

Integrated application of innovative water management methods at river basin by coordination of local governments” project title, LIFE20 CCA/HU/001604 administartion numberLIFE LOGOS 4 WATERS projet
EXECUTIVE REPORT
lowland water retention solutions in Bática, Kalocsa, Drágszél, Foktő and Dusnok

Initial steps

In 2017, we implemented the LIFE MICACC project pilot area on the edge of the built-up area of the settlement of Bática (<https://vizmegtartomegoldasok.hu/vizmegtartomegoldasok.bm.hu/hu.html>). The years since have clearly demonstrated the importance and positive impacts of municipal-scale natural water retention. The anticipated hydrological and ecological outcomes represent only a part of the many benefits that the creation of the retention pond has brought to everyday life in Bática. The continuous consultations held with local stakeholders prior to construction initiated a shared, awareness-raising approach to municipal water management. The strategic importance of the pilot area was further strengthened by the implementation of several rainwater collection projects within the framework of the TOP funding scheme, also located in the built-up area of the settlement. As a result, a significant proportion of the nearly 10 km-long rainwater drainage ditch network now discharges into the MICACC retention pond. Thanks to the LIFE MICACC project, the Municipality of Bática became a pioneer within the Sárköz water system in the practical application of integrated water management, setting an example for neighbouring settlements. Building on this experience, the LIFE LOGOS 4 WATERS project was subsequently launched with the involvement of Bática and four additional neighbouring municipalities (<https://lifelogos4waters.bm.hu/>). The LOGOS project continued to pursue a comprehensive approach to municipal water management. Within the project, low-cost, small-scale technical interventions were implemented, delivering effective and nature-based outcomes. Existing and abandoned oxbow lakes and channels were rehabilitated, and new, landscape-integrated wetland habitats were created. The beneficiaries of these investments are, in all cases, the local communities, farmers and land users, as well as the natural environment and biodiversity.

Following the establishment of the LOGOS project consortium—comprising Bática, Drágszél, Dusnok, Foktő and Kalocsa—the Catchment Stakeholder Forum (Vízgyűjtő Érdekegyeztető Fórum, VÉF) was set up. The forum provided a professional platform for discussing water management issues relevant to the project. Through its establishment, a broad range of stakeholders were actively involved in local water management matters and in the project implementation process—from site selection and planning of interventions to their on-site implementation.

The primary objective of the Catchment Stakeholder Forum (MCF) was to identify and assess climate-related risks affecting residents and land users in the Sárköz catchment area—such as drought—and to develop joint solutions to mitigate these risks.

The MCF was composed of representatives of the municipalities concerned, delegates from civil society organisations, local farmers and entrepreneurs, members of the LIFE LOGOS 4 WATERS project partnership, as well as experts from the territorially competent Water Directorate and the Government Office. Local members participating in the forum were granted voting rights, which were complemented by the work of a continuously operating Supporting Advisory Board consisting of professional representatives of the project consortium.

Within the framework of the MCF, local stakeholders were able to submit project ideas, which were professionally assessed by the advisory board, reviewed through site visits, and summarised in a consolidated recommendation. This process ensured that local members with voting rights could make well-informed decisions on which water retention solutions should be implemented using the funds available within the project.

This community-based initiative supported the implementation of integrated water management at municipal level, ensuring that not only technical, but also social and economic aspects were taken into account during the planning and implementation of water retention measures.

Among the lowland pilot areas, the Drágszél demonstration site—a cut-off oxbow located next to the Sárközi-III main channel—was selected by the MCF. The site selection was preceded by several joint field visits. Key criteria included achieving the greatest positive impact with low investment costs, which was found to be optimally balanced through the inundation of this former channel. The location and long-term sustainability of the site were also decisive factors. As the oxbow can be continuously supplied with fresh water from the adjacent main channel, water replenishment could be easily implemented by gravity using a small water control structure.

The same level of careful consideration was applied when selecting the other project sites. During the planning phase, ecological surveys were carried out at all intervention locations to assess local biodiversity. Studies were conducted to identify characteristic aquatic, riparian and terrestrial species and their population sizes. In addition, prior to construction, diseased tree specimens were identified in the surroundings of the project sites; apart from these, no trees were removed during implementation.

