PILOT ACTION KAMIENNA

OUTPUT O.T3.5

WORK PACKAGE T3 - IMPLEMENTATION AND FEEDBACK - TOOLBOX VERIFICATION

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Table of Contents

1. Introduction

Testing of the Toolbox beta version by project partners (PPs) in pilot actions (PAs) will provide:

- documented learning experience, where PPs from different countries and disciplines will verify the Toolbox applicability and
- an important communication tool where project results will enable important outreach and key post-project capitalization leverage supporting bottom-up participatory principles in water management planning processes, generally drafted by the Common Implementation Strategy for the Water Framework Directive (WFD CIS No.11).

The Toolbox will also be tested by stakeholders during training workshops and in the post-training implementation phase, when strategies will be discussed. These stakeholder interactions will enable clarification of needs and provide recommendations for Toolbox improvements (bottom-up approach) and for direct local and regional implementation of the Toolbox.

The purpose of specific output is testing of the toolbox CC-ARP-CE in order to mitigate the effects of drought and flood including problems with the increase of sediment and biogenic pollution. In particular, we will focus on flood, drought and bad ecological status of surface water issues.

2. Basic data about pilot action

The Kamienna catchment is located in the south-central Poland (Fig. 1). It occupies 2020 km2 and has a highland part in the west and south-west and a lowland part in the east. Thus, it is quite representative for the Polish landscape, also in terms of climate (mean annual temperature and precipitation are similar to the country mean). The Tab. 1 provides more detailed catchment characteristics.

Tab. 1 Characteristic of Kamienna catchment

Characteristic	Unit	Value
Character of catchment		Lowland/piedmont
Catchment size:	km2	2020
Average flow low/avg/high*	m3/s	2.9/8.3/40
Extreme flow low/high*	m3/s	0.07/113
Annual precipitation low/avg/high*	mm	420/640/920
Annual air temperature min/avg/max*	°C	03.06.2012
Agriculture area	%	54.2
Urban area	%	15.6
Forest area	%	29.6
Open Water area	%	0.6
Flooded area (1/100 years)	km2	55.6
Artificial drainage area	km2	59.2
Ecological status no good/bad	water body	2/11
Major problems to achieve good ecological status		Phitoplancton, Phytobenthos, Macrophytes, BOD5,PO4, Norganic

* From multiannual statistic 1951-2013

2.1. Geographical description

Kamienna catchment is located in the water region of Central Vistula. The main river in the basin is the Kamienna River, a left-bank tributary of the Vistula. The source of the river is located at the boarder of the Masovian and Świętokrzyskie provinces close to Borki village (Chlewiska municipality, Szydłowiec County). The river is 156 km long and runs from west to east predominantly through the Świętokrzyskie Province.

Analysed catchment is located within the borders of seven counties: szydłowiecki, lipski, kielecki, konecki, starachowicki, ostrowiecki, opatowski and the catchment area is 2020 km2.

The Kamienna river catchment subject to the Regional Water Management Authority (RWMA) in Warsaw, which is an associated partner in the project.

Fig. 1 Location of Kamienna catchment in Poland

2.2. Climate characteristics

The pilot catchment is located in a continental climate, and it is characterized by average water deficit of precipitation -160 mm as shown in Fig. 2. This map shows the annual climatic water balance compiled on the 1986-2015 monthly data (http://www.climatologylab.org/terraclimate.html) as the difference between precipitation (P) and potential evapotranspiration (PET). Based on the data the average annual temperature was approximately 6 ° C in upper Kamienna catchment and 7 ° C in the lower. The average annual rainfall in the upper catchment ranges from 650 mm to 550 mm and in the lower course from 600 mm to 500 mm.

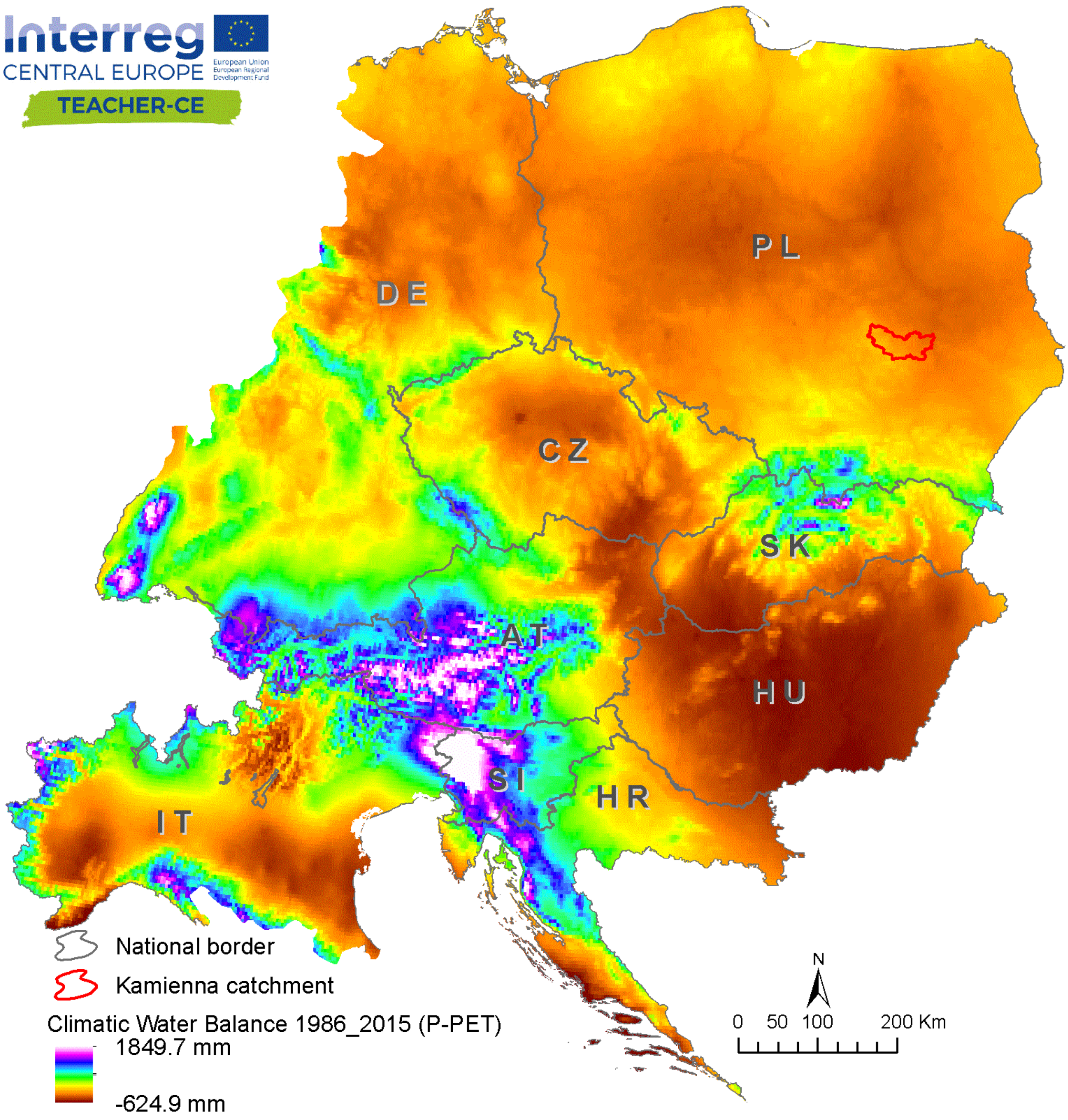

Fig. 2 Annual Climatic Water Balance (on the basis of Monthly climate for global terrestrial surfaces 1958-2015)

The analysis of climate change was carried out on the website http://climateimpacy.sggw.pl in the lower section of the Kamienna River flowing through the town of Ostrowiec Świętokrzyski for a projection based on the RCP8.5 global scenario of CO2 changes, dynamic downscaling and near (nf) and far (ff) future. Changes in meteorological conditions will have an increasing tendency as shown in Tab. 2. These changes will have a drastic effect on surface runoff (-39% in Spring and 92% in Winter) and surface water flow (56% in Winter) as shown in Tab. 3.

Tab. 2 Changes of meteorological condition for Kamienna catchment (measure in Ostrowiec Świętokrzyski)

Parameters	**Actual 1970-2000**	**Changes**	
		Near future 2020-2050	**Far Future 2070-2100**
Annual min. air temperature	3,57 °C	+1,54 °C	+3,72 °C
Annual max. air temperature	12,23 °C	+1,17 °C	+3,43 °C
Annual sum of precipitation	647,6 mm	+6,22 %	+17,20 %

Tab. 3 Change of hydrology condition for Kamienna catchment (measure in Ostrowiec Świętokrzyski) for RCP8.5

Parameters	Near future [increase %] 2020-2050					Far future [increase %] 2070-2010				
	Spring	Summer	Autumn	Winter	Annual	Spring	Summer	Autumn	Winter	Annual
Surface runoff	-39,24	43,09	5,26	92,15	-1,15	-51,17	67,19	186,31	103,14	18,72
Actual evapotranspiration	12,27	0,69	0,31	10,89	3,65	27,53	2,29	-15,49	50,66	9,20
Low flow	37,2	28,1	22,4	27,0	30,0	134,5	68,0	52,7	145,5	77,6
Average flow	16,9	24,5	20,2	55,9	30,7	40,2	35,6	47,6	108,2	60,6
Hight flow	9,8	19,2	19,1	46,2	18,5	15,4	31,4	49,9	72,6	37,2

2.3. Hydrology

2.3.1. Surface waters

The Kamienna river in central Poland belonging to the Central Lesser Poland hydrological region, left-bank tributary of the Vistula. The source of the Kamienna River is located near the marsh in Antoniów (Szydłowiecki county, Mazowieckie voivodship) and the estuary near Kępa Piotrowińska (Lipski county, Masovian voivodeship). The Kamienna river is 156 km long and the average discharge in the estuary area is approximately 10 m^3/s. Characteristic discharge of the Kamienna is shown in Tab. 4.

