Spatial Tourist and Functional Diversity on the Volcanic Island of Gran Canaria

Eleonora Gonda-Soroczyńska 1, Hanna Olczyk 1,

1 Wroclaw University of Environmental and Life Sciences, Department of Spatial Management, ul. Grunwaldzka 55, 50-357 Wroclaw, Poland

hanna.olczyk.@upwr.edu.pl

Abstract. The conducted research is focused on spatial, functional and landscape diversity, the existing tourist potential and the possibilities for further development of a small, volcanic island of Gran Canaria. The discussed island was compared against other islands of the Canarian archipelago (Lanzarote, Fuerteventura, Tenerife, La Palma, El Hierro). Similarly to the remaining Canary Islands, the economy of Gran Canaria is predominantly based on tourism (approx. 4,5-5,0 million tourists visit the Canary Island annually and approx. 2,8 million come to Gran Canaria). Additionally, Puerto de la Luz transhipment centre in Las Palmas plays a very important role because of the goods imported from overseas. It is one of the largest ports in Spain (it reloads almost 2 million containers per year) also being an important Atlantic refuelling station. Apart from tourism, an important role is played here by agriculture, primarily the cultivation of bananas and tomatoes, which represent the most significant export good of the archipelago. The conducted spatial research showed an extensive diversity. This situation is, to a great extent, influenced by the climate. The northern part is cooler and dominated by agriculture, whereas the southern one is much warmer and characterized by a well-developed tourism infrastructure. Site inspections performed out along the outer contour of the island resembling a circle. Numerous architectural and urban sketches, urban analyses and photographic documentation were made. Community surveys were carried out. For a researcher, it was extremely interesting to answer the questions whether Gran Canaria is different from the other Canary Islands, especially in the functional and landscape context, and if so what exactly these differences consist of. What is Gran Canaria in particular characterized by and what kind of role it plays in the economic sector of Spain?

1. Introduction
Gran Canaria is one of seven main islands of the Canary Islands archipelago (in ancient times known as Happy Islands), which include Lanzarote [1], Fuerteventura, Tenerife [2], La Palma, El Hierro, La Gomera and Gran Canaria [3]. It is situated 95 km off the coast of Africa and 1400 km from the Iberian Peninsula. Geographically, the Canary Islands belong to Africa, politically to Spain and thus to the European Union. The whole region of the Canary Islands (Canarias) is divided into two provinces: the eastern and the western province. The city of Las Palmas is the capital of Gran Canaria and, in fact, the entire eastern province of Las Palmas (which also includes the islands of Lanzarote and Fuerteventura). Gran Canaria has about 850 000 permanent residents. More than 380 000 of them live in the province of Las Palmas [4]. Due to its landscape diversity, Gran Canaria is referred to as a “continent in miniature”. It is also called "the land of eternal spring" or "the land full of contrasts." It is characterized by a particularly mild climate (mainly as a result of the Gulf Stream influence). The
seasons are not clearly divided. In winter the average maximum temperature fluctuates around 18 degrees Celsius, in summer 25-26 degrees (although higher temperatures are also common, as it happened in the second half of July 2016). There are different climate zones on the island. Lower temperatures occur in its mountainous central part because of the height. In the highest mountain zone snowfall can happen, however, quite infrequently. The southern - tourist part of the island is the warmest. The northern part is cooler and rainier than the southern one [5].

2. Research methods and purpose

The primary objective of the study was to answer the following questions: “Is spatial tourist and functional diversity present in Gran Canaria?”, “Is Gran Canaria different from other Canary Islands, especially in the functional and landscape context? If so, what exactly these differences consist of?”, “What is Gran Canaria in particular characterized by and what kind of role it plays in the economic sector of Spain?”

The research was conducted based on indirect and direct inventory. The direct inventory consisted of field work in the course of which urban and construction work inventories were performed, pictures were taken and sketches were made. Particular attention was paid to holiday resorts on the island, their diversity, the existing tourist potential, as well as the developing agritourism and agriculture. The significant components, related to the broadly approached tourism and leisure were emphasized.

The indirect inventory covered collecting information included in the source materials. The assessment of the existing tourist infrastructure was carried out based on the available statistical data. This part of the research used materials obtained from tourist information centres, community surveys and data presented in the listed publications. The collected information was confirmed by a photographic documentation. During the conducted analyses, the most important environmental components were identified as the ones which can result in further successful functioning of the island in the context of the broadly understood tourist and agricultural functions.

