The traces of Mining in Lubsko (western Poland) - proposal of the geotouristic path

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Abstract. Lubsko is a city in the Lubuskie province (western Poland) with a population around 15 000. The use of raw clay minerals in this region has its beginning in the Middle Ages. Through the years the production has changed to the centralised mining industry. The end of this branch has begun in the late 1980s due to the political changes in Poland. Nowadays, the signs of this significant history of the city are ruined or in bad conditions. The reason for organising geotouristic path is to protect the geoheritage of this region, mainly old open-pits and the infrastructure. Proposed stops will teach about the mining heritage in Lubsko, the geology of the glacial region, the processing of raw clay minerals and various usages of this material. Moreover, connecting both didactic and recreational use may give the chance to integrate touristic sites in the city. The development of such a path may attract tourists from Poland and Germany, which may result in an improvement of the financial situation of Lubsko. Considering the possible benefits and obstacles the SWOT analysis is presented in the article.

1. Introduction

Lubsko is a town with a population of 15 000 people and it is located in the Żary district, in the southwestern Lubuskie province (Figure 1). At present, the financial and sociological conditions in Lubsko are not sufficient for the development of the industry. In 2018, recovery plan was introduced in Lubsko. Its purpose is to improve the city’s state of finances. One solution to overcome this issue is the development of tourism [1], [2]. Polls from 2013 proved poor knowledge among citizens about the touristic potential of the city and its surroundings [1]. Because of that, it is reasonable to provide better information and extend the touristic offer. In the literature, the authors point to the advantages of Lubsko, such as monuments and places of recreation [1], [2]. However, the fact of the existence of historical clay raw materials plants and open-pits is clearly underappreciated and marginalized in the context of tourism. The idea of the geotouristic path was proposed in 2011 but the concept was rather basic and the mining was just a small part of it [3]. In the author’s opinion, this particular element of Lubsko’s history could be a great chance for integration and better cohesion of touristic character of the town.

Because of the geological conditions in the area of Lubsko developed mining industry. Clay raw materials had been found there in the Middle Ages. Clay was used for daily use ceramics and as a building material. Pottery was the main lobby group in Lubsko, only after linen manufactury and
drapery. This low-sufficient era (home workshops, small tileries, and primitive brick kilns) ended in 1846 when the railway line was opened. It helped to transform Lubsko to the industrial city (Figure 2).

Figure 1. The location of Lubsko on the map of Poland and the Lubuskie Province (adapted from [4])

After World War I development of Lubsko slowed down and had been stuck in this state until 1945 [5]. It is worth mentioning that between 1940 and 1944, in the city, there were a couple of work camps for foreigners. Some of them were organised in the old manufacture of ceramics [6]. In 1945 the city was freed by the Red Army. Soon after World War II people from former eastern and central Poland and even from western Europe started settling in Lubsko. In the following years, Lubsko’s ceramics industry was rebuilt and governors were as follows Poznańskie Zakłady Ceramiki Budowlanej, Lubskie Zakłady Ceramiki Budowlanej, Lubuskie Przedsiębiorstwo Ceramiki Budowlanej [7]. In the 1980s political situation in Poland drastically changed which resulted in rapid privatization of enterprises. Consequences of that were many affairs (e. g. thievery of equipment), which resulted in the beginning of the end of the ceramics industry in Lubsko and widespread unemployment. Nowadays, none of Lubsko’s deposits is exploited and many post-industrial buildings are deconstructed. Abandoned factories were sources of bricks and steel for the locals [2].

The described area was explored by the deep drillings. In the south of Lubsko, in 1975, drillhole Górzyn P-3 was drilled and reached 1218 meters of depth. The oldest recognised rocks are: Permian conglomerates, sandstones, limestones, anhydrides, and rock salt, dolomites, claystones (www.otworywiertnicze..., 2019). Mesozoic rocks are Triasic sandstones and claystones or mudstones, limestones, marl from Buntsandstein and marl, limestone and dolomites from Muschelkalk [8]. Neogen is represented by the Miocene and Pliocene sediments. In the west part of the region Miocene sediments are brown coals [9]. In the west part some outcrops of Miocene rocks can be found. Holocene is represented mainly by sediments in river valleys and in different lowerings of the area. These are mainly sands, gravels, sandy silts, but also gyttos, peats and peat silts.

