

「 A Strategic Study on the Establishment of
a **Carbon-Neutral-Oriented Tourism Policy**
Suggestions in the case of S. Korea 」



A Strategic Study on the Establishment of a Global Carbon Neutral Response Tourism Policy

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1. Overview of the task

Background

- ❖ In the 2015 Paris Agreement, Korea decided to curb global temperature rise within 2 degrees Celsius compared to the pre-industrial level.
Furthermore, in order to suppress it within 1.5 degrees celsius, **Long-term low greenhouse gas Emission Development Strategies(LEDSD)** and **National Determined Contribution(NDC)** submission were agreed.
- On December 30, 2020, "2030 NDC" and "2050 LEDSD" were submitted to the Secretariat of the UNFCCC.
- ❖ **2030 NDC:** It proposed a 40% reduction compared to 2017 emissions (79.1 million tons).
- ❖ In order to achieve these targets, the Korean government is establishing specific reduction plan policies for each industry sector.
- ❖ Accordingly, the need for research on policy measures to respond to specific carbon neutrality in the tourism industry was raised.

1. Overview of the task

Goals

- ❖ **Globally, the tourism sector has relatively fewer policies and practices for carbon neutrality than other industrial sectors.**
- ❖ **Therefore, we aimed to present policies and countermeasures for carbon neutrality in the tourism sector.**
- ❖ **It aims to establish a preemptive vision and policy in the tourism field for 2050 carbon neutrality.**
- ❖ **It aims to advance and spread tourism policies for 2050 carbon neutrality.**

1. Overview of the task

Necessity and purpose of a task

Necessity and purpose of a task

South Korea's reduction target

- It proposed a 40% reduction compared to 2017 emissions (79.1 million tons)
- In 2050, carbon neutrality was realized

Carbon neutrality is emerging as a global agenda for climate change and formation of a new economic order

Declaration of Leading Participation in International Efforts for Carbon Neutrality

The demand for establishing a promotion strategy plan for each field for carbon neutrality

Suggested the need to strengthen the tourism response base to promote and achieve innovative carbon neutrality in the tourism sector

01 **Establishing a leading vision in the tourism field for carbon neutrality in 2050**

02 **Establishing tourism strategies and policies for carbon neutrality in 2050**

03 **Advancement and spread of tourism policies for carbon neutrality in 2050**

2. COP26

Glassgow declaration

- ❖ A commitment to climate behavior in the tourism sector over the next 10 years.
- ❖ The Glasgow Declaration for Climate behavior of Tourism announced in COP26 aims to lead and coordinate climate behavior across tourism stakeholders, including the government, institutions, and the private sector.
- ❖ Some tourism companies include cooperation to halve carbon emissions by 2030 and to justify NetZero by 2050.
- ❖ Through the Glasgow Declaration, the tourism sector should also participate in a globally consistent plan for climate behavior.
- ❖ A specific climate action plan must be established within 12 months of signing the Glasgow Declaration.
- ❖ Mandatory to report on progress and actions every year, Signatures of more than 300 major tourism industry stakeholders
- ❖ Five paths of Measure, Decarbonise, Regenerate, Collaborate, Finance were presented across all tourism industries.

2. COP26

South Korea's participation in COP26 and the direction of this study

- ❖ In COP26, South Korea published a 2050 carbon-neutral scenario in which only figures were presented(Not only in South Korea).
- ❖ In this announcement, the Greenpeace Seoul Office demanded, “South Korea should submit its greenhouse gas reduction goals by 2030 at the latest based on logical and scientific grounds.”
- ❖ This research was initiated by the South Korean tourism sector to meet these needs more realistically and establish feasible carbon neutrality goals.
- ❖ It is also South Korea's first carbon-neutral study in the tourism field.

