

**Table S1.** Comparison of average soil water content by season between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 4.5.1, RCP 4.5.2, RCP 4.5.3. Bold numbers indicate soil water content, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050											
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention					Variant 3 - Low Retention						
		Variant 1 Only Climate Change (V1)	More Ponds				More Reservoirs						
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)	
Season		Seasonal Average of Soil Water Content [mm]											
Climate Scenario		RCP 4.5.1 (RACMO22E)											
DJF	344	332	332	332	333	332	332	332	332	332	333	331	297
		-3.5%	-3.6%	-3.6%	-3.3%	-3.5%	-3.4%	-3.5%	-3.5%	-3.3%	-3.8%	-13.7%	
MAM	322	303	303	317	320	310	311	303	318	320	307	283	
		-5.8%	-5.9%	-1.3%	-0.6%	-3.6%	-3.4%	-5.8%	-1.2%	-0.5%	-4.5%	-12.1%	
JJA	309	292	292	288	296	301	301	292	289	293	290	253	
		-5.4%	-5.6%	-6.7%	-4.1%	-2.5%	-2.6%	-5.4%	-6.6%	-5.1%	-6.1%	-18.0%	
SON	328	313	313	311	314	315	316	313	312	313	311	266	
		-4.4%	-4.6%	-5.0%	-4.1%	-3.8%	-3.5%	-4.4%	-4.8%	-4.3%	-5.0%	-18.7%	
Average Annual	326	310	310	312	316	315	315	310	313	315	310	275	
		-4.7%	-4.9%	-4.1%	-3.0%	-3.4%	-3.2%	-4.7%	-4.0%	-3.3%	-4.8%	-15.6%	
Climate Scenario		RCP 4.5.2 (HIRHAM5)											
DJF	344	336	336	336	337	336	336	336	337	337	336	320	
		-2.3%	-2.4%	-2.3%	-2.2%	-2.3%	-2.3%	-2.3%	-2.2%	-2.1%	-2.4%	-7.1%	
MAM	322	311	311	322	324	317	317	311	322	324	315	307	
		-3.3%	-3.3%	0.0%	+0.6%	-1.4%	-1.3%	-3.3%	+0.1%	+0.7%	-2.1%	-4.7%	
JJA	309	291	291	285	295	303	303	291	286	293	291	271	
		-5.6%	-5.8%	-7.6%	-4.6%	-1.9%	-2.0%	-5.6%	-7.5%	-5.2%	-5.8%	-12.4%	
SON	328	321	321	318	320	322	323	321	318	320	320	292	
		-2.0%	-2.1%	-3.0%	-2.3%	-1.6%	-1.4%	-2.0%	-2.9%	-2.3%	-2.5%	-10.8%	
Average Annual	326	315	315	315	319	320	320	315	316	318	315	297	
		-3.3%	-3.4%	-3.2%	-2.1%	-1.8%	-1.7%	-3.3%	-3.1%	-2.2%	-3.1%	-8.7%	
Climate Scenario		RCP 4.5.3 (RCA4)											
DJF	344	337	337	337	337	337	337	337	337	337	337	322	
		-2.1%	-2.2%	-2.2%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.2%	-6.6%	
MAM	322	318	317	325	326	322	322	318	325	327	320	313	
		-1.3%	-1.3%	+1.0%	+1.4%	0.0%	+0.1%	-1.3%	+1.1%	+1.7%	-0.4%	-2.7%	
JJA	309	303	302	295	302	311	311	303	295	301	302	283	
		-2.0%	-2.1%	-4.5%	-2.1%	+0.7%	+0.6%	-2.0%	-4.4%	-2.4%	-2.3%	-8.4%	
SON	328	322	321	318	320	323	324	322	318	320	320	292	
		-1.8%	-1.9%	-3.0%	-2.2%	-1.3%	-1.1%	-1.8%	-2.9%	-2.2%	-2.3%	-10.9%	
Average Annual	326	320	319	319	321	323	323	320	319	321	320	302	
		-1.8%	-1.9%	-2.2%	-1.3%	-0.7%	-0.7%	-1.8%	-2.1%	-1.3%	-1.8%	-7.1%	

**Table S2.** Comparison of average soil water content by season between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 8.5.1, RCP 8.5.2, RCP 8.5.3. Bold numbers indicate soil water content, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 1 Only Climate Change (V1)	Variant 2 - Low Retention					Variant 3 - Low Retention				
			More Ponds					More Reservoirs				
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season		Seasonal Average of Soil Water Content [mm]										
Climate Scenario		RCP 8.5.1 (RACMO22E)										
DJF	344	340	339	337	337	340	339	340	340	340	340	320
		-1.3%	-1.4%	-2.0%	-2.0%	-1.3%	-1.4%	-1.3%	-1.3%	-1.3%	-1.3%	-7.1%
MAM	322	318	318	323	323	321	322	318	327	328	320	308
		-1.2%	-1.3%	+0.3%	+0.3%	-0.1%	0.0%	-1.2%	+1.6%	+2.0%	-0.4%	-4.1%
JJA	309	313	313	302	302	318	318	313	302	307	310	289
		+1.4%	+1.3%	-2.4%	-2.4%	+2.9%	+2.9%	+1.4%	-2.3%	-0.7%	+0.5%	-6.3%
SON	328	327	326	329	329	327	328	327	324	325	326	297
		-0.2%	-0.4%	+0.4%	+0.4%	-0.1%	+0.2%	-0.2%	-1.1%	-0.8%	-0.6%	-9.4%
Average Annual	326	324	324	323	323	327	327	324	323	325	324	304
		-0.4%	-0.5%	-0.9%	-0.9%	+0.3%	+0.4%	-0.4%	-0.8%	-0.2%	-0.5%	-6.7%
Climate Scenario		RCP 4.5.2 (HIRHAM5)										
DJF	344	342	342	342	342	342	341	342	342	342	342	336
		-0.7%	-0.8%	-0.7%	-0.7%	-0.7%	-0.8%	-0.7%	-0.6%	-0.6%	-0.7%	-2.3%
MAM	322	321	321	329	330	325	326	321	329	331	324	323
		-0.1%	-0.1%	+2.4%	+2.7%	+1.1%	+1.2%	-0.1%	+2.4%	+2.9%	+0.8%	+0.6%
JJA	309	306	306	300	306	314	313	306	300	307	306	295
		-0.8%	-1.0%	-3.0%	-0.9%	+1.5%	+1.5%	-0.8%	-2.9%	-0.7%	-1.0%	-4.4%
SON	328	329	329	327	328	329	330	329	327	329	328	313
		+0.4%	+0.3%	-0.2%	+0.2%	+0.5%	+0.7%	+0.4%	-0.1%	+0.4%	+0.1%	-4.5%
Average Annual	326	325	324	324	327	327	328	325	325	327	325	317
		-0.3%	-0.4%	-0.3%	+0.3%	+0.6%	+0.6%	-0.3%	-0.3%	+0.5%	-0.2%	-2.6%
Climate Scenario		RCP 8.5.3 (RCA4)										
DJF	344	340	340	340	339	340	340	340	340	340	340	332
		-1.2%	-1.3%	-1.2%	-1.4%	-1.3%	-1.3%	-1.2%	-1.1%	-1.1%	-1.2%	-3.5%
MAM	322	321	321	328	325	325	326	321	328	330	324	319
		-0.2%	-0.2%	+2.0%	+1.1%	+1.1%	+1.3%	-0.2%	+2.0%	+2.6%	+0.7%	-0.8%
JJA	309	306	305	294	306	314	314	306	294	301	304	286
		-1.0%	-1.2%	-4.8%	-1.0%	+1.6%	+1.5%	-1.0%	-4.7%	-2.5%	-1.5%	-7.4%
SON	328	328	328	325	328	329	329	328	325	327	327	306
		+0.2%	+0.1%	-0.8%	+0.1%	+0.4%	+0.5%	+0.2%	-0.7%	-0.2%	-0.2%	-6.5%
Average Annual	326	324	323	322	325	327	327	324	322	325	324	311
		-0.6%	-0.7%	-1.2%	-0.3%	+0.4%	+0.5%	-0.6%	-1.1%	-0.3%	-0.6%	-4.5%

