TRAINING COURSE FOR THE GIS TOOL

D.T1.2.2

Version 1

June 2018

WP	W T1: Identification of potential locations of the Natural Small Water Retention measures
Activity	Act. 1.2. Prototype of the GIS
	tool and training
Activity leader	WULS
Number and name of the deliverable/output	D.T1.2.2 Training Course For The Gis Tool
Participating partners	all
Type of the deliverable/output (analysis, report, guideline, workshop, brochure, etc.)	Workshop/training course
Purpose of the deliverable/output	to support partners in preparation of Reports from Pilot Action - testing the prototype of the GIS tool in the river basins D.T1.3.1
Connection with other deliverables	D.T1.3.1, D.T2.3.1, D.T2.3.2
Start date	Sep-17
End date	May-18

CONTENT

1 INTRODUCTION

The workshop took place 16 - 17.05.2018 at a computer lab at the Water Center in Warsaw University of Life Sciences in Poland. Project partners had an opportunity to become acquainted with the GIS Tool. The course was conducted for all partners to help to understand the valorisation method, learn about the functionality of GIS tools and how to pre-process input data. The workshop allowed partners and stakeholders to test the prototype of the GIS tool in Pilot Catchment. The tool is available on the website http://WaterRetenion.sggw.pl as well as http://retencjawod.sggw.pl and http://levis-framwat.sggw.pl.

Main aims of the workshop:

- Conducting multiple indicator analyses for various spatial planning unit (SPU),
- Calculation of mean values of the factor for each SPU,
- Possibility for testing prepared data as well as your own data,

Other important aims:

- To familiarize participants with the GIS Tool website interface,
- Receive Feedback,
- Testing the capacity of the software,
- Finding errors and bugs,
- Obtaining new ideas for the tool development.

2 PROGRAMS AND INVITING PROCESS

The invitation to the workshop was sent out to project partners whom were asked to delegate minimum 1 participant per organization. Participants had to fill in a registration form. There was one computer for each person to work on in the computer lab. Participants had a lunch and coffee brakes provided during the training. They arranged accommodation on their own behalf. The workshop lasted for two full days and finished with a trip to the Vistul river banks, picnic and a bonfire.

Training for involved partners on how to use the GIS tool was conducted in the following steps:

- Familiarizing with the Web Page

- installation process,

- preparation of input data,

- operation of GIS tools,

- interpretation of the results,

- creation of test projects for pilot catchments,

- submission of comments and discussion about the results.

Training course for the GIS Tool

Poland, Warsaw 16-17 May 2018

AGENDA

| Wednesday 16.05.2018	
10:00 - 10:30	Registration
10:30 - 11:00	Welcome to the workshop
11:00 - 12:00	**Lecture 1**: Valorization method and water retention indicator characteristics
12:00 - 13:00	Lunch
13:00 - 14:30	**Lecture 2**: GIS tools structure and functionality
14:30 - 14:45	Coffee break
14:45 - 16:15	**Exercise 1**: Implementation of Valorization Map (VM) for water resource enhancement (general goal)
16:15 - 16:30	Coffee break
16:30 - 18:00	**Exercise 2**: Implementation of VM for flood and draught mitigation
Thursday 17.05.2018	
09:00 - 10:30	**Exercise 3**: Implementation of VM for water protection
10:30 - 10:45	Coffee break
10:45 - 12:00	**Exercise 4**: Pre-processing of data using time series (climatic and hydrology) demo data
12:00 - 13:00	Lunch
13:00 - 14:30	**Exercise 5**: Pre-processing of data using own time series data or **Consultations** of catchment models (In separate room)
14:30 - 14:45	Coffee break
14:45 - 16:15	**Exercise 6**: Implementation of VM using own data or **Consultations** of hydraulic models (In separate room)
16:15 - 17:00	Time for questions and discussion
18:00	Trip to Vistula river

3 DESCRIPTION OF THE COURSE AND PREPARED MATERIALS

Introduction to the workshop included two presentations: Valorization method and water retention indicator characteristics by Dorota Pusłowska-Tyszewska and GIS tools structure and functionality by Ignacy Kardel. On the http://levis-framwat.sggw.pl/ website with the GIS Tool several materials were made available (in the top right section of the website):

- Methodology of Valorisation of Water Retention Needs

- Manual Users input data preparation for GIS Tools

- Example data sample input data for Kamienna catchment

- Exercise 1: Implementation of Valorization Map (VM) for water resource enhancement (general goal)

- Exercise 2: Implementation of VM for flood and draught mitigation

- Exercise 3: Implementation of VM for water protection

- Links to the feedback form and error reports.

