

# Profile of sustainability in some Mediterranean tourist destinations



**Synthesis: Rovinj, Croatia**  
**Based on the case study by Zoran KLARIC**

Loïc BOURSE



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## Introduction

The case study by Zoran Klaric on Rovinj (Croatia) is part of the Plan Bleu project "Sustainability profiles in some Mediterranean tourist destinations". It is based on an experimental method, and involves measuring and assessing the impacts of tourism from the perspective of the key goals of the Mediterranean Strategy for Sustainable Development (MSSD), taking into account environmental, social and economic issues in the destinations studied. A "profile of sustainability" has been produced for eleven tourist destinations<sup>1</sup> located in eight Mediterranean countries using the DPSIR approach (Drivers– Pressures– State – Impacts – Responses).

Firstly, the sustainability of the destination was studied using economic performance indicators (e.g. accommodation occupancy rates), territorial, demographic and sociological indicators (e.g. the effect of seasonality on employment, the income levels of the local population, the quality of essential amenities and services) and environmental indicators (e.g. damage to the landscape associated with coastal development). Secondly, thought was given to policy measures that could be taken to improve the sustainability of the destination. This systemic and territorial approach was used to examine the destination, which is the basic unit of tourism development, as well as taking into account several different scales (local, national and regional) and the various stakeholders across the region, while relating the Mediterranean tourist system with the other priority areas from the MSSD: water, transport, waste, energy, etc.

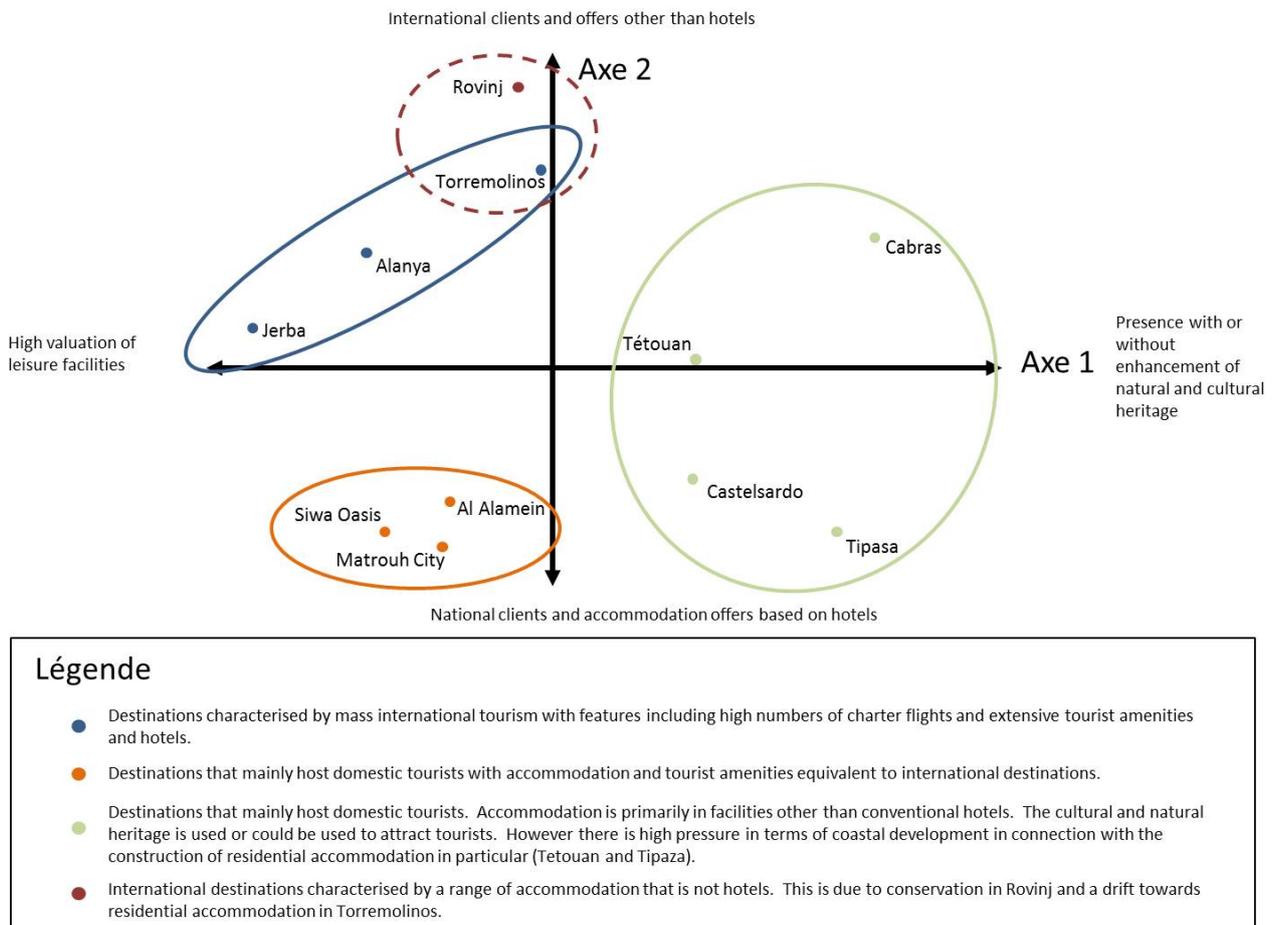
In selecting the destinations to be studied, Plan Bleu defined a methodology requiring that each destination studied should be an administrative unit on the Mediterranean coast with significant international and/or domestic tourism, that is also home to a permanent population but is not a major city. Based on the variables identified and the data supplied by the experts who authored the case studies, Plan Bleu proposed a classification of destinations (Figure 1):

- Type one (Torremolinos, Alanya and Djerba) are international destinations with extensive tourist amenities, and are characterised by a range of hotel accommodation, particularly 4 and 5 star hotels, with a wide selection of leisure activities (health spas, marinas, golf courses, casinos, etc.) and a dependence on tour operators. The sea, beach and associated activities are the main attraction, so these mass tourism destinations are referred to as "3 S" destinations (*Sea, Sand and Sun*).
- Type two (El Alamein, Siwa Oasis and Marsa Matrouh) are domestic destinations with extensive tourist amenities, and are characterised by mainly hotel accommodation (4 and 5 stars) with leisure amenities (health spas, marinas, golf courses, casinos, etc.) and a significant range of cultural and/or historical sites. Type two destinations are distinguished from type one on the basis of the origin of the tourists - internal demand as opposed to foreign tourists.
- Type three (Cabras, Castelsardo, the Tetouan coast and Tipaza) are destinations attracting domestic tourists who mainly stay in accommodation other than hotels (residential accommodation, bed and breakfasts, camp sites, etc.). Other factors that attract tourists to these destinations are their significant cultural and natural heritage (markets selling local products, nature reserves, etc.).
- Type four (Rovinj) are destinations that are in rejuvenation phase, and represent destinations with primarily international customers, where Tour Operators do not play a significant role and whose accommodation options are primarily facilities other than hotels.

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<sup>1</sup> Torremolinos (Spain), Cabras and Castelsardo (Sardinia, Italy), Rovinj (Croatia), Alanya (Turkey), El Alamein, Marsa Matrouh and Siwa Oasis (Egypt), Djerba (Tunisia), Tipaza (Algeria), the Tetouan Coast (Morocco).

**Figure 1: Graph showing the types of tourist destinations studied**



Source: Principal Component Analysis by Loïc Bourse based on data produced by the experts and processed by Ioannis Spilanis, 2011.

Guide (see also Figure 15 in appendices):

Axes 1 and 2 explain 64% of the data variance.

Axis 1 alone explains 39% of the information:

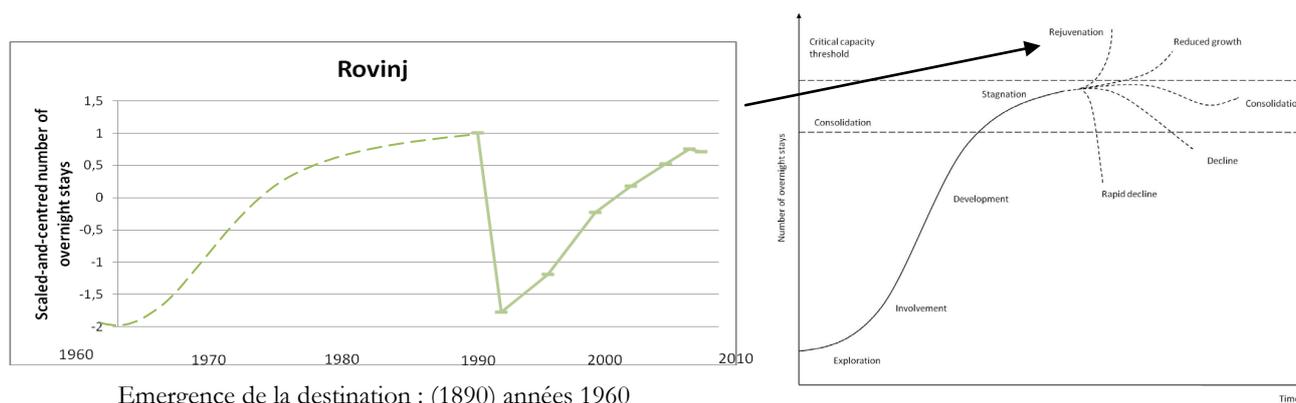
- on the right side, it represents domestic tourism with visitors using accommodation other than hotels (residential accommodation or camping), focusing on cultural products (e.g. markets selling local goods, craft demonstrations, etc.) and/or natural features (e.g. national parks, nature reserves and marine nature reserves);
- on the left side, it represents the international character of tourism characterised by widespread use of charter planes (influence of Tour Operators), extensive tourist amenities and a high density of hotel accommodation in the administrative area.

