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European sustainable tourism and circular economy

European Network of the Heads of Environment Protection Agencies (EPA Network) - Interest Group on Environment and Tourism (IGET)

EUROPEAN SUSTAINABLE TOURISM AND CIRCULAR ECONOMY

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Preface

The link between tourism and a healthy environment represents a key driver for many tourism destinations across the world. Access to and experiencing natural and cultural heritage often is what makes them attractive.

However more work is needed to understand how environmental sustainable tourism can be achieved to balance the needs of the tourism sector and the need to protect and use the environmental resources we have in a careful and responsible way.

This document intends to show how a circular economy model can be used and applied to the tourism sector in order to promote a sustainable and resilient tourism sector and how the environment and the careful use of environmental resources are critical components and crucial for its recovery from the related impacts of the pandemic.

This paper represents a contribution of the Interest Group of the European Network of the Heads of Environment Protection Agencies (EPA Network) to the Ninth Environment for Europe Ministerial Conference (Nicosia, 5-7 October 2022) and it is in line with the document “Applying principles of circular economy to sustainable tourism” edited by the Economic Commission for Europe for the Ninth Environment for Europe Ministerial Conference.

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1. EPA NETWORK and IGET

The Network of the Heads of Environment Protection Agencies (EPA Network) is a forum for strategic discussion on environmental issues of common concern for EPA Executives across Europe. The network functions as a platform for discussing emerging issues, especially those of international and global interest, where solutions require a gathering of collective knowledge and expertise.

The EPA Network represents 37 countries and the Secretariat is hosted by the European Environment Agency (<https://epanet.eea.europa.eu/>). Members of the EPA Network exchange experiences to improve their work for the environment, share their knowledge and best practices via reports, guidelines, position papers, etc. and communicate those outputs and views. In short, the EPA Network is the voice of European environmental protection institutions.

The EPA Network works through ‘interest groups’ of experts who collaborate on specific emerging or urgent topics of international relevance in the field of the environment.

In particular, in 2021, the **Interest Group on Environment and Tourism (IGET)** has been set up as a response to the COVID-19 pandemic, considering that the current dramatic crisis of the tourism industry could be viewed as an opportunity to rethink the sector in a sustainable perspective.

IGET is composed of experts from both national Environmental Protection Agencies and national tourism authorities. IGET wants to turn the spotlight on the environmental aspects of tourism to enhance and encourage the development of a European sustainable tourism policy. IGET main mission is to ensure environmental protection is given priority consideration in all aspects of tourism policies, programmes and projects, while at the same time favouring the flourishing of the sector.

IGET’s objectives and commitments align with the focus of the *Ninth Environment for Europe Ministerial Conference*, which is to “Apply the principles of circular economy to sustainable tourism”. IGET promotes the development and sustainability of tourism and suggests solutions to favour a ‘circular economy approach’ aiming at reducing economic losses in the value chain, avoiding overcrowding and reducing environmental pressures and issues.

2. The Context

Considering international arrivals falling 73%, 2020 was the worst year on record for tourism. Global tourism recovered by 4% in 2021, when compared to 2020 levels. However, international tourist arrivals are still down 72% from 2019 (pre-pandemic)¹ levels.

The road to the full recovery of the tourism sector is slow and uneven across the globe, due to varying degrees of mobility restrictions, vaccination rates, and traveller confidence. Europe and the Americas showed strongest tourism figures in 2021, +19% and +17% respectively, but still both 63% below pre-pandemic levels.

Southern Mediterranean Europe (+57%) also experienced significant growth, however it also remains at levels below those of 2019 (-54%). Encouraging signs in 2022 indicate, that as vaccination rates increase, combined with the easing of travel restrictions, the recovery of the sector should continue.

¹ United Nations World Tourism Organization (UNWTO) - <https://www.unwto.org/covid-19-and-tourism-2020>

Domestic tourism continues to drive the industry's recovery in a growing number of destinations, particularly those with large domestic markets. In fact, the top trends are travel close to home (staycations), as well as outdoor activities, nature-based products and rural tourism.

Globally, tourism is highly dependent on modes of transportation (aircraft and automobiles), which continue to be fossil fuel intensive modes of transportation.

The car, a key mode of transport for tourism, contributes significantly to air pollutant emissions (particulate matter, volatile organic compounds and greenhouse-gases). In 2020 for example, 90.9% of Italians' trips were within the national territory, of which 78.2% were by car².

During the pandemic, with the imposition of lockdowns, mobility emerged as one of the most affected sectors. However, it can be one of the most receptive sectors to support the transition to a low carbon society and economy. Many cities around the world have begun to intervene to enhance and improve public transport and promote the benefits of using active modes of transport such as walking and cycling. These active forms of transport are recommended by the World Health Organization.

Within Europe and elsewhere, there is an effort to advance a 'circular economy' approach to support a continued growth and the development of our economies while also using our natural resources in an environmentally sustainable way.

The circular economy approach is valuable for defining actions aimed at achieving long-term results. Even in tourism, goods, means of transport and even services will have to be designed to minimize the resources needed, to last over time, to be repairable and, above all, to be reusable or at least recyclable: in fact, it will be like borrowing resources to use them and return them in a different form.

While it is clear how circular economy concepts can be applied to the manufacturing sector, the link to how it applies to service sectors such as tourism still remains to be identified. Tourism characteristics relate to travel and temporary accommodation for leisure, business or other purposes. Travel and accommodation elements can be associated with high CO₂ emissions and environmental effects will not disappear quickly.

Thinking of the nature of the journey itself all phases (preparation, journey, destination, local transport, stay, consumption of resources, participation in local activities and at the end return home), are compatible with the circular economy, with shared responsibility between tourists who decide where to go, how to travel and what to do at the destination and operators, who can offer their services in a circular way.

In several European countries (Denmark and Switzerland in the lead), the consumption of organic products has increased by 50% in the last five years³. The emergence of companies dedicated to the shared economy (Airbnb, Couchsurfing, Uber, etc.) is a further evidence of the radical change underway.