The planning and permitting process was greatly facilitated by the involvement of the Hungarian Chamber of Engineers as a project partner, and by the participation of representatives of the permitting authorities—including water management, environmental protection and nature conservation authorities—as cooperating partners. As a result, professional issues could be discussed smoothly, the Hungarian Chamber of Engineers demonstrated openness towards nature-based design approaches, and the authorities provided numerous supportive recommendations for the accurate preparation of permitting documentation. By incorporating these inputs, the permitting procedure was significantly shortened.

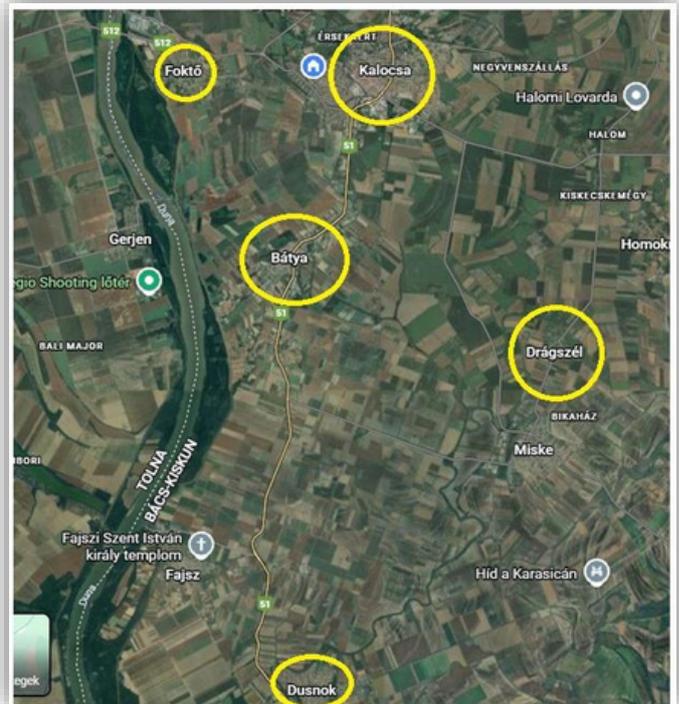
in our experience, the preparation of the permitting plans and the acquisition of water management construction permits proceeded without obstacles thanks to continuous consultation with the authorities. This was followed by the selection of construction companies through a public procurement procedure.

During the planning phase, as well as before and during construction, public information forums were organised in all affected settlements to present the planned interventions. In smaller municipalities, local residents were generally open and receptive to information related to water retention and project implementation. In Kalocsa, however, stronger initial public resistance was encountered. Through repeated presentations and transparent, honest communication, these initial difficulties were gradually resolved, allowing the rehabilitation interventions in Kalocsa to be implemented in a constructive and cooperative atmosphere.

Following the successful completion of construction works, all project sites obtained valid water management operation permits.

Below, the interventions implemented are detailed site by site:

Location of the neighbouring municipalities participating in the project within the Kalocsai Sárköz region



Implementation of the Bátya Oxbow Rehabilitation:

Within the framework of the project, we rehabilitated a previously cut-off and abandoned oxbow belonging to the Sárközi-I Main Channel. The oxbow is located in the outskirts of Bátya, and its channel had become heavily overgrown. The proximity of the Sárközi-I Main Channel was a key factor in selecting this oxbow for rehabilitation, as it provided favourable conditions for restoring hydrological connectivity and long-term water supply.

as this allows the main channel to provide a continuous supply of fresh water, thereby creating wetland and riparian habitats in the surrounding area. In addition to clearing the existing oxbow channel and filling it with water, a shallow lake was also created during construction, increasing the extent of open water surfaces.

Water inflow is regulated via a small gated control structure connecting the Sárközi-I Main Channel with the lake and the oxbow through a feeder channel. Water level fluctuations in the areas to be inundated are monitored using an installed staff gauge.

