Sustainability Research Agenda for Tourism, Hospitality and Recreation

Literature review of themes, policies and impacts

CELTH Centre of Expertise
leisure, tourism & hospitality

Breda University OF APPLIED SCIENCES

NHL STENDEN university of applied sciences

HZ UNIVERSITY OF APPLIED SCIENCES

Imprint

Publication
This is a publication of CELTH, Centre of expertise Leisure, Tourism and Hospitality.

Title
"Sustainability Research Agenda for Tourism, Hospitality and Recreation. Literature review of themes, policies and impacts."

Publication date
February 2022

Authors
Eke Eijgelaar, Tamina Reinecke, Paul Peeters (BUas CSTT), Elena Cavagnaro (NHL Stenden AIHR)

Cover photo
Eke Eijgelaar

Table of contents

Introduction

Sustainable development is high on local, national, and international political agendas. Just think of the climate crisis, biodiversity crisis, the nitrogen crisis, the health crisis, the demise of silence and quiet areas, unequal distribution of wealth and extreme poverty, and the stagnating development of the circular economy and challenges of a zero-emissions future. Sustainable development consists of aspects in the field of the environment, people, and the economy, of which some are limiting and some need balancing. The perspective of stakeholders in the sector, companies, governments, residents, customers, and stakeholders is of great importance. The tourism, hospitality & recreation sector (THR) plays a dual role in this: on the one hand, it creates value from natural resources such as the quality of nature, biodiversity, landscape, silence, clean air, and cultural heritage. On the other hand, the THR sector has an impact on climate change, nitrogen oxides, loss of biodiversity and silence, and increasingly also on local communities at destinations. The THR sector is sometimes a frontrunner in providing solutions to crises, but in many cases also lags. For instance, where emissions of carbon dioxide are now slowly reducing in most sectors, those of THR are still on the rise (Scott & Gössling, 2021).

The question is: why is this the case? Is there a lack of knowledge, are legislative incentives pointing in the wrong direction, is the dominant growth paradigm in the THR sector an issue? And if the latter, what exactly is 'growth'? Is it about the growth ambitions of individual entrepreneurs, about scaling up, or about growth of the entire sector? And growth of what? Turnover, profit, number of visitors, number of nights, eco-efficiency, or social impacts? The challenge, in line with the practice of the THR sector, is to find not only economic models and paradigms, but also actions and adaptations that effectively reduce the negative environmental and social impacts of the sector, enhance the positive impacts, help to respond adequately to a rapidly changing (international) policy environment, while maintaining an economically sound sector. Attention also needs to be paid to the role of digitization in both the emergence of the problem and its resolution.

In 2018, the national vision Perspective 2030 was launched by NBTC (NBTC Holland Marketing, 2019). It sketches the sustainable development of destination Netherlands and the changing role of tourism therein. The most important goal is that every Dutch citizen should profit from the THR sector by 2030. Based on this widely supported vision branch organisations, knowledge institutes and national, regional as well as local governments have translated this into an action agenda (EZK, 2019a). It contains concrete actions to achieve the goals set. During the COVID 19 pandemic the Taskforce Cooperation THR Economy (Taskforce Samenwerking Gastvrijheidseconomie) was started by Gastvrij Nederland, NBTC, CELTH, IPO, VNG and the Ministry of Economic Affairs and Climate. After a revision of the action agenda early 2021 (EZK, 2021), the Taskforce has started executing these actions. One of these, overseen by CELTH, concerns drafting a Knowledge Agenda on sustainability.

This agenda aims to describe knowledge gaps and a research agenda for the Dutch situation. But THR is typically also an international sector, with many relations with the rest of the world, be it destinations, source markets or international regulations from the EU or the UN. For instance, the UN Conference on Sustainable Development issued the Sustainable Development Goals (SDGs), in which UN member countries have defined the "future we want". These SDGs play a role in Dutch policymaking and have clear links with the THR sector, so we will link to them where appropriate. The action plan is published as the 2030 Agenda for Sustainable Development (UN, 2015). At the same time, even though the SDGs provide useful goals at a high-level, for this agenda 'sustainability themes' that are more grounded in daily practice and policymaking are applied. The themes are listed in section 0.

Apart from initiatives by the sector, by stakeholders, enterprises, and branch organisations, the THR sector will also have to adapt to a range of local, national, and international policies. For this agenda, many policies that are relevant for THR have been listed. The THR sector comprises all: the enterprises and governing bodies that serve both over-night and same-day visitors in terms of accommodation, events and activities, mobility at and to destinations and services as provided by inbound and outbound tour operators, travel agencies, banks for exchange and payment systems, etc. Also, both international and domestic visitors are incorporated.

This project aims to draft a research agenda for the above themes. The research agenda provides a systematic overview of the relevant policies and issues, and a translation into the potential research questions. This report lays the foundation for the agenda: a literature review of relevant sustainability themes for tourism, national and international policies, and their possible impacts on the THR sector.

In a following step, representatives of key organisations in the THR sector discuss the results of this literature review in a stakeholder meeting. Finally, stakeholder input on the challenges and bottlenecks of the various sub-sectors in relation to the 13 sustainability themes will be gathered through interviews. Ultimately, these are to generate research questions for the definitive knowledge agenda.

Sustainability themes and sub-sectors

General aspects

The sustainability themes

The following thirteen sustainability themes are distinguished (based on the SASTDES-project[1]). This set enables the best focus on specific issues in THR, as legislation/policymaking as well as datasets are also organised around these themes. The themes are:

1. GHG emissions
2. Energy use
3. Air quality
4. Water use
5. Water quality
6. Noise quality
7. Biodiversity quality
8. Safety
9. Landscape quality
10. Sustainable mobility
11. Littering/pollution
12. Waste quantity
13. Social quality

Though many themes affect each other, they all also have their own story to tell, and will generate their own issues and research questions.

Systematic impacts

Beyond the 13 sustainability themes, the circular economy transition systematically impacts the THR sector. A short definition of the circular economy is that of "an economic system that replaces the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes" (Kirchherr et al., 2017, p. 224). The Netherlands aims to become fully circular by 2050 (I&M & EZ, 2016). Strictly understood, circularity also implies the transition to renewable energy sources. The circular economy concept seems promising for tourism to reduce its impacts and reach its emission goals. First explorative studies have been conducted on how the circular economy paradigm can be adapted in tourism (e.g., UNECE, PbL)[2]. The circular concept, in contrast to the growth paradigm, demands systematically rethinking operations, supply and tourism transport. Potential research questions are:

- How do tourism businesses implement current policies and regulations on environmental and climate issues?
- How do tourism businesses prepare for the energy transition, particularly regarding buildings on one side and the expected increase in energy (and other materials) prices?
- How is tourism affected by circular changes?
- How can tourism co-create policies for a more resilient, innovative, and sustainable future?
- How can tourism involve the local community in its effort to become regenerative?

---

[1] *See* https://pure.buas.nl/en/projects/smart-assessment-sustainable-tourist-destinations-sastdes

[2] *See* https://pure.buas.nl/en/projects/applying-principles-of-circular-economy-to-sustainable-tourism *&*
https://pure.buas.nl/ws/portalfiles/portal/15719182/PBL_Circular_economy_the_impact_of_circular_choices_in_holidaymaking_and_mobility.pdf

Beyond, tourism research needs to take the dynamic changes in the industry into account. The COVID-19 pandemic, digitalization, societal changes, and environmental awareness continue to change travel behaviour and are thus to be considered in sustainability and adaptation studies.

Tourist numbers

Diverse policies on emission reduction and decreasing negative environmental impacts will lead to increased travel costs, especially with regards to transport. Therefore, it is expected that the demand for domestic tourism will increase while outbound tourism numbers decrease slightly. The EU plans on faster border processes and new short time visas may alleviate a drop in international arrivals. Potential research questions are:

- What are tourism businesses and destinations doing to prepare for changing demand?
- What are tourism businesses and destinations doing to prepare for changing travel conditions, including possible de-growth?