Main tributaries of Kamienna: Świślina, Kobylanka, Młynówka, Wolanka, Modła. The largest tributary of Kamienna is Świślina. There are three main retention reservoirs on Kamienna (Wąchocki, Starachowice – Pasternik and Brody Iłżeckie). Moreover, the Wióry reservoir is located on the Świślina river. The main watercourses and reservoirs are shown on the Fig. 3.

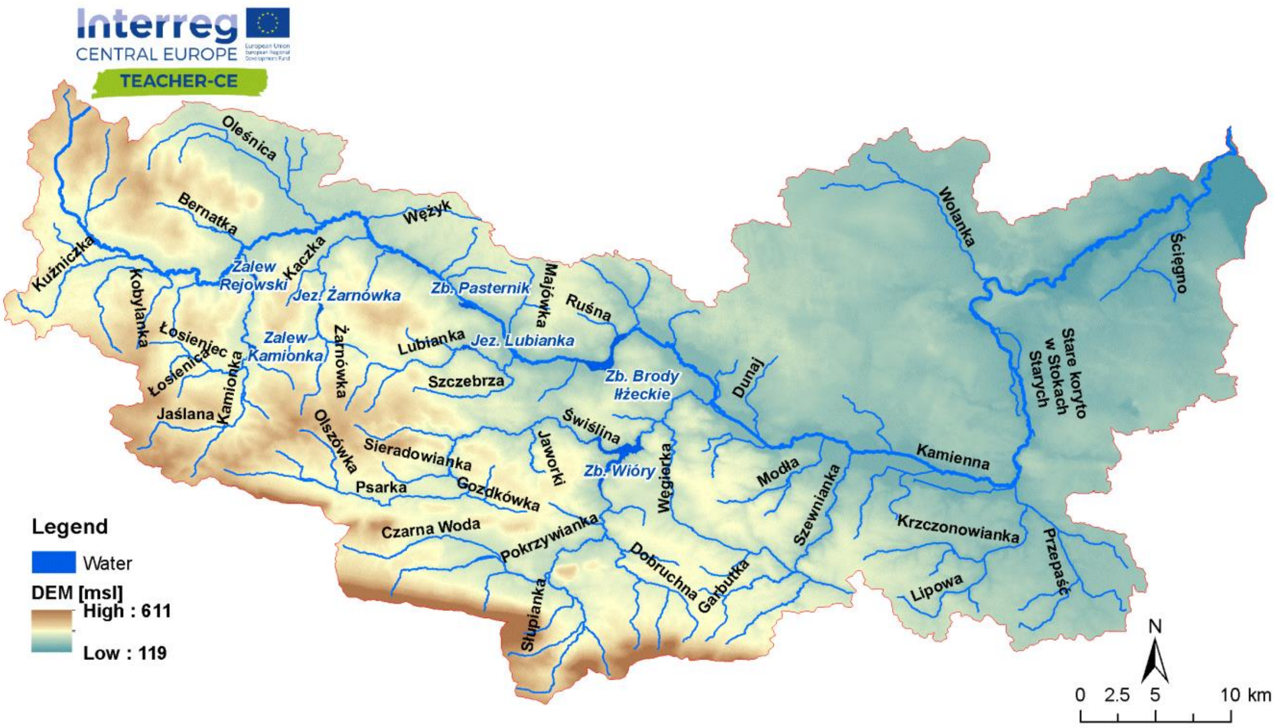

Fig. 3 Surface waters of the Kamienna catchment.

Tab. 4 Characteristic discharge [m^3/s] of the Kamienna for subsequent water gauges

Water gauge	Kilometers	Low			Average	High		
		LLQ	MQ	MLQ	MMQ	LHQ	HQ	HHQ
BZIN	111.6	0.07	1.0	0.4	1.8	27	4	94
WĄCHOCK	96	0.14	1.5	0.7	3.0	35	5	117
MICHAŁÓW	85.7	0.12	1.8	1.1	3.6	40	7	141
BRODY IŁŻECKIE	76.2	0.50	1.8	1.1	3.9	37	6	154
CZEKARZEWICE	14.7	1.38	5.1	2.9	8.3	40	12	113

2.3.2. Flooding

The flood risk analysis was based on flood risk maps developed during the ISOK project in 2013 and available on the Hydroportal - ISOK. The flooding extend is presented for the probability of occurrence once every 10, 100 and 500 years. As shown in Fig. 4, floods occur practically along the entire length of the Kamienna River, omitting its source section. Agricultural lands located in the lower part of the basin, especially at its outlet to the Vistula river are under the highest threat. The urban areas of Skarżyszko Kamienna, Starachowice and Ostrowiec Świętokrzyski are slightly threatened. According to the maps of the hydrologic soil group Fig. 5, most of them are very high (21%) and high (66%) permeability.