**Table S3.** Comparison of seasonal total runoff between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 4.5.1, RCP 4.5.2, RCP 4.5.3. Bold numbers indicate total runoff, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention					Variant 3 - Low Retention					
		Variant 1 Only Climate Change (V1)	More Ponds				More Reservoirs					
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orkid + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orkid + Cereals (V3.5)
Season		Seasonal Total of Total Runoff [mm]										
Climate Scenario		RCP 4.5.1 (RACMO22E)										
DJF	55	35	35	34	40	45	46	35	34	38	36	27
		-36%	-37%	-38%	-26%	-18%	-15%	-36%	-37%	-30%	-34%	-51%
MAM	54	31	30	31	36	40	42	31	31	35	32	24
		-43%	-43%	-43%	-32%	-26%	-22%	-43%	-42%	-35%	-40%	-56%
JJA	46	30	30	31	38	43	45	30	31	36	33	24
		-35%	-36%	-34%	-17%	-7%	-3%	-35%	-33%	-22%	-29%	-49%
SON	48	32	32	31	39	45	46	32	31	36	34	24
		-33%	-34%	-36%	-20%	-6%	-3%	-33%	-36%	-25%	-29%	-49%
Annual Total	202	128	126	126	153	173	179	128	127	145	135	98
		-37%	-38%	-38%	-24%	-15%	-11%	-37%	-37%	-28%	-33%	-51%
Climate Scenario		RCP 4.5.2 (HIRHAM5)										
DJF	55	39	39	37	44	49	50	39	38	43	41	34
		-28%	-29%	-32%	-20%	-10%	-9%	-28%	-31%	-22%	-25%	-38%
MAM	54	43	43	43	48	52	53	43	43	48	45	38
		-19%	-20%	-20%	-10%	-4%	-1%	-19%	-19%	-11%	-16%	-28%
JJA	46	36	35	36	43	49	50	36	36	42	39	32
		-22%	-23%	-23%	-6%	+6%	+8%	-22%	-22%	-9%	-16%	-31%
SON	48	36	36	33	41	48	49	36	33	40	38	31
		-25%	-26%	-31%	-15%	+1%	+2%	-25%	-31%	-18%	-21%	-35%
Annual Total	202	154	153	149	176	198	201	154	151	172	163	136
		-24%	-24%	-26%	-13%	-2%	0%	-24%	-26%	-15%	-19%	-33%
Climate Scenario		RCP 4.5.3 (RCA4)										
DJF	55	50	50	48	54	59	61	50	48	53	52	45
		-7%	-8%	-13%	-2%	+8%	+11%	-8%	-12%	-2%	-5%	-18%
MAM	54	51	50	50	55	58	60	51	50	55	52	46
		-6%	-7%	-7%	+2%	+8%	+12%	-6%	-7%	+2%	-3%	-14%
JJA	46	39	39	38	45	50	52	39	39	45	42	36
		-15%	-15%	-17%	-3%	+9%	+12%	-15%	-17%	-2%	-9%	-22%
SON	48	44	44	41	48	56	57	44	41	48	46	40
		-8%	-9%	-15%	0%	+16%	+19%	-8%	-15%	-1%	-3%	-18%
Annual Total	202	185	183	176	201	223	230	185	178	201	192	167
		-9%	-10%	-13%	-1%	+10%	+13%	-9%	-12%	-1%	-5%	-18%

**Table S4.** Comparison of seasonal total runoff between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 8.5.1, RCP 8.5.2, RCP 8.5.3. Bold numbers indicate total runoff, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 1 Only Climate Change (V1)	Variant 2 - Low Retention					Variant 3 - Low Retention				
			More Ponds					More Reservoirs				
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season	Seasonal Total of Total Runoff [mm]											
Climate Scenario	RCP 8.5.1 (RACMO22E)											
DJF	55	55 0%	54 -1%	48 -12%	58 +6%	64 +17%	65 +20%	55 0%	52 -4%	58 +6%	56 +3%	47 -14%
MAM	54	47 -12%	46 -13%	47 -13%	52 -3%	56 +4%	58 +8%	47 -12%	47 -12%	52 -3%	49 -8%	41 -23%
JJA	46	49 +7%	49 +6%	47 +2%	56 +22%	62 +34%	64 +38%	49 +7%	49 +6%	56 +21%	52 +13%	43 -6%
SON	48	49 +1%	48 0%	49 +3%	53 +11%	61 +26%	63 +30%	49 +1%	46 -5%	53 +10%	51 +6%	43 -11%
Annual Total	202	199 -1%	198 -2%	192 -5%	220 +9%	242 +20%	250 +23%	199 -2%	195 -4%	218 +8%	209 +3%	174 -14%
Climate Scenario	RCP 8.5.2 (HIRHAM5)											
DJF	55	52 -5%	52 -5%	50 -9%	55 +1%	60 +10%	61 +11%	52 -5%	50 -8%	56 +3%	54 -2%	47 -13%
MAM	54	61 +13%	60 +12%	60 +12%	65 +20%	67 +25%	68 +27%	61 +13%	61 +13%	66 +22%	62 +16%	57 +6%
JJA	46	53 +15%	52 +14%	52 +14%	59 +27%	63 +36%	64 +38%	53 +15%	53 +14%	60 +29%	56 +21%	50 +9%
SON	48	51 +6%	51 +5%	48 0%	55 +14%	61 +27%	62 +28%	51 +6%	48 +1%	56 +16%	53 +11%	47 -1%
Annual Total	202	217 +7%	215 +6%	211 +4%	233 +15%	251 +24%	254 +26%	217 +7%	212 +5%	237 +17%	225 +11%	202 0%
Climate Scenario	RCP 8.5.3 (RCA4)											
DJF	55	71 +30%	70 +29%	66 +21%	71 +31%	79 +45%	80 +46%	71 +30%	66 +22%	72 +33%	72 +32%	64 +17%
MAM	54	68 +27%	68 +26%	66 +23%	69 +28%	75 +40%	77 +43%	68 +27%	66 +23%	71 +33%	69 +30%	63 +18%
JJA	46	60 +29%	59 +28%	56 +22%	67 +46%	70 +51%	70 +53%	60 +29%	57 +23%	64 +38%	62 +34%	57 +23%
SON	48	70 +45%	69 +44%	64 +32%	68 +42%	80 +67%	81 +68%	70 +45%	64 +34%	72 +50%	72 +49%	64 +33%
Annual Total	202	268 +33%	266 +31%	251 +24%	276 +36%	304 +50%	308 +52%	268 +33%	253 +25%	279 +38%	275 +36%	247 +22%

