

# Synergies of Blue Economy and Circular Economy for IA in Tourism Sector



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# Circular Economy



The model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended.

In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible thanks to recycling. These can be productively used again and again, thereby creating further value.

# Circular Economy

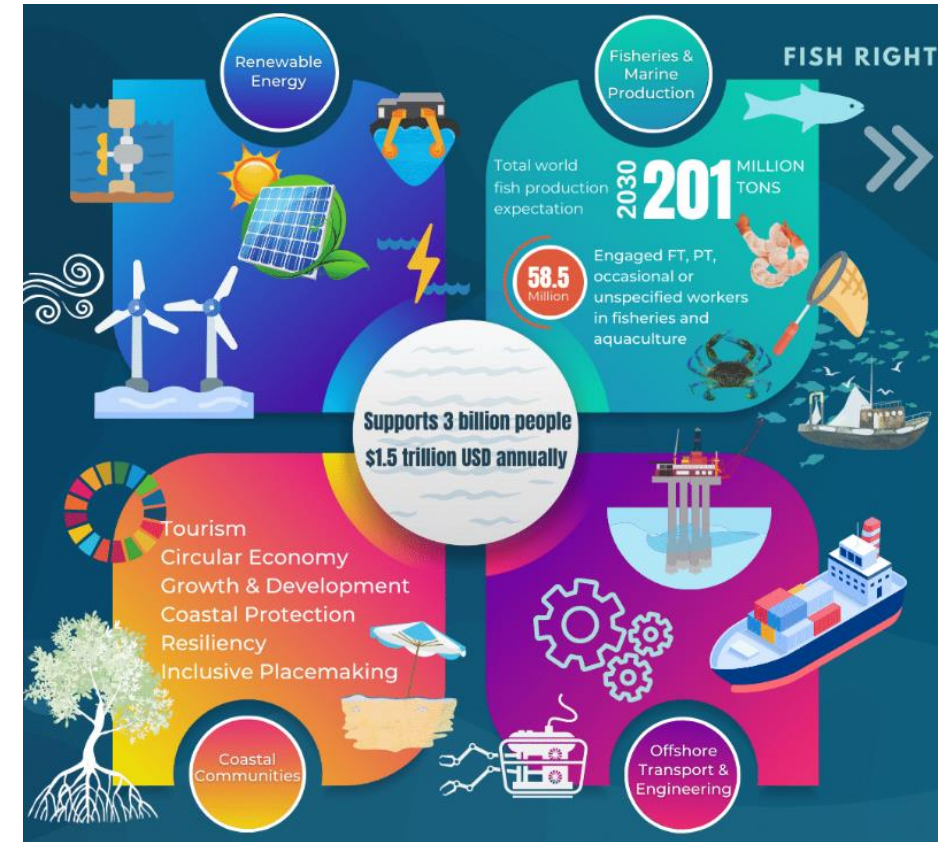
## Benefits: why do we need to switch to a circular economy?

### To protect the environment

Reusing and recycling products would slow down the use of natural resources, reduce landscape and habitat disruption and help to limit biodiversity loss.

Another benefit from the circular economy is a reduction in total annual greenhouse gas emissions. According to the European Environment Agency, industrial processes and product use are responsible for 9.10% of greenhouse gas emissions in the EU, while the management of waste accounts for 3.32%.

Creating more efficient and sustainable products from the start would help to reduce energy and resource consumption, as it is estimated that more than 80% of a product's environmental impact is determined during the design phase.



Ref:

<https://www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits>

# Circular Economy

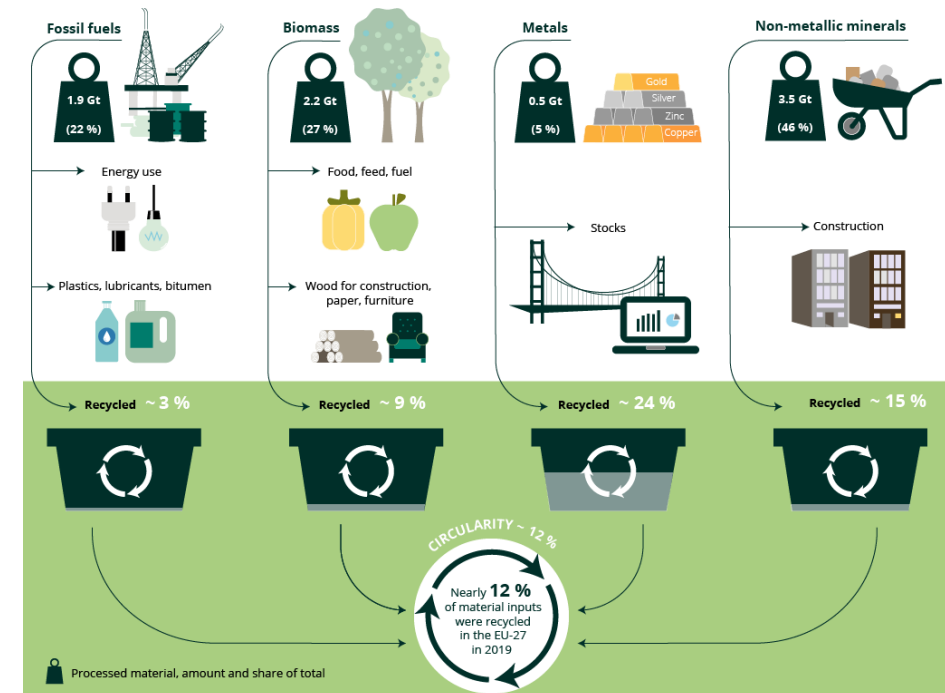
## Benefits: why do we need to switch to a circular economy?

### Reduce raw material dependence

The world's population is growing and with it the demand for raw materials. However, the supply of crucial raw materials is limited.

Recycling raw materials mitigates the risks associated with supply, such as price volatility, availability and import dependency.

This especially applies to critical raw materials, needed for the production of technologies that are crucial for achieving climate goals, such as **Blue Economy concept**





