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Considerations for Tourism and Recreation Expansion in the Vicinity of the Czorsztyn-Niedzica and Sromowce Wyżne Water Reservoir Complex, Located on the Dunajec River

Abstract: Landscape-nature protected complexes, and cultural qualities of the Czorsztyn reservoir region, the developing tourist infrastructure, location, close to the national border, and close distance to Nowy Targ (around 20 km) and Kraków (100 km) mean that this is an attractive region for weekend tourism, mainly for Nowy Targ citizens, but also for Kraków dwellers. Environmental, mainly scenic qualities, water reservoirs located in the areas of large height differences are the main features determining tourist attractiveness of the region. An additional factor is the possibility of cultivating various forms of tourism and recreation. A relatively weak position of this region as a weekend tourism destination is influenced by a strong competition from Zakopane and the entire Tatra Mountains region, inadequate external accessibility of the region, and insufficiently developed tourist and recreational infrastructure.

Key words: tourist attractiveness, Czorsztyn-Niedzica, Sromowce Wyżne water reservoirs, Dunajec River

Introduction

The Czorsztyn-Niedzica and Sromowce Wyżne Water Reservoir Complex was built on the Dunajec River, in the area of unique beauty. The Niedzica Dam, located between the Spiskie Pieniny Mountains and the Pieniny Właściwe was very well integrated with the landscape, and the Czorsztyn Reservoir is a great tourist and recreational destination, offering swimming beaches, sailing, fishing and diving.

The selection of the research area was determined by the unique specificity of the surroundings of the reservoir complex, as the landscape, unique nature and rare culture mean that this area is especially attractive and has special “magical qualities”. The purpose of this paper is the presentation of the tourist, natural, and cultural qualities of the environs of the reservoirs and their influence on the tourist and recreational stimulation for various activities in surrounding regions.

The Czorsztyn-Niedzica and Sromowce Wyżne Water Reservoir Complex was located in the upper section of the Dunajec River Valley, between the mouth of Białka Tatrzańska River and the Pieniny Valley. The area also includes the eastern part of the Orawsko-Nowotarska Basin, between Dębno and Czorsztyn, and a part of the Dunajec River Valley located in the Pieniny Mountains – up to Sromowce Wyżne. From the south, the region borders the Pieniny Spiskie Mountains and in the north by the Lubań mountain range, a part of Gorce Mountains (fig. 1).

The Gorce mountain range, which borders the region from the north, creates a mountain group assuming the shape of a “*rozróg*” (Polish term denoting a place where several ranges meet – transl.) (Kondracki 2009), the centre of which is formed by the Turbacz Mountain culmination (1310 m above the sea level). Mountain ranges of various lengths spread from Tur-



Fig. 1. The location of the Czorsztyn and Sromowce Reservoirs in relation to the Carpathian physical-geographical regions (Jaguś, Rzętała 2010): 1 – water bodies, 2 – rivers and streams, 3 – state border, 4 – significant towns and villages

bach in all directions. Southern ranges, leading towards the Nowy Targ Basin and Czorsztyn Reservoir are short, gentle, covered with forests and divided by stream valleys.

Land relief of the Pieniny mountain range is varied and contrasting. Very large differences in resistance to erosion of the low resistant rock cover and hard limestone rocks led to dissection of separate elements of the local landscape in the form of cones, needles, and rock faces of

large height differences, up to 500 m (Birkenmajer 1979). The Dunajec River flows through the Pieniny mountain range forming the Dunajec Gorge: between Czorsztyn and Niedzica, and Czerwony Klasztor and Sromowce Niżne and Szczawnica. The Dunajec Gorge, also called the Pieniny Gorge, with its numerous bends and meanders, is considered to be one of the most beautiful river valleys in Europe.