3. Characteristic vegetation formations

The western part of Gran Canaria is so mountainous and the roads are so winding that while driving around the island, it seems to be much larger than it actually is. This, however, is just an illusion. The jagged rusty massifs of volcanic origin, crisscrossed by deep, picturesque ravines, overgrown by e.g. Canarian Spurge, which from a distance look like a bunch of thick green snakes, create a unique landscape. The Canary Islands are characterized by unique vegetation formations [6]. Their examples are laurel forests (bay leaves), which during the Tertiary Period (approx. 6.5 to 1.8 million years ago) covered almost the entire Europe and disappeared during the Ice Age. They survived almost exclusively in the Canary Islands due to the prevailing and also unique climatic conditions: moderate temperatures, heavy rain and high humidity [7]. Linden trees, ferns, holly bushes reaching the height of up to 10 m (e.g. in Los Tilos, near Moya) also grow here. The Canary Pine (a tropical, fire resistant species) and Dracaena draco (the oldest and the most popular in the archipelago) are also characteristic for this region. They can be even about 1000 years old. Their juice is red and the early inhabitants of the island called the Guanches used it for medicinal purposes [7]. Growing predominantly on plantations, banana, pineapple, avocado or mango trees are very popular on the Canary Islands [8].

4. Landscape and functional diversity

Extensive landscape and functional diversity is well visible on Gran Canaria. All the islands were created as a result of underwater volcanic explosions. The southern part of the analysed island is completely different from its other parts. Numerous resorts, such as Maspalomas, San Augustin, Bahia Feliz, are located there. They are the basic tourist base of the island. It features semi-arid areas, beautiful beaches and well-developed tourist infrastructure. The remaining parts of the island are characterised by a quite different landscape, diverse potential and, in a way, separate laws. Just
approx. 60 km to the north of the island, there are green slopes where, along the way, tourists can come across deep ravines and see lovely small villages which were established there.

Las Palmas de Gran Canaria is the island capital and also the capital of the Autonomous Community of the Canary Islands together with the city of Santa Cruz de Tenerife. Moreover, it is the largest city of the Canary Islands (the seventh in Spain) and also the capital of the province of Las Palmas. The population of the administrative centre is 379,766 on the area of 100.55 km², while the conurbation has 765,000 inhabitants. It represents the fifth largest conurbation in Spain. It belongs to the province of Las Palmas. It is situated in the north-eastern part of the island at the altitude of 8 m a.s.l. It is the largest city in the Canary Islands archipelago. It has 2 universities: University of Las Palmas de Gran Canaria, Universidad Fernando Pessoa-Canarias. Las Palmas is located in the subtropical climate zone of half-desert type, with perennial summer season. The average annual temperature reaches almost 24°C during the day and 18°C at night. According to Thomas Whitmore’s research centre at Syracuse University Las Palmas is the city with the best climate in the world. The city was visited by Cristopher Columbus during his voyage to America. Today the tourist attractions are Columbus’s house - Casa de Colón and Columbus’s boat. The most important relics of the past include: St. Anne's Cathedral, Episcopal Palace, the oldest on Gran Canaria and restored Santa Catalina Hotel. They are situated in the historical part of the town called Vegueta. Calle Mayor de Triana is the main pedestrian shopping centre in the capital. In its residential part Las Palmas is dominated by multi-family buildings: tenement houses in the oldest part of the city, medium-high and high multi-storey buildings and also single-family terraced houses.

Figure 1. Las Palmas de Gran Canaria, historic downtown street (photo by E. Gonda-Soroczyńska, June 2016)  
Figure 2. Las Palmas de Gran Canaria, multi-family residential buildings (photo by E. Gonda-Soroczyńska, June 2016)

Maspalomas is the third largest tourist complex in Spain. Until the early 20-th century it was a small settlement on the edge of dunes, with a spring of drinking water and a lighthouse visible from the distance [7]. The historic lighthouse Faro de Maspalomas, located on the seafront promenade is 68 m high. A sandy coastline, several kilometers long, stretches to its east. Numerous hotels, apartments and guesthouses, restaurants, bars, cafes and shops were built there. The city is visited by millions of tourists from all over the world, mainly Norwegians and the British. Foreign languages can be heard everywhere, there are numerous eye-catching advertisements, exactly the same we can come across in any other part of Europe or the world. This is considered a negative aspect, since it is difficult to figure out where exactly we are (as opposed to e.g. Lanzarotte). The beach in Maspalomas is located at Dunas de Malomas. It is the area stretching at 418 hectares, covered with beautiful, snow-white dunes resembling those on the African Sahara. They were created from limestone deposited by the sea sand, crushed shells and corals, and not, as previously thought, the sand blown from the Sahara [7]. Since 1980 the dunes have been covered by protection. Therefore, there is no possibility of their...
development. Tourists, however, can walk along them without any restrictions. Even the hiking trails were marked. The dune landscape resembles that of a desert.