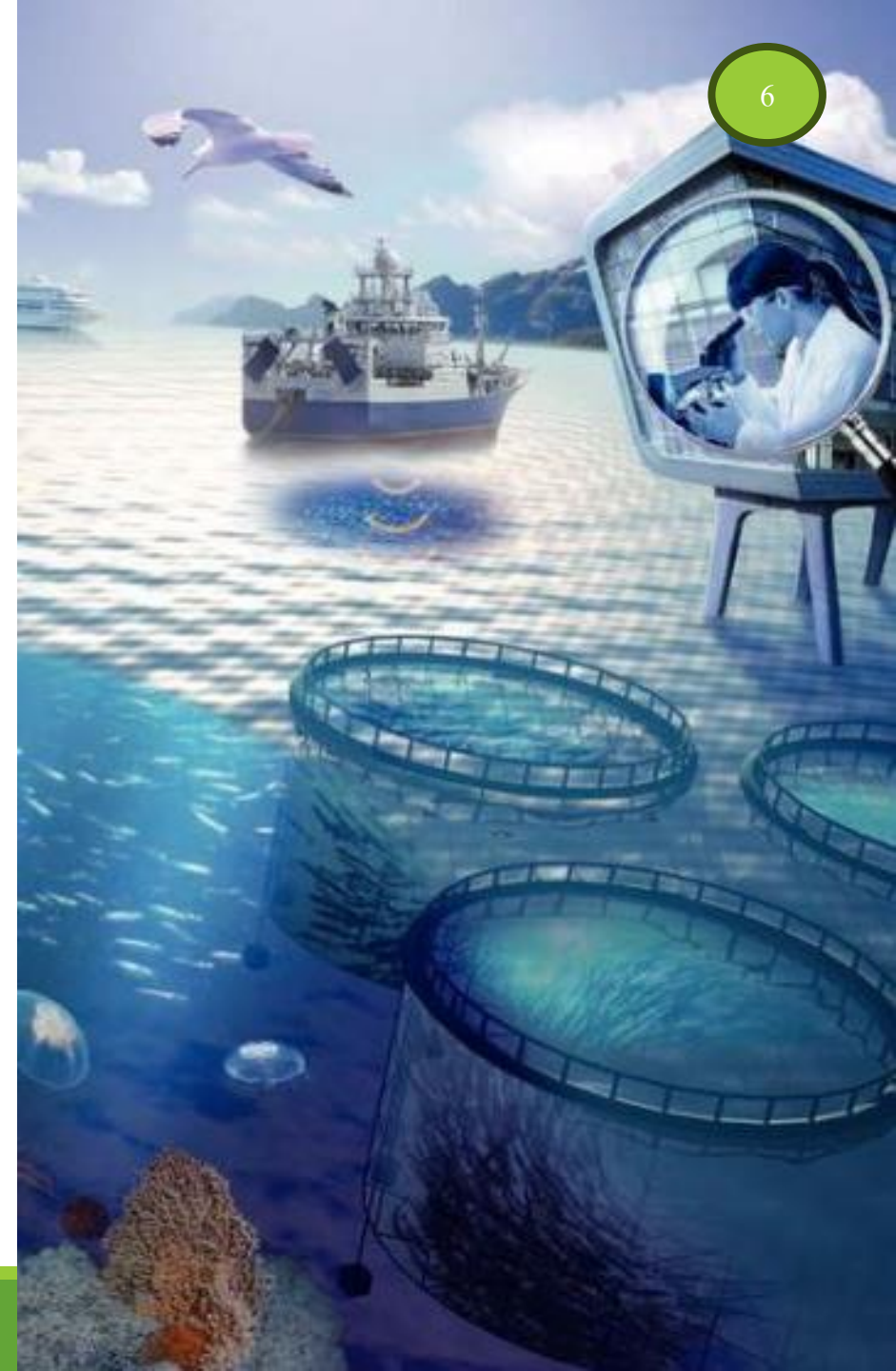
## Blue Economy concept and OHI indexes

The blue economy is formally recognized by the United Nations as a term that aims to develop a comprehensive understanding of economic activity that takes place within or through ocean and freshwater bodies of water.

Optimally, the blue economy subscribes to sustainable economic principles and a set of guidelines to ensure the protection of all marine and freshwater resources and ecosystem services. All marine forms of tourism, coastal tourism and freshwater tourism activities are part of the blue economy and has made a significant contribution towards sustainable economic practices in these spaces.

However, there is a lack of consensus about what the blue economy is, how it should be measured and how to regulate sustainable performances across multiple diverse sectors of activity.

This presents tourism scholars with an opportunity to make a contribution to the development of this concept and to ensure that tourism related activities are sufficiently accounted for in the planning and policy development of blue economies around the world.





## Evaluation of Ocean Health Index (OHI) quality indicators

It is an indicator used to measure the quality of marine ecosystems in various dimensions. It is a worldwide tool for 221 countries and territories and 15 parts of the high seas. Use data available around the world to calculate To monitor and evaluate the health of ecosystems, people, and oceans, with an integrated concept framework between various indicators covering both social and environmental aspects. The OHI Index score is determined from 10 different criteria



## Evaluation of Ocean Health Index (OHI) quality indicators

### OHI Index 10 different criteria



1. Artisanal fishing opportunities; AO



2. Biodiversity; BD



## Evaluation of Ocean Health Index (OHI) quality indicators

OHI Index 10 different criteria



**3. Coastal Protection; CP**



**4. Carbon Storage:CS**



## Evaluation of Ocean Health Index (OHI) quality indicators

OHI Index 10 different criteria



**5. Clean water; CW**



**6. Food Provision; FP**

## Evaluation of Ocean Health Index (OHI) quality indicators of Koh Sri-chang Background

OHI Index 10 different criteria



7. Livelihoods and Economies



8. Natural Products, NP

## Evaluation of Ocean Health Index (OHI) quality indicators

### OHI Index 10 different criteria



9. Sense of Place; SP



10. Tourism; TR



# Blue vs. Circular

**In summary:** the circular and the blue economy  
**both are**

**More sustainable alternatives to the  
current linear economy.**

**There is no waste, neither in the  
circular nor in the blue economy.**



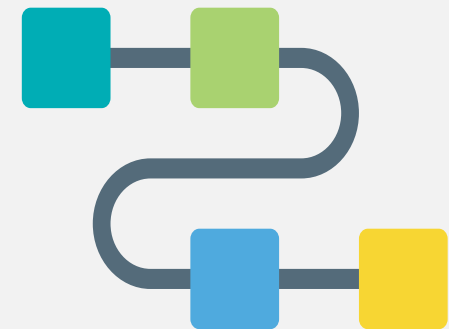


# Blue vs. Circular

Products are produced, sold, taken back, recycled and produced again by one and the same company.