Characteristics of the Czorsztyn-Niedzica and Sromowce Wyzne Water Reservoir Complex

For the first time, the concept of developing the Water Reservoir Complex in the Pieniny region was developed in the early 1900s. Yet, the intensification of works leading to the actual construction only happened after the catastrophic flood in 1934. The works associated with the development of the surroundings of the future reservoir and the construction of the reservoir itself were conducted in the 1970s (Bonczek et al, 1997). The Sromowce Wyzne Reservoir, which is the regulating reservoir for the main Czorsztyn reservoir was commissioned in 1994. The completion of the main dam and the filling of the Czorsztyn reservoir took place in 1995-1996. Those works were associated with various finishing works, e.g. the completion of embankments in Frydman, Dębno, and Klusz-

kowce, as well as with securing the Niedzica and Czorsztyn castle hills (Godlewski 2003). The final delivery of the constructions – which from the very beginning evoked mixed emotions and controversies – for exploitation took place during the flood in July of 1997.

The dam of the main reservoir was located on the 173rd kilometre of the Dunajec River, in Niedzica, in the “Czorsztyn Gorge”. It is an earth dam with the maximum height of 56 m, the crest width of 7 m and the length of 404 m. In its core, there is a pumped-storage hydroelectric power plant which can generate up to 92 MW. As a result of dividing the river with a dam, the Czorsztyn reservoir measuring around 11 km², which can hold the total capacity of 234.5 million m³ of water, was created.

The length of the reservoir equals 9 km, average width 1.3 km, and the length of the banks 29.7 km. The dam of the regulating reservoir, of the crest length of 500 m, width of 10 m, and the maximum height of 10 m is also an earth dam with a reinforced concrete screen, and is located around 2 km below the main reservoir dam, in Sromowce Wyżne (Łaniewski 1997).

The Water Reservoir Complex is a multi-functional object, mainly protecting the area from floods, generating electricity, and regulating river flow below the dams, thus improving the conditions of rafting through the "Pieniny Gorge" by increasing the minimum flow during the rafting season and increasing the tourist and recreation capabilities of surrounding areas.

The Water Reservoir Complex is bordered by regions belonging to two communes (parishes) of the Nowy Targ District: Czorsztyn and Łapsze Niżne; and also, to a small extent, to the Dębno administrative unit, being a part of the Nowy Targ commune.

The Czorsztyn commune is generally located north and east of the Water Reservoir Complex and encompasses the majority of the Pieniny Właściwe Mountain Range and the southern slopes of the Gorce Mountains, which create a very attractive landscape. From the south, the Czorsztyn commune borders on the Polish-Slovakian border, and in particular on the Czerwony Klasztor and Spiska Stara Wieś communes. The Czorsztyn commune is divided into 7 rural administrative units (sołectwo), all located along the Dunajec River Valley. The administrative units include: Huba, Maniowy, Mizerna, Kluszkowce, Czorsztyn, Sromowce Wyżne, and Sromowce Niżne. The area of the Czorsztyn commune

equals 6172 ha (15251 acres), inhabited by 7348 citizens. Arable land equals only 34,4% of the commune's area and forests amount to 46,1% (Województwo Małopolskie. Podregiony, powiaty, gminy, 2010).

The Łapsze Niżne commune is situated on the southern side of the Water Reservoir Complex and is located in its entirety in Spisz – a region different from the surrounding areas, which from the 14th century till WWII belonged, firstly to Hungary and later to the Austro-Hungarian Empire. The southern border of the commune coincide with the Polish-Slovakian state border. The north-eastern border is determined by the banks of the Czorsztyn Reservoir, and from the west the border runs along the Białka River. The commune is divided into 8 rural administrative units: Frydman, Falsztyn, Niedzica, Kacwin, Łapsze Niżne, Łapsze Wyżne, Łapszanka, and Trybsz. The total area of the commune equals 12614 ha (31169 acres) and is inhabited by 8831 citizens. Arable land equals 53,3% of the commune's area and forests 37,5% (Województwo Małopolskie. Podregiony, powiaty, gminy, 2010).