Sub-sectors

Accommodations & Restaurants

Climate and environmental policies affect accommodations and restaurants through regulations on operations and construction. Due to high nitrogen emissions, construction is expected to become increasingly difficult, while extreme weather events increase the need for resilient measures in construction. Stronger regulations on biodiversity and coastal management complicate new constructions and expansions. Also, operations are expected to be affected by environmental laws. The shift to renewable energies demands new energy infrastructure (e.g., less gas, more solar). Water management plans may restrict water available for consumption by hotel guests and operations. To reduce emission and water consumption, new technologies will need to be implemented. Regulations on (food) waste put pressure on waste management and product sourcing. New structures of travel behaviour (e.g., by train and electric cars) demand adapted services such as charging stations and shuttle services. On the social side, integration of buildings in and outreach to the existing community is an aspect increasingly considered by municipalities. COVID 19 has proven that an increasing number of existing and prospective employees do no longer accept the challenging working condition in the hospitality sector. Moreover, guests are increasingly asking for more sustainable and healthier food choices. Potential research questions are:

- What are accommodations and restaurants currently doing to decrease their direct and indirect environmental impact?
- What opportunities and concerns do tourism stakeholder see in environmental regulations?
- What are tourism stakeholders doing in terms of technological and service transitions?
- What are accommodations and restaurants currently doing to reach out to the surrounding community?
- What are accommodations and restaurants currently doing to accommodate staff wishes for a healthier work balance, fair payment, development paths, inclusivity, gender equity and similar HR /social issues?
- What are accommodations and restaurants currently doing to accommodate for and positively reinforce the increasing wishes of staff and guests for a more sustainable and healthier food choice?

Transport

With a shift to carbon-neutral technologies and less environmental impact, low carbon fuels, electric vehicles and noise reduction technologies will shift investments. Cruise ships and public transport will most likely see an increase in demand and capacity as short-haul flights are restricted and its subsidies reduced. Cruise ships will need to adapt to maritime spatial plans, reduce their negative environmental impact, and address pressings social issues such as discrimination and sexual harassment. Until now, the Dutch mobility strategy is based on expansion and does not include emission reductions and electrification of transport. The National Climate Agreement, however, is more specific in that regard. An update of the mobility strategy is thus to be expected. Potential research questions are:

- How can touristic transport providers engage in co-creating the new mobility strategy?
- What mobility alternatives are considered by the consumer?
- What are the most sustainable transport modes from a life-cycle-perspective?
- What are the most sustainable transport modes from a social perspective (e.g., less invasive, less noisy, more inclusive)?
- How can distances between markets and destinations been reduced? How can markets at short distances be developed over those at longer distances?

Activities

Providers of touristic and leisure activities can expect gradual changes in their operations. New maritime spatial plans and the development of nature areas for biodiversity protection may change spaces in which tourism stakeholders operate. This can have both positive effects, e.g., new activities, and negative effects, e.g. restrictions. Changes in landscape (e.g., wind turbines) may affect the attractiveness of the destination and subsequently its activities. Depending on the activity, regulations on waste management, energy and water consumption affect operations of stakeholders. Moreover, there is an expectation that tourism recovery after COVID 19 should avoid those negative impacts on the community caused i.e. by overtourism. Overall, activities are expected to adapt to climate change impacts, new regulations, and digitalization by transformation. Potential research questions are:

- What are the expected effects of environmental and social policy changes and accompanying developments on tourism stakeholder operations?
- What are the expected effects of actors' expectations that post-Covid 19 recovery will avoid negative impacts on the community on tourism stakeholder operations?

Overview of impacts

The THR sector consists of a range of sub-sectors that all are affected in a different way and at a different level by the sustainability themes and by the sustainable policies. In this section we provide a first expert opinion[3] for both relationships. Sub-sectors are accommodation, restaurants/ cafes, tourism facilities (sports halls to funiculars), aviation, rail/PT, car transport, cruises, and service providers (e.g., tour operators, automobile associations).

Table 1: Overview of the approximate impact per visitor from eight tourism sub-sectors on the sustainability themes. 1 means low impact, 5 high impact.

	GHG emissions	Energy use	Air quality	Water use	Water quality	Noise quality	Biodiversity quality	Safety	Landscape quality	Sustainable mobility	Littering/pollution	Waste quantity	Social quality
Accommodation	3	2	1	4	1	1	1	1	3	1	1	3	2
Restaurants/cafes	2	2	1	4	2	2	4	3	2	1	2	4	2
Tourism facilities	1	1	1	3	1	3	3	3	2	2	3	4	3
Aviation	5	5	3	1	1	4	1	1	2	5	1	1	3
Rail/PT	2	2	1	1	1	3	2	1	2	1	1	1	2
Car transport	4	3	2	1	2	3	3	3	4	5	1	1	3
Cruise	5	5	4	4	2	2	3	3	3	5	2	4	3
Service providers	4	4	2	3	2	3	3	2	3	4	3	2	3

---

[3] *Expert opinion is provided by the authors of this report and other researchers of BUas CSTT.*

Sustainability Research Agenda for Tourism, Hospitality and Recreation - Literature review

Political arenas

UN Sustainable Development Goals

In 2012, the UN Conference on Sustainable Development was the birth of the Sustainable Development Goals in which UN member countries defined the "future we want" and in 2015 created an action plan on how to transform the world, the 2030 Agenda for Sustainable Development. The Division for Sustainable Development Goals (DSDG) aims to "provide substantive support and capacity-building for the goals and their relate thematic issues" (UN, 2021). The SDGs directly address tourism in SDGs 8, 12 and 14, but THR affects and is affected by all SDGs (see UNWTO-UNDP, 2017):

- SDG 8 (Decent Work and Economic Growth): "By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products"
- SDG 12 (Responsible consumption and production): "Develop and implement tool to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products".
- SDG 14 (Life below water): "by 2030 increase the economic benefits to SIDS and LDCs from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism".

Beyond, the UNWTO sees opportunities in tourism for innovation and resource-efficiency in the fields of energy consumption, water consumption, urban infrastructure, and nature conservation. Tourism businesses can mitigate negative impacts and raise awareness amongst tourists about a more sustainable operation (UNWTO, 2021). The Dutch interpretation of SDGs does not link to tourism yet (SDGnederland.nl). Critics observe that budgets and responsibilities for tourism growth and sustainability goals are separate, which shows to be ineffective in controlling over-tourism or tourism impacts (Koole, 2019). Spatial planning in coastal areas under the blue economy growth paradigm acknowledges usage conflicts between navy transport, renewable energy production offshore, some local economics activities such as fisheries and tourism, but does not provide pathways or regulations on spatial planning yet. Therefore, the SDGs can be interpreted as potential pathways in line with international agreements. Those are to be interpreted by national governments for sectors and goals and in response to local environmental, social and economic challenges in relation to tourism (for some first analyses of such national policy reports, see UNWTO-UNDP, 2017; UNWTO-UNEP, 2019). They are no trajectories or regulation for tourism businesses. In tourism, they tend to be adopted to further justify and prolong the incumbent growth through in-novation paradigm (see e.g. Hall, 2019) and say little about alternative approaches. Therefore, SDGs can be used as inspiration for action, but not to identify core issues and solutions. Potential research questions are:

- How are the SDGs implemented in tourism businesses and are they useful to decrease environmental and social impacts of those businesses?
- How have SDGs been translated into national tourism policies? By whom and with what intention?