The technical parameters of the newly created lake basin and the rehabilitated oxbow are as follows:

The areas affected by the investment are located on the properties Bática, cadastral parcels No. 017/2 and 27/3, which belong to the Sárköz water system catchment.

On parcel Bática 017/2, an inlet channel was constructed, providing water supply for the oxbow and the lake via the Sárközi-I Main Channel.

The inlet channel	Length: 25 m, Side slope of the channel bed: 1:2, Bottom slope: 1:5, Bottom width: 1.0 m, Bottom elevation: 88.20 m a.s.l., Water surface area at maximum water level (88.80 m a.s.l.): 259 m ² , Water volume at maximum water level (88.80 m a.s.l.): 148 m ³
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The constructed side lake – side slope: 1:1

The rehabilitated oxbow:	Bottom elevation: 87.50 m a.s.l., Water surface area at maximum water level (88.80 m a.s.l.): 317 m ² , Water volume at maximum water level (88.80 m a.s.l.): 297 m ³ , Maximum water level: 88.80 m a.s.l., Length: 350 m Side slope: variable, between 1:3 and 1:10, Bottom elevation: 87.50 m a.s.l., Water surface area at maximum water level (88.80 m a.s.l.): 6,228 m ² , Water volume at maximum water level (88.80 m a.s.l.): 4,217 m ³ , Maximum water level: 88.80 m a.s.l.
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The dimensions of the installed gravity pipeline, located beneath the access path between the inlet channel and the oxbow, are as follows: a DN500 KG-PVC pipe with a length of 26.7 m, connected to a DN100 concrete manhole. Water abstraction is carried out from the Sárköz-I Main Channel at chainage 40+680 (Bática, cadastral parcel 027/3; EOY X = 125,324; EOY Y = 645,369) by means of a gated control structure. Method of water abstraction: gravity

Abstraction capacity: 300 l/s

Water abstraction structure: sluice

Purpose of water use: ecological (100%)

Water demand:

The one-time initial filling water demand of the facilities is 4,662 m³.

The annual water abstraction volume after filling is 8,769 m³/year.

Water demand allocated in Year 1:
(4,662 m³/year + 8,769 m³/year) =
13,431 m³/year

Water demand allocated from Year 2 onwards:

8,769 m³/year



The water resources of the Sárközi-I Main Channel are managed by the Lower Danube Valley Water Directorate. According to the draft water supply agreement, the ecological water demand specified in the water operation permit and required for the rehabilitation may be utilised during the vegetation (irrigation) period.



by the Directorate outside the vegetation (irrigation) period, namely between 1 November and 28 February. In the current year, the oxbow and the side lake were filled for the first time during the months of November and December, and the effectiveness of the filling process is being continuously monitored. In the event of evaporation or a decrease in water level, water losses are replenished by opening the inlet control structure. During each filling event, the duration of the filling is recorded, and water level changes are monitored using the installed staff gauge. Based on the known dimensional data of the inundated area, the volume of water used for filling is calculated in order to ensure that the allocated and contracted water volume is not exceeded.

Rehabilitated oxbow in the outskirts of Bática; below the oxbow, the Sárközi-I Main Channel can be seen, providing water replenishment



Wetland rehabilitation implemented at the end of the Garden District streets in Kalocsa:

At the south-western edge of Kalocsa, at the end of the Garden District residential area, previously abandoned lake basins were rehabilitated. The intervention area was divided into five sections, resulting in the restoration of five smaller sites and the creation of new wetland habitats. The project ensured gravity-based water supply to the basins, while also enabling pump-assisted drainage when necessary through the installation of dedicated pump stations.

The ecological water demand of the lakes is supplied by the nearby Csorna–Foktő Canal, a dual-function canal that continuously conveys fresh surface water, with an average discharge of approximately 2–2.5 m³/s along this section.

Water abstraction is facilitated by a sluice with a stop-log gate, and water is conveyed to the sections via a closed underground pipeline system. In addition to the sluice, slide-gate closures are also available.

