



Greenhouse Gas Emissions Assessment of the tourism sector in French Polynesia

SYNTHESIS



Soutenu par





Introduction

French Polynesia, committed to a new strategy for tourism development named *Fāri'ira'a Manihini 2027* (FM27) "the welcome that reflects us and binds us together" since late 2022, puts the promotion of inclusive and sustainable tourism at the heart of its concerns. Among the five major axes of development, one axis in particular is dedicated to sustainable and eco-tourism.

It has thus become imperative to assess the contribution of the tourism sector to greenhouse gas emissions in French Polynesia.

Two periods of reference were chosen to as bases for the study. One the one hand, the year 2019, marked by a tourist peak, saw more than 236 000 tourists stay in French Polynesia in land-based or floating accommodation while close to 63 000 excursionists stopped by on transpacific cruise ships. The year 2021, on the other hand, was a year of very low tourist attendance due to the health crisis and numerous restrictions on travel. French Polynesia welcomed less than 83 000 tourists and no excursionist, seeing that cruising activities were suspended in Polynesian waters. The comparison between such dissimilar two years will help to identify and refine the different emission sources.

This greenhouse gas emissions assessment will be the starting point for leading a prospective vision aiming at activating mitigation and adaptation levers through a sectoral action plan for tourism.

As a predominant economic pillar in French Polynesia, the tourism sector, accounting for 77 billion Pacific Francs from tourism revenue, thus marks its participation in the ecological transition goal championed by French Polynesia.

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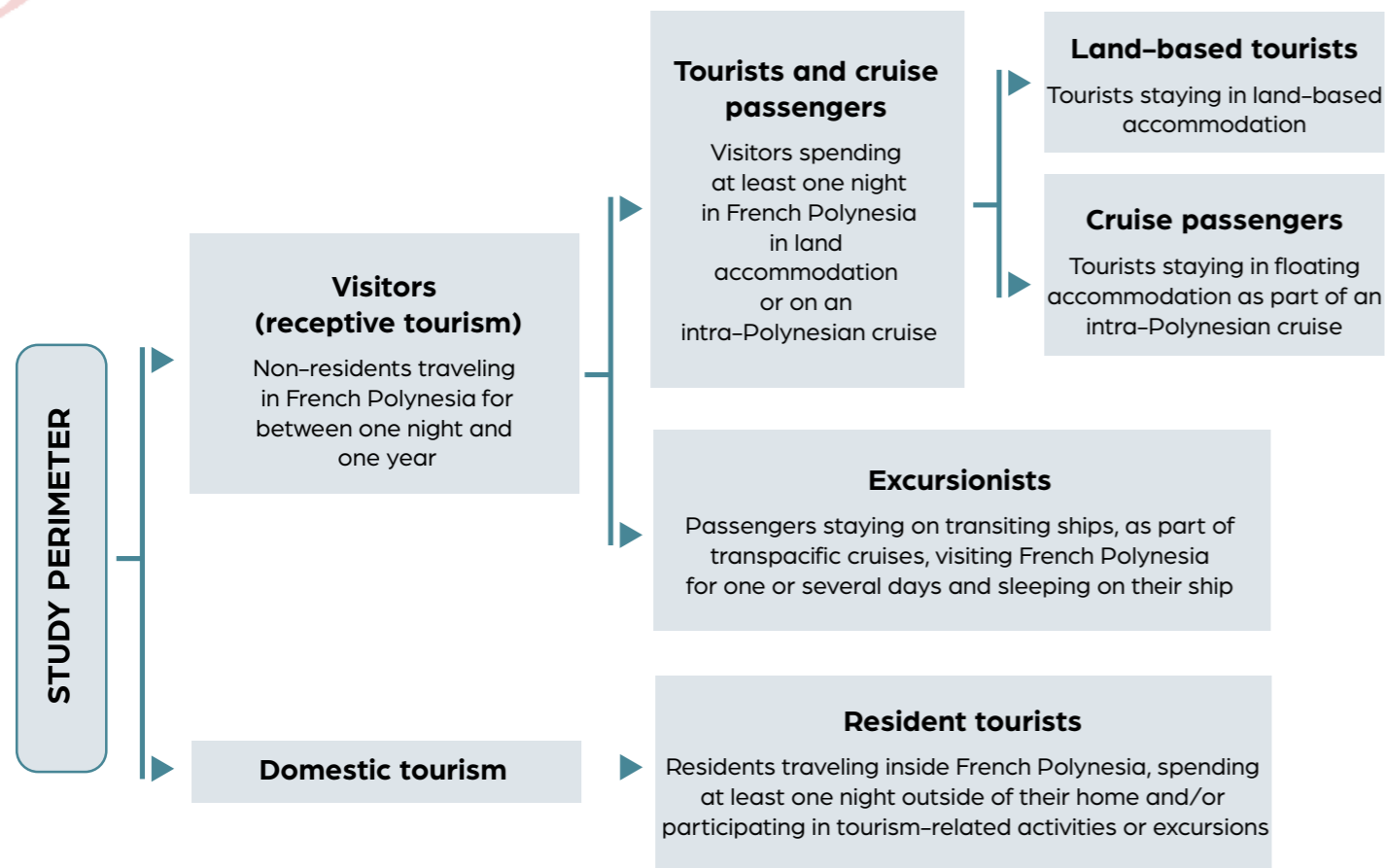
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Study perimeter

