2023 TOP 100

GOOD PRACTICE STORY

Title: From a harrowing river dam to a smooth migratory fish passageway and a modern tourism and leisure center

SINDI RAPIDS

Destination, Country: Estonia

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In the category: ☒ Destination Management ☒ Environment & Climate ☐ Thriving Communities ☒ Nature & Scenery ☐ Culture & Tradition ☐ Business & Marketing

The Story in a picture:
Sindi rapids before demolition (Image 1, Tiina Kõrtsini) and after demolition (Image 2, Priidu Saart).
Video of Sindi rapids construction:
https://parnumaa.ee/uudis/sindi-karestiku-valmimisest-avaldati-kokkuvottev-videolugu/
More photos:

- Puhka Eestis, Visit Estonia https://www.puhkaeestis.ee/et/sindi-karestik
- Presentation of project manager Külli Tammur: https://media.rmk.ee/files/LK_konverents_tammur.pdf

Summary:

The construction of the Sindi rapids was one of the main parts of the giant project "Restoration of habitats of the Pärnu river basin", the main goal of which was to open the entire length of the Pärnu river for fish migration by demolishing the dam of the old hydroelectric power plant. Along with the demolition of the Sindi dam and the construction of access roads and an artificial rapid, good conditions were created for the development of a public space and a year-round water sports and

water tourism center with a recreation area that meets international standards. The municipality saw the implementation of such a large-scale environmental project as an opportunity to transform the riverbanks into recreation areas.

The Sindi woollen cloth factory dam was built in 1834 and since then the free migration of fish in the Pärnu river basin was blocked. In 1977, a new dam with a fish ladder was built to meet the increased needs of the factory, however the dam remained as an inpassable obstacle for the fish. The Sindi dam was located only 15 km from the delta of the Pärnu river and blocked access for migratory fish to about 90% of the habitats and spawning grounds of the Pärnu river basin.

The Pärnu river basin extends to the borders of several municipalities, and the dam located in the lower reaches of the river strongly influenced the species richness and environmental condition of the entire basin. Therefore, it can be said that the environmental impact caused by the demolition of the river dam goes far beyond the lower reaches of Pärnu river basin.

The project lasted from 27.03.2015 to 31.12.2022. The demolition of the dam took place in 2018, and already in the year following the demolition, in 2019, according to the scientists' estimation and the fishermen's experiences, migratory fishes were seen in sections of the river where they could not reach before.
At 2019 on the international seminar of Dam Removal Europe “Let it flow! Estonia”
the project of Sindi dam removal was declared to be the largest dam demolition in Europe.

Sources:
Evaluation of the effectiveness of habitat restoration in the Pärnu river system (reference No 225569) by Eesti Loodushoiu Keskus (Estonian Nature protection Centre), Meelis Tambets.
https://keskkonnaagentuur.ee/otsing?search_term=P%C3%A4rnu+j%C3%B5estiku+elupaikade+taastamine&sort_by=created
Dam Removal Europe. https://damremoval.eu/portfolio/sindi-dam-estonia/
Let it flow! Estonia. International Seminar. 2019.
https://damremoval.eu/dam-removal-europe-international-seminar-estonia/
Pärnu Postimees.
https://parnu.postimees.ee/6809097/video-aasta-sindi-paisu-langemisest-elujous-karestik-ja-naasvad-kalad
Võsoberg, V. 2019. Paisukonverents. Õhtuleht. Paisukonverents: Sindi paisu lammutamine lõi pretsedendi kogu Euroopas (ohtuleht.ee)

Good Practice Story:

Destination description

Brief background of the destination.

Sindi is a small town near Pärnu with nearly 4,000 residents, the center of Tori municipality. Sindi is on the visitor's route from Pärnu to the Soomaa National Park and is therefore an important part of the tourist's journey in Pärnu county. It is crossed by the Pärnu river and the main character of our story – the river dam – was located there for decades, being one of the main tourist attractions in the town of Sindi. The oldest traces of the settlement of the Estonian area also come from around Sindi (Mesolithic settlement of Pulli). The town of Sindi was created as an additional workers' settlement in 1833 around the woollen cloth factory built on the area of Saia and Tõela villages belonging to a manor.

The existence of nature protection and recreation areas and security are a good prerequisite for the development of tourism in Sindi area. The main goal in the area is to preserve forests and green areas with recreational value and protect the environmentally valuable natural environment.

The entire Pärnu river basin, including the section of the river located in the town of Sindi, encourages the organization of canoe trips, the bogs and marshes in the nearby area invite guests to discover special nature species and easy accessibility, and the rich natural environment is of great interest to nature tourists. In Tori municipality, which Sindi belongs to, there are many attractive tourist and recreation areas: the banks of the Pärnu and Sauga rivers, Rääma bog, Soomaa Nature Park, the ancient Pulli Stone Age settlement, etc.
The city of Sindi and the brand new rapids built there after the demolition of the dam enrich the tourism business of Tori municipality in Pärnu County, active vacations, cultural and sports events, and seminar tourism are prospective directions. The tourism industry is an attractive field that expands the local market and creates opportunities for increased turnover and profitability.