The company's own waste becomes the new raw material, and companies still compete with each other.



Whereas in the blue economy, the output of one industry, can be the input of another. Loops are intertwined to optimize residual waste streams. In a way, the circular economy is just a tiny link in the greater, all-encompassing chain that is the blue economy.

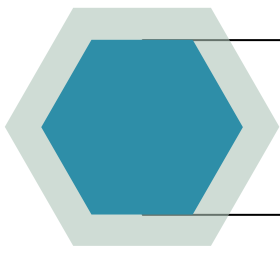


## Impact assessment in Tourism sector

**Tourism impact assessment: A tool to evaluate the environmental impacts of touristic activities in Natural Protected Areas**

**The Tourism Impact Assessment (TIA) is a methodology for evaluating the environmental impacts associated with tourism**

- TIA method could lead to better tourism planning and management,
- The main advantages of TIA over other methodologies are that TIA can be applied by a diversity of stakeholders without the need of a technical knowledge and it does not imply large cost for its application.
- The main limitation of TIA is that its application and results could be biased by the point of view of the person that conducts TIA.
- In order to solve this problem, the training of this people and the inclusion of persons from different sectors and disciplines are recommended.
- Despite that this could generate extra costs in terms of time or money, it could increase the validity of TIA results.



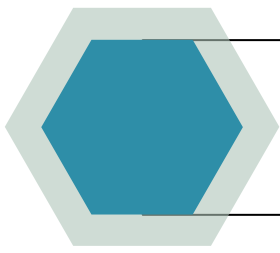
**Impact assessment in Tourism sector**

# **Impact assessment in Tourism sector**

## **Negative**

**Some of the main negative impacts related to touristic activities on protected areas include**

- Changes on land cover and land use, an increase in the demand of natural resources, pollution, urbanization**
- Acquisition of land by new actors,**
- Changes in the structure of resource management,**
- Infrastructure creation, an increase in volume of waste produced, and an amplification of local inequality**



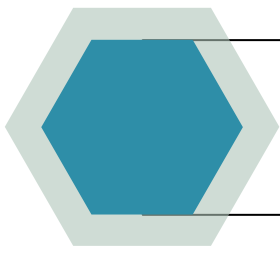
## Impact assessment in Tourism sector

# Impact assessment in Tourism sector

## Positive

- **Economic aspect helps reduce the unemployment situation.**
- **Energy aspect: increase the proportion of using renewable energy. Currently, Thailand relies heavily on natural gas. It is used to produce 60% of electricity and it is likely that a lot more will have to be imported from abroad in the future will help Thailand increase the proportion of using renewable energy.**
- **Sustainability focus on traveling along with taking care of nature for sustainability. The matter of natural resources can reduce the use of natural resources. It can also reduce pollution such as PM 2.5, garbage, wastewater, and restore natural resources. Caring for extinct animals**
- **Tourism In its original form, it may cause natural wear and tear. But when planning a trip along with taking care of nature It will make the tourism model more sustainable.**





## **Impact assessment in Tourism sector**

**Approaches widely used to assess and manage the negative impacts of tourism:**

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### **Tourism Carrying Capacity (TCC) and Limits of Acceptable Change (LAC)**

**The TCC is defined as “the maximum number of persons that can visit a tourism destination at the same time, without causing destruction of the physical, economic and social-cultural environment nor an unacceptable decrease in the quality of the visitor satisfaction”**

**In synthesis, this concept tends to establish a limit on touristic activity according to the priorities of local managers and planners**

# Sichang Island and Tourism

## Exploring travel routes in the Koh Si-chang area

Low Carbon Tourism is tourism that has designated tourist activities that have low greenhouse gas emissions. or helping to reduce greenhouse gas emissions compared to traditional tourism



In this regard, approaches to promoting low-carbon tourism are receiving widespread attention. Due to concerns about the effects of global warming and the goal of reducing greenhouse gas emissions or moving towards net zero GHG emissions.