Thus, in the vicinity of the reservoirs one can find villages belonging to the historic and ethnographic heritage of the Podhale and Spisz regions (Dębno), and villages developed as a result of the infiltration of regional cultures, e.g. inhabited by the Pieniny Mountain folk. (Nyka 2003). The location of those communes, in the areas characterised by exceptional natural and cultural qualities, means that it is one of the more important tourist reception areas. The vicinity of the state border, and the ease of border crossing is also an important factor influencing the potential growth of those communes, in particular with regard to tourism.

Natural and Cultural Qualities of the Region

From among the most important tourist qualities of the Water Reservoir Environs, the most important one is the nature of the Pieniny National Park, with locations the most popular among tourists like Trzy Korony Range, Sokolica Mountain, and unique rafting along the Dunajec River Gorge. Rafting from the Kąty hamlet in Sromowce Wyżne to Krościenko or Szczawnica (2-3 hours) is one of

the main tourist attractions. The majority of the water reservoir area is located within the buffer zone of the Pieniny National Park, and only its small portion – Harcygrund Bay – is located within the boundaries of the Park. The fragments of the reservoir banks also form the boundaries between two nature reserves: „Zielone Skalki” and „Zamek Czorsztyński”; thus, the water surface adjacent to the reser-

voirs is especially protected, e.g. mooring and fishing in those areas is banned.

One of the popular natural curiosities located outside the Pieniny National Park is Wdźzar Mountain (766,6 m above the sea level). In this area, on the southern slopes of the Gorce Range, there is one of the very few places where Miocene volcanic rocks – andesites – can be found (Urban, Margielewski 1995). Vertical andesite dykes can be seen in the closed "Snozka" quarry, which is also a place where mountain climbing can be practiced. The Wdźzar Mountain is also a fantastic observation point. The entire Gorce Mountain Range, Orawsko-Nowotarska Basin, Pieniny and Tatry Mountain Ranges can be observed from this point and the entire area was extensively developed for tourism.

The currently undergoing renovation ruins of the Czorsztyn Castle and the Niedzica Castle are located on the opposite banks of the Czorsztyn Reservoir.

The Czorsztyn Castle was built around 1350 by king Casimir the Great and it was supposed to guard the southern borders of Poland. It was the centre of the royal authority and a seat of nominated heads of the district (*starosta*). From 1795, when massive fire brought the castle's grandness to an end, only picturesque ruins were left from this mountain fortress. The main section of the castle is constituted by a massive, rectangular tower and adjacent living quarters. A partially renovated basement houses the museum exhibition. The most beautiful historic object is a picturesquely located Niedzica castle. It was a private property and belonged to the Berzeviczy family. Together with other Hungarian castles, it was guarding the northern boundaries of the Hungarian Kingdom. The object comprises of a Gothic upper castle, built at the beginning of the 14th century, and a renaissance 16th century lower castle. Today the castle is used as a museum, hotel and restaurant.

An early Gothic St. Stanisław Bishop church is located in Frydman. The church has a unique tower, crowned with a late renaissance attic and

an octagonal chapel. Other interesting historic monuments include the 1585 renaissance, fortified manor (*kasztel*) built by the Hungarian owners of those areas, the Horvaths, as well as 19th century cellars, in which the owners of Frydman kept wine imported from the south of Hungary. One should also note historic churches in Trybsz, Kacwin, Łapsze Wyżne, and Łapsze Niżne, and the most valuable church in the area, the wooden St Michael the Archangel church in Dębno – entered the UNESCO World Heritage List in 2003. Numerous, historic way-side shrines, scattered throughout the Spisz region also add to the charm of the landscape.

