


TAKING COOPERATION FORWARD

 Final Conference
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Concept of TEACHER-CE

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STARTING POINT

„Capitalisation through cooperation: An experimental call to take promising results forward“

- Capitalizing results by exploiting synergies between projects
- Tasks:
 - build on complementing results
 - roll out of promising outputs & results at the regional and local level
 - improved policy making



Interreg Central Europe programme;
<https://www.interreg-central.eu/>



STARTING POINT



Flooding



Heavy rain



Drought



Groundwater recharge



STARTING POINT



Heavy rain related risks

RAINMAN toolbox, especially guidance on heavy rain risk assessment and mapping and heavy rain risk mitigation measures



Flood and drought mitigation

FroGis and DSS (FramWat) tools - used for better assessments of retention needs in wider catchments



Climate change (CC) and forest management

Forest CC vulnerability assessment tool and seed transfer models



Climate change and (drinking) water resources management

Drinking water sources protection with interaction to floods and CC - GOWARE toolbox and strategy development



APPROACH



Joining forces



1. Analysis of interlinkages and synergies
2. Screening of climate robustness of tools and assessing the CC impacts

Joint concept for



TAKING COOPERATION FORWARD

IDENTIFYING THE SYNERGIES

Synopsis and interlinkages of selected projects and tools

Evaluation of tools		FramWat	PROLINE-CE	SUSTREE	RAINMAN	DrDanube - Drought Risk in the Danube Region	LUMAT	H2020 Fairway	CSS Disaster Risk Reduction Sectoral Information System	CSS Soil Erosion Demo Case	LIFE-KAMPINOS	LIFE Local Adapt (LLA)	JOINTISZA
Aspects		DSS	GOWARE	SusSelect	RAINMAN-Toolbox	Programme	LUMAT	NCA	CSS Disaster Risk Reducer	CSS Open User Tool Demo		Local actors and knowledge transfer	
Impacts of climate change addressed (Risks of extreme events, CC-impacts on different sectors)													
River floods / fluvial		0	0	0	0	0	0	0	0	0	0	0	X
Heavy rain / pluvial		0	0	0	X	0	0	0	X	0	0	0	X
Droughts		0	0	X	0	X	0	0	0	0	0	0	X
Wind / Storms		0	0	0	0	0	0	0	0	0	0	0	X
CC-impacts on water supply		0	0	0	0	X	0	0	0	0	0	0	0
CC-impacts on agriculture		0	0	X	0	0	0	0	0	0	0	0	0
CC-impacts on forests		0	0	0	0	0	0	0	0	0	0	0	0
CC-impacts on soil		0	0	0	0	0	X	0	0	0	X	0	0
Targeted sectors													
Water management		X	X	0	X	X	0	X	0	0	0	X	X
Spatial planning (general)		X	0	0	0	0	0	0	0	0	0	X	X
Urban development / planning		0	0	0	0	0	X	0	X	0	0	X	X
Forestry		0	X	X	0	0	0	0	0	0	0	0	X
Land-use management		0	X	X	0	0	X	0	X	X	0	X	X
Agriculture		0	X	0	0	X	0	X	0	0	0	0	X
Economy, infrastructure comp.		0	0	0	0	0	0	0	0	0	0	0	X
Drinking water supply		0	X	0	0	0	0	X	0	0	0	X	X
Environmental planning		0	0	0	0	0	X	0	0	0	0	X	X
Emergency management /response		0	0	0	0	0	0	0	0	0	0	0	X
Meteorology / Atmospheric sc.		0	0	X	0	X	0	0	X	X	0	0	0
Early warning		0	0	0	0	X	0	0	0	0	0	0	X
Target group levels and expert level													
Municipality / local actors		0	0	X	X	X	X	X	X	X	X	X	X
Regional administration/factors		X	X	0	0	X	0	0	X	0	0	X	X
Experts / research		0	0	X	0	0	0	0	0	0	0	0	X
Politicians / decision makers		X	X	X	0	X	0	0	0	0	0	0	X
Private persons / public		0	0	X	0	0	0	X	X	0	0	X	X
Students / education		0	0	0	0	X	0	0	0	0	0	0	0
Focus of the tool													
Hazard & Risk assessment		0	0	X	0	X	0	0	X	X	0	0	X
Impact assessment		0	0	X	0	X	0	0	0	0	0	0	X
Vulnerability assessment		0	0	X	0	X	0	0	0	0	0	0	X
Climate change impacts		0	0	X	0	X	X	0	X	X	0	0	X
Climate proofing of measures		?	0	0	0	0	0	0	0	0	0	0	X
Monitoring progress		0	0	0	0	0	0	X	0	0	0	0	X
Risk mitigation measures		0	0	X	X	0	0	0	0	0	0	0	X
(Risk) communication		0	0	0	X	X	0	0	0	0	0	0	X
Prioritisation / decision support		X	X	X	0	X	0	0	0	0	0	0	X
Spatial application area, characteristics													
Urban / built environment		0	0	0	X	0	X	0	X	X	0	0	X