- Map of Kamienna for verification of the outputs of the GIS tool

On the second day of the workshop the participants had a chance to try the model on the data from their own pilot catchment.

During the course participants tested the tool version 0.8.5 with an interface depicted below:
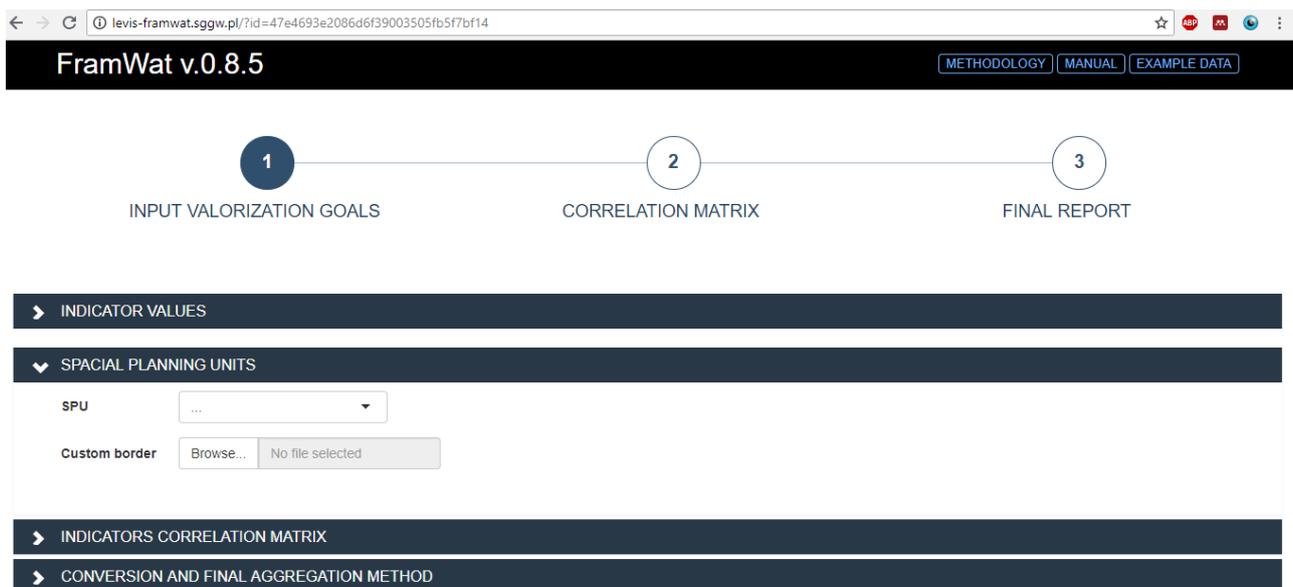
4 DESCRIPTION OF THE E-LEARNING MATERIALS

The e-learning materials were prepared on the WULS- SGGW moodle platform and are publicly available at https://e.sggw.pl/course/view.php?id=1709 . E-learning materials include:

- Video with the introduction to the course

- Video recording of the presentation on "Valorization method and water retention indicator characteristics" by Dorota Pusłowska-Tyszewska

- Video with the GIS Tool tutorial on how to navigate the tool website

- Exercise 1: Implementation of Valorization Map (VM) for water resource enhancement (general goal)

- Exercise 2: Implementation of VM for flood and draught mitigation

- Exercise 3: Implementation of VM for water protection

- Quiz

5 SURVEY RESULTS

During the workshop participants were asked to describe the strengths and weaknesses of the GIS tool. Receiving feedback is the key component that allows for making improvements. A feedback and error survey was prepared with the use of Google forms.

The feedback survey is available here: https://docs.google.com/forms/d/e/1FAIpQLSeYO7Sm5KZJAYSC0g5Nc7x-behu-bG1JUsSNp_Jy3Cv_vJlng/viewform .

The error report survey is available here: https://docs.google.com/forms/d/e/1FAIpQLSdDWY4wMcVmEiQueWfyTyOdISfzUYQ4shhDyy8NkBHFr51wsA/viewform .

Links to the surveys were made available to the participants of the workshop whom were asked to fill it in at the end of the workshops. When filling out the survey most participants worked in groups with their colleagues from the partner organisation or their own country. A total of 5 responses were obtained. Additionally, comments obtained from the participants were added to the workshop feedback survey results which are presented below. Feedback was grouped in regards to topics.

Interface:

1. When you click on the map (on specific SPU), it would be nice if you could see the SPU number and indicator values (class, goal, VM output etc.). Please prepare an Interactive map output with the valorization value for each subbasin : add an option to click on the subbasin to check what number is it, then it would be possible to relate this value to the table with output values also available in the VM output.

