


# Steps forward to adopt a circular economy strategy by the tourism industry

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Tourism industry is strongly connected with economic growth and urban development especially in coastal areas. In particular, the total European Union (EU) coastal holiday business was appraised at a Gross Value Added of €159 bln, that is, close to one-third of its total maritime economy, while the total employment is almost 2.7 mln full-time equivalent jobs. In Europe alone, with more than 500mln arrivals per year, the tourism industry represents nearly 12mln direct jobs, within 2mln enterprises, with the direct turnover to be around €610 bln per year. On the other hand, tourist development disturbs the metabolism of tourist areas mainly due to waste generation, use of local resources, and numerous elements of infrastructure that must be constructed and operated, most commonly during the summer months, to cover tourists' needs. Unfortunately, existing data are scarce and mostly based on tourism industry as a whole, lacking a destination-based focus at this point, that would highlight the adverse environmental effects imparted on specific tourism areas.

Overall, besides the economic advantages, there is strong evidence that tourist activities also add significant pressures on the environment. Among them, waste generation is one of the most important, as it translates into a larger environmental footprint and extreme environmental pressures, especially on coastal areas ecosystems, mainly in the form of pollution and subsequent loss of biodiversity, discouraging others from traveling to such impacted destinations. This is further intensified by over-tourism, a vital, clear, and present challenge in many locations around the globe, increasing massively the pressure on many ecosystems. As an example, if no actions are taken by the key tourism stakeholders soon enough, the weight of plastics that end up in our seas is estimated to be much higher than the weight of fish over the next decades. Furthermore, it is estimated that the global amount of solid waste generated by tourism enterprises is more than 35 million tonnes annually. In general, tourists could produce up to twice as much solid waste per capita as local populations and waste from accommodation has similar features to mixed household waste, being composed of a miscellaneous mix of materials, counting mainly organics (i.e. food waste) as well as hazardous materials (sanitary, batteries, etc.), that can create noteworthy environmental impacts upon disposal (particularly through Green Houses Gas (GHG) emissions and leaching of toxic materials). It is estimated that hotels create about 1 kg of unsorted waste per guest per night. The major waste fractions produced by hotels are organic, plastics, glass cardboard, and paper, metals, green waste, and others. It is noted that organics originate mainly from food and beverage activities, for example preparing breakfast and

meals for in-house restaurants. It should be noted, again, that destination-specific data and data from complete, thorough and integrated case studies are presently lacking.

Nowadays, a circular economy (CE) strategy along with the United Nations (UN) sustainable development goals (SDGs) agenda, the EU Green Deal, and the United States of America (USA) Green New Deal are gaining momentum as a means to combat climate change and contribute to environmental sustainability by tackling waste as a resource on a global scale. A new mindset to boost circular business models in the tourism industry seems to be a necessary step forward, to improve environmental performance, while at the same time generate cost savings and growth of revenue and also help create new local jobs. This step forward approach should be based on the adoption of Environmental Management Systems (EMS) principles as well as on the adoption of initiatives based on “R” strategies (e.g. reused, re-proposed, re-manufacture, resource efficient, reorganized, re-designed, recover, prevention, etc.), where training and inspiration of employees and customers are vital. Although this is already the case for some of the players involved, mostly large and luxury hotel brands, as already mentioned there is not much-published data, especially in the form of case studies and detailed assessments of stakeholder engagement to effectively achieve the environmental performance objectives. Moreover, this new step forward approach should be adopted across the entire tourism chain, along with a strong commitment from all stakeholders. In this effort, local competent authorities should play a vital role in providing and promoting favorable measures for hotels with high environmental performance, such as tax breaks, reduction of administrative fees, extension of permits validity, reduction of financial guarantees, green public procurement, credit access, and funding support. In general, if this regulatory relief will be implemented it will significantly help the tourism industry to adopt the targets set forth by CE, the EU Green Deal, the USA Green New Deal, and most importantly by the UN SDGs and the zero-waste approach (e.g. by reducing pollution and the presence of micro-plastics in coastal areas and beyond). Furthermore, it will help increase hotels' environmental performance and efficiency in their profitability by reducing resource consumption and making these destinations more attractive. Moreover, other soft activities, such as the gamification of the environmental objectives by developing and using mobile phone applications, may attract engagement in the new waste management strategies that hotels and/or the tourist promotion industry apply.

Reducing the volume of food wastes generated by the tourism industry and their subsequent disposal in landfills is also crucial, as the processing of 1 t of food waste can produce approximately 200 m<sup>3</sup> of biogas and emit approximately 0.35 t of CO<sub>2</sub>. Based on current estimates, if food waste was a country, it would be the 3<sup>rd</sup> largest emitter of GHGs with almost 4 bln t CO<sub>2</sub> equivalent per year. Managing tourism industry-generated food wastes (either for energy recovery or compost production) could make a vital contribution to climate change and pollution mitigation and preservation of biodiversity. The implementation of waste management strategies (such as waste prevention, zero-waste approach, upcycling etc.) based on real facts (i.e. waste generation index, waste accumulation rate, waste production rate, waste compositional analysis, clean coast index, waste recycling index, waste recovery index, material flow analysis, etc.) in this new mindset poses a real challenge for the tourism industry, as tourism has over the last decades already substantially expanded. Equally importantly, following adoption of this approach, a carefully designed monitoring plan is essential to gradually improve performance through periodic adjustment to the approach as new information becomes available.

