



# Greenhouse Gas Emissions Assessment of the tourism sector in French Polynesia (Excluding international transportation)

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. On 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.

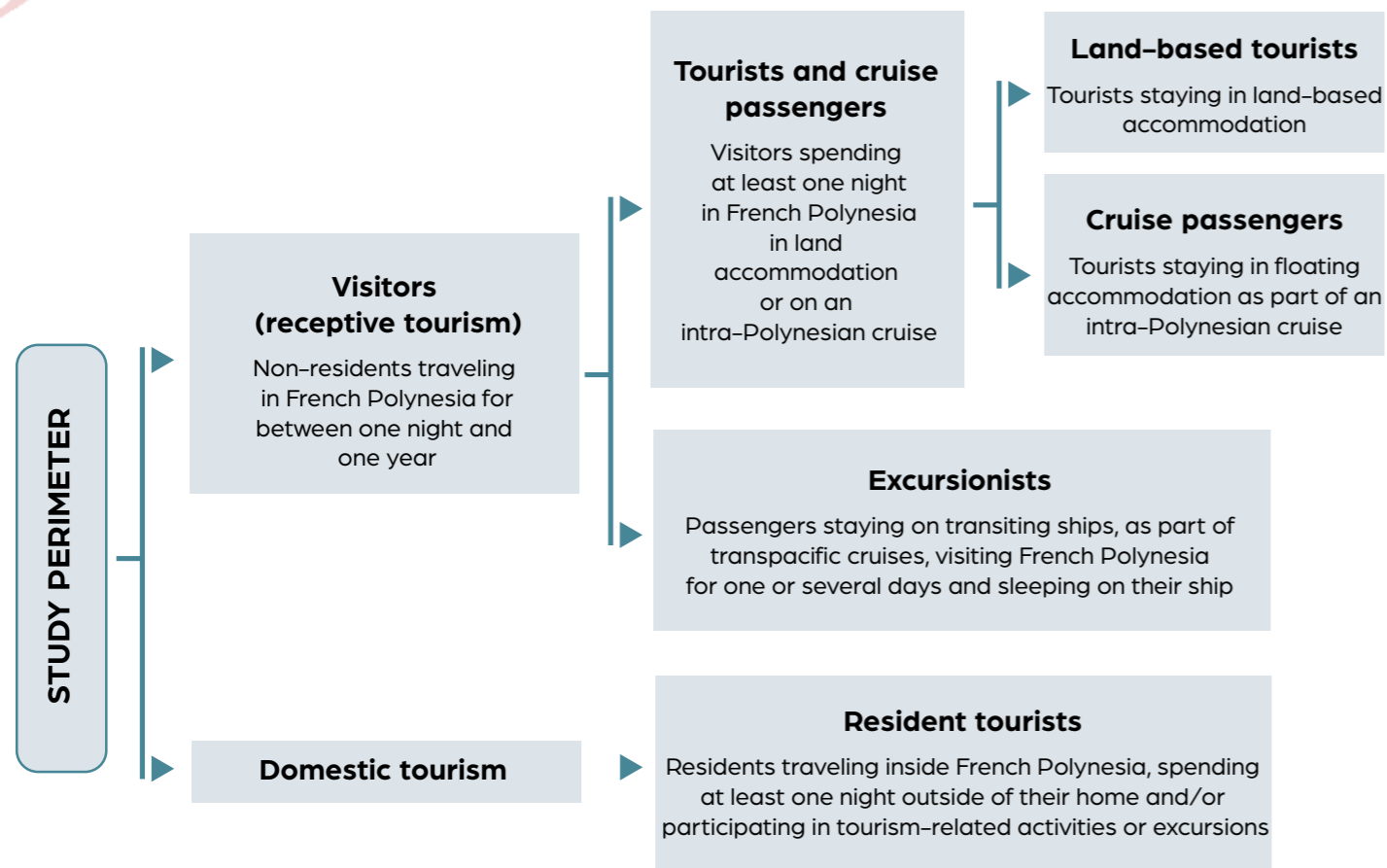
*This study was supported by ADEME as part of the ADEME/French Polynesia partnership*

## Summary

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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 (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC, SF<sub>6</sub>). Some non-Kyoto refrigerant gases still in use in French Polynesia were also included. Emissions are expressed as CO<sub>2</sub> equivalent on the basis of the GWP100 metric.