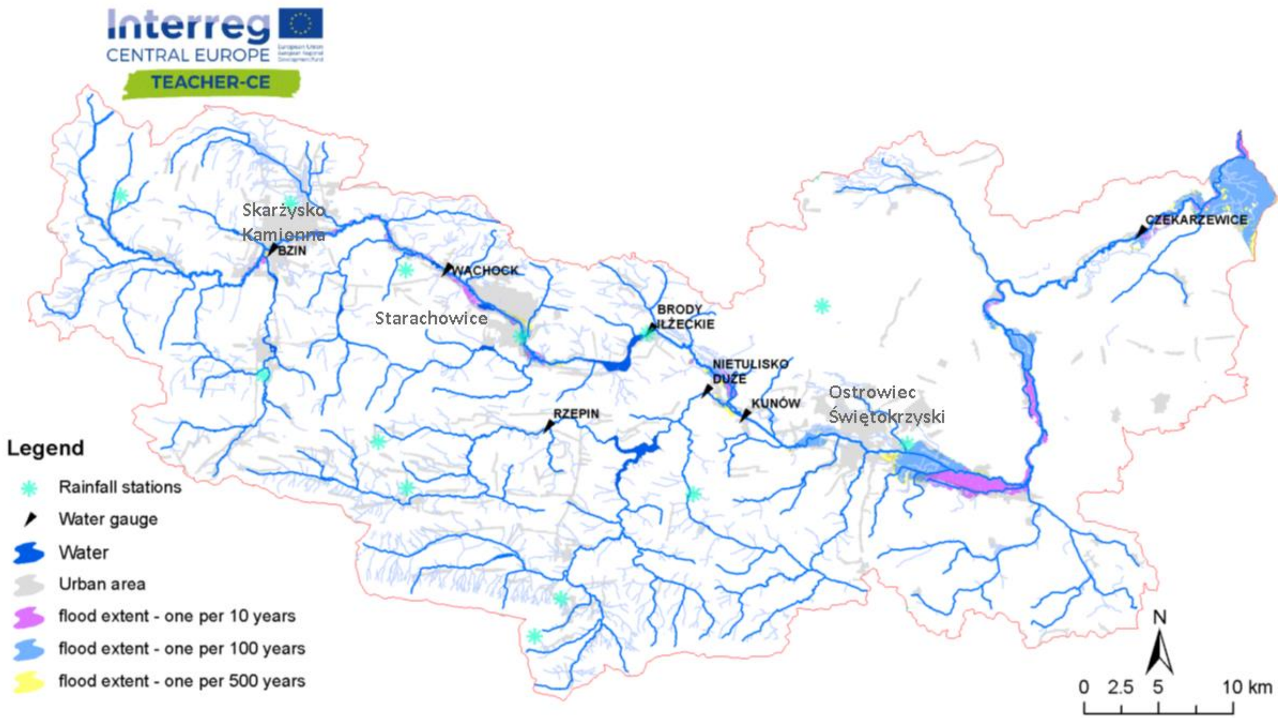

Fig. 4 Map of flood extent for Kamienna Catchment

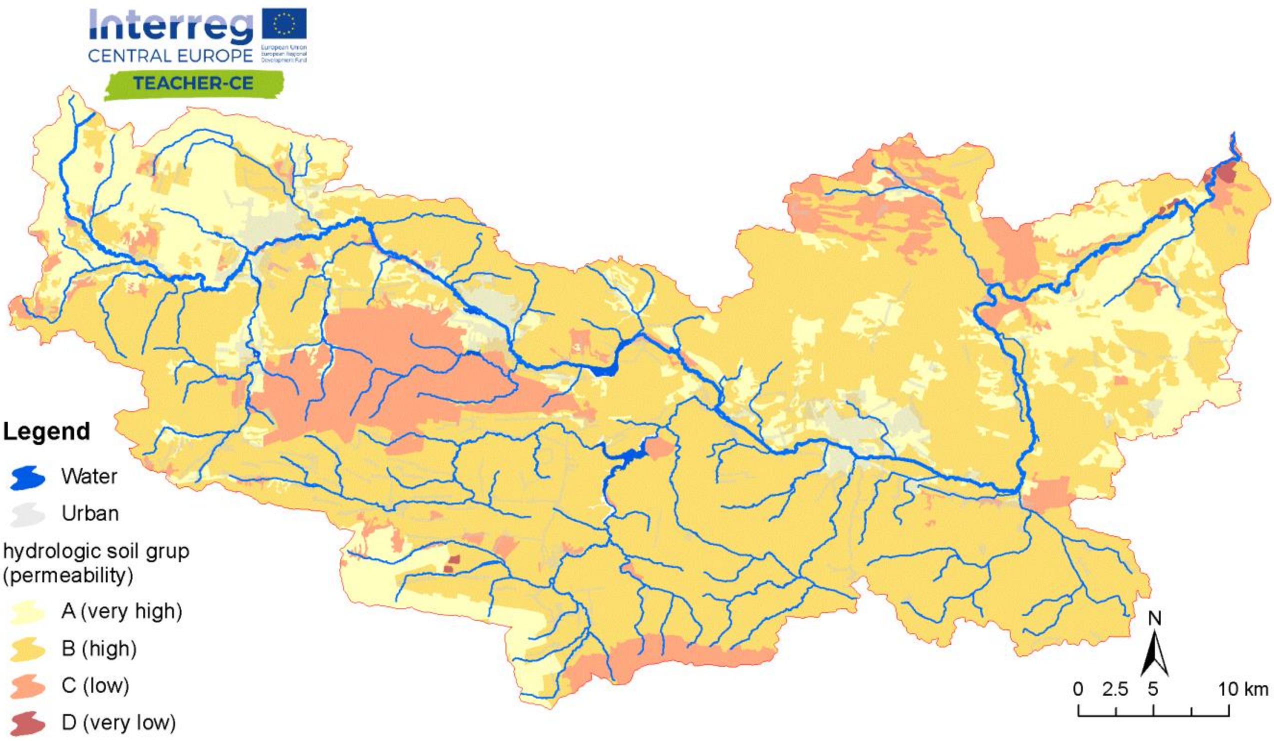

Fig. 5 Hydrologic soil grup

2.3.3. Heavy rain

The analysis of daily rainfall occurring in the last decade in Starachowice, a city located in the central part of the Kamienna river catchment area, showed that heavy rains occurred there very often in the last decade (Tab. 5).

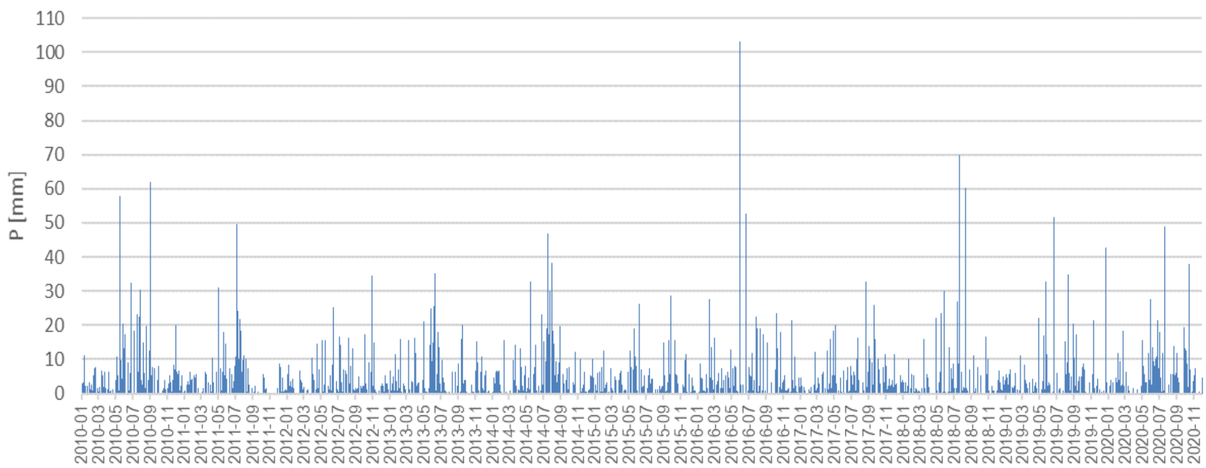

Fig. 6 Daily rainfall in the decade 2010-2020 in Starachowice.

Tab. 5 The number of heavy rainfall occurrences in the decade 2010-2020

Sum of precipitation [mm]	Number of occurrences
>30	27
>40	13
>50	7
>60	4
>100	1

High sums and rainfall intensities came from local storm cells, the formation of which is stimulated by the height of the terrain (highlands at the foot of the mountains), and condensation nuclei related to emissions from residential, industrial and communication areas. The maximum daily rainfall in the analyzed period in Starachowice was 103 mm and occurred during a rainfall lasting only two hours on 31 May 2016 (Fig. 7), which led to flooding of buildings and key communication routes of the city.

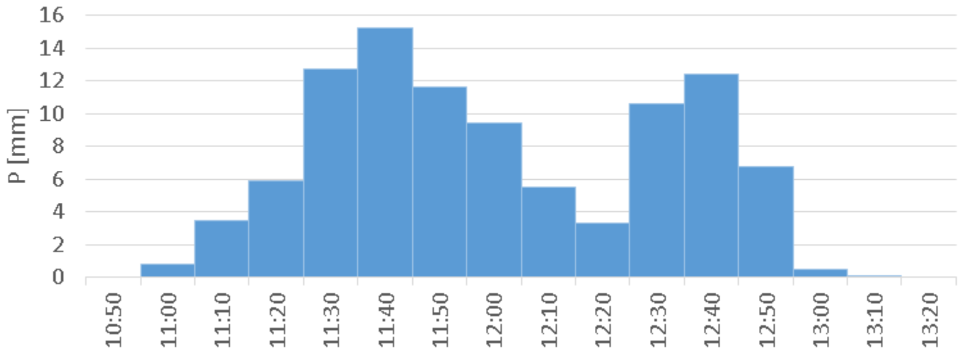

Fig. 7 Ten-minute sums of precipitation during a downpour on May 31, 2016 in Starachowice

2.4. Hydrologeology

The geological structure of the Kamienna river basin as well as the whole Świętokrzyskie prov-ince is very varied and expressed by lithological changeability. Area of the province belongs to the Mid-Polish uplands, forming a latitudinal belt of low elevations and mild depressions included in the meta-carpathian embankment (Koślacz i in. 2006). The basic structural and tectonic unit in the analyzed area is the Paleozoic core formed as a result of the Caledonian and Hercegovian orogenesis, occupying the central part of the province. In the remaining part of the area, the rocks from that period occur under a relatively thick cover of sedimentary rocks, constituting the Mesozoic cover of the core.

In the older substrate, complexes with a greater thickness (about 8000 m) of Paleozoic and Mesozoic sedimentary rocks are represented by sandstones, clays, siltstones, rocks, marls, clays and limestones.

Large variation is also noticeable in the hydrogeological conditions of the Świętokrzyskie Province and in the catchment itself, this is due to the high lithological variability. According to the hydroregional division of Poland (Malinowski, 1991), the Świętokrzyskie province belongs to two macro-regions: mid-Poland and south-Poland.

The area of Kamienna river catchment has various modules of groundwater abundance, from areas without water-bearing levels (so-called anhydrous areas) in the southern part of the catchment, through areas with small and medium water abundance (up to 200 m3/24h/km2) in the central part of the catchment, up to north-eastern part of the basin with areas of high abundance (above 200 m3/24h/km2) (Koślacz i in. 2006). There are 3 main reservoirs in the catchment area which cover 32% of the catchment area. The greatest effective infiltration and decrease of groundwater occurs in the western mountainous part of the catchment (Fig. 8).

The spatial distribution of the potential yield of a drilled well for Kamienna Catchment is presented on Fig. 9.

