



## **THE CONCEPT OF TOURISM ENRICHMENT POTENTIAL OF WITKOWO COMMUNE CONCERNING GNIEZNO COUNTY AREA**

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### ***Abstract***

Witkowo commune is located in the eastern part of Wielkopolska region at Gniezno county. This is typical agricultural commune with some tourism infrastructure. The aim of the work was to evaluate of an existing tourism potential of Witkowo commune based on comparison analysis of indexes describing its tourism potential and other communes located in administration boundaries of the same county. For this purpose the multidimensional comparison analysis of synthetic measures was performed. Afterwards the concept of tourism potential enrichment was proposed based on aforementioned analysis. The obtained results revealed, that the highest synthetic measure was noted for Witkowo commune, where the highest tourism potential was observed. The lowest level was recorded for Niechanowo commune, which revealed the lowest values almost in every analysed group of indexes. The proposed tourist trail contributes to tourism enrichment potential of Witkowo commune. The trail goes through Powidzko-Bieniszewski Landscape Protected Area. This is in agreement to the goal of tourism management for the development of the tourism at a protected area with considering the protection rules and local features. Simultaneously the tourist trail designation does not disturb ecological balance and create consistent tourist infrastructure.

**Keywords:** tourism enrichment potential, touristic and non-touristic values, Witkowo commune, GIS tools

## **INTRODUCTION**

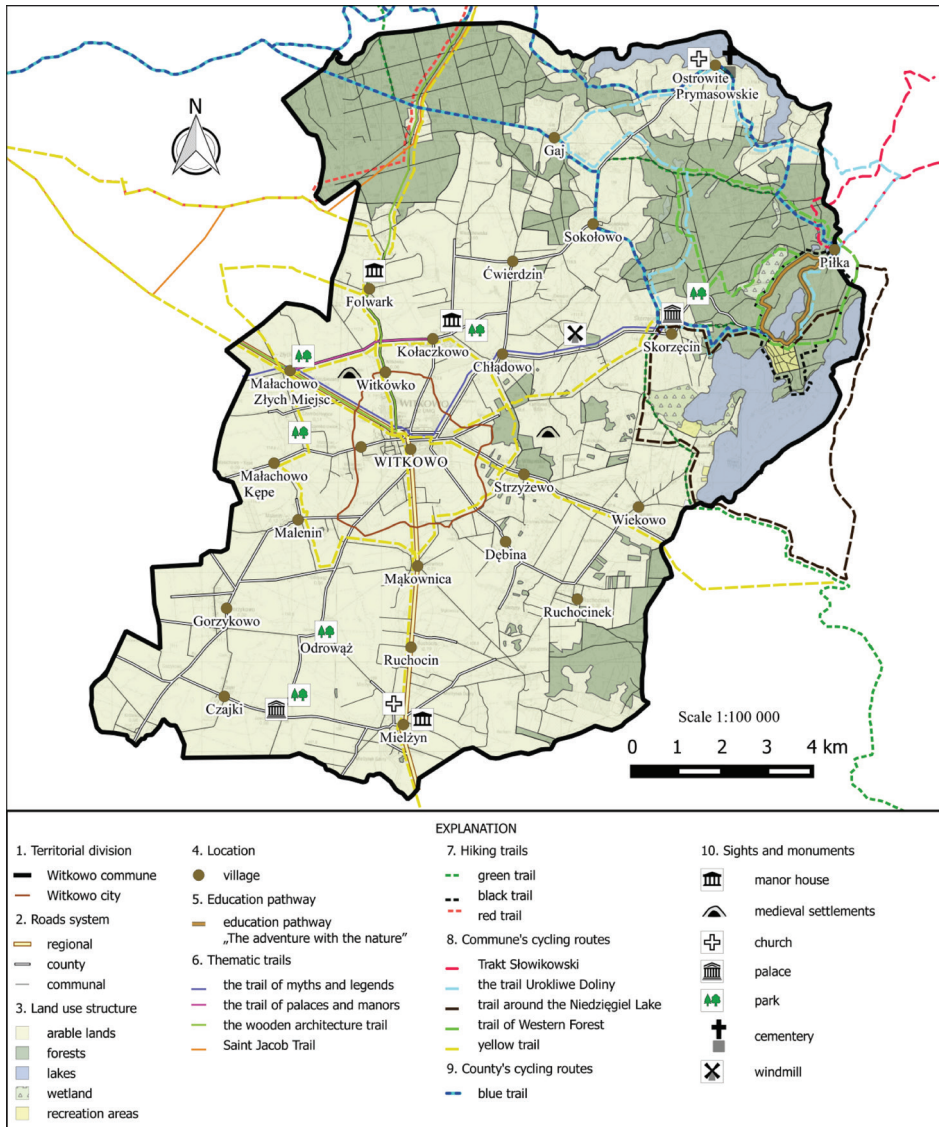
The local authority of commune has to create strategies and documents, with respect to assumptions of documents of regional and national authorities. This is especially valid for spatial planning. The local documents also include sustainable development aims and planned effects, which are in agreement to regional and national ones as well, complement each other (Jędrzejczyk 2007). Tourism, is considering as one of developmental function of area, which is one of the most important direction of economic development, especially of rural areas, due to infrastructural investments and natural environment conditions. Sustainable development possesses the priority in spatial planning documents, and furthermore its rules enable to maintain natural resources in perspective of future generations and environment, as well as to create positive relations in local economy (Sikorska-Wolak 2007). The commune management level is becoming one of the most important part in national tourism management system and its future development. The development of the local economy and nature protection is also partly connected with local development of tourism infrastructure (Kaczmarek et al. 2005).