Axis 2 explains 25% of the information:

- on the top part, it represents tourism characterised by international visitors using accommodation other than hotels;
- on its bottom part, it represents tourism with extensively equipped hotels with historical sites and primarily domestic visitors.

According to the Butler model relating to the life cycle of tourist destinations (BUTLER 1980), Rovinj is in rejuvenation phase. The catastrophic fall in tourism in Croatia, which accounts for two thirds of international tourism in the former Yugoslavia, began in 1991 due to the civil war. The total number of overnight stays in Croatia fell from 61.8 million in 1989 to 10.7 million in 1991, and the number of overnight stays by foreign visitors fell from 54.4 to 7.6 million over this three year period. It was not until 1996 that Croatian tourism began to grow once more, but this recovery was interrupted in 1999 following the NATO bombings of Serbia. After this, during the period from 2000 to 2008, following elections in Croatia, the growth rate of Croatian tourism was the fastest in Europe, at more than 6% per annum, although the number of overnight stays achieved in 1990 had still not been reached.

**Figure 2: Interpretation of destinations in rejuvenation phase based on the Butler model (BUTLER 1980)**



Source: The data was produced by experts then scaled and centred, Bourse, 2011.

Rovinj is characterised by a large international clientele travelling by car, with a diverse accommodation offering consisting of camp sites, hotels and residential accommodation.

On the basis of these observations, and with a view to presenting the profile of sustainability for Rovinj this summary of the case study is structured in four sections – corresponding to the four main variables identified in the MSSD (PLAN BLEU 2009) – through which we will discuss various indicators (SPILANIS & VAYANNI 2011), in particular:

- economic indicators: the number of hotel beds, the number and size of accommodation facilities, occupancy rates, the effect of seasonality and revenue per bed;
- socio-territorial indicators: demographic changes, the overall share of tourism in local employment by gender and types of employment contract, and unemployment statistics;
- environmental indicators: natural resource and energy consumption, production and treatment of solid and liquid waste, land pressure and biodiversity;
- governance indicators: implementation of an internationally-defined model of governance, local governance practices and the categories of stakeholders involved in governance.

In the conclusion, we will bring these four variables together in graphic form and assess the state of sustainability at the destination, then we will present Klaric's proposals for “policy measures” with regard to the improvement of sustainability in Rovinj.

## I. Tourism and economic development

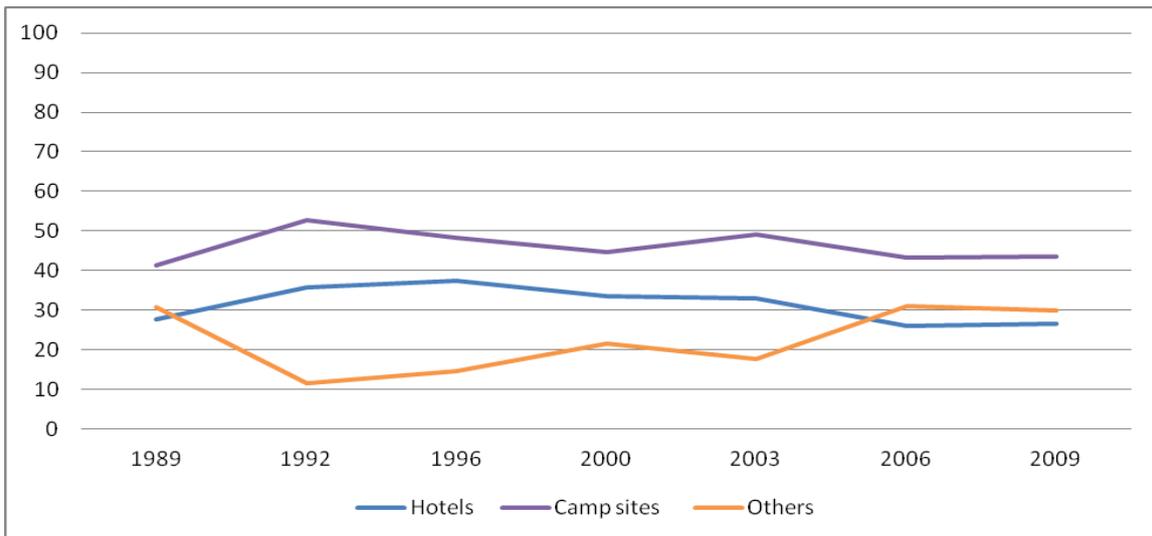
From an economic standpoint, Istria County is one of the most active Croatian regions, and Rovinj is the most highly developed town in this Adriatic peninsula. The current vitality is partly the result of the recovery in tourist activity, and is also due to the industrial fabric based on the tobacco processing and some fish processing industry. In Croatia, and in Rovinj in particular, there is a link between tourism and industry. The privatisations that followed the socialist period and the anti-smoking campaign in 2006 gave the tobacco industry an opportunity to invest in the tourism sector. Today, the Adris group (formed by the cigarette manufacturer "Tvornica duhana Rovinj ") and Maistra group own most of the hotels in Rovinj and nearby Vsar. The tourist infrastructure in Rovinj is therefore for the most part controlled by local private investors.

To sum up the repercussions of these characteristics on the results and economic impacts of tourist activity in Rovinj, we will make use of the data produced by Klaric, focusing on the changes in tourist offerings and on revenue from tourism.

## 1. Changes in the tourism offer and demand

If we look at the way the tourism offer has changed, particularly with regard accommodation (Figure 3), over a period of 20 years (1989-2009), the structure of the offering has remained coherent with the heritage from the socialist period, with camp sites still accounting for more than 40% of the total offering. Hotels represented the second largest source of accommodation during the war and in the 1990s (roughly one third of accommodation capacity). Now they have been overtaken by the "residential" offering, since 2006. Residential accommodation is now the second-placed form of accommodation (nearly 30% of capacity), while hotels now only represent 26%. In addition, we note a return to a number of beds that is equivalent to before the war (11,710 beds in 2009 and 11,804 beds in 1989). The recovery process has been relatively slow, since it was not until 2003 that the number of beds exceeded 10,000.

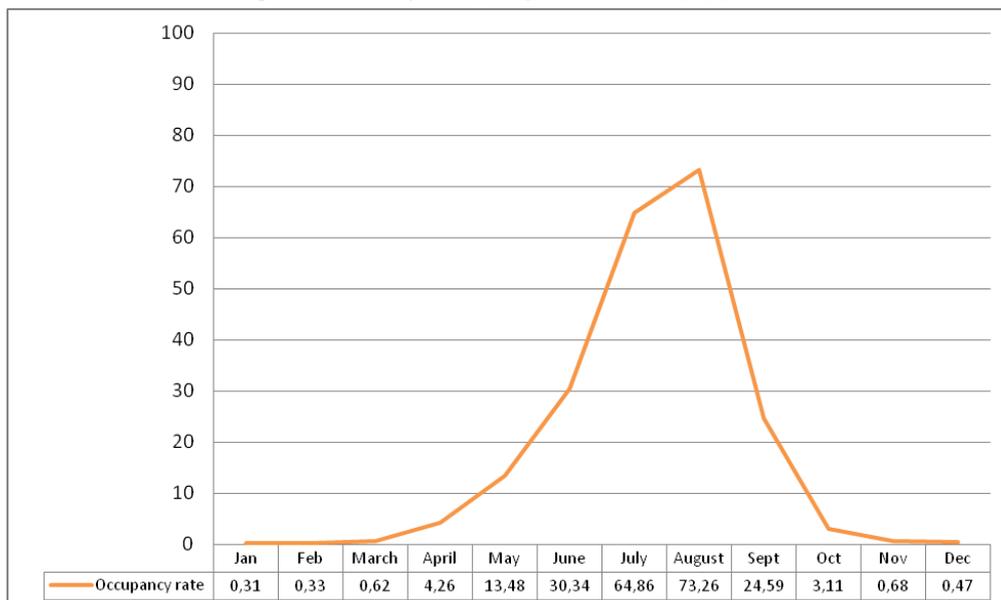
**Figure 3: Changes in the structure of tourist accommodation on the basis of the number of beds and places in Rovinj (%)**



Source: Data from Klaric, 2011.