In the Lubsko municipality there are documented lignite deposits and clay raw minerals deposits [10]. It was also found that there are peats for agricultural purposes, but they occur in protected areas or do not meet the required deposit criteria, so these are only perspective areas [11]. The basic raw material base for the ceramics industry in this region was the highest part of the Upper-East Poznan series [12]. There are five balanced deposits of clay raw materials: Glinka Górna, Lubsko -
Dachówczarnia I, Lubsko - Dachówczarnia II, Lubsko - Kaflarnia, Lubsko - Szamotownia. In 2017, the sixth one - Budych I was removed from the Balance of Resources in Poland [13].

Figure 2. The industrial landscape of Lubsko at a postcard from 1902 [14]

2. Proposal of the geotouristic path

This article is a result of literature research, field investigations, and consultation with the Mayor of Lubsko. Field works were necessary to recognise the recent condition of the old mining remainings both open-pits and infrastructure. The idea of the geotouristic path is related to the need to document those sites and protect geoheritage. Due to the rapid degradation, the signs of the mining activities in Lubsko are going to disappear and the history of them will be lost. The documentation should be followed by proper protection. Moreover, to make this idea more reasonable, the path should have the recreational function. It will be more sufficient to attract tourists from Poland and Germany.

The proposed path is composed of seven main stops (Figure 3). Five of them are related to mining and processing of clay raw materials. The beginning of the path is situated at the Dachówczarnia I. This site lays near to the road 289, which connects Lubsko, Brody, Zasieki, and Forst (Germany). In 2011-2012 within the Cooperation Program Poland – Brandenburg was built a bicycle road which runs along road 289. It has a significant role to provide tourism movement to this stop. Next sites are as follows: City centre, Lubsko Railway Station, Dachówczarnia II and Kaflarnia, Budych, Glinka Górna, Szamotownia. The more detailed information about every stop is given below.

It is important that currently terrains of the old plants and open-pits are divided into plots and have various law state. The plots are the property of:

- National Treasure,
- National treasure with the right of perpetual usufruct for natural and legal persons.
- Lubsko municipality (information from Lubsko City Hall).

Taking into the account significance of marketing in today’s world, information regarding Lubsko’s industry should be published on the Internet, e.g at the official site: https://lubsko.pl/. This
form of marketing is currently underappreciated and marginalized in many countries, but in fact it is essential for growing the audience [15]. Description in Polish, German and English should involve a map of the path and brief history of the region’s industry. Similar information could be shared as a leaflet in assigned points in the city (Karaś reservoir or City Hall). The chosen spots besides works specific for a given one, should all be correctly marked. The boards would provide the description in mentioned languages, the map, and chosen historical pictures.

Figure 3. Proposal of the geotouristic path; 1 – Processing plant of the Dachówczarnia I, 2 – City hall and the church of Mary Virgin, 3 – Lubsko Railway station infrastructure, 4 – The remained part of the building in Dachówczarnia II in 2006 (author’s archive), 5 – one of many pits within Budych deposit area, 6 – Processing plant of the Dachówczarnia II, 7 – Reclaimed landfill Szamotownia.

2.1. Dachówczarnia I (Mierków)
This stop is the beginning of the path. Arrangement of the order of the stops is connected to the bicycle road going to Germany. In that place, buildings of manufacture with the Hoffman kiln and Keller dryers can be found. The open-pit is covered mainly with forest and its deepest part is filled with water. It is very common management direction for the open-pits in Lubsko. Important is the fact
that excavation is located nearby of Karaś reservoir, which is a main recreational attraction of the city. In the recent years it was modernised.

Moreover, the surroundings are spacious, which could provide great utility for organising a Ceramic Festivals in Lubsko – which could e.g. have a display of ceramics products and processing equipment and kids could play with clay.

It has to be mentioned that unprotected slopes in this area need a geotechnical transformation in order to mitigate the potential risks of injuries.

2.2. Centre of Lubsko
The centre of the city is not related to the mining activities but this stop should be considered because of the significant architectural value such as:

- The Church of the Visitation of the Blessed Virgin Mary – built in XIII century in gothic style with late-Romanian relics (Figure 3. – stop 2),
- Renaissance City hall – built between 1580 and 1582 (Figure 3. – stop 2),
- The church of the Most Sacred Heart of Jesus – built in 1908 in forms corresponding to gothic architecture,
- The medieval palace – placed in the north-west part of the city,
- The tower of the Żary Gate from XV century – also called Baszta Pachołków Miejskich - the only remaining of middle ages’ walls surrounding the city [16].

