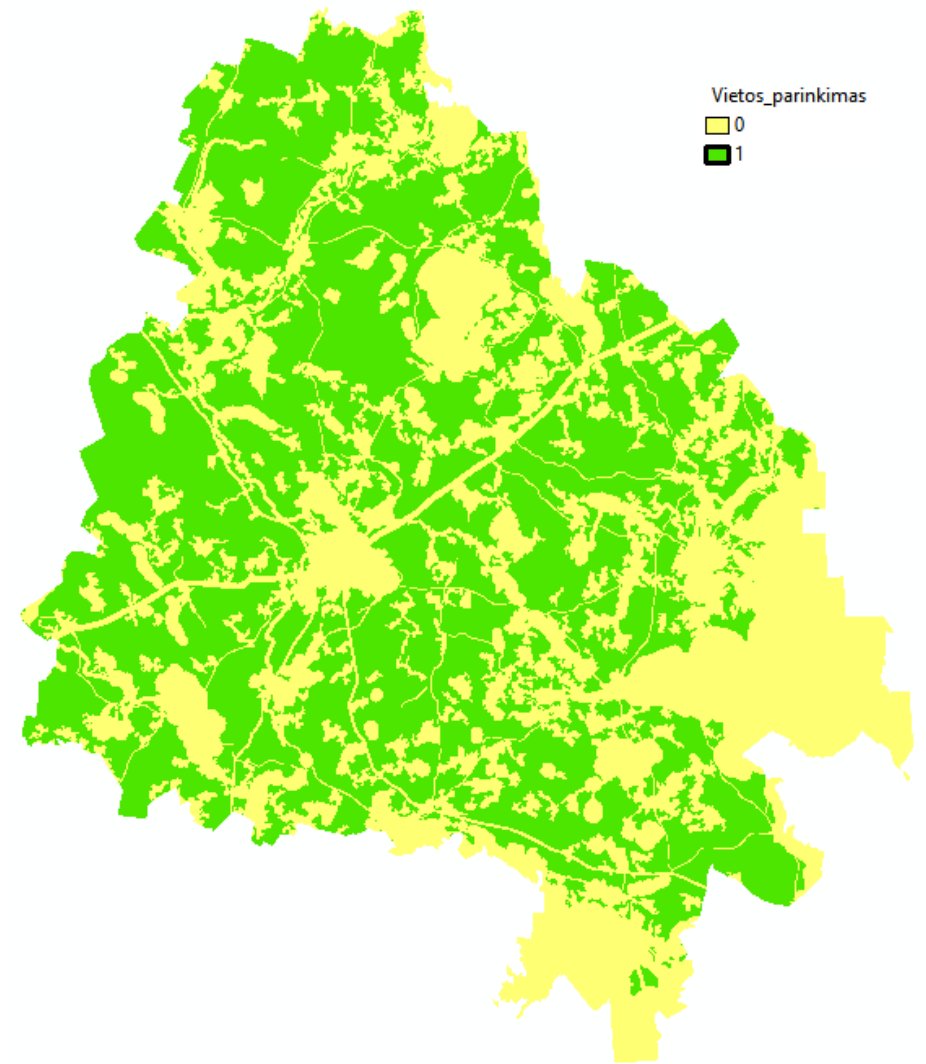
The total forest area in the study area is almost 30 % from the total area of the district. Land productivity score was also assessed.



There is Labanoras Regional Park, 7 nature reserves, and 1 Aukštaitija National Park. A protection zone of 300 meters is established for national parks and reserves. All protected areas takes 10 % the total area of the district.

Conclusions

- Applying the criteria singled out in the work, it was obtained that the areas possible for the development of economic activity occupy 55 % district area.
- The area obtained is only theoretical and must be reduced by 30 % in order to interpret the results in practice.



Thanks for your
attention



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