**Table S5.** Comparison of seasonal sediment yield between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 4.5.1, RCP 4.5.2, RCP 4.5.3. Bold numbers indicate sediment yield, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention					Variant 3 - Low Retention					
		Variant 1 Only Climate Change (V1)	More Ponds				More Reservoirs					
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orkid + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orkid + Cereals (V3.5)
Season	Sediment Yield [t/ha]											
Climate Scenario	RCP 4.5.1 (RACMO22E)											
DJF	0.21	0.17	0.14	0.20	0.20	0.16	0.04	0.17	0.24	0.25	0.20	0.05
		-17%	-32%	-4%	-3%	-21%	-82%	-17%	+18%	+18%	-5%	-77%
MAM	0.18	0.08	0.06	0.13	0.15	0.13	0.02	0.08	0.17	0.17	0.14	0.03
		-58%	-67%	-27%	-21%	-29%	-89%	-58%	-10%	-6%	-26%	-86%
JJA	0.11	0.15	0.12	0.24	0.30	0.26	0.04	0.15	0.30	0.33	0.24	0.05
		+44%	+16%	+131%	+182%	+151%	-59%	+44%	+181%	+214%	+130%	-50%
SON	0.15	0.15	0.13	0.09	0.12	0.12	0.03	0.15	0.12	0.13	0.11	0.04
		0%	-17%	-38%	-18%	-22%	-81%	0%	-24%	-17%	-30%	-77%
Annual Total	0.65	0.55	0.45	0.67	0.77	0.68	0.13	0.55	0.82	0.87	0.68	0.16
		-15%	-31%	+4%	+19%	+4%	-80%	-15%	+27%	+35%	+5%	-75%
Climate Scenario	RCP 4.5.2 (HIRHAM5)											
DJF	0.21	0.11	0.09	0.12	0.13	0.11	0.02	0.11	0.15	0.15	0.13	0.03
		-49%	-58%	-41%	-39%	-47%	-88%	-49%	-29%	-28%	-37%	-87%
MAM	0.18	0.13	0.11	0.25	0.26	0.21	0.04	0.13	0.30	0.31	0.24	0.05
		-31%	-43%	+34%	+39%	+13%	-80%	-31%	+62%	+68%	+31%	-74%
JJA	0.11	0.12	0.10	0.15	0.23	0.23	0.03	0.12	0.19	0.22	0.17	0.04
		+17%	-5%	+47%	+122%	+117%	-70%	+17%	+77%	+110%	+64%	-65%
SON	0.15	0.19	0.16	0.10	0.15	0.16	0.04	0.19	0.13	0.15	0.13	0.05
		+24%	+2%	-31%	+1%	+3%	-72%	+24%	-15%	-1%	-14%	-66%
Annual Total	0.65	0.54	0.45	0.63	0.77	0.70	0.13	0.54	0.76	0.83	0.67	0.16
		-16%	-31%	-3%	+19%	+9%	-79%	-16%	+17%	+28%	+4%	-75%
Climate Scenario	RCP 4.5.3 (RCA4)											
DJF	0.21	0.11	0.09	0.15	0.15	0.13	0.02	0.11	0.17	0.18	0.15	0.03
		-47%	-56%	-30%	-29%	-39%	-89%	-47%	-16%	-16%	-28%	-85%
MAM	0.18	0.15	0.12	0.26	0.27	0.22	0.04	0.15	0.32	0.33	0.25	0.05
		-18%	-33%	+42%	+47%	+19%	-78%	-18%	+73%	+78%	+38%	-72%
JJA	0.11	0.11	0.09	0.08	0.13	0.13	0.02	0.11	0.10	0.13	0.10	0.02
		+5%	-16%	-20%	+22%	+23%	-81%	+5%	-6%	+23%	-8%	-77%
SON	0.15	0.20	0.17	0.13	0.18	0.18	0.04	0.20	0.15	0.18	0.16	0.04
		+33%	+9%	-17%	+18%	+18%	-77%	+33%	0%	+20%	+4%	-71%
Annual Total	0.65	0.57	0.47	0.62	0.72	0.65	0.12	0.57	0.74	0.81	0.66	0.15
		-12%	-28%	-5%	+12%	+1%	-82%	-12%	+15%	+26%	+1%	-77%

**Table S6.** Comparison of seasonal sediment yield between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 8.5.1, RCP 8.5.2, RCP 8.5.3. Bold numbers indicate sediment yield, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention					Variant 3 - Low Retention					
		Variant 1 Only Climate Change (V1)	More Ponds				More Reservoirs					
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season	Sediment Yield [t/ha]											
Climate Scenario	RCP 8.5.1 (RACMO22E)											
DJF	0.21	0.25 +21%	0.21 0%	0.15 -26%	0.34 +65%	0.26 +24%	0.07 -68%	0.25 +21%	0.41 +99%	0.41 +100%	0.30 +47%	0.08 -61%
MAM	0.18	0.07 -63%	0.06 -70%	0.19 +3%	0.18 -3%	0.16 -11%	0.02 -89%	0.07 -63%	0.19 +4%	0.22 +18%	0.17 -7%	0.03 -85%
JJA	0.11	0.22 +107%	0.18 +69%	0.21 +103%	0.29 +171%	0.26 +146%	0.05 -50%	0.22 +107%	0.26 +151%	0.30 +184%	0.23 +120%	0.07 -38%
SON	0.15	0.18 +18%	0.15 -3%	0.31 +102%	0.18 +20%	0.15 -1%	0.04 -74%	0.18 +18%	0.22 +42%	0.22 +45%	0.17 +12%	0.05 -68%
Annual Total	0.65	0.72 +11%	0.59 -10%	0.86 +33%	0.99 +53%	0.83 +28%	0.18 -73%	0.72 +11%	1.08 +67%	1.15 +77%	0.88 +35%	0.22 -66%
Climate Scenario	RCP 8.5.2 (HIRHAM5)											
DJF	0.21	0.12 -42%	0.10 -52%	0.15 -29%	0.15 -29%	0.12 -42%	0.03 -87%	0.12 -42%	0.19 -11%	0.19 -11%	0.15 -26%	0.03 -85%
MAM	0.18	0.24 +32%	0.20 +9%	0.37 +101%	0.38 +106%	0.31 +69%	0.06 -67%	0.24 +32%	0.45 +146%	0.46 +150%	0.37 +99%	0.07 -60%
JJA	0.11	0.21 +103%	0.17 +65%	0.24 +132%	0.32 +200%	0.29 +175%	0.05 -50%	0.21 +103%	0.30 +183%	0.34 +227%	0.27 +154%	0.06 -40%
SON	0.15	0.22 +43%	0.18 +18%	0.15 -1%	0.17 +14%	0.16 +3%	0.05 -69%	0.22 +43%	0.18 +19%	0.20 +32%	0.16 +6%	0.06 -63%
Annual Total	0.65	0.79 +22%	0.65 +1%	0.91 +41%	1.02 +57%	0.88 +35%	0.19 -71%	0.79 +22%	1.11 +72%	1.19 +83%	0.95 +46%	0.22 -65%
Climate Scenario	RCP 8.5.3 (RCA4)											
DJF	0.21	0.14 -34%	0.11 -47%	0.18 -13%	0.16 -24%	0.15 -30%	0.03 -85%	0.14 -34%	0.23 +8%	0.23 +9%	0.17 -16%	0.04 -81%
MAM	0.18	0.16 -13%	0.13 -29%	0.31 +68%	0.31 +67%	0.25 +38%	0.05 -75%	0.16 -13%	0.38 +105%	0.39 +112%	0.30 +61%	0.06 -70%
JJA	0.11	0.14 +32%	0.11 +7%	0.21 +101%	0.43 +307%	0.23 +119%	0.04 -63%	0.14 +32%	0.26 +146%	0.30 +182%	0.22 +105%	0.05 -51%
SON	0.15	0.57 +274%	0.46 +204%	0.42 +178%	0.34 +127%	0.39 +159%	0.12 -19%	0.57 +274%	0.52 +240%	0.54 +259%	0.41 +174%	0.15 0%
Annual Total	0.65	1.00 +55%	0.81 +26%	1.12 +73%	1.24 +91%	1.02 +58%	0.24 -63%	1.00 +54%	1.38 +112%	1.46 +125%	1.10 +70%	0.30 -54%

**Table S7.** Comparison of seasonal actual evapotranspiration between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 4.5.1, RCP 4.5.2, RCP 4.5.3. Bold numbers indicate actual evapotranspiration, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention					Variant 3 - Low Retention					
		Variant 1 Only Climate Change (V1)	More Ponds				More Reservoirs					
			Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season	Seasonal Total of Actual Evapotranspiration [mm]											
Climate Scenario	RCP 4.5.1 (RACMO22E)											
DJF	17	20	27	25	25	27	25	27	25	25	27	25
		+14%	+56%	+48%	+48%	+55%	+46%	+57%	+48%	+48%	+55%	+45%
MAM	138	154	153	120	129	162	162	154	120	132	153	154
		+11%	+11%	-13%	-6%	+17%	+17%	+11%	-13%	-5%	+10%	+11%
JJA	167	166	166	206	223	216	237	166	205	217	194	220
		-1%	0%	+23%	+34%	+30%	+42%	-1%	+23%	+30%	+16%	+32%
SON	50	70	70	66	69	73	88	70	66	68	69	82
		+41%	+41%	+33%	+40%	+48%	+77%	+41%	+33%	+38%	+40%	+66%
Annual Total	372	409	417	418	447	478	512	416	417	442	443	481
		+10%	+12%	+12%	+20%	+29%	+38%	+12%	+12%	+19%	+19%	+29%
Climate Scenario	RCP 4.5.2 (HIRHAM5)											
DJF	17	24	24	23	24	24	23	24	24	24	24	23
		+42%	+41%	+37%	+37%	+41%	+34%	+42%	+37%	+37%	+41%	+34%
MAM	138	149	148	119	126	153	153	149	119	128	146	148
		+7%	+7%	-14%	-9%	+11%	+11%	+7%	-14%	-7%	+6%	+7%
JJA	167	152	153	191	205	197	214	152	191	204	180	203
		-9%	-9%	+14%	+23%	+18%	+28%	-9%	+14%	+22%	+8%	+22%
SON	50	61	61	58	61	64	75	61	58	61	61	73
		+23%	+24%	+18%	+22%	+29%	+52%	+23%	+17%	+22%	+24%	+47%
Annual Total	372	386	386	391	415	438	466	386	391	416	412	447
		+4%	+4%	+5%	+12%	+18%	+25%	+4%	+5%	+12%	+11%	+20%
Climate Scenario	RCP 4.5.3 (RCA4)											
DJF	17	31	31	30	30	31	29	31	30	30	31	29
		+81%	+80%	+75%	+75%	+79%	+67%	+81%	+75%	+75%	+79%	+67%
MAM	138	136	136	113	118	139	138	136	113	121	135	135
		-1%	-2%	-18%	+15%	+1%	0%	-1%	-18%	+12%	-2%	-2%
JJA	167	168	169	203	220	217	235	168	203	220	198	223
		+1%	+1%	+22%	+32%	+30%	+41%	+1%	+22%	+32%	+18%	+34%
SON	50	69	69	66	69	74	89	69	66	69	70	86
		+40%	+40%	+33%	+40%	+50%	+79%	+40%	+32%	+39%	+41%	+73%
Annual Total	372	404	405	412	438	461	490	404	412	440	434	472
		+9%	+9%	+11%	+18%	+24%	+32%	+9%	+11%	+18%	+17%	+27%