The water supply system of the fields is organised as follows:

- Sections 1 and 2 are hydraulically connected in an overflow system; once the water level in Section 1 reaches a certain threshold, it flows into Section 2.
- Section 3 receives an independent water supply.
- Sections 4 and 5 are also interconnected in a cascading inundation system.

Around the lakes, several outdoor wooden garden furniture elements were installed, and educational trail-style information boards were placed along the sections. In Section 5, a pavilion was constructed, providing a venue for outdoor events and community programmes.

The restored areas serve both as recreational spaces for various age groups and as excellent venues for organised outdoor educational and community activities, combining ecological restoration with social and educational functions.

The technical parameters of the constructed sections are as follows:

The areas affected by the investment are located on the properties Kalocsa, cadastral parcels No. 9843/3, 9843/4, 9843/5, 9843/6, 9843/7 and 0540, which belong to the Sárköz water system catchment area.

A water abstraction structure was constructed to provide water supply to Section 1, enable the periodic inundation of Section 2, and ensure water replenishment for Sections 3, 4 and 5.

Through water abstraction from the Csorna–Foktő Canal, the filling of the lakes, and the proper operation of the control sluice, effective water retention can be achieved within the system.

To manage potential emergency situations caused by excess water within the lake system, a pressurised pipeline was installed to convey surplus water to a designated receiving water body.

The following components were implemented:

- Reshaping of the north-western slope of the lake basin located in Section 4;
- Flattening of the southern slope of the lake located in Section 5;
- Hydraulic connection of the two previously separate lakes in Section 5 by means of an earthen channel.

Location of the water abstraction structure: Csorna–Foktő Canal, chainage 6+830, Kalocsa,

cadastral parcel No. 0540 (EOV X = 130,797; EOY Y = 643,217)

Maximum abstraction discharge: 0,066 m³/s
Daily water abstraction: 5711 m³/day
Annual water abstraction: 114220 m³/év (20
Method of water abstraction: day/year)
Water abstraction structure: gravity
flood gate
Purpose of water use: ecological (100%)

Surface water inflow:

Location: Csorna-Foktői-Canal 6+835 cskm, Kalocsa, cadastral parcel No. 0540 (EOV 130 795, 643 222)

Inlet structure: Pipe outlet

Maximum inflow discharge: 0,017 m³/s

Annual water inflow: 0 m³/year

Section 1:

Location:
Design / configuration: Kalocsa, 9843/7 hrsz. (EOV 130 874, 643 246)
Maximum operating water level: 89,40 m B.f.
Bottom elevation: 88,40 m B.f. 2. sz. mező, 88,90 m B.f.
Water surface area: 429 m²
Side slope: 1:3

Section 2:

Bottom elevation: Kalocsa, 9843/6 hrsz. (EOV 130 921, 643 179)
Length of infiltration trench: 88,57-88,60 m B.f.
208.2 m

Section 3:

Location:
Maximum operating water level: Kalocsa, 9843/5 hrsz. (EOV 131 006, 643 091)
Bottom elevation: 89,40 m B.f.
Water surface area: 87,05 m B.f.
1151 m²

Section 4:

Location:
Maximum operating water level: Kalocsa, 9843/4 hrsz. (EOV 131 078, 643 0009)
Bottom elevation: 89,40 m B.f.
Water surface area: 87,00 m B.f.
2637 m²

Section 5:

Location:
Maximum operating water level: Kalocsa, 9843/3 hrsz. (EOV 131 152, 642 931)
Bottom elevation of Lake 5/1: 89,40 m B.f.
Bottom elevation of Lake 5/2: 87,24 m B.f.
Water surface area: 87,10 m B.f.
1664 m²

