



8th International
Conference on
BIG DATA
& Data Science for Official Statistics

BILBAO 2024

Informing Climate Change and
Sustainable Development Policies
with Integrated Data

BILBAO. SPAIN **10-14 JUNE 2024** **#UNBigData2024**

Statistical Framework for measuring the Sustainability of Tourism

AUTHOR

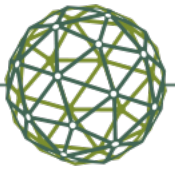
Elena Manzanera

ORGANIZATION

INE







Spain

Total visitors



Total overnights hotels visitors

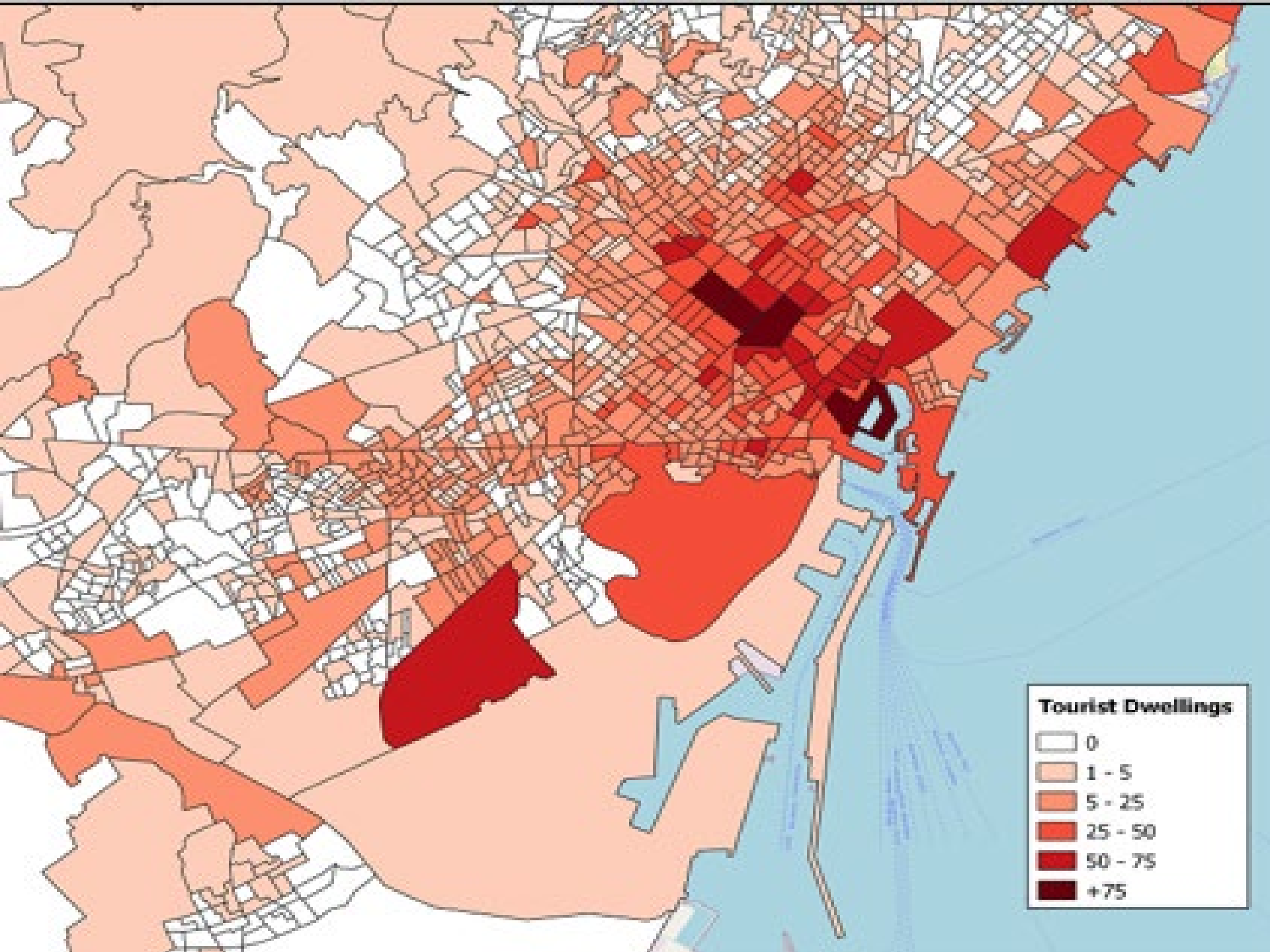


Total hotels

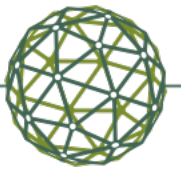


Appartments/tourist dwellings





Barcelona Feb 2024



Overtourism

- **Environmental degradation. Resource depletion. Overuse of water or other natural resources**
- **Economic disparities and social inequalities: overtourism benefits are not unevenly distributed. Local businesses and workers barely take benefits**
- **Popular tourist destinations often face severe overcrowding, straining local infrastructure and services: public transportation, healthcare...**
- **Non-availability of long-term rental dwellings or available at very high prices. Local population cannot rent/purchase homes**
- **Illegal market of touristic dwellings (competing with hotels)**
- **Effects on the day-to-day of residents (noise, littering, traffic jam, local electricity or water shortages... >> problems for living together...**

Anti-tourist protests could bring busy airport to a 'standstill' during summer holidays

A 'citizen's assembly' discussed the next steps in the island's fight against mass tourism



EL PAÍS

Could Madrid turn into New York, a city without short-term rentals?

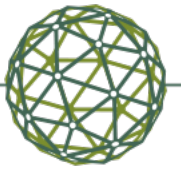
[euronews.travel](#)

Which European cities are trying to cut back the number of cruise ship visits?

Tens of thousands protest against Canary Islands' 'unsustainable' tourism model

Organisers say 50,000 turn out to call for limit on tourist numbers, saying model makes life unaffordable and puts strain on resources





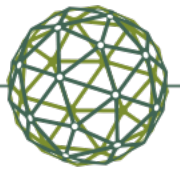
People claims for changing tourism model,

The future is to secure progress towards ...