During the interview with the Mayor of Lubsko - Janusz Dudojć, information regarding renovation works of old carriage from the mines was revealed. The city centre is a perfect place for a display of such an exhibit piece. The other possibility is one of the roads to the city (for instance 289).

2.3. Railway Station Lubsko/Sommerfeld
Lubsko used to be one of the stops of the Breslau-Berlin line. The plans of its construction appeared as soon as in 1830, it was so called ‘Wolf’s plan’. The first train completed this route in 1846 [17]. This railway main line had great significance for the economy and passenger transport in Germany. Between World War I and World War II the fastest train in the whole World, known as Flying Silesian, was riding this path. This line had an enormous impact on the development of the ceramic industry in Lubsko – it enabled intensive export of materials to other, bigger cities. The last passenger train left Lubsko in 1995 [17].

2.4. Dachówczarnia II, Kaflarnia
The significance of this place is two-fold. Firstly, there are two raw material deposits which were exploited. Secondly, there was working the administration of manufacture, but its old headquarters was deconstructed in the recent years and now only ruins of the old manufacture building remain. Robert Kotowski – the director of Lubsko/Sommerfeld Station foundation suggested organising in this place the museum of mining and railway industry.

2.5. Budych
Budych deposit is a non-balanced deposit since it was re-estimated in 2017. However, it used to be a place of very intense exploitation. At present, there are numerous open-pits of different scale. They are used mostly by the fishing clubs and individual anglers. In some places, traces of the car and motorbikes off-road rallies can be found. It is suggested to build paths for pedestrians and bikes since the majority of the existing ones are not properly designed and are rather wild.
2.6. Glinka Górna
The last but one is Glinka Górna. It is the second place in town where buildings of clay manufacture remain. In this place can be found Hoffman kiln and Keller dryer (Figure 4a, b). Part of the buildings and Keller dryer was destroyed due to tearing off a part of a high chimney (Figure 4a). This accident reminds of the significance of stock-taking and proper preservation of those monuments.

The area of the deposit lies on the south slope of the hill. The exploitation in this place was carried out until 2017. Currently, the terrain is covered by forest, grass and the deepest parts are filled with water (Figure 4c).

![Figure 4. Remainings in Glinka Górna; (a) – the destroyed chimney and Keller dryer, (b) – interior of the Hoffman kiln, (c) – open-pits](image)

2.7. Szamotownia
Szamotownia open-cast had been used as a landfill for many years until in 2014 the terrain was recultivated and waste segregation plant was built there. Thanks to those actions former excavation site is now covered with grass. Currently, there are some plans to develop this terrain (private conversation with J. Dudojc). In the author’s opinion, this site is not really attractive in the geological and touristic context due to the lack of former work signs. Possibly, it could be used as an example of post-mining development. From this site tourist can come back to the beginning of the geotouristic path (Figure 3).

3. Results and discussions
The proposed path consists of 7 main stops. It integrates touristic attractions in Lubsko, emphasizing the post-mining areas and excavations. It is important to underline the three-fold significance of such a venture (Figure 5):
integration of tourism in Lubsko,
recreational and educational function will allow for science popularization, particularly of mining and geology of the postglacial area, while providing an attraction for physical entertainment’s seekers,
a chance to preserve the mining history of the city and protection of post-industrial buildings.

It is also important to mention negative aspects, such as poor conditions of some buildings and slopes of the open-pits and also lack of paths for pedestrians and roads for bikes. Additionally, the law state of the area is differentiated, which can result in limits for a project. Also, the economic crisis of the city can be an obstacle in any investments. However, in the light of possible advantages, it is worth to undertake further analysis of the venture. The proposal can be extended by other post-industrial sites related to other historical industrial activities in Lubsko such as the textile industry (Figure 5).

**Figure 5.** The SWOT analysis of geotouristic path project in Lubsko.

### 4. Conclusions
Use of remainings of the old industry in Lubsko can be a great opportunity for tourism development and a great aid to the city’s fight against the economic crisis. Presented geotouristic path touches the history of raw material mining, its processing and other historical and recreational objects. Creation of such a path has to be financially supported and from the law’s point of view can be problematic due to issues with the legal state of the lands. Because of that, consideration of the path and its form has to be adjusted to the investment capability. In the authors’ opinion the offer needs further development of substantive regards and the discussion with the city Council.

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References

[1] M. Ratajczak-szczerba, ‘Walory Turystyczne powiatu żarskiego jako podstawa kształtowania potencjału turystycznego w ocenie mieszkańców miasta Lubsko’, Badania Fizjogr., vol. IV, no. A, pp. 209–231, 2013.

[2] P. Oczyp, Lubsko w poszukiwaniu własnej tożsamości, Wydanie 2. Lubsko: Fundacja Rodzinna, 2019.

[3] P. Bielak, ‘Wycieczka nieistniejącym szlakiem geoturystycznym po Lubsku i okolicach’, 2011. Available in the Lubsko city Library.

[4] NordNordWest, ‘Poland Location Map’. [Online]. Available: en.wikipedia.org/wiki/Lubsko#media/File:Poland_adm_location_map.svg. [Accessed: 25-Jun-2019]. Used under the Creative Commons by-sa-3.0 de copyrights.

[5] T. Dzwonkowski, ‘Wstęp do akt miasta Lubsko’, Introduction to the files of the city of Lubsko, Arch. Nat. in Zielona Góra, 89/1519/0. [Online]. Available: https://szukajwarchiwach.pl/89/1519/0/?q=lubsko+XTYPEro:zesp+XARCHro:89&wynik=60&rpp=15&page=4#tabZespol. [Accessed: 25-Jun-2019] (In Polish).

[6] J. P. Majchrzak, Miasto ze złotym lwem w herbie. Żary: Dom Wydawniczy ‘SORAVIA’, 1998.

[7] W. Kaczan, ‘Zarys dawnego górnictwa i przerobu surowców ilastych Lubska, Jasiena i ich okolic’, Hered. Minariorum, vol. 5, 2019.

[8] A. Maćków, I. Bojakowska, P. Dobek, A. Pasieczna, and H. Tomassi-Morawiec, ‘Objaśnienia do mapy geośrodowiskowej Polski 1:50 000, Arkusz Lubsko (609)’, Explanations for the geodetic map of Poland 1:50 000, Warszawa, 2006 (In Poland).

[9] T. Myk, ‘Środowisko geograficzne Lubska, Jasienia i okolic’, Zesz. Lubuskie, no. Lubsko-Jasień, z dziejów i współczesności, 1977.

[10] Geoportal, MIDAS "Data base of documented deposits". [Online]. Available: http://geoportal.pgi.gov.pl/midas-web/. [Accessed: 25-Jun-2019].

[11] PIG, ‘Mapa interaktywna’. [Online]. Available: geolog.pgi.gov.pl. [Accessed: 25-Jun-2019].

[12] B. Ewa, ‘Objaśnienia do szczegółowej mapy geologicznej Polski 1: 50 000, Arkusz Zasieki and Lubsko’, 2001 (In Poland).

[13] M. Szuflicki, A. Malon, and M. Tymiński, ‘Bilans zasobów złóż kopalin w Polsce wg stanu na 31 XII 2017 r.’, Warszawa, 2018.

[14] Postcard, ‘Postcard of Lubsko’, 2019. [Online]. Available: https://lubsko.fotopolska.eu/643006,foto.html?galeria_zdjec&zakres=3&wykonane_od_rok=1900&wykonane_do_rok=1917. Used with the fotopolska.eu consent.

[15] K. Widawski, A. Rozenkiewicz, J. Łach, A. Krzemińska, and P. Oleśniewicz, ‘Geotourism starts with accessible information: the Internet as a promotional tool for the georesources of Lower Silesia’, Open Geosci., vol. 10, no. 1, pp. 275–288, 2018.

[16] ‘The official Website of Lubsko’. [Online]. Available: https://lubsko.pl/. [Accessed: 26-Jun-2019].

[17] W. Sikora, ‘Komunikacja publiczna’, Public transport, History of Berlinki, or Lower-Silesian-Munich Railways., pp. 62–66, 2017 (In Poland).