



**CROSTO – Croatian Sustainable Tourism Observatory  
2017 Report  
Focal area: Adriatic Croatia**

Zagreb, November 2017

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Zagreb, November 2017

## Executive Summary

CROSTO – Croatian Sustainable Tourism Observatory has been established in 2016 to support the vision for sustainable development of tourism in Croatia. It is hosted by the Institute for Tourism, Zagreb. In October 2016, CROSTO has officially become a member of the INSTO network thereby adopting standards and practices of monitoring sustainable tourism promoted by UNWTO. The major objective of CROSTO is to continuously measure and monitor the sustainability of tourism development in the most tourism developed region of Croatia – Adriatic Croatia.

In measuring and monitoring procedures, CROSTO has adopted the European Tourism Indicator System (ETIS) for sustainable destination management, developed by the European Commission. The decision to use ETIS is based on Croatia's compliance, as a European Union member state, with EU recommendations. The ETIS indicators used are compatible with and cover all the mandatory sustainability issues selected by the UNWTO.

Since the last (Preliminary) Report, CROSTO has become fully operable. This involved successful accomplishment of three important tasks:

- Establishing the local working group;
- Organizing the stakeholder's workshop;
- Conducting the first official measurement of tourism sustainability.

The local working group has been established as an inter-institutional partnership for cooperation on measuring and monitoring tourism sustainability. Among the all relevant stakeholders, five institutions were identified as crucial partners for making the process of measuring and monitoring operable. They are: Ministry of Tourism, Ministry of Environment and Energy, Croatian National Tourist Board, Croatian Agency for Environment and Nature, Croatian Bureau of Statistics.

The first Croatian Sustainable Tourism Observatory (CROSTO) Stakeholders' Workshop, jointly organized by the Institute for tourism and the Ministry of Tourism of Croatia in June, 2017, was successful in bringing together representatives from public institutions in tourism, spatial planning, statistics and environmental management on both national and Adriatic Croatia regional level. The Workshop introduced key stakeholders to the INSTO and CROSTO frameworks and scope, presented CROSTO mission, justification and benefits, explained the proposed sustainability measurement indicators based on ETIS and informed of the role to be played by the local working group.

The first official measurement of tourism sustainability in Adriatic Croatia has been conducted as an experimental attempt in order to identify issues that could emerge in the regular monitoring process. It can be concluded that there are two types of specific challenges. The first is related to data. Up-to-date data needed for measuring each of the indicators is not always available. Secondary data often cannot be used directly. Longitudinal surveys on attitudes and expenditures of tourists are always dependent on availability of financial resources.

The second type of challenge is related to indicators and their international comparability. Following the need for regular monitoring and international comparison, it could be of interest to all INSTO members to consider a unified list of core indicators that could be applied by each of the observatories. Furthermore, some baseline values or value intervals are needed for each indicator. There is also a need for region specific, internationally harmonized approach, dependent on a region's development level (i.e. percentage of sewage treated to at least secondary level prior to discharge depends on the rate of households/dwellings connected to a public sewer system) and main tourism product (i.e. gross occupancy rate or tourists loyalty highly depends on type of destination tourism product). Since it is demanding to analyze and compare a set of indicators among destinations, there is a need to consider the development of some kind of aggregate/composite indicator based on a specific weighting procedure.

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## Introduction

CROSTO – Croatian Sustainable Tourism Observatory has been established in 2016 to support the vision for sustainable development of tourism in Croatia. It is hosted by the Institute for Tourism, an academic institution with more than 50 years of experience in research and consultancy in tourism. In October 2016, CROSTO has officially become a member of the INSTO network thereby adopting standards and practices of monitoring sustainable tourism promoted by UNWTO.

The main objective of CROSTO is to continuously measure and monitor the sustainability of tourism development in the most tourism developed region of Croatia – Adriatic Croatia. This is one of the country's two NUTS-2 regions, with a territory of 24,705 square kilometers and 1,411,935 inhabitants. The region is characterized by a narrow coastal area, in which most of the tourist activity takes place, and a wider hinterland (mostly mountain area), which is very scarcely inhabited. Adriatic Croatia main tourism attraction is almost six thousand kilometers long and indented coastline, with 1,246 islands and islets varying in size. Tourism in Adriatic Croatia is characterized by low level of social inclusion and capacity utilization, and high seasonality. With total number of 56,938 rooms in commercial accommodation facilities, the majority of accommodation in Adriatic Croatia is still in private households. The highest capacity occupancy is recorded in the hotel sector.

There are various environmental issues related to Adriatic Croatia which are mostly the consequence of insufficient management and planning. Landscape degradation due to intensive and uncontrolled construction of second homes and apartment blocks is the most serious impact that tourism has on the environment and natural resources. The unresolved solid waste and waste water management are also serious issues in fast-growing coastal settlements, where the construction of tourist infrastructure is not accompanied by the construction of municipal infrastructure. There is an increasing spatial imbalance in development between dynamic coastal areas, heavily populated and characterized by intensive levels of land use and consumption, and inland areas declining in number of inhabitants. Finally, the issue of overcrowding has come up in the last few years, primarily relating to cultural destinations burdened with a large number of cruise ships passengers.

In measuring and monitoring procedures, CROSTO adopts the European Tourism Indicator System (ETIS) for sustainable destination management, developed by the European Commission. It has been decided to use ETIS due to Croatia's compliance, as a European Union member state, with EU recommendations. The ETIS indicators which have been used cover all the mandatory sustainability issues selected by the UNWTO. Along with measuring and monitoring tourism sustainability at the macro-level, the intention is to promote the application of ETIS among local communities all over Croatia. In fact, there are plans for fostering the appliance of ETIS on municipal level. It has to be noted, however, that this heavily depends on cooperation among all relevant stakeholders, especially the National Tourist Board and the Croatian Ministry of Tourism which have mandatory power over local tourist destinations. The final goal of CROSTO is the aspiration to grow into a regional monitoring center coordinating many local observatories all over Croatia, all of them applying ETIS for measuring and monitoring tourism sustainability in their own local jurisdictions.

## Administrative activities since the completion of the Preliminary Report

The first year of regular operation of CROSTO, following the completion of the Preliminary Report which set the CROSTO goals and Action plan, showed that the major obstacles are related to the lack of financial resources for obtaining adequate statistical data needed for calculation of indicator(s) which are not appropriately covered by officially available statistical sources. Moreover, although at the national level there is definitely awareness of the necessity for measuring tourism sustainability, it remains unclear what exactly are the attitudes and the potential for measurement in local communities.

Since the Preliminary Report, CROSTO has become fully operable. This involved successful completion of three important tasks:

- Establishing the local working group;
- Organizing the stakeholder workshop;
- Conducting the first official measurement of tourism sustainability.