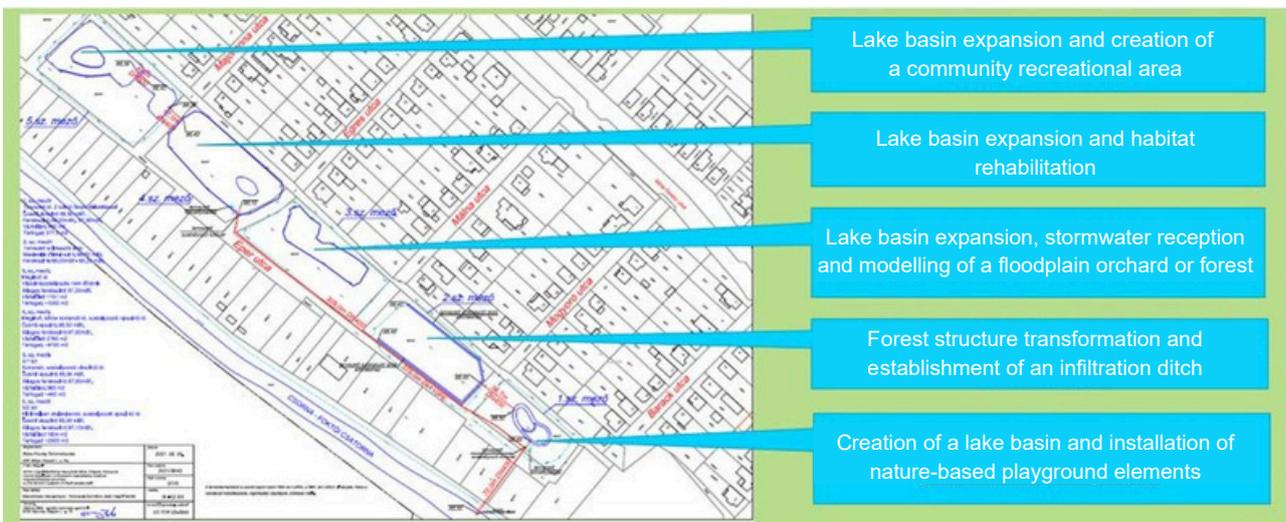
Water demand:

Daily water abstraction: 5711 m³/day
Annual water abstraction: **114.200 m³/year (20 day/year)**
Location of water abstraction: Csorna-Foktői-csatorna 6+830 cskm (Kalocsa,
EOV coordinates of abstraction point: 0540 hrsz.) X= 130797 m, Y= 643 217 m gravitációs
Method of water abstraction: **114.200 m³/év (20 nap / év)**
Annual contracted water demand:

At present, the filling of the constructed sections with water began in November. We pay particular attention to maintaining the maximum operating water levels defined in the operational regulations, especially in order to safeguard the condition and property of nearby residential buildings. During the filling periods, we must also take into account the precipitation falling on the area, and therefore continuously monitor hydrogeological forecasts. The basin filling did not begin from completely dry conditions, as in four out of the five lakes, permanent low-flow water sections were already present, while in one case

– In Section 2, the basin was dry; however, only periodic inundation was planned there. Due to the presence of an initial water reserve in the other lakes, the seepage effect occurring at the beginning of filling was significantly less pronounced. The filling process is supported by a small stop-log control structure, after which a gravity pipeline distributes the water among the sections.

Excess water accumulating in the basins can be conveyed back to the Csorna–Foktő Canal via a pressurised pipeline, using pumps connected at two designated pump stations established on site. The construction works were carried out in a way that ensured the sections harmoniously integrate into the Garden District green area, creating a nature-oriented environment for both local residents and visitors. The future operation and maintenance of the area will be the responsibility of the Municipality of Kalocsa.



Five-Section Habitat Rehabilitation Implemented in Kalocsa

Implementation of the Drágszél Oxbow Rehabilitation:

The rehabilitation of the oxbow located in the outskirts of Drágszél was similar in nature to the works carried out in Bátya. A previously cut-off and partially silted-up oxbow of the Sárközi-III Main Channel was supplied with fresh water, its channel was cleared along a stretch of nearly 1 river kilometre, and side retention areas were created to support biodiversity and enhance water storage capacity. The hydraulic connection between the oxbow and the Sárközi-III Main Channel was restored. The filling process is regulated by a small stop-log control structure. In the event of high water levels in the main channel, the oxbow can be inundated by opening the sluice, and the introduced water can be retained locally by closing it. The properties located in the immediate vicinity of the oxbow are classified as reed-managed areas, where higher water levels and occasional inundation do not pose any problems. The location of the oxbow is therefore optimal from a water retention perspective.