# Tourism sectors and subsectors



The results presented here concern emissions induced by the **presence of tourists on Polynesian territory**, whether direct or indirect, occurring within the territory or not, in as extensive an approach as possible. Thus, elements such as manufacturing and import of tourism-related goods, construction of buildings (amortized over several years) or the running of local tourism stakeholders are taken into account. **Transportation to and from Polynesia is not included here.**

Regarding **excursionists**, the considered emissions correspond to the presence of the ships in Polynesian waters. The remainder of the cruise itinerary and passengers’ trips to and from the cruise’s starting and finishing ports are not included.

The included sectors are featured in the table below.

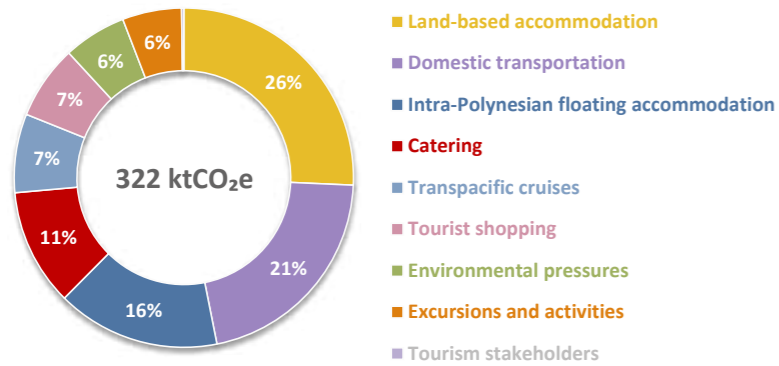
SECTORS	SUBSECTORS	DESCRIPTION
Land-based accommodation	Commercial accommodation	Nights in hotels, Tahitian Guesthouses (including possible in-house dining, including business events in hotels)
	Non-commercial accommodation	Nights in free accommodation, notably at relatives’ or friends’ houses
	Vacation 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
Tourist transportation	Cruises – Ships based outside of French Polynesia (excursionists)	Transpacific cruises with port(s) of call in French Polynesia
	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 322 000 tCO<sub>2</sub>e, the equivalent of the annual carbon footprint of close to 30 000 Polynesians, and of 27% of the annual territorial emissions\* of French Polynesia.

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



**Land-based accommodation** is the primary emitting sector with just over a quarter of the total. It is followed by **domestic transportation** (21%), of which ¾ of emissions are related to domestic flights, then by **intra-Polynesian floating accommodation** (16%).

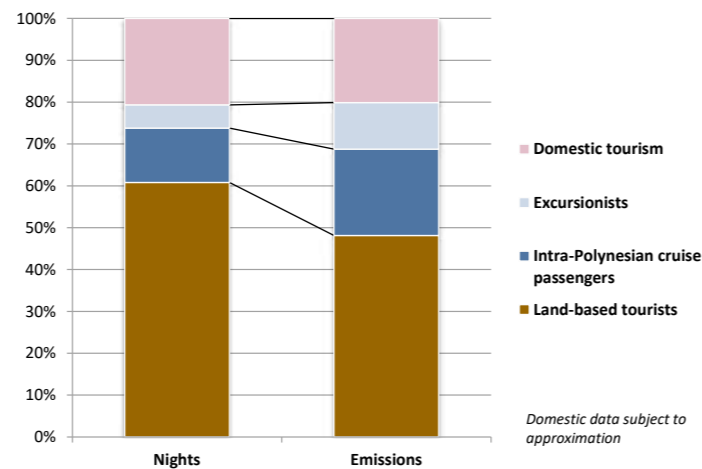
Next are catering, transpacific cruises, tourism goods purchases, environmental pressures (water and waste), excursions and activities and, limitedly, tourism stakeholders.

Although the majority of tourism is land-based, stays on floating accommodation have a relatively high carbon impact.

A land-based tourist emits around 53 kgCO<sub>2</sub>e / night, while a cruise passenger generates twice as much (107 kg kgCO<sub>2</sub>e.) The type of vessel (cruise ship, sailboat, passenger-cargo, superyacht...) does however greatly influence emissions.

Excursionists have the highest carbon intensity with 135 kgCO<sub>2</sub>e / night, owing to the high emissions of their cruise ships.

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 goods manufactured abroad) are estimated at 180 ktCO<sub>2</sub>e, that being 56% of the total. Tourism would as such be responsible for 15% of Polynesian annual territorial emissions (1 180 ktCO<sub>2</sub>e / year).