Similarly, the emergence of cycle-tourism, a way of traveling with a bike and a bag, is designed to use "secondary raw materials" at the end of their life cycle: tires and inner tubes are increasingly reused in every corner of the planet, if not to make other velocipedes in order to create thermal blankets for floors, innovative flooring, accessories and even clothing.

The term 'user experience design' indicates a mix of old and new knowledge, which aims to shape the user experience: this determines a perfectly circular space.

² ISPRA (2021) Annuario dei dati Ambientali. <https://annuario.isprambiente.it>

³ https://www.fibl.org/fileadmin/documents/shop/1344-organic-world-2022_lr.pdf

Every trip has the capacity to provide an experience during the daily life of a community, offering visitors the opportunity to enter scenarios where they can consider the organization of their daily lives. This is not only interesting from an environmental and social perspective - registering a potential for much more direct involvement of tourists with local resources, their consumption, waste generation and waste disposal - but it also provides a means to encourage a shift from traditional tourism markets that emphasize spending, hedonism and unlimited use of resources, towards vacations more aware of the need to be environmentally sustainable and supporting a circular economy.

Even during these times of uncertainty for recovery and for the future development of tourism, we can continue to enhance local tourism initiatives that allow us to treasure the cultural heritage, traditions and communities supporting these experiences. These are all vulnerable elements which mass tourism and poor planning can negatively impact on. While people expose themselves to new and authentic experiences, these must be considered from an environmentally sustainable standpoint, that is if our shared environmental resources are to be protected and maintained into the future.

3. Sustainable Tourism at EU level

Sustainable Tourism takes account of environmentally sustainable practices used in and by the tourism industry. It is defined by the [UN Environment Program](#) and [UN World Tourism Organization](#) (UNWTO) as “*tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities*”. Sustainable tourism also refers to “*the environmental, economic, and socio-cultural aspects of tourism development, and a suitable balance must be established between these three dimensions to guarantee its long-term sustainability*”⁴.

Tourism related impacts include damage to the natural environment and to cultural sites, overcrowding at tourism sites, littering, unsustainable use of natural resources and pressures on existing critical service infrastructure (water, waste water, waste). Positive benefits of tourism include job creation (in both urban and rural areas), experiencing and recognising the need to protect both natural and cultural heritage, landscape restoration. Inter-cultural appreciation, through tourism helps contributing to the economic development and the diversification of other industries such as fishing and agriculture.

Tourism impacts can be classified into economic, physical, and social impacts. Environmental impacts fall into the ‘physical’ classification. They can be difficult to classify given the many variable and distinct geographic areas involved and with the impacts of temporal intensity patterns (seasonality). They can be considered in terms of:

- broad or general categories that refer strictly to the classification of tourist assets or attractions that are located in physical, biological, socioeconomic, natural, built, and cultural environments;
- the nature of impacts over time or space, including: short or long-term impacts; positive or negative impacts; local, regional, and even global impacts; and direct, indirect, or induced impacts. To some extent these reflect the characteristics of the tourism industry;
- environmental components, such as Ceballos-Lascuráin's (1996)⁵ classification of the direct impacts of tourism on geological exposures, minerals and fossils, soils, water

⁴ [UNEP](#) & [UNWTO](#), 2005: 11-12. *Making Tourism More Sustainable – A Guide for Policy Makers*

⁵ Ceballos-Lascuráin, H. (1996) *Tourism, Ecotourism and Protected Areas*. Giland, Switzerland. <https://doi.org/10.2305/IUCN.CH.1996.7.en>

resources, vegetation, animal life, sanitation, landscape aesthetics, and the cultural environment.

These impacts focus on those effects generated by the areas most related to both the Sustainability Development Goals (SDGs) and to the circular economy, such as energy consumption and emissions in transportation, waste management of accommodations and restaurants (including food waste), water consumption and wastewater production, and resource use for the construction or redevelopment of tourism infrastructure (hotels and others).

In January 2022 the European Commission launched a report on Transition Pathway for a resilient, green and digital Tourism ecosystem, calling on the tourism community to implement measures in twenty-seven areas, to reduce energy, waste, water and pollution, while meeting the increasing demand for sustainable tourism. The report is the result of a co-creation process started in June 2021 in order to help the transformation of the tourism ecosystem.

4. Circular Economy at EU level

In a circular economy, the value of products, materials, and resources is maintained in the economy for as long as possible. All outputs from one process are inputs to another, so a shift to circularity involves reducing the intake of virgin materials and reducing waste generation.

Support to the Circular economy approach is now fully embedded into the European policy agenda, through the European Green Deal and the Circular Economy Action Plan⁶ published in 2020.

Quoting the Circular Economy European Action Plan (CEAP) *Pushing the circular economy from leader to traditional economic players it will make a decisive contribution to achieving climate neutrality by 2050 and to decoupling economic growth from the use of resources, while ensuring the long-term competitiveness of [European Union] and without leaving anyone behind*". To bring about this change, the "[European Union] it must accelerate the transition to a regenerative growth model that returns to planet more than necessary, advances towards maintaining the consumption of resources within the planet boundaries, and therefore work to reduce its consumption footprint and double the rate of circular use of materials over the next decade".

The CEAP includes proposals on the product design, circular production processes, waste reduction and consumer empowerment. The European Parliament followed up with a resolution on the action plan, calling for more measures aimed at a fully circular economy by 2050⁷.

As announced in the CEAP on 30th March the Commission launched the Sustainable Product initiative to boost circular business models and empower consumers for the green transition proposing new rules to make almost all physical goods on the EU market more friendly to the environment, circular, and energy efficient throughout their whole lifecycle from the design phase through to daily use, repurposing and end-of-life.

In 2020, the EPA Network endorsed the [Bellagio process](#), an initiative of the European Environment Agency (EEA) and the Italian Institute for Environmental Protection and Research

⁶ European Commission, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, A new Circular Economy Action Plan. For a cleaner and more competitive Europe, COM (2020) 98 final.