The technical parameters of the rehabilitated oxbow are as follows:

<i>Centroid EOv coordinates of the reservoir:</i>	X= 125 998 m
<i>Regulated water surface area:</i>	Y= 648 130 m
<i>Operating water level of the reservoir:</i>	2,99 ha
<i>Constructed bottom elevation within the oxbow:</i>	88,70 mBf.
<i>One-time initial filling water demand of the facilities:</i>	87,90 mBf.
<i>Annual water abstraction volume (after initial filling):</i>	5384 m ³ 2600 m ³ /év
<i>Location of water abstraction:</i>	Sárköz-III. főcsatorna 4+950 cskm
	(right side) (Drágszél, 069,cadastral parcel No: 071)
<i>EOv coordinates of the abstraction point:</i>	X= 126 376 m
	Y= 648 841 m
<i>Method of water abstraction:</i>	gravity
<i>Water abstraction structure:</i>	Prefabricated water intake sluice equipped with a stop-log headwall and a screw-operated gate mechanism, DN400 KG-PVC pipe leading toward the planned channel bed, Slope: 1.9‰, Length: 10.5 m
<i>Water intake level from the Sárközi-III Main Channel:</i>	88,12 mBf.
<i>Bottom elevation to be established at the outlet structure:</i>	88,10 mBf.
<i>Maximum discharge:</i>	132 l/s
<i>Purpose of water use:</i>	ecological (100%)
<i>Water demand:</i>	
<i>Contracted water demand:</i>	1st year: 5384 m ³
<i>Contracted water demand:</i>	From 2nd year 2600 m ³
<i>Annual water abstraction volume (after initial filling):</i>	2600 m ³ /év

Water level fluctuations in the oxbow can be monitored using the installed staff gauge. The establishment and maintenance of appropriate water coverage can be ensured through optimal sluice operation. The operator of the main channel authorises the use of the allocated water resources for filling the oxbow outside the irrigation period. Therefore, filling to the maximum operating levels and seasonal water storage must be carried out during the winter months. At present, we are in the filling phase and are collecting practical experience regarding the efficiency and utilisation of the water volume used for replenishment.



Rehabilitation of the Low-Lying Area in Foktő:

At the edge of the built-up area of Foktő, a previously abandoned depression was reclaimed within the framework of the project. The channel bed was reshaped and its side slopes were flattened to create a more stable and nature-oriented profile. The rehabilitated lake basin now serves as the receiving body for the urban stormwater drainage network implemented in the settlement through TOP-funded projects. The water supply of the lake is thus ensured by collected municipal rainwater. In the event of high water levels, excess water can be drained via a designated pump station using mobile pumps and conveyed to the Csorna–Foktő Canal. The technical parameters of the rehabilitated lake basin are as follows:

Affected property:

Foktő, cadastral parcel No. 0134/1

Cadastral parcel number: Foktő 0134/1

EOV coordinates: X = 131,297; Y = 641,347

Surface area at ground level: 14,076 m²

Area at bottom elevation: 7,198 m²

Stored water volume at maximum operating water level: 15,805 m³

Maximum operating water level: 88.00 m a.s.l.

The reservoir receives rainwater runoff from the catchment areas of Kossuth Lajos Street and October 6 Street in Foktő.

Since the rehabilitation of the basin, it has maintained a permanent water level. Water level fluctuations and the rate of evaporation can be monitored using the installed staff gauge. In general, it can be stated that since the facility became operational, the basin has not exceeded medium capacity, as the past summer and autumn months were characterised by low precipitation. Given the proximity of residential buildings, the lake basin was safely oversized to ensure adequate flood protection. Due to the limited rainfall, pump-assisted drainage has not been required over the past year.