2. Add a possibility to include up to 4 indicators provided by the user. It could be lines, polygons or rasters with calculated values of the indicator they would like to include in the assessment. A function will check if the data type is suitable and will run appropriate function to obtain average values for SPU. Then any indicator considered to be important according to the user can be included in the assessment.

3. Add a guide to help to interpret/understand the obtained results of the GIS tool.

4. Change the loading stripe used when uploading data, the current one is very misleading and it is not clear when the upload process is finished.

5. Add error pop-up window (not just the grey screen).

6. Add an option for manual calibration.

7. User friendly interface with example figures, legends and short explanations or guidelines would be helpful.

8. Currently it's not clear what do the different colours in the correlation matrix mean. Insert a legend with colors used in the correlation matrix.

9. Currently it's not clear what is the required format of the input data

10. Currently it's not clear what does the colour intensity of the VM tool output map mean.

11. Add description of stimulating/nonstimulating within the tool, not only in instructions;

12. Goal column in the indicator list is not clear: maybe add also the name of the goal (general, flood, …)

13. Add a histogram of the indicator values so we can make a more informed decision on the number of classes or even add an option to adjust the classes on the basis of the histogram.

14. At the moment the tool does not allow for saving the results (maps) it should be changed. Export of resulting map as shp file (attributes: indicator values) is needed.

15. Indicator values drop tab should fit better between data input tab and correlation matrix tab according to the overall workflow.

Methodology:

1. Add an indicator that represents the meanders and valley slope

2. Bottom sediment should be added as a separate goal

3. Is our indicator flood hazard or flood risk? Why did we choose that specific one?

4. Please explain what is the difference between indices and index?

5. Add economy indicator such as expected flood damage.

6. Consider the issue of cost efficiency of the measures. Cost efficiency usually focuses on the present , but doesn't include the future as the current methods and technology will become out of date in the future and will require an update or growing maintenance costs. In general the lower maintenance cost of the NSWRM the better (Alan and Luka).

7. The theoretical part that would explain why was a specific indicator chosen for the specific purpose (water quality, floods...), is missing. the interaction between the indicators and how they have a role in floods, draughts, etc is not clear.

8. What is the negative correlation that shows in the matrix?

9. It is not clear what's a stimulant and non-stimulant is and why it is important to determine it. Add description of stimulating/nonstimulating within the tool, not only in instructions;

10. Number of classes unclear - when is it best to choose how many? Specify better indicator classes and final results classes: it's not clear that they are different. Emphasize that there is a lot of expert judgment involved eg. in setting classes.

11. More explanation is needed on the purpose and meaning of each step. There are some guidelines that explain the steps, but not their purpose.

12. Importance of weights is not stated clearly

13. Goal column in the indicator list is not clear: maybe add also the name of the goal (general, flood, ...)

14. It would be good to have the possibility to include restrictions (local policies) and constrains (protected areas) to water retention.

15. We still have to discuss the usefulness of the tool, i.e. the feasibility of the results (maps).

Other:

1. Prepare monthly updates on what's going on with the GIS Tool (eg. what functions were added, what was changes or added) and what the partners should prepare or do in regards to it? Maybe in a form of a newsletter?

2. FramWat GIS Tool closed facebook group – access on request. The group is meant for sending updates on the development of the tool. It is a space where people can ask questions or report problems with the tool and then the developers will answer it and other members can learn what problems can occur and how to solve

them. This group needs development or in case of a decision that it adds up to an information chaos it needs to be closed down.

3. Possibility to include existing and planned measures (points shapefile) for verification

4. We are waiting for a proposal for a new / more accurate name for GIS Tools. Ideas so far: Framework for Retention Optimization in GIS (FROG), Retention Location (RetLoc, RetentionLoc), Online Siting for Catchment Water Retention (OSCAR), Retention Location Specification (RetLocSpec), Retention Location Determination (ReLoaD).

5. We need a Concept Plan map for the verification of the GIS Tools outputs.

6. Single file location should be set up so partners can have everything in one place. Add information what goes where (eg. ftp for heavy data, google for documents). A system is needed to organize it.

6 CONCLUSIONS

Organised workshop was beneficial for both the project partners and GIS tool developers. It was a great opportunity for the project partners to learn about the practical aplication of the GIS Tool and about the progress done on preparing it. They had an opportunity to test the tool on their own data. For the developers of the tool it was valuable to receive feedback and error reports. Facing for the first time the future users of the tool and the likely questions and problems they will encounter while using it, gives the developers feedback necessary for improving the tool.