⁷ European Parliament, European Parliament resolution of 10 February 2021 on the New Circular Economy Action Plan, (2020/2077(INI)).

(ISPRA) led by an advisory group including EPA representatives from Italy, Finland, Ireland, the Netherlands, Portugal and Slovakia.

On 17th December 2020 the European Council conclusions “Making the Recovery Circular and Green” welcomed the Commission's intention to strengthen the monitoring of the transition and update the Monitoring Framework for the circular economy and noted the valuable contribution of the Bellagio Process in this regard.

The Bellagio process led to the ["Bellagio Declaration"](#), a set of seven principles on how to ensure that the monitoring of the transition to a circular economy captures all relevant aspects and involves all relevant stakeholders. It provides guiding principles to national and European authorities in developing monitoring frameworks and indicators.

The definition of circular economy adopted by the EPA Network in the Bellagio Declaration is the following:

A Circular Economy (CE) is an economy where there is full recirculation of resources and nothing wasted and where the value of products, materials and resources is maintained in the economy for as long as possible. All outputs from one process is input for another. A move towards CE entails reducing the intake of finite virgin material, designing out waste and pollution, developing systems and infrastructure that enable products and materials recirculation, and sourcing renewable materials in a way that also regenerates natural systems the economy depends on.

At present, the application of these principles in the tourism sector is still limited. Given the many linkages between tourism and other sectors, a circular approach in tourism is very complex, but it could become a driver for integrating circular economy considerations also within other sectors.

Tourism has an important role in the achievement of a circular economy and the achievement of the SDGs. Relevant areas include energy use and emissions in transport, accommodation and restaurants, waste management of accommodation and restaurants (including food waste), water consumption and generation of wastewater in general, and use of resources in building, for interiors, and in external services.

National and local tourism policies should recognise and promote sustainability principles and the Sustainable Development Goals in their vision and strategic direction. This may require a re-thinking of how ‘successful’ tourism is considered, and perhaps move away from visitor volumes and towards more holistic and environmental sustainability concepts of value and impact at the destination level. Policies and actions should look to pursue goals of zero or low carbon emissions, minimal resource consumption, protection of biodiversity and avoidance of degradation of the natural environment. A better understanding of tourism value-chains will help identify opportunities for incremental environmental improvements, growth of circular economy mechanisms in order to support tourism recovery and growth while promoting the need to be resource efficient through the entire value chain.

5. How Sustainable Tourism and Circular Economy can be mainstreamed at European and/or National level

The transition to a more environmentally sustainable and circular tourism sector is challenging. The tourism value chain is complex and contains many different products and services. Many of these products and services are often cross-sectoral e.g. accommodation, transport, and food and drink. Many businesses and organisations are responsible for different elements of these products and services.

Circular economy can be seen as a useful approach, which helps us realize how everything is connected and how important it is to operate in a coordinated and sustainable way. The workspace in tourism is potentially enormous.

In general, the benefit that this approach can have on environmental systems is clear.

In a scenario where processes maximise the sustainable use of materials during the production and construction cycles and limit wastes generated to a minimum, you can significantly reduce the use of raw materials, energy consumption, emissions of gases and residues and the impact on the environment and ecosystems.

Some examples of the main environmental impacts of tourism linked to the circular economy, and recommendations and / or address for improving them with the application of the principles of the circular economy to tourism, are given below in specific in-depth boxes.

Energy use and climate change

Tourism generates emissions of greenhouse gases. A UNWTO study reveals that tourism directly contributes 5% of global CO₂ emissions and between 50% and 60% indirectly. (At international level, tourism-related transport emissions represented 22% of all transport emissions in 2016 and will continue doing so in 2030 (21%) (UNWTO <https://www.unwto.org/news/tourisms-carbon-emissions-measured-in-landmark-report-launched-at-cop25>).

Despite these data, very few countries have identified cohesive mitigation strategies related to tourism and even fewer have implemented such policies. This is why the need for responsible growth of the sector is defended through sustainable tourism development.

The transport and accommodation sectors have the highest energy demand, accounting for 94% and 3.5% of tourism energy use respectively.

There is a need for a system model for the adoption of renewable energy technologies in the accommodation sector, so that visitors' preferences will focus on renewable energy options.

In order to engage more economic and social sectors in the use of renewable energy, it would be essential to create legislation that encourages their take up in each socioeconomic area of the country. As a sustainable alternative to the activity, a policy that encourages the construction and implementation of new infrastructures considering sustainable elements, such as the use of clean energy obtained from inexhaustible natural sources with low (minimal) impact transformation processes would be beneficial. Currently, few tourist service providers or attractions opt for such solutions, often using conventional sources (coal, water, hydrocarbons, and nuclear fuels), not taking into account the great natural potential that they have, which would contribute to reach the objective of sustainability.

Water resources (shortage)

Strong evidence exists that tourists use considerably more water resources than at home and/or than inhabitants do (Gössling, Peeters, Hall, Ceron, Dubois, Lehmann, et al., 2012). Many summer tourism destinations, particularly those which are naturally arid, may experience water shortages.

UNWTO notes that in destinations with concerns about the availability of water, it will not be sufficient to record only the levels of water use by tourism activities to support them. Information on the stock of water and their seasonal variations also need to be recorded. To make water usage circular, all demand must be covered by renewable water sources, which means no fossil sources (groundwater, ice) should be used. A more complex approach is also needed since a real transition to a circular model can only be achieved by seeing water in an integrated approach as mean of transport, a source of energy and a service.

Waste

The generation of solid waste linked to the tourism sector and the need for its appropriate management, is another significant environmental issue (Jamieson et al. (2003). It is estimated that the world's 692.5 million international tourists in 2001 generated 4.8 million tons of solid waste. This amount can be expected to increase by 251% by 2050, according to the United Nations Environment Programme (UNEP, 2019). Service companies within the tourist sector and tourists themselves are major contributors to tourist waste generation.