**Table S8.** Comparison of seasonal actual evapotranspiration between model SWAT 2010-2017 and V1, V2.1-V2.5 and V3.1-V3.5 for 2041–2050 in the Bystra catchment for climate projection RCP 8.5.1, RCP 8.5.2, RCP 8.5.3. Bold numbers indicate actual evapotranspiration, and shaded numbers indicate percentage change (red indicates % decrease in content and blue indicates % increase in content). Dark red and dark blue shading indicates large changes, while light red and light blue shading indicates small changes (author’s own study).

Time Interval		2041-2050										
Type of Scenario	Model 2010 - 2017	Variant 2 - Low Retention More Ponds					Variant 3 - Low Retention More Reservoirs					
		Variant 1 Only Climate Change (V1)	Cereals (V2.1)	Vegetables (V2.2)	Irrigated Vegetables (V2.3)	Irrigated Vegetables + Cereals (V2.4)	Irrigated Orchard + Cereals (V2.5)	Cereals (V3.1)	Vegetables (V3.2)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season	Seasonal Total of Actual Evapotranspiration [mm]											
Climate Scenario	RCP 8.5.1 (RACMO22E)											
DJF	17	29	29	44	28	29	27	29	28	28	29	27
		+68%	+68%	+157%	+63%	+67%	+55%	+68%	+64%	+64%	+67%	+55%
MAM	138	156	156	154	135	160	159	156	129	138	155	155
		+13%	+13%	+11%	-3%	+16%	+15%	+13%	-7%	0%	+12%	+12%
JJA	167	165	165	180	216	210	229	165	200	216	193	218
		-1%	-1%	+8%	+29%	+26%	+37%	-1%	+20%	+29%	+15%	+30%
SON	50	70	70	48	70	74	88	70	67	70	71	85
		+41%	+41%	-3%	+41%	+48%	+78%	+41%	+36%	+41%	+42%	+72%
Annual Total	372	420	420	426	449	472	503	420	425	452	447	484
		+13%	+13%	+14%	+21%	+27%	+35%	+13%	+14%	+21%	+20%	+30%
Climate Scenario	RCP 8.5.2 (HIRHAM5)											
DJF	17	23	23	22	22	23	22	23	22	22	23	22
		+35%	+35%	+30%	+30%	+34%	+27%	+35%	+31%	+31%	+34%	+27%
MAM	138	135	135	112	116	138	138	135	112	119	134	135
		-2%	-2%	-19%	-16%	0%	0%	-2%	-19%	-14%	-3%	-2%
JJA	167	152	153	186	199	194	210	152	185	203	180	202
		-9%	-8%	+11%	+19%	+16%	+26%	-9%	+11%	+21%	+8%	+21%
SON	50	65	65	63	65	68	79	65	63	65	66	78
		+32%	+32%	+27%	+30%	+37%	+59%	+32%	+26%	+31%	+33%	+57%
Annual Total	372	377	377	382	403	423	449	377	382	410	403	437
		+1%	+1%	+3%	+8%	+14%	+21%	+1%	+3%	+10%	+8%	+17%
Climate Scenario	RCP 8.5.3 (RCA4)											
DJF	17	34	34	33	41	34	32	34	33	33	34	32
		+100%	+100%	+93%	+139%	+98%	+84%	+100%	+93%	+93%	+99%	+85%
MAM	138	141	140	119	139	142	144	141	119	126	139	141
		+2%	+2%	-14%	+1%	+3%	+4%	+2%	-14%	-9%	+1%	+2%
JJA	167	158	159	197	203	205	223	158	197	214	188	211
		-5%	-5%	+18%	+21%	+23%	+34%	-5%	+18%	+28%	+12%	+27%
SON	50	72	73	70	59	75	86	72	69	72	73	84
		+46%	+46%	+40%	+19%	+52%	+74%	+46%	+40%	+46%	+47%	+70%
Annual Total	372	406	406	419	442	457	485	406	419	445	434	468
		+9%	+9%	+13%	+19%	+23%	+30%	+9%	+13%	+20%	+17%	+26%



**Table S9.** Comparison of water withdrawals from irrigation reservoirs for adaptation scenarios V3.3, V3.4, V3.4 in relation to the total amount of water in reservoirs without irrigation (V3.1) in the Bystra catchment from 2041 to 2050 for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate water withdrawals from irrigation reservoirs, and shaded numbers indicate percentage change (red indicates % decrease in content) (author's own study)

Climate Scenario		RCP 4.5				RCP 8.5		
Time Interval		2041-2050						
Type of Scenario	Variant 3 - Low Retention More Reservoirs				Variant 3 - Low Retention More Reservoirs			
	Cereals (V3.1)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)	Cereals (V3.1)	Irrigated Vegetables (V3.3)	Irrigated Vegetables + Cereals (V3.4)	Irrigated Orchard + Cereals (V3.5)
Season	Total Amount of Water in Reservoirs [m <sup>3</sup> ·10 <sup>4</sup> ]							
DJF	1069	1010	1047	889	1095	1068	1084	1001
		-5%	-2%	-17%		-2%	-1%	-9%
MAM	1069	931	1020	908	1096	1015	1068	1002
		-13%	-5%	-15%		-7%	-3%	-9%
JJA	1059	702	857	740	1089	801	970	877
		-34%	-19%	-30%		-26%	-11%	-19%
SON	1065	865	959	746	1094	970	1046	919
		-19%	-10%	-30%		-11%	-4%	-16%
Average Annual	1065	877	971	821	1094	963	1042	950
		-17.7%	-8.9%	-23.0%		-9.6%	-2.2%	-10.9%

**Table S10.** Percentage summary of changes in precipitation, soil water content, sediment yield, total runoff and actual evapotranspiration under V1, V2.1 - V2.5, V3.1 - V3.5 in the years 2041-2050 compared to the SWAT 2010-2017 model scenario, for average values of three GCMs/RCMs combinations under two RCP climate change scenarios (RCP 4.5, RCP 8.5). The summary covers four seasons (DJF, MAM, JJA, SON) in the Bystra catchment. Shaded numbers indicate percentage changes (red indicates % decrease in content, and blue indicates % increase in content) (author's own study).