Source: UNWTO

National policies

Until now, the sustainable development implications of tourism and for tourism have been marginalized in policy making. The Perspective Netherlands 2030 aims to push sustainable development in the Dutch tourism industry (NBTC Holland Marketing, 2019). It focuses on destination attractiveness, accessibility, and sustainability. Regarding the latter, it stresses the large carbon footprint of Dutch tourism, and the role of aviation as well as inbound visitors therein. The Perspective notes that visitor growth will result in increases of emissions, consumption, food waste, pollution and impacts on nature. It further refers to the climate target of the current government, stating that "Though not explicitly mentioned in the agreement, the visitor economy can structurally contribute to this goal by prioritising the making of transport, accommodation and entertainment more sustainable. This is not so much a responsibility as an opportunity" (NBTC Holland Marketing, 2019, p. 16). Single initiatives restrict tourism travel, such as 'The Civil Aviation Policy Memorandum 2020-2050' restricts the expansion of airports due to environmental and nuisance impacts, which restricts emissions and growth in tourism. On a municipal or provincial basis, the relations between tourism and sustainable development issues have received special attention in a few cases (e.g. Schouwen-Duiveland, and Provincie Fryslân, 2020). Beyond the few case studies, there is little regulation on tourism in sight of environmental and social sustainability issues in the Netherlands. Potential research question is:

- To what extent is the impact of tourism on sustainable development issues incorporated in regulation and policy?

Tourism is a cross-sectoral industry and highly heterogenic, which means that policy impacts are business specific. It also means that tourism needs are marginalized in the development of policies and small and heterogenic tourism stakeholders seldom have a lobby in co-creating policies. Tourism becomes more of a receiver of polices than a co-creator of those. Potential research questions are:

- How are these policymaking processes reinforcing and what opportunities does tourism have to co-create environmental and circular policies on one side and caring that tourism reinforce the socio-cultural heritage of a destination on the other?
- Who is responsible for the policies?
- What indicators are used to determine the success of the policy?

International policies

EU directives are not binding for EU citizens until they are translated into national law. In most cases, EU directives are eventually adapted into national law in an adapted format. Therefore, regarding the future of tourism, it may be interesting to investigate EU directives as a way of forecasting policy changes and adapting long-term investments accordingly.

- What impact do EU policies and international trajectories (e.g., by UNWTO, WTTC) have on Dutch tourism stakeholders?

Overview impact policies on tourism subsectors

The tourism sector consists of a range of sub-sectors that all are affected in a different way and at a different level by policymaking on the different themes. In this section we provide a first expert opinion for that relationship. Sub-sectors are accommodation, restaurants/cafes, tourism facilities (sports halls to funiculars), cruises, aviation, rail/PT, car transport, and service providers (from tour operators to automobile associations). The table shows the main policies, with an impact estimate for each subsector. These and several more policies are discussed in the next chapter.

Table 2: Overview of the approximate impact per policy on the eight tourism sub-sectors. 1 means low impact, 5 high impact. White cells show undefined or non-existent relations.

	Accommodation	Restaurants/cafes	Tourism facilities	Aviation	Rail/PT	Car transport	Cruises	Service providers
National Climate Agreement	3	3	3	5	4	5	3	2
EU Green Deal: Climate law	3	3	3	5	5	5	3	2
EU Green Deal: Mobility strategy	1	1	2	4	5	5		3
EU Green Deal: Biodiversity Strategy 2030	2	4	2	1	1	2	4	1
EU Green Deal - circular economy	3	4	3	2	2	3	3	2
Aviation Memorandum	1	1	1	5	3	1	1	2
ICAO CORSIA, Standard, Climate Neutral Growth	1	1	1	5	1	1	1	2
EU Ambient Air Quality Directives	2	2	2	4	3	5	2	1
Wet stikstofreductie en natuurverbetering	3	2	2	4	2	4		3
EU Water Directive	3	2	2	1	1		3	
National Water Plan 2016-2021	2	2	2				1	
Stiltegebieden, geluidswetgeving, MERs	2	2	2	4	3	3	1	2
National Policy on Infrastructure and Spatial Planning	3	3	3	1	4	4	1	
EU single-use plastics	4	5	5	4	4	1	4	4
Perspectief 2030/Rli Waardevol toerisme	3	2	3	2	3	3	2	3
Kustpact	3	2	2	1	1	2	1	2

Themes

Description per theme

The following sections summarise – per theme – the definition/description of each theme, its relation to tourism and to relevant SDGs, followed by the most relevant national and international policies and their likely effects on tourism. Each theme-box ends with the research questions defined at the stakeholder workshops.

GHG Emissions

Item	Description
Definition	Greenhouse gas (GHG) emissions cause the temperature on earth to increase as compared with pre-industrial times (19th century). The most well-known GHG-emission is carbon dioxide (CO_2), but there are several others like Methane, Nitrous Oxygen, certain CFCs and HFCs. Since the industrial revolution, the CO_2 concentration has risen from 270 ppm to 410 in 2020 (Lindsey, 2020). CO_2 and other GHGs cause the atmosphere to capture more energy from sunlight before it is dissipated to space again, which causes the temperature rise. The current temperature anomaly, the change with respect to pre-industrial levels, is 1.15° C (IPCC, 2021), but regional differences are large. Climate change has become one of the worst and most existential environmental issues for humanity (McPherson, 2021). The scientific evidence was already clear and became political by the address of dr. Hansen of NASA to the US Senate in 1988, which contained a strong warning against climate change (Besel, 2013). Currently, the situation develops gravely, because tipping points, which destabilise the global climate system, now emerge (Lenton et al., 2019). At the same time, the Paris Agreement on Climate Change (UNFCCC, 2015), triggered reduction of GHG emissions to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels.
Relation tourism	Tourism causes globally about 5-8% of CO_2-emissions (Scott, 2021) by burning fossil fuels for transport, heating and cooling accommodation and all sorts of tourism activities. Roughly, transport causes 75% of the emissions, accommodation some 20% and other parts of tourism 5% (UNWTO-UNEP-WMO, 2008). The emissions per trip vary extensively depending in the first place on the distance between home and destination, but also on the transport mode used and the type of accommodation. Detailed calculations of the carbon footprint of Dutch holidaymakers show the carbon footprint per trip to range from, for instance, 73 kg CO_2 for a domestic three-day trip by public transport, up to 4.900 kg for a four-week holiday to Australia. Though air travel globally serves only some 22% of all trips, it causes >50% of all emissions due to the long distances covered.
	Tourism is also much affected by climate change because increasingly, currently popular destinations like the Mediterranean become too hot, the number of snow days for winter sports are now quickly declining, and destinations are increasingly destroyed by floods (Eifel, Ardennes), fires (all of the Mediterranean), droughts, storms, and other extreme weather events.
SDGs	

Item	Description
National policies	Klimaatakkoord (EZK, 2019b) (Nationally Determined Contribution, NDC), transport and aviation policies. Goals: -49% emissions in 2030 with respect to 1990 levels (for aviation 0% reduction with respect to 2005 level), energy transition (gas will be exchanged with renewable energy forms).
International policies	UN Paris Agreement (UNFCCC, 2015), EU Green Deal (EC, 2019) and 'Fit for 55' package (EC, 2021a), ICAO CORSIA (ICAO, 2019). Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	GHG Emission policies will affect accommodation because these will have to decarbonise through the climate agreements for buildings. Transport where electric car shares are expected to be 20% by 2030 (PwC, 2021), after which only electric new cars can be sold, leading to around 100% by 2050. More charging infrastructure around tourism accommodations and attractions. Weight reduction in campervans, caravans, etc. Also important for accommodation, public transport use further promoted, walking, cycling and railways and increasing share of public transport busses are existing zero-emission options, mandate to mix 14% expensive sustainable alternative fuels at Dutch airports by 2030 and a carbon cap for all emissions per airport in 2030 at the level of 2005. In general, high-energy, high-carbon parts of tourism will become more expensive; low-carbon options may become more popular as the public increasingly supports reductions. The popular climate compensation or off-setting of emissions by buying credits from others who reduce their emissions, is increasingly criticised as offsets can never reduce overall emissions and the reliability of most offset projects is doubted (Cames et al., 2016).
Main policy impacts	Increased energy cost, increased cost for car travel and aviation, potential constraints to aviation growth, relative better competitive position of public transport and rail travel, further pressure to not apply offsets.
Research questions	<From interviews>
Links other themes	Energy, air quality, sustainable mobility access.