More Sustainable Tourism

Statistical framework for the measurement of sustainable tourism (SF-MST)

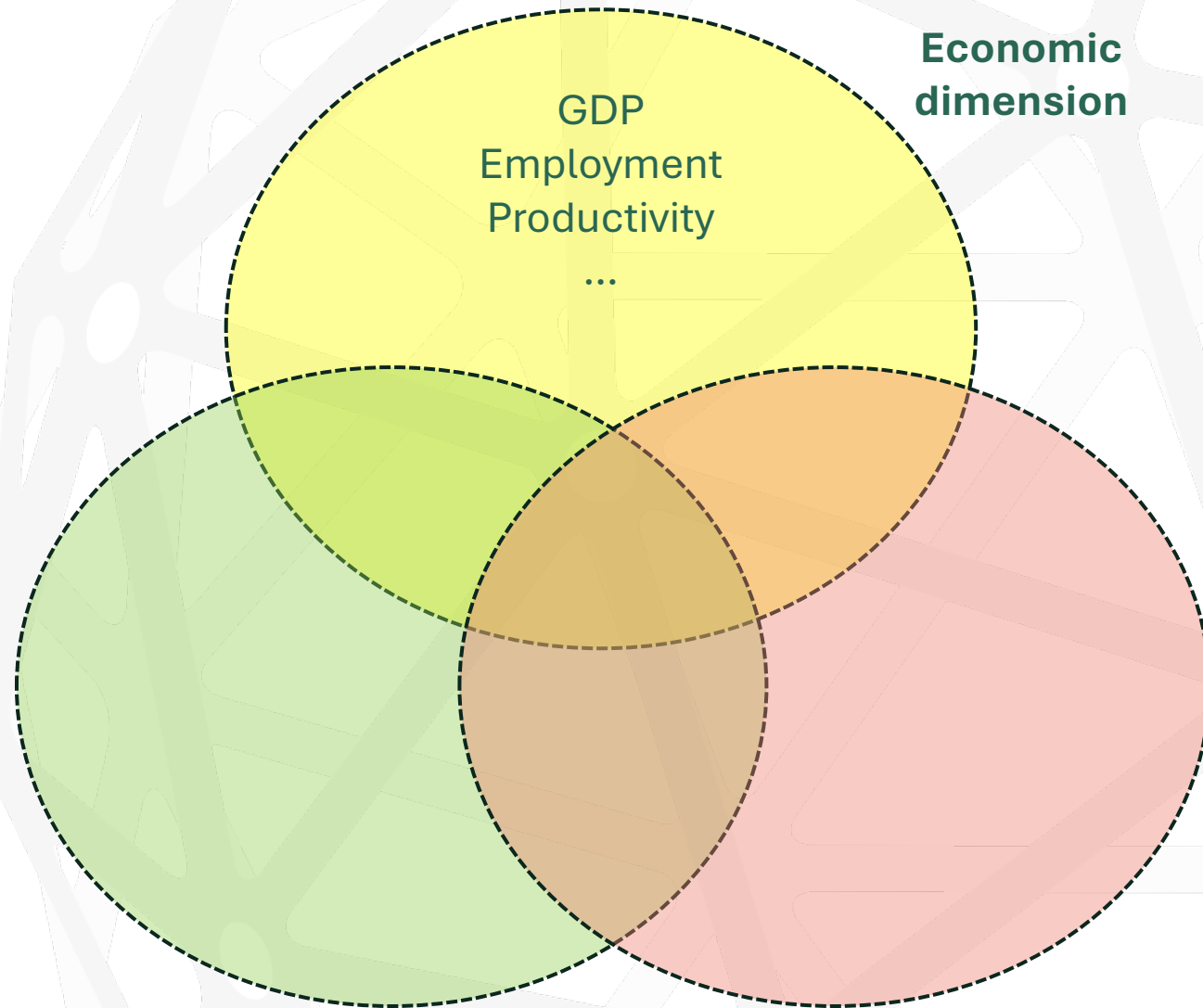
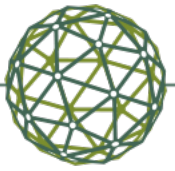
Linking data and decisions



Statistical Framework MST

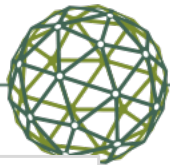
Common language for measurement and presentation of data

- Common **concepts** and **definitions**, expected to be stable over the time
- **Classifications**, standard
- **Reporting rules**, taking into account Information needs of users, aligned with decision making and policy level
- **Methods** and **data sources**, from traditional to innovative, not standard. Guidance, science-based and consensus-backed
- **Indicators**
- **Stakeholders**: data producers, data analysts, decision makers
- **3 dimensions**: economic, environmental, social, but at spatial scales: global, national, regional, municipal, local destinations...