Rovinj is marked by very high levels of seasonality (Figure 4): the occupancy rate exceeds 10% for only five months, between May and September, and the highest number of visitors is present in July and August, with occupancy rates of 65 and 73% respectively.

**Figure 4: Monthly occupancy rates in Rovinj (%) 2009**



Source: Data from Klaric, 2011.

According to Klaric, the problem of seasonality in Rovinj is even more severe than in the rest of Istria, and is due to the predominance of seaside tourism, as well as the high proportion of camp sites in the accommodation offering. On the basis of the 2009 figures, two explanatory factors can be added to these causes of strong seasonality:

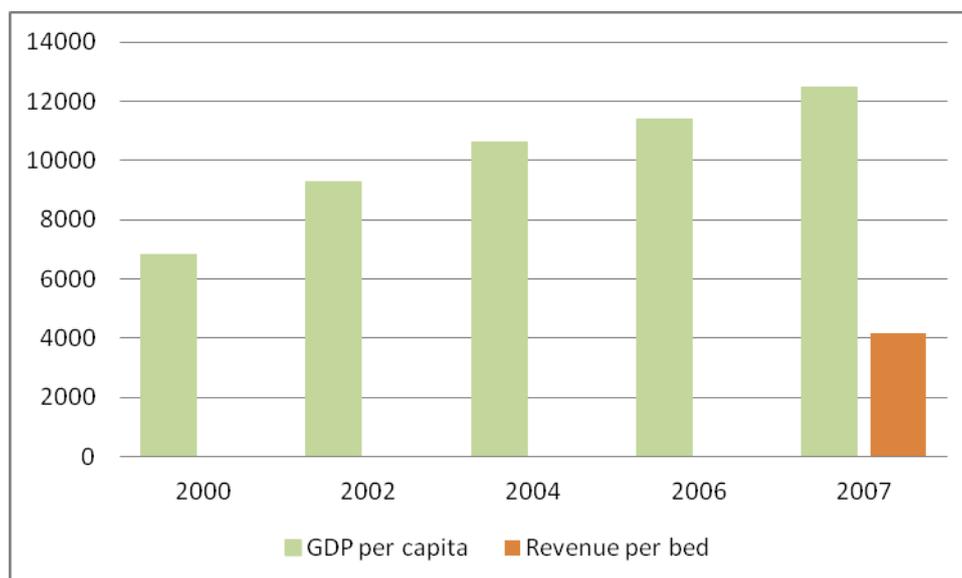
- the huge majority of foreign visitors amongst the clientele (97.26% of customers come from abroad);
- the extremely high proportion of tourists coming by car (more than 90%).

As a result, both the structure of the accommodation offering and the high proportion of camp sites (accommodation influenced by weather conditions), as well as the type of demand based on foreign customers (dependence on the international market) contribute to the seasonality of tourism in Rovinj. Domestic customers (2.74%) do not significantly compensate for the slack periods, even though entry-level hotels have the most stable occupancy rate over time (an average of 45%); domestic customers prefer 1, 2 or 3 star hotels.

## 2. Revenue from tourism

With regard to the revenue from tourism in terms of GDP per capita, Istria County is in second position nationally. Tourism therefore has positive impacts on the economy of Rovinj. Adis group based in Rovinj is among the most highly developed companies in Croatia. In addition, the most highly developed towns in Croatia are tourist destinations located on the coast: Novigrad, Porec, Dubrovnik, Krk, Cres, Hvar.

**Figure 5: Changes in the GDP per capita and of revenue generated by tourism in Istria County (€)**



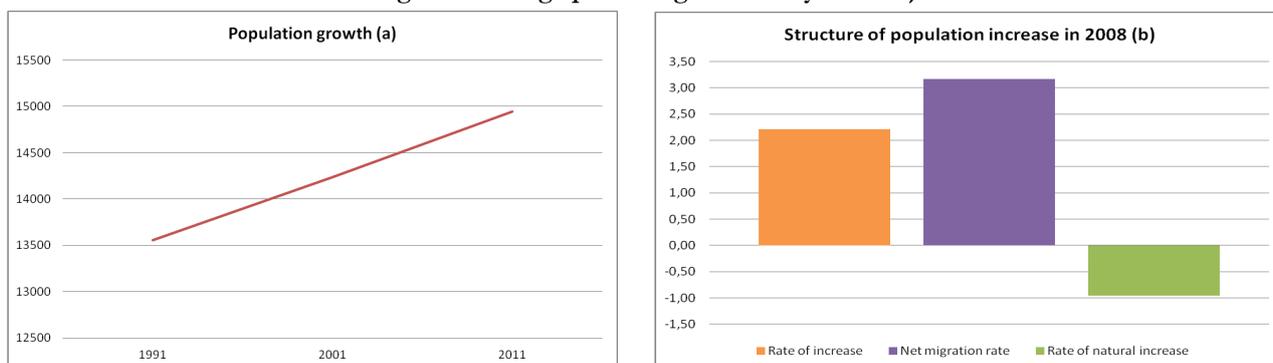
Source: Data from Klaric, 2011.

Figure 5 shows the steady year-on-year growth in GDP per capita between 2000 and 2007, rising from €6,828 to €12,463. For Istria County the revenue from tourism in 2007 was €153 million, i.e. €4,167 per bed. Although the level of expenditure per visitor is relatively low compared to other Mediterranean destinations, flight of capital abroad is limited due to the investment of the local business community. This situation is brought about by two factors: the desire of the local business community to control the domestic market, and restrictions on foreign investments as a result of lessons learned from the post-war period which saw cases of corruption related to privatisation policies.

## II. Tourism and socio-territorial development

Between 1991 and 2011 (year of the most recent census), the population of Rovinj increased by roughly 1,500, from 13,559 to 14,948 inhabitants (Figure 6 (a)). This population growth is not due to natural increase, which was in fact negative in 2008 (-0.96%). The population growth is caused by migratory flows (3.17%) (Figure 6 (b)) generated by the economic attractiveness of the territory, and the tourism and industrial activities.

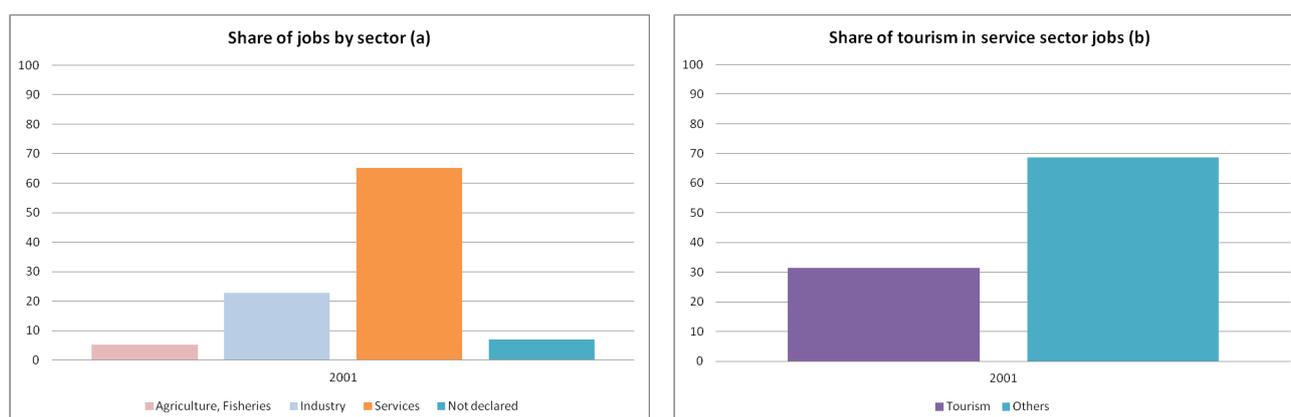
Figure 6: Demographic changes in the city of Rovinj



Source: Data from Klaric, 2011.

Although it is difficult to assess the proportion of tourism in the number of jobs (difficulties in measuring indirect jobs), it is possible to suggest an estimate based on the contributions of the different economic sectors to the number of jobs. Figure 7 (a) shows that in 2001 the service sector employed more than 60% of the working population (compared to 5.06% for agriculture and fisheries, 22.83% for industry and 6.88% not declared). The services sector consists of 31.43% direct employment in tourism and 68.57% other employment (Figure 7(b)). So direct employment in tourism accounts for 17% of the active population in the city of Rovinj, i.e. 1,162 out of the 6,793 people that make up the active population.