The local working group has been established as an inter-institutional partnership for cooperation on measuring and monitoring tourism sustainability. Among the all relevant stakeholders, five institutions were identified as crucial partners for making the process of measuring and monitoring operable. They are: Ministry of Tourism, Ministry of Environment and Energy, Croatian National Tourist Board, Croatian Agency for Environment and Nature, Croatian Bureau of Statistics.

The process of establishing local working group consisted of two consecutive steps. In the first step, individual appointments were arranged with official representatives of each of the target institutions. After the presentation of CROSTO's action plan, they were asked to participate in its operationalization. The agreement involved delegating one person from each institution to participate in CROSTO's Supervisory Board. The latter is a body consisting of nine members directing CROSTO's operations. Besides the representatives of five target institutions, the CROSTO Supervisory Board comprises the head of Institute for Tourism<sup>1</sup>, the head of CROSTO, and two deputies. All of them are, in fact, experts in the fields of either tourism sustainability or tourism statistics, or both. The second step involved the launching of the local working group which in practice implies the launching of periodic meetings of the CROSTO Supervisory Board.

The CROSTO Supervisory Board is, in fact, intended to make the local working group more operable. Its main responsibility in the first year was to facilitate the organization of the stakeholder workshop and to officially adopt the list of core indicators for measuring and monitoring tourism sustainability in the area of the Adriatic Croatia. Both tasks were successfully accomplished and the CROSTO Supervisory Board completely fulfilled its goals for the first year.

Apart from the establishing the local working group, the process of making CROSTO operable involved the organization of the stakeholder workshop. It implied a meeting of all relevant subjects whose active participation is necessary for CROSTO to achieve its goals. Their participation is also important in terms of collecting feedback on specific issues and discussion possible directions of CROSTO's activity. A detailed description of the organized stakeholders workshop is presented in the next section.

Finally, the process of making CROSTO operable involved reaching an agreement about the list of core indicators for measuring and monitoring tourism sustainability in Adriatic Croatia. It was important to choose a short list of starting indicators which could be in the future also measured on a local level and allow for comparisons between tourism destinations on the Adriatic. Furthermore, it is hoped such a core indicator list will be adopted on the national level in the future so that measurement and monitoring of tourism sustainability could be undertaken in the rest of the country as well.

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<sup>1</sup> The host institution of CROSTO.

## Stakeholder workshop

The first Croatian Sustainable Tourism Observatory (CROSTO) Workshop was jointly organized by the Institute for Tourism and the Ministry of Tourism of Croatia on June 9, 2017 at the Ministry of Tourism in Zagreb. The Workshop was successful in bringing together representatives from public institutions in tourism, spatial planning, statistics and environmental management on both national and Adriatic Croatia regional level. The principal goal of the Workshop was to familiarize these key stakeholders with the CROSTO framework and scope, to gain support for the Observatory's overall objectives and mission, initiating then a discussion of issues to be faced both in measuring and managing tourism sustainability on the local level in the future.

The Institute for Tourism team kicked-off the Workshop with a presentation describing the CROSTO initiative and emphasizing the following topics:

- Introducing INSTO and CROSTO;
- CROSTO mission, justification and benefits;
- Proposal and justification of selected indicators;
- Identification of responsible entities.

Welcoming the CROSTO initiative, the ensuing discussion by Workshop participants highlighted several current issues pertaining to tourism impacts, improved tourism and spatial planning, as well as to policy measures acutely affecting Adriatic Croatia.

- **Tourism impacts**

While year after year growth of tourism activity is generally seen as a positive and expected trend, the discussion showed that 'explosive' growth rates of accommodation capacity and overnights during the last decade should actually be viewed as cause for alarm. Especially worrisome is the fact that stretches of coast and lately towns, particularly their historic centers, are being run over by tourist apartments and other tourist catering facilities. Local residents are moving out of their homes, either to turn them into rental properties for tourists and/or because life in town centers is becoming difficult due to their increasing transformation to suit tourist and no longer resident needs. Towns are being turned into tourist accommodation, with Dubrovnik, increasingly Split and some others also being overrun by visitors during the summer season. Local culture is being staged, water, energy, waste disposal and human resources are being stretched, locals are increasingly irritated, yet '*... zimmer frei* remains the strongest political party everywhere ...'.

- **Mandatory and integrated planning**

Current tourism and spatial planning frameworks are considered inadequate and clearly incapable of dealing with the disruptive potential of tourism. In line with the above reported discussion, strong opinions were voiced as to the need for carrying capacity studies to become mandatory.

- **Measurement of tourism impacts**

Such a rigorous planning process presupposes, however, interdisciplinary professional teams, participation of an informed and interested public, significant consensus building and cooperation skills, adequate funding and, most of all, relevant, accurate and timely data. It was repeatedly stressed that the planning and management of tourism is not possible without adequate measurement of tourism impacts.

- **Pro-active policy**

Shifting the focus from planning and measurement to management of tourism, current policy measures are also seen as lacking in scope. The responsibility of all, but particularly of local level government are being especially questioned. Instead of just being administrators issuing permits for tourism apartments or leasing street-front stores to the highest bidder, local government needs to be more pro-active in stimulating and/or discouraging certain types of activities.

## Measurement results for 2016

The first official measurement of tourism sustainability in Adriatic Croatia was conducted as an experimental attempt in order to identify issues that could emerge in the regular monitoring process. It can be concluded that there are two types specific challenges. The first type is related to data. The greatest challenge is the availability of needed up-to-date data in order to be able to measure each of the indicators. Secondary data often cannot be used directly, for example when only aggregate data on national level is published thus often requiring additional ad-hoc analysis which is very time and money consuming. Longitudinal surveys on attitudes and expenditures of tourists are always dependent on availability of financial resources.

The second type of challenges is related to indicators and their international comparability. Following the need for regular monitoring and international comparison, it could be of interest to all INSTO members to consider a unified list of core indicators which could be applied by each of the observatories. Furthermore, some baseline values or value intervals are needed for each indicator. There is also need for a region specific, internationally harmonized approach, dependent on region's development level (i.e. percentage of sewage treated to at least secondary level prior to discharge depends on the rate of households/dwellings connected to a public sewer system) and main tourism product (i.e. gross occupancy rate or tourists loyalty highly depends on type of destination tourism product). Since it is demanding to analyze and compare a set of indicators among destinations, there is a need to consider the development of some kind of aggregate/composite indicator based on a specific weighting procedure.

The 14 core CROSTO indicators have been discussed at the official meeting of the local working group, i.e. the CROSTO Supervisory Board. It has to be noted that this discussion has resulted with an intervention in the list proposed in the Preliminary Report. Some minor changes have been made. The indicator "**Existence of land use or development planning processes, including tourism**" has been excluded from the core list due to its insignificance. Since Croatia has a long tradition of land use and development planning processes, it is required by law that each municipally in Croatia implement this type of planning. The inclusion of such an indicator was, therefore, considered unnecessary. On the other hand, the CROSTO Supervisory Board agreed upon inclusion of another social indicator in the core list. It is the "**Number of tourist arrivals/overnight stays per 100 residents**" which is proposed by ETIS as the basic indicator of tourism intensity, i.e. the pressure that tourism can pose for a local community.

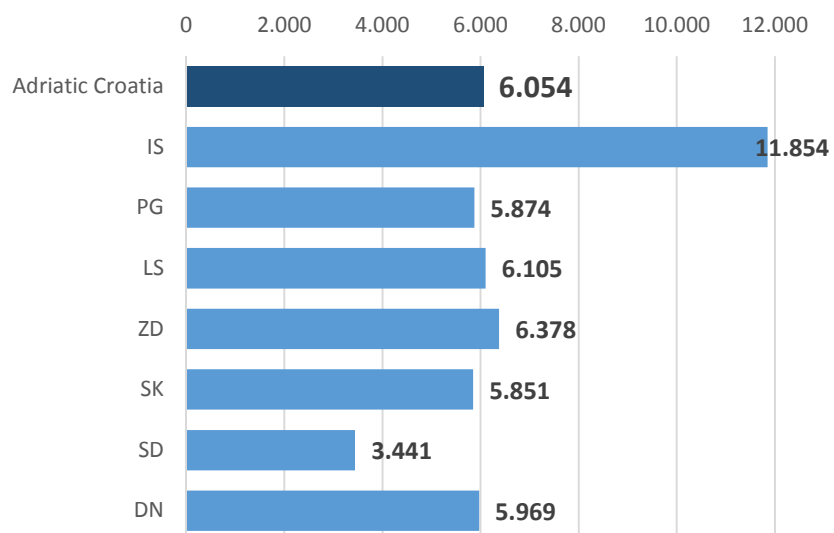
The rest of the Report presents the results of the first official measurement related to each of the 14 CROSTO core indicators.

CROSTO indicator	Percentage of residents who are satisfied with tourism
UNWTO mandatory issue	Local satisfaction with tourism
ETIS section	C Social and cultural impact
ETIS criterion	C.1 Community/social impact
Description / Scope	Composite indicator based on a battery of questions describing resident attitudes towards tourism development and tourists
Approach	Based on representative survey of local residents
Data source/s	Not conducted in 2016 nor previous years (data exists for 2012 only, which is not considered relevant nor representative due to significant increase in tourism activity recorded in 2012-2016 period) The survey is planned for 2018
Limitations / issues	-
Figure	<b>Data N/A</b>
Comments	-



CROSTO indicator	Number of tourist nights per 100 residents
UNWTO mandatory issue	-
ETIS section	C: Social and cultural impact
ETIS criterion	C.1 Community/social impact
Description / Scope	Number of tourist nights in commercial and non-commercial accommodation facilities as per 100 residents
Approach	Composite indicator based on secondary data There is a slight deviation from the proposed indicator - the number of tourist nights is used instead of number of tourists/visitors since both, number of tourists and number of same-day visitors, are not available within the Croatian system of tourism statistics. Furthermore, number of tourist arrivals is overestimated due to multiple recording of arrivals in different accommodation facilities.
Data source/s	CBS, First Release 4.3.2. TOURIST ARRIVALS AND NIGHTS IN 2016 CBS, First Release 4.3.3. NON-PROFIT TOURISM ACTIVITY IN 2016 CBS, First Release 7.1.3. POPULATION ESTIMATE OF REPUBLIC OF CROATIA, 2016
Limitations / issues	<ul style="list-style-type: none"> <li>The quality of the survey results regarding non-commercial accommodation facilities is questionable, since it depends on the rate registration is evaded and the authorities' supervisory capabilities</li> <li>Quality of survey results as well as the rate of hidden overnights most probably differ among counties, that might cause different deviations regarding the counties</li> </ul>

**Figure 1:**  
**Number of tourists nights per 100 residents in Adriatic Croatia in 2016 by county**

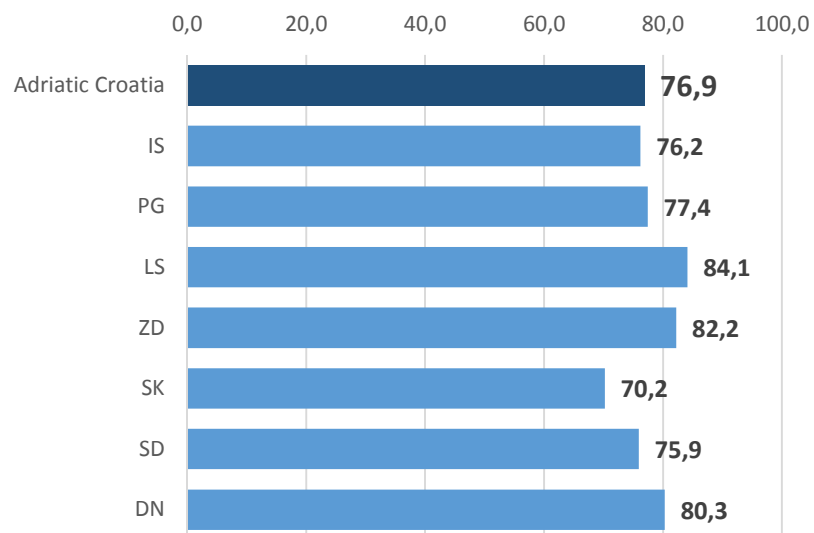


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	<p>About 6 thousand tourists overnights per year are realized per 100 residents in the Adriatic Croatia.</p> <p>Istria, the most tourism developed county, has almost 12 thousand tourists overnights per 100 residents, while five counties recorded almost the same level of tourist flows.</p>
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CROSTO indicator	Percentage of tourists who are satisfied with their overall experience in the destination
UNWTO mandatory issue	-
ETIS section	A Destination management
ETIS criterion	A.2 Customer satisfaction
Description / Scope	Percentage of tourists who are satisfied with 28 individual elements of tourism destination offer in 2014
Approach	<p>Satisfaction with the overall experience has been estimated based on satisfaction with 28 individual elements of a tourism destination offer in 2014, corrected for the relationship between overall satisfaction and the average satisfaction with the individual elements from the 2010 survey.</p> <p>Tourist satisfaction with the individual element is measured on a 7-point scale (1-very bad to 7-excellent). Ratings 6 and 7 are considered as the evidence of tourist's satisfaction with the element.</p> <p>Element of the overall experience was include into the 2017 survey.</p>
Data source/s	TOMAS Summer 2014 - Survey on Attitudes and Expenditures of Tourists in Croatia in 2014 (Institute for Tourism)
Limitations / issues	<ul style="list-style-type: none"> <li>• Last available data for 2014</li> <li>• Same-day visitors and tourists in non-commercial accommodation were not included in the survey's population</li> <li>• Survey on Attitudes and Expenditures of Tourists in Croatia is a longitudinal survey, conducted every three to four years, but its execution is not stable since it is always dependent on availability of financial resources</li> </ul>

**Figure 2:**  
**Percentage of tourists who are satisfied with their overall experience in the destination in Adriatic Croatia in 2014 by county**

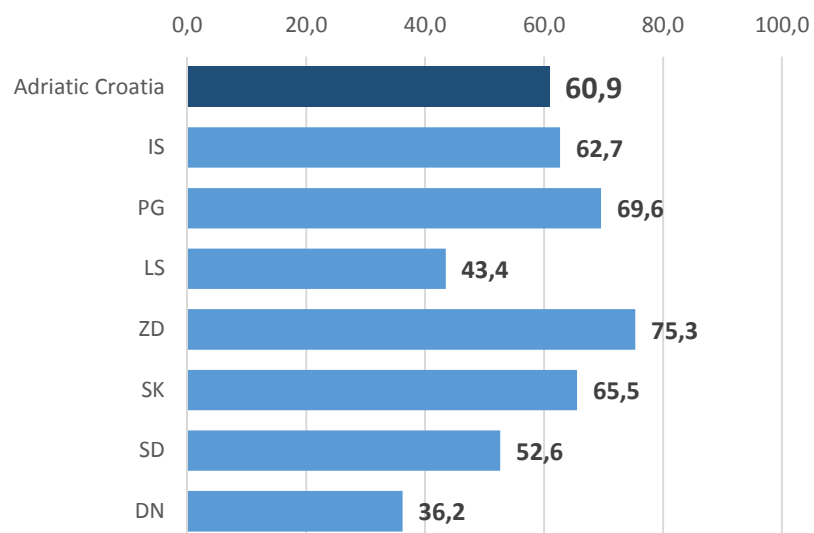


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	Tourist satisfaction with their overall experience in the destination in 2014 was high, with more than three quarters of tourists rating their overall experience as excellent or very good. There were slight differences among the counties. The highest tourist satisfaction is recorded in Lika-Senj and Zadar counties.
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CROSTO indicator	Percentage of repeat/return tourists
UNWTO mandatory issue	-
ETIS section	A Destination management
ETIS criterion	A.2 Customer satisfaction
Description / Scope	Percentage of tourists in commercial accommodation facilities who have visited a destination in the past There is a slight deviation from the proposed indicator due to: (i) only tourists in commercial accommodation are within the scope, and (ii) repeat visit is not restricted to the period of last 5 years
Approach	Direct use of secondary data
Data source/s	TOMAS Summer 2014 - Survey on Attitudes and Expenditures of Tourists in Croatia in 2014 (Institute for Tourism)
Limitations / issues	<ul style="list-style-type: none"> <li>• Highly dependent on type of accommodation</li> <li>• Last available data for 2014</li> <li>• In past surveys the repeat visit was not restricted to the period of last 5 years. This has been modified in the 2017 survey in order to be completely consistent with the proposed ETIS indicator</li> <li>• Survey on Attitudes and Expenditures of Tourists in Croatia is a longitudinal survey, conducted every three to four years, but its execution is not stable since it is always dependent on availability of financial resources</li> </ul>

**Figure 3:**  
**Percentage of repeat/return visitors in Adriatic Croatia in 2014 by county**

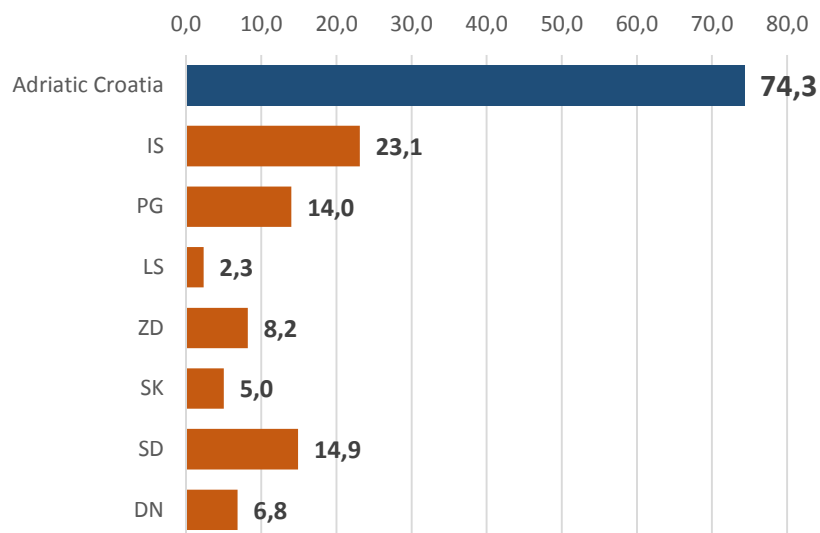


*Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva*

Comments	The overall percentage of repeat/return visits in Adriatic Croatia is high (61%). Above average rate of repeat visits is registered in counties with a higher share of household accommodation (County of Zadar, Primorje-Gorski Kotar, and Sibenik-Knin), as well in Istria which has an above average share of camping grounds (guests in campsites are among the most loyal tourists according to the TOMAS Summer Survey results). The lowest rate of repeat visits is in the County of Dubrovnik-Neretva where the city of Dubrovnik is recording an above average share of first-time visitors and County of Lika-Senj which on average has the youngest tourists.
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CROSTO indicator	Number of tourist nights
UNWTO mandatory issue	Destination economic benefits
ETIS section	B Economic value
ETIS criterion	B.1 Tourism flow (volume and value) at destination
Description / Scope	Registered number of overnights realized in commercial accommodation facilities (hotels and similar accommodation, holiday and other short-stay accommodation, camping sites and camping grounds, other accommodation) in 2016
Approach	Direct use of secondary data
Data source/s	CBS, First Release 4.3.2. TOURIST ARRIVALS AND NIGHTS IN 2016
Limitations / issues	<ul style="list-style-type: none"> <li>Registered number of overnights in commercial accommodation only</li> <li>Distribution of overnights by type of accommodation facility differ significantly among counties, having different influence on destination benefits from tourism activity</li> <li>Rate of non-registered overnights most probably differ among counties</li> </ul>

**Figure 4:**  
**Number of tourist nights**  
**in Adriatic Croatia in**  
**2016 by county**  
**(in million)**



*Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva*

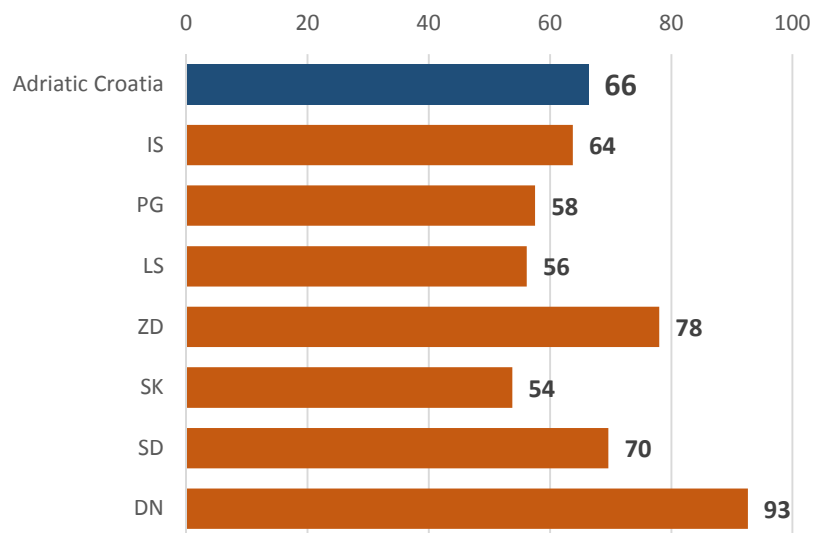
**Comments**

A total of 74.3 million overnights in commercial accommodation facilities were realized in Adriatic Croatia in 2016 (95% of all overnights realized in Croatia). The share of overnights realized by foreign tourists is more than 90%. The specific feature of Croatian tourism is that the majority (almost 50%) of all overnights is realized in rooms/apartments/summer houses.

Istria is the most tourism developed county with 23 million tourist overnights or 31% of all overnights registered in the Adriatic Croatia region.

CROSTO indicator	Daily spending per tourist overnight
UNWTO mandatory issue	Destination economic benefits
ETIS section	B Economic value
ETIS criterion	B.1 Tourism flow (volume and value) at destination
Description / Scope	Average expenditures in euros per night per tourist in commercial accommodation facilities in 2014
Approach	Direct use of secondary data
Data source/s	TOMAS Summer 2014 - Survey on Attitudes and Expenditures of Tourists in Croatia in 2014 (Institute for Tourism)
Limitations / issues	<ul style="list-style-type: none"> <li>• Last available data for 2014</li> <li>• Survey on Attitudes and Expenditures of Tourists in Croatia is a longitudinal survey, conducted every three to four years, but its execution is not stable since it is always dependent on availability of financial resources</li> </ul>

**Figure 5:**  
**Daily spending per tourist overnight in Adriatic Croatia in 2014 by county (in Euro)**

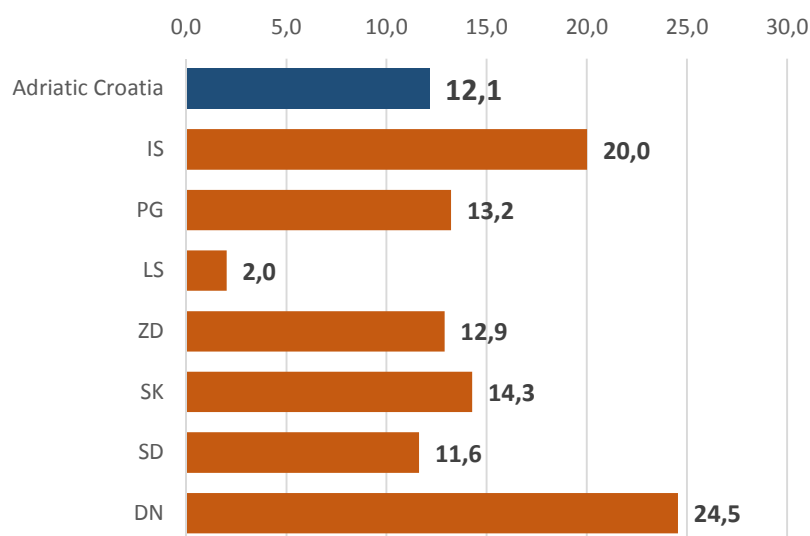


*Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva*

Comments	The average daily tourist expenditure in 2014 was 66 Euro, ranging from 54 Euro in County of Šibenik-Knin to 93 Euro in County of Dubrovnik-Neretva. It should be noted that daily tourist expenditure, apart from the structure and quality of tourism destination product, is also a reflection of structure of tourists overnights by accommodation facilities within counties.
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CROSTO indicator	Direct tourism employment as percentage of total employment
UNWTO mandatory issue	Employment
ETIS section	B Economic value
ETIS criterion	B.3 Quantity and quality of employment
Description / Scope	Share of persons employed in legal entities and in crafts and trades in NKD (2007) section I <i>Accommodation and food service activities</i> in August 2016 in total employment in legal entities and crafts and trades in August 2016
Approach	Estimated based on secondary data available for March and corrected for total employment ratios in March and August, since the August is the peak month of tourist activity
Data source/s	CBS, First Release 9.2.4. PERSONS IN PAID EMPLOYMENT, BY ACTIVITIES AND COUNTIES, Situation as on 31 March 2016, Table 1 CBS, First Release 9.2.2/1. PERSONS IN EMPLOYMENT IN CRAFTS AND TRADES AND FREE LANCES, FIRST QUARTER OF 2016, Table 3
Limitations / issues	<ul style="list-style-type: none"> <li>Limited to employment in NKD (2007) section I <i>Accommodation and food service activities</i> only</li> <li>Employees in family housing/households not included; since the importance of household accommodation differs among the counties, it could have a significant impact on employment on a county level</li> </ul>

**Figure 6:**  
Direct tourism employment as percentage of total employment in a destination in Adriatic Croatia in 2016 by county (in %)

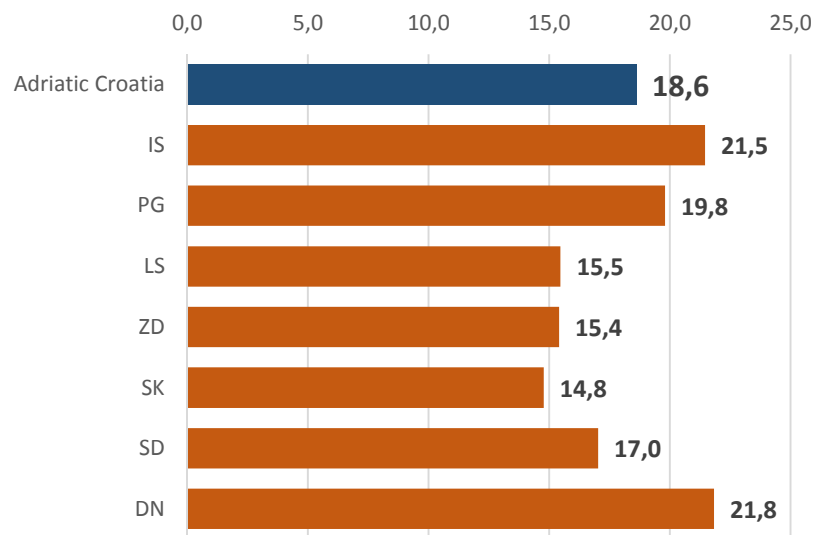


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	Direct tourism employment (in NKD section I <i>Accommodation and food service activities</i> ) in August 2016 is estimated at 12.1% of total employment in Adriatic Croatia. The two highest rates of direct tourism employment were recorded in County of Dubrovnik-Neretva (24.5%) and County of Istria (20.0%) as a consequence of high proportion of hotels and similar accommodation facilities in County of Dubrovnik-Neretva and high proportion of both hotels and similar accommodation as well as camping sites in County of Istria.
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CROSTO indicator	Gross annual occupancy rate in commercial accommodation
UNWTO mandatory issue	Tourism seasonality
ETIS section	B Economic value
ETIS criterion	B.2 Tourism enterprise(s) performance
Description / Scope	Gross yearly occupancy rate in commercial accommodation The indicator will be extended in the future with monthly gross occupancy rates in the commercial accommodation
Approach	Composite indicator based on total number of available beds in commercial accommodation (the maximum is registered in August) on yearly basis and total number of overnights in commercial accommodation in 2016
Data source/s	CBS, First Release 4.3.2. TOURIST ARRIVALS AND NIGHTS IN 2016 (ad-hoc request for data)
Limitations / issues	<ul style="list-style-type: none"> <li>Registered number of overnights in the commercial accommodation only</li> <li>Highly dependent on the structure of accommodation capacity by type</li> </ul>

**Figure 7:**  
Gross yearly occupancy rate in commercial accommodation in Adriatic Croatia in 2016 by county (in %)

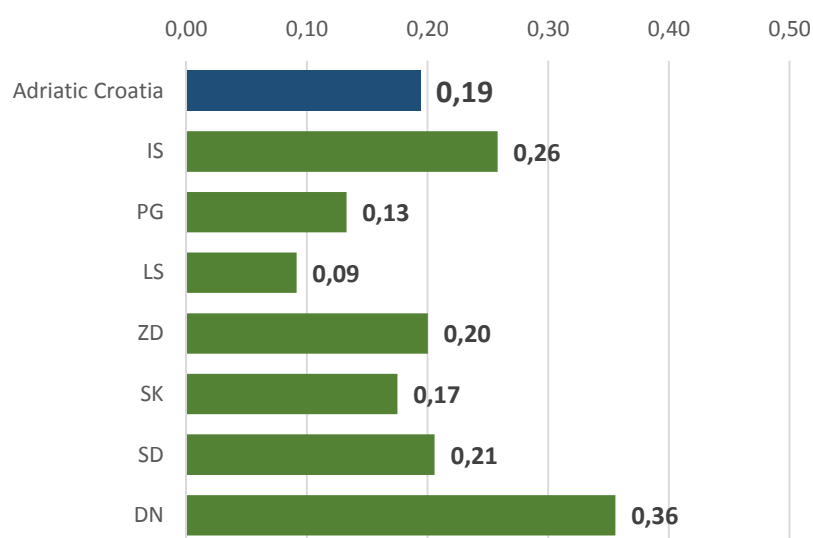


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	Gross yearly occupancy rate in commercial accommodation in Adriatic Croatia in 2016 is less than 20%, due to high seasonality of tourist activity in the region and high share of household accommodation (rented rooms/apartments/houses). Above average occupancy rates are recorded in three counties, mostly due to higher share of hotel and similar accommodation.
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CROSTO indicator	Energy consumption per tourist night compared to general population energy consumption per resident night
UNWTO mandatory issue	Energy management
ETIS section	D Environmental impact
ETIS criterion	D.6 Energy usage
Description / Scope	Total tourist energy consumption in GWh divided by total household consumption in GWh
Approach	Total energy consumption in commercial accommodation capacities is estimated based on the 2012 survey results (consumption norms by type of accommodation) and the structure of accommodation capacities in 2016 (estimated by Energy Institute Hrvoje Požar, Zagreb, Croatia). Energy consumption in households is based on the survey results from 2012 and number of residents in 2016.
Data source/s	CBS (2015). Data of energy efficiency in households and services, 2012 CBS, First Release 4.3.2. TOURIST ARRIVALS AND NIGHTS IN 2016, additional ad-hoc analysis CBS, First Release 7.1.3. POPULATION ESTIMATE OF REPUBLIC OF CROATIA, 2016
Limitations / issues	<ul style="list-style-type: none"> <li>Registered number of overnights in the commercial accommodation only</li> <li>Energy consumption in households includes, partly, tourism consumption; since the share of household accommodation differs significantly among counties it can to some extent distort the estimates and comparability among the counties</li> </ul>

**Figure 8:**  
**Energy consumption per tourist night compared to general population energy consumption per resident night in Adriatic Croatia in 2016 by county (ratio)**



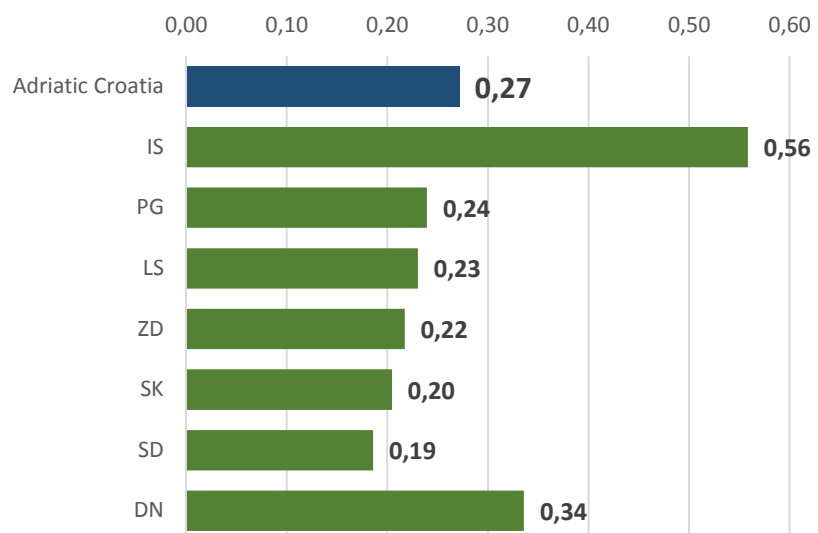
Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	Energy consumption of tourists to residents in Adriatic Croatia is 0.19. The highest rate of energy consumption by tourists is associated with counties with the highest share of hotels and similar accommodation and the lowest tourism seasonality, namely County of Dubrovnik-Neretva (0.36) and County of Istria (0.26).
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CROSTO indicator	Water consumption per tourist night compared to general population water consumption per resident night
UNWTO mandatory issue	Water management
ETIS section	D Environmental impact
ETIS criterion	D.5 Water management
Description / Scope	Water consumption by tourists in commercial accommodation compared to total water consumption by households
Approach	Estimates of water consumption by tourists in commercial accommodation were based on consumption norms by type of accommodation obtained in 2008 and number of overnights by type of accommodation in 2016. Household consumption includes both public supply system and hydrofoil pump, etc.
Data source/s	CBS, First Release 6.1.2. COLLECTION, PURIFICATION AND DISTRIBUTION OF WATER, 2016 CBS, Census of Population, Households and Dwellings 2011, Dwellings by Occupancy Status, 2017 Institute IGH, Water Supply plan for County of Split-Dalmatia, 2008
Limitations / issues	<ul style="list-style-type: none"> <li>Registered number of overnights in the commercial accommodation only</li> <li>Same water consumption by households on public water supply and hydrofoil pumps is assumed</li> </ul>

**Figure 9:**  
**Water consumption per tourist night compared to general population water consumption per resident night in Adriatic Croatia in 2016 by county (ratio)**

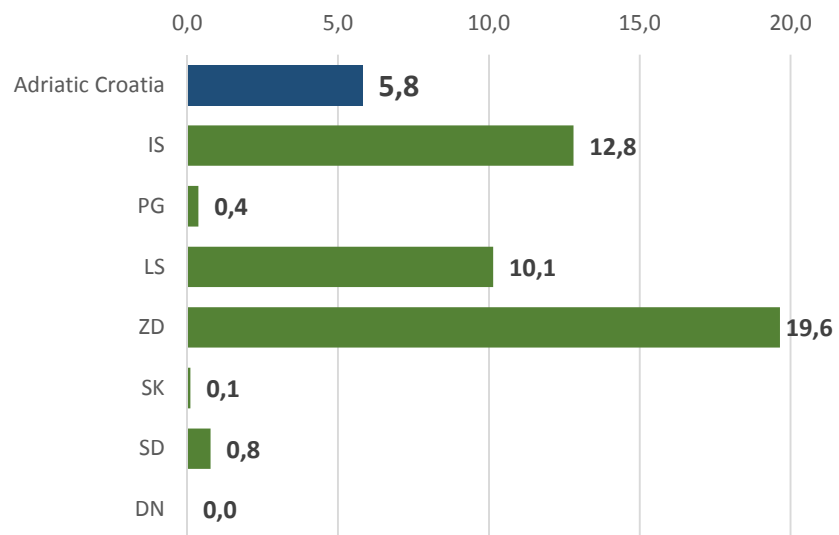


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	The amount of water used by tourists in Adriatic Croatia in relation to residents is 0.27. The highest rate of water consumption by tourists is associated with counties with the highest share of hotel and similar accommodation and the lowest tourism seasonality, namely County of Istria, where there is also the highest number of households on public water supply system as well as the highest number of registered tourists overnights (0.56), and also County of Dubrovnik-Neretva (0.34).
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CROSTO indicator	Percentage of sewage from a destination treated to at least secondary level prior to discharge
UNWTO mandatory issue	Waste water (sewage) management
ETIS section	D Environmental impact
ETIS criterion	D.4 Sewage treatment
Description / Scope	Percentage of sewage from a destination treated to at least secondary level prior to discharge
Approach	The official data on sewage treated to at least secondary level prior to discharge were corrected by rate of households/dwellings connected to a public sewer system on county level
Data source/s	CBS, First Release 6.1.3. PUBLIC SEWAGE SYSTEM, 2016, additional ad-hoc analysis CBS, Census of Population, Households and Dwellings 2011, Dwellings by Occupancy Status, 2017
Limitations / issues	<ul style="list-style-type: none"> <li>The rate of households/dwellings connected to a public sewer system was applied to total waste water (from households and economic activities) by counties</li> </ul>

**Figure 10:**  
**Percentage of sewage from a destination treated to at least secondary level prior to discharge in Adriatic Croatia in 2016 by county (in %)**

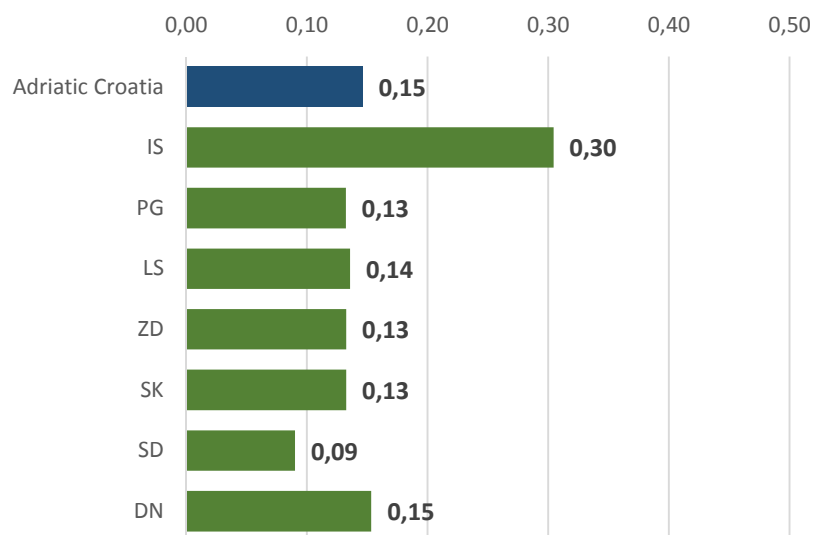


Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	Only 5.8% of sewage in Adriatic Croatia is treated to at least secondary level prior to discharge. The highest rate of treatment is in County of Zadar (20%) even when corrected for households not connected to public sewage system (72%).
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CROSTO indicator	Waste production per tourist night compared to general population waste production per resident night
UNWTO mandatory issue	Solid waste management
ETIS section	D Environmental impact
ETIS criterion	D.3 Solid waste management
Description / Scope	Waste production by tourists in relation to residents waste production
Approach	Based on total amount of solid waste produced in 2016 (source: Croatian Agency for Environmental and Nature Protection), number of residents and number of tourists overnights in 2016
Data source/s	Croatian Agency for Environmental and Nature Protection CBS, First Release 4.3.2. TOURIST ARRIVALS AND NIGHTS IN 2016, additional ad-hoc analysis CBS, First Release 7.1.3. POPULATION ESTIMATE OF REPUBLIC OF CROATIA, 2016
Limitations / issues	<ul style="list-style-type: none"> <li>Registered number of overnights in commercial accommodation only</li> <li>The assumption is that tourists and residents have the same patterns of consumption and hence the same production of solid waste</li> </ul>

**Figure 11:**  
Waste production per tourist night compared to general population waste production per resident night in Adriatic Croatia in 2016 by county (ratio)



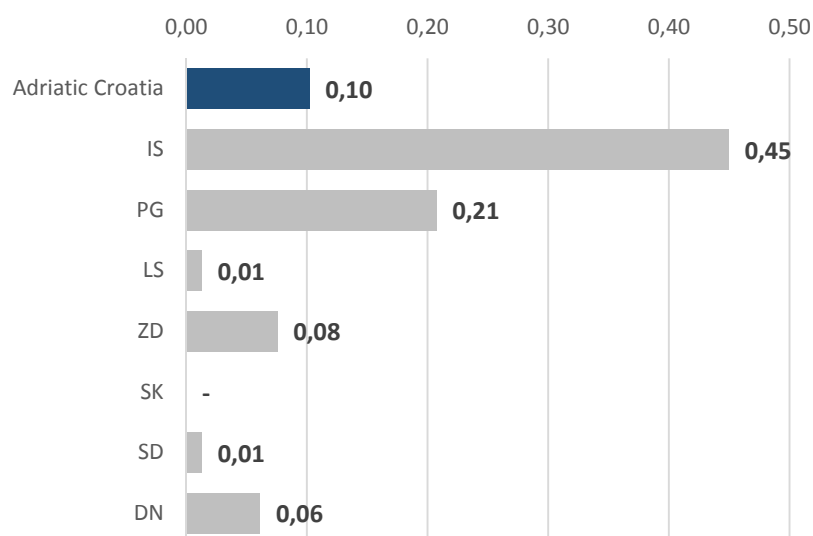
Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	The extra pressure of solid waste generated by tourists in relation to residents is estimated to 0.15. The highest rate is recorded in Country of Istria (0.3), proportionally to the highest number of tourists overnights.
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CROSTO indicator	Percentage of tourism enterprises using voluntary certification/labelling for environmental Corporate Social Responsibility
UNWTO mandatory issue	-
ETIS section	A Destination management
ETIS criterion	A.1 Sustainable tourism public policy
Description / Scope	To measure the awareness of accommodation providers regarding environmental/quality/sustainability and/or Corporate Social Responsibility in their operation
Approach	Ad-hoc survey planned for 2018
Data source/s	There is no currently available list of certification/labelling for environmental /quality/sustainability and/or Corporate Social Responsibility for tourism enterprises/facilities in Adriatic Croatia. In cooperation with Ministry of Tourism and Croatian Agency for Environmental and Nature Protection a survey of all accommodation facilities aimed at collecting such data is planned for 2018.
Limitations / issues	<ul style="list-style-type: none"> <li>Collecting and monitoring certification/labelling for environmental /quality/sustainability and/or Corporate Social Responsibility in household accommodation facilities could be a specific issue due to the huge number of such facilities available in Adriatic Croatia and willingness of their owners to participate in such survey</li> </ul>
Figure	<b>Data N/A</b>
Comments	-

CROSTO indicator	Percentage of destination area out of the settlement's boundaries built for tourist purposes
UNWTO mandatory issue	Governance
ETIS section	-
ETIS criterion	-
Description / Scope	To measure and monitor areas out of the settlement's boundaries which is built or designated for tourist purposes
Approach	Indicator is used instead of the proposed one ' % of destination area subject to control (density, design, etc.)' since it is evaluated as more important for the area of Adriatic Croatia
Data source/s	Ministry of Construction and Physical Planning (2012) Izvješće o stanju u prostoru Republike Hrvatske 2008-2012 [National Report on the State of Spatial Development of the Republic of Croatia 2008-2012]
Limitations / issues	<ul style="list-style-type: none"> <li>Due to high number of rooms/apartment/houses available for rent within towns/villages in the Adriatic Croatia, it is of outmost importance for the Adriatic Croatia to extend this indicator to measure the % of built area for renting purposes within the settlement's boundaries; for example, 19% of all dwelling in the Adriatic Croatia are used for short-term rental in tourism</li> </ul>

**Figure 12:**  
**Destination area out of the settlement's boundaries built for tourist purposes in Adriatic Croatia in 2016 by counties (in %)**



Counties: IS Istria, PG Primorje-Gorski Kotar, LS Lika-Senj, ZD Zadar, SK Šibenik-Knin, SD Split-Dalmatia, DN Dubrovnik-Neretva

Comments	On average, only 0.1% of the area outside the settlements is already built for tourist purposes. The highest (above average) percentage of built area is in Istria (0.45%) and County of Primorje-Gorski Kotar (0.21%).
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## Conclusion

As previous sections have shown, the biggest success of the past monitoring year is the establishment of fully operable observatory as well as the conducting of the first measurement of tourism sustainability in the focal region – the Adriatic Croatia.

The operability of the observatory implies the establishment of the local working group which is constituted as the CROSTO Supervisory Board comprised of representatives of each of the most important stakeholder institution, as well as including representatives of CROSTO management and the hosting institution. It has to be noted that each member of the CROSTO Supervisory Board is an expert in either tourism sustainability or tourism statistics, or both. In that manner, the local working group is made of highly competent staff.

The operability of the observatory also implies periodic organization of stakeholders workshops. This practice was initiated in the first monitoring year.

Besides the establishment of official bodies that are necessary for appropriate operation of CROSTO observatory, first measurement of tourism sustainability in the focal area of Adriatic Croatia was also carried out.

With regard to the objectives for the upcoming monitoring year, it has to be noted that the greatest challenge is linked to the acquirement of financial resources that are necessary for the calculation of the main social indicator related to the satisfaction of local inhabitants with tourism and its development. Since this involves the conducting of a survey covering the entire focal area of Adriatic Croatia, the amount of required financial resources is significant. It is hoped Ministry of Tourism and the Croatian National Tourist Board will be able to provide financial help.

Another possible challenge is related to the attempt of initializing the monitoring process on the local level. As the national tourism observatory, CROSTO has started its mission at a macro-regional level. Since the focal region covers a rather broad area (24,705 square kilometers), the first measurement has been conducted from the macro-perspective covering seven counties of the Adriatic Croatia. A campaign emphasizing the importance of tourism sustainability measurement on the local level, i.e. on the municipality level has been initiated. This is in line with CROSTO's future vision of encompassing a number of local observatories placed all over Adriatic Croatia with CROSTO serving as the regional coordinator. Although the first year of operation has been productive and successful, there is certainly a lot of work to be done in the forthcoming period.