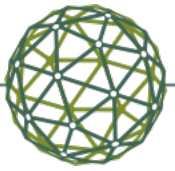
Measurement Sustainability Tourism



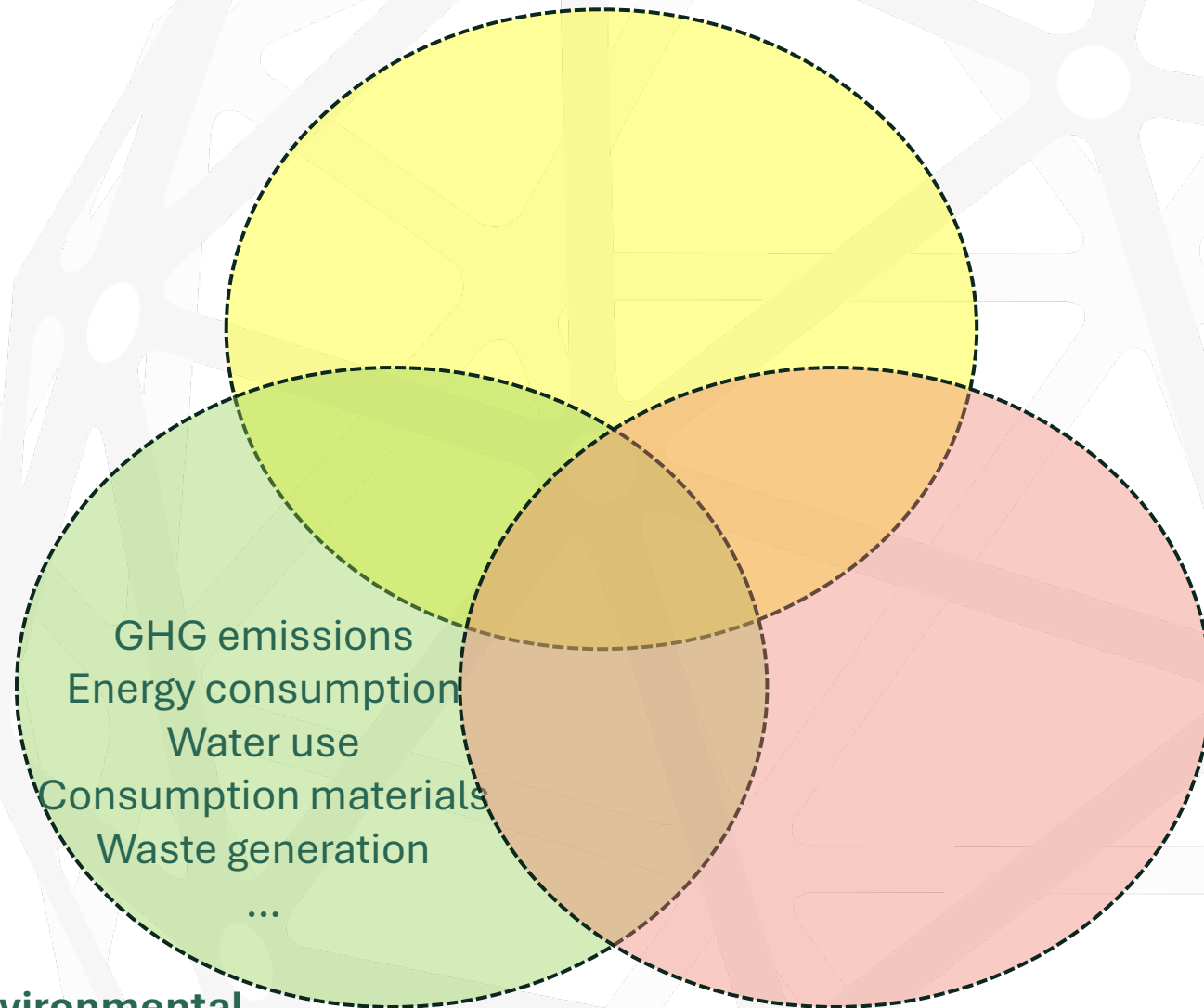


TOURISM SATELLITE ACCOUNT

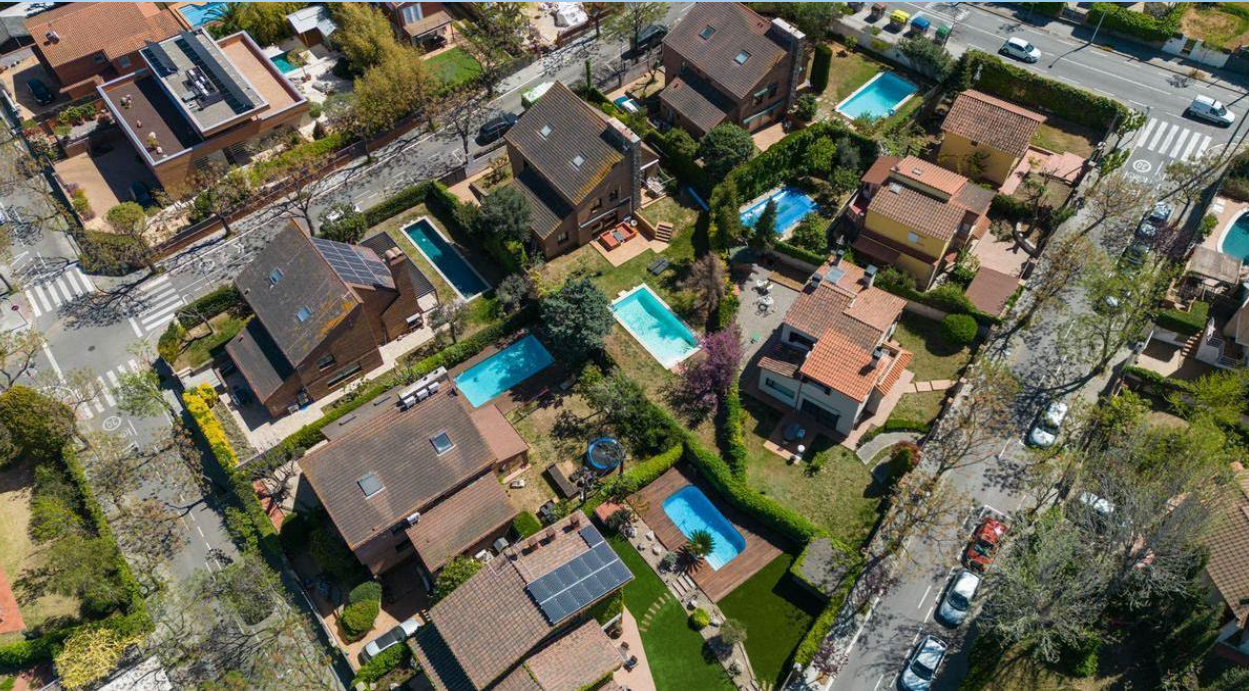


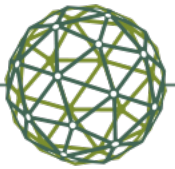


Measurement Sustainability Tourism

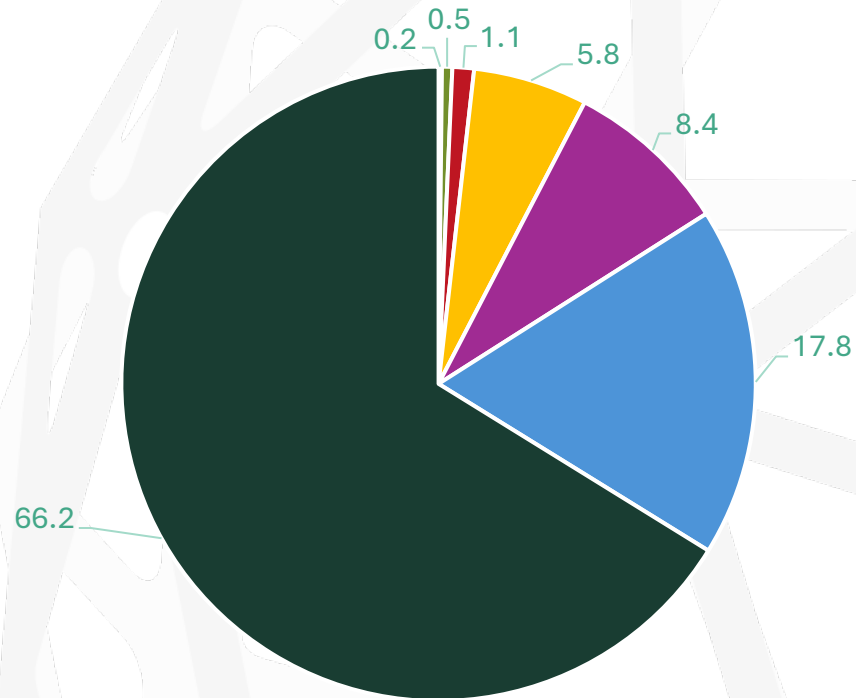


**Environmental
dimension**



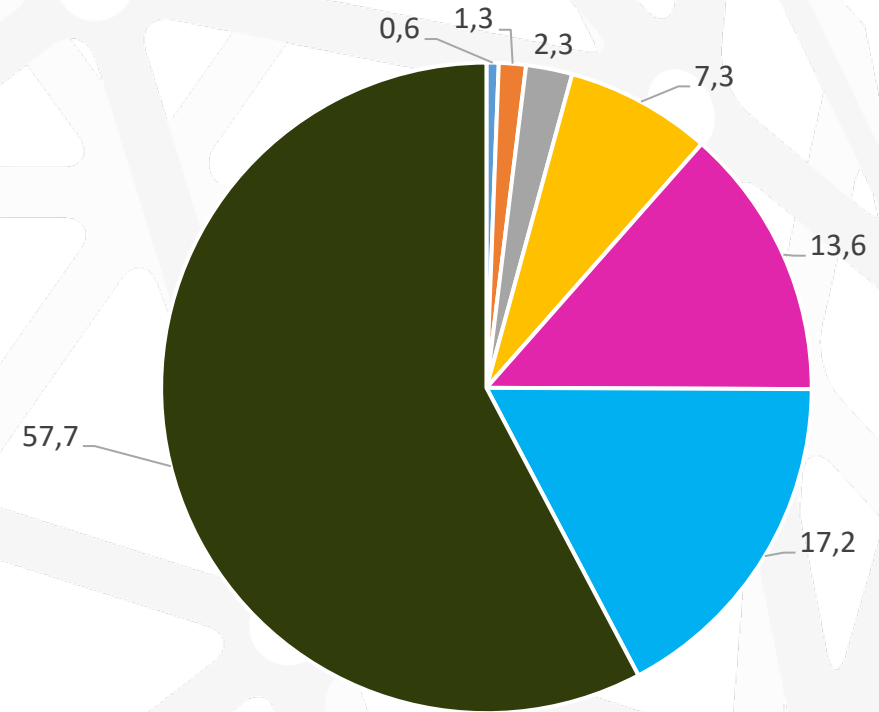


GHG EMISSIONS BY TOURISM ACTIVITIES. Year 2022(A)