Tourism is becoming an important part of regional functioning, especially when is connected with many elements. Moreover, it is not related only to a special tourism infrastructure, but also to elements of geographical environment (Liu 2006). Hence, tourism potential of a region or commune is strictly connected with the state and quality of environmental elements. Tourism potential is determined by all human behaviours and geographical elements, which are used for touristic activity (Kaczmarek 2005, Kanclerz et al. 2014).

The aim of the work was to evaluate of the existing tourism potential of Witkowo commune based on comparison analysis of indexes describing its tourism potential and other communes located in administration boundaries of the same county. Based on the analysis of tourism potential it is proposed here the concept of tourism potential enrichment.

## **MATERIALS AND METHODS**

The multidimensional comparison analysis of synthetic measures was performed for evaluation of present state of tourism management and for creation the concept of the development in Witkowo commune (Gołembski 1999). The method includes all features with significant effect on attractiveness of analysed area, and which are connected with natural conditions and human activity, including spatial management.



Source: authors' study based on topographic Vmap on a scale of 1:50 000 from WMS Server ([http://mapy.geoport.gov.pl/wss/service/pub/guest/kompozycjaG2\\_VMAPL2\\_WMS/MapServer/WMServer](http://mapy.geoport.gov.pl/wss/service/pub/guest/kompozycjaG2_VMAPL2_WMS/MapServer/WMServer))

Figure 1. Land use and tourist development of Witkowo commune

23 indexes divided into three groups were analysed (Tab. 1): touristic values ( $G_1 - 9$  indexes), non-touristic values ( $G_2 - 8$  indexes) and urban-environmental

values ( $G_3 - 6$  indexes), calculated for Witkowo commune and other communes in Gniezno county (Witkowska-Dąbrowska 2007, Lisiak et al. 2016). The weights were assigned to each group and reflected the level of their effect to final synthetic measure, which is an attractiveness of commune and designated potential for tourism development (Gołembski 1999). The following weights were assigned to certain group: touristic  $G_1 = 0.60$ ; non-touristic  $G_2 = 0.25$ ; urban-environmental  $G_3 = 0.15$ . The following indexes with weights (in brackets) were taken into consideration in three groups:

- touristic values: meadows and pasture area ( $I_{tv1} - 0.20$ ), water area ( $I_{tv2} - 0.15$ ), forests ( $I_{tv3} - 0.15$ ), nature conservation areas ( $I_{tv4} - 0.05$ ), number of cultural events during the year ( $I_{tv5} - 0.05$ ), natural monuments ( $I_{tv6} - 0.05$ ), cultural objects ( $I_{tv7} - 0.05$ ), museums ( $I_{tv8} - 0.05$ ), tourist trails ( $I_{tv9} - 0.15$ ),
- non-touristic values – communication availability and safety: the length of regional and national roads ( $I_{ntv1} - 0.20$ ), number of active railway stations ( $I_{ntv2} - 0.15$ ), number of interregional bus stops ( $I_{ntv3} - 0.15$ ), number of accommodations ( $I_{ntv4} - 0.15$ ), number of sport objects ( $I_{ntv5} - 0.15$ ), number of healthcare objects ( $I_{ntv6} - 0.10$ ), safety institutions ( $I_{ntv7} - 0.10$ ), local and regional products ( $I_{ntv8} - 0.05$ ),
- urban-environmental values – spatial planning, environmental state and protection: water pollution ( $I_{uev1} - 0.20$ ), soil pollution ( $I_{uev2} - 0.20$ ), air pollution ( $I_{uev3} - 0.20$ ), biologically active area ( $I_{uev4} - 0.20$ ), cover by local spatial management plans ( $I_{uev5} - 0.10$ ), effectiveness of treatment plants ( $I_{uev6} - 0.10$ ).