Source: Development Plan of Tori Municipality until 2030.
https://www.riigiteataja.ee/aktilisa/4040/3202/2002/ToriVVK_m3_lisa1.pdf#

Issues faced

Problems/issues solved with the Good Practice Story.

The dam built on the Pärnu river to meet the water needs of the Sindi woollen cloth factory completely blocked the access of fish to the spawning areas located upstream causing drastic reduction of fish stocks. The dam was one of the tourist attractions in Pärnu County, but it had no practical value. The Estonian state bought the Sindi dam from private owner in April 2015 in order to begin the restoration of the practically destroyed salmon population of the Pärnu river basin.

Demolition of the dam was discussed for decades, the plans came to fruition when the project grant of 15.2 million euros applied from the European Union Cohesion Fund to the Environmental Agency was approved.
The Pärnu river, on which the dam was located, belongs to the Pärnu river basin. The size of the river basin itself is 6920 km² (15% of Estonia's territory) and it includes 270 rivers and streams, a total of 3316 km (Image 3, Külli Tammur). The types of habitats that deserve protection in the Pärnu river basin are rivers and streams, floodplains and wooded meadows, 32 species of fish including European river lamprey, of which the species important for nature conservation are salmon, brook trout, voldda, hink, thick-housed river mussel. The presence of the dam negatively affected the habitats of all the mentioned species.

Instead of the former dam lake, there is now a fast-flowing and rapids section of the river, where both fish as well as canoeists and kayakers can move freely – the fishes to and from the spawning grounds, while the latter can satisfy their thirst for adventure and train their rapid crossing skills. Although the rapids looks unnecessarily massive with the summer flow, the very different flow rates of the Pärnu River have been taken into account during its construction – the rapids must also be able to accommodate spring high water without flooding the surrounding houses and businesses.
Source: https://keskkonnatehnika.ee/sindi-paisu-asemele-rajati-karestik/

Methods, steps, and tools applied

Solutions implemented to address the sustainability problems or issues.

One of the success factors of the project was certainly the carrying out of a comprehensive environmental impact assessment, within the framework of which socio-economic impacts were also assessed, among other things. During the assessment and also within the project itself, dozens of public discussions were held with the locals, they were introduced to possible alternatives for construction solutions, their questions were answered and the reasons behind the decisions were explained. Active involvement and informing of locals helped reduce people's concerns and fears.
In addition, various compensation measures were proposed, an important outdoor swimming pool for local residents was restored, as well as new boreholes were built on all properties whose well water disappeared or the water level dropped.
During the entire project, proactive communication was actively carried out, and information about the various stages of the project, interim results, etc. was shared publicly.

The dam was partially opened in October 2018 and completely in September 2019, opening the migration path for fish rising from the sea to spawn in the middle and upper reaches of the Pärnu river and its numerous tributaries. As part of the project, the Vihtra and Jändja dams on the Pärnu river and some smaller dams on the tributaries of the Pärnu River (Kullimaa, Nurme, Rõusa and Helmeti dams on the Vändra, Sauga, Käru and Kõpu rivers, respectively) were made passable for fish.

Tori Municipality, in cooperation with the Estonian Rowing Federation (EAF), has built a year-round water sports and water tourism facilities on the Pärnu River instead of the former dam that meets international standards. This artificial rapids created on the Pärnu River in Sindi is unique in the Baltic countries due to its large flow and the difference in the height of the drop, which enables the construction of a world-class training and competition complex for rapid paddling. In addition to the development of the competition infrastructure of the artificial rapid, the construction of a sports club building with all the necessary living conditions by the river has been started. Together with the modern recreation area, which is planned on the banks of the rapids, a modern and versatile water sports and water tourism center will increase the attractiveness of the area.
Sources: https://www.aerutaja.ee/karestikaerutamise-keskus-eestisse/ ,
https://youtu.be/IuZyIt9uQ-0

The project included also the restoration of the outdoor swimming pool located upstream of the Sindi Rapids, which was no longer usable due to the decrease in the river's water level, to meet water safety requirements

Key success factors

Critical elements that led to successfully solving the issues.

Active and honest communication and involvement of local residents were undoubtedly the most important success factors. The on-site meetings at the site were useful, where the engineers and the project manager explained the details of the construction works, groups of interest were able to

access the site safely and could ask all the worrisome questions. Fresh photo and video footage of the construction works was constantly provided, which was distributed in the national media. Cooperation with partners, especially the local government, which was very willing to cooperate, was certainly an important success factor. Also cooperation with scientists who voluntarily came to explain to people the impact on aquatic life and the accompanying positive factors. In addition, the Rescue Board and volunteer rescuers, who told the local residents about the dangers of the dam and pointed out as an important aspect that such a facility is dangerous in the city center and that in the last 40 years approx. 40 people have drowned due to the dam, including one rescue officer who went to help the drowning person.

Lessons learned

Challenges faced while implementing the Good Practice and their solutions.

In retrospect, it seems that perhaps we should have started with everything mentioned above (communication and community involvement) even earlier. At the beginning of the project, the focus was primarily on designing technical solutions, and informing people was left behind.
But then again, getting used to change is difficult, and some resentment and opposition to it is probably inevitable, so maybe more effective communication and involvement wouldn't have made the process easier.
In addition to the demolition of the dam, the water level was exceptionally low in the Pärnu River at the same summer, which was the lowest in the last 60 years. This, of course, was automatically associated with the demolition of the dam, although it was a coincidence.

The attitude of the project team and the message to the community from the beginning was that everything that is "screwed up" during the project will be compensated to the people. The biggest concern was drinking water. But rather, the residents of the area even benefited, as the old and water-poor storage wells were replaced by wells that met the requirements and provided high-quality drinking water.

The project was completed 1.5 years ahead of schedule, and by today's moment the riverbanks have recovered and are aesthetically pleasing again.

Achievements and Results

Direct and indirect results of the Good Practice.

Direct effects
The demolition of the dam created excellent conditions for the repopulation of several fish of Pärnu river basin with a semi-migratory lifestyle (including salmon, freshwater whitefish, smelts, vimba bream and European river lamprey) and many other migratory aquatic species. If before the removal of the dam, the European river lamprey could only reach the Sindi Dam, but after the opening of the dam, the range extends to the town of Paide. Previously, it was known that free access to the habitats suitable for the vimba bream in the Pärnu river basin was guaranteed for a total of 42 km, but now this indicator has increased 6.1 times, i.e. a 214 km long water network is freely accessible.

At the same time, the movement of fish to the spawning areas has led to a sharp increase in the cormorant population, as they have no natural enemies in this area. The efficient measures for decreasing the population of the cormorants have not been identified.

In addition to the smelts, European river lamprey and vimba bream, it can be expected that the constructed fish passages and rapids will also have a significant positive effect on all other fish species living in the Pärnu river system. European river lamprey is a species with a relatively poor

ability to overcome migration barriers, its range reflects well the potential area for other fish species with modest swimming ability.
Additionally, a free-flowing river does not collect sediments, the few sediments that do occur can move freely and no longer accumulate behind the dam. Moreover, there is also a direct positive effect on other aquatic life – a suitable living environment has been formed for various invertebrates, protected dragonflies, etc., which love to live in this kind of vegetation.

In the area of the demolished dam, the real estate value of the properties along the river on the right bank have grown rapidly, new roads, and access to the bank path and the river as a whole were built. The opening of an artificial rapids has brought new guests to the otherwise quiet town of Sindi – rapid paddlers. The Sindi rapids is the place with the biggest difference in height in the Baltics and allows you to practice most of the rapid paddling disciplines – creeking, freestyle, dowriver, extreme kayak, canoe slalom. Water offers a challenge at most water levels. In recent years, several international competitions have been organized, including the Nordic Cup, as well as water safety days in cooperation with the Rescue Board (https://www.err.ee/1608991196/sindi-karestiku-juures-peeti-ohutuspaeva), children's kayak slalom training and beginner courses.

International interest creates opportunities for further development – on the left bank of the river construction work on a sports and recreation center began in May 2023, the completion of the new center offers many interest groups versatile opportunities for leisure and sports.
Source: https://keskkonnaagentuur.ee/media/2726/download

Indirect effects
From a socio-economic point of view, the demolition of the Sindi dam has created good conditions for the development of the recreation area. The addition of tourist objects and the increase in the number of visitors have created the prerequisites for the development of tourism-related business – the need for places to eat and stay in the region has increased. This, in turn, has increased interest in real estate in the area.

Tori municipality government is finishing the renovation of the administrative center and its surrounding green area, its location near the rapid makes the municipality center "alive". The municipality government cooperates with the Estonian Rowing Federation in the development of the Sindi rapids with the aim of creating a supporting network of tourist services around the central attraction – the rapids. (Images 4, 5, Molumba)

Due to the size and scope of the Pärnu river system, the demolition of the dam will significantly affect the ecological condition upstream of the rapid in the following years.

Tips for other destinations

Your suggestions or recommendations for other destinations facing the same issues or implementing similar solutions

From the beginning of the project, communication and the involvement of local residents must be thoroughly considered and planned. They need to be demonstrated and proved what is to be gained from the project and let them see with their own eyes what is happening. Communication must be driven by the project manager (or appropriate project team member) themselves, rather than merely reacting to problems.

At the end of the project, the good results must be shared, so that the knowledge of the benefits of this kind of projects for the local people themselves will spread. The efficiency of the natural environment remains abstract for humans, it is not tangible, and the locals do not perceive the benefits of the project for them.

Recognitions and Additional references

Recognitions and awards the Good Practice received and supporting evidence.

Natura 2000 Awards laureate, 2022 (Sources: https://loomaveeb.ee/euroopa-komisjon-tunnustas-parnu-joestiku-elupaikade-taastemise-projekti/, https://bioneer.ee/p%C3%A4rnu-j%C3%B5estiku-elupaikade-taastamine-valiti-natura-2000-auhindade-finaali.

National recognitions: Ministry of the Environment's deed of the year, Environmental Agency's deed of the year, Tor municipality's deed of the year, recognition by the voluntary fish protection movement, fisheries deed of the year award.