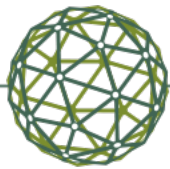


- Travel agencies
- Other
- Water transport
- Air transport
- Real estate activities
- Accommodation
- Land transport

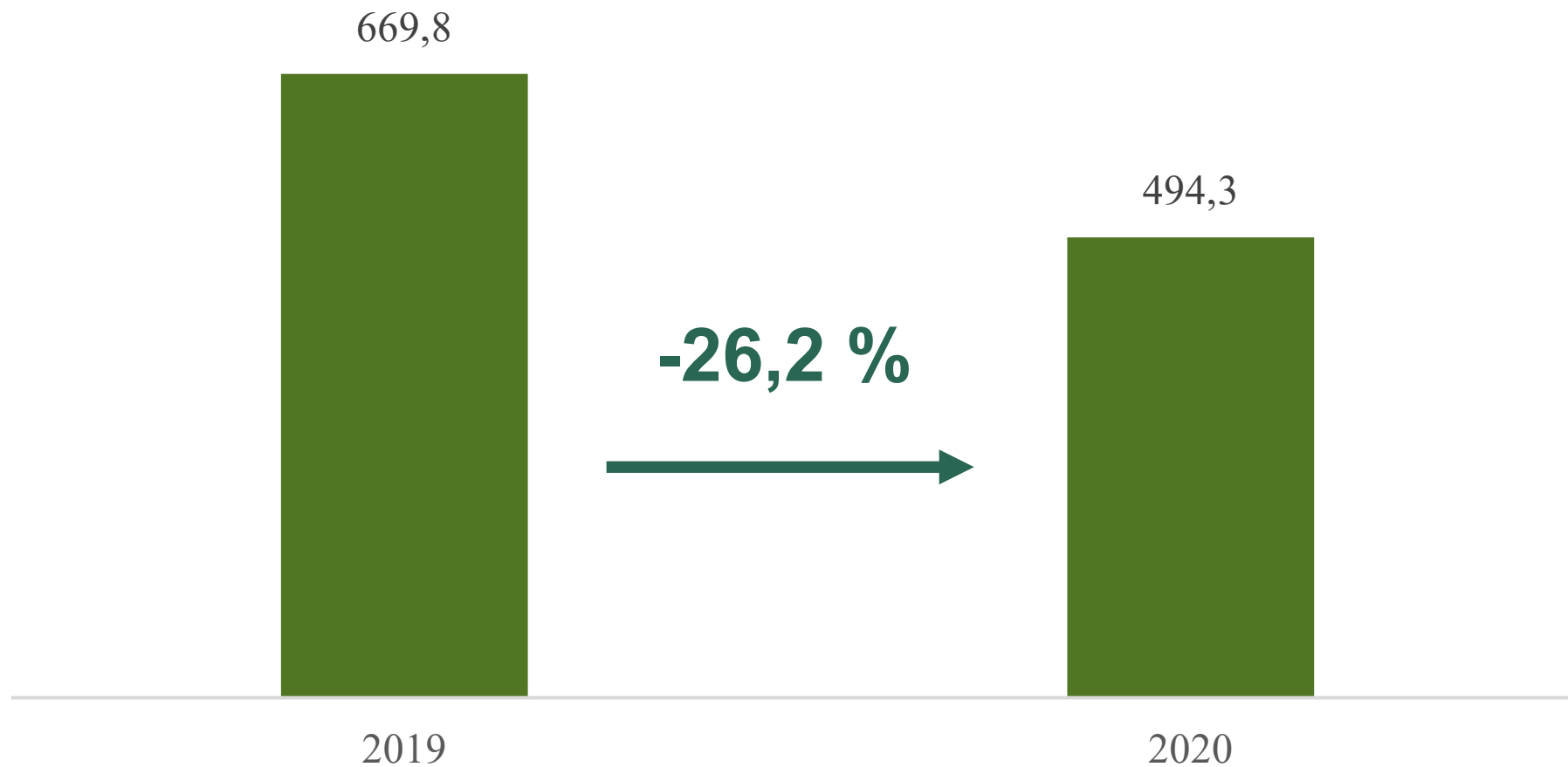
ENERGY CONSUMPTION TOURISM ACTIVITIES. Year 2021(A)

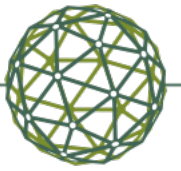


- Travel agency
- Real estate activities
- Accommodation
- Land transport
- Air transport
- Water transport
- Other