Circular economy in many countries, such as China, is encouraged as a top-down national policy, while mostly in EU, USA, and Japan, it is a tool to design bottom-up environmental and waste management strategies and/or policies. To adopt a CE strategy, whether a top-down or a bottom-up approach, a new international standard must be developed, promoted, and advertised the soonest possible, from a widely accepted organization, such as the International Standard Organization (ISO). This standard should be efficient but also simple enough to be used by all kinds and sizes of tourism organizations in any geographical area that aims at shifting from a linear to a CE model. All this, by increasing the effectiveness of the circular use of resources, while at the same time endorsing economic and social benefits and effectively engaging the entire stakeholder chain. Regarding this, the ISO has already established in 2018 a Technical Committee on CE. Moreover, the current use of ISO 14001, EMAS, Eco-label, Green-Key etc., should be mandated for all, while waiting for the new international standard to be developed and implemented.

A shift to a CE business model involves more than the implementation of new processes and activities, however. It also requires a new way of identifying value and cooperation within the value chain, and a corresponding change in organizational culture. Enterprises related to the tourism industry must realize that applying the CE framework and philosophy into their organization can take time, however, the result will be a future of sustainability, security, and opportunity that they can in turn use to attain a better position in their respective field of engagement.

The tourism industry in general has been relatively slow to change with the times even though there is evidence that some hotels adopted eco-friendly approaches (i.e. informed the clients to reuse their towels, or supplying in each room dual waste bins one for trash, the other for recyclables, etc.). Yet, in the face of ongoing and growing adverse effects from loss of biodiversity, pollution, climate change and other environmental pressures, it is

imperative that tourism companies move to quickly improve their sustainability performance and adopt effective CE strategies. They should display their achievements through sustainability reports, considering at the same time tourist views and behaviors in the framework of waste management. Moreover, behavioral changes and public participation is key to a functional waste handling system in the tourism industry. It must also be noted that in order for the tourism sector to be able to adopt a CE framework, it has to focus on initiatives that will help to reduce natural resources consumption, instead of helping the continuation of existing “one way” consumption patterns. This cannot be elaborated without interaction with other participants in the tourism industry and even beyond. A general approach of implanting CE in the tourism industry may include control of resources and waste through a total quality management system, which will combine all the well-known standards such as ISO 9001, any or all EMS, Corporate Social Responsibility, Health and Safety, the ISO 22000 (food hygiene based on Hazard Analysis Critical Control Point (HACCP) principles) as well as the international standards focused on a CE model. Furthermore, this will include a product and services control (e.g. reuse your towels, power cut-off timer for lights, dual waste bins in hotel rooms, no longer offering plastic straws, etc.) and new practices (i.e. reusable towels and other materials rather than single used in pool activities) that will be adopted from the tourists as well as the operators and owners. Tourist practices should go beyond the traditional customer role, as tourism can very well be a crucial testbed for new types of CE developments, such as demarketing, in order to discourage guests from certain purchases so as to reduce negative impacts (e.g. hoteliers may charge any single used item if the customer asked for it such as straws or could restrict the number of food varieties in buffet menus to avoid food waste). Similarly, commodification of tourist practices by new forms of peer-to-peer accommodation, travel, etc. will help to achieve sustainability by collaborative consumption. This, while decreasing the influence of commodities and effectively limiting the effect of commercialization, as tourists and other relevant stakeholders rent or borrow goods and services rather than buying or owning them. An interesting approach through a gamification concept that would interconnect websites (e.g. Trip Advisor) with the environmental performance of any destination or tourist services (i.e. hotels, restaurants etc.) is on priority as customer rating practices could help the tourist industry to adopt a CE strategy.

Overall, the tourism industry has a vital role to play both in the areas of economic growth and job development and, even more importantly, in sustainable resource management to minimize, if not eliminate, waste production and to improve overall environmental protection and sustainability. Hence, the evolution of the industry toward a CE path in order to minimize its environmental footprint is of paramount importance to all of us. In this respect, International Solid Waste Association (ISWA) as a world-leading organization on the management of solid waste and its numerous dedicated and well-placed professionals, will be called upon to provide the necessary technical expertise, training, and information-innovation development, monitoring, exchange, and

propagation for the effective adoption of a CE strategy by the tourism industry. Also, taking into account the significant scientific knowledge gaps mainly in targeted and thorough case studies, destination-specific data, and detailed assessments of stakeholder engagement to effectively achieve the environmental performance objectives, researchers, practitioners, and regulators are encouraged to publish their pertinent findings on tourism industry's environmental management in WM&R.

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