Evaluation matrix

→ Result: Interlinkages of selected projects and starting point for the toolbox concept



Aspects that were evaluated for each tool/project:

Aspect	Examples
Impacts of climate change addressed	droughts, heavy rain events
Targeted sectors	water management, forestry
Target group levels and expert level	local actors, policy makers
Focus of the tool	hazard and risk assessment, risk mitigation measures
Spatial application area, characteristics	urban/built environment, rural/forest areas
Spatial scope	local/municipal level, river basin level
Technical outline/aspects of the tool	web-application/online-info, decision support tool
Stakeholder interaction	information of stakeholders, exchange
Link to EU legislation	Water framework directive, floods directive, drinking water directive



IDENTIFYING THE SYNERGIES

Assessment of the category “focus of the tools”

Aspects	4 selected CE	other selected	Legend
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Assessment of the category “spatial scope”

Aspects	4 selected CE	other selected	Legend
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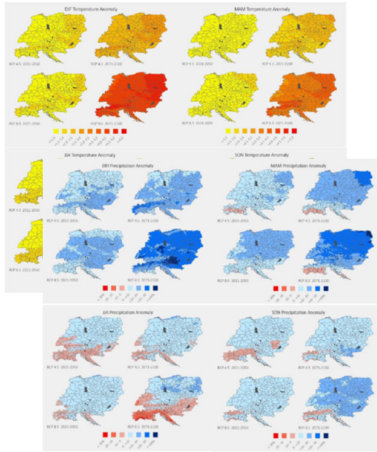
Assessment of the category “technical outline/aspects of the tool”

Aspects	4 selected CE projects	other selected EU projects	Legend
It is a web-application / online-info	3*X / 0*O	6*X / 0*O	just O
It is/includes a guidebook/-line	0*X / 2*O	4*X / 1*O	= 1 or 2 X
It is a checklist	0*X / 0*O	0*X / 0*O	= 3 X
It is a decision support tool	3*X / 1*O	3*X / 1*O	> 3 X
It produces maps	2*X / 1*O	5*X / 0*O	
It includes hydraulic modelling	0*X / 1*O	1*X / 0*O	
It includes hydrologic modelling	0*X / 1*O	1*X / 1*O	
It includes climate modelling	1*X / 1*O	3*X / 0*O	
It includes games	0*X / 1*O	0*X / 0*O	

X = focus of project

O = minor aspect of project





Impact on	Impact (description)	CC trend Examples of affected regions in CE/ TEACHER-CE PAs
Groundwater recharge and water table	<ul style="list-style-type: none"> Increase in groundwater recharge Rising groundwater levels; increasing risk of waterlogging for agricultural, forestry land and built structures (only one of many factors influencing waterlogging) 	<ul style="list-style-type: none"> Increase of precipitation in winter Sandy soils are especially prone to nitrate leaching
Raw water availability/ quantity and quality	<ul style="list-style-type: none"> Increased scarcity of drinking water resources and overuse Challenges in terms of security of public water supply Increased competition with increased irrigation needs for agricultural land, parks, gardens, sports grounds etc. (groundwater abstraction) leading to declining ground water levels 	<ul style="list-style-type: none"> Higher temperatures, prolonged drought and heat, decrease of precipitation in summer PAs 4, 5, 6, 7
Raw water from groundwater and spring water	<ul style="list-style-type: none"> Irrigation influencing groundwater quality: fertilisation, nutrients (input) with indirect impact on drinking water supply by potentially rising nitrate levels in wells 	<ul style="list-style-type: none"> Higher temperatures, prolonged drought and heat, decrease of precipitation in summer PAs 1, 2, 5, 6, 7
Raw water from bank filtrate and watercourses	<ul style="list-style-type: none"> Low water of watercourses have an effect on elevated concentrations of substances and may impact water quality. Withdrawal might be restricted during persisting low water levels Increased probability of waterborne or water-transmitted pathogens entering water bodies and of other substances and pollutants posing risk to drinking water extraction and quality; high water: increased flooding of facilities with potential pollution and impact on water quality 	<ul style="list-style-type: none"> Higher temperatures, prolonged drought and heat, decrease of precipitation in summer PAs 1, 5, 8
Raw water from drinking-water dams and lakes	<ul style="list-style-type: none"> Increased pressure to draw falling water levels intensified by increasing droughts Increasing technical problems with low inlet pressure Increasing negative impact on water quality with low water tables Changes of the ecosystems by shifts in circulation and stagnation periods due to elevated temperatures accelerated biological and chemical processes Increasing demand on storage and buffering function with increasing variability of precipitation and temperature; if priority is given to cope with flood prevention, storage volume for drinking water might be constrained Increased impact on water quality by introduction of substances (e.g. micro organisms) with surface run off 	<ul style="list-style-type: none"> Higher temperatures, prolonged drought and heat, decrease of precipitation in summer Heavy rainfall: increase in intensity and frequency and increase of frequency, height and duration of high-water events PA 9