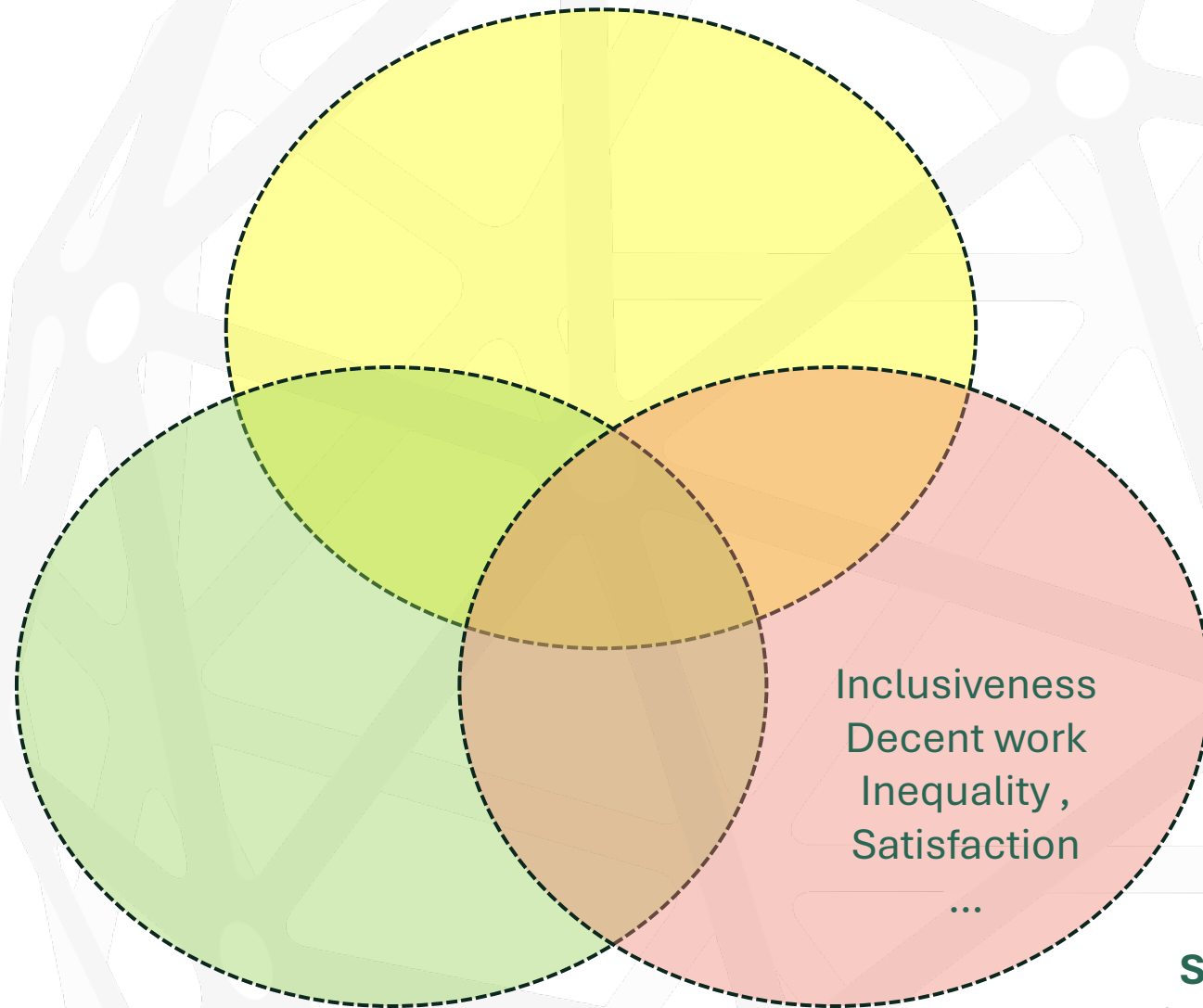


Total urban waste collected in Balearic Islands (mtons)



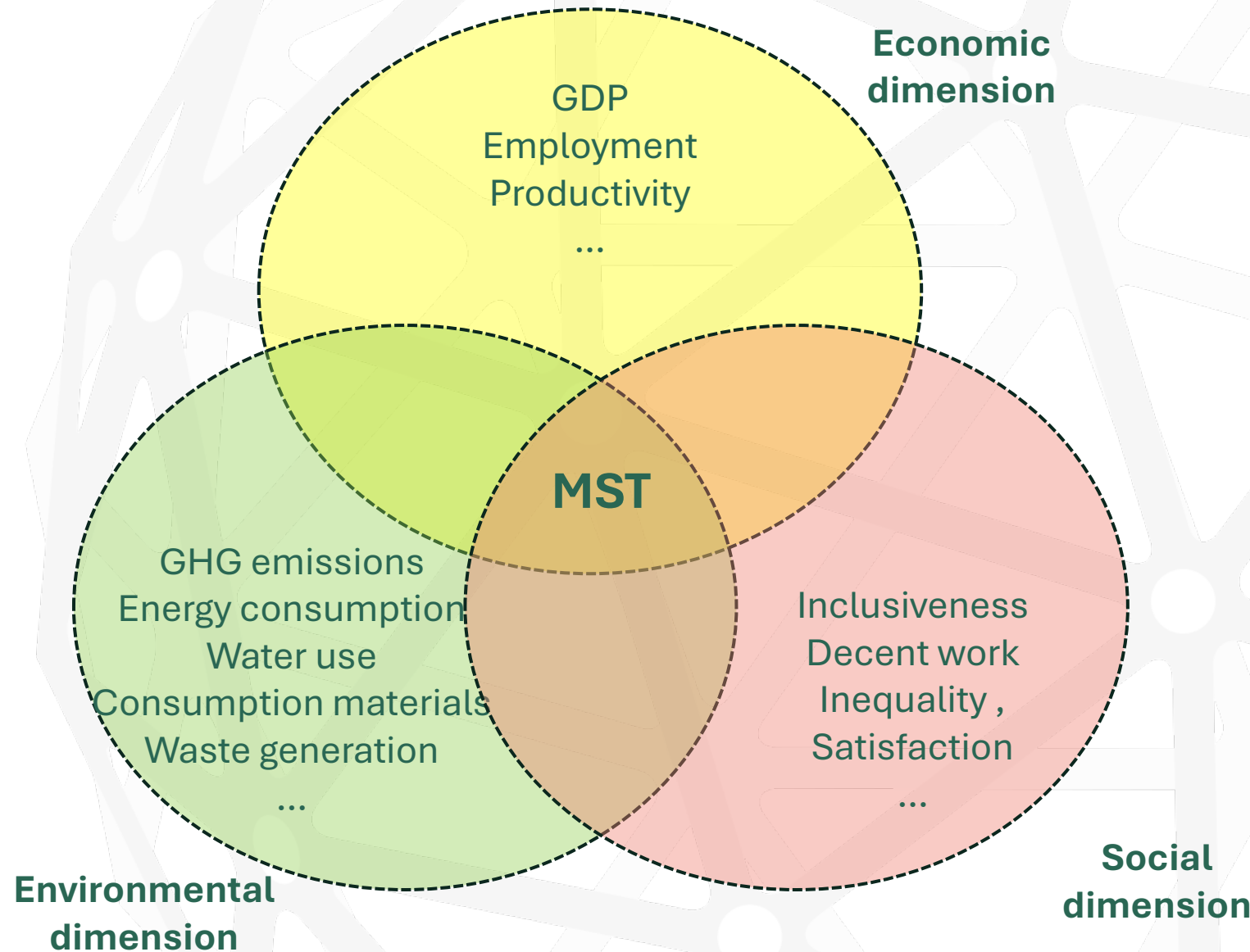
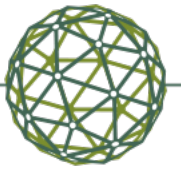