The culture of the Spisz and Pieniny region mountain folk, promoting their traditions and folklore, are also an important asset of the region. Several folk groups from the Czorsztyn commune are quite well known: „Małe Flisoki” from Sromowce Niżne, „Maniowianie” from Maniowy, and „Lubań” from Kluszkowce. In Łapsze Niżne commune, tradition and folklore are promoted by „Czardasz” from Niedzica, „Spiszacy”, „Mali Spiszacy” from Łapsze Niżne, and by „Frydmanianie” from Frydman. Traditions of the region are promoted during various cultural events, being a chance to present the achievements of local performers and folk artists or to taste regional food.

The construction of the dam and reservoir meant that they themselves became significant tourist attractions. The element of the dam which is most visible and most often visited by tourists is the dam crest, which together with its left bank winds into an attractive tourist route. A pumped-storage hydroelectric power plant was built into the dam. The power plant can be visited, together with the exhibition pavilion and amphitheatre-like, 64-seat cinema, where films commemorating the construction of the dam and the power plant can be seen. A permanent exhibition of the archaeological findings from the digs in the reservoir regions can also be admired. “Turbinka” (meaning ‘little turbine’) cafe is located in the vicinity of the dam.

Area and Spatial Differentiation of Tourism Development

An important element, influencing the tourist attractiveness of the region, is the tourist infrastructure, also called the tourist material base.

It is a consequence of the activities aimed at developing the area to adjust it to the needs of the tourist industry and it is one of the basic

elements of the tourist offer, as it is the main power, influencing the spatial arrangement and the intensity of the tourist traffic (Warszyńska, Jackowski 1978).

The main type of tourist infrastructure is the accommodation base, which in the vicinity of the Czorsztyn-Niedzica and Sromowce Wyżne reservoir complex, is rapidly increasing from year to year and is concentrated in the villages laying directly on the reservoir banks. It is also quite varied, with regard to both standard and prices.

According to the Central Statistical Office (GUS), one year after the Water Reservoir Complex was completed, in 1998, there were 1315 beds available in the Czorsztyn commune, among which 1143 were offered as private accommodation. Next year, 1881 beds were available, among which 1436 were offered as private accommodation. At the same time, in the Łapsze Niżne commune 286 beds were available, among which only 26 were offered as private accommodation. In 1999, the number of beds increased to 768, but the number of beds offered as private accommodation fell to 18. In this commune the accommodation base was, and still is, dominated by hotels and holiday resorts.

In 2010, offices of the Czorsztyn and Łapsze Niżne communes conducted a detailed survey of the tourist accommodation base, including private accommodation and agritourism base. From this data it can be concluded that in total, in the Czorsztyn commune, there are 277 objects offering tourist accommodation, among which 224 offer private accommodation, and among which 53 are organised as agritourism complexes. The commune offers 4896 beds, among which around 3270 are offered as private accommodation, including

1850 available all year round, and 1420 seasonally (source: Urząd Gminy Czorsztyn). The tourist saturation index in the commune is quite high and equals 79.3. In the Łapsze Niżne commune there are 83 objects offering tourist accommodation, among which 54 offer private accommodation, and among which 29 are organised as agritourism complexes. The commune offers 2178 beds, among which around 532 are offered as private accommodation, which amounts to mere 24.4% of all beds available in the commune. Tourist accommodation is centred mainly in 27 holiday resorts, offering 1646 beds. The tourist saturation index in the commune is much lower than in the neighbouring Czorsztyn commune and equals 17.3.

The transportation and accessibility of the region has a significant influence on the development of its tourist and recreational functions. National and district roads run in the vicinity of the reservoirs, which ensure connection with other regions. The roads run latitudinally and longitudinally and they meet in Nowy Targ, which is an important communication node of the Podhale Region, located around 20 km from the reservoir complex. Also, the main access road from Kraków, National Road No. 95 (the so-called "Zakopianka") runs through Nowy Targ. District Road No. 969 links Nowy Targ, Czorsztyn, Krościenko, and Nowy Sącz. It branches off from road No. 95 and runs along the northern side of the reservoir complex. Local roads join the main road and assure access to villages located on the reservoir banks. On the southern side of the reservoir complex, runs a road connecting Dębno with Niedzica. In Niedzica, this road joins the Krościenko – Sromowce Wyżne road leading further to the Polish-Slovakian border crossing.