Figure 7: Share of tourism in the number of jobs in Rovinj (%)



Source: Data from Klaric, 2011.

The two most powerful sectors in the economy of Rovinj, industry and tourism, account for more than 36% of jobs in the city. Maistra is the company with the largest number of employees. In 2009 the company employed 850 people in tourism for the city of Rovinj alone, approximately two thirds of the tourism jobs in the destination.

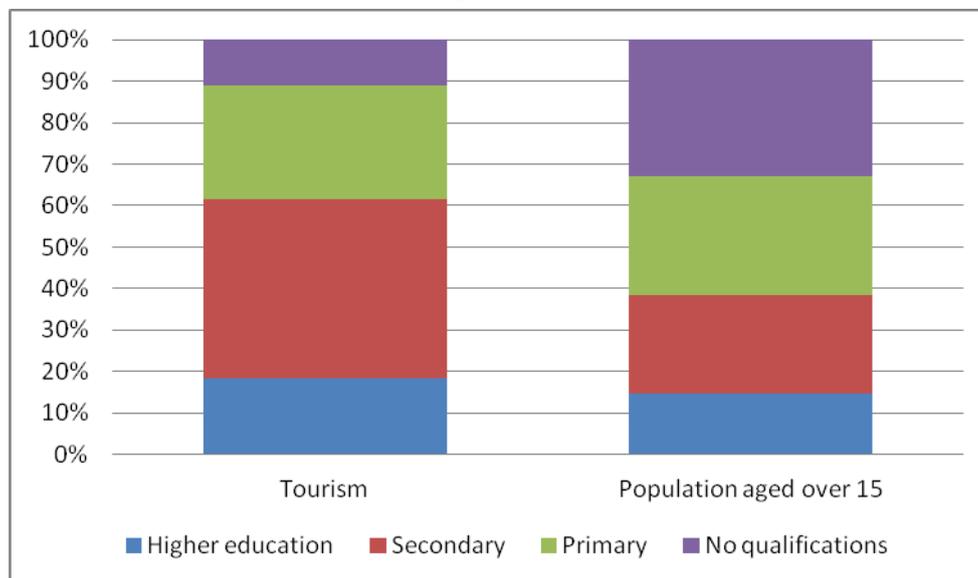
**Figure 8: Employment conditions in Rovinj (%) (2001)**



Source: Data from Klaric, 2011.

The significant role played by Maistra in tourism in Rovinj and the economic vitality of the destination result in a higher average level of remuneration in Rovinj (€ 775) than in Istria County as a whole (€ 613) and in Croatia nationwide (€ 585). However seasonal employment represents roughly 56% of the jobs. According to the Maistra Company, most of the seasonal workers are unemployed outside the tourism season, although some of them try to find an additional job during the low season. 56% of jobs created by Maistra are seasonal jobs occupied by people with no other professional activity. Most of the seasonal workers are Croatians from Rovinj or areas near the city. For instance, of the 460 seasonal workers employed by Maistra, 42% live permanently in Rovinj, 21% come from other municipalities in Istria County, 37% are from other regions, in particular the region of Slavonia in the eastern part of Croatia.

**Figure 9: Comparison between the level of education of employees in the tourism sector and the level of education in the population aged over 15 (%) (2001)**



Source: Data from Klaric, 2011.

The weight of seasonal jobs tends to inflate the unemployment figures (11.26% of the active population 2001), backing up the idea of a model of a flexible workforce employed by local entrepreneurs. It should be noted that unemployment affects women more than men (6.62% for women compared to 4.64% for men: Figure 8 (b)). The higher proportion of women compared to men in the unemployment figures and in tourism jobs could be interpreted as a consequence of the greater employability of women in the tourism

sector (Figure 8(a)). Due to the lack of data however we cannot establish a correlation between "more jobs for women than for men in tourism" and "more women unemployed than men". Whatever the case may be, although the average salary is higher in Rovinj than in the rest of the country, more than half the tourism workforce is unemployed for 7 months a year. In addition, dependants (children, the elderly) represent 44.77% of Rovinj's population, which is a high percentage. Finally, the tourism sector certainly employs people with a higher level of formal education than the population as a whole (Figure 9), but we do not know whether seasonal contracts are taken up more by people with or without qualifications, or more by women or by men.

### III. Tourism and the environment

On the basis of the different indicators used to economic and socio-territorial variables, the following observations can be made:

- high numbers of summer visitors to the destination, with the population virtually doubling, from 14,948 people in low season to roughly 30,000 people in high season (2009);
- an increase in the total population residing in Rovinj, as well as an increase in life expectancy (76.3 years in 2001).

These various observations will be used to examine the consequences of tourism on the environment via three components: water and energy consumption and the production and treatment of solid and liquid waste; land pressure caused by tourism; the state of biodiversity in the destination.

#### 1. Water and energy consumption; production and treatment of solid and liquid waste

According to Klaric, water supply is not a problem in Rovinj. Croatia does not have water supply problems, due to the abundance of water resources in the country. In addition, the country is endowed with drinking water distribution networks that provide a satisfactory level of household connections. Furthermore, very few agricultural areas are irrigated in Croatia. Consequently, the daily water consumption of a tourist is roughly 0.27 m<sup>3</sup> per overnight stay (Table 1), i.e. 270 litres per overnight stay. The question of drinking water supply does not therefore raise any problems. However, the method of supply based on the Butonega reservoir in central Istria via a water transfer system results in a relatively high water price due to the costs of maintenance and occasionally irrational use of water resources.

With regard to electricity consumption due to tourism, despite the high numbers of tourist visitors during the summer period, there is no major problem with electricity supply. The infrastructures are sufficient to meet the considerable needs of households for heating during the winter, and therefore to also meet the electricity needs of the tourist industry. It should be remembered that camp sites account for more than 40% of tourist accommodation capacity in Rovinj and electricity consumption is lower in camp sites than in hotels. However, the situation could become problematic due to the constant rise in the number of air-conditioning systems, and the increase in residential accommodation facilities. The daily electricity consumption due to tourism is currently around 40.4 kWh per overnight stay (Table 1) but there is a risk it may increase, further accentuating the dependence of Rovinj and Croatia in general on imported electricity.

According to the Maistra Company, the estimated production of solid waste due to tourism is 1.99 kg per visitor per day (Table 1). Solid waste is divided into 23 types, and is then treated by the municipal company (public body) covering the whole of the Rovinj area. Solid waste such as plastic bottles and paper is recycled, but the vast majority of the waste is sent directly to landfills, which is usually the case in Croatia. Nevertheless, due to the process of integration of Croatia into the European Union, waste treatment has been improved over the last few years. A solution remains however to be found for each county in relation to the abandoning of final disposal sites in favour of a centralised landfill.

66,003 m<sup>3</sup> of wastewater is produced by the Maistra Company in the city of Rovinj per day (Table 1). Wastewater is treated by two systems, depending on the location of the tourism accommodation facilities:

wastewater from tourism facilities in the central districts of the city is drained by Rovinj's central sewage system; wastewater from tourist resorts and camp sites outside the city is discharged into the sea without any preliminary treatment due to the lack of a plan for connection to the central sewer.

**Table 1: Consumption of natural resources and production of waste and wastewater in Rovinj**

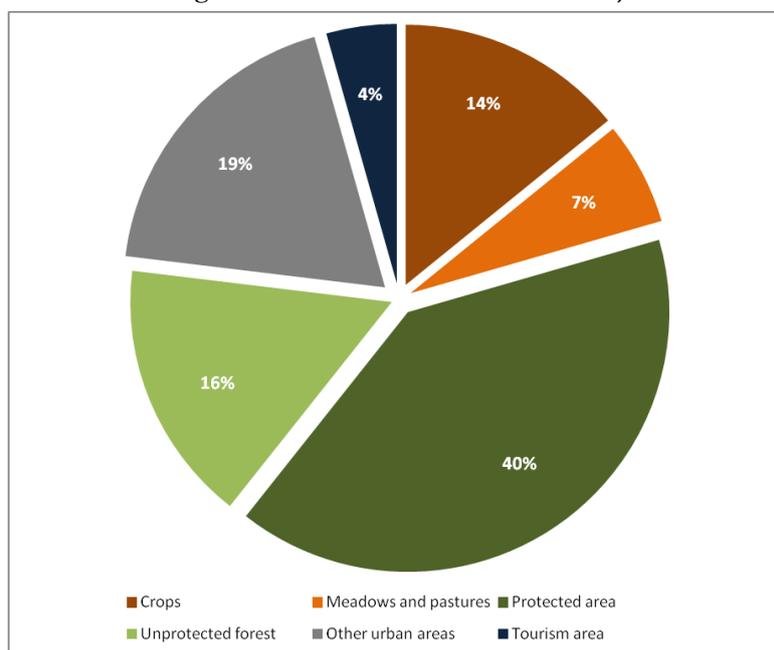
	Units	Quantity
Water (2010)	m <sup>3</sup> per overnight stay	0.27
Mean electricity consumption (2010)	KWh per overnight stay	40.4
Waste production (2010)	kg per tourist per day	1.99
Wastewater production (2010)	m <sup>3</sup> per overnight stay	66,003

Source: Data from Klaric, 2011.