Measurement Sustainability Tourism

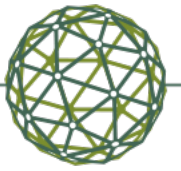


**Social
dimension**





Measurement Sustainability Tourism



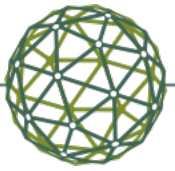
Standard MST: UN Tourism

Economic dimension: SNA, NU recs for TSA

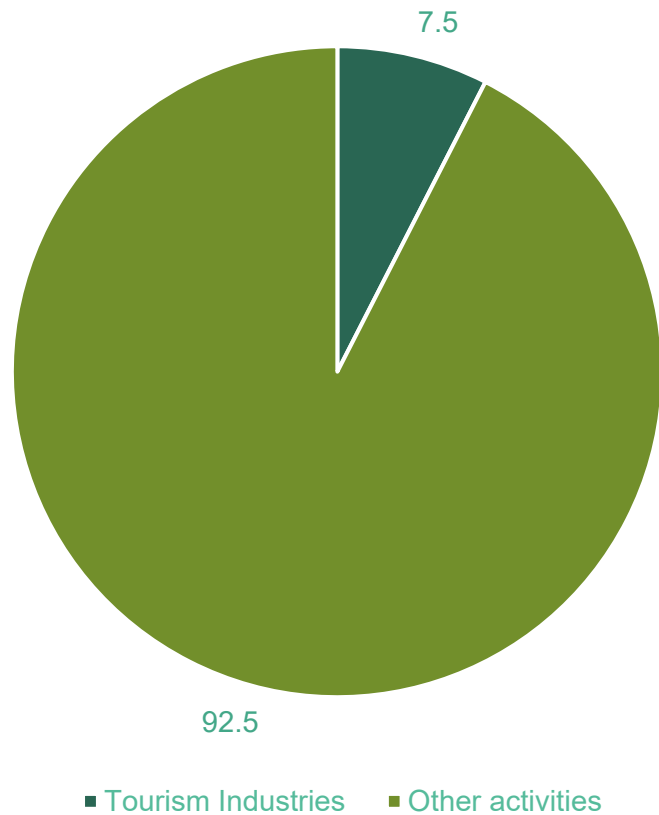
Environmental dimension: SEEA

Social dimension: surveys (disability, characteristics of employment, education ...)

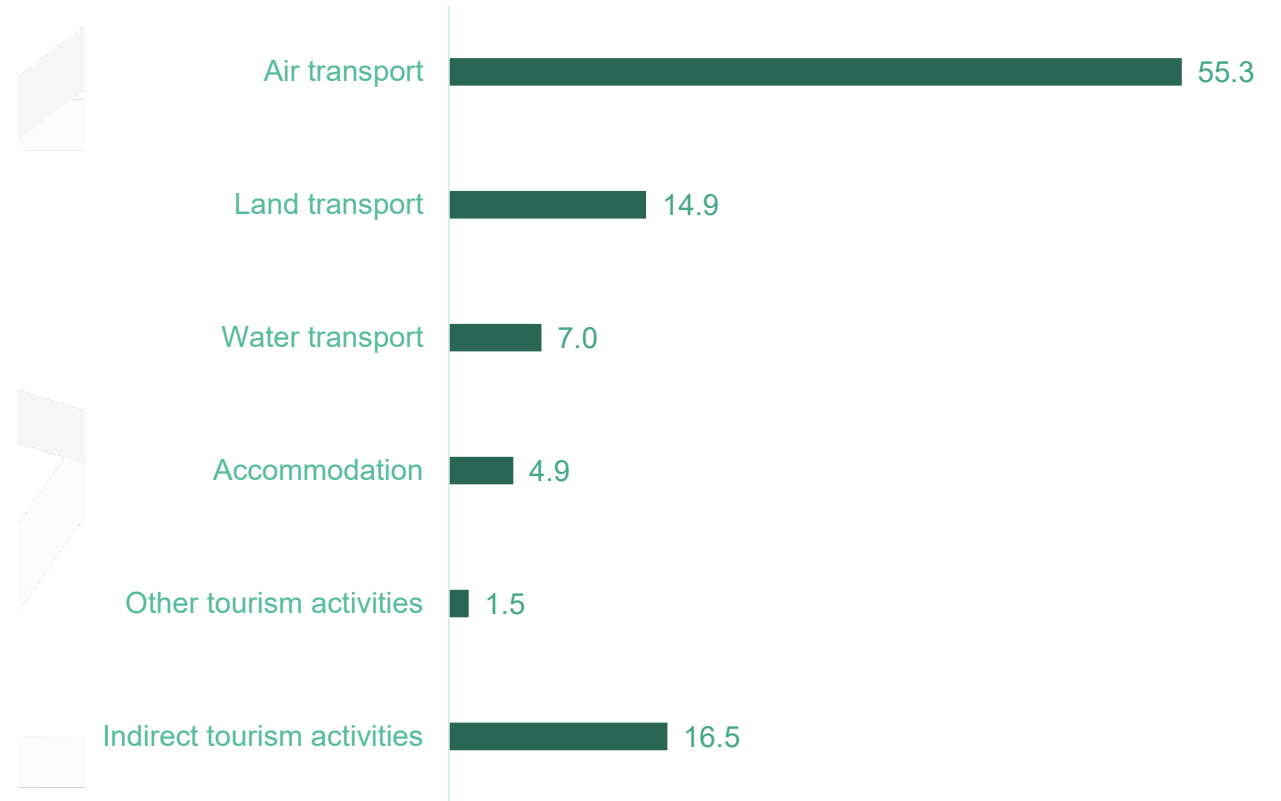
Challenge: combine core statistical frameworks of the 3 dimensions > MST indicators

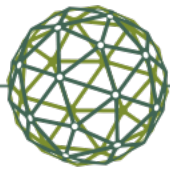


GHG EMISSIONS OF THE ECONOMY(%).Year 2022 (A)