The normalized indexes were afterwards modified by weights for certain groups and as results synthetic measures were presented. The sum of all synthetic measures for certain index groups for each analysed commune gives general tourism attractiveness level of analysed commune in the county and in turn create a global tourism attractiveness of the whole county (Fig. 1). All indexes were presented as relative values.

The software QGIS 2.10 Pisa was used to elaborate a land structure map and a conception of new tourist trail, while visualization of small tourism infrastructure elements were performed with the aid of SketchUp 2013 software.

## **CHARACTERISTICS OF ANALYSED AREA**

Witkowo commune covers 184.6 km<sup>2</sup> and is located in the eastern part of Wielkopolska region at Gniezno country. This is typical agricultural commune, with 67.2% rural areas. The forestry area covers 22.1% of the analysed area (Central Statistical Office of Poland 2013).

The tourism infrastructure is well developed. The leisure resort is located near the lake as well as high number of tourist trails occur at the area:

- hiking trails (41 km) – green (24 km), red (8 km), black (9 km),
- cycling routes (41 km) – blue (30 km), yellow (54 km), trail around the Niedzięgiel Lake (12 km), trail of Western Forest Loop (17 km), Trakt Słowikowski (2 km), the Urokliwe Doliny trail (22 km),
- thematic trails (34 km) – Saint Jacob trail (4 km), the wooden architecture trail (14 km), the trail of myths and legends (11 km), the trail of palaces and manors (5 km),
- education pathway „The adventure with the nature” (7 km).

There are three spatial nature conservation forms located at commune area: Natura 2000 area of Pojezierze Gnieźnieńskie (PLH 300026), Powidzki Landscape Park, Powidzko-Bieniszewski Landscape Protected Area, which cover 45.2% of total area. The individual forms supplement the spatial ones including, e.g. the ecological site of Jezioro Czarne and 5 natural monuments (*Program Ochrony...* 2014).

## **RESULTS**

### **ANALYSIS OF TOURISM POTENTIAL INDEXES**

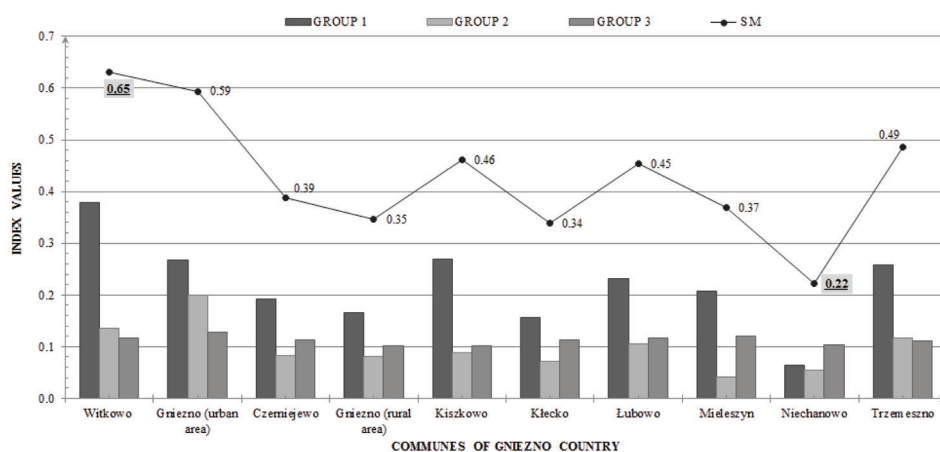
Indexes of tourism attractiveness calculated according to Gołembski (1999) were normalized with consideration of weights. Considering first group of tourist values the highest level in the county was noted for Witkowo commune. This is connected with percentage the area of meadows and pastures, waters, forests at the analysed area and together with natural conservation forms cover around 45.2% of total commune area. Moreover, the high number of cultural events, together with tourist trails and historical objects effect on a high level of the first group indexes at this area. Index values of the two other groups did not reach the highest level in the county. However, a relatively high level was observed. This is connected with relatively good accommodation conditions supplemented by good network of sport-recreation objects located inner cultural buildings, as well as developed basis of regional and local products and highly effective treatment plants (Tab. 1).