The waste generated by the tourism sector can stress waste management infrastructure, particularly during the high season, and in areas where facilities are still underdeveloped. In areas with a high variation in tourism numbers throughout the year, appropriate waste management can be a major challenge. Inadequate management of waste can lead to substantial and irreversible environmental impacts, including higher greenhouse gas (GHG) emissions, land degradation, leachate runoff, resource deprivation, groundwater pollution and loss of biodiversity.

It is important that the tourism industry continues to improve and adapt its operations towards waste prevention. It is also important that the requirements of the Waste Framework Directive are applied correctly, including preparation for re-use, separate collection with recycling and the elimination of single use plastics are the next preferable steps.

In the food service industry, food waste is another relevant waste-related impact of tourism. Food consumption in tourism, with an estimated 75 billion meals a year, leads to a range of sustainability issues (Gössling et al., 2011). The food waste share of hospitality and restaurant waste is 40% and 60% respectively (Pirani & Arafat, 2014).

Resource use and overconsumption

The construction industry is linked to high greenhouse gas emissions and resource extraction and consumption. Such impacts can be reduced by choosing more locally sourced sustainable or recycled building materials and equipping facilities with easy-to-repair interiors.

The use of resources in the construction and maintenance of tourism facilities (e.g. accommodations) can be high and resource use in this area can be focused in promoting a Circular Economy approach. Using (the share of) 'green' procurement mechanisms, circular building material flows, life-cycle assessments, re-manufacturing furniture, leasing contracts for high-end appliances and using easy-to-repair materials, circularity within tourism facilities can be increased (Manniche et al., 2017). One big challenge will be how indicators can be established, to monitor the implementation of a circular economy model.

The transformation can also lead to:

- innovation;
- greater competitiveness;
- new economies and employment;
- security of materials and their accessibility.

In the tourism sector the effect can be very high. Consider:

- transport systems and associated infrastructure;
- direct services of reception and hospitality;
- complementary services.

In addition, marketing actions can be triggered to promote sustainable tourism experiences (sincere or not) in terms of:

- distinctiveness;
- positioning;
- commitment to common cause and Corporate Social Responsibility (CSR).

Whether as a single company, a network, a destination territory or a country, the opportunity of a non-linear economy, decisively contribute to a more comprehensive and sustainable tourism sector.

Given the complexity of the tourism ecosystem, addressing individual components will likely be more feasible, but a value chain approach will be more rewarding in the long run.

There are some longer established businesses in tourism that are tied to circularity, based on replacing ownership with access, offering shared services and product-service systems⁸. Well-known examples include Airbnb and Uber. Currently, these initiatives have a number of negative impacts, including building more homes and car miles, as well as a host of other environmental, social, and leakage issues⁹. Examples of sharing without these externalities can be found in transportation (bicycle and, to a lesser extent, scooter schemes), or even traditional housing (circular hotels).

The UNEP and UNWTO Global Tourism Plastics Initiative include commitments such as value chain engagement in moving toward 100% reusable, recyclable, or compostable plastic packaging, investments to increase recycling rates, and public communication of targets¹⁰.

Practical approaches to pursuing sustainable tourism can be best achieved at a local destination level, such as in individual cities, coastal areas and identified at rural destinations. Some measures can be simple and effective, like making tap water accessible in public places to reduce tourists' dependence on bottled water and prevent packaging waste. Other examples of actions include: strengthened land use planning and development control, especially in sensitive locations; sustainable transport initiatives (e.g. provision of walking routes and cycleways and smart mobility initiatives); local anti-pollution and littering campaigns and energy efficiency and water management and recycling schemes with the hospitality sector.

There are also benefits in looking for opportunities to involve and inform visitors. Local areas may also seek recognition and certification as sustainable tourism destinations.

Strategies on ecotourism are meant to be the ones closer to circular development, as ecotourism certifications which focus on lowering the impact on resource use and the environment. These

⁸ Jesper Manniche and others, "Destination: A circular tourism economy. A handbook for transitioning toward a circular economy within the tourism and hospitality sectors in the South Baltic Region", (Centre for Regional and Tourism Research, 2017).

⁹ Paul Peeters and others, "Research for TRAN Committee - Overtourism: impact and possible policy responses. European Parliament, Policy Department for Structural and Cohesion Policies", (Brussels, European Parliament, Policy Department for Structural and Cohesion Policies, 2018).

¹⁰ UNEP, UNWTO and Ellen MacArthur Foundation, "Global Tourism Plastics Initiative - Recommendations for the tourism sector to continue taking action on plastic pollution during COVID-19 recovery", (2020).

tools could be used to connect Destination Management Organizations (DMO) strategies to national climate change goals and push tourism circularity beyond simply reducing impacts¹¹.

Although the transition towards a more environmentally friendly and circular tourism sector is difficult to carry out, some institutions have already begun to work in this direction (see below the summary of some national initiatives in specific boxes).

At European level it is worth mentioning the “EU Ecolabel for Tourist Accommodation”, an institutional label promoted by the European Commission in the field of tourism which also fosters indirectly some circular principles. The Ecolabel is the official European Union voluntary label for environmental excellence guiding consumers, procurers and businesses towards sustainable goods and services. The Tourist Accommodation’s system has a legal pre-requisite (*The services shall meet all respective legal requirements of the country(ies) in which the tourist accommodation is located, including the obligation for staff to be legally employed and insured*) and it contains 22 mandatory and 45 optional criteria to consider aspects such as general management, energy, water, waste, waste water and others. At the moment there are several hundred of Hotels and Campsites awarded with the EU Ecolabel.

Another European initiative to be mentioned is EMAS (Environment Management and Audit Scheme)-again promoted by the European Commission. Namely, this environmental scheme requires the organization to monitor a number of indicators, and some of them are related to material use, water consumption and sustainable waste management.

Furthermore, the report published by the European Commission “Transition Pathway for Tourism” underlines the importance of applying the principles of the circular economy to tourism and suggests specific actions, consistent with those identified and proposed by IGET. For example, reference is made to reducing the environmental footprint of catering services, reducing waste and increasing water efficiency.