Energy use

Item	Description
Definition	Energy use is strongly linked to GHG emissions, as most energy use in the Netherlands is still largely dependent on fossil fuels. Renewable energies represented 11% of Dutch energy consumption in 2020 (CBS). In the Netherlands, gas is very important for heating, amongst others, but gas extraction has led to earthquakes and other drilling damages. Henceforth, production on the mainland will be strongly reduced in the coming years. At the same time, several low-carbon options like synthetic fuels made from renewable energy and CO_2 from the atmosphere, require large amounts of those renewables. This high energy-use is problematic in a world with a growing shortage of renewable energy and a growing demand from all sectors.
Relation tourism	All of tourism is dependent on energy, and virtually all energy use in tourism is derived from fossil fuels. The distribution of energy use over the different tourism elements is not much different from that of GHG emissions. Total energy use in tourism was estimated at 16,697 PJ in 2010, and forecasted to increase to 44,110 PJ by 2050 (Gössling & Peeters, 2015). Embedded energy, such as in food, is an additional issue. This high energy dependency makes tourism vulnerable in view of the required energy transition. It is already vulnerable to fluctuating energy prices.

Item	Description
SDGs	**13 CLIMATE ACTION** **7 AFFORDABLE AND CLEAN ENERGY**
National policies	Klimaatakkoord (EZK, 2019b) (Nationally Determined Contribution, NDC), transport and aviation policies. Information an many NDC's can be found on Climate and Energy College (2018). Goals: -49% emissions in 2030 with respect to 1990 levels (for aviation 0% reduction with respect to 2005 level), energy transition (gas will be exchanged with renewable energy forms). Aviation Memorandum (I&W, 2020): Blending obligation for sustainable fuels (14% in 2030, 100% in 2050). Production Sustainable Aviation Fuels and eFuels.
International policies	Paris Agreement. EU Green Deal: Climate Law (EP & Council of the EU, 2021); Climate neutral in 2050, (-55% in 2030) through contribution from all sectors. Transition to a safe, sustainable, affordable, and secure energy system. EU Green Deal: Mobility Strategy (EC, 2020d); Towards emission-free transport. Eu Green Deal: Offshore renewable energy (EC, 2020b). Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	See under GHG emissions (4.2.1): Transport, Accommodations, Restaurants, Attractions.
Main policy impacts	See under GHG emissions (4.2.1).
Research questions	<From interviews>
Links other themes	GHG emissions, air quality, sustainable mobility access.

Air quality

Item	Description
Definition	Air quality relates to the absence or presence, i.e. the concentration of air pollutants. Too high concentrations are linked to health issues and eutrophication. It is here limited to outdoor air. The main air pollutants are NO_x, NO_2, SO_2, ammonia, Volatile Organic Compounds (VOCs), carbon monoxide (CO) and Particulate Matter (PM). In the Netherlands, the largest sources for these pollutants are: NO_x – transport, followed by industry; NO_2 – foreign origin and road transport; SO_2 – shipping, refineries and energy production; ammonia – animal husbandry; VOCs - (road) transport; $PM10$ – transport, followed by industry and agriculture (RIVM, n.d.).
Relation tourism	Tourism transport is one element in the various air quality issues that transport causes. Road transport has large shares of carbon monoxide (CO), nitrogen oxides (NO_x), and particulate matter (PM) emissions, while cruise ships are a part of international shipping (NO_x, PM, and sulphur oxides (SO_x)). Aviation is mainly visible through NO_x, whereas rail travel plays a negligible role compared to these other modes. Airplanes NO_x and PM emissions play a role in air quality and health issues around airports. Except for shipping and aviation, air pollutants have decreased for all transport modes in the EU since 1990 (EEA, 2021).

Item	Description
SDGs	**7 AFFORDABLE AND CLEAN ENERGY** **3 GOOD HEALTH AND WELL-BEING**
National policies	Nitrogen crisis/Nitrogen Act (LNV, 2021): Gain nitrogen space, only then spend a limited amount on social and economic activities. Cabinet investments in, among other things, electric taxiing of aircraft and in catalytic converters and shore power facilities.
International policies	EU Ambient Air Quality Directives (2013), under revision (2022)[4]. Various European legal mechanisms are used to address air quality. Low-emission zones in cities, congestion charges, car emission standards, fuel quality requirements, setting of limit or target values for ambient concentrations of pollutants, etc.
Impact on Tourism industry	Possible construction restrictions (accommodations), but also possible development of recreation/tourism in transitional areas: new nature (see Advisory Committee on Nitrogen Problems). Possibly less or no growth in inbound flights, lower emissions from cruise ships during port visits. Shift from air to rail on distances under 750/1000km. Shift from car to rail in getting to airports. Electric car shares are expected to be 20% by 2030 (PwC, 2021), after which only electric new cars can be sold, leading to around 100% by 2050. More charging infrastructure around tourism accommodations and attractions. Weight reduction in campervans, caravans, etc.
Main policy impacts	Increased energy cost, increased cost for car travel and aviation, potential constraints to aviation growth, relative better competitive position of public transport and rail travel.
Research questions	<From interviews>
Links other themes	GHG emissions, energy, sustainable mobility access.

Water use

Item	Description
Definition	Quantitative use of rain-, surface- and groundwater. According to the UN, 2.3 billion people lived in water-stressed countries in 2018.
Relation tourism	Fresh water is an essential resource for tourism. Next to direct consumption, it is used for hygiene, cleaning, swimming, irrigation, artificial snowmaking, landscaping, certain leisure activities, construction processes, and for the production of (bio)fuels. Tourism almost certainly increases overall water consumption. Though in most countries, water use by tourism is less than 5% of domestic water use. Water use in tourism is problematic in a range of destinations due to travel taking place in warm countries during dry seasons, but also for instance in the production of artificial snow for winter tourism (Gössling, 2015). In recent years, the Netherlands has seen regional water shortages during drought spells, with occasional measures taken that limit water consumption. These measures may also affect tourism (mainly pool and shower use). Droughts have also affected the landscapes that tourists visit (e.g. vegetation).

---

[4] *See* https://ec.europa.eu/environment/air/quality/revision_of_the_aaq_directives.htm

Item	Description
SDGs	**6 CLEAN WATER AND SANITATION**
National policies	National Water Plan 2016-2021 (I&M & EZ, 2015). Planning against flooding with water-robust design, developing nature, shipping, agriculture, energy, housing, recreation, cultural heritage, and economy in line with water tasking.
International policies	EU Water Framework Directive (EC DG Environment, 2014). In the Netherlands, the larger water bodies (>50ha) and rivers fall under the Directive ('KRW waterlichamen'). Water scarcity is increasing, advice for the public: reduce consumption, reuse, recycle, buy organic; states: introduce water policy for tourism (among others), apply polluter pays principle, nature-based solutions, governance, research & innovation. Future European Agenda for Tourism 2030/2050 (transition pathway for tourism).
Impact on Tourism industry	Accommodations, restaurants, activities (catering for transport modes): lower water consumption, higher water price, subject to water management plans.
Main policy impacts	tbd
Research questions	<From interviews>
Links other themes	GHG emissions, landscape quality, water quality.

Water quality

Item	Description
Definition	Water quality refers to chemical (33 substances) and ecological characteristics of surface and groundwater. In 2019, the chemical quality of Dutch Framework Directive water bodies was insufficient in 75% of all cases, ecological quality between moderate and poor. The latter mainly due to the biological quality being insufficient in 94% of all cases (CLO, 2020). A large citizen science project found similar poor results for the water quality of small, non-Framework waters (Natuur & Milieu, 2021).
Relation tourism	Good water quality is essential for a range of tourism needs, such as drinking water, recreational use, indirectly through sustaining biodiversity and landscapes, etc. Tourism can affect water quality through insufficient wastewater management, the use of chemicals and pesticides (from gardening to artificial snowmaking), overconsumption and so on. The poor surface water quality in the Netherlands is explicitly noticeable in tourism through bathing restrictions in summer for many water bodies. Water quality is also affecting biodiversity, which has effects on (tourism) landscapes, attractive species, etc.
SDGs	**6 CLEAN WATER AND SANITATION** **3 GOOD HEALTH AND WELL-BEING**
National policies	Waterwet (Rijksoverheid, 2009).
International policies	EU Water Framework Directive (EC DG Environment, 2014). In the Netherlands, the larger water bodies (>50ha) and rivers fall under the Directive ('KRW waterlichamen'). The Netherlands must ensure 'good' water quality by 2027. See water quantity. Future

Item	Description
	European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	Restrictions on wastewater discharge, for example for pleasure boats, marinas, but also recreation & sport facilities.
Main policy impacts	Increased costs for filtering/cleaning wastewater. Improved conditions for bathing water and biodiversity.
Research questions	<From interviews>
Links other themes	Air quality, landscape quality, water use.