The tourism sector is classified as an important economic sector that contributes to a large amount of greenhouse gas emissions. It was found that the tourism industry is releasing 4.5 gigatons of carbon dioxide or 4,500 million tons each year, accounting for 8% of greenhouse gases released into the world's atmosphere. and is likely to increase further in the future

Koh Sichang is a **popular tourist destination among tourists**. The travel route can choose to travel both in the form of a one day trip. Or stay overnight, which has accommodations, restaurants, and cafes to adequately accommodate the number of tourists traveling to Koh Sichang. Tourist attractions that are popular tourist spots such as the Khao Yai Shrine Atsadang Bridge Phra Chuttharajthan Museum, Tha Yai Thim, Laem Ngu, and Chong Khao Khat, etc.

### Traveling to Koh Sichang

You can travel by ferry at Koh Loi Pier. There is a boat crossing to Koh Sichang Pier (Lang Pier) from **7:00 a.m. to 8:00 p.m.** The fare is 60 baht per person. It takes 45 minutes to get to Koh Sichang. You can also rent a speed boat that seats about 5-10 people, priced at 2,000 baht per trip. 30 minutes for traveling within the island. You can rent a motorcycle. Song-Taews (minibus) for hire and Sky lap buses







# Low carbon tourism routes

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MAKE YOUR WONDERFUL STORIES  
TO TRAVEL KOH SI-CHANG



# Low carbon tourism routes

## Route 1 Mutelu Line (go in the morning - return in the evening)

### Route 1 1 Day Trip



### Koh Sichang

- 1 Khao Yai Chao Por Shrine
- 2 Replica of the Buddha's footprint
- 3 Islandish Café
- 4 Phra Chudadhujrajthan
- 5 Pra ong leang

09:00 - 09:45 a.m.	Koh Loi Pier – Koh Si-chang Pier
10:00 - 11:00 a.m.	Pay homage to the Khao Yai Chao Por Shrine
11.10 – 11.50 a.m.	Replica of the Buddha's footprint
12:00 - 13:30 hrs.	Eat at Islandish C
1:45 p.m. - 3:00 p.m.	Phra Chudadhujrajthan
3:10 p.m. – 3:45 p.m	Pra ong leang
4:00 p.m. - 4:45 p.m	Return to shore from Sichang Pier. To Koh Loi Pier



## Low carbon tourism routes

### Route 2

#### 1 Day Trip

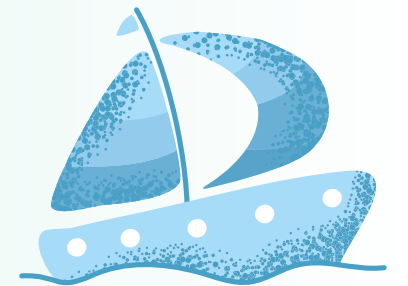


### Koh Sichang

- 1 Tha Yai Tim
- 2 Laem Ngu
- 3 Jay Moi Restaurant, Tha Lang
- 4 Tham Phang Beach
- 5 Khao Thalu Cave
- 6 Khao Khat Pass

#### Route 2: Natural route (go in the morning - return in the evening)

09:00 - 09:45 a.m.	Koh Loi Pier – Koh Sichang Pier
10:00 - 11:00 a.m.	See the scenery of Tha Yai Tim
11.10 – 12.00 p.m.	See the scenery of Laem Ngu
00.10 p.m.-1:30 p.m. 1:45 p.m. –	Eat at Jay Moi Restaurant, Tha Lang
3:00 p.m.	Tham Phang Beach
3:10 p.m. – 3:45 p.m. 4:00 p.m. –	Khao Thalu Cave
4:45 p.m. 5:00 p.m. - 5:45 p.m.	Khao Khat Pass
	Return to shore from Sichang Pier. To Koh Loi Pier



## Low carbon tourism routes

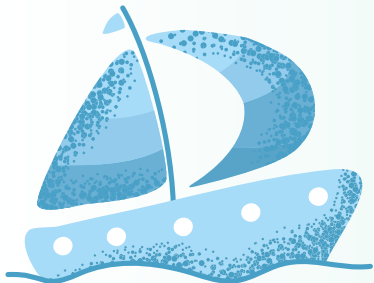
### Route 3: Chill Line (2 days 1 night)