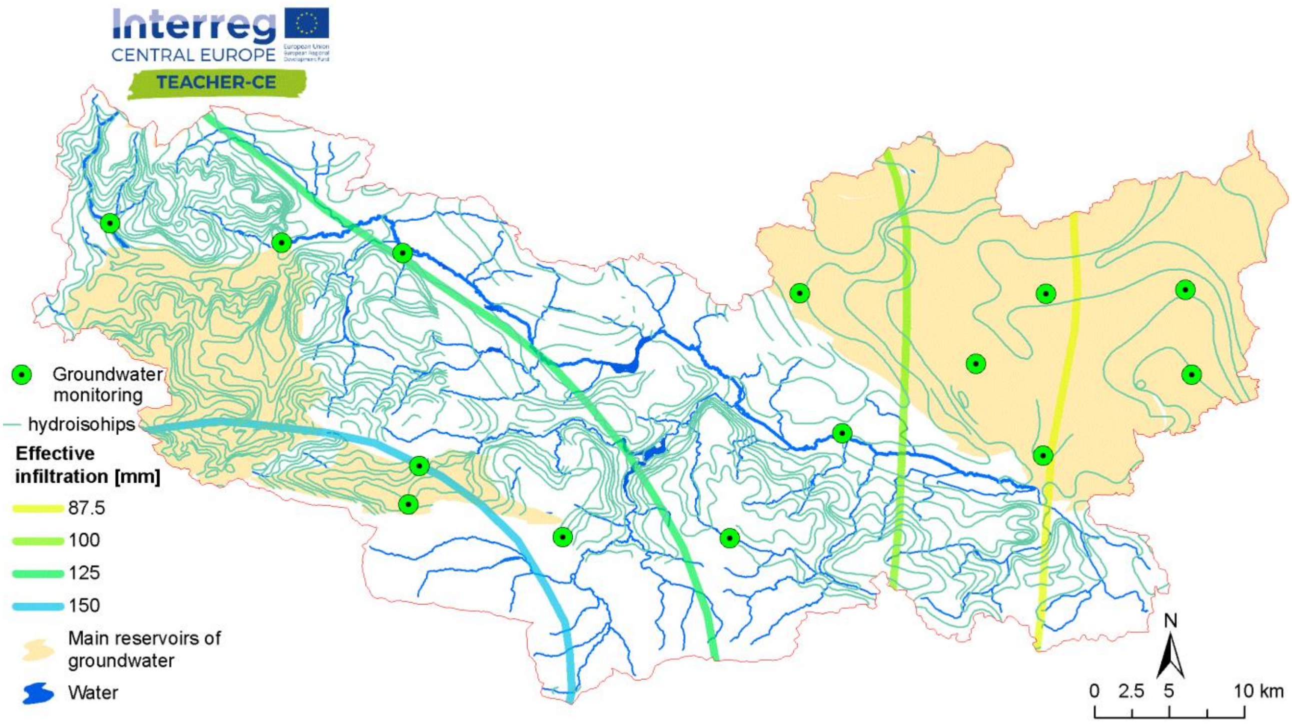

Fig. 8 Characteristics of groundwater Effective infiltration and its monitoring

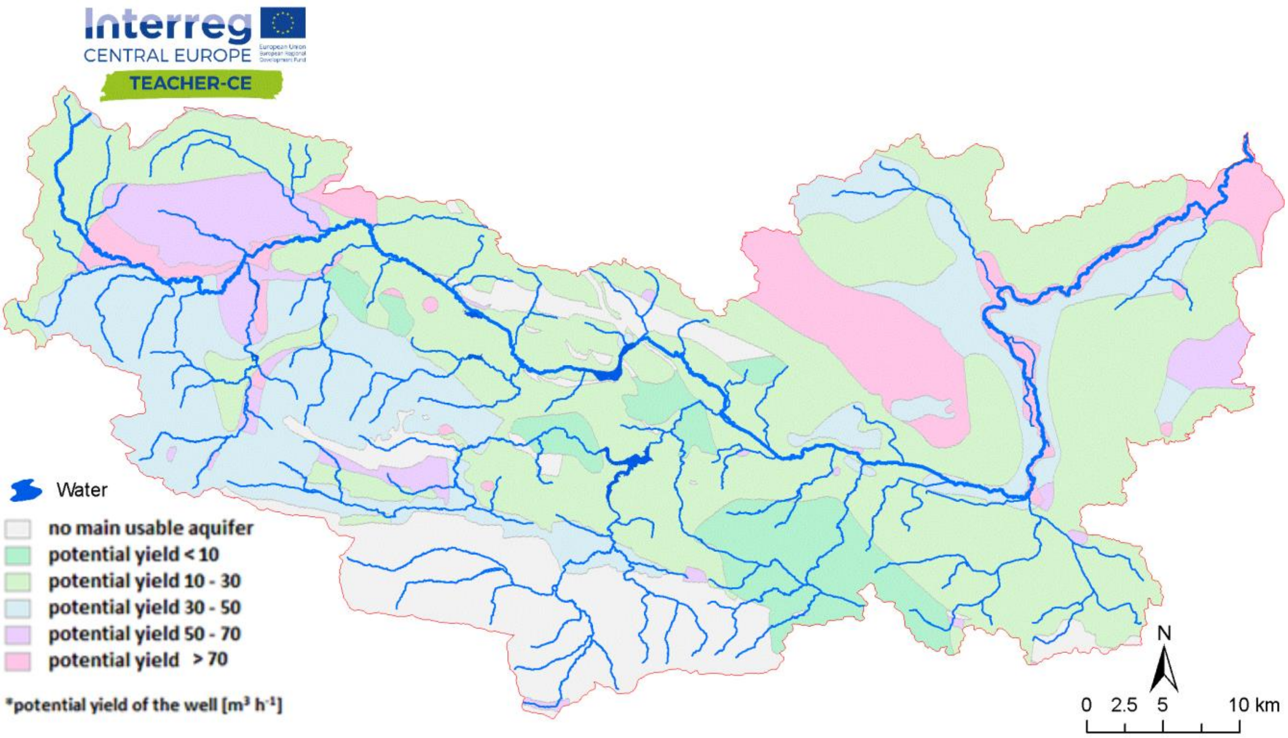

Fig. 9 The spatial distribution of the potential yield of a drilled well of the main utility level - Q, m3 h-1, illustrated on the Hydrogeological Map of Poland, scale 1: 50 000, prepared by the Polish Geological Institute - Kamienna Catchment

2.5. Land use

Land use in the catchment was determined on the basis of the CORINE Land Cover (CLC) Program established in 1985. The purpose of the CLC program is to provide information on land cover / land use across Europe. The unit responsible for the coordination of the CLC is the European Environment Agency. Poland participated in the implementation of all existing projects (CLC1990, CLC2000, CLC2006 and CLC2012), and the direct contractor was the Institute of Geodesy and Cartography. (GIOŚ - Corine Land Cover - CLC). The data used in this study comes from the 2012 program, it was assumed it is a good representation of the actual state. The Fig. 10 shows the distribution of land use forms.

The dominant share is held by agricultural areas, they constitute more than half of the catchment area, about 30% are forests, including mixed forests (6.8%), deciduous forests (6.3%), coniferous forests (5.9) and forest complexes with shrub vegetation (10.6%). Anthropogenic areas stretching along the Kamienna river account for approximately 15.6% of the catchment area with the larger cities and communication routes. Featured water areas are mainly Wióry and Brody Iłececkie reservoirs.

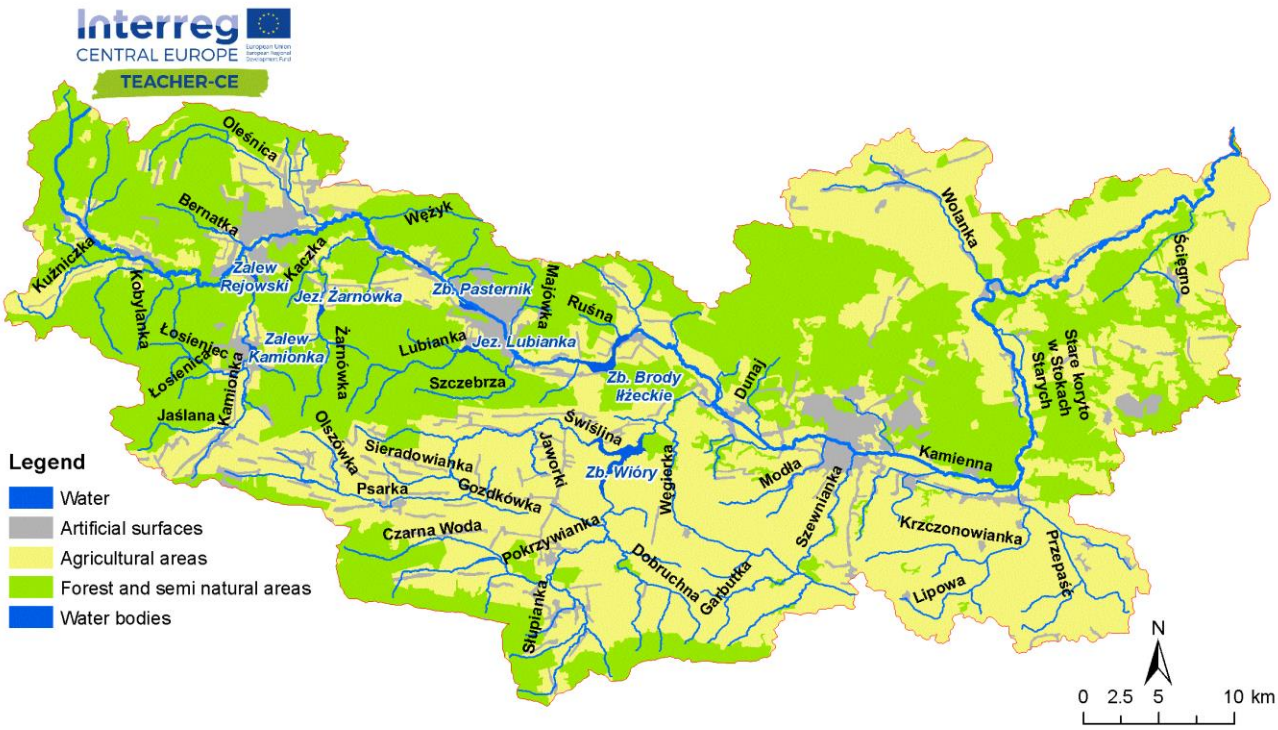

Fig. 10 Land-use map (CLC, 2018)

2.5.1. Forestry

Forests cover 29% of the catchment area. They prevail in their fresh mixed forest (53%) of piedmont character (Fig. 11). The dominant species are pinus silvestris (74%) and abies alba (12%) (Tab. 6). Only 32% of forests are deformed (Fig. 12), which is why such a large part of them is protected.