Puerto de Mogán is located in western coastal part of Gran Canaria. It is called a “Little Canary Venice”. Little, because it has only one canal with an arched bridge. It runs along the main street to the marina. The canal causes that a specific climate, slightly resembling that of the Italian city of Venice, can be enjoyed here.

![Figure 3. Maspalomas, Faro de Maspalomas Lighthouse, sandy coast stretching for several kilometers (photo by E. Gonda-Soroczyńska, June 2016)](image1)

![Figure 4. Dunas de Maspalomas – wide sand dunes on the shores of the Atlantic Ocean (photo by E. Gonda-Soroczyńska, June 2016)](image2)

In the past, it used to be a fishing village, particularly popular with immigrants from Europe, predominantly the British and Scandinavians. Currently many of them, seeking the sun, spend several months of the year here, especially since the former port has now been changed into a marina. In terms of its location, the city is squeezed between mighty cliffs, adding a special landscape advantage to it. It can be said that it is one of the most charming places in Gran Canaria and also one of the most beautiful resorts.

Puerto de Mogan is surrounded by the mountains on its three sides. It has a small beach, as if carved in a rock, with sand brought from the Sahara. In the city, it is worth paying attention to: narrow streets characterised by a specific climate, a small canal and the cascades of blooming bougainvillea. Neither clubs nor discos were opened here, however, there are many busy restaurants and cafés (approx. 200) located along or in the neighbourhood the beautiful marina. The typical Caribbean atmosphere can be enjoyed here. This is an ideal place for those seeking peace and romantic scenery. The harbour is actually the centre of this small location. The whole life revolves around it. In the evenings tourists sit on the roofs of their apartments, with a bottle of wine, singing and listening to music. Puerto de Mogan (www.hotelpuertodemogan.com) is one of the most important constructions in the city. It is located right by the harbour and consists of an apartment complex. Each building of the Hotel Puerto de Mogan complex has access to the roof with tables and chairs. The entire area is covered with beautiful vegetation (characteristic for all hotels and apartment in Puerto de Mogan).
Puerto de Mogan remains an urban jewel, which has retained the Canarian character due to the prohibition of constructing hotels and other buildings more than two storeys high. Large hotels and shopping centres are absent here. All buildings feature facades in white, with the addition of multi-coloured details, usually in the form of coloured strips and window frames. The buildings, at the level of their roofs are, in a way, "coupled" by small bridges with the cascades of vibrantly colourful bracts of bougainvillea falling down from them. Fences painted in various colours and beautifully blooming hibiscus add to the charm of the village. It is the flowers and their diverse colours in various shades of red, yellow, purple, orange, green which make that the resort is perceived as if from a fairy tale. All these components result in the feeling of specific silence, quietness and seclusion. The crowd usually created by tourists disappears somewhere and becomes less visible. Every week a great local market takes place here and attracts people from all over the island. It offers almost everything, also the handicraft imported from Senegal. Tourists can easily reach it from all places on the island by the local busses (they run very frequently, every few minutes). The bus transfer to Puerto Rico or the beautiful beach of Amadores takes about 15 minutes. The capital Las Palmas Gran Canaria is about 2 hours’ drive away, whereas Maspalomas and Playa del Ingles less than an hour. Puerto de Mogan is in the distance of about 20 kilometers to the west from Playa del Ingles. Both the gorges and the winding mountain roads are a tourist attraction in this part of the island.

Playa del Ingles is the second most popular resorts on the Gran Canaria with a 6-km long beach and golden sand.