*Emissions from transpacific ships (150 ktCO<sub>2</sub>e), 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)



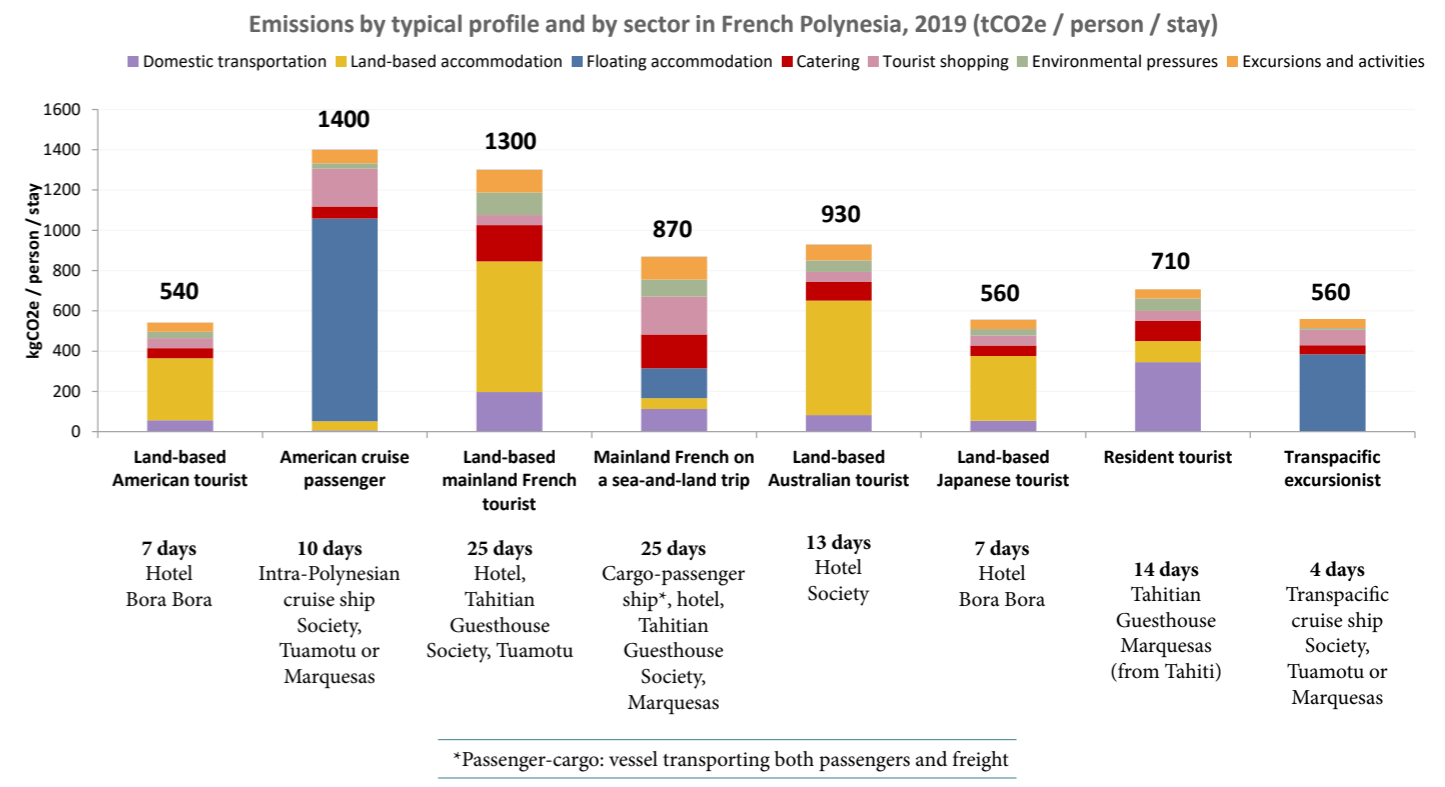


# Impact per stay



One stay in French Polynesia represents on average **860 kgCO<sub>2</sub>e per visitor**. It can however greatly vary depending on the **duration of stay and the tourism style**. Several typical profiles are featured below as examples.

As a reference, the 2050 individual carbon footprint target, as defined within the Paris Agreement, is 2 tCO<sub>2</sub>e per person and per year.