Season	RCP 4.5					RCP 8.5					Type of Scenario
	Precipitation [mm]	Soil Water Content [mm]	Total Runoff [mm]	Sediment Yield [t/ha]	Actual Evapotranspiration [mm]	Precipitation [mm]	Soil Water Content [mm]	Total Runoff [mm]	Sediment Yield [t/ha]	Actual Evapotranspiration [mm]	
DJF	-8%	-3%	-24%	-38%	+60%	+8%	-1%	+8%	-18%	+68%	V1
MAM	-4%	-4%	-23%	-36%	+6%	+13%	-1%	+9%	-15%	+4%	
JJA	-6%	-4%	-24%	+22%	-3%	+1%	0%	+17%	+81%	-5%	
SON	+7%	-3%	-22%	+19%	+35%	+25%	0%	+17%	+112%	+40%	
<b>Average</b>	-3%	-3%	-23%	-14%	+8%	+11%	0%	+13%	+29%	+8%	
DJF	-8%	-3%	-25%	-49%	+59%	+8%	-1%	+7%	-33%	+68%	V2.1
MAM	-4%	-4%	-23%	-48%	+6%	+13%	-1%	+8%	+30%	+4%	
JJA	-6%	-5%	-25%	-2%	-3%	+1%	0%	+16%	+47%	-5%	
SON	+7%	-3%	-23%	-2%	+35%	+25%	0%	+16%	+73%	+40%	
<b>Average</b>	-3%	-3%	-24%	-30%	+8%	+11%	-1%	+12%	+6%	+8%	
DJF	-8%	-3%	-27%	-25%	+53%	+8%	-1%	0%	-23%	+93%	V2.2
MAM	-4%	0%	-23%	+16%	-15%	+13%	+2%	+7%	+57%	-7%	
JJA	-6%	-6%	-24%	+53%	+20%	+1%	-3%	+13%	+112%	+12%	
SON	+7%	-4%	-28%	-29%	+28%	+25%	0%	+12%	+93%	+21%	
<b>Average</b>	-3%	-3%	-26%	-2%	+9%	+11%	-1%	+8%	+49%	+10%	
DJF	-8%	-3%	-16%	-24%	+53%	+8%	-1%	+13%	+4%	+78%	V2.3
MAM	-4%	+1%	-14%	+22%	-10%	+13%	+1%	+15%	+57%	-6%	
JJA	-6%	-4%	-9%	+109%	+29%	+1%	-1%	+32%	+226%	+23%	
SON	+7%	-3%	-11%	0%	+34%	+25%	0%	+22%	+54%	+30%	
<b>Average</b>	-3%	-2%	-13%	+16%	+16%	+11%	0%	+20%	+67%	+16%	
DJF	-8%	-3%	-7%	-35%	+58%	+8%	-1%	+24%	-16%	+66%	V2.4
MAM	-4%	-2%	-7%	+1%	+9%	+13%	+1%	+23%	+32%	+6%	
JJA	-6%	-1%	+3%	+97%	+26%	+1%	+2%	+40%	+147%	+22%	
SON	+7%	-2%	+4%	+0%	+42%	+25%	0%	+40%	+54%	+46%	
<b>Average</b>	-3%	-2%	-2%	+5%	+23%	+11%	0%	+31%	+40%	+21%	
DJF	-8%	-3%	-4%	-86%	+49%	+8%	-1%	+26%	-80%	+55%	V2.5
MAM	-4%	-2%	-4%	-82%	+9%	+13%	+1%	+26%	-77%	+6%	
JJA	-6%	-1%	+6%	-70%	+37%	+1%	+2%	+43%	-55%	+32%	
SON	+7%	-2%	+6%	-77%	+69%	+25%	0%	+42%	-54%	+70%	
<b>Average</b>	-3%	-2%	0%	-80%	+31%	+11%	1%	+34%	-69%	+29%	
DJF	-8%	-3%	-24%	-38%	+60%	+8%	-1%	+8%	-18%	+68%	V3.1
MAM	-4%	-4%	-23%	-36%	+6%	+13%	-1%	+9%	-15%	+4%	
JJA	-6%	-4%	-24%	+22%	-3%	+1%	0%	+17%	+81%	-5%	
SON	+7%	-3%	-22%	+19%	+35%	+25%	0%	+17%	+112%	+40%	
<b>Average</b>	-3%	-3%	-23%	-14%	+8%	+11%	0%	+13%	+29%	+8%	
DJF	-8%	-3%	-27%	-9%	+53%	+8%	-1%	+3%	+32%	+62%	V3.2
MAM	-4%	0%	-23%	+42%	-15%	+13%	+2%	+8%	+85%	-13%	
JJA	-6%	-6%	-24%	+84%	+20%	+1%	-3%	+14%	+160%	+16%	
SON	+7%	-4%	-27%	-13%	+28%	+25%	-1%	+10%	+101%	+34%	
<b>Average</b>	-3%	-3%	-25%	+20%	+9%	+11%	-1%	+9%	+84%	+10%	
DJF	-8%	-3%	-18%	-9%	+53%	+8%	-1%	+14%	+33%	+62%	V3.3
MAM	-4%	+1%	-15%	+46%	-8%	+13%	+3%	+17%	+93%	-8%	
JJA	-6%	-4%	-11%	+116%	+28%	+1%	-1%	+30%	+197%	+26%	
SON	+7%	-3%	-14%	+1%	+33%	+25%	0%	+25%	+112%	+39%	
<b>Average</b>	-3%	-2%	-15%	+29%	+16%	+11%	0%	+21%	+95%	+17%	
DJF	-8%	-3%	-21%	-23%	+58%	+8%	-1%	+11%	+2%	+67%	V3.4
MAM	-4%	-2%	-20%	+14%	+5%	+13%	0%	+13%	+51%	+3%	
JJA	-6%	-5%	-18%	+62%	+14%	+1%	-1%	+23%	+126%	+12%	
SON	+7%	-3%	-18%	-13%	+35%	+25%	0%	+22%	+64%	+41%	
<b>Average</b>	-3%	-3%	-19%	+4%	+16%	+11%	0%	+17%	+50%	+15%	
DJF	-8%	-9%	-35%	-83%	+49%	+8%	-4%	-3%	-76%	+56%	V3.5
MAM	-4%	-7%	-33%	-78%	+5%	+13%	-1%	0%	-72%	+4%	
JJA	-6%	-13%	-34%	-64%	+29%	+1%	-6%	+9%	-43%	+26%	
SON	+7%	-14%	-34%	-71%	+62%	+25%	-7%	+7%	-44%	+66%	
<b>Average</b>	-3%	-11%	-34%	-76%	+26%	+11%	-5%	+3%	-62%	+24%	

**Table S11.** Comparison of average water flowout from the selected sub-catchments (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 in the Bystra catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate outflow (m<sup>3</sup>/s) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Flow out [m³/s] - subbasin 1							
DJF	0.07	0.07 +7.4%	0.07 0.0%		0.10	0.10 +7.5%	0.10 0.0%		
MAM	0.07	0.07 -1.4%	0.07 0.0%		0.10	0.09 -2.1%	0.10 0.0%		
JJA	0.06	0.06 -3.2%	0.06 0.0%		0.09	0.09 -2.9%	0.09 0.0%		
SON	0.06	0.06 -1.6%	0.06 0.0%		0.09	0.09 -1.7%	0.09 0.0%		
Average annual	0.07	0.07 +0.4%	0.07 0.0%		0.09	0.09 +0.3%	0.09 0.0%		
Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Flow out [m³/s] - subbasin 9							
DJF	0.61	0.64 +5.0%	0.61 +0.9%		0.86	0.90 +5.1%	0.87 +0.9%		
MAM	0.60	0.60 -0.7%	0.60 +0.5%		0.84	0.83 -0.7%	0.84 +0.7%		
JJA	0.54	0.53 -2.0%	0.54 +0.2%		0.79	0.77 -1.7%	0.79 +0.3%		
SON	0.56	0.55 -2.3%	0.56 +0.9%		0.84	0.82 -2.3%	0.84 +1.1%		
Average annual	0.58	0.58 +0.1%	0.58 +0.6%		0.83	0.83 +0.2%	0.84 +0.8%		
Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Flow out [m³/s] - subbasin 22							
DJF	1.19	1.23 +3.4%	1.20 +0.7%		1.66	1.69 +2.0%	1.68 +1.3%		
MAM	1.21	1.22 1.0%	1.22 +0.9%		1.72	1.74 1.3%	1.72 +0.4%		
JJA	1.10	1.08 -1.7%	1.11 +0.6%		1.63	1.60 -1.7%	1.64 +0.9%		
SON	1.11	1.07 -3.0%	1.11 +0.6%		1.64	1.61 -1.6%	1.64 +0.6%		
Average annual	1.15	1.15 0.0%	1.16 +0.7%		1.66	1.66 +0.1%	1.67 +0.8%		
Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Flow out [m³/s] - subbasin 10							
DJF	0.21	0.22 +6.1%	0.21 0.0%		0.29	0.31 +6.4%	0.29 0.0%		
MAM	0.20	0.20 -1.3%	0.20 0.0%		0.28	0.27 -1.8%	0.28 0.0%		
JJA	0.17	0.17 -2.9%	0.17 0.0%		0.26	0.25 -2.8%	0.26 0.0%		
SON	0.19	0.18 -2.4%	0.19 0.0%		0.28	0.27 -2.3%	0.28 0.0%		
Average annual	0.19	0.19 +0.1%	0.19 0.0%		0.28	0.28 +0.0%	0.28 0.0%		
Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Flow out [m³/s] - subbasin 31							
DJF	1.55	1.62 +4.6%	1.58 +2.0%		2.21	2.25 +1.8%	2.24 +1.6%		
MAM	1.62	1.62 -0.1%	1.63 +0.9%		2.25	2.26 +0.4%	2.24 0.0%		
JJA	1.44	1.42 -1.8%	1.44 +0.1%		2.17	2.15 -1.0%	2.19 +1.0%		
SON	1.45	1.40 -3.2%	1.46 +0.8%		2.14	2.11 -1.5%	2.17 +1.6%		
Average annual	1.51	1.51 -0.1%	1.53 +0.9%		2.19	2.19 0.0%	2.21 +1.0%		

