

INTEGRATED APPROACH ON CUMULATIVE EFFECTIVENESS ASSESSMENT

D.T2.5.2 - Regional workshop on how to assess
effectiveness of the NSWRMs

Version 1
06 2019





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Issue	Date	Details	Editor
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WP	WP T2: Effectiveness of the Natural Small Water Retention Measure
Activity	Act. 2.5. Integrated approach on cumulative effectiveness assessment
Activity leader	SWME
Number and name of the deliverable/output	D.T2.5.2 - Regional workshop on how to assess effectiveness of the NSWRRMs
Participating partners	<p>PP1 - Warsaw University of Life Sciences, Warsaw, Poland</p> <p>PP2 - Global Water Partnership CEE, Slovakia</p> <p>PP3 - Slovak Water Management Enterprise, Slovakia</p> <p>PP5 - Middle-Tisza District Water Directorate, Hungary</p> <p>PP6 - Limnos, Slovenia</p> <p>PP7 - Croatian Waters, Croatia</p> <p>PP8 - University of Ljubljana, Slovenia</p> <p>PP9 - WasserCluster Lunz - biologische Station GmbH, Austria</p> <p>AP12 - Ministry of Environment of the Slovak Republic</p> <p>AP13 - Hungarian Chamber of Agriculture</p> <p>AP14 - Slovenian Water Agency</p> <p>AP15 - Regional Water Board Warsaw - Polish Water</p>
Type of the deliverable/output (analysis, report, guideline, workshop, brochure, etc.)	workshop
Purpose of the deliverable/output	to summarise experiences with testing the developed methodologies and/or tools on how to assess effectiveness of NSWRRMs, and to share experiences gained across CE regions during National trainings on how to assess effectiveness of NSWRRMs organized by PPs, to collect recommendations for further improvement/development of methodologies and/or tools
Connection with other deliverables	D.T2.1.1, D.T2.2.1, D.T2.2.2, D.T2.3.1, D.T2.3.2, D.T2.4.1, D.T2.4.2, D.T2.5.1, D.T2.5.3
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1. INTRODUCTION

Main scope of the workshop was to present developed methodologies and/or tools to assess the effectiveness of measures and to share and exchange the experiences with application or testing them in pilot catchments. Further to discuss regional experiences gained during National trainings on how to assess effectiveness on the NSWRMs and other consultations held in PPs countries with different kinds of stakeholders with the aim to discuss with them mainly the Static method to assess the effectiveness and particular tool (A.T2.2), the Dynamic method to assess the effectiveness and particular tool (A.T2.4), Concept plan compilations (A.T2.3). Objectives of the regional workshop were to discuss:

- indicators and values for assessing effectiveness
- creation of input data for static and dynamic tools
- to exchange experiences from Concept Plans compilation
- the Static method to assess the effectiveness and particular tool
- the Dynamic method to assess effectiveness and particular tools
- experiences from national trainings, consultations with stakeholders on developed methodologies and tools
- comments, necessary improvements and/or simplifications

The Regional workshop was held on May 22nd, 2019 at Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen. It was hosted by Slovak Water Management Enterprise and Global Water Partnership-Central-Eastern Europe. At the workshop have attended all eight project partners Warsaw University of Life Sciences, Poland, Global Water Partnership CEE, Slovakia, Slovak Watermanagement Enterprise, Slovakia, Middle-Tisza District Water Directorate, Hungary, Limnos, Slovenia, Croatian Waters, Croatia, University of Ljubljana, Slovenia and WasserCluster Lunz - biologische Station GmbH, Austria, and four of six associated partners, namely Regional Water Board Warszaw - Polish Water, Ministry of Environment of the Slovak Republic, Hungarian Chamber of Agriculture, Slovenian Water Agency.



2. INVITATION PROCESS AND AGENDA

Regarding the preparatory process of Regional workshop on how to assess effectiveness of the NSWRMs firstly the doodle survey to set-up the most suitable dates was organized Global Water Partnership-Central and Eastern Europe (GWP-CEE) and Slovak Water Management Enterprise (SWME) team among PPs. Final registration for the Regional workshop and other back-to-back FramWat events organized in May 2019 was performed via smart survey too. Primary information on scope and venue commonly with detailed logistical information were prepared by GWP-CEE and SWME team and distributed among PPs. Invitation and agenda were distributed to PPs too.

