

WATENV – Environmental Data Analysis (GIS)

WS 2011/12

Dalyot/ Zhang/ Siriba

Home Assignment (Part 2)

General

In this assignment, you are required to carry out a GIS analysis to determine the area of riparian zones of land parcels and create a map to visualize the result. The analysis relies on the ArcGIS geodatabase you have created in Home Assignment 1.

Part I – Organizational Matters

1. Preparations

- Create a new sub-folder named Assignment2 in your working folder (created during the first assignment).
- Copy the “Hildesheim.mdb” geodatabase from HomeAssignment folder to the Assignment2 sub-folder.

2. Submission

- Answers to questions 1- 4 (next page); a *pdf file* format presenting the graph for question 5; and, an explanation for the choice of symbols and colours of features in your final map (of Part III).
- A map (in *pdf* file format) showing clearly the result of your analysis (Part III).
- Submission deadline: **31.01.2012**

4. Tips

- Make backup-copies.
- Use *Relative Path* option.
- Check after submission that your projects “works”.

Part II – GIS Data Analysis

Riparian zones are a good evidence of good land use management, in addition to being important for good water quality. In particular, they help to prevent sediment, nitrogen, phosphorus, pesticides and other pollutants from reaching a stream. You are required to determine the area of riparian zones of land parcels within Hildesheim (the project area) that will be affected by a directive that discourages any activities within 20 m from any adjacent

water course (streams and rivers). The directive involves streams whose 'AOBJID' attribute is with a value of 5101.

Please answer the following questions.

1. Which field would you use as the index field for land parcels?
2. How do you determine the land parcel a stream segment is located on?
3. Give an outline of the steps (workflow) you have used to determine the amount of area involved for the affected land parcels.
4. Which ArcGIS analysis tools did you use? Briefly describe the input and output of each tool. Whether you think alternative/s exist to the process you have chosen (outline briefly).
5. Create a graph from attribute table of land parcels to show the top 10 land parcels with the largest riparian zones. Print it out in *pdf* format and save it to the folder *Assignment2*.

Part III – Presentation of Results

1. Prepare a map to be used for water management purposes on A3 paper size (not to be printed as hard copy). The map should use appropriate (clear) symbols to show the land parcels based on their area of riparian zones. The map should also show the outline of the land parcels, the water courses, ponds, and the streets (and any other data you see fit as informative).
2. Include the following map elements:
 - Clear title
 - Scale
 - The North Arrow
 - Legend
 - Authors of the map (Names)
 - Date
3. The paper orientation is a function of map extent and the arrangement of map elements.
4. Allow a margin of 2cm.
5. Arrange the layers such that all the layers and included objects are clearly visible in the map.
6. Arrange and group the object types logically in the legend.
7. Use proper and adequate choice of colour and symbols.
8. Complement your map with adequate annotations (if required, please add explanation and comments related to what you did).
9. Export your final map in pdf format using a resolution of 300dpi (do not print!).