

31-03-2015

1. Basic information

Number and name of the activity	Activity 5.3 Natural small water retention measures
Activity leader (name, organization, email)	Tomasz Okruszko
Duration of the activity	April 2013 – March 2015
Participating partners (name, organization, email)	POLAND: Ignacy Kardel, Waldemar Mioduszewski, Tomasz Okruszko; GWP PL and WULS
	SLOVENIA: Daria Istenič, Anja Potokor; Limnos
	SLOVAKIA: Vladimir Mosný; Hycomp
	HUNGARY: János Fehér, János Tomás, Judit Gáspár; University of Debrece and GWP HU
	Contact: t.okruszko@levis.sggw.pl
Chairman of the CWP	Tomasz Okruszko,GWP PL

2. Contribution to Challenges

Your activity belongs to:

- Operational mode (e.g. next year drought, ongoing multiple-year drought)
- Strategic mode (e.g. future drought, prepared for global change)

Please explain (max 500 characters).

The activity belongs to strategic mode, where we should work on increasing the buffering capacity of the landscape for mitigation of extreme events. Activity describes both: measures (technical and non-technical) as well as state of the art in planning of natural small retention measures in the countries of interest as a part of strategic actions for mitigation or adaptation for the global change.

What is your activity addressing?

- Which of the seven steps described in the Guidelines for Drought Management Plans (act. 2.1)
- monitoring, forecasting / prediction, impacts, vulnerability, measures, management, risk management

Activity addresses mainly measures and to some extends management (planning) steps.

Shortly describe main challenges which you have addressed with your Activity at the international, regional (especially CEE), and national level? How has your Activity contributed to these challenges? (Max 1000 characters)

Natural water retention measures (NWRM) as it is understood in EU stress the importance of green infrastructure as a part of both achieving the good ecological status of European water bodies as well as reducing the risk of floods. In our understanding we have enriched this approach by adding the small hydraulic infrastructure as a proper measure to achieve those goals and moreover adding the task of increasing the robustness of the landscape against the drought events by increasing the landscape water retention. We were also stressing the added value (e.g. ecological) when applying N(S) WRM. Our activity is part of capacity building to meet the challenges i.e. implement N(S)WRM as part of IWRM on the country, CEE and European scale. It is addressed to both: managers (to consider this type of measures) as well as to stakeholders (to look for the opportunities) involved in the RBM planning process.

3. Contribution to Objectives (max 1000 characters)

Were the Activity objectives achieved (see Activity List)? Describe how you have achieved these in qualitative and, if possible, quantitative terms. Are there any, which were not achieved?

Our activity lists consisted of two connected parts writing:

(1) the guidelines NATURAL SMALL WATER RETENTION MEASURES COMBINING DROUGHT MITIGATION, FLOOD PROTECTION AND BIODIVERSITY CONSERVATION enriched by

(2) case studies from the countries involved in the activity.

Both have been achieved.

4. Description of the implementation process and methodologies applied (max 1000 characters)

Describe and explain what actions have been taken to address the challenge(s) mentioned in point 2. What were the key implementation issues of your Activity?

- describe all phases of implementation
- actions taken, instruments used
- information and methodologies applied

• etc.

Have you encountered some problems during the implementation phase? If so, how were they overcome? What problems could not be solved?

Our activity was govern by the detailed plan of actions described in the project proposal and marked by the milestones:

- 1) Preparation of the template for gathering experience
- 2) Practical and legal experience from Poland, Slovakia, Slovenia and Hungary
- 3) Workshop to summarize the experiences and make future planning
- 4) GIS based methodology for the catchment comparison developed in Poland
- 5) Literature search of effectiveness indices for flood protection, drought and biodiversity. Fitting the natural retention measures to IRBMP, FPMP and DMP
- 6) Workshop (or Skype) for choice of the indices which can be used in different landscape setting and climatic conditions under constrained data access
- 7) Development of template and best examples from Poland, Slovakia, Slovenia and Hungary
- 8) Workshop (or Skype) for choice of the best example
- 9) Extended draft of Guidelines ready
- 10) Tuning workshop

FINAL OUTPUT: Guidelines. We have implemented and (with some delays) fulfilled all points. Due to financial constrains (we had planned finances for one workshop only) and practical reasons point 6 was changed to the meeting during IDMP CEE workshop and points 8 & 10, changed for the iterative form of writing where the next version of the guidelines was developed after receiving comments and proposal of changes from all partners. For best examples we held three iterations, for the final version of the guidelines four cycles.

For the quality check except very valuable comments from the programme reviewers we sent the final draft to prof Ilnicki, one of the leading specialists in land reclamation in Poland to get (paid) review. We got very extended review which was a base for the fine-tuning of the guidelines.

During the whole process we were confronted with the lack of native English speaker to improve the language quality. We did some efforts to make the proofread, but we are afraid it may be still a problem. Question of guidelines in national languages has not been overcome yet. Distribution of the guidelines is the main challenge for the implementation phase.

5. Outputs (max 3000 characters)

What are the main outputs of your activity? Please shortly describe each of them (how are they going to be used?))