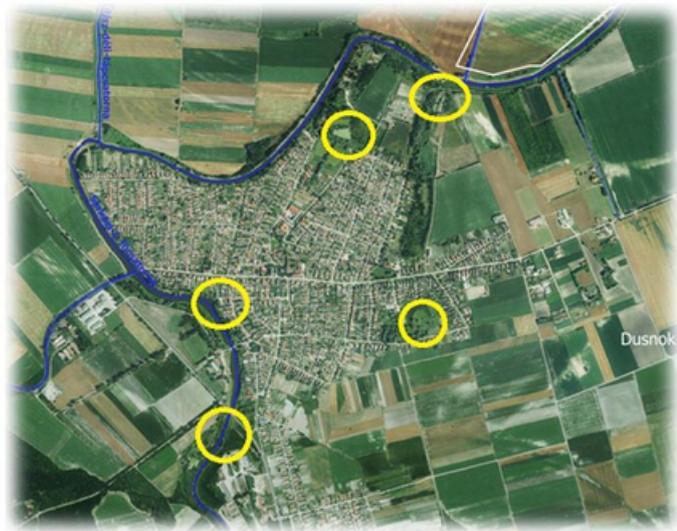
Rehabilitated Low-Lying Area in Foktő:



Establishment of the Dusnok Educational Trail:

The geographical location of Dusnok is highly favourable from a water management perspective, and the local leadership has recognised and effectively utilised these advantages over the past decades. Within the framework of the LIFE LOGOS 4 WATERS project, no new natural water retention interventions were implemented in Dusnok, as in previous years several water retention measures—closely aligned with the objectives of LOGOS—had already been carried out through joint efforts of the municipality and civil society. The LIFE LOGOS 4 WATERS project has compiled Dusnok’s good practices into a structured presentation, showcasing them to interested visitors through information boards installed along a designated walking route.

*Locations of the Information Boards
Installed in Dusnok*



Overview of the Water Management Interventions Implemented in the Settlement and Existing Water Resources:

- The Sárközi-I Main Channel runs in a north–south direction through both the inner and outer areas of Dusnok. The present, well-maintained appearance of the channel’s inner section began to take shape in the 1990s, when the municipal leadership—supported by water management professionals—initiated riverbank landscaping and dredging works. In the 2010s, further dredging and channel regulation works were carried out. Subsequently, the local municipality developed a promenade along the left bank of the channel, covering almost the entire built-up section in several phases. Public lighting, garden furniture and memorial trees were installed along the walkway, creating an attractive, high-quality and nature-oriented environment for residents and visitors. Within the built-up area, the channel bed widens, the flow velocity decreases, and the local community benefits from the water resource in multiple ways. The riverside is suitable not only for walking, but also offers opportunities for fishing and boating. The presence of the channel is actively embraced by residents, and several municipal events include water-related programmes. At the same time, the outer sections of the channel play an important role in supplying irrigation water to local farmers, while also supporting the richness of aquatic and riparian biodiversity.

- **The Role of Bara Park in Municipal Water Management in Dusnok** The Bara Park in Dusnok, located on the south-eastern side of the settlement, is a recreational park; however, its function goes far beyond leisure use. At its core lies a horseshoe-shaped retention reservoir, which plays a key role in managing the stormwater runoff of the eastern and south-eastern parts of the village.

The reservoir collects and locally stores rainfall from surrounding streets. Stormwater is typically conveyed through open roadside drainage ditches, which channel the water toward the park. A collector ditch at the edge of the park gathers the runoff, which is then transported through a closed underground pipeline directly into the reservoir.

This part of the settlement has historically been a lower-lying area prone to waterlogging during rainy periods. Local experts and municipal leaders recognised this natural characteristic and utilised it by establishing the retention basin. Initially, only an earth ditch captured incoming water; later, during municipal stormwater management improvements, the surrounding street drainage system was redesigned so that the Bara reservoir became the receiving water body.

In the 2010s, the reservoir was further developed, and the park acquired its current appearance. A pumping station was installed next to the reservoir, enabling excess water—once a defined safe water level is exceeded—to be pumped into a closed underground collector pipeline and conveyed toward the Sárközi-I Main Channel, located approximately 1 km north of the park. The transferred water initially flows through an underground pipe and then via an open earth ditch before entering the main channel in the north-eastern part of the village.