GWP-CEE has arranged lunch and coffee brake, which were provided during the Regional workshop within the premises of Technical University of Zvolen, SWME has arranged the workshop room with minimum of 15 available computers and access to internet. The accommodation and travel arrangements to Zvolen were ensured by participants themselves. The Regional workshop lasted for a half day in the afternoon and started with a Field trip to Slaná river basin and particular Blh pilot sub-catchment in the morning, finished with a common dinner.



AGENDA

Regional workshop on how to assess effectiveness of the NSWRMs FramWat - Framework for improving water balance and nutrient mitigation by applying small water retention measures

Slovakia , 22 May 2019, 15:00-19:10

Zvolen, Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen

15:00	15:10	Welcome
15:10	15:25	Existing indicators and values for assessing effectiveness + Multi-criteria analysis (SWE)
15:25	15:40	Example how create input data (scenarios/concept plan) to static and dynamic tools (WULS)
15:40	16:10	Static method for assess of effectiveness + Kamienna example (WULS)
16:10	17:25	Experience from Concept Plans and testing static tool in the Pilot Catchments - 5x15 min (SWE, MTDWD, UL, CV, WCL)
17:25	17:40	Coffee break
17:40	18:15	Dynamic method for assess of effectiveness + Kamienna example (WULS)
18:15	19:00	Dynamic tool – example from Slovenia (UL)
19:00	19:10	Discussion

3. DESCRIPTION OF REGIONAL WORKSHOP

Workshop was held in the form of presentations for particular issue defined in the agenda accompanied by an example and/or experience with implementation in pilot catchments provided by PPs. Further discussion on comments and recommendations gained during national trainings and consultations was held. Each PP has shared some gained knowledge.



After presentations within each thematic block there was a general discussion conducted by Tomasz Okruszko. PPs have discussed their experiences with understanding, usability, etc. of developed methodologies and/or tools on effectiveness assessment gained during national trainings and other consultation actions held in PPs countries/pilot catchments.

Main points of presentations, contributions from PPs and/or discussions are summarized in the following text.

- Presentation of indicators and values to assess effectiveness and potential MCA was held by SWME.

Static method on effectiveness assessment should consist of steps:

- preparation of the regional catalogue of measures/activities
- analysis of the effect of individual measures on the indicators used in the valorisation method
- assessment of the interrelation between the intensity of activities and their effect on the results of valorisation
- evaluation of the effects of the proposed Concept plan/Program of measures

After the review of existing indicators/parameters and values for all relevant measures (D.T2.1.1) representing effects of measures for particular goals (flood, drought, water quality, sediments) it was recognized among PPs that there exist quite a huge lack of concrete values. So alternative approach was chosen to address effects of all relevant measures. For some of individual NSWRMs which have the same expected impact, aggregation is proposed (WRAL, BPDA, BPRC, etc.). Intensities of particular measures should be defined based on consultation with national experts (in the field of hydrology, forestry, agriculture, ...) with the aim to differentiate geomorphological specifics of CE regions. Static method on effectiveness assessment is expected to be applied for different combinations of measures proposed within Concept plans compilations (variants of Concept plans, CP).

Dynamic modelling is more targeted tool to represent effectiveness of concrete measures, but only effect of some of measure can be modelled (hydraulic structures, etc.). It is necessary to have data and empirical values to calibrate models for each particular problem to be solved/modelled in the catchment.

Multicriteria analyses (MCA) should server to select the best variant of Concept plan/Programme of measures. Criteria to be taken into account as costs, hydrology, quality effects, etc. were discussed among PPs. So far were analysed and recommended as to be used following MCA methods:



- ranking method (RM) is used if ordinal information about the decision makers' preferences on the importance of criteria/indicator is available)
- analytical hierarchy process (AHP) is used to solve complex decision-making situations/problems by structuring them into a hierarchical framework. The AHP procedure is employed for rating/ranking a set of alternatives or for the selection of the best in a set of alternatives. Ranking is done with respect to an overall goal, which should be broken down into a set of criteria as objectives, attributes
- Presentation on how to prepare data for static and dynamic tools and example for Kamienna catchment was presented by WULS.