The study considers both **receptive and domestic** tourism, in **land-based or floating accommodation**, over all of French Polynesia. The terminology is detailed below.



Business travel is included in the study as well as **leisure travel**.

External tourism, i.e. residents traveling outside of the territory, is not included.

The duration of stay is measured in terms of **nights**, counted as the number of nights per person spent outside of their declared place of residence.

The analysis was run for the **year 2019**, considered as a year representative of the “new norm” of tourism in French Polynesia, before the disruptions caused by the health crisis between 2020 and 2021.

A comparison with the year **2021** is also featured in order to estimate the impact of the Covid-19 pandemic on tourism emissions.

The **data** used in the study was collected from various sources, notably ISPF (the French Polynesian Statistics Institute), Polynesian administrations and institutions, energy providers, local tourism businesses – the latter were subject to specific surveys.

The **emission factors** applied were taken from the French Polynesia-specific version of the French Base Carbone®, last updated in 2023.

The **greenhouse gases** taken into account follow the recommendations of the ISO 14064-1 norm, i.e. Kyoto protocol gases (CO₂, CH₄, N₂O, HFC, PFC, SF₆). Some non-Kyoto refrigerant gases still in use in French Polynesia were also included. Emissions are expressed as CO₂ equivalent on the basis of the GWP100 metric.

Tourism sectors and subsectors



Emissions were considered following a “**carbon footprint**” approach, meaning all emissions related to tourism flows are included, whether direct or indirect, occurring within Polynesian territory or not, with the goal to be as exhaustive as possible. Thus, elements such as transportation towards Polynesia, manufacturing and import of tourism-related goods or construction of buildings (amortized over several years) are taken into account.

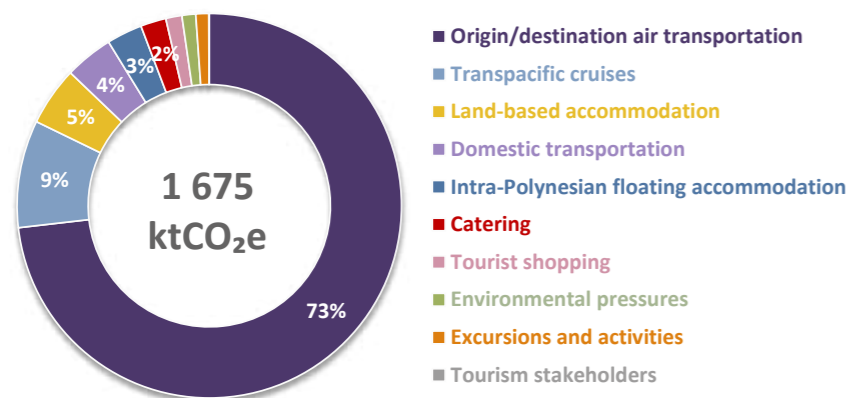
Regarding **excursionists**, the considered emissions correspond to the presence of the ships in Polynesian waters, as well as an estimation of the sailing trip from the previous and towards the next ports of call of the transpacific cruises. Other travels (remainder of the cruise itinerary, trips to and from the cruise’s starting and finishing ports) are not included.