**Table S12.** Comparison of average sediment outflow from the selected sub-catchments (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 in the Bystra catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate sediment outflow (metric tonnes) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 1						
		DJF	156	126 -20%	156 0%	194	156 -20%	194 0%
		MAM	133	106 -20%	133 0%	184	147 -20%	184 0%
		JJA	124	99 -20%	124 0%	196	157 -20%	196 0%
SON	212	169 -20%	212 0%	287	229 -20%	287 0%		
Total annual	625	500 -20%	625 0%	860	689 -20%	860 0%		
Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 9						
		DJF	184	198 +7%	187 +1%	291	311 +7%	294 +1%
		MAM	188	187 -1%	189 +1%	288	285 -1%	291 +1%
		JJA	163	159 -2%	163 +1%	266	261 -2%	267 +1%
SON	169	164 -3%	171 +1%	287	278 -3%	291 +2%		
Total annual	704	707 0%	711 +1%	1131	1135 0%	1143 +1%		
Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 22						
		DJF	418	430 +3%	420 +1%	564	566 0%	568 +1%
		MAM	439	444 +1%	443 +1%	605	614 +1%	603 0%
		JJA	391	383 -2%	395 +1%	586	577 -1%	588 0%
SON	392	376 -4%	396 +1%	574	574 0%	573 0%		
Total annual	1639	1634 0%	1653 +1%	2329	2330 0%	2333 0%		

Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 4						
		DJF	187	159 -15%	187 0%	256	218 -15%	256 0%
		MAM	172	147 -15%	172 0%	257	216 -16%	257 0%
		JJA	206	176 -15%	206 0%	323	278 -14%	323 0%
SON	299	254 -15%	299 0%	414	353 -15%	414 0%		
Total annual	864	736 -15%	864 0%	1250	1064 -15%	1250 0%		
Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 10						
		DJF	701	590 -16%	701 0%	939	792 -16%	939 0%
		MAM	637	534 -16%	637 0%	853	717 -16%	853 0%
		JJA	712	598 -16%	712 0%	1040	871 -16%	1039 0%
SON	979	822 -16%	979 0%	1571	1318 -16%	1571 0%		
Total annual	3029	2544 -16%	3029 0%	4402	3698 -16%	4402 0%		
Climate scenario		RCP 4.5			RCP 8.5			
Time interval		2041-2050						
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	
		Sediment outflow [metric tons] - subbasin 31						
		DJF	566	542 -4%	327 -42%	814	732 -10%	535 -34%
		MAM	607	548 -10%	320 -47%	833	729 -13%	511 -39%
		JJA	522	471 -10%	282 -46%	772	716 -7%	479 -38%
SON	547	461 -16%	308 -44%	841	689 -18%	560 -33%		
Total annual	2241	2022 -10%	1237 -45%	3260	2865 -12%	2084 -36%		

**Table S13.** Comparison of mean actual evapotranspiration in the selected sub-catchment (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 in the Bystra catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate actual evapotranspiration (mm) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Actual evapotranspiration [mm] - subbasin 1					
DJF	29.0	29.0 0.00%	29.0 0.00%	30.5	30.5 0.00%	30.5 0.00%	
MAM	154.8	154.8 0.00%	154.8 0.00%	151.6	151.6 0.00%	151.6 0.00%	
JJA	151.6	151.6 0.00%	151.6 0.00%	149.7	149.7 0.00%	149.7 0.00%	
SON	66.8	66.8 0.00%	66.8 0.00%	70.0	70.0 0.00%	70.0 0.00%	
Total annual	402.2	402.2 0.00%	402.2 0.00%	401.8	401.8 0.00%	401.8 0.00%	
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Actual evapotranspiration [mm] - subbasin 9					
DJF	28.0	27.9 -0.10%	28.0 +0.04%	29.5	29.5 -0.09%	29.5 +0.03%	
MAM	143.5	143.2 -0.21%	143.6 +0.08%	141.8	141.5 -0.19%	141.9 +0.07%	
JJA	172.2	172.8 +0.33%	172.0 -0.12%	168.2	168.7 +0.30%	168.0 -0.11%	
SON	68.9	68.9 +0.08%	68.8 -0.03%	71.5	71.6 +0.06%	71.5 -0.02%	
Total annual	412.5	412.8 +0.07%	412.4 -0.02%	411.0	411.3 +0.06%	410.9 -0.02%	
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Actual evapotranspiration [mm] - subbasin 10					
DJF	28.6	28.6 0.00%	28.6 0.00%	30.1	30.1 0.00%	30.1 0.00%	
MAM	149.6	149.6 0.01%	149.6 0.00%	146.6	146.6 0.01%	146.6 0.00%	
JJA	144.1	144.1 0.01%	144.1 0.00%	140.1	140.2 0.01%	140.1 0.00%	
SON	64.6	64.6 0.01%	64.6 0.00%	67.3	67.3 0.01%	67.3 0.00%	
Total annual	387.0	387.0 0.01%	387.0 0.00%	384.1	384.1 0.01%	384.1 0.00%	
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Actual evapotranspiration [mm] - subbasin 22					
DJF	23.9	23.9 0.00%	23.9 0.00%	25.2	25.2 0.00%	25.2 0.00%	
MAM	117.8	117.8 0.00%	117.8 0.00%	120.2	120.2 0.00%	120.2 0.00%	
JJA	211.7	211.7 0.00%	211.7 0.00%	204.6	204.6 0.00%	204.6 0.00%	
SON	69.1	69.1 0.00%	69.1 0.00%	70.5	70.5 0.00%	70.5 0.00%	
Total annual	422.6	422.6 0.00%	422.6 0.00%	420.5	420.5 0.00%	420.5 0.00%	
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Actual evapotranspiration [mm] - subbasin 31					
DJF	25.6	25.5 -0.15%	25.5 -0.12%	26.9	26.9 -0.14%	26.9 -0.11%	
MAM	137.1	136.7 -0.33%	136.8 -0.26%	136.7	136.3 -0.28%	136.4 -0.22%	
JJA	176.5	177.4 +0.47%	177.2 +0.37%	172.3	173.1 +0.45%	172.9 +0.35%	
SON	65.8	65.9 +0.12%	65.9 +0.09%	68.0	68.1 +0.09%	68.1 +0.07%	
Total annual	405.0	405.4 +0.10%	405.3 +0.08%	404.0	404.4 +0.10%	404.3 +0.08%	