CC trend	CC impacts regarding water	Pilot actions potentially prone to impacts								
		1	2	3	4	5	6	7	8	9
Higher temperatures	<ul style="list-style-type: none"> Higher water temperatures Increased evapotranspiration Prolonged vegetation periods Increased dry periods, frequency and duration of droughts Increase of incidents of low water Higher water demand Increase of transmission of invasive species 									
Changing precipitation patterns/ seasonal shift in precipitation amounts: increased winter precipitation (rather rain than snow)	<ul style="list-style-type: none"> Increase of frequency, height and duration of high-water events Fluctuation of groundwater table Rising water table 									
Changing precipitation patterns/ seasonal shift in precipitation amounts: decreased precipitation in summer	<ul style="list-style-type: none"> Increasing dry periods, frequency and duration of drought Increase of incidents of low water Higher water demand Increase of nutrients input in groundwater 									
Heavy rainfall - increase in intensity and frequency (small scale)	<ul style="list-style-type: none"> Increase in flood runoff Increase of erosion Increase of nutrients input Increase of frequency, height and duration of high-water event 									

Analysis of climate change data



Assessment of sectoral / cross-sectoral impacts



Analysis of CC trends and impacts in TEACHER-CE pilot actions

→ Result: Overview on the CC related water management challenges that the TEACHER Toolbox needs to tackle



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IDENTIFICATION OF FIELDS OF ACTION

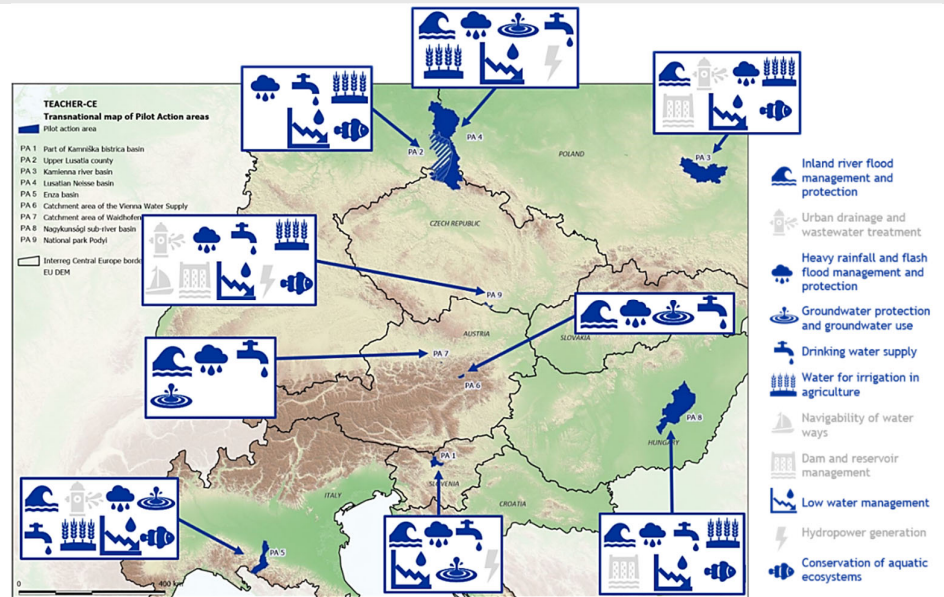
7 fields of action were identified

to be exploited in the TEACHER-CE Toolbox

	Agriculture	Forest	All land uses (general water management)	Urban	Wetland	River training and erosion control structures
Fluvial flood risk management	→					
Pluvial flood risk management	→					
Irrigation water management	→					
Drinking water supply management	→					
Water scarcity and drought management	→					
Groundwater management	→					
Management of waterdependent ecosystems	→					



Fields of action are represented in the Pilot Actions



Different perspectives and backgrounds were collected in Stakeholder Workshops



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„Capitalisation through cooperation: [...] take promising results forward“

→ Guiding principle for the approach

All reports are available under
www.interreg-central.eu/TEACHER-CE



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Thank you for your attention!



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