The highest synthetic measure was noted for Witkowo commune, where the highest tourism potential was revealed (0.65). While, the lowest level (0.22) was recorded for Niechanowo commune, which revealed the lowest values almost in every analysed group of indexes. The main problems of the latter one were: a lack of protected areas and natural monuments, insufficient accommodation basis, a low level of the area with spatial development plans, and a relatively poorly developed sewage system (Fig. 2).

**Table 1.** Values of analysed indexes for communes of Gniezno county

COMMUNES										
INDEXES	Witkowo	Gniezno (urban area)	Czerniejewo	Gniezno (rural area)	Kiszkowo	Klecko	Lubowo	Mieszyn	Niechanowo	Trzemeszno
I <sub>tv1</sub>	0.02	0.02	0.03	0.04	0.05	0.02	0.05	0.02	0.02	0.04
I <sub>tv2</sub>	0.24	0.07	0.02	0.11	0.09	0.09	0.10	0.11	0.00	0.25
I <sub>tv3</sub>	0.13	0.07	0.20	0.09	0.06	0.06	0.06	0.16	0.06	0.07
I <sub>tv4</sub>	0.15	0.00	0.00	0.00	0.08	0.05	0.08	0.00	0.00	0.00
I <sub>tv5</sub>	0.02	0.05	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00
I <sub>tv6</sub>	0.00	0.00	0.03	0.00	0.05	0.01	0.00	0.01	0.00	0.01
I <sub>tv7</sub>	0.01	0.05	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.02
I <sub>tv8</sub>	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I <sub>tv9</sub>	0.07	0.18	0.03	0.04	0.15	0.02	0.04	0.04	0.03	0.05
I <sub>ntv1</sub>	0.10	0.20	0.09	0.07	0.10	0.10	0.20	0.09	0.11	0.11
I <sub>ntv2</sub>	0.05	0.10	0.15	0.05	0.15	0.10	0.15	0.00	0.05	0.10
I <sub>ntv3</sub>	0.12	0.13	0.07	0.23	0.09	0.06	0.05	0.06	0.06	0.15
I <sub>ntv4</sub>	0.12	0.15	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.02
I <sub>ntv5</sub>	0.15	0.10	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.08
I <sub>ntv6</sub>	0.01	0.10	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01
I <sub>ntv7</sub>	0.03	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.00	0.05
I <sub>ntv8</sub>	0.01	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01
I <sub>uev1</sub>	0.15	0.20	0.16	0.07	0.09	0.16	0.16	0.12	0.10	0.15
I <sub>uev2</sub>	0.17	0.20	0.16	0.15	0.15	0.16	0.09	0.18	0.14	0.14
I <sub>uev3</sub>	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
I <sub>uev4</sub>	0.20	0.14	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
I <sub>uev5</sub>	0.00	0.10	0.01	0.01	0.00	0.00	0.07	0.00	0.00	0.01
I <sub>uev6</sub>	0.05	0.01	0.03	0.05	0.04	0.03	0.06	0.10	0.04	0.04