**Table S14.** Comparison of average soil water content in the selected sub-catchment (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 in the Bystra catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate soil water content (mm) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 1					
DJF	355.3	355.3 0.00%	355.3 0.00%		357.7	357.7 0.00%	357.7 0.00%
MAM	326.8	326.8 0.00%	326.8 0.00%		334.6	334.6 0.00%	334.6 0.00%
JJA	319.0	319.0 0.00%	319.0 0.00%		329.9	329.9 0.00%	329.9 0.00%
SON	342.9	342.9 0.00%	342.9 0.00%		348.6	348.6 0.00%	348.6 0.00%
Average annual	336.0	336.0 0.00%	336.0 0.00%		342.7	342.7 0.00%	342.7 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 9					
DJF	336.2	335.7 -0.16%	336.4 +0.05%		340.6	340.2 -0.14%	340.8 +0.04%
MAM	313.9	313.5 -0.11%	314.0 +0.03%		321.0	320.6 -0.12%	321.1 +0.03%
JJA	297.4	296.8 -0.20%	297.6 +0.06%		308.0	307.4 -0.20%	308.1 +0.06%
SON	320.0	319.4 -0.20%	320.2 +0.06%		328.3	327.7 -0.17%	328.4 +0.05%
Average annual	316.9	316.4 -0.17%	317.1 +0.05%		324.5	323.9 -0.16%	324.6 +0.05%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 10					
DJF	287.1	287.4 +0.08%	287.2 0.00%		289.3	289.5 +0.08%	289.3 0.00%
MAM	257.2	257.4 +0.09%	257.2 0.00%		265.6	265.9 +0.09%	265.6 0.00%
JJA	248.5	248.8 +0.09%	248.6 0.00%		261.0	261.3 +0.09%	261.0 0.00%
SON	274.2	274.4 +0.08%	274.2 0.003%		280.2	280.4 +0.08%	280.2 0.00%
Average annual	266.8	267.0 +0.08%	266.8 0.00%		274.0	274.3 +0.08%	274.0 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 22					
DJF	342.5	342.1 -0.10%	342.2 -0.08%		349.2	349.0 -0.06%	349.0 -0.05%
MAM	321.9	321.8 -0.02%	321.9 -0.01%		331.0	330.9 -0.02%	330.9 -0.01%
JJA	298.8	298.4 -0.14%	298.5 -0.11%		311.3	310.9 -0.14%	311.0 -0.11%
SON	322.8	322.3 -0.17%	322.4 -0.13%		334.4	334.0 -0.12%	334.1 -0.09%
Average annual	321.5	321.2 -0.11%	321.2 -0.08%		331.5	331.2 -0.08%	331.2 -0.06%

Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 4					
DJF	355.3	355.3 0.00%	355.3 0.00%		357.7	357.7 0.00%	357.7 0.00%
MAM	326.8	326.8 0.00%	326.8 0.00%		334.7	334.7 0.00%	334.7 0.00%
JJA	319.0	319.0 0.00%	319.0 0.00%		330.0	330.0 0.00%	330.0 0.00%
SON	342.9	342.9 0.00%	342.9 0.00%		348.7	348.7 0.00%	348.7 0.00%
Average annual	336.0	336.0 0.00%	336.0 0.00%		342.8	342.8 0.00%	342.8 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 10					
DJF	287.1	287.4 +0.08%	287.2 0.00%		289.3	289.5 +0.08%	289.3 0.00%
MAM	257.2	257.4 +0.09%	257.2 0.00%		265.6	265.9 +0.09%	265.6 0.00%
JJA	248.5	248.8 +0.09%	248.6 0.00%		261.0	261.3 +0.09%	261.0 0.00%
SON	274.2	274.4 +0.08%	274.2 0.003%		280.2	280.4 +0.08%	280.2 0.00%
Average annual	266.8	267.0 +0.08%	266.8 0.00%		274.0	274.3 +0.08%	274.0 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Soil water content [mm] - subbasin 31					
DJF	324.3	324.3 0.00%	324.3 0.00%		339.1	339.1 0.00%	339.1 0.00%
MAM	315.5	315.5 0.00%	315.5 0.00%		327.1	327.1 0.00%	327.1 0.00%
JJA	274.3	274.3 0.00%	274.3 0.00%		290.2	290.2 0.00%	290.2 0.00%
SON	292.6	292.6 0.00%	292.6 0.000%		314.5	314.5 0.00%	314.5 0.00%
Average annual	301.7	301.7 0.00%	301.7 0.00%		317.7	317.7 0.00%	317.7 0.00%

**Table S15.** Comparison of mean total runoff in the selected sub-catchment (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 in the Bystra River catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate total runoff (mm) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 1					
DJF	45.2	44.5 -1.55%	45.2 0.00%		63.4	62.4 -1.58%	63.4 0.00%
MAM	44.2	43.5 -1.66%	44.2 0.00%		61.8	60.8 -1.67%	61.8 0.00%
JJA	39.0	37.8 -3.19%	39.0 0.00%		58.9	57.1 -3.09%	58.9 0.00%
SON	42.1	41.1 -2.31%	42.1 0.00%		61.5	60.2 -2.17%	61.5 0.00%
Total annual	170.4	166.8 -2.14%	170.4 0.00%		245.7	240.5 -2.11%	245.7 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 9					
DJF	42.3	41.9 -0.96%	42.3 +0.06%		60.5	59.9 -0.96%	60.5 +0.05%
MAM	41.8	41.4 -1.05%	41.9 +0.05%		59.3	58.8 -0.95%	59.4 +0.04%
JJA	36.6	36.0 -1.82%	36.6 +0.05%		56.2	55.3 -1.68%	56.3 +0.04%
SON	39.1	38.6 -1.40%	39.1 +0.07%		58.5	57.7 -1.30%	58.5 +0.05%
Total annual	159.9	157.8 -1.29%	160.0 +0.06%		234.6	231.7 -1.22%	234.7 +0.04%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 22					
DJF	37.4	36.6 -2.09%	37.3 -0.23%		53.9	52.8 -2.09%	53.8 -0.16%
MAM	37.9	37.0 -2.41%	37.8 -0.19%		53.5	52.4 -2.17%	53.5 -0.12%
JJA	30.9	30.0 -2.93%	30.8 -0.23%		47.6	46.4 -2.51%	47.6 -0.17%
SON	33.5	32.6 -2.61%	33.4 -0.24%		51.1	49.8 -2.62%	51.0 -0.18%
Total annual	139.7	136.2 -2.49%	139.4 -0.22%		206.2	201.4 -2.34%	205.9 -0.16%

Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 4					
DJF	44.9	44.6 -0.76%	44.9 0.00%		63.3	62.8 -0.84%	63.3 0.00%
MAM	44.1	43.7 -0.88%	44.1 0.00%		61.5	61.0 -0.87%	61.5 0.00%
JJA	38.5	37.8 -1.90%	38.5 0.00%		58.2	57.1 -1.85%	58.2 0.00%
SON	41.9	41.3 -1.34%	41.9 0.00%		61.3	60.6 -1.25%	61.3 0.00%
Total annual	169.4	167.4 -1.19%	169.4 0.00%		244.3	241.4 -1.19%	244.3 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 10					
DJF	41.8	41.3 -1.16%	41.8 0.00%		58.7	58.0 -1.19%	58.7 0.00%
MAM	41.3	40.8 -1.28%	41.3 0.00%		57.2	56.5 -1.26%	57.2 0.00%
JJA	35.3	34.4 -2.43%	35.3 0.00%		53.0	51.8 -2.27%	53.0 0.00%
SON	38.0	37.4 -1.73%	38.0 0.00%		56.5	55.5 -1.78%	56.5 0.00%
Total annual	156.4	153.8 -1.62%	156.4 0.00%		225.4	221.8 -1.61%	225.4 0.00%
Climate scenario		RCP 4.5			RCP 8.5		
Time interval		2041-2050					
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)
Season		Total runoff [mm] - subbasin 31					
DJF	32.5	29.8 -8.38%	32.5 0.00%		51.9	47.8 -7.83%	51.9 0.00%
MAM	34.0	30.9 -8.99%	34.0 0.00%		52.0	47.9 -8.02%	52.0 0.00%
JJA	24.3	22.2 -8.59%	24.3 0.00%		41.6	38.7 -7.06%	41.6 0.00%
SON	27.2	24.8 -8.85%	27.2 0.00%		47.9	43.9 -8.21%	47.9 0.00%
Total annual	118.0	107.7 -8.71%	118.0 0.00%		193.4	178.3 -7.81%	193.4 0.00%