SECTORS	SUBSECTORS	DESCRIPTION
Land-based accommodation	Commercial accommodation	Nights in hotels, Tahitian Guesthouses (including possible in-house dining, including business events in hotels)
	Non-commercial accommodation	Nights in free accommodation, notably at relatives’ or friends’ houses
	Vacation rentals	Nights in tourist housing rented by individuals online, on platforms such as Airbnb
Floating accommodation	Cruises – Ships based in French Polynesia	Intra-Polynesian cruises (3 ships)
	Charter sailboats	Commercial sailing trips on licensed charter boats
	Superyachting	Sailing trips on superyachts
	Cruises – Ships based outside of French Polynesia (excursionists)	Transpacific cruises with port(s) of call in French Polynesia
Tourist transportation	Origin/destination transportation (flights)	Trips from the tourists’ place of residence to their entry point in Polynesia (Tahiti) – applies to tourists and cruise passengers
	Domestic transportation	Domestic trips by tourists within French Polynesia
Catering	Restaurants and cafes	Food and drink outlets (not including in-house facilities in hotels)
	Food and drinks	Food and drinks consumed by tourists during their stay
Sports and leisure	Excursions and activities	Sport and leisure excursions and activities
Tourist shopping	Purchase of souvenirs and other tourism goods	Tourism goods purchased during stays
Tourism stakeholders	Travel agencies and tourism institutions	Travel agencies based in Polynesia and official organizations in charge of tourism management and promotion
Environmental pressures	Water	Treatment of tourism-generated drinking and wastewater
	Waste	Treatment of tourism-generated waste

Results

Emissions attributed to the tourism sector in 2019 amount to 1 675 ktCO₂e, the equivalent of the annual carbon footprint of more than 150 000 Polynesians, and of 1,4 times the annual territorial emissions* of French Polynesia.

Tourism emissions by sector in French Polynesia, all tourist types, 2019



Origin/destination (international) air transportation accounts for 73% of tourism emissions. Adding on-site domestic travel, transportation reaches a 77% share.

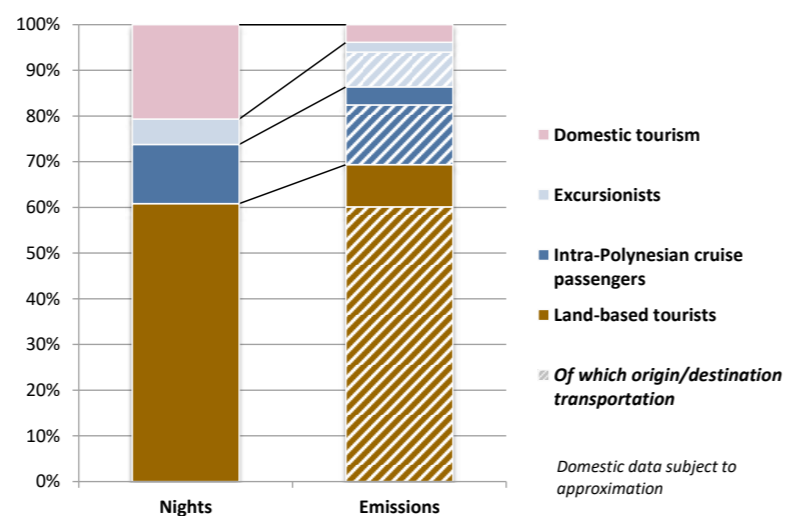
Transpacific cruises are the second emission source with 9% of the total, of which ¾ are related to sailing to and from Polynesia. They are followed by **land-based accommodation** (5%).

Non-resident **land-based tourists**, accounting for 61% of tourist nights, are responsible for **70% of emissions** (circa 400 kgCO₂e / night).

However, **excursionists have the highest carbon intensity per night** with over 600 kgCO₂e / night, owing to the high emissions of their cruise ships.

Domestic tourism has by far the lowest impact, both in absolute value and carbon intensity.

Share of different tourism types in number of nights and tourism carbon impact in French Polynesia, 2019



15 %
Estimated share of tourism in the annual territorial emissions* of French Polynesia

Tourism-related emissions occurring on Polynesian territory (excluding international transportation and goods manufactured abroad) are estimated at **180 ktCO₂e**, that being 11% of the total. Tourism would as such be responsible for 15% of Polynesian annual territorial emissions (1 180 ktCO₂e / year).

Emissions from transpacific ships (150 ktCO₂e), not included in the estimation of Polynesian territorial emissions, are not taken into account here either.