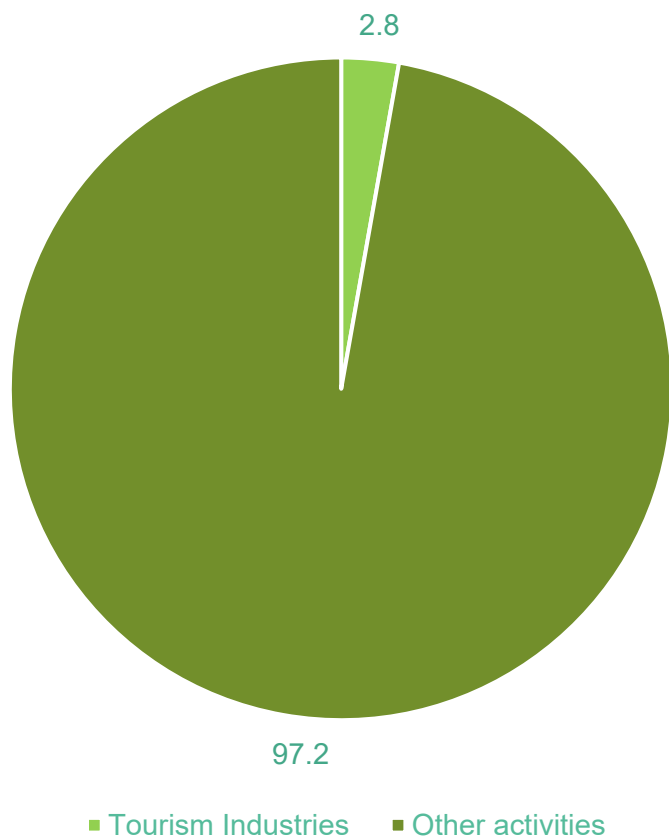


GHG emissions by touristic industries (%). Year 2022

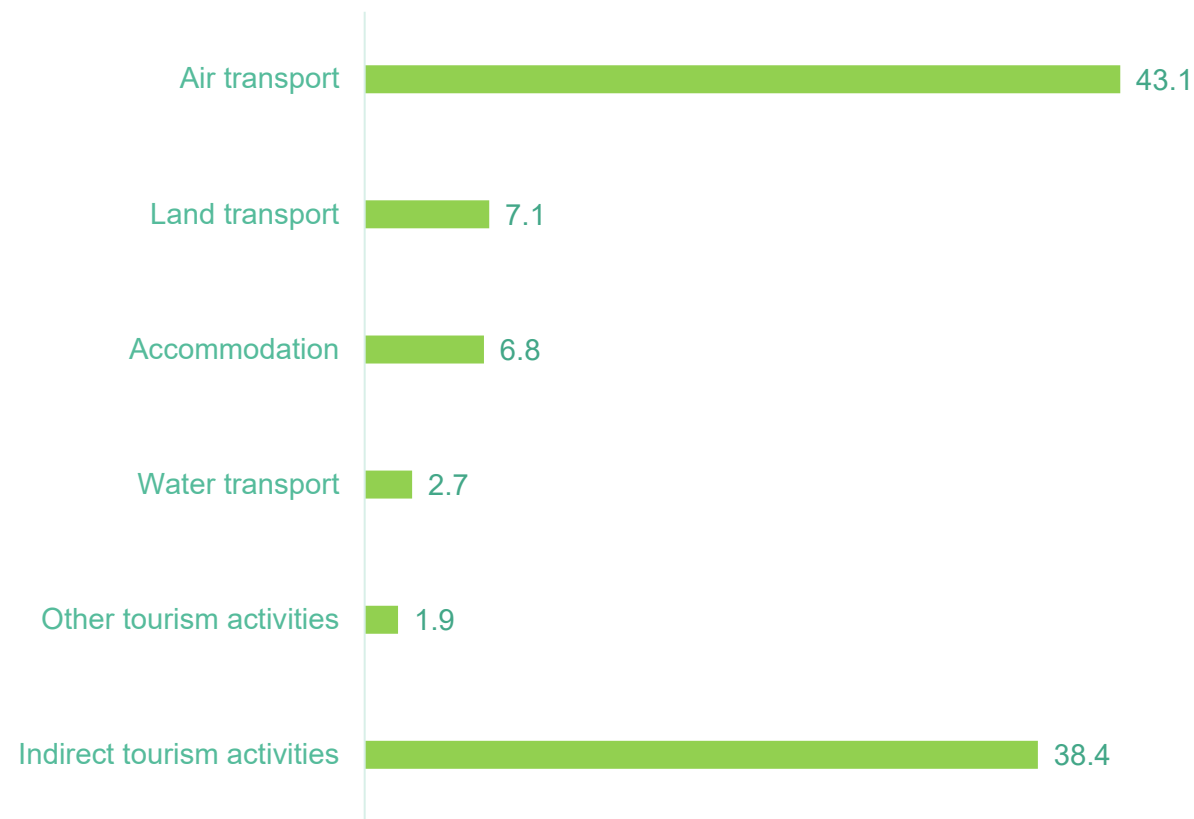


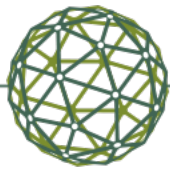


ENERGY OF THE ECONOMY(%).Year 2022 (A)