Last but not least, the voluntary commitments promoted by the One Planet Network to accelerate sustainable consumption and production in tourism and address the triple planetary crisis of climate change, biodiversity loss and pollution are mentioned, such as the Glasgow Declaration on Climate Action for Tourism¹² and the Global Tourism Plastics Initiative,¹³ initiatives that have paved the way for businesses and tourist destinations to embrace the principles of the circular economy.

¹¹ Manniche et al., 2017

¹² www.oneplanetnetwork.org/programmes/sustainable-tourism/glasgow-declaration.

¹³ www.oneplanetnetwork.org/programmes/sustainable-tourism/global-tourism-plastics-initiative.

Examples of national initiatives working on the transition towards a more environmentally friendly circular tourism economy



FACET project: Facilitating the introduction of circular entrepreneurship in the tourism & recreation sector

The [Interreg 2 Seas FACET](#) project wants to encourage entrepreneurs in the tourism sector to apply circular solutions within their company, thereby creating new sustainable revenue models. With a strong consortium of project partners from Belgium, England, France and the Netherlands, experiments are being conducted with circular applications in the fields of accommodation, waste reduction and circular operation management.

According to the UN World Tourism Organisation, tourism in this region will increase by 5-8%. However, tourism also entails mass consumption of raw materials. This can grow worldwide by 92% (water) and 189% (land use) in the period 2010-2050 (Tourism Watch) and puts pressure on the already limited raw materials in the region, where industry, agriculture and tourism are already competing.

Throughout the 2 Seas area, FACET locally develops various practical, accessible and small-scale pilot and demonstration projects to help entrepreneurs gain practical knowledge and experience to make circular business models. FACET provides expertise and support in setting up these pilots.

FACET represents a change in thinking, that is what circular entrepreneurship is all about. The project collects examples per theme (waste management, circular building, water management, joint purchase, sustainable packaging and renewable energy) fascinating and inspiring other organizations.

In the context of FACET, the French experience "Territorial Touristic Ecology (TTE)" should be noted. TTE is a way of looking at circular touristic entrepreneurship involving the touristic value chain players located in a same territory and the territory in which the project takes place. TTE aims to optimize the resources in a given tourist area, whether in terms of energy, water, materials, waste but also equipment and expertise, knowledge and human resources, through a systemic approach inspired by the functioning of natural ecosystems.



Project “Reduce food waste, cook for your guests”

The Environmental Protection and Energy Efficiency Fund in collaboration with the Ministry of Tourism and Sports and the Ministry of Economy and Sustainable Development is implementing the pilot project **“Reduce food waste, cook for your guests”**.

The project aims to reduce the quantities of biowaste (most of which is food waste) in hotels and introduce proper separate collection and disposal of waste produced by hotels. The project was launched in 2021 in two Croatian hotels – in Osijek and in Pula. Waste quantities were measured in compliance with the methodology stipulated in the Delegated Commission Decision (EU 2019/1597) and financial savings related to food waste were calculated. Workshops for hotel staff were held and the best practice examples presented, such as the hotels that are already implementing the practice of planning meal orders, prudent portion size estimates, or that have adapted their meal serving practices. Along with reducing waste quantities using the methods and processes implemented by hotel staff, another goal of the project is raising awareness of hotel guests about the importance of reducing food waste and losses.

The data collected in 2021 and 2022 show that small and financially minor methods can reduce the share of food waste during preparation, serving, and eating the food by 20%, while using food waste digesters can save up to 70% of costs for food waste disposal. In 2022, eight more hotels joined the project.

A handbook for hotels has been published as a valuable tool for reducing food waste (available at: <https://www.fzoeu.hr/UserDocsImages/brochures/Priru%C4%8Dnik%20za%20hotele%20-%20Smanji%20otpad%20od%20hrane%20kuhaj%20za%20svoje%20goste%20EN.pdf?vel=4128655>)

More information about the project at: <http://www.fzoeu.hr/en/conclusion-of-pilot-project-reduce-food-waste-cook-for-your-guests/9056> ; <http://www.fzoeu.hr/en/guidebook-for-hotels-reduce-food-waste-cook-for-your-guests/8828>



Effectiveness of the “Ecological Beach” Model in Italy

The BARGAIN project aims to combine the needs of use of the beaches with the protection of coastal ecosystems in a pilot model of ECOLOGICAL BEACH exportable on a national / international scale.

This new management model of beached Posidonia deposits that avoids their transfer to landfills and, in cases where it is not possible to keep them on site, promotes reuse in line with the principles of the circular economy and in respect of coastal ecosystems.

One of the objectives of the project is to promote synergies with local production realities, according to the principles and purposes of the circular economy with the aim of avoiding landfilling.

The plant residues that accumulate along the coasts have been used, throughout history, for different purposes: construction material for roofs, thermal and acoustic insulation, the creation of various artifacts, packaging or padding material, medicine and phytocosmetics.

The project envisages a collaboration between public research organizations present on the regional territory: ISPRA Rome (Lead Partner), ENEA Casaccia and the University of Tor Vergata.

<https://www.isprambiente.gov.it/it/progetti/cartella-progetti-in-corso/progetti-mare/bargain>



+Sustainable Tourism Plan 20-23 – working on circular economy

Turismo de Portugal, the National Authority for Tourism, recently launched the “**+Sustainable Tourism Plan 20-23**” which includes 4 Axis (Structure an increasingly sustainable supply; Qualify Tourism Professionals; Promote Portugal as a sustainable destination; Monitor sustainability metrics) and 119 projects in different thematic areas. **Circular Economy** is one of them. Good Practices Guides were developed on Circular Economy in Accommodation and Restaurants, Reduction of Single Use Plastic in Accommodation and Tour Operators, Sustainable Building for Accommodation and Neutral Carbon on Accommodation (all the Guides are available on the project website). Webinars were made to present the Guides and different projects with good practices implemented. Circular Economy is also part of the Training Course “Upgrade Sustainability”(45 hours) for Tourism Business.