Noise quality

Item	Description
Definition	The World Health Organization (WHO) classified traffic noise, including road, rail and air traffic, as the second most important cause of ill health in Western Europe, behind air pollution caused by very fine particulate matter (WHO & JRC, 2011). In the Netherlands, some 70% of all homes suffers an average exposure of more than 50 dB(A) per 24 hours, largely due to road- and air transport. Continuous exposure to noise leads to stress reactions and a heightened chance of cardiovascular diseases, as well as to sleep disturbance. Aviation noise also negatively impacts children's learning (Gezondheidsraad, 2006).
Relation tourism	Transport is the main source of environmental noise in Europe. Aviation causes noise hindrance, mainly around airports, but also on low-level flight paths. The amount of people affected depends on measurement criteria, on which there is a lot of discussion. 113 million people in Europe (the 33 EEA countries) are exposed to day-evening-night noise levels of 55 dB or higher due to road traffic. Railway noise affects 22 million people, aircraft noise 4 million. Aviation noise pollution is also noted in Silence Areas (Stiltegebieden; conflict with tourism air travel e.g. Maastricht Aachen Airport and Zuid-Limburg, (Peeters et al., 2020)). Some 40% of Dutch respondents perceives traffic noise in natural areas as problematic. Without government action, some 30 to 40 per cent of official quiet areas and nature reserves and recreation areas could be affected by noise over time, especially road traffic and aircraft noise (Gezondheidsraad, 2006).
SDGs	
National policies	Wet Geluidshinder (Rijksoverheid, 2017). Wet Milieubeheer (Rijksoverheid, 2022). Aviation Memorandum (I&W, 2020): aviation memorandum allows further growth but must be without hindrance to residents (growth earnings model). Stiltegebieden: preferred limit value and maximum exemption value vary from source and situation.
International policies	EU Environmental Noise Directive (EC, 2002). No strict regulations yet, current stage: determining noise exposure with sound maps and the public involved. WHO Noise Guidelines (WHO, 2018).
Impact on Tourism industry	Incoming/Outbound: slower growth, possible decline, or change composition of incoming markets due to effect on airlines. Domestic: possible positive effect due to less noise.
Main policy impacts	tbd

Item	Description
Research questions	\<From interviews\>
Links other themes	Energy, air quality, sustainable mobility access.

Biodiversity quality

Item	Description
Definition	Biodiversity provides a wide range of ecosystem services, such as food crops, freshwater, and clean air & other essential elements for tourism, e.g. aesthetic landscape or charismatic species. Biodiversity is deemed essential for the continued development of the tourism industry (Christ et al., 2003).
Relation tourism	Tourism contributes to biodiversity loss through land conversion, habitat fragmentation, indirectly through its share in greenhouse gas emissions, overexploitation of natural resources, the spread of invasive species and various types of pollution (UNWTO, 2010).
SDGs	
National policies	Nature conservation Act (Rijksoverheid, 2019). Landowners who preserve their estate and open it to public get tax benefits. Farmers, nature organisations and private landowners get grants to manage the land in a nature-friendly way.
International policies	EU Green Deal: Climate Law (EP & Council of the EU, 2021) - Improving adaptive capacities to minimize the impacts of climate change in a socially balanced way with nature-based solutions. EU Green Deal: Biodiversity Strategy 2030 (EC, 2020a) - Expansion of Natura 2000 areas with strict protection, nature management plan, funding for governance in biodiversity management. Post-2020 global biodiversity framework. UN Convention on Biological Diversity. Upcoming global treaty (UNEP CBD, 2021) - Upcoming Paris-style convention on biodiversity, with potentially far-reaching implications. Objectives include increasing marine/land protected areas to 30% of the global surface, large-scale mitigation of climate change by nature, eliminating US$500 billion in harmful environmental subsidies per year, greatly reducing pollution and biodiversity loss. Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	Increase or decrease in nature reserves accessible to tourism, stricter rules for tourism in nature reserves. Stricter regulations for accommodations etc. Lower subsidies for car and air transport.
Main policy impacts	tbd
Research questions	\<From interviews\>
Links other themes	GHG emissions, air quality, noise quality, water quality, landscape quality, littering & waste.

Safety

Item	Description
Definition	Safety relates to a whole range of risks for persons or sectors, that occur from engaging in a certain activity to simply being in a certain place: from terrorism and crime, to accidents, to diseases and other health impacts, to the effects of economic or environmental crises.

Item	Description
Relation tourism	As part of general transport, tourism transport faces the same safety/accident risks. Hypermobility is also associated with physiological, emotional and social consequences (Cohen & Kantenbacher, 2019). Some tourism activities show relatively high health/safety risks. Conflicts between users of different activities can occur. Food safety is a well-known issue in tourism. Safety can also be an issue where large concentration of visitors occur, varying from accident to crime to terrorism risks. Both tourism transport and high tourist concentrations carry the risk of pathogens spread. Climate change has increased health and safety risks for tourists through more frequent extreme weather events, droughts, extreme heat, flooding, etc. Safety also refers also to THR staff safety. Here concern varies from use of chemical substances for cleaning to emotional labour to sexual harassment.
SDGs	
National policies	General travel advice, ad-hoc regulations such as Dutch (COVID-19) travel regulations.
International policies	EU: coverage of hospital admissions within EU for all EU citizens; consular cooperation; Crisis Readiness Report (WTTC & Global Rescue, 2019); ad-hoc regulations such as COVID-19 travel regulations
Impact on Tourism industry	Travel regulations hinder tourism flows and reliability. Can lead to more bureaucracy and fewer guests in accommodations, restaurants, or overall. Can spur domestic and decrease international tourism.
Main policy impacts	tbd
Research questions	<From interviews>
Links other themes	Sustainable mobility access, social impacts, GHG emissions.

Landscape quality

Item	Description
Definition	Human alteration of the Earth's land surface is one of the causes and consequences of Global Environmental Change. It mainly refers to man-made changes in land cover and land use by humans (for whatever purpose). Land use changes are strongly linked to climate change, biodiversity loss, water issues, etc.
Relation tourism	"The use and conversion of lands is central to tourism. Direct uses of land for tourism and recreation purposes include airports, roads, railways, paths, trails, pedestrian walks, shopping areas, parking, campsites, vacation homes, golf courses, marinas, ski areas, and indirect land use for food production, burying grounds for solid wastes, lands to treat wastewater, and industrial areas required for production (computers, TVs, beds, etc.). The area affected by tourism is thus significantly greater than the directly built area. Land use for tourism represents one of the areas where research is insufficient and where considerable refinement is needed in the future" (Gössling & Peeters, 2015, p. 645). The increase in tourism land use between 2010 and 2050 may even be higher than that of tourism energy use or GHG emissions (Gössling & Peeters, 2015). Tourism land use is partly concentrated in more vulnerable areas, notably coasts.