## 2. Land pressure associated with tourism

According to Klaric, the development of coastal zones and natural areas remains limited in Rovinj. The surface area of tourism facilities (3.4 km<sup>2</sup>) and the residential area (14.6 km<sup>2</sup>) account for 4 and 19% respectively of the municipality's total territory, which means that 23% of the Rovinj municipality's territory is built-up (Figure 10). Natural areas (44 km<sup>2</sup>) account for 56% of the total surface area of the destination, with 31.3 km<sup>2</sup> of protected areas (40% of the total area of the municipality). Finally, agricultural areas represent 21% of Rovinj, with 11 km<sup>2</sup> of cultivated areas (14%) and 5 km<sup>2</sup> of meadows and pastures (7%).

**Figure 10: Distribution of land use in Rovinj**



Source: Data from Klaric, 2011.

A framework for the protection of natural areas was implemented when the authorities became aware of the environmental issues caused by industrial activities and decided to take action. Prior to 1991, environmental concerns and environmental protection legislation were virtually non-existent in Croatia. Pollution of coastal areas by heavy industry has had adverse effects on the development of tourism. The most infamous examples are the bay of Kastela near Split, polluted by chemicals and the asbestos industry, the bay of Bakar near Rijeka with the chemicals industry and coke plant, Šibenik and Dugi Rat near Split with metalworking complexes, and finally the Plomin Bay in Istria with a power plant that uses imported coal. The majority of

those industries were closed after 1991 – today only chemical industry in Rijeka and Plomin power plant are still working.

In addition, the development of tourism at Rovinj was subject to strict planning by the public authorities in the 1960s. For Klaric, two aspects of this planning process should be highlighted: the ban on building infrastructure projects near the coastline and the ban on building tourist resorts outside urban areas. As a result, road traffic congestion was avoided and "natural" land resources were preserved for the development of camp sites in the future. Another key element should also be added: the land was state-owned, which was useful for controlling urban development and preserving natural resources as an added attraction for tourism.

Finally, the ban on construction in certain coastal areas and islands was implemented for military reasons (and because of the previous political system). The war in the Balkans meant that excessive human presence on the coastline was avoided during the 1990s, even though today certain areas seem to be saturated (high densities).

**Figure 11: Positioning of urban development in Rovinj**

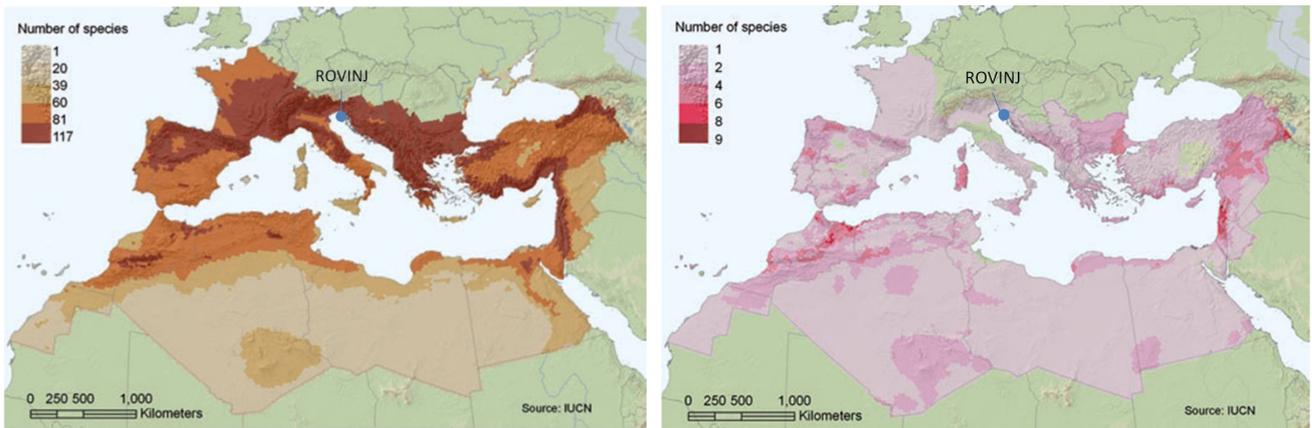


Source: [www.tzg.rovinj.com](http://www.tzg.rovinj.com)

### 3. Biodiversity

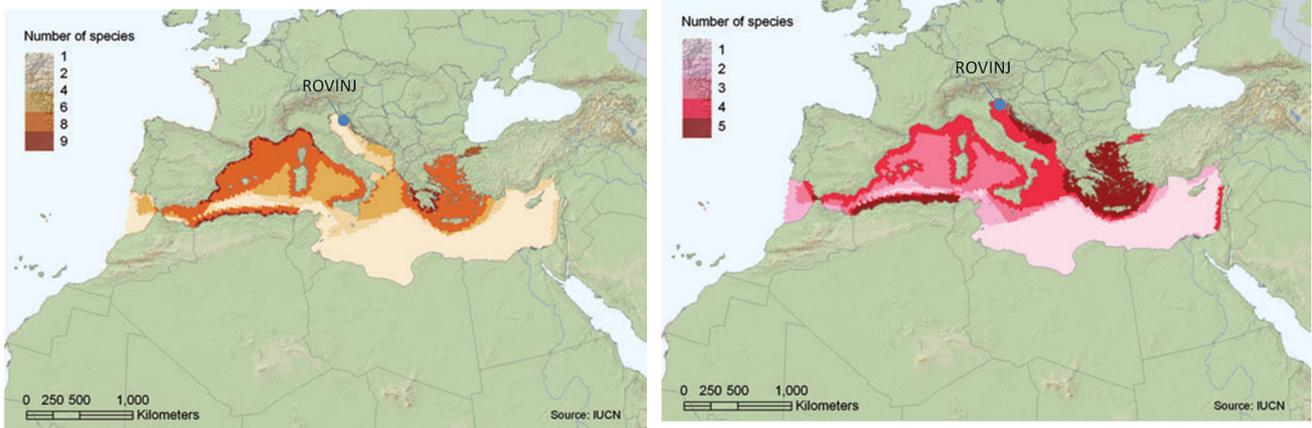
Rovinj is located in an area of considerable biodiversity in terms of terrestrial animal species (Figure 12 (a)). The environmental protection laws have helped protect this biodiversity, by means of a regulatory protection framework defined by the authorities, the NATURA 2000 programme. In this way, the terrestrial and marine animal species live in protected areas, in particular in the Lim channel, on the Rovinj coast and on the islands.

Figure 12: Rovinj and Mediterranean biodiversity, as defined by the IUCN (CUTTELOD et al. 2008)



a. Species richness of terrestrial amphibians, mammals, dragonflies and reptiles in the Mediterranean basin.

b. Species richness of threatened terrestrial amphibians, mammals, dragonflies and reptiles in the Mediterranean basin.



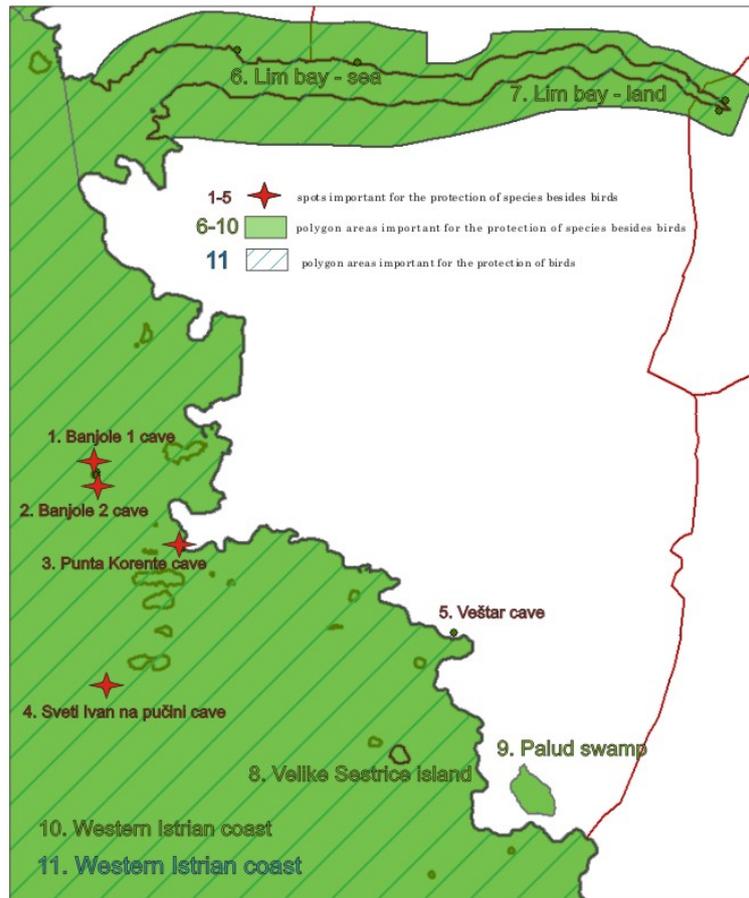
c. Species richness of marine mammals in the Mediterranean Sea

d. Species richness of threatened marine mammals in the Mediterranean Sea

Source: CUTTELOD, A. et al., 2008. The Mediterranean: a Biodiversity Hotspot under Threat. The IUCN Red List of Threatened Species.

In addition, there is an ornithological reserve in the marshy areas of Palud and on the islands Sestrice. There are also five other protected areas for terrestrial animal species: Banjole 1 and 2, Banjole Sveti Ivan na pučini, the partially flooded sea caves on the small islands, the sea cave of Punta Korente near the city centre and the cave of Vestar on the southern coastline. The Lim channel is also a protected area for terrestrial and marine wildlife. The authorities have been able to set up a protection programme which reduces the risks of extinction of endangered marine animal species (Figure 12(d) and Figure 13).

Figure 13: Location of protected natural areas



Source: Natura 2000 Croatia Web site

## IV. Tourism and governance

One of the specific features of tourism development in Rovinj is the large-scale investment by national and local political and economic stakeholders, affording a certain independence from foreign operators and international instructions. These specific features stem from the collectivist political regime (1946-1992) and the civil war (1991-1995), leading to centralised management, state intervention, control by the central authorities over investments. Indeed, although the former Yugoslav socialist government was more favourable to entrepreneurship than most other countries in Eastern and Central Europe, the current Croatian government's control over the economy is stronger than in other Eastern European countries.

Even today, central government determines all the important aspects of the national economy, via complex judicial and fiscal procedures which can discourage foreign investors. In addition the Croatian authorities are keen to revitalise national, regional and local companies that lost much of their vitality following the war from 1991 to 1995. So in the case of Rovinj, the investors are almost exclusively local stakeholders.

Tourism policy and development are therefore directly influenced by national political figures. This influence can have negative repercussions on economic development as a whole, and on the viability of tourism development in particular, by reducing the opportunities for investment in expanding the tourist accommodation capacity. The only positive aspect that Klaric identifies as deriving from this strong interventionist stance of the national authorities is the control of land use, and thereby the protection of coastal areas.

However, unlike other regions in Croatia, and due to their economic vitality, Istria County and the city of Rovinj also have powerful local political figures and institutions. This local political situation has positive

socio-economic consequences for the destination's territory; e.g. greater control over economic drain and a higher level of income than in the rest of the country. However, the control exercised by the regional and local policymakers over the economy can be harmful to the entrepreneurial spirit of local companies.

## V. Proposals of policy measures

Following the various observations as to the sustainability of Rovinj as a destination, we will focus on the policy measures that Klaric proposes. We will base the structure of these proposals on an observation agreed upon by the group of experts who worked together on the Plan Bleu project "Profile of sustainability – Mediterranean Destinations": tourism should be seen as a means to develop an area but this is not an end in itself. Therefore, tourism must be rooted in the territory, such that the tourism offer can be developed through encouraging a focus on quality rather than quantity by mobilising economic and social forces in the area. So Klaric's proposals concerning integrated and sustainable territorial development can follow the following plan: proposals for policy measures in the economic sector, policy measures in the socio-territorial sector, and policy measures in the environmental sector.

### 1. Policy measures in the business sector

To counter the effects of seasonality of tourist activities and visits (high season in summer) it is necessary to improve the offering in terms of complementary activities, and to put in place tax incentives to encourage continuation of tourism activities during the low season. Some projects are already underway, aiming to guide tourist activities towards opportunities related to health and wellness tourism and towards a high-quality market. Consequently the aim is to focus policy measures in the business field on diversification of the tourist offering and products. Therefore, Klaric suggests:

- that various incentives should be introduced, especially tax incentives to steer tourist activities towards a high-quality offering;
- that the improvement in the offering of tourism accommodation and activities should be continued, focusing on the natural and cultural heritage of Rovinj;
- that investors in the tourist accommodation construction sector should be encouraged by a clarification of legislation;
- that tourist demand focusing on ecotourism and "naturalist" consumption of the tourism area should be supported.

### 2. Policy measures in the socio-territorial sector

Rovinj enjoys one of the lowest unemployment rates in Croatia, and the percentage of the population living below the poverty line is lower than the national average. This situation is due to the rude economic health of the region, and in particular its performance in tourism. Rovinj therefore attracts migration from other Croatian regions, and also boasts a lower crime rate than other destinations.

However the process of privatisation that began after 1991 led to an increase in land and property speculation, with some cases of corruption. Also, in Klaric's opinion, the process of adhesion to the European Union, the phenomenon of corruption and the obscure nature of the legislation regulations make Croatia unattractive to investors, despite a good level of infrastructure, the exceptional natural and cultural heritage and the skill levels of the workforce.

Therefore, Klaric suggests that:

- the image of a multi-cultural and open region should be promoted, a region that is therefore attractive for investment and immigration;
- local cultural values should be preserved by organising cultural and sports events;
- co-operation with cities and regions in Europe and other continents should be intensified;

- measures should be taken to maintain the existing social equilibrium and to encourage local people to participate in economic growth.

In terms of land-use planning Klaric's recommendations focus on management of land. Although the size of the tourism accommodation offer remains small compared to other European and Mediterranean countries, construction of hotels takes up less space than creating and extending residential areas, which now represent a threat for the environment and the landscape. In this respect, the law of 2008 authorises the construction of flats on areas dedicated to golf courses. At the same time, it also authorises compulsory land purchase in order to build new golf courses, which gives investors a pretext to build golf courses and then invest in residential developments. Moreover, civil society and public opinion are asking questions about the possible effects of allowing construction on agricultural land, and about authorising urban development in new areas given over to residential housing in coastal areas.

There are similar problems with other legislative texts, e.g. the 2004 regulation referring to the Coastal Zone Protection Organisation. This regulation stipulates that it is prohibited to build along the coastal strip at a distance of less than one kilometre from the coast, except for tourism projects covering a surface area less than 15 hectares. Two indirect consequences of the implementation of this regulation are a lack of major investment because the buildable area appears to be too small, and the transformation of tourism accommodation projects into holiday homes. There is therefore an urgent need to prevent existing built areas from expanding, and to take measures to dissuade investors from building more holiday homes.

### 3. Policy measures in the environmental sector

The ecological situation in Rovinj can be considered relatively healthy and well-protected, compared with other Croatian regions. Therefore possible suggestions could recommend the continuation of existing policies, and a concentration of efforts on areas requiring improvement, such as water resource management, control of energy consumption, collection and treatment of solid waste and wastewater. Concerning water management, it is necessary to improve maintenance of the distribution network to reduce leakage, waste and to improve efficiency. In addition, the priority should be placed on management of wastewater and solid waste, insofar as a large proportion of wastewater is discharged directly into the sea without any prior treatment, and most of the solid waste is not recycled. It is therefore necessary to:

- take action in the water and electricity sectors to reduce wastage and irrational use;
- improve wastewater management, with the aim of connecting all sectors of the city of Rovinj, including the camp sites, to the collection and drainage system, while also planning sewage treatment plants in order to prevent untreated discharges into the sea;
- improve solid waste management, by developing mechanisms to stimulate new investment to improve collection, storage and disposal, and to promote selective sorting and recycling;
- protect the natural environment and surroundings, e.g. by creating new protected areas.

## Conclusion

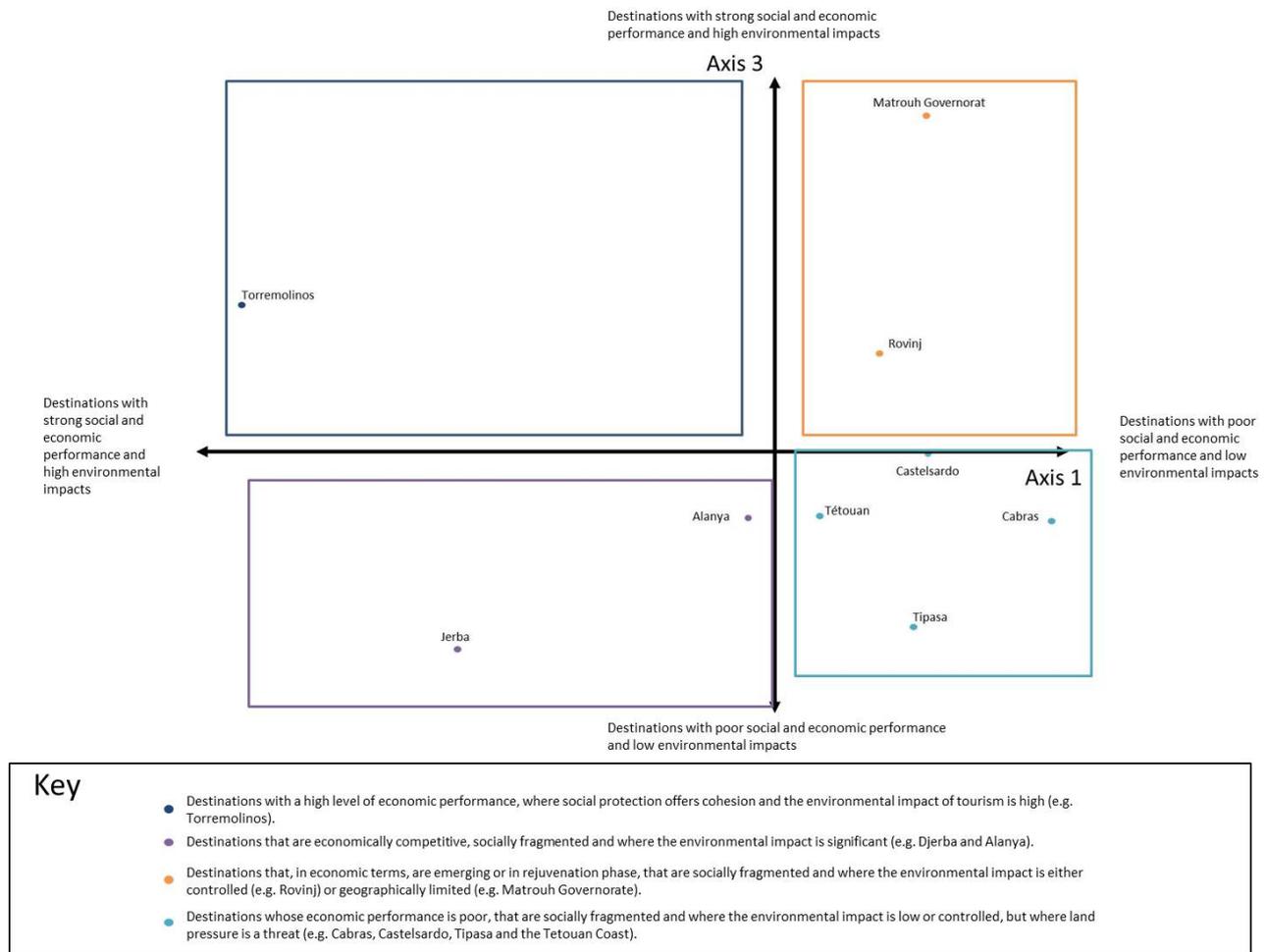
In order to summarise the profile of sustainability for Rovinj, we compared it with the other destinations studied in the “Profiles of sustainability – Mediterranean Destinations” project: a second Principal Component Analysis (Figure 14) compares the sustainability of each destination with the mean and standard deviation<sup>2</sup> for all sites studied and for each indicator used, based on the MSSD variables. This second Principal Component Analysis (PCA) does not incorporate information regarding governance because the “governance” variable can be considered more as a component used to explain the results and the economic, social, territorial and environmental impact of tourism on the destinations. In other words, the results observed correlate closely with the policy choices implemented in each destination. For instance, in destinations where the availability of water is not a problematic issue, this is due to the fact that the

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<sup>2</sup> Standard deviation is the difference between the largest value and the smallest value in a sample.

authorities have invested in infrastructure projects such as dams and desalination plants. In contrast, in destinations where, for instance, the land pressure caused by tourist and residential accommodation facilities is high, this is often because of a failure to enforce the regulatory framework or a lack of regulation, as well as because of property-related and financial speculation.

**Figure 14 : Graph showing the profiles of sustainability for the tourist destinations studied**



Source: Principal Component Analysis by Loïc Bourse, 2011.

Guide (see also Figure 16 in the Appendix):

Axes 1 and 3 explain 61% of the data variance.

Axis 1 alone explains 53% of the data:

- The further the destination is to the right on Axis 1, the higher the environmental performance and the lower the social and economic performance in the destination,
- The further the destination is to the left on Axis 1, the higher the economic and social performance of the destination, alongside more negative environmental impacts.

Axis 3 explains 8% of the data:

- The higher the destination is on Axis 3, the higher the economic and social performance of the destination, with high environmental impacts,
- The lower the destination is on Axis 3, the lower the social and economic performance in the destination, with controlled or low environmental impacts.

The PCA results are used to distinguish between four types of “sustainability profile” for the destinations:

- destinations with a high level of economic performance, where social protection offers cohesion and the environmental impact of tourism is high (e.g. Torremolinos),
- destinations that are economically competitive, socially fragmented and where the environmental impact is significant (e.g. Djerba and Alanya),

- destinations that, in economic terms, are emerging or in rejuvenation phase, that are socially fragmented and where the environmental impact is either controlled (e.g. Rovinj) or geographically limited (e.g. Matrouh Governorate),
- destinations whose economic performance is poor, that are socially fragmented and where the environmental impact is low or controlled, but where land pressure is a threat (e.g. Cabras, Castelsardo, Tipasa and the Tétouan Coast).

Rovinj is a destination in “rejuvenation phase”, which achieves economic results that are below the mean of the destinations studied, both in terms of daily spending per tourist and revenue per bed; however these results are now getting closer to the mean. Social performance and impacts are very mixed. Fewer jobs in tourism are created than in any of the other destinations studied, unemployment is higher than average and the dependent population represents a significant proportion of the total population. These social conditions suggest a major imbalance between the active population and inactive population. Rovinj is also a population magnet. Demographic growth is based solely on a positive migration rate, which is the main reason why Rovinj is in the same segment as Matrouh Governorate on Figure 14. From an environmental perspective, water consumption is low in Rovinj and solid waste production is lower than the mean for the destinations studied. Finally, although the land-use planning system in place has promoted the conservation of natural areas, land pressure from tourism in the area covered by the Rovinj local authority is higher than average for the destinations. However, pressure from tourism primarily comes from campsites, rather than hotels, which makes for better conservation of natural areas.

## Bibliography

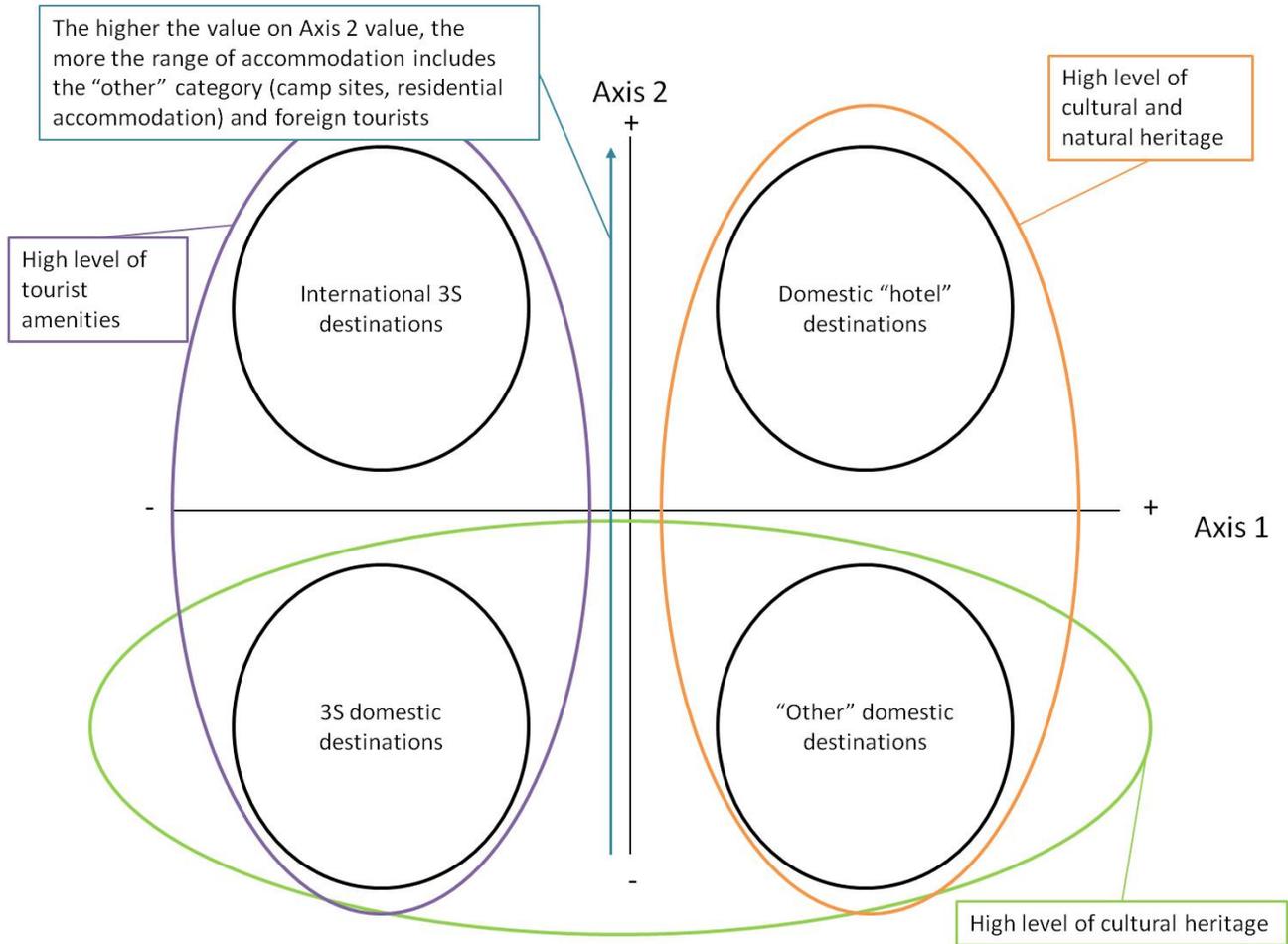
- BUTLER, R.W., 1980. The concept of a tourist area cycle of evolution: implications for management of resources. *Canadian Geographer / Le Géographe canadien*, 24(1), p.5-12.
- CUTTELOD, A. et al., 2008. The Mediterranean/: a Biodiversity Hotspot under Threat. *The IUCN Red List of Threatened Species*.
- KLARIC, Z., 2011. *Profile of Sustainability - Case Study Rovinj (Croatia)*, Sophia Antipolis: Plan Bleu.
- PLAN BLEU, 2009. *État de l'environnement et du développement en Méditerranée*, Sophia Antipolis: Plan Bleu, PNUE/PAM.
- SPILANIS, I. & VAYANNI, H., 2011. *Tourism results and impacts to the destinations' sustainability*, Sophia Antipolis: Plan Bleu.

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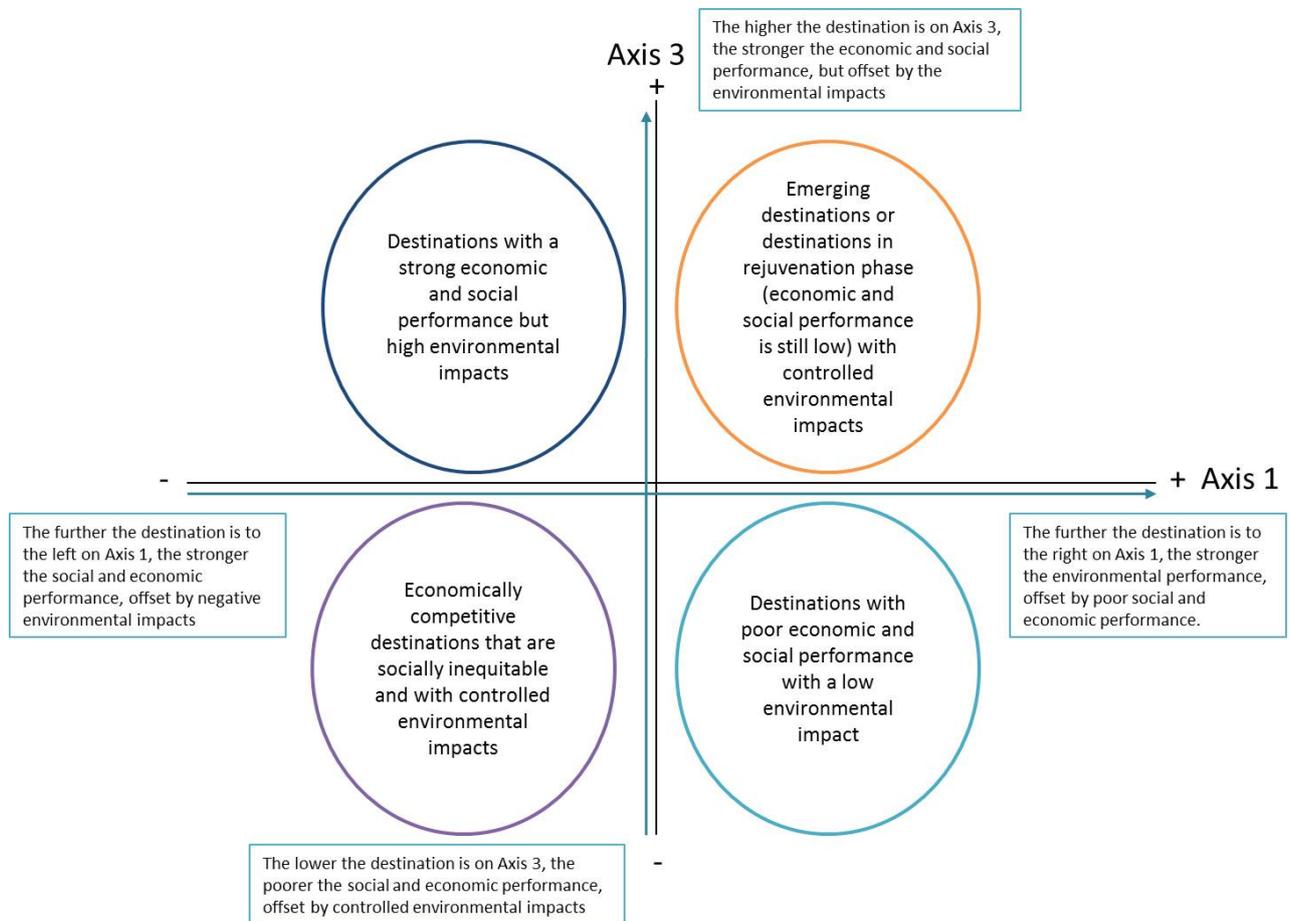
## Appendices

Figure 15: Schematic representation of the classification based on a Principal Component Analysis



Source: Loïc Bourse, 2011.

Figure 16 : Schematic representation of the Principal Component Analysis of the sustainability profiles



Source : Loïc Bourse, 2011.

**Table 2 : Destination Datasheet of Rovinj**

	Year	Value (1 : yes ; 0 : no)
<b>Demand</b>		
Residents (%)	2009	2,74%
Non-residents (%)	2009	97,26%
Charter passengers/total passengers	2009	62,76%
Airport	2011	1
Harbour	2011	0
<b>Accommodation offer</b>		
Number of beds	2009	22 114
Hotel beds / total number of beds (%)	2009	26,56%
Holiday village beds (%)	2009	0%
Other beds (%)	2009	29,90%
Campsite spaces (%)	2009	43,54%
<b>Leisure amenities</b>		
Spas / health clubs	2011	1
Sports amenities	2011	1
Casino	2011	1
Golf courses	2011	0
Leisure parks	2011	1
Marinas	2011	1
Conference and exhibition centres	2011	1
Beaches	2011	1
<b>Natural and cultural heritage</b>		
Historic monuments	2011	1
Places of worship	2011	1
Museums	2011	1
Cultural events (festivals or traditional events)	2011	1
Nature reserves	2011	1
Places selling local products (craft markets)	2011	1
Cultural activities	2011	1
<b>Economic performance</b>		
Number of overnight stays	2009	56 299 647
Daily spending per tourist (€)	2007	59
Revenue per bed (€)	2007	4 167
Revenue per overnight stay (€)	2007	59
<b>Seasonality</b>		
Mean annual occupancy rate	2009	18,03%
<b>Social performance</b>		
Direct employment per bed (number of jobs)	2001	0,03
Unemployment	2001	11,26%
Level of education of employees: higher education	2001	18%
Level of education of employees: secondary education	2001	42,50%
Level of education of employees: primary education	2001	27,20%
Level of education of employees: no qualifications	2001	11%
<b>Demographic indicators</b>		
Total population	2001	20 185
Dependent population	2001	41,77%
Life expectancy	2001	76,3 yrs
Population growth rate	2001	2,21%
Migration rate	2001	3,17%
<b>Environmental performance</b>		
Water consumption	2010	0,27 m3/night spent
Energy consumption	2010	40,4 kwh/night spent
Waste production	2010	1,99 kg/tourist/day
Wastewater production	2010	66 003 m3/day
Land area of tourist accommodation / total area governed by local authority	2009	328,08