Source: authors' study based on Central Statistical Office of Poland 2013



Source: authors' study based on Central Statistical Office of Poland 2013

Figure 2. Synthetic measures of tourism potential of Gniezno county communes

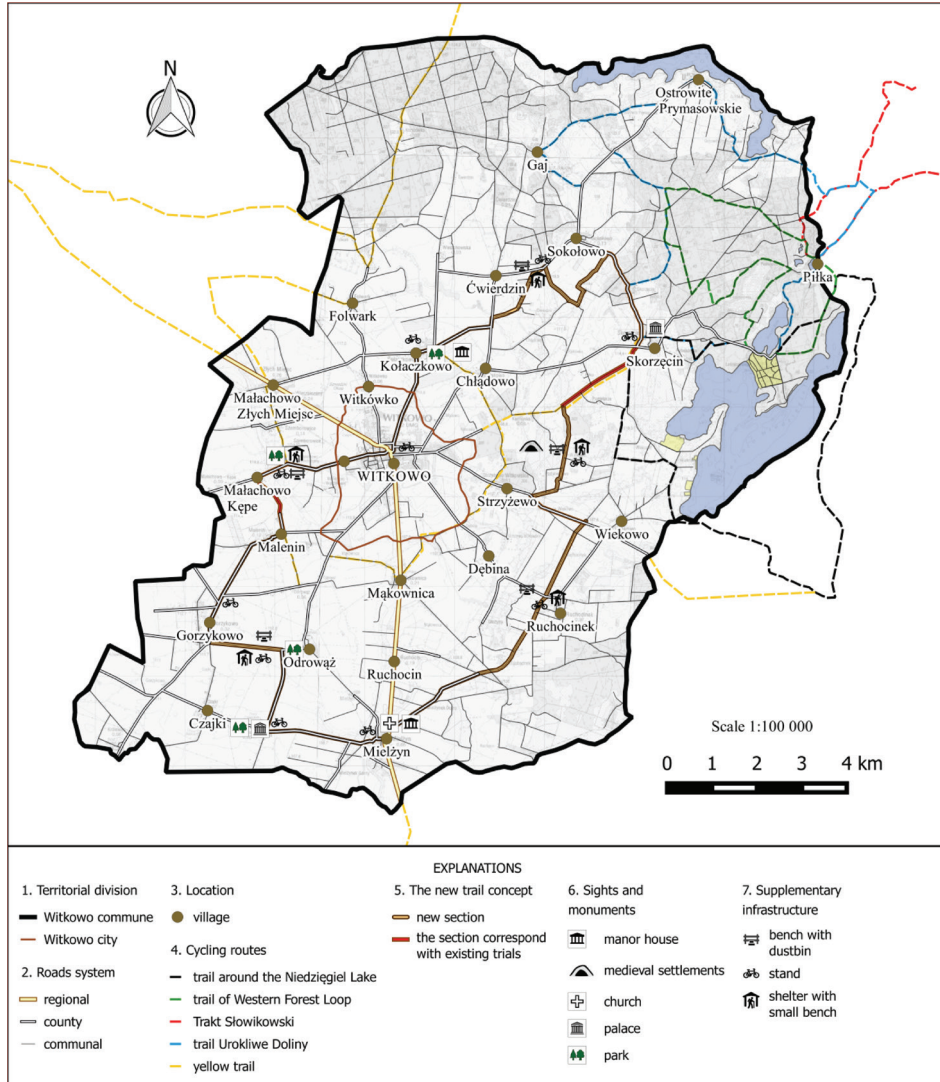
## CONCEPTION OF TOURISM POTENTIAL ENRICHMENT

The activities connected with new tourist trail designation are conducted according to tasks and target vision of tourism development in Poland (Kierunki... 2008). Based on this document the tourism infrastructure should be joined into one system, which is consistent with accepted conception of regional tourism development. The tourist trail proposed here goes through Powidzko-Bieniszewski Landscape Protected Area, which is in agreement to another goal of tourism management for the development of the tourism at the protected area with considering the protection rules and local features. The proposed tourist trail designation does not disturb ecological balance and creates consistent tourist infrastructure.

The fundamental assumptions for designation of proposed trail are presented in the document *Strategy of Tourism Development in Wielkopolska Region* (2007), where a creation of highly competitive tourism development is aimed. The proposed conception modifies tourism potential of Witkowo commune influencing on its further development in the first group of analysed indexes (tourist). The proposed trail is a two-way route. Moreover, considering technical safety aspects of bicycle trail, it uses the existing local and regional roads. The 2 meters wide road should be realized due to safety requirements (Dz. U. 1999 nr 43 poz. 430). The designation of proposed trail considers locations of cultural, sacral and architectural objects (Fig. 3). Based on the instruction for tourist trail designation (*Instrukcja znakowania...* 2007), the route should not be designated



at the existing tourist trail at distance no longer than 3 km. Moreover, due to the unification and modernisation of existing infrastructure the conception of trail supplementation for small architecture objects is here proposed. This is mainly connected with cyclists comfort. Along the proposed trail 11 locations with small architecture objects are planned here (Fig. 3).