For Static method all NSWORMs as vector data are necessary with specification of their expected extent (length, area, volume) depending on type of NSWORM. For Dynamic method, all NSWORMs as vector data are necessary too, but the other characteristics should be detailed enough for dynamic model set-up (type, depth, width, height of NSWORM, reservoir characteristics, cross-section change, etc.). Some general rules for assessment of effect were presented as that local effectiveness of NSWORM should be analysed on place of NSWORM, catchment effectiveness of NSWORM should be analysed on the river or outlet from sub-basin.

The main scope of Static method is to assess the improvement of valorization results (FroGIS results) within particular SPUs.

- The approach on Static method to assess effectiveness of NSWORM and example for the Kamienna pilot catchment was presented by WULS.

The Static method is proposed as “expert knowledge process tool” and not “process based tool”. Concept of the method is based on the type of NSWORM and its intensity (low, medium, max). This means that e.g. the water reservoirs water retention efficiency is higher than buffers water retention efficiency. Based on these fact, the national experts can defined local relevant intensities values for particular sub-catchments.

PPs have discussed that these approach is right, welcomed and understood among stakeholders too, but it is not easy to define own intensities values without expert knowledge. These should be reflected in the Static tool. PPs have discussed that using dynamic modelling is much more accurate, but not feasible to apply for all NSWORMs within the catchment.

- Experiences from Concept plan compilation and testing static tool in pilot catchments were presented by each of PPs.

In general, it can be assumed that Concept plan compilation consist of main steps as follows:

- Problem identification and valorization in catchment



- Review of planned measures (catalogue of measures)
- Stakeholder inputs (experts)
- Local authorities inputs (local scale)
- Selection of NSWRM for evaluation of effectiveness
- Final concept plan

For effective use of proposed CPs in the next steps of FramWat NSWRM approach (effectiveness assessment of NSWRM), it is necessary to verify all measures proposed in CP variants in the field. The scales of CP variants compilations, gathering the data on NSWRM (micro - SPU/sub-catchment, mezzo - catchment, macro - river basin scale), contacting particular stakeholders were discussed among PPs, the most precise scale needs the most precise data on proposed NSWRM. The assessment of potential effect of NSWRM on the catchment, sub-catchment or SPUs scale was discussed too.

The partners presented their experiences with CP compilation and have highlighted some issues:

HU - the Expert variant measures were identified based on knowledge from the field (e.g. buffer strips were proposed along canals where no buffers strips exist), local stakeholders have identified new types of NSWRM for CP.

SI - the consultation with local municipalities was held, CP is proposed in two scales - on micro and macro scale.

AT - CP and Static tool testing for own defined low, medium, max. intensities for individual and aggregated NSWRM. Static method applied for 21 SPUs. A Static method offers a lot of space for decision of user and this is not good (NSWRM combinations, intensities, etc.), the method should be more standardized and binding. CP variants (baseline scenario, threshold scenario, expert variant) are based on SWAT, HecRAS and Habitat model for Freshwater Pearl Mussel inputs. NSWRM proposed by stakeholders are to less and anyway without effect on catchment.

HR - CP based on strategic document content and NSWRM further verified in the field, partial Static method testing realized.

SK - CP Expert variant based on strategic document content and GIS analyses performed (e.g. slopes of land, etc.), for Local preferences variant web application proposed, local stakeholders contacted. Static method checked, but definition of intensities for local conditions will be challenge.

PPs agreed in general that rules on how to interpret the results of Static method to assess effectiveness should be add. It was assumed by PPs that Concept plans in general are good starting point to propose NSWRM in the catchment and to start communication with stakeholders. Close



cooperation with stakeholders helps to identify both, concrete local measures or to identify the problem in the concrete locality. So it is a good planning instrument. A web application (for NSWRM planning) is helpful tool to engage more stakeholders which will otherwise not participate at any physical mtg.