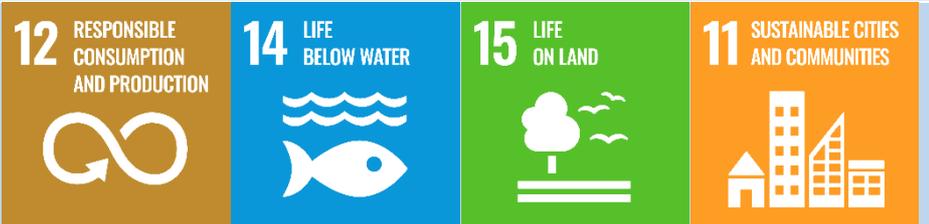| Item	Description
SDGs	
National policies	Kustpact (I&M, 2017).
International policies	No specific policy (but Natura2000 expansion, policies for renewable energies, etcetera, certainly play a role in landscape)
Impact on Tourism industry	Particularly stronger regulations for accommodations, restaurants, and facilities. No new constructions near coastal Natura2000 areas. Kustpact (I&M, 2017) (signed by governmental bodies, recreation and nature orgs) divides the Dutch coast in zones where construction is allowed and under what conditions.
Main policy impacts	tbd
Research questions	<From interviews>
Links other themes	Biodiversity quality, water quality, air quality

Sustainable mobility access

Item	Description
Definition	Sustainable mobility access relates to low-impact transport modes and connections to get to and from destinations, as well as within them.
Relation tourism	Tourism is based on transport, and most travellers to and from the Netherlands currently rely on car and air transport. More sustainable alternatives like train and bus are underused in tourism. Travel within Dutch destinations is a mix of car, public transport, and bicycle, and could move more towards the latter two along with an improved offer.
SDGs	
National policies	Dutch Mobility Strategy. Climate Agreement (EZK, 2019b).
International policies	Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b). EU Green Deal: Mobility Strategy (EC, 2020d): At least [70%] of the local and domestic tourism offer is based on climate neutral travel options, including collective travel.
Impact on Tourism industry	Policy-induced shifts towards cleaner (zero-emission) transport will also require adaptation of tourism offers. Destination accessibility without cars.
Main policy impacts	New urban mobility concepts. From 2025, all new public transport buses must be zero-emission. (2030) emission-free cars, 100 climate-neutral cities, double high-speed train traffic, collective travel under 500 km must be CO2-neutral, automated mobility, emission-free seagoing vessels, and aircraft (2035) are market-ready: (2050) all street transport emission-free; (n.d.) zero-emission airports and ports, carbon pricing, connected and automated multimode mobility, capacity increase inland waterways and railways.

Item	Description
Research questions	<From interviews>
Links other themes	GHG emissions, energy use, air quality

Littering & waste pollution

Littering & waste pollution is an activity where tourists produce uncontrolled waste.

Item	Description
Definition	Littering and waste pollution refers to uncontrolled or unmanaged waste production and disposal, leading to various pollution, social impacts, and management issues.
Relation tourism	In 2011, UNEP estimated that international tourism alone was responsible for 14% of total global municipal solid waste. Tourism waste can stress the local waste management infrastructure, particularly during the high season and in destinations where facilities are still underdeveloped. Tourists play a large role in take-away/one-time-usage products and their (uncontrolled) disposal in various environments (cities, beaches, forests, etc.).
SDGs	
National policies	The Netherlands Circular in 2050 (I&M & EZ, 2016) - Towards 2050 less and less waste, more and more recyclable. Impact in the field of resource use, plastics, mattresses, etc.
International policies	EU Waste Directive (EP & Council of the EU, 2008) - Improve waste management, stimulate innovation in recycling, limit landfilling, reduce food waste by 30% by 2025, separate collection of bio-waste, prevent packaging waste. EU Green Deal - circular economy (EC, 2020c). EU single-use plastics (EP & Council of the EU, 2019). Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	Operational changes for accommodations and restaurants. Waste infrastructure requirements for destinations, transport locations, etc.
Main policy impacts	tbd
Research questions	<From interviews>
Links other themes	Waste quantity, water quality, landscape quality.

Waste quantity

Item	Description
Definition	Waste quantity is linked to overconsumption and overproduction, where an activity produces more waste than is necessarily needed and leads to a large range of issues (disposal, recycling, burning, resource shortages).
Relation tourism	Food consumption in tourism, with an estimated 75 billion meals a year, leads to a range of sustainability issues (Gössling et al., 2011). For instance, food waste in the tourism food service industry is considerable (Martin-Rios et al., 2018). The food waste share of hospitality waste and of restaurant waste is 40 and 60% respectively (Pirani & Arafat, 2014). In 2011, UNEP estimated that international tourism alone was responsible for 14% of total global municipal solid waste. Tourism waste can stress

Item	Description
	the local waste management infrastructure, particularly during the high season and in destinations where facilities are still underdeveloped.
SDGs	**12** RESPONSIBLE CONSUMPTION AND PRODUCTION ∞
National policies	The Netherlands Circular in 2050 (I&M & EZ, 2016) - Towards 2050 less and less waste, more and more recyclable. Impact in the field of resource use, plastics, mattresses, etc.
International policies	EU Waste Directive (EP & Council of the EU, 2008) - Improve waste management, stimulate innovation in recycling, limit landfilling, reduce food waste by 30% by 2025, separate collection of bio-waste, prevent packaging waste. EU Green Deal - circular economy (EC, 2020c). EU single-use plastics (EP & Council of the EU, 2019). Future European Agenda for Tourism 2030/2050 (transition pathway for tourism) (EC, 2021b).
Impact on Tourism industry	Operational changes for accommodations and restaurants (planning, buying, offer, recycling).
Main policy impacts	tbd
Research questions	<From interviews>
Links other themes	Littering & waste pollution

Social quality

Item	Description
Definition	Social quality in linked to the positive and negative impact of tourism, including hospitality, on staff, guests, and the surrounding community
Relation tourism	Staff: According to a study published by ABN AMRO Bank in September 2019, before the COVID-19 pandemic, the Dutch Food Service and Hotel Industries (HORECA) suffered from an annual 47% employee turnover rate leading to an estimated cost of 1.4 billion euros (Driessen, 2019). The report argued that employees in the Netherlands were leaving the industry because of low pay, workload, lack of career opportunities, and inadequate guidance. That HORECA has difficulty in finding and retaining employees is a fact that has been signalled already decades ago. The pre-COVID growth of tourism made finding and retaining staff difficult, but after COVID vacancy rates increased dramatically, while the difficulty to find new staff is exacerbated because laid-off staff found (better) jobs elsewhere and are unwilling to return (Duin, 2020). It is estimated that the Dutch HORECA sector has approximately 14,000 published job vacancies, which is considered a significant shortage of staff (Perachi, 2021). Job pay is increasing consequently. This is a relatively good news for the staff but will inevitably lead to increase in prices for the guests and tourists. A side question hereby is whether the HORECA is prepared for this rise. A second set of issues related to SDG 5 and 8 is gender equality in career opportunities and salary where gender goes further than the dichotomy male/female; emotional labour; working conditions (long hours, low pay, seasonal jobs, sexification of – mainly female – body, on the problematic side). On the bright side, HORECA is champion in training on the job; an expertise that could be better highlighted. Guests/tourists: Related to SDG 3, and particularly for F&B operation, is engaging with healthy and sustainable food in the context of two trends: increased consumption of