**Table S16.** Comparison of average sediment yield in the selected sub-catchment (1, 4, 9, 10, 22, 31) by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for 2041-2050 in the Bystra catchment for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate sediment yield (t/ha) and shaded numbers indicate percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5					RCP 8.5				
Time interval		2041-2050					2041-2050				
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more reservoirs - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)
Season	Sediment yield [t/ha] - subbasin 1						Sediment yield [t/ha] - subbasin 4				
DJF	0.14	0.11 -19.67%	0.14 0.00%	0.17	0.14 -19.53%	0.17 0.00%	0.06	0.05 -15.2%	0.06 0.00%	0.08	0.07 -15.2%
MAM	0.12	0.09 -19.93%	0.12 0.00%	0.16	0.13 -20.08%	0.16 0.00%	0.06	0.05 -15.8%	0.06 0.00%	0.08	0.07 -15.9%
JJA	0.11	0.09 -20.01%	0.11 0.00%	0.17	0.14 -20.03%	0.17 0.00%	0.07	0.06 -15.9%	0.07 0.00%	0.11	0.09 -15.7%
SON	0.19	0.15 -19.92%	0.19 0.00%	0.25	0.20 -19.99%	0.25 0.00%	0.10	0.08 -15.8%	0.10 0.00%	0.14	0.12 -15.8%
Total annual	0.55	0.44 -19.88%	0.55 0.00%	0.76	0.61 -19.92%	0.76 0.00%	0.28	0.24 -15.7%	0.28 0.00%	0.41	0.35 -15.7%
Climate scenario		RCP 4.5					RCP 8.5				
Time interval		2041-2050					2041-2050				
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)
Season	Sediment yield [t/ha] - subbasin 9						Sediment yield [t/ha] - subbasin 10				
DJF	0.16	0.13 -16.30%	0.16 +0.40%	0.19	0.16 -16.24%	0.19 +0.53%	0.20	0.17 -15.70%	0.20 -0.02%	0.27	0.23 -15.72%
MAM	0.13	0.11 -16.59%	0.13 +0.63%	0.18	0.15 -16.47%	0.18 +0.53%	0.18	0.15 -16.05%	0.18 0.00%	0.25	0.21 -15.98%
JJA	0.13	0.11 -16.55%	0.13 +0.76%	0.20	0.17 -16.49%	0.21 +0.54%	0.21	0.17 -16.01%	0.21 0.00%	0.30	0.25 -16.07%
SON	0.22	0.19 -16.46%	0.22 +0.56%	0.30	0.25 -16.51%	0.30 +0.50%	0.28	0.24 -16.03%	0.28 -0.01%	0.45	0.38 -16.10%
Total annual	0.64	0.53 -16.47%	0.64 +0.57%	0.88	0.73 -16.44%	0.88 +0.52%	0.87	0.73 -15.95%	0.87 -0.01%	1.27	1.07 -15.99%
Climate scenario		RCP 4.5					RCP 8.5				
Time interval		2041-2050					2041-2050				
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)
Season	Sediment yield [t/ha] - subbasin 22						Sediment yield [t/ha] - subbasin 31				
DJF	0.12	0.10 -16.64%	0.12 -1.63%	0.16	0.14 -16.62%	0.16 -1.72%	0.00	0.00 -3.57%	0.00 0.00%	0.01	0.01 -5.34%
MAM	0.14	0.12 -16.89%	0.14 -1.68%	0.16	0.14 -16.81%	0.16 -1.72%	0.00	0.00 -20.65%	0.00 0.00%	0.00	0.00 -21.85%
JJA	0.15	0.12 -16.98%	0.15 -1.80%	0.21	0.18 -17.01%	0.21 -1.83%	0.00	0.00 -18.18%	0.00 0.00%	0.00	0.00 -18.67%
SON	0.22	0.18 -16.96%	0.21 -1.67%	0.49	0.40 -16.97%	0.48 -1.73%	0.00	0.00 0.00%	0.00 0.00%	0.00	0.00 -20.00%
Total annual	0.63	0.52 -16.89%	0.62 -1.69%	1.03	0.85 -16.90%	1.01 -1.75%	0.01	0.01 -11.95%	0.01 0.00%	0.02	0.02 -13.65%

**Table S17.** Summary of the average: actual evapotranspiration (mm), soil water content (mm), total runoff (mm) and sediment yield (t/ha) for the entire Bystra catchment by season between Variant 1 (V1 - BaU) and Variants 2.1 and 3.1 for the years 2041-2050 for climate scenarios RCP 4.5 and RCP 8.5. Bold numbers indicate the corresponding value and shaded numbers indicate the percentage change. Shade of red indicates % decrease in content and shade of blue indicates % increase in content (author's own elaboration).

Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Actual evapotranspiration [mm] - entire catchment							
DJF	27.4	27.4	27.4	28.9	28.8	28.9	28.9	28.9	
		-0.13%	0.00%		-0.12%	0.00%			
MAM	146.2	145.9	146.2	144.1	143.8	144.1	144.1	144.1	
		-0.25%	-0.01%		-0.21%	-0.01%			
JJA	161.8	162.5	161.8	158.4	159.0	158.4	158.4	158.4	
		+0.43%	+0.01%		+0.41%	+0.01%			
SON	66.7	66.8	66.7	69.3	69.4	69.3	69.3	69.3	
		+0.11%	0.00%		+0.09%	0.00%			
Total annual	402.2	402.6	402.2	400.7	401.0	400.7	400.7	400.7	
		+0.10%	0.00%		+0.10%	0.00%			

Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Soil water content [mm] - entire catchment							
DJF	335.2	334.8	335.2	340.5	340.3	340.5	340.5	340.5	
		-0.11%	-0.01%		-0.06%	0.00%			
MAM	310.5	310.4	310.4	320.0	319.9	320.0	320.0	320.0	
		-0.03%	-0.01%		-0.02%	0.00%			
JJA	295.4	295.0	295.4	308.4	308.0	308.4	308.4	308.4	
		-0.15%	-0.01%		-0.13%	-0.01%			
SON	318.7	318.2	318.7	328.0	327.7	328.0	328.0	328.0	
		-0.17%	-0.01%		-0.12%	-0.01%			
Average annual	314.9	314.6	314.9	324.2	324.0	324.2	324.2	324.2	
		-0.12%	-0.01%		-0.08%	-0.01%			

Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Total runoff [mm] - entire catchment							
DJF	41.6	41.2	41.6	59.1	58.6	59.1	59.1	59.1	
		-0.96%	-0.01%		-0.89%	-0.01%			
MAM	41.5	41.1	41.5	58.6	58.1	58.6	58.6	58.6	
		-0.99%	-0.01%		-0.88%	-0.01%			
JJA	35.0	34.7	35.0	53.9	53.5	53.9	53.9	53.9	
		-0.96%	-0.01%		-0.80%	-0.01%			
SON	37.5	37.1	37.5	56.5	55.9	56.5	56.5	56.5	
		-1.02%	-0.02%		-0.94%	-0.01%			
Total annual	155.6	154.1	155.6	228.1	226.1	228.1	228.1	228.1	
		-0.98%	-0.01%		-0.88%	-0.01%			

Climate scenario		RCP 4.5				RCP 8.5			
Time interval		2041-2050							
Type of scenario	Variant 1 only climate change (V1)	Variant 2 - low retention more ponds cereals (V2.1)	Variant 3 - low retention more reservoirs cereals (V3.1)		Variant 1 only climate change (V1)	Variant 2 - low retention more ponds - cereals (V2.1)	Variant 3 - low retention more reservoirs - cereals (V3.1)		
Season		Sediment yield [t/ha] - entire catchment							
DJF	0.13	0.11	0.13	0.17	0.14	0.17	0.17	0.17	
		-17.78%	0.00%		-17.91%	0.00%			
MAM	0.12	0.10	0.12	0.16	0.13	0.16	0.16	0.16	
		-18.59%	0.00%		-18.05%	-0.21%			
JJA	0.13	0.10	0.13	0.19	0.15	0.19	0.19	0.19	
		-19.27%	0.00%		-18.80%	0.00%			
SON	0.18	0.15	0.18	0.32	0.26	0.32	0.32	0.32	
		-17.74%	0.00%		-18.40%	-0.10%			
Total annual	0.56	0.45	0.56	0.84	0.68	0.84	0.84	0.84	
		-18.29%	0.00%		-18.33%	-0.08%			