Tab. 6 Percentage of forest species

Species	Percentage
Pinus silvestris	74.3%
Abies alba	12.2%
Quercus species	3.3%
Betula pendula	2.2%
Alnus glutinosa	1.7%
Fagus silvatica	4.0%
Larix decidua	0.8%
Picea abies	0.3%
Others 30 pcs	1.3%

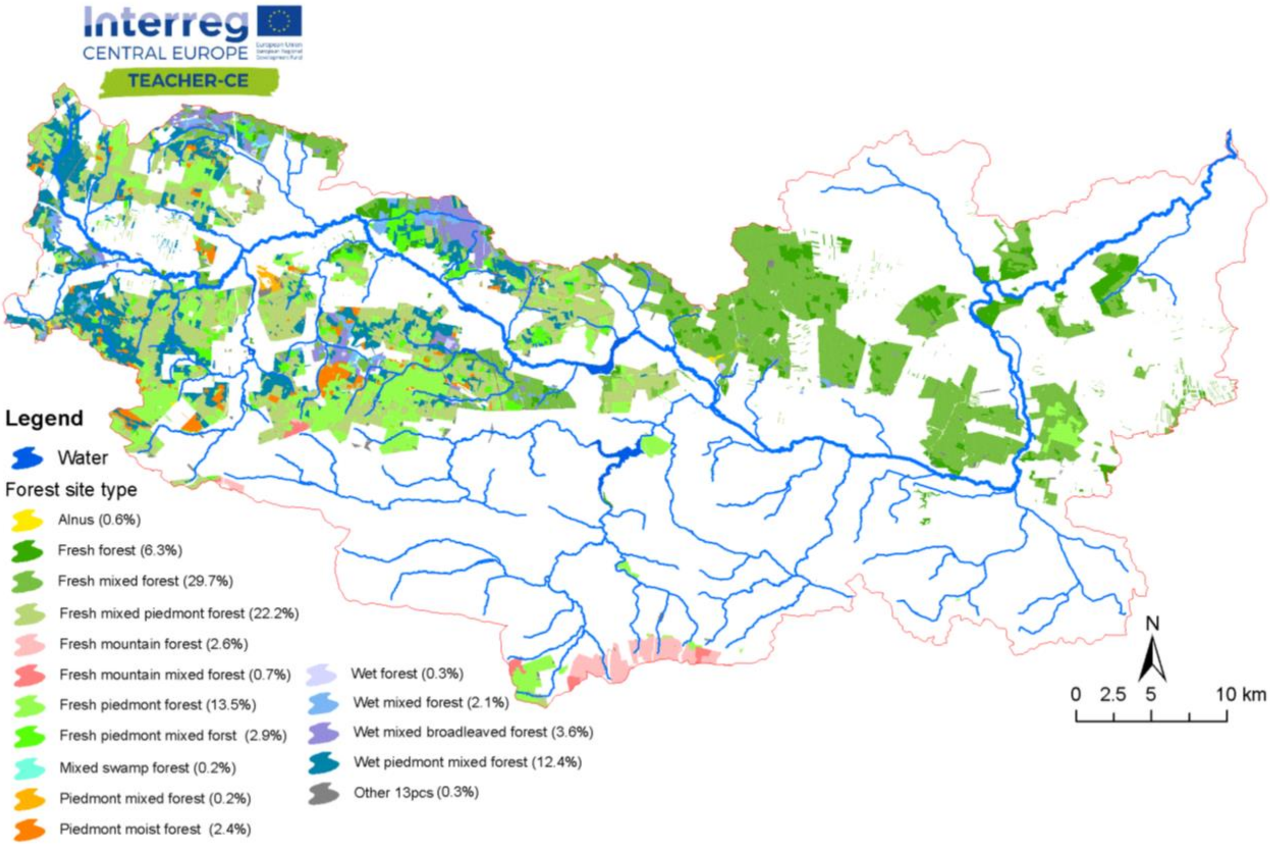

Fig. 11Forest site type (https://www.bdl.lasy.gov.pl)

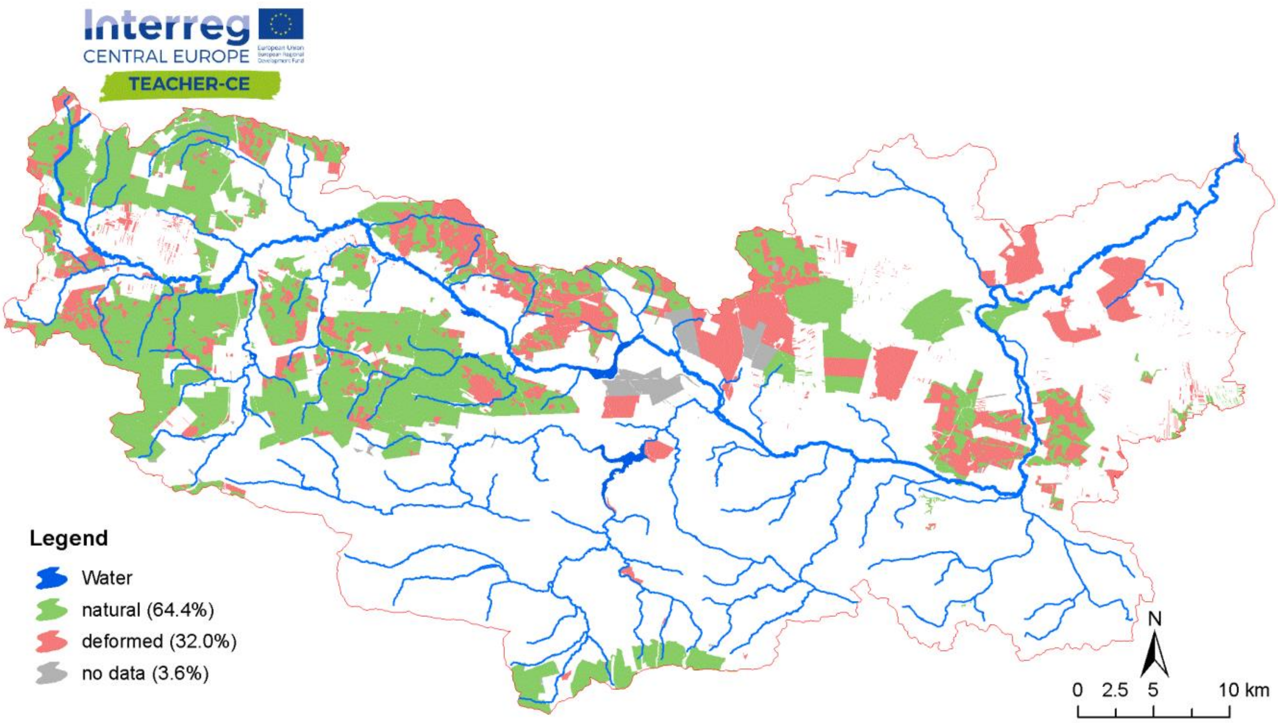

Fig. 12 Deformation of forest (https://www.bdl.lasy.gov.pl)

2.6. Protected areas

Nature conservation areas are considered as separated areas with exceptional natural or landscape values. Types of those areas are distinguished by the level of protection. According to the Nature Conservation Act of April 16, 2004, 10 forms of nature conservation exist in Poland: national parks; nature reserves; landscape parks; protected landscape areas; Natura 2000 areas; nature monuments; documentation stands; ecological land; natural and landscape complexes and species protection of plants, animals and fungi. According to the information provided by the General Directorate for Environmental Protection, in the analyzed area all the above-mentioned forms of nature protection can be found. The Fig. 13 shows the distribution of protected areas in the catchment.