Item	Description
	food out of door; slowly but steadily increasing request for healthy and sustainable (including vegetarian and vegan) options. These trends connect and reinforce both the so-called protein transition and the choice for circularity in food production (Geurts et al., 2017). Community: Tourism and hospitality improve the socio-economic perspectives of a community and may contribute to its safety when properly managed. Not properly managed (e.g. overtourism; strong seasonality; displacement of local community for tourists by for example increasing house prices; loss of community services such as food shops and kindergarten) they can lead to deteriorating socio-economic conditions, health, and safety (Fried, 2017)).
SDGs	
National policies	Guests/healthy food: 1) Covenant on fight against obesitas (see Rijksoverheid, n.d.). Can be translated into policy when progress is slow. 2) Transition from animal-based to plant-based protein (LNF, 2020). Community: Perspective 2030: balance tourism-liveability residents (NBTC Holland Marketing, 2019). Plan of action - supporting the transition to circular agriculture (LNF, 2019).
International policies	Staff: gender pay gap and equal pay: According to article 157 of the Treaty on the Functioning of the European Union (TFEU) each EU Member State must ensure the application of the principle of equal pay for men and women for equal work or work of equal value. Staff: labour standards: ILO international labour standards, particularly the Declaration on Fundamental Principles and Rights at Work (1998) outlines the four main principles of freedom of association and the right to collective bargaining, elimination of all forms of forced labour, effective abolition of child labour and non-discrimination in respect of employment and occupation (ILO, 2010); the Tripartite declaration of Principles concerning ME and social policies (amended 2017) on inclusive, responsible, and sustainable workplace practices (ILO, 2017); the Resolution concerning decent work in global supply chain (ILO, 2016). 'Just transition': is a concept recognized in the Paris Agreement and implies that de-carbonisation should consider social impacts, including impacts on labour. ILO has embraced this agenda and established in 2017, an ILO Global Forum on Just Transition. Though not yet institutionalized in laws, this development is expected to increasingly affect collective labour bargains (Bugada et al., 2020). The EU is moving from guiding declarations to bindings laws. See e.g. the Communication on Corporate Social Responsibility: a new EU strategy for the period 2011-2014, on respect for core labour standards, including child labour, forced labour, human trafficking, gender equality, non-discrimination, freedom of association and the right to collective bargaining (EC, 2011). Though the impact of COVID-19 has slowed down further steps to enforce responsible business practices, it is expected the EU efforts will resume soon.
Impact on Tourism industry	Staff: review of the job packages and other relevant HRM processes in accordance with i.a. TFEU 157 and (upcoming) EU policy on core labour standards. Build scenario for integration of environmental protection clauses into labour agreements. Guests: respond to and engage with new (sustainability) development and guests' expectations partly to prevent further legislation on e.g. use of animal protein. Community: Spread tourists over Netherlands.
Main policy impacts	Staff: Gender pay gap and equal pay: According to a recent ruling of the European Court of Justice, TFEU 157 is one of the founding principles of the EU. Therefore, according to

Item	Description
	the judgment (C-624/19) by the European Court of Justice on 3 June 2021, employees can directly invoke the EU law principle of equal pay in disputes between private parties for both 'equal work' and work of 'equal value' (Kliemt.HR, 2021).
	Dutch policies on e.g. obesitas and protein transitions are either non legally binding or focuses on national government's purchasing. In the past, though, when too limited progress was achieved, non-binding covenants become law while guidelines on purchasing were extended from the lower governance layer and impacted widely the sector.
Research questions	<From interviews>
Links other themes	Safety, air quality, biodiversity quality

References

Besel, R. D. (2013). Accommodating climate change science: James Hansen and the rhetorical/political emergence of global warming. *Science in Context, 26*(1), 137-152.

Bugada, A., Rossu, B. z., Tomassetti, P., Kullmann, M., Chacartegui, C., Canalda Criado, S., Zbyszewska, A., & Pillon, M. (2020). *Agreement : Labour and Environmental Sustainability (A green mentality for collective bargaining)*. ADAPT.

Cames, M., Harthan, R. O., Füssler, J. r., Lazarus, M., Lee, C. M., Erickson, P., & Spalding-Fecher, R. (2016). *How additional is the Clean Development Mechanism? Analysis of the application of current tools and proposed alternatives* (CLlMA.B.3/SERl2013/0026r). Öko-Institut.

Christ, C., Hillel, O., Matus, S., & Sweeting, J. (2003). *Tourism and biodiversity: Mapping tourism's global footprint*.

Climate and Energy College. (2018). *NDC & INDC Factsheets*. The University of Melbourne Retrieved 27-04-2018 from *http://climatecollege.unimelb.edu.au/ndc-indc-factsheets*

CLO. (2020, 30.7.2020). *Waterkwaliteit KRW, 2019*. *https://www.clo.nl/indicatoren/nl1438-kwaliteit-oppervlaktewater-krw*

Cohen, S. A., & Kantenbacher, J. (2019). Flying less: personal health and environmental co-benefits. *Journal of Sustainable Tourism*, 1-16. *https://doi.org/10.1080/09669582.2019.1585442*

Driessen, S. (2019). *Staff turnover costs the hospitality industry 1.4 billion annually*. ABN AMRO Bank. *https://www.abnamro.nl/nl/zakelijk/insights/sectoren-en-trends/leisure/verloop-personeel-kost-horeca-jaarlijks-1-4-miljard.html*

Duin, S. (2020). *More unfilled vacancies than before the corona crisis*. ABN AMRO Bank. *https://www.abnamro.nl/nl/zakelijk/insights/sectoren-en-trends/alle-sectoren/meer-onvervulbare-vacatures-dan-voor-coronacrisis.html*

EC. (2002). *Environmental Noise Directive. Directive 2002/49/EC*. Brussels, Belgium.

EC. (2011). *A renewed EU strategy 2011-14 for Corporate Social Responsibility. COM(2011) 681 final*. European Commission.

EC. (2019). *The European Green Deal. COM(2019) 640 final*. European Commission.

EC. (2020a). *EU Biodiversity Strategy for 2030. Bringing nature back into our lives. COM(2020) 380 final*. European Commission.

EC. (2020b). *An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future. SWD(2020) 273 final*. European Commission.

EC. (2020c). *A new Circular Economy Action Plan. For a cleaner and more competitive Europe. COM(2020) 98 final*. European Commission.

EC. (2020d). *Sustainable and Smart Mobility Strategy – putting European transport on track for the future. SWD(2020) 331 final*. European Commission.

EC. (2021a). *'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality. COM(2021) 550 final*. European Commission.

EC. (2021b). *Scenarios towards co-creation of transition pathway for tourism for a more resilient, innovative and sustainable ecosystem. Commission staff working document. SWD(2021) 164 final*. European Commission. *https://ec.europa.eu/docsroom/documents/45977*

EC DG Environment. (2014). *The EU Water Framework Directive*. Publications Office.

EEA. (2021). *Emissions of air pollutants from transport*. *https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-air-pollutants-8/transport-emissions-of-air-pollutants-8*

EP, & Council of the EU. (2008). *Directive 2008/98/EC on waste and repealing certain Directives*. Official Journal of the European Union.

EP, & Council of the EU. (2019). *Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment*. Official Journal of the European Union.

EP, & Council of the EU. (2021). *European Climate Law*. Official Journal of the European Union.

EZK. (2019a). *Actieagenda Perspectief 2030. Bestemming Nederland*. Ministry of Economic Affairs and Climate Policy.

EZK. (2019b). *Climate Agreement*. Ministry of Economic Affairs and Climate Policy, Directorate-General for Climate and Energy, Climate Department.

EZK. (2021). *Herijkte Actieagenda voor de Gastvrijheidssector*. Ministry of Economic Affairs and Climate Policy.

Fried, C. (2017). *Airbnb and House Prices in Amsterdam - Part 1*. *https://medium.com/mobgen/airbnb-and-house-prices-in-amsterdam-part-1-9dc0cbffc136*

Geurts, M. A., van Bakel, A. M., C.T.M, v. R., de Boer, E., & Ocké, M. C. (2017). *Food consumption in the Netherlands and its determinants, Background report to 'What's on our plate? Safe, healthy and sustainable diets in the Netherlands.' RIVM Report 2016-0195*. RIVM *https://www.rivm.nl/bibliotheek/rapporten/2016-0195.pdf*

Gezondheidsraad. (2006). *Stille gebieden en gezondheid*. Gezondheidsraad.

Gössling, S. (2015). New performance indicators for water management in tourism. *Tourism Management, 46*, 233-244. *https://doi.org/http://dx.doi.org/10.1016/j.tourman.2014.06.018*

Gössling, S., Garrod, B., Aall, C., Hille, J., & Peeters, P. (2011). Food management in tourism: Reducing tourism's carbon 'foodprint'. *Tourism Management, 32*(3), 534-543. *https://doi.org/10.1016/j.tourman.2010.04.006*

Gössling, S., & Peeters, P. (2015). Assessing tourism's global environmental impact 1900–2050. *Journal of Sustainable Tourism, 23*(5), 639-659. *https://doi.org/10.1080/09669582.2015.1008500*

Hall, C. M. (2019). Constructing sustainable tourism development: The 2030 agenda and the managerial ecology of sustainable tourism. *Journal of Sustainable Tourism, 27*(7), 1044-1060. *https://doi.org/10.1080/09669582.2018.1560456*

I&M. (2017). *Kustpact*. Rijksoverheid.