#### Day 1

09:00 - 09:45 a.m.	Koh Loi Pier – Koh Sichang Pier
09:45 - 10:30 a.m.	Check in Somewhere Koh Sichang accommodation
10:30 - 12:00 p.m.	Eat and prepare to board the boat at Pla Chinda Raft.
0:00 - 4:00 p.m.	Snorkel and see coral reefs at the back of Khang khaw Koh and Tham Phang Beach.
4:00 - 6:00 p.m.	Return to Somewhere Koh Sichang accommodation.
6:00 - 8:00 p.m.	Have dinner Pah Noi Grilled Seafood and return to the accommodation

#### Day 2

09.00 – 10.00 a.m.	Have breakfast at the accommodation.
10.10 – 11.45 a.m.	Atsadang Bridge and Phra Chuttharajthan Museum
12.00 – 1.30 p.m.	Flower Blue Coffee & Bistro
1:45 – 2:45 p.m.	Blue Swimming Crab Bank Learning Center
3:00 -3:45 p.m.	Return to shore from Sichang Pier. To Koh Loi Pier

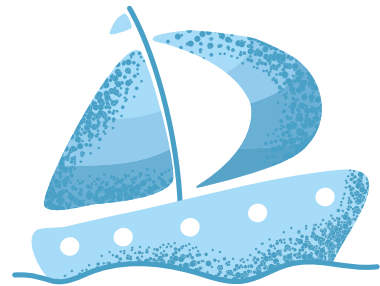


### Route 3 2 Days 1 Night Trip





# Assessing the carbon footprint from tourism activities



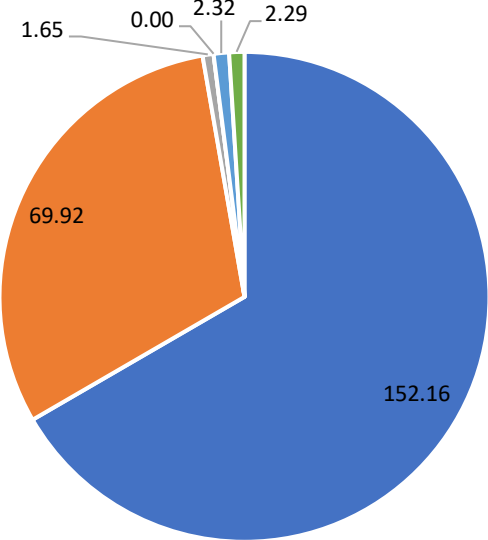


## Assessing the carbon foot print from tourism activities

Route 3 In the case of traveling within the island by motorcycle

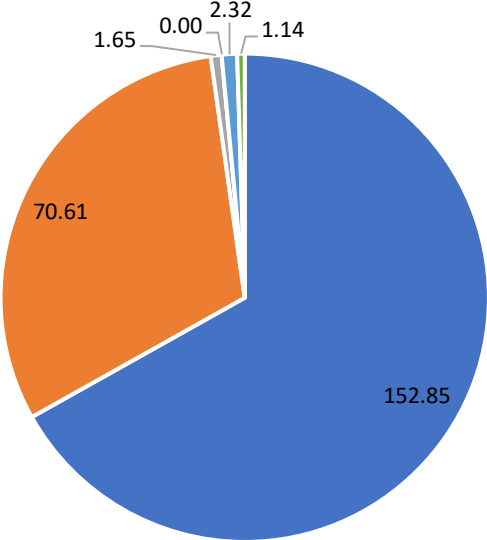
Route	Activity													
	Crossing the strait by passenger ferry		Crossing the strait by high-speed ferry		Food and beverages		Accommodation arrangements		Waste management		Travel Activities		Total	
	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person	kg CO <sub>2</sub> e	kg CO <sub>2</sub> e /person
Route 1	152.16	3.28	69.92	5.10	1.65	1.65	-	-	2.32	5.80	2.29	0.31	228.35	16.13
Route 2	152.85	3.96	70.61	5.78	1.65	1.65	-	-	2.32	5.80	1.14	-	228.56	17.19
Route 3	152.69	3.67	70.45	5.49	3.92	8.87	6.26	6.26	2.32	11.60	1.14	0.40	236.79	36.29