The maps show forms of nature conservation (only large scale ones), including:

- In the south-western part of the catchment - a fragment of the Świętokrzyski National Park with a buffer zone (map 1);
- In the central and south-western part of the basin - Landscape Parks: Suchdniowsko-Oblegorski, Sieradowiscki and Jeleniowski (map 2.), as well as Natura 2000 sites: Uroczysko Lasów Starachowickie, Dolina Kamienna, Wzgórza Kunowskie and Lasy Skarżyńskie (map 3);
- Present in the area of almost the whole catchment - Protected Landscape Areas (map 4).

The areas with different forms of nature conservation often overlap partially with each other, but in total about 70% of the catchment area is protected. The areas of cities: Ostrowiec Świętokrzyski, Starachowice and Skarżysko-Kamienna, as well as the south-eastern part of the basin do not include any protected areas.

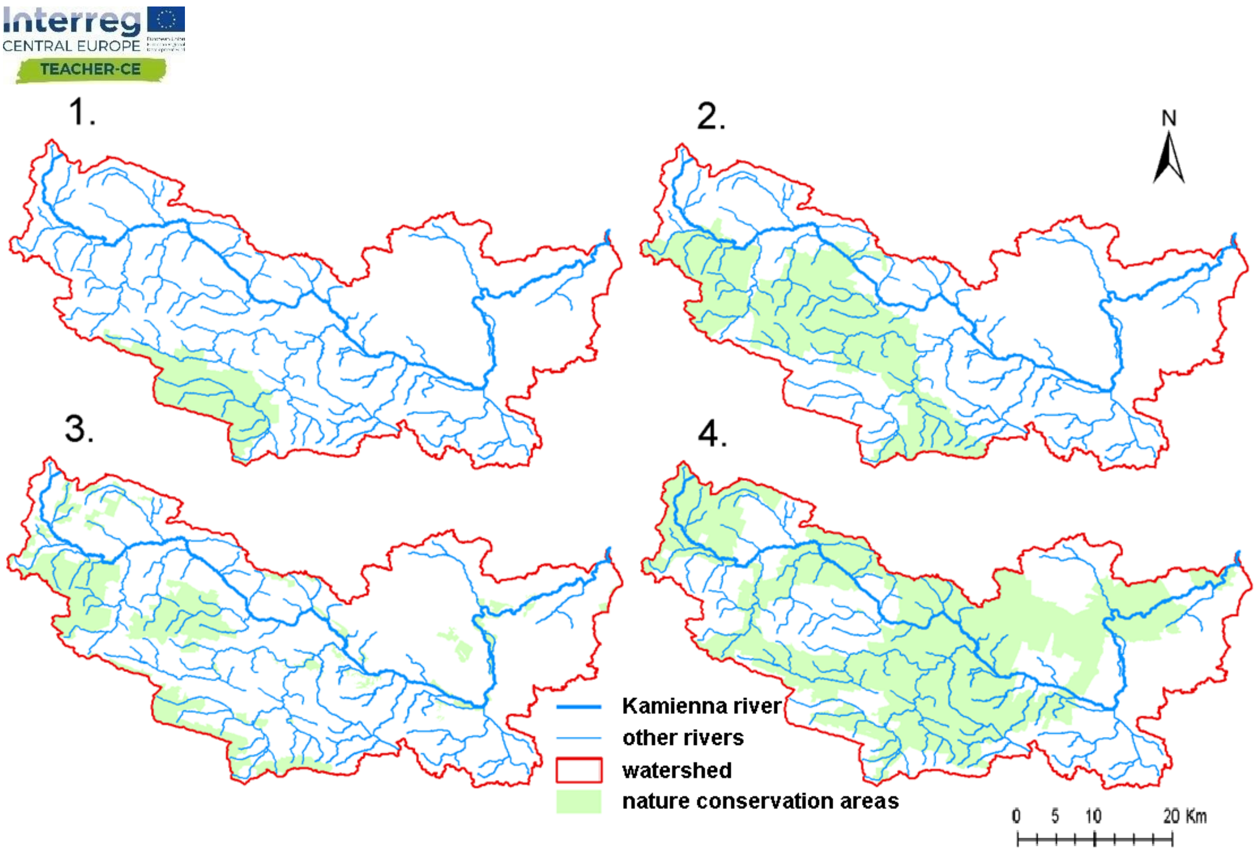

Fig. 13 Protected areas in the Kamienna river catchment area: 1. - Świętokrzyski National Park; 2. - Landscape Park; 3. - Natura 2000; 4. - Areas of Protected Landscape;

2.7. Drinking water sources and protection

The main sources of drinking water are 56 deep wells with a total capacity of 24 800 m3/d (Tab. 7). Most of the large intakes have extensive drinking water protection zones or are located in nature conservation areas (Fig. 13) or forests. Therefore, despite their location in areas of high and very potential vulnerability to pollution (Fig. 14), they do not report problems with water quality. An analysis of statistical data from the last decade shows that in extremely dry years (like 2015) drinking water consumption increases by 40% (Tab. 8). The problem with the amount of drinking water is mainly in the south-eastern part of the catchment (on the watershed). However, after second drought period 2018-2019, new deep wells were constructed and there is currently no such risk.

Tab. 7 Characteristics of water intake from deep wells

Intake for	Number of wells	Volume m3/year
Drincing water	56	9052603
Indiustry	9	756526
other	3	32676

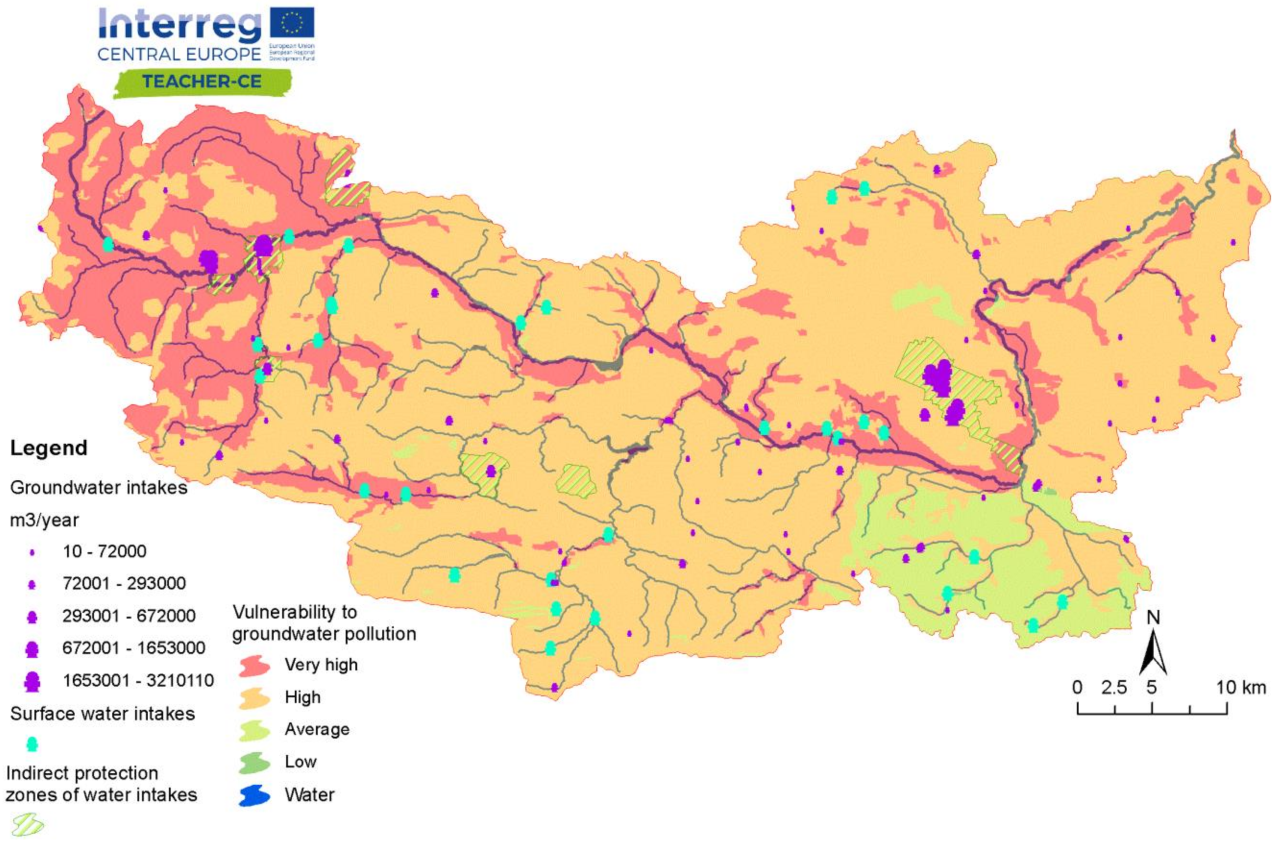

Fig. 14 Groundwater intakes and vulnerability to pollution

Tab. 8 Water consumptonion in 2010-2019 years ([Statistics Poland - Local Data Bank]())

		Extr.Wet	Wet				Extr. Dry		Wet	Dry	Dry
Water consumption	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
total	m3/km2	5549	6104	5998	5783	5722	7124	7039	7149	6072	5921
operation of the water supply network	m3/km2	4640	5111	5088	5013	4959	5153	5046	5070	5120	5114
operation of the water supply network - households	m3/km2	3511	3996	3946	3914	3824	4001	3878	3906	3947	4050
industry	m3/km2	909	992	909	769	763	772	795	881	952	807
agriculture and forestry	m3/km2	?	?	?	?	?	1198	?	?	?	?
share of households in total water consumption	%	63.3%	65.5%	65.8%	67.7%	66.8%	56.2%	55.1%	54.6%	65.0%	68.4%
share of industry in total water consumption	%	16.4%	16.3%	15.2%	13.3%	13.3%	10.8%	11.3%	12.3%	15.7%	13.6%
water consumption per 1 citizen	m3	25.4	26.5	26.8	26.8	26.1	36.8	36.7	38.0	31.0	30.3

3. PA issues concerning TEACHER-CE topics

Testing of the toolbox CC-ARP-CE in order to mitigate the effects of drought and flood including problems with the increase of sediment and biogenic pollution. Tests will use historical and current monitoring (meteorological parameters; water quantity and quality; soil parameters), planned measures, CC projections and dynamic models (SWAT, HEC-RAS). In particular, we will focus on urban areas and forests. Tab. 9

Tab. 9 Kamienna catchemnt issues and planed activities

Issues	Field od action	Sector	Tools	Specific activities
Flood	Inland river flood management and protection	All sectors	Catalog of measures, FroGIS	We will add European dataset (NMT, CLC, Climate Indicators) to the FroGIS and create new indicators for valorisation map
	Heavy rainfall and flash flood managment and protection	Urban	Rainman-Tools	We will be participating in consultations of the Starachowice Climate Change Adaptation Programme.
Drought	Water from irrigation	Agriculture Forestry	FroGIS, SUSTREE	We check SUSTREE in different species/location of forests in varying degrees of risk of drought. New FroGIS analysis based on additional climate change indicators.
Ecolo-gical status	Conservation of aquatic ecosystems	Hydromorf ology	Catalog of measures	Impact CC on this problem i specific location

3.1. Heavy rain

High variation in the height of the terrain favours the occurrence of intense local precipitation (not always recorded by meteorological stations). Large slopes of the terrain generate rapid surface runoff from the slopes of the hills through the built-up slopes and the bottom of the Kamienna river valley, flooding the buildings and infrastructure.

The existing rainwater sewage system in cities is not able to drain water from extreme rainfall in a short time, because it was not designed for such large flows, and in many places it is overloaded as a result of connecting new buildings to developing urban areas. Locating some of the buildings in depressions of the land and on local runoff routes increases material losses.

In cities in the PA area, it is planned to modernize and expand the rainwater sewage system, develop, and develop plans for adaptation to climate change (e.g. in Starachowice). In the event of heavy rains and flooding, emergency rescue actions are undertaken: clearing the rainwater drainage system, pumping out water.

3.2. Floods

For hundreds of years, the analyzed catchment area has shown a tendency to flooding, and during this time, efforts have been made to use this energy positively in industry and agriculture. Therefore, there are plenty of small reservoirs and mill ruins. In 2005, the largest Wióry reservoir was built, which is the only reservoir with a flood mitigation function. Unfortunately, already in 2010 it was not sufficient and does not accommodated two floods as shown in Fig. 15. In the last 39 years large floods occurred 11 times. Small floods are the most desirable for wetlands along the Kamienna River in the Natura 2000 area and for the cleaning of bottom sediments. However, large ones still cause damage in densely built-up areas. Currently planned activities are aimed at moving (extending) the dikes and maintaining extensive agriculture in flood plains, and improving communication and water management of smaller reservoirs.

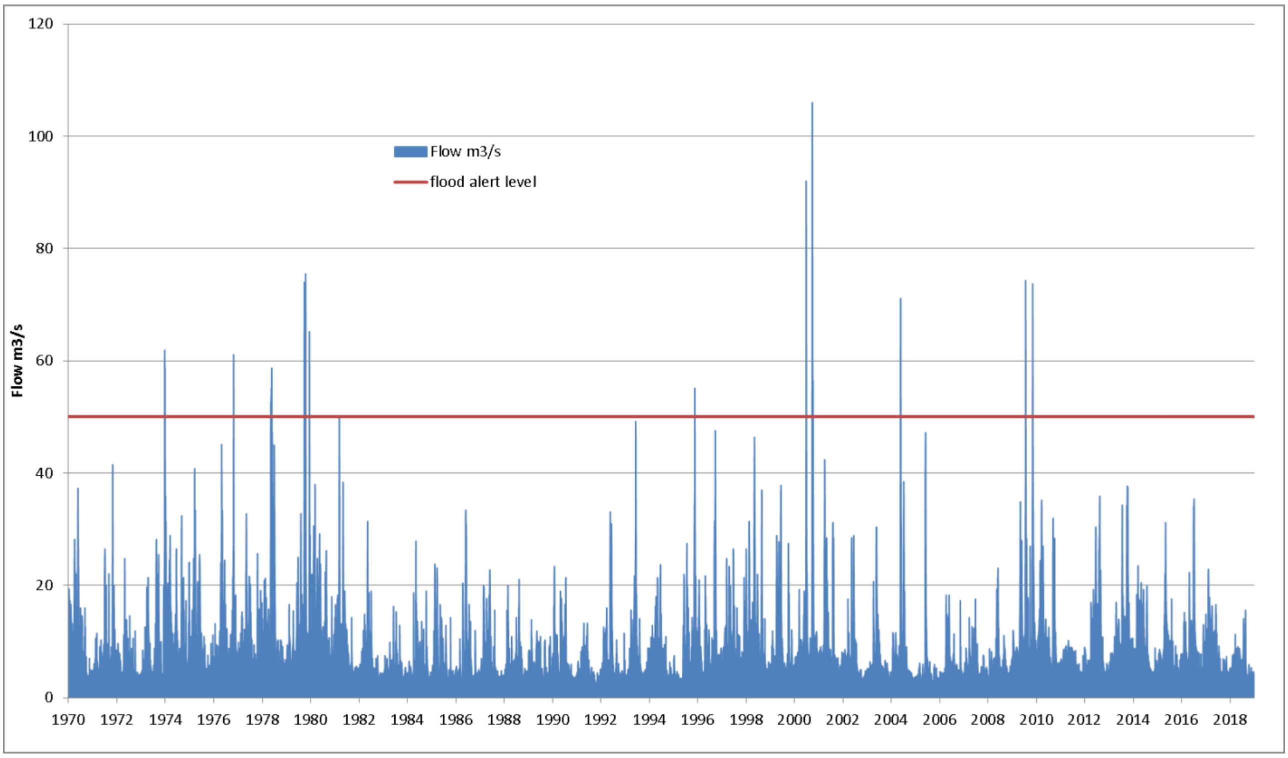

Fig. 15 Daily variability of the flow on the Czekarzewice water gauge

3.3. Drought

Problems connected to droughts were analysed on the basis of the Drought Impact Mitigation Plan (DIMP), which contains an assessment (**Fig. 16**) of four types of drought (climatic, agricultural, hydrological, hydrogeological). It concludes that the greatest problems are caused by agricultural drought in the north-eastern part of the Wolanka catchment, then in the lower and middle sections of the Kamienna river and all sub-catchments with an agricultural land use. The climatic drought extent is equally large and its concentrated in the middle of the catchment. A very small threat is visible in case of hydrological and hydrogeological drought. In order to confirm the results of that valorisation, a map was drawn up (**Fig. 17**) with the number of farmers crop damage compensation applications in 2018. The comparison of these maps shows that the acute problem of agricultural drought was confirmed in the south-eastern part of the basin.