[Sustainable Tourism Plan 20-23 - Turismo de Portugal](#)

<https://business.turismodeportugal.pt/pt/crescer/sustentabilidade/Paginas/guias-ferramentas-projeto-turismo-sustentavel-um-melhor-futuro-para-com-todos.aspx>

https://academiadigital.turismodeportugal.pt/index.php?option=com_training&task=catalogo&Itemid=102&area=51

European Environmental Protection Agencies (EPAs) can play an influential role to encourage, support and incentivise tourism businesses to pursue sound environmental management and adopt green business models.

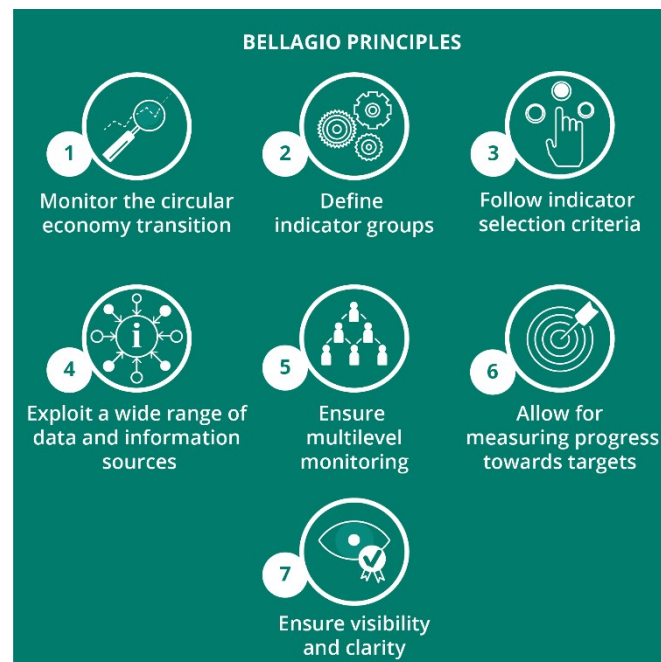
Governments, at all levels, can play a valuable role in conjunction with industry bodies in promoting sound environmental practice in individual tourism businesses. Actions may include:

- promoting sustainable tourism certification, based on internationally recognised environmental standards (i.e. EU Ecolabel, EMAS);
- providing guidance and supporting skills training in environmental management;
- establishing economic incentives and financial assistance linked to good practice;
- strengthening and more effectively applying, regulation, where required;
- highlighting good practice case studies in marketing and award schemes.

6. How can we measure the circularity of the tourism sector

A simple and effective monitoring framework was proposed in the first EU circular action plan addressed to economy. The European Commission and Eurostat are working together to improve and update the first core set of indicators (10 indicators) used to monitor the Circular Economy in Europe. However, the development of indicators is still in a preliminary phase both at European and international level.

With the aim of monitoring the transition to a circular economy the Environment Protection Agencies together with other European Institutions are promoting the “**Bellagio Declaration**” and its principles.



Seven principles for monitoring the transition to a Circular Economy



Monitor the Circular Economy Transition

Monitoring the transition towards a circular economy needs to holistically consider all relevant initiatives – public and private - across the economy. It should capture the full extent of changes happening to the material and waste flows, products over their life cycles, business models, and consumer behaviour, including the economic, environmental and social dimensions of these changes.



Define indicator groups

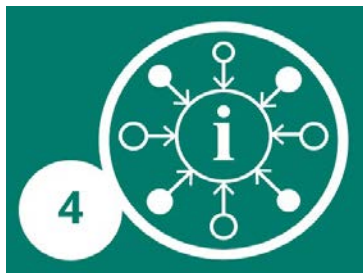
A robust monitoring system for the Circular Economy transition should include:

- Material and waste flow indicators to monitor changes throughout the material life cycle including resource efficiency dimensions.
- Environmental footprint indicators to capture the impacts across the full life cycle of products and materials, so that spill-over effects are assessed, and planetary boundaries are respected.
- Economic and social impact indicators to capture positive as well as negative impacts that may occur during the structural changes of the circular economy transition.
- Policy, process, and behaviour indicators to capture the implementation of specific Circular Economy policy measures and initiatives, in particular for key sectors.



Follow indicator selection criteria (RACER)

Indicators included in a transparent monitoring framework for the Circular Economy transition should follow RACER criteria: Relevant, Accepted, Credible, Easy to monitor, and Robust. However, development of innovative, experimental indicators should also be encouraged, even if not all RACER criteria may initially be fulfilled.



Exploit a wide range of data and information sources

The data underpinning a monitoring framework for the Circular Economy Transition may consist of:

- Official statistics from the European Statistical System or National Statistical Offices, other data produced by EU institutions, national or local authorities, as well as from international organisations – Exploiting and integrating official information sources.

- Policy information – Tracking policy developments and implementation including qualitative assessments.

- New data sources – Exploiting new information sources beyond official statistics, such as data from the private sector and trade associations, research models, or from new applications of digital technologies.



Ensure multilevel monitoring

Monitoring should capture changes happening across all levels of the economy. It should address both public and private sector stakeholders, and different governance levels from global to local scale. A well-defined monitoring and governance structure is required to promote the development of coherent metrics that capture the multiple dimensions of the circular economy transition.



Allow for measuring progress towards targets

Monitoring Circular Economy implementation should help assess progress to relevant policy targets and objectives, thus helping inform if the right policies are in place and well implemented, or if corrections or new policies are needed.



Ensure visibility and clarity

A well-designed Circular Economy monitoring framework will inform policy makers, stakeholders and citizens. Appropriate indicators as well as user friendly methods of communication, such as dashboards, should therefore be identified.

Where possible, open data principles should be followed, with data being made fully and freely available.

The integrated approach proposed by UNWTO represents a way forward in a circular economy key, but it cannot be the only one, as many indicators could derive from the enhancement of the EPAs environmental monitoring data and from an improvement in environmental terms of the statistics on European tourism.