Activities that produce CO2 Route 1(kg CO2e)



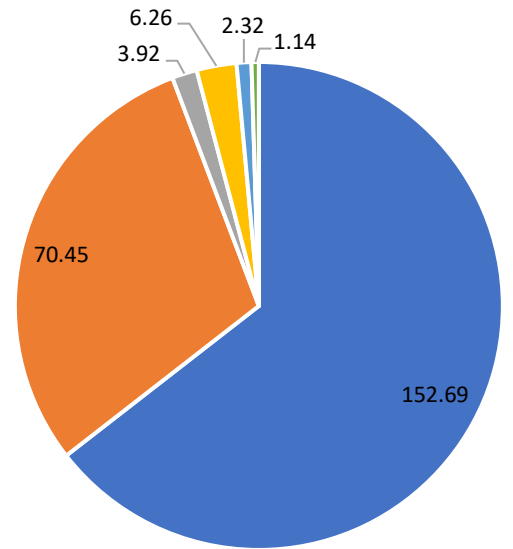
- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

Activities that produce CO2 Route 2(kg CO2e)



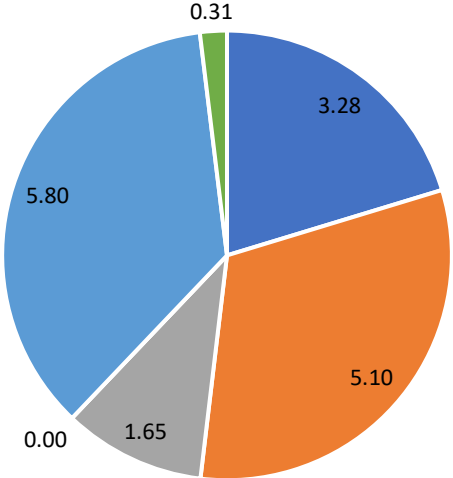
- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

Activities that produce CO2 Route 3(kg CO2e)



- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

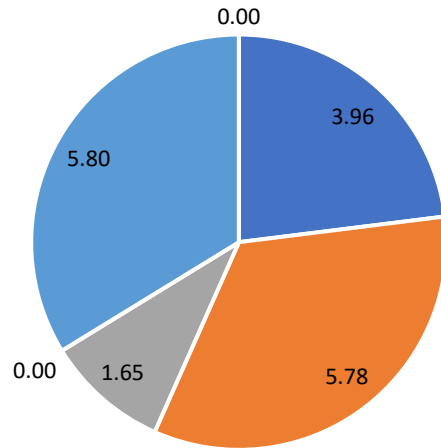
Components of activities that generate CO2, Route 1  
(kg CO2e /person)



- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

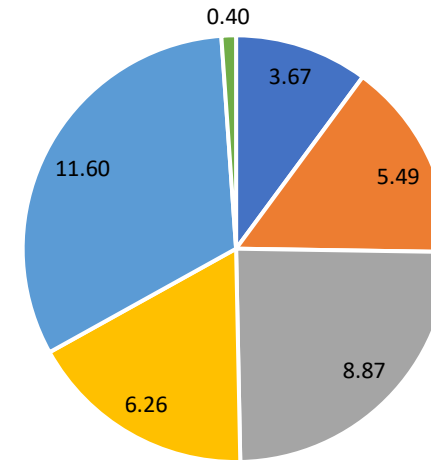


Components of activities that generate CO2, Route 2  
(kg CO2e /person)



- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

Components of activities that generate CO2, Route 3  
(kg CO2e /person)



- Ferry by passenger boat
- Crossing by high-speed boat
- Food and beverages
- Accommodation arrangements
- Waste management
- Tourism activities

## Proposed synergies of their impact assessment/ indexes



Index/Impact	Blue Economy	Circular Economy	Impact Assessment (EIA) in general	Tourism IA
GHGs emissions	√	√	√	√
Biodiversity risks	√	√	√	√
Waste Management	√	√	√	n/a
Protected Areas	√	√	√	n/a
Social aspect	√	√	√	n/a
Economic benefit	n/a	√	n/a	n/a

Many more to consider!!!

# Let's continue the conversation!

Post questions and comments in the IAIA24 app.



**#iaia24**

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