Source: authors study based on topographic Vmap on a scale of 1:50 000 from WMS Server ([http://mapy.geoportal.gov.pl/wss/service/pub/guest/kompozycjaG2\\_VMAPL2\\_WMS/MapServer/WMS/Server](http://mapy.geoportal.gov.pl/wss/service/pub/guest/kompozycjaG2_VMAPL2_WMS/MapServer/WMS/Server))

**Figure 3.** Conception of tourism potential enrichment of Witkowo commune



**Table 2.** Project of tourism infrastructure supplementary elements

NAME	Small shed	Bench with a trash basket	Bike rack
VISUALIZATION			

Source: authors' study

The proposed objects include wooden elements, such as a bike rack, small shed with a bench and pots for plants, bench with a trash basket (Tab. 2). The type and a number of elements was strictly related to the occurrence of sacral, architectural and cultural objects along the trail.

## CONCLUSIONS

The comparative analysis of tourism potential of Witkowo commune with other communes of Gniezno county based on tourism potential indexes revealed a high potential of the analysed area. There are however some possibilities to increase the attractiveness of Witkowo commune, therefore the following conclusions were made:

1. Witkowo commune poses the highest tourism potential, but the attractiveness of the area gives possibilities to further enrichment of tourism potential and development of tourism infrastructure.
2. The low level of synthetic measure in the second and third group of indexes is mainly connected with independent activity areas, such as local and interregional communication and service aspects.
3. The proposed conception of new trail would modify the tourism potential of Witkowo commune and would influence on quality improvement of tourism infrastructure at this area.

## REFERENCES

Dz. U. 1999 nr 43 poz. 430 z p.zm – Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 2 marca 1999 r. w sprawie warunków technicznych jakimi powinny odpowiadać drogi publiczne i ich usytuowanie.

Główny Zarząd Towarzystwa Turystyczno-Krajoznawczego (2007). *Instrukcja Znakowania Szlaków Turystycznych*, Warszawa.

Gołemski G. (1999). *Regionalne aspekty rozwoju turystyki*. Warszawa-Poznań: Wyd. PWN.

Jędrzejczyk I. (2007). Miejsce wsi w rozwoju turystyki w świetle dokumentów programowych i planistycznych W: *Turystyka w rozwoju obszarów wiejskich*, Sikorska-Wolak I, (red.). Warszawa: Wydawnictwo SGGW, s. 29-40

Kaczmarek J., Stasia A., Włodarczyk B. (2005). *Produkt turystyczny*. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Kanclerz J., Murat-Błażejewska S., Goszczurna E. (2014). *Możliwości turystyczno-rekreacyjnego zagospodarowania Jeziora Dormowskiego i terenów przyległych*. Nauka Przyroda Technologie 8(4) #47.

Lisiak M., Opala A., Borowiak K. (2016). *The idea of sustainable tourism of protected areas as a factor increasing tourism potential of rural communes*. Studia Obszarów Wiejskich (in press).

Liu A. (2006). *Tourism in rural areas: Kedah, Malaysia*. Tourism Management 27 (2006), s. 878–889. DOI:10.1016/j.tourman.2005.05.007

Ministerstwo Sportu i Turystyki. (2008). *Kierunki Rozwoju Turystyki do roku 2015*, Warszawa.

*Program Ochrony Środowiska dla Gminy i Miasta Witkowo na lata 2014-2017 z perspektywą na lata 2018-2021*. Witkowo, 2014.

Sikorska-Wolak I. (2007). Społeczno-ekonomiczne przesłanki kształtowania funkcji turystycznych obszarów wiejskich W: *Turystyka w rozwoju obszarów wiejskich*, Sikorska-Wolak I. (red.). Warszawa: Wydawnictwo SGGW, s. 13-28.

Witkowska-Dąbrowska M. (2007). Ocena potencjału turystycznego powiatu o wysokich walorach środowiskowych W: *Turystyka w rozwoju obszarów wiejskich*, Sikorska-Wolak I. (red.). Warszawa: Wydawnictwo SGGW, s. 463-477.

Zarząd Województwa Wielkopolskiego (2007). *Strategy of Tourism Development in Wielkopolska Region*. Załącznik do Uchwały Nr X/103/07 Sejmiku Województwa Wielkopolskiego z dnia 25 czerwca 2007 roku, Poznań (in Polish).

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