5. Economy of Gran Canaria – tourism, bananas, tomatoes
The economy of Gran Canaria is primarily based on tourism, agriculture and transport. It is the second (after Tenerife) island of the archipelago in terms of the number of tourists and, moreover, it is characterized by their largest percentage increase against the previous year. In recent years, the number of tourists has increased significantly – the island’s popularity is continuously increasing. The growing tendency has been recorded since the global economic crisis in 2008. Winter months remain the peak tourist season in Gran Canaria as the climate of the island makes it an ideal place for the Europeans seeking a break from winter. The majority of tourists arrive from such countries as: Germany, Great Britain, Norway, Sweden or The Netherlands. In the recent tourist season the island has also gained popularity among the visitors from Poland (over 63% more tourists than in the previous year) as well as among Italian and British tourists.
Table 1. The number of tourists on the Canary Islands in 2015 and 2016.

|          | TOTAL                     | Canaries          | Lanzarote         | Fuertaventura   | Gran Canaria | Tenerife       |
|----------|---------------------------|-------------------|-------------------|-----------------|--------------|----------------|
| 2015     | 13 301 251                | 2 640 862         | 2 101 202         | 3 717 626       | 5 195 206    |
| 2016     | 14 981 113                | 2 915 727         | 2 287 650         | 4 223 679       | 5 769 992    |
| Total variation | 1 679 862              | 274 865           | 186 448           | 506 053         | 574 783      |
| Var. (%) | 12.63%                    | 10.41%            | 8.87%             | 13.61%          | 11.06%       |

Authors’ compilation based on FRONTUR-ISTAC data (Instituto Canario de Estadistica).

Figure 7. Number of tourists on Gran Canaria in the years 2001-2016 (Author’s compilation based on [8] and [9]).

Figure 8. Number of tourists on Gran Canaria in the years 2015 and 2016 broken by months (Authors’ compilation based on FRONTUR-ISTAC data (Instituto Canario de Estadistica)).
Table 2. Foreign tourists on Gran Canaria divided broken by country of origin in the years 2014, 2015 and 2016, compilation based on [8] and [9]

| Country of origin       | 2014    | 2015    | 2016    | Var. (%) 14-15 | Var. (%) 15-16 |
|-------------------------|---------|---------|---------|----------------|----------------|
| Germany                 | 922 315 | 931 378 | 1 016 863 | 0,98%          | 9,18%          |
| Austria                 | 34 260  | 26 967  | 28 841  | -21,29%        | 6,95%          |
| Belgium                 | 94 628  | 105 237 | 117 536 | 11,21%         | 11,69%         |
| Denmark                 | 160 899 | 158 740 | 173 322 | -1,34%         | 9,19%          |
| Russian Federation      | -       | 106     | -       | -              | -              |
| Finland                 | 139 972 | 123 638 | 125 722 | -11,67%        | 1,69%          |
| France                  | 35 107  | 51 610  | 59 427  | 47,01%         | 15,15%         |
| United Kingdom          | 587 288 | 633 270 | 823 713 | 7,83%          | 30,07%         |
| Holland                 | 168 181 | 178 850 | 224 436 | 6,34%          | 25,49%         |
| Ireland                 | 75 598  | 71 826  | 81 049  | -4,99%         | 12,84%         |
| Italy                   | 46 670  | 63 186  | 88 556  | 35,39%         | 40,15%         |
| Norway                  | 343 909 | 318 569 | 328 084 | -7,37%         | 2,99%          |
| Czech Republic          | 11 237  | 12 062  | 15 101  | 7,34%          | 25,19%         |
| Poland                  | 28 904  | 44 017  | 71 783  | 52,29%         | 63,08%         |
| Sweden                  | 323 288 | 315 463 | 343 649 | -2,42%         | 8,93%          |
| Switzerland             | 99 245  | 100 402 | 112 996 | 1,17%          | 12,54%         |
| Others Countries        | 132 422 | 136 620 | 152 461 | 3,17%          | 11,51%         |
| TOTAL                   | 3 203 927 | 3 271 941 | 3 763 539 | 2,12%         | 15,02%         |

The most important and the largest tourist resorts are located along the southern coast. Among them, especially Maspalomas should be mentioned, as well as the neighbouring Playa Las Meloneras and Playa del Inglés. The cubature tourist infrastructure consists of: hotels, apartments, bungalows, hotels featuring either African or Spanish village style, boutiques, shopping malls, bars, discos and restaurants. Significant areas are covered by: parks, golf courses or sports fields. The majority of accommodation facilities are situated in the vicinity of beaches between San Augustin in the south of the island and Puerto de Mogan in its south-western part. In recent years, many new facilities were built, whereas the old ones were renovated in line with the current standards.