*Annual territorial emissions: emissions occurring within the Polynesian territory over the course of one year (excluding emissions occurring elsewhere in the world, even if they serve Polynesian consumption)





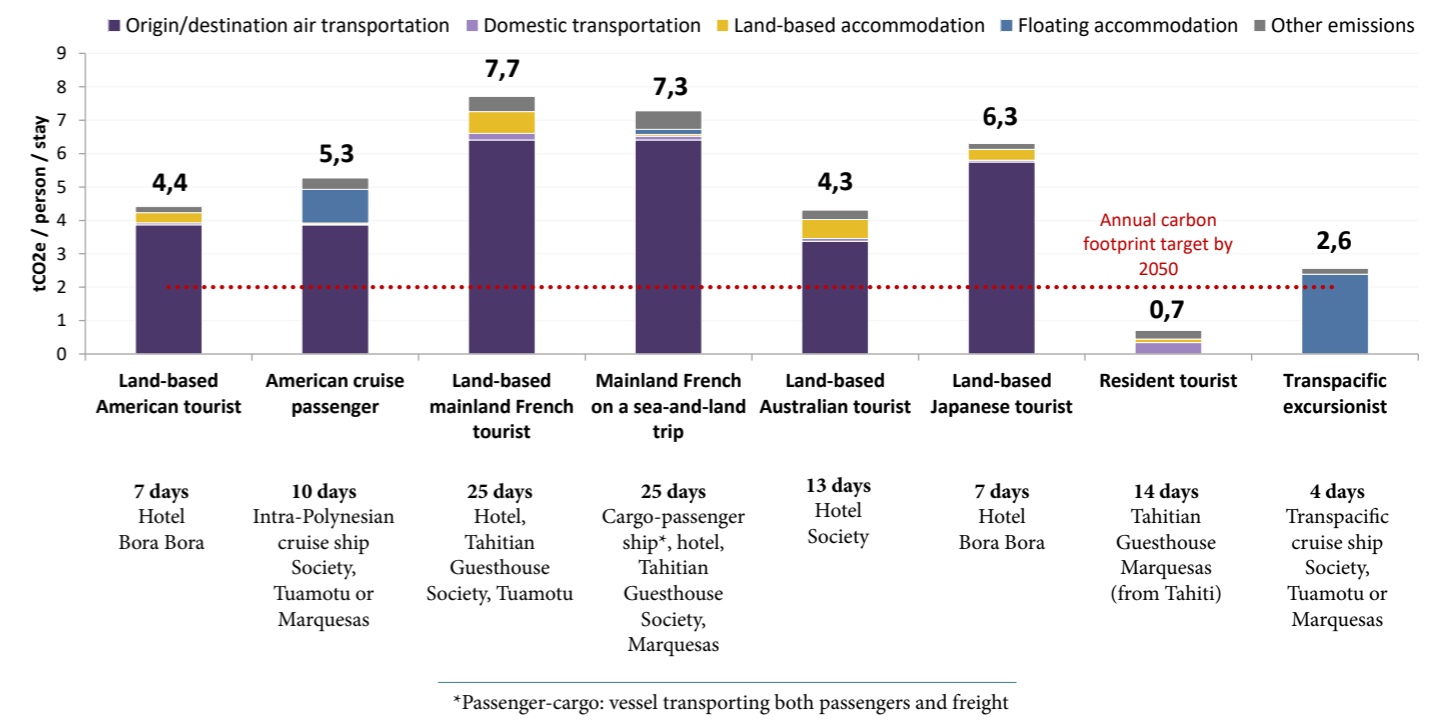
Impact per stay



A visitor arriving by plane generates an average of 5,2 tCO₂e for their return trip to Polynesia, and close to 1 tCO₂e once there for their stay. This is 3 times the 2050 individual carbon footprint target of 2 tCO₂e per person and per year, as defined within the Paris Agreement.

Three main factors can make the impact per stay and per night vary significantly: **origin, duration of stay and tourism style.** Several typical profiles are featured below as examples.

Emissions by typical profile and by sector in French Polynesia, 2019 (tCO₂e / person / stay)



All visitor profiles represent an impact superior to the annual carbon footprint target, often exceeding it significantly. Even without flying and over a very short stay, **excursionists** exceed the target value, due to the high carbon intensity of transpacific cruise ships. As for **residents tourists**, visiting a distant archipelago for two weeks generates a third of the target carbon footprint, an impact essentially due to air transportation.

Hyper-luxury tourism can generate an impact ranging up to 35 tCO₂e per person and stay when combining private flying and superyachting.

Impact of the health crisis on emissions from receptive tourism

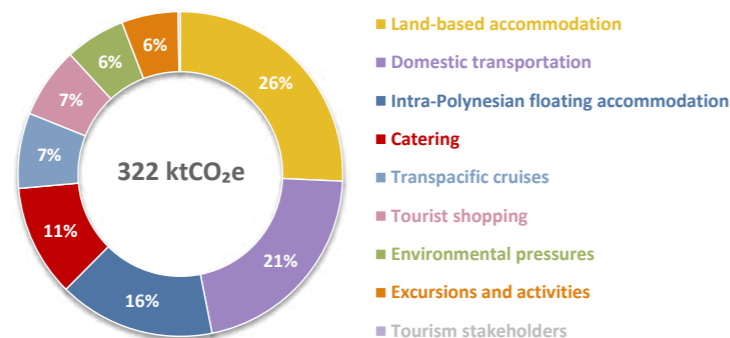
-62 %
2019 - 2021

With a drop in visitors of about 70%, the emissions from receptive tourism in 2021 amount to circa 575 ktCO₂e, that being 62% less than 2019. This is still equivalent to half the Polynesian territorial emissions and to the annual carbon footprint of more than 50 000 Polynesians. Although smaller in volume, tourist stays were longer in duration, while transpacific cruise ships were completely absent from Polynesian waters.

Focus on on-site stay-related emissions (excluding international origin/destination transportation)

Excluding origin/destination transportation (flights and transpacific cruise ships outside of Polynesian waters), the remaining tourism-related emissions represent **322 ktCO₂e**. **Land-based accommodation** becomes the primary emitting sector with a quarter of the total, followed by **domestic transportation**, of which ¾ of emissions are related to domestic flights. Accounting for 80% of tourism nights, land-based tourism has a carbon intensity (emissions per night) **twice lower than intra-Polynesian cruises and 2,5 lower than transpacific cruises**.

Tourism emissions by sector in French Polynesia, all tourist types, 2019

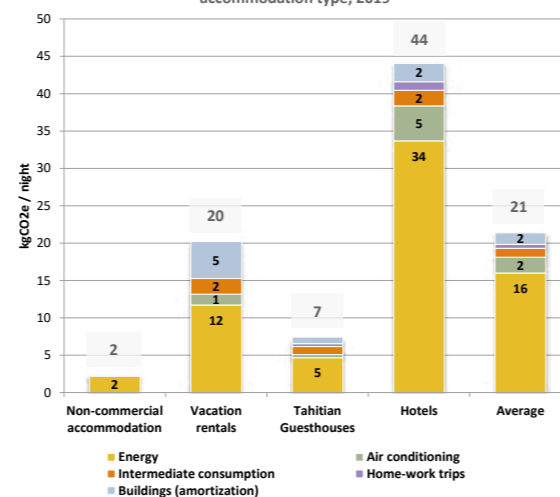


Among land-based accommodation, **hotels feature the highest impact**, both in absolute terms and per night. **Tahitian Guesthouses and non-commercial accommodation** (at relatives' houses) have, on the other hand, the lower impact.

While energy (mostly electricity) is the primary emission source, the weight of air **conditioning** and **construction** (amortization of buildings) is not to be overlooked.

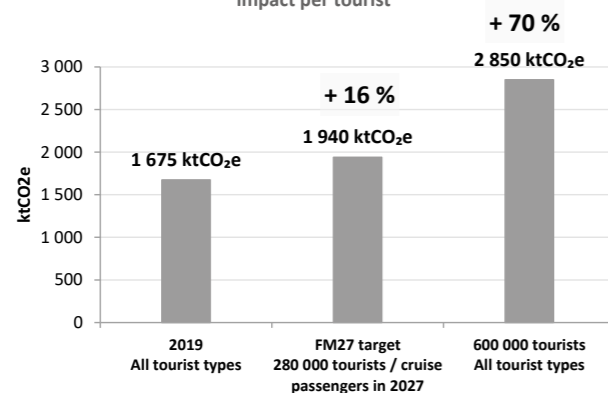
Regarding **intra-Polynesian floating accommodation**, the carbon impact greatly varies depending on the vessel type: charter sailboats emit very little, cruise ships have varying carbon intensities (the lowest being passenger-cargo, with emissions divided between freight and passengers) whereas superyachts are significant emitters.

Carbon impact of a land-based tourist night in French Polynesia by accommodation type, 2019



Future prospects

Simulation of the evolution of tourism emissions in French Polynesia through 2 development scenarios, at constant impact per tourist



The future development of tourism represents a significant challenge if it is to be reconciled with a decreasing emissions trajectory.

If the carbon footprint per tourist remains the same, reaching the FM27 tourism strategy target would lead to an increase in emissions by **16%**. With a stronger development reaching 600 000 tourists, the increase in emissions is estimated to **70%**.





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