Operationally, in order to propose relevant indicators to measure and monitor the circular economy tourism development in EU member states, a starting point is to identify key issues in the tourism value chain relevant in terms of environmental impact, contribution to the Sustainable Development Goals and potential for the application of circular principles. In order to do so, it becomes essential to know how to measure environmental impacts (GHG emissions, energy and water consumption) by considering the various phases of the life cycle of the products or tourist services.

Furthermore, in order to identify areas, methods and potential indicators to monitor the various aspects of circularity in tourism, it is essential to focus on comparability at least at the European level. A shared collection of data useful for the purpose and therefore for monitoring the circular aspects and the specific environmental impacts for the tourism sector is necessary.

Due to the still limited application of circular economy principles in the tourism sector, related monitoring activities are also affected.

In Europe, in the tourism sector to date, there are no consolidated experiences of measurement but only sporadic attempts and often limited to specific projects in the field of circular economy, such as the Irish one represented in the appropriate box.

Examples of national initiatives measuring the circularity of the tourism sector



Wild Atlantic Way Operational programme

The Wild Atlantic Way Operational Programme aims to avoid and minimise impacts on the natural environment and to raise awareness and engender protection of the wealth of natural assets along the Atlantic coast. Assessment of the environmental effects of tourism (especially on ecology) can become a major source of delay and uncertainty for plans and projects. Most of these issues arise because of uncertainty about the likely effects of a plan or project that can lead to the 'Precautionary Principle' precluding decision-making where there is uncertainty about the likely effects. It is proposed to address this issue by implementing the Environmental Surveying and Monitoring programme which will investigate the actual effects of a range of representative tourism activities at a range of sites along the Wild Atlantic Way. The Wild Atlantic Way is Ireland's first long-distance touring route, stretching along the Atlantic coast from Donegal to West Cork. Supported by a substantial programme of infrastructure investment and experiential product development, the project aims to develop a branded route that will achieve greater visibility for the west coast of Ireland in target overseas tourist markets. The Wild Atlantic Way destination brand was developed with a specific objective to be a unifying proposition for the West Coast of Ireland.

Fáilte Ireland is committed to continuous monitoring of the environmental effects of the Wild Atlantic Way and has commissioned a surveying and monitoring strategy which will identify environmental impacts of visitors at sites along the Wild Atlantic Way. The monitoring includes the compilation of relevant regional data that is collected by other agencies as well as site specific data collected on behalf of Fáilte Ireland. Future monitoring will expand to include other candidate Discovery points prioritised in order of sensitivity and significance as directed by a Monitoring Group. Part of this work involves the development of generic monitoring methodologies and templates that may be used across a range of sites and conditions.

The Environmental Survey and Monitoring Strategy is intended to produce data relating to:

- movement patterns of visitors at sites along the route;
- variations in visitor/traffic numbers;
- water quality effects at tourism settlements along the route;
- increases in tourism related planning applications;
- patterns of visitor activity, movement and behaviour at candidate Discovery Points and control sites;
- an indication of types of impacting activities at candidate Discovery Points and control sites;
- an indication of extent of ecological effect zones at candidate Discovery Points and control sites; and the need and type of mitigation responses.

The Strategy for Environmental Surveying and Monitoring is an evolving tool that will be informed and updated by emerging findings. It promotes an opportunity to set a precedent for monitoring and to carry out research into the likely effects of implementing the Wild Atlantic Way Operational Programme. The results will facilitate a best practice approach when incorporating environmental considerations into all aspects of route implementation.

[https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/2_Develop_Your_Business/Key%20Projects/Wild-Atlantic-Way-Operational-Programme_1.pdf]



IMPEL WINE Water Circularity Index

Regarding tourism and water use, depending on type of tourism activity, the use and management of water can differ and require different approaches. Namely, water can be required for basic human uses, like drinking and hygiene, multiple recreational uses, such as swimming pools, for irrigation or ornamental fountains or even for local and/or seasonal activities which are directly linked with tourism, like the production of local products which are mainly consumed or boughten by tourists.

Therefore, tourism activities require water for multiple potable and non-potable uses, which lead to the need of a more sustainable approach on its consumption to avoid over exploitation and pollution of water resources. In a classical approach the water management under the circular economy principles is mainly promoted by the reduction of consumption to promote sustainable water use. This approach is already quite common to see measures in place to reduce potable water and, consequently, the freshwater consumption, such as signs for guest, devices to decrease water flow on tap, automatisms, etc.

Some touristic activities, like for example golf courses, are also implementing measure to reduce water consumption by the promotion of reuse practices, such as the use of treated wastewaters and rain waters.




However, a more complex approach is needed since a real transition to a circular model can only be achieved by seeing the water under an integrated approach as a means of transport, a source of energy and a service. To deal with these aspects, IMPEL network (European Union Network for the Implementation and Enforcement of Environmental Law) has developed an index to measure the circularity of the water use taking into account both quantitative and qualitative aspects.

Portugal intended to use this type of tool to define the most suitable measures and synergies to adopt in certain practices to promote more sustainable activities. One of the examples, is the production of sugar cane rum in Madeira Island, which is a historical, local and seasonal product with high importance to the insular region due to high consumption by tourists. However, old and inadequate practices have severe impacts on the environment, namely on the aquatic environment, due to organic load and pH. The use of the circularity index may allow an understanding of which practices are needed or could be implemented to improve the environmental compliance and, thus the sustainability of this industry, which consequently would lead to a more sustainable tourism linked to the practice. Considering the SDGs, should be noticed that this type of approach allows to promote compliance with the legislation in force, the guarantee of the rights of local populations, the conservation of the natural environment and its biodiversity, the consideration of the cultural heritage and local values. It also allows stimulations of the social and economic development of tourist destinations and ensures the quality of the products, processes and attitudes.

Besides this example, the index can be applied to any other tourism activity that uses water to understand its real sustainability in terms of water use, since a simple reduction of water consumption can promote a higher need of energy, higher loads of chemicals due to the concentration of the wastewaters, with needs for further treatment.