Figure 9. Maspalomas, Hotel on the promenade, in the vicinity of restaurants, cafes, bars (photo by E. Gonda-Soroczyńska, June 2016)

Figure 10. Las Palmas, the oldest on Gran Canaria restored Santa Catalina Hotel (photo by E. Gonda-Soroczyńska, June 2016)
On the island, there are two types of irrigated banana plantations: large-area ones using chemical fertilizers and specifics, aimed at the fastest possible production, and also organic plantations, much smaller and quite different from the first ones. The presented photographs were taken on the organic plantation in Arucas (northern part of the island, 12 km from the capital).

Figure 11. Arucas, organic plantation of bananas, bananas just before curling the covering leaves (photo by E. Gonda-Soroczyńska, June 2016)

Figure 12. Arucas, organic plantation of bananas, bananas after the covering leaves have dropped off (photo by E. Gonda-Soroczyńska, June 2016)

6. Agrotourism vs. resort centres

Agrotourism (rural tourism) has been intensely developing in Gran Canaria in recent years, predominantly in the southern part of the island. It stands in contrast against the numerous resort centres functioning here. The European Union funds played a significant role in this region, as they supported both renovation and furnishing of over 100 historic farms. Among these farms there are simple, peasant huts and feudal manors. The author of the presented article had an opportunity to stay and get acquainted with the carried out activities on one of the well-functioning local agrotourism farms. It is called Los Berrazales Vineyard located within the farm of the same name. It is situated at the foothill of Tamadaba in Agaete valley, in the north-western part of Grand Canaria. It functions on a winemaking estate La Laja, also known from the plantation of coffee and oranges. In this region, the family Lugo-Jorge runs an agrotourism farm. Their vineyard based on listán negro grape variety, which is grown using only traditional methods. Los Berrazales produces dry and semi-dry organic red, rosy and white wines. The owners of Los Berrazales Vineyard allow tourists to get acquainted with the cycle of wine manufacturing work. During a guided tour, visitors can learn about the process of wine production as well as the cultivation of oranges and coffee. Tourists can purchase not only local wine in the bottles designed by the Canarian artist Pepe Dámaso, but also coffee and citrus fruits. This farm is focused on an organic production of fruit: grapes, oranges, lemons, mangoes, coffee etc., however, its primary produce is wine. It is much cheaper, than on the coast, to spend the night here, eat organic food, take a dive in the swimming pool and use other tourist attractions and facilities. Visitors can buy products grown or made by the farm owners (wine, vegetable puree, meat preserves and also other regional products).
7. Results and discussions

In a particular region (The Canary Islands in this case) it is important to identify tourist products as the factors responsible for regional growth [10]. Tourism and its development constitute one of several major directions of regional economy in the analysed area [11]. It plays the stimulating role for the entire local economy. It is responsible for creating new types of services accompanied by initiating new types of industrial production for the benefit of tourists and the local community [12].

Tourists visiting a particular region have specific needs, which cannot be met by just individual services, facilities or activities. The entire region, along with its advantages, infrastructure, hospitality of the local people etc., create the product, i.e. a certain consistent value which, during a tourist visit, turns into a specific, unique and unrepeatable entity [13]. A defined area offers numerous elements creating a potential tourist product. It, therefore, represents an aggregate function of certain features and characteristics [10]. Only some of them constitute incentives for making the visit. The remaining components of the product are noticed in the course of its consumption i.e., in this case, during a stay.

8. Conclusions

- Gran Canaria is a slightly different island than the other islands of the Canary Islands archipelago, predominantly in both landscape and functional context (southern part with the dominating tourist function, northern – agricultural, central – mountainous and completely different from the other two).
- It is the second (after Tenerife) the archipelago island in terms of the number of visiting tourists, especially in recent years.
- Winter months are the peak tourist season on Gran Canaria.
- The majority of tourists arrive at Gran Canaria from such countries as: Germany, Great Britain, Norway, Sweden and The Netherlands.
- The island is increasingly popular among Polish tourists.
- Agriculture and especially the irrigated plantations of tomatoes, bananas, citrus fruit and coffee play an important role in the Spanish export.
- The environmental potential of the island is not taken advantage of to its full potential – it is probably a matter of the future.
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