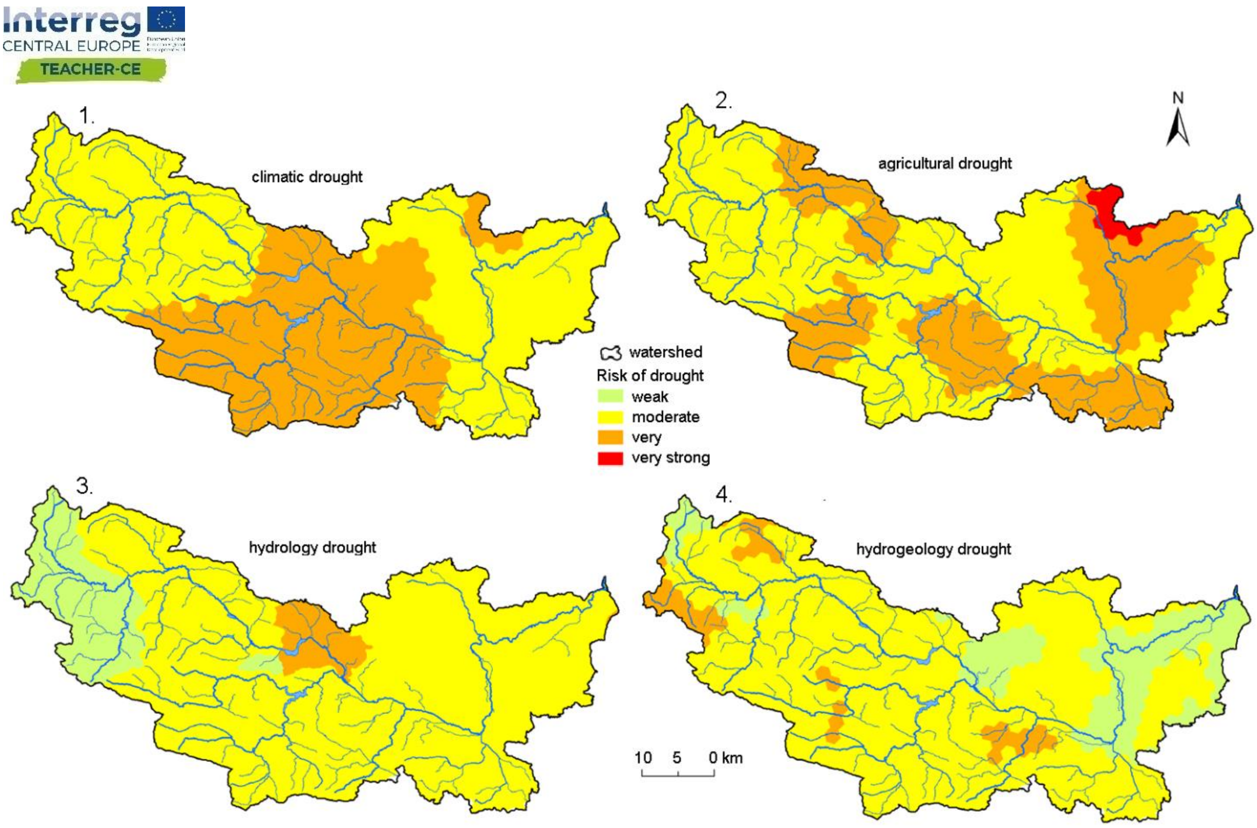

Fig. 16 Map of areas threatened by different types of drought included in the Drought Management Plan approved in 2016. Where: 1. Climatic, 2. Agricultural, 3 Hydrology, 4. Hydrogeology drought

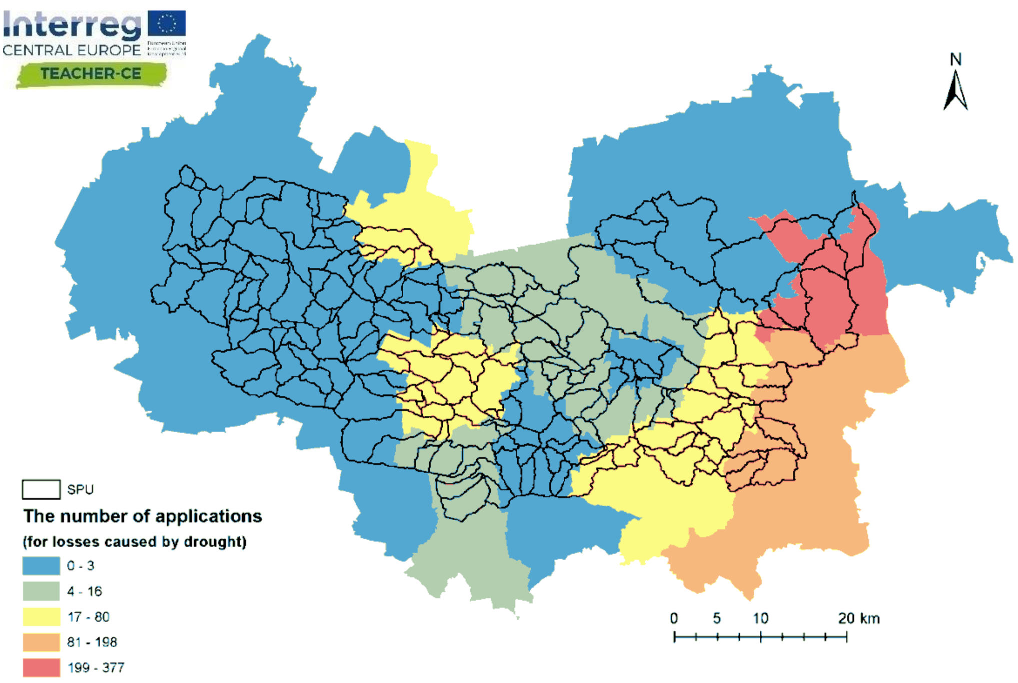

Fig. 17 Number of farmers crop damage compensation applications in 2018 (source: Świętokrzyska Agricultural Chamber http://www.sir-kielce.pl access date 1.08.2018)

3.4. Forest management

In the last 10 years, there have been 3 extreme dry weather conditions which led to forest fires in the north-eastern part of the catchment area, located in the borderland areas. This resulted in an increase in forest diseases and the loss of native tree species and a reduction in the effectiveness of natural and artificial plantings. This significantly increased the costs of maintaining the forest and forced the use of artificial means of protection.

4. Testing of the TEACHER-CE toolbox CC-ARP-CE

Testing of the beta version of the tools was conducted by a team consisting of 4 WULS staff and 3 experts from the focus group during the months of June and July 2021. All test participants were trained in two online meetings. The tests were conducted on http://teacher.apps.vokas.si/home in simultaneous workload mode and at a time convenient for the testers.

The main focus of the testing is on (1.) selecting/adding ISSUES and the related MEASURES and (2.) reviewing the RANKING of the measures using the Analytical Hierarchy Process AHP CRITERIA. The testing also includes a general feedback section with input on all parts of the toolbox.

To answer the questions stated in the introduction several steps of the testing need to be carried out:

Step 1: Gathering ISSUES regarding the TEACHER topics

Step 2: COMMENTING on others' ISSUES already entered into the Excel Sheet / Toolbox

Step 3: Reviewing the process of RANKING of the MEASURES using the AHP Criteria in the Toolbox

Step 4: Providing GENERAL FEEDBACK on the functionality and usability of the Toolbox in the provided Excel Sheet

During testing, 36 real issues were reported at local and point level covering the following FofA: Fluvial Flood Risk, Pluvial Flood Risk, Water Scarcity & Drought Risk.

Individual feedback was provided in an online Excel sheet. As a result of the testing, 31 comments were made, of which 18 related to functionality, 10 to usability and 3 to other nature of the problem. The highest number of comments was on the tab "Identification of issues and selection of measures" (16), then to the Map of Climate Indicators (7) and the lowest to the other tabs of the toolbox.

Feedback inputs were used to update the Toolbox before the second phase of the implementation – the stakeholder testing.

A detailed report of the test results is given in D.T.3.1.1 - Kamienna.

5. Synthesis of the National Stakeholder Workshop

The workshop took place on 24 October 2021 in the town of Starachowice, located in the centre of the pilot catchment area. Participants included 12 people on site and 20 online who worked in different organisations. The workshop was preceded by a series of short lectures on climate change, the new project toolbox and guidelines to facilitate its use in developing CC strategies. The toolbox was then tested together and separately. In the final part, participants were divided into 3 groups: a) agriculture, forestry, NGOs; b) water management; c) local governments. A questionnaire was administered to each group separately and resulted in a number of interesting answers. They appreciate the simplicity of most of the functions of the ToolBox, because most of the stakeholders at the local level deal with the implementation of measures and delegate the planning process to experts. They highlighted the usability of the ToolBox especially in the field of reporting problems and the possibility to conduct public consultations. For the ToolBox to be popular/usable, access to it must be made easy. So, the ability to automatically create an account would be useful.

Stakeholders liked the idea of linking the reporting of problems with measures list. In particular, in their opinion, such a tool combined with a public discussion was missing so far. As part of the selection of measures for the issue there was a proposal to allow to define own measure + possibility to choose from full list of measure.

Most people liked Map of climate Indicators with the exception that they need translation into the national language and the possibility of sorting it importance on the basis of Field of Action.

In the group of questions on the use of the toolbox to build or upgrade strategies, it was established that the key FofA for the Kamienna catchment is Flood. It was also established that the Environmental Protection Plans are key documents that would need to be updated using the project's recommendations for incorporating climate change into these documents.

6. Conclusions

The observations and analyses of the Kamienna catchment regarding the effects of climate change, the testing of the new tool and its consultation with stakeholders were very necessary and successful. On the one hand, they pointed out a number of bugs in the beta version of the application and, on the other hand, they made it possible to update it with respect to the problems of flood, drought and decreasing ecological status of surface water, which were particularly hard for the people living there. The submitted comments and materials on improving the functionality, description of measures and their translation into Polish made the toolbox usable by local stakeholders. The creation of this new tool coincided with an extremely difficult period for our country in terms of droughts and floods as well as the epidemiological situation. This situation has led to an increase in public understanding of climate change and to the particularly intensive development of associations called "Local Water Partnerships". These partnerships integrate local stakeholders from municipalities, agricultural and forestry centres and governmental institutions involved in water management and environmental protection. The scope of duties of these partnerships includes the development of local water management plans, therefore the Toolbox seems to be an ideal tool to support such organisations in the process of integrated water management at the local level.