All visitor profiles represent an impact at least superior to 500 kgCO<sub>2</sub>e, that is a quarter of the target carbon footprint, and some reach close to 1,5 tCO<sub>2</sub>e. It is to be noted that from a visitor's point of view, the (significant) impact of traveling to Polynesia should be added in order to compute a complete carbon footprint.

The most determining factors are the **type of accommodation, domestic flights** (number and distances) and **shopping behavior**. Stays in Tahitian Guesthouses or on a passenger-cargo ship, with travels focused on islands close to Tahiti, are the least emitting. Because of the high carbon intensity of their cruise ships, excursionists have a particularly high carbon impact considering their short duration of stay.

It should be noted that hyper-luxury tourism appears to be particularly high-emitting, especially in the case of superyacht-based stays, which can amount to several tons of CO<sub>2</sub>e.

## Impact of the health crisis on emissions from receptive tourism

**-52 %**  
2019 - 2021

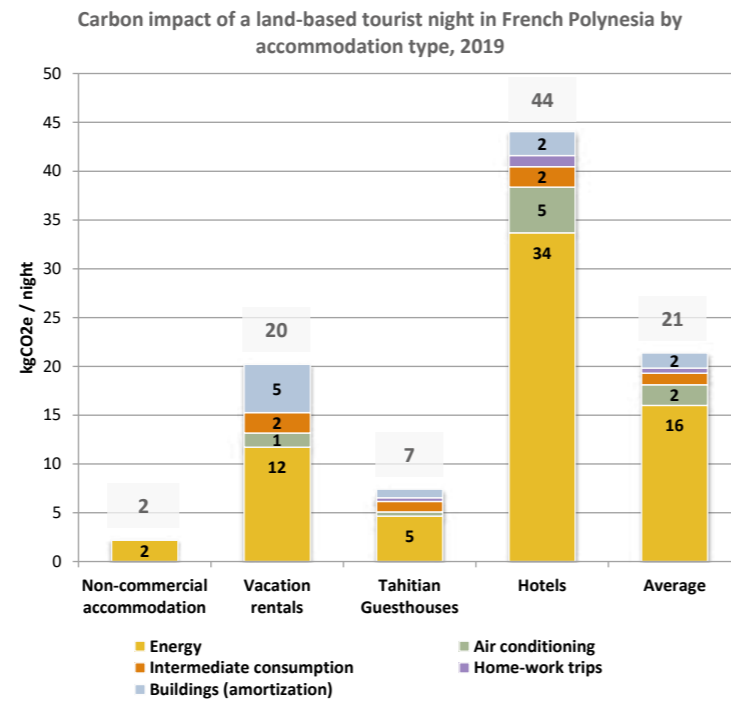
With a drop in visitors of about 70%, the emissions from receptive tourism in 2021 amount to circa **125 ktCO<sub>2</sub>e**, that being **52% less** than 2019. This is still equal to 10% of Polynesian territorial emissions and to the annual carbon footprint of more than 11 000 Polynesians. Although smaller in volume, tourist stays were longer in duration, while transpacific cruise ships were completely absent from Polynesian waters.

# Focus on accommodation

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.

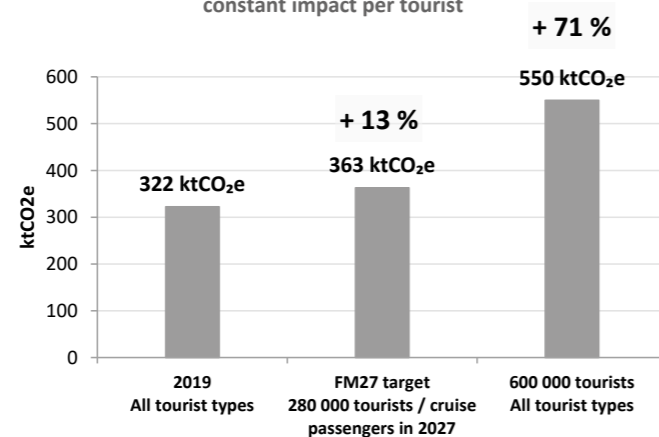
While energy (mostly electricity) is the primary emission source, the weight of **air conditioning** and **construction** (amortization of buildings) is not to be overlooked.

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.



# Future prospects

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



**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 13%. With a stronger development reaching 600 000 tourists, the increase in emissions is estimated to 71%.





Soutenu par

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