- The approach on Dynamic method to assess effectiveness of NSWRM and example for the Kamienna pilot catchment was presented by WULS.

Within the Kamienna pilot catchment the set of scenarios for flood hazard (flood depth, flood extent) and drought hazard (drought deficit, duration of drought deficit) were defined, for these scenarios the set of NSWRMs and particular indicators were defined.

Within the bloc on dynamic modelling an example from SI for special SI dynamic tool was presented by UL. It is a tool to facilitate communication with stakeholders, name “integration tool” (multistakeholder, expert based tool). Measures are defined on micro and macro scale. 2D model is integrated in the tool showing e.g. flood extent. Measures are incorporated as existing measures and planned measures too.

The discussion on dynamic effectiveness assessment was held among PPs mainly on understanding the meaning of “dynamic tool”. And PPs have discussed the appropriateness of particular NSWRMs to be evaluated via Static or Dynamic method to assess effectiveness of NSWRMs.

4. REPORTED EXPERIENCES, COMMENTS

During the Regional workshop participants were asked to comment on issues and share their experiences with stakeholders on the above mentioned issues. Following points and comments and/or proposals for improvements/fixing were highlighted:

- Are NSWRMs of local or national importance?
- After the review of available indicators/parameters values for all relevant measures (D.T2.1.1) representing effects of measures for particular goals (flood, drought, water quality, sediments) it was recognized among PPs that there exist quite a huge lack of concrete values.
- In mountainous areas the valorization tools are less relevant because of slope (PL).
- Dynamic modelling is more targeted tool to represent effectiveness of concrete measures, but only effect of some of measure can be modelled.
- Costs is not a good criteria to be used in MCA, MCA should be based on qualitative data (SI).



- CP is good tool serving for initial design of measures/ideas on a catchment scale (planning process), and good base to start communication or involvement of stakeholders.
- A web application (for NSWRM planning) is helpful tool to engage more stakeholders which will otherwise not participate at any physical mtg (SK).
- Static method to assess effectiveness and particular tool is a good tool for fast effectiveness assessment and to plan further steps in NSWRM design. The purpose of the Static Tool is to enable the estimation of the effects of Program of retention measures implementation in a simplified way without time-consuming and costly set up of detailed model.
- A lot of space for decision of user is not good (NSWRMs combinations, intensities, etc.), the Static method should be more standardized and binding (AT).
- Necessary to add the instruction on how to interpret the results of Static method to assess effectiveness.
- Stakeholders in general needs to use simple tools, only experienced stakeholders (experts or academic sector) are able to use more sophisticated tools (as dynamic modelling - model set-up, detailed model of the analyzed catchment).
- Catchment scale impacts of NSWRMs are not visible (AT).
- Background documents should be prepared in national languages, then the communication with local stakeholders is much more easier and sustainability of deliverables/outputs will be assured. Necessary to organize more mtgs with the same set of stakeholders (already invited to previous actions), as to explain the same issue from beginning takes lot of time.

5. CONCLUSION, RECOMMENDATION



After blocks of presentations and discussions Mr. Tomasz Okruszko, project manager, has shortly summarized all of the discussed issues. The Regional workshop gave PPs the opportunity to discuss their experiences with testing the developed methodologies and/or tools and to share experiences gained in the CE regions via organization of National trainings on how to assess effectiveness and other national consultations. PPs can consult problems they have faced during the testing.

All comments and recommendations which were assumed by PPs as relevant will be incorporated into the updates or simplifications of developed methodologies and tools (e.g. new version of Static method to assess effectiveness of NSWRMs), and will be reflected also in the deliverable D.T2.5.3 Manual on how to assess effectiveness of the system of measures (EAM).



6. PARTICIPANT LIST



FramWat				
Regional workshop on how to assess effectiveness of the NSWRMs				
Date: 22 May 2019 Time: 14:00 – 19:00 Venue: Zvolen, Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen				
List of Participants				
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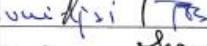
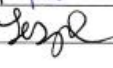



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Date: 22.05.2019
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7. PHOTOS