I&M, & EZ. (2015). *National Water Plan 2016-2021*. Ministry of Infrastructure and the Environment & Ministry of Economic Affairs.

I&M, & EZ. (2016). *Nederland circulair in 2050. Rijksbreed programma Circulaire Economie*. Ministry of Infrastructure and the Environment & Ministry of Economic Affairs.

I&W. (2020). *Verantwoord vliegen naar 2050. Luchtvaartnota 2020-2050*. Ministry of Infrastructure and Water Management.

ICAO. (2019). *Resolution A40-19: Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*. International Civil Aviation Organization.

ILO. (2010). *ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up*. International Labor Organization.

ILO. (2016). *Resolution concerning decent work in global supply chains*. International Labour Organization.

ILO. (2017). *Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy*. International Labor Organization.

IPCC. (2021). Summary for Policymakers. In V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, & B. Zhou (Eds.), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

Kirchherr, J., Reike, D., & Hekkert, M. (2017, 2017/12/01/). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, conservation and recycling, 127*, 221-232. *https://doi.org/10.1016/j.resconrec.2017.09.005*

Kliemt.HR. (2021). *The European Court of Justice rules on the gender pay gap and equal pay*. *https://iuslaboris.com/insights/the-european-court-of-justice-rules-on-the-gender-pay-gap-and-equal-pay/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn-integration*

Koole, C. (2019). *SDGs in de praktijk: meten met twee maten*. SDG Nederland. Retrieved 17-09-2021 from *https://www.sdgnederland.nl/column/sdgs-in-de-praktijk-meten-met-twee-maten/*

Lenton, T. M., Rockström, J., Gaffney, O., Rahmstorf, S., Richardson, K., Steffen, W., & Schellnhuber, H. J. (2019). Climate tipping points—too risky to bet against. *Nature, 575*, 592-595. *https://doi.org/10.1038/d41586-019-03595-0*

Lindsey, R. (2020). *Climate Change: Atmospheric Carbon Dioxide*. NOAA (Climate.gov). Retrieved 14-09-2021 from

LNF. (2019). *The Dutch government's plan to support the transition to circular agriculture*. Ministry of Agriculture, Nature and Food Quality.

LNF. (2020). *Nationale eiwitstrategie*. Ministry of Agriculture, Nature and Food Quality.

LNV. (2021). Wet van 10 maart 2021 tot wijziging van de Wet natuurbescherming en de Omgevingswet (stikstofreductie en natuurverbetering). *Staatsblad van het Koninkrijk der Nederlanden, 140*.

Martin-Rios, C., Demen-Meier, C., Gössling, S., & Cornuz, C. (2018, 2018/09/01/). Food waste management innovations in the foodservice industry. *Waste Management, 79*, 196-206. *https://doi.org/10.1016/j.wasman.2018.07.033*

McPherson, G. (2021). Rapid Loss of Habitat for Homo sapiens. *Academia Letters, April 2021*(article 498), 8. *https://doi.org/https://doi.org/10.20935/AL498*

Natuur & Milieu. (2021). *Vang de Watermonsters 2021*. Natuur & Milieu.

NBTC Holland Marketing. (2019). *Perspective 2030 Destination the Netherlands: A new vision for destination the Netherlands to benefit all Dutch people*. NBTC Holland Marketing. *https://www.nbtc.nl/en/site/download/perspective-destination-nl-2030-en.htm?disposition=inline*

Peeters, P., Eijgelaar, E., Neelis, I., & van Adrichem, C. (2020). *De impact van luchtvaartgeluid op toerisme en verblijfsrecreatie. Verkennend onderzoek voor Zuid-Limburg*. Breda University of Applied Sciences.

Perachi, V. (2021). *Hospitality industry has 14,000 jobs available in major shortage of staff – Holland Times*. Holland Times. *https://www.hollandtimes.nl/2021-edition-7-september/hospitality-industry-has-14000-jobs-available-in-major-shortage-of-staff/*

Pirani, S. I., & Arafat, H. A. (2014, 2014/12/15/). Solid waste management in the hospitality industry: A review. *Journal of Environmental Management, 146*, 320-336. *https://doi.org/10.1016/j.jenvman.2014.07.038*

Provincie Fryslân. (2020). *Gastvrij Fryslân 2028. Beleidsnota*. Provincie Fryslân.

PwC. (2021). *De haalbaarheid van 28 miljard elektrische autokilometers in 2030*. PwC.

Rijksoverheid. (2009). *Waterwet*. *https://wetten.overheid.nl/BWBR0025458/2021-07-01*

Rijksoverheid. (2017). *Wet geluidhinder*. Rijksoverheid. *https://wetten.overheid.nl/BWBR0003227/2017-05-01*

Rijksoverheid. (2019). *Wet natuurbescherming*. Rijksoverheid. *https://wetten.overheid.nl/BWBR0037552/2019-01-01*

Rijksoverheid. (2022). *Wet milieubeheer*. Rijskoverheid. *https://wetten.overheid.nl/BWBR0003245/2022-01-01*

Rijksoverheid. (n.d.). *Maatregelen overheid tegen overgewicht*. Rijksoverheid. *https://www.rijksoverheid.nl/onderwerpen/overgewicht/overgewicht-terugdringen*

RIVM. (n.d.). *Bronnen per component van luchtverontreiniging*. *https://www.rivm.nl/ggd-richtlijn-medische-milieukunde-luchtkwaliteit-en-gezondheid/toelichting-en-tools-luchtkwaliteit/toelichting-en-tools-luchtkwaliteit/Bronnen-per-component*

Scott, D. (2021). Sustainable Tourism and the Grand Challenge of Climate Change. *Sustainability, 13*(4), 1966. *https://doi.org/10.3390/su13041966*

Scott, D., & Gössling, S. (2021). From Djerba to Glasgow: have declarations on tourism and climate change brought us any closer to meaningful climate action? *Journal of Sustainable Tourism*, 1-24. *https://doi.org/10.1080/09669582.2021.2009488*

UN. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development (RES/70/1). Seventieth session United Nations General Assembly*.

UN. (2021). *About - Division for Sustainable Development Goals*. United Nations, Department of Economic and Social Affairs, Sustainable Development. Retrieved 15-07-2021 from *https://sdgs.un.org/about*

UNEP CBD. (2021). *First draft of the post-2020 global biodiversity framework*. Convention on Biological Diversity.

UNFCCC. (2015). *Adoption of the Paris Agreement. Proposal by the president*. UNFCCC.

UNWTO-UNDP. (2017). *Tourism and the Sustainable Development Goals – Journey to 2030*. UNWTO-UNDP.

UNWTO-UNEP-WMO. (2008). *Climate change and tourism: Responding to global challenges*. *http://www.unwto.org/frameset/frame_sustainable.html*

UNWTO-UNEP. (2019). *Baseline report on the integration of sustainable consumption and production patterns into tourism policies*. UNWTO. *https://doi.org/10.18111/9789284420605*

UNWTO. (2010). *Tourism and Biodiversity – Achieving Common Goals Towards Sustainability*.

UNWTO. (2021). *Tourism in the 2030 Agenda*. UNWTO. Retrieved 15-07-2021 from *https://www.unwto.org/tourism-in-2030-agenda*

WHO. (2018). *Environmental Noise Guidelines for the European Region*. World Health Organization.

WHO, & JRC. (2011). *Burden of disease from environmental noise - quantification of healthy life years lost in Europe*. World Health Organization.

WTTC, & Global Rescue. (2019). *Crisis readiness. Are you prepared and resilient to safeguard your people & destinations?* WTTC.