The pump-assisted overflow system ensures that the reservoir maintains a safe operating water level, even during sudden and heavy rainfall events. Prior to the reservoir's development and the installation of the pumping station, significant property damage frequently occurred during wet periods: streets, pavements and cellars were inundated.

Today, the Bara Park retention reservoir manages approximately 40% of the municipality's stormwater runoff, functioning as a micro-catchment retention system. The park built around the lake also provides an attractive recreational space for relaxation and community life, and it regularly serves as a venue for municipal events.

- **Additional micro-catchment areas of the settlement:**

In the northern part of Dusnok, four smaller earth-basin lakes are located in close proximity to one another, separated by earthen embankments. These lakes were established in a low-lying area of the settlement so that stormwater from surrounding streets can be conveyed by gravity into the basins, where it is collected and retained.

The lake system is situated next to the Sárközi-I Main Channel, and overtopping is prevented by a drainage channel equipped with a stop-log sluice. The lakes are hydraulically connected, and their water levels can be jointly regulated via the drainage channel, which conveys surplus water into the main channel. The sluice is normally kept closed to retain the collected water and is only opened when water levels rise above optimal levels; once the desired level is restored, it is closed again. The drainage channel and its hydraulic structures are operated by the local municipality.

These four lakes manage approximately 20% of the municipality's stormwater runoff. In addition, several stormwater retention basins within the village maintain permanent water levels and retain collected rainfall within the built-up area.

In contrast, in the western part of the settlement—where the Sárközi-I Main Channel runs directly at the end of the streets—stormwater drainage ditches discharge directly into the main channel by gravity. As a result, approximately 30% of the precipitation falling on the settlement leaves the village immediately. In this area, narrow and winding streets slope toward the main channel, making water retention technically difficult.

However, along the inner section of the main channel in Dusnok, a water control structure allows for the maintenance of a raised water level. During today's increasingly dry periods, the sluice can regulate and reduce outflow. With appropriate sluice management, optimal in-channel storage can be achieved, maintaining a higher water level in the main channel. By sustaining this elevated level, water can be diverted into lateral connecting ditches, allowing previously waterlogged areas to regain wet conditions. This inundation-based solution is most visible in the northern part of the settlement, on the right bank of the main channel.

Thus, while the densely built-up left bank of the main channel is protected from stormwater accumulation through drainage infrastructure, the outer ditches and side channels on the right bank are intentionally inundated.

The smallest micro-catchment unit of the settlement is located on its southern side. From the edge of the built-up area, an open earth drainage ditch conveys stormwater westward toward the Sárközi-I Main Channel. This open ditch transitions into an approximately 150-meter-long underground closed pipeline section. At both the inlet and outlet of this closed section, small stop-log control structures allow the regulation and retention of outflowing water.

The receiving water body is the Sárközi-I Main Channel, with the discharge point located on the upstream side of the bridge of National Road No. 51 in Dusnok, on the left bank. The collector channel gathers runoff from the southern part of the settlement and manages approximately 10% of the municipality's total stormwater, and the facility is operated by the local municipality.



Water Retention Solutions in Dusnok

Summary Data:

The total water retention capacity established in the lowland areas amounts to 38,166 m³, composed as follows:

Bátya:	4 662 m ³ ,
Foktő:	15 805 m ³ ,
Drágszél:	9 922 m ³ ,
Kalocsa:	7 777 m ³ ,
Sum.:	<u>38 166 m³</u>

Total investment cost of the project:

- Across all project sites, the total investment cost amounted to HUF
- 159,000,000. Of this amount, 10.5% covered preparation, planning,
- permitting, and public procurement procedure costs, while the remaining share was allocated to construction and implementation works.

As a closing remark, I would like to emphasise that in the Kalocsa Sárköz region there are still numerous low-lying, water-prone areas and abandoned ditches where controlled inundation could be implemented in the future with appropriate expertise and relatively low investment costs. Such interventions could further build on and continue the objectives of the LIFE LOGOS 4 WATERS, strengthening local water retention and climate adaptation efforts.

Kalocsa, 2025. December 15.

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