Forms of Recreation and Tourism in the Vicinity of the Water Reservoir Complex

Thanks to the natural characteristics of the region, walking and hiking are pastimes which have been popular in the area for a very long time. Numerous hiking trails wind through the communes surrounding the reservoir complex. The trails are well marked and differ in the level of difficulty. Tourist trails lead to the Gorce

Mountain range – on Turbacz and Lubań, and to the Pieniny Mountain Range. Within the area of the Czorsztyn commune, there are 20 km of hiking routes (source: Strategia rozwoju gminy... 2009). One of the most popular trails is the trail leading from Czorsztyn, through the Pieniny National Park, on top of Trzy Korony

Massive, which every year is visited by over 100,000 tourists. One of 5 exhibition pavilions of the Pieniny National Park is located next to the trail as is the shepherd's hut on the Majerz Glade. Also the only mountain chalet located in the analysed area, run by PTTK "Trzy Korony", is located next to the trail.

An important route, running around the reservoirs is the fragment of the Trans-border Gothic Route: Nowy Targ – Kieżmark – Nowy Targ, determined in 2001 by the Foundation for the Development of the Czorsztyn Lake Region [Fundacja Rozwoju Regionu Jeziora Czorsztyńskiego]. In total 18 Polish and 16 Slovakian historic objects are located along this route.

In recent years cycling tourism is developing rapidly. Unfortunately, there are no marked cycling trails within the area of the Czorsztyn commune, and only in Łapsze Niżne commune

there are 4 cycling trails with the total length of 165 km and varying as to their difficulty. The trails run through main villages of the commune. One of the most scenic routes leads from Niedzica, through the border passage to Czerwony Klasztor, and further on through the "Pieniny Gorge" and then from Leśnica to Szczawnica. The trail is 9 km long and is exceptionally well prepared. The Pieniny National Park regulations do not allow to cycle along the walking trails. The pedestrian-bicycle bridge in Sromowce Niżne, which in 2006 connected Polish and Slovakian banks of the Dunajec River, meant that the volume of tourist traffic between the two countries increased. Thanks to this 120 metre-long structure, an attractive tourist circle, connecting the road from Szczawnica and Czerwony Klasztor with tourist trails leading to Sokolica and Trzy Korony was created.

Communes located around the Water Reservoir Complex are ideal for riding

Cycling trails forming the Trans-border riding tourism trail run through the area, and the Hutsul Horse Centre, being a part of the Pienińsko-Podhalańskie Stowarzyszenie „Koń Huculski” is located in Czorsztyn. One of the agritouristic centres in Maniowy also runs the horse stud farm, offering horses for rent. There are no riding trails in the Pieniny National Park, however 7 trails were marked in the Gorce National Park.

After the completion of the Czorsztyn Water Reservoir, it became possible to sail, windsurf, dive, and fish both competitively and recreationally. The recreational centres were also created in villages such as Kluszkowce, Mizerna, and Niedzica. In Kluszkowce, where Kluszkowianka flows into the Czorsztyn Reservoir, a popular aqua park Akva-Tur-Kluszkowce, commonly called „U Ashoka”, was developed together with a marina, trap, beach, sport equipment rental centre, playground, small restaurants and buffets. Another popular location, a beach in Mizerna, was adapted for families with small children, as well as the guarded beach „Zamajerz” in Niedzica.

During the preparation of the spatial development plans, the communes located around the reservoir determined marine sites.