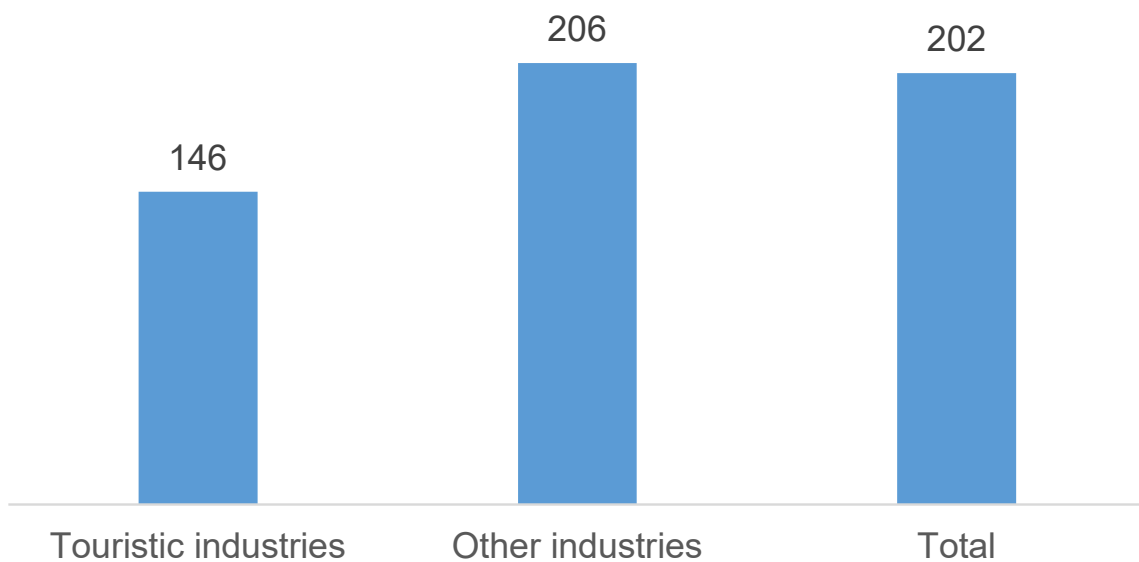


Energy consumption by touristic industries (%). Year 2021

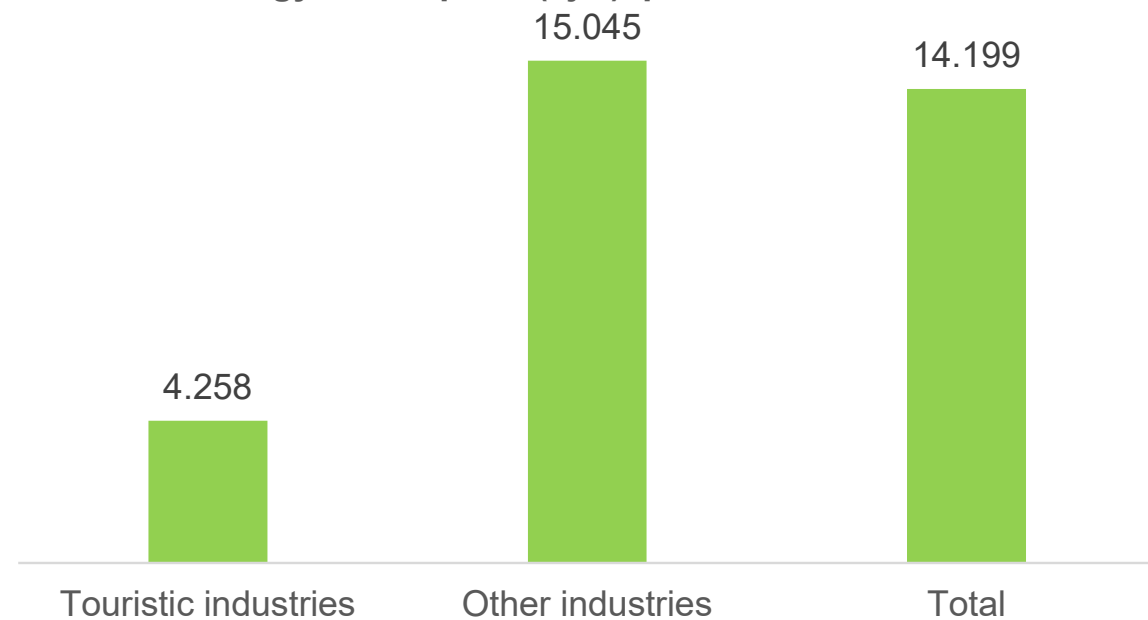


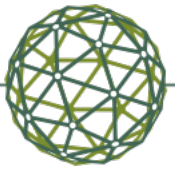


GHG emissions (tons CO2) per 1bn GDP. Year 2022

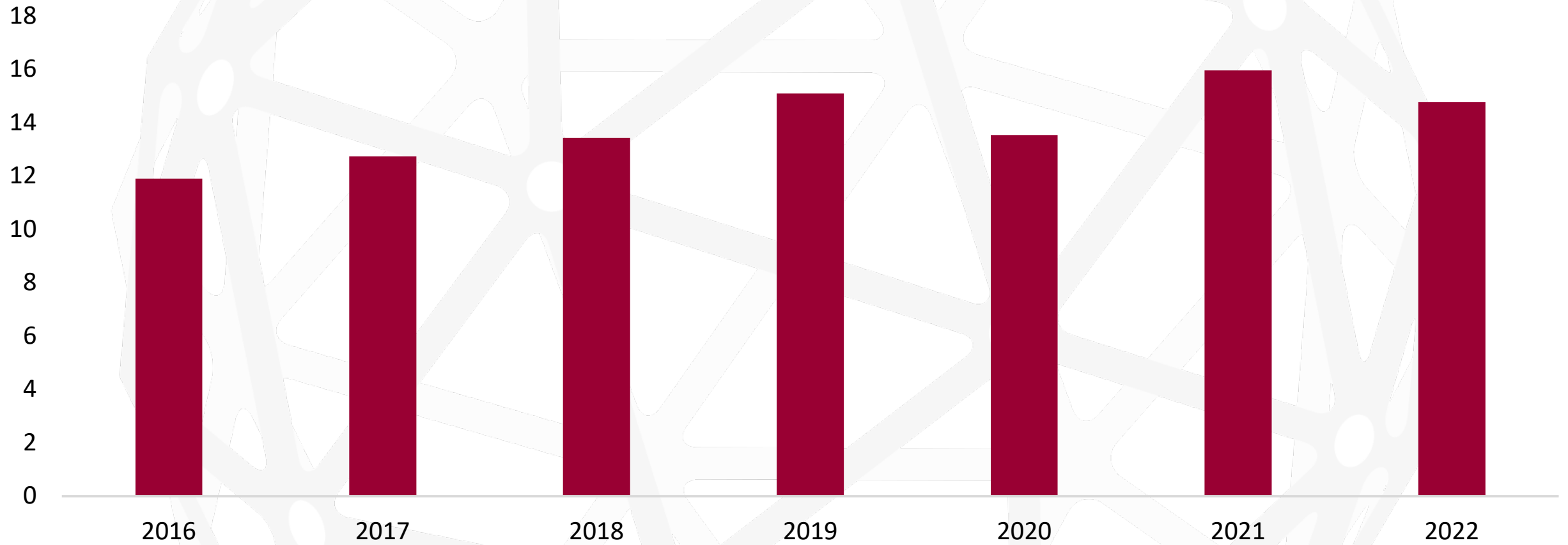


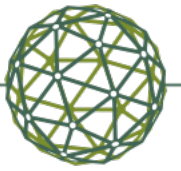
Energy onsumption (Tjul) per 1 bn. GDP. Year 2021





Emissions per overnight stay





Statistical Framework MST. Some challenges...

- Link economic indicators to other environmental domains: **waste**, consumption of materials, **water** use, biodiversity and **effects to ecosystems** (cultural tourism, nature tourism ...)
- Address the **social dimension** on MST by i.e. breakdowns of employment linked to tourism by categories, wages and salaries or measuring the satisfaction of tourists...
- Discuss how **innovative sources** may be introduced to compile MST indicators, as data from smart electricity and water meters
- At EU level, use of data from the Corporate Sustainability Reporting Directive (**CSRD**)
- ... and many others ...
- **Key role of the MST Group of Experts**

Thank you for your attention



#UNBigData2024