Then, only a more integrated and holistic approach will encourage a better achievement of the SDGs, since the water is linked directly and indirectly with tourism and involved community.

[WINE Water Circularity Index presentation,10th of May \(impel.eu\)](#) ; [Wastewater in Natural Environment \(WiNE\) \(impel.eu\)](#)

INCIRCLE project

INCIRCLE is a project related to the Interreg Mediterranean that gives everyone the chance to become part of the circle and exchange already acquired knowledge, tools, methods and good practices in the field of circular economy applying to the tourism sector.

The knowledge platform is included in this project aiming at:

- Collecting, cataloguing, promoting and sharing of tools, methods and best practices on the theme of circular tourism identified through project activities related to the different territories, with the aim of pooling problems and solutions by sharing models of reference that in other contexts have proved successful;
- Promoting and sharing of "circularity" indicators developed within the project;
- Acting as an online repository for the collection of solutions and outputs developed by INCIRCLE and other MED and Interreg projects active in the field of sustainability and of the principles of the circular economy applied to tourism.

The platform's target group consists of local, regional and national public authorities, sectoral agencies, infrastructure and public service managers, interest groups including NGOs, research and higher education bodies, SMEs, business support organisations, international organisations, EEIG (European Economic Interest Groups), civil society.

<https://incircle.interreg-med.eu/>

At present, although tourism is important for European economies and environmental degradation could considerably reduce the attractiveness of many European destinations, official statistics on the environmental impact of tourism provide only partial information, and almost always with an “accounting scheme” approach.

Official European and national statistical offices need to update their records to account for this new perspective because, both at European and national levels, tourism statistics and environmental statistics are not integrated. This is despite the indications at international level (UNWTO) with the initiative “Statistical Framework for Measuring the Sustainability for Tourism” (SF-MST) based essentially on accounting tools to monitor the economic and environmental aspect of tourism (Tourism Satellite Account and the System of Environmental-Economic Accounting).

The measurement of the environmental pressures of tourism, starting from the integration of existing accounting schemes, tourism and environment satellite account and environmental-economic accounts, is in fact, one of the main objectives of Measuring the Sustainability of Tourism (MST) project.

However, focusing only on the System of Environmental-economic Accounting (SEEA), which is consistent with the National Accounting System (SNA) and not also on environmental data from environmental monitoring activities or environmental statistics that could serve to the elaboration of specific environmental indicators, implies an extreme predominance of the economic and accounting language to the detriment of the truly environmental one.

In order to address this informative gap relating to the availability of primary data, helpful in detecting this nexus between tourism and the environment, the Environment Protection Agencies

(EPAs), holders of environmental monitoring data, could share their information bases and collaborate to address environmental aspects above all pressures and impacts, also in a circular approach, in the current official European statistical surveys.

7. IGET Recommendations and Conclusions

The shift to a circular paradigm for the tourism sector is crucial to revitalize tourism in an equitable and sustainable way in future. Adequate financial resources are needed for the green and digital transformation of the tourism industry and its infrastructure. This will involve investments in making the tourism sector more attractive to consumers, bringing real benefits to companies in the field and ensuring the preservation and ongoing protection of natural and cultural heritage.

At the same time, it would support communities by capitalizing on the services that have supported the tourism industry in times of crisis, by building (in a sustainable way) on the opportunity to create stronger ties with local communities that rely heavily on tourism. Doing so it will continue to bring social and economic benefits into those areas.

In other words, medium to long-term investments in the tourism sector are needed for establishing a program that focuses on innovation and the environment, prioritizing an integrated sustainable management and protection of the natural heritage, applying a circular approach in resource use.

It is also necessary to develop a series of common environmental indicators, at EU level, to allow the monitoring of environmental impacts associated with tourism, with a view to the implementation of a circular approach to tourism within each Member State.

The existing indicator systems for the tourism industry are still insufficient; most of which related to the economic and management aspects of the sector. With the aim of integrating tourism activities within sustainable patterns, it is necessary to also incorporate high level environmental indicators into the monitoring and reporting regimes.

Environment Protection Agencies (EPAs), due to their role as holders of reliable environmental monitoring data for environmental assessment, can play an important role in this effort, within each country.

The geographical level (national, regional and local), the type of tourism (coastal, mountain, urban, etc.), the factors (waste, pollution, transport, etc.), the vulnerabilities of environmental components (soil, air, water, etc.) are all examples of the issues that need to be considered. The use of environmental mapping such as through the EU Copernicus programme (European Union's Earth observation programme) could be improved and further developed.

When considering sustainable tourism developments, the challenge of incorporating environmental knowledge, should be also taken into account at the same level as other variables. The fragmented efforts of individual countries and organizations lack of coordination and harmonisation at European (or transnational) level.

Therefore, it is recommended to have a “data” governance approach that considers the environmental aspects of tourism and uses all available relevant tools in an integrated way. Additionally, we need to coordinate and promote the integration of environmental considerations and sustainability to a greater extent when preparing tourism related plans at all levels (national level down to local level) to focus more on the achievement of a circular and environmentally sustainable tourism sector.

Environment Protection Agencies (EPAs), can play an important role in the overall transition process and through the EPA Network Interest Group on Environment and Tourism (IGET) could provide a crucial contribution by:

- Sharing the expertise and data of environmental monitoring;
- Contributing to suggest the identification and planning of the production processes of basic data useful for monitoring the environmental dimension of sustainability of tourism and the environmental impacts generated or suffered by tourism (contributing to European statistical governance);
- Contributing to the debate on carrying capacity;
- Suggesting eco-compatible actions/solutions for the tourism supply chain, including water efficiency;
- Suggesting actions for sustainable tourism and promote the sustainability of nature-based solutions in the tourism ecosystem;
- Suggesting solutions to guarantee a transformation of the value chains of the tourism sector, favoring a circular approach capable of reducing the economic losses of the supply chain in consistency with European policies on circular economy and waste management;
- Supporting policy coordination actions in the implementation of the recovery and resilience plans, promoting an environmental sustainable tourist offer.