8 marines and sports equipment rental places are currently operating in the area: 2 in Mizerna, Kluszkowce and Czorsztyn, 1 in Niedzica „Zamajerz” and Braniska bay and the windsurfing centre in Mizerna. This offer is supplemented by the cruises on „Biała Dama”, „Harnaś” and „Dunajec” boats, between Niedzica (castle), Czorsztyn (castle), Czorsztyn (tourist settlement), Mizerna Bay, Frydman Bay, and back to Niedzica (castle). There is also „Czorsztynianka” gondola, mooring in the marina below the Niedzica castle. Thanks to the vicinity of the Pieniny National Park, the use of motor power water crafts is forbidden. However the development of the shoreline is not satisfactory and operating businesses cannot guarantee serving a large number of tourists, especially on weekends.

Dunajec River itself is an important waterway used for kayaking and rafting. An International Kayaking Trip on the Dunajec River has been organised annually on Corpus Christi Day since 1934. The route of the trip runs from Nowy Targ, through the "Pieniny Gorge", and ends in Nowy Sącz. Apart from organised trips, it is possible to kayak and canoe individually (also using rafts and pontoons) and the equipment rental centre is located in Sromowce

Wyżne. The popular rafting trip starts in the Kąty hamlet in Sromowce Wyżne and runs through the Dunajec Gorge. The history of the rafting began in the 19th century and every year around 230.000 tourists avail themselves of this attraction.

Varied slopes within the area and favourable climate conditions mean that the surroundings of the reservoirs can also be used for skiing. Snow lays for 100 to 120 days a year (Perzanowska 2004). The Czorsztyn commune offers a large "Czorsztyn-Ski" station located atop of the Wdżar Mountain in Kluszkowce. A two-seat funicular, with a capacity of 1200 people/hour transports skiers to the top of the mountain. The elevation difference equals 150 m, an average slope inclination equals 15%, and the piste length varies between 1200 m and 460 m. The funicular is supported by two T-bar lifts with the capacity of 700 and 900 people/hour and two children's lifts. The total length of ski pistes, of varied difficulty, equals 4800 m. The funicular operates all year long, as is the Alpine Coaster luge track of the length of 1000 m, on which luge can reach the

speed of even 40 km/h. The Nowy Targ Aero-club paragliding centre is also located atop of the Wdżar Mountain. The centre organises both tourist and scenic flights over the Gorce and Pieniny mountains.

Another skiing centre, "Polana Sosny" centre in Niedzica, which is quite popular among tourists, is located in the Łapsze Niżne commune, in the vicinity of the Niedzica – Łysa nad Dunajcem Polish – Slovakian border crossing. The centre operates three T-bar lifts with the capacity of 1790 people/hour. The elevation difference equals around 100 m, and the piste length varies between 800 and 500 m including the snowboard slope. An 8 km long cross country skiing route starts atop the mountain. A rebuilt, 18th century larch mansion, transferred from the nearby Grywałd and a timber hut from Łapsze Niżne are located in the vicinity, just next to the camping site and restaurant.

A small T-bar lift is located in Czorsztyn Nadzamcze and is usually used by tourists staying in the village. Another similar, small lift was installed on Krzyżowa Góra in Kacwin.

Conclusion

The geographical location and advantages of the region comprising the environs of the Czorsztyn-Niedzica and Sromowce Wyżne Water Reservoir Complex mean that tourism became the most important aspect in the development of the communes located in the vicinity of the reservoirs. Tourism development is furthered by the distance from large cities, lack of industry, clean air, and unique landscape. Cultural diversity of the region is a big bonus too. The construction of reservoirs caused significant changes in the landscape, ones which considerably influenced the social and eco-

nomical development of the region and led to the creation of new relationship between people and the natural environment. Communes located around the reservoirs have at their disposal areas, which can be developed in order to accommodate various forms of tourism and recreation. The condition, which will have to be fulfilled is further development of the tourist and recreational base and infrastructure, while at the same time giving consideration to the protection of natural environment. Promotional actions advertising the region will also be necessary.

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