The activity output consists of the main body of guidelines and the annex (or separate part) with the best examples. As it was suggested the main body of the text does not exceed 70 pages. The chapters' titles follow as they were planned and given in the project proposal. The text includes tables, figures and pictures. Best cases are illustrated by maps, graphs and photos.

- **1.** Introduction Error! Bookmark not defined.
- 1.1. Preliminary remarks Error! Bookmark not defined.
- 1.2. Why do we have to increase water retention of river basins? Error! Bookmark not defined.
- 2. Technical and non-technical measures to increase the water retention Error! Bookmark not defined.



- 2.1. What is natural small water retention? Definitions Error! Bookmark not defined.
- 2.2. The retention on agricultural areas **Error! Bookmark not defined.**
- 2.3. Landscape retention Error! Bookmark not defined.
- 2.4. Technical retention Error! Bookmark not defined.
- 3. How to choose the catchment for the retention measures? Error! Bookmark not defined.
- 3.1. General remarks Error! Bookmark not defined.
- 3.2. The methodology of catchment selection Error! Bookmark not defined.
- 4. How can we evaluate the results in the terms of flood protection, drought

mitigation and biodiversity increase? Error! Bookmark not defined.

4.1. Evaluation of natural small water retention measures Error! Bookmark not defined.

- 4.2. Analytical methods Error! Bookmark not defined.
- 4.3. The best of natural small water retention measures Error! Bookmark not defined.
- 5. How can we incorporate the natural water retention measures in the RBMP,
- **FPMP and DMP?** Error! Bookmark not defined.

6. Experiences and critical analysis from implemented projects in Poland, Slovakia, Hungary, Slovenia including best examples on combined effects and involvement

of stakeholders Error! Bookmark not defined.

7. Conclusions – what is the best action plan Error! Bookmark not defined.

Bibliography Error! Bookmark not defined.

Annex – Case study, the best examples from the region.

6. Added value (max 1000 characters)

Is there any "added value" generated by your Activity? What new (science, practical experience, guidelines or others) was developed by IDMP CEE and how your work is related to earlier knowledge (research, practice) and experiences of the past?

We have further developed the idea of the GIS based analysis for identifying the areas which are most suitable for the NSWRMs. The aim of this analysis was to increase flexibility of the spatial planning (defining of the area, not the certain location) and evaluation of the investments taking into account the environmental needs. This methodology is presented in the chapter 3 of the book.

By using examples we have shown that NSWRM activity can be viewed as single project, regional activity or national program. The evaluation of the measures should be then tuned to the spatial scale of the measures.

7. Lessons learnt and transferability (max 2000 characters)

This section considers how your experience can be used elsewhere.

What are the most important lessons from this Activity that might be useful for other countries and policy level in the preparation and/or implementation of Drought Management Plans?

Lesson learned when preparing the guidelines is a part of conclusion section of the Guidelines:

"Large variety of often small measures for the implementation of which different ministries are responsible (agriculture, municipal economy, natural environment, transportation, etc.) makes the implementation of the idea of NSWRM very difficult. There are examples of the developed plans of small retention that have not been fully implemented. On the other hand, in many countries measures that increase the retention capacity of the catchment area have been implemented but the aim of implementation was to achieve different purpose than improvement of the water balance.

Small retention development programs must be located in the sectorial strategies (plans) of the development of particular areas of the national economy:

- spatial development plans, both local and general;
- River Basin Management Plans (RBMP) (the implementation of the Water Framework Directive), Flood Protection Management Plans (FPMP) and the **Drought Management Plans (DMP)**;
- plans for the Common Agricultural Policy (CAP), particularly in agro-environmental programs;
- strategies for environmental protection (e.g. Natura 2000), with particular emphasis on wetlands;
- plans for modernization of irrigation-drainage systems (if such are developed) in scope of its use of for snowmelt water retention.

It is advisable to develop the Master Plan showing the main lines of action. This plan should include:

• proposals for legislative changes to facilitate the small retention field works (e.g. the simplification of procedures for obtaining permits for the construction of small water reservoirs that capture drainage water);



- necessary range of state aid (technical and organizational) for small investors (farmers), e.g. the development of projects;
- proposals for legislation requiring the inclusion of certain small retention issues in investment projects;
- the size and scope of financial assistance and the conditions for granting depending on the type of measure;
- identification of the institutions responsible for conducting training and information on issues of small retention; this
 refers mainly to the inclusion of water issues to the responsibilities of the institutions responsible for agricultural
 advisory or organization responsible for water management for agriculture use."

8. Proposals for follow-up (max 2000 characters)

In case resources become available in what aspects would you like to continue your activity? Some concrete proposals for the follow-up projects?

There are following activities which may be developed in potential follow-up project:

- 1) Technical guidelines on the N(s)WRM where different measures would get the technical and ecological background and "how to do?" questions would be answered.
- 2) The GIS based analytical tool could be developed toward DSS for the planners.
- 3) Demonstration sites (existing or on-going projects) in the CEE could be developed by adding the hydrological end ecological monitoring and putting them "on-line" for the global audience.
- 4) Analytical study on key quantitative indices for checking the effectiveness of combined N(s)WRM in RBM planning.

9. Annexes

Milestone reports, tables, other data, etc.

- 1. Guidelines and best examples
- 2. Replay to PRG comments