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Overview of carbon emission calculation

- ❖ Since the tourism industry has the characteristic of being the final consumer product, there is a limit to realizing carbon neutrality only with process changes at the industrial level like other industries.
- ❖ Therefore, in the end, detailed measurement of carbon emissions such as energy consumption and carbon footprint that occur irregularly in each industry in the tourism industry is required.
- ❖ However, there is something that needs to be prioritized.
- ❖ It is to calculate the average carbon emission and prepare a standard.
- ❖ Accordingly, this study analyzed the average carbon emission calculation of the tourism industry using the TOP-DOWN method.
- ❖ Of course, we plan to calculate detailed tourism carbon emissions through the application of the BOTTOM-UP method in the future.

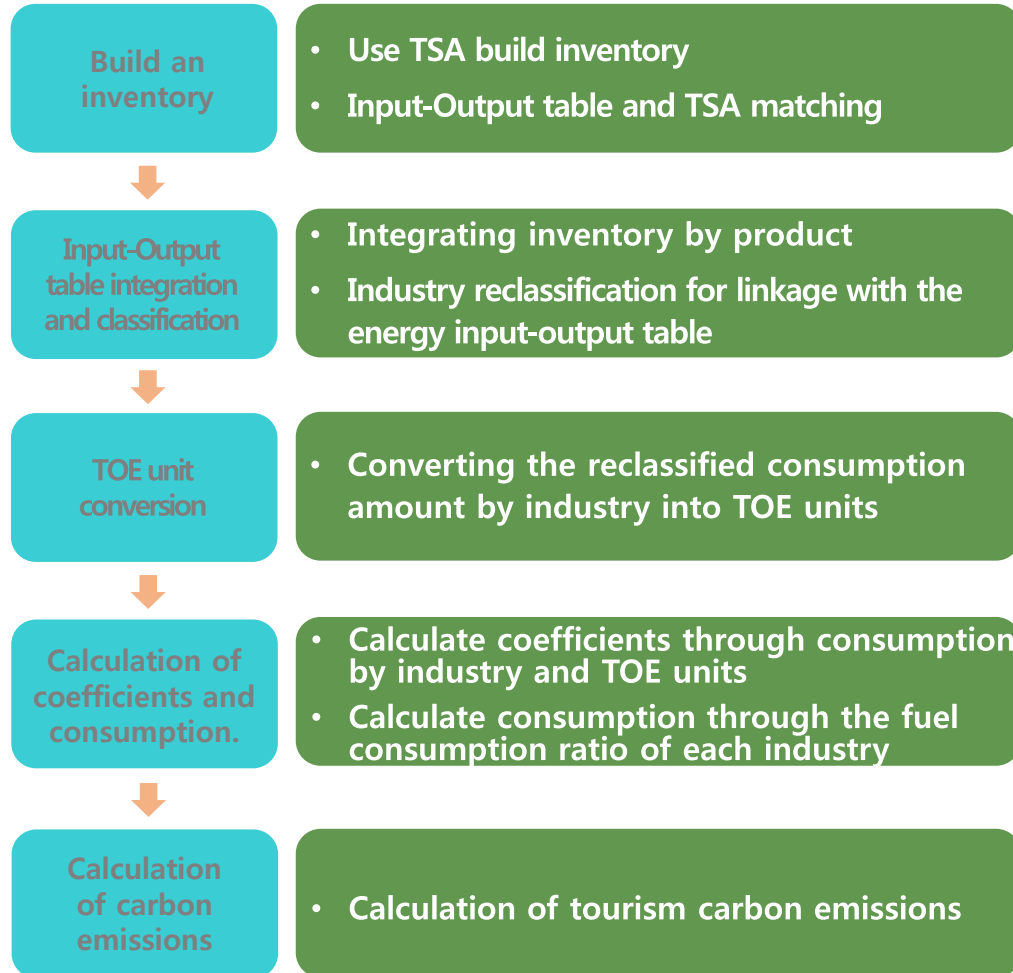
3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Build an inventory

- ❖ The most worrisome part of the TOP-DOWN method was how to build inventory.
- ❖ South Korea stipulates seven major tourism sectors under the Tourism Promotion Act.
- ❖ However, this part does not include transportation such as aviation.
- ❖ It is under the jurisdiction of other ministries.
- ❖ Due to these various problems, I spent a lot of time preparing the criteria for inventory construction.
- ❖ The final conclusion was to use statistics called 'Tourism Satellite Account' that encompass the seven major tourism sectors and encompass the actual radius of action of tourism.
- ❖ In South Korea, an institution called 'Korea Culture and Tourism Institute' announces the annual Tourism Satellite Account figures.
- ❖ Based on this, our research team finally calculated tourism carbon emissions by applying the standards of the Industry Association Table(Input-Output table).

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Calculation of carbon emissions in a top-down manner



3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Establishing an inventory through linkage of Input-Output table

❖ The tourism industry is divided into 15 categories and linked to the Input-Output table

Inventory	Travel survey items	products in the Input-Output table (381 kinds)	
		Code	Product name
1. Accommodation services for visitors	room charge, condominium voucher	5820	Accommodation
		5811	General restaurant
		5812	Other restaurant
2. Food- and beverage-serving services	The cost of the restaurant	5813	bar
		5814	Non-alcoholic beverage pubs
		5310	Rail transportation service
3. Railway passenger transport services	Transportation cost (Train)	5310	Rail transportation service
4. Road passenger transport services	Transportation cost (Car)	5321	Transportation service through the road
		5401	Inbound transportation service
5. Water passenger transport services	Transportation cost (Ship)	5402	Outbound transportation service
		5500	Air transportation service
6. Air passenger transport services	Transportation cost (Aircraft)	7300	Lease of equipment, supplies and intellectual property rights
		5611	Land transport assistance service
		1622	Gasoline, diesel, liquefied petroleum gas
1625			
1627			
8. Travel agencies and other reservation services	Travel agency's payment	7904	Travel agency, travel assistance service
		7901	Cultural service (national public)
		7902	Theater, Music and other arts
9. Cultural services	Travel expenses (Admission Fee, Performance fee)	7903	Other cultural services
		8001	Sports service
10. Sports and recreational services	Travel expenses (Sports)	8001	Sports service
	Travel expenses (Recreation)	8002	Recreational services

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Establishing an inventory through linkage of Input-Output table

❖ The tourism industry is divided into 15 categories and linked to the Input-Output table

11. Country-specific tourism characteristic goods	Cosmetics shopping	2222	Cosmetics	A.2. Tourism connected products	Electronic products (video)	3691	Camera, Projector	
	Grocery (Meat)	0811~8014	Meat products		Electronic products (sound)	3523	Audio, Sound equipment	
	Grocery (Seafood)	0821, 0822	Seafood products		Folk tourism products	4399	Other manufacturing products	
	Grocery (vegetables)	0871	Vegetable and fruit products		Toys, Entertainment	4391	Toys, Entertainmen	
	Grocery (Chips, Noodles)	0851 0852	Rice cake, bread, snacks Noodles		Workout supplies	4392	Workout supplies	
	Grocery (Tea)	0872	Coffee, Tea		Card data	4394	Stationery supplies	
	Grocery (drink)	0912	Soju			3521	TV	
		0913	Beer			3751	Refrigerator, freezer	
		0919	Other drink			3752	Electric appliances for kitchen and heating	
	Grocery (grain)	0831, 0832	Threshing		Other electronic products	3759	Other household electrical appliances	
	Health supplement	0873	Ginseng, health supplement			3692	Other optics	
	Clothing (General)	1151	Genera Clothing		A.3. Non-tourism related consumption products	Travel insurance	6601	Life insurance
	Clothing (Durable)					1152	Durable Clothing	Medicine
	Clothing (Leather)	1155	Leather Clothing			Personal hygiene products	2221	Soap, Detergent, Toothpaste
	Clothing (Ornaments)	1153	Ornaments Clothing			Video, Sound	6401	Video, Audio production and distribution
Clothing	1203	Bag, Wallet	Newspaper, Publication	6300		Newspaper, Publication		
Bag, Wallet, Belt.	1209	Other leather	Data communication cost	5912		Wireless and Satellite communication services		
Clothing (Shoes)	1204	Shoes	Other professional services	7299		Other professional services		
12. Country-specific tourism characteristic services		7701	Medical, Health (national public)	B1. Valuables		4395, 3693	Jewelry, Watches, Precious metals	
	Treatment, beauty service	7703	Medical, Health (industry)					
		8221	Beauty service					
		7490	Other business support services					

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

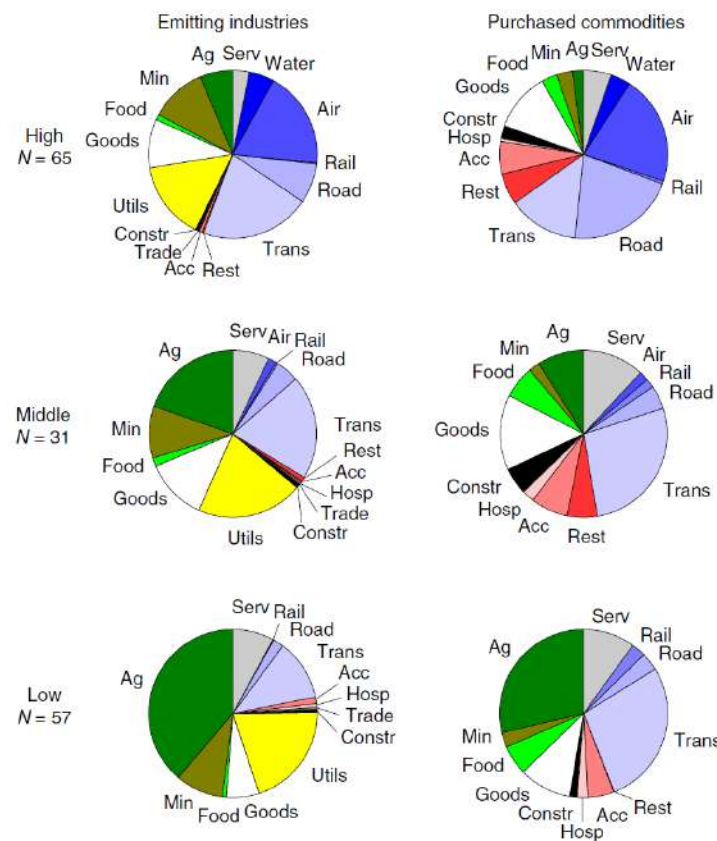
Calculation of carbon emissions (Top-Down)

- ❖ **Currently available estimates of Travel & Tourism emissions thus range from 8%-11% of global GHG emissions (3.9 to 5.4 billion tonnes of CO₂ emissions out of a total of 48.9b tCO₂e in 2019).** <Reference: WTTC (2021). A net zero roadmap for travel & tourism: proposing a new target framework for the travel & tourism sector>
- ❖ **Total emissions of the Korean tourism sector is estimated at 83.2 million tCO₂eq.**
- ❖ **11.84% of national emission (approx. 703 million, 2019).**
- ❖ **As a result of the calculation, it was judged that TSA was excessively estimated.**

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Calculation of carbon emissions (Top-Down)

- ❖ Passenger transportation takes the largest share, 49.3%
- ❖ Similar to the other high-income countries, but “accommodation” service has a meager share, 0.9%
- ❖ Emissions from electricity are substantial, 22.2%, in Korea
- ❖ Rough estimation using Input-Output table
=> further verification is needed
- ❖ However, it is very meaningful that the tourism carbon emissions were calculated for the first time in the Korean tourism sector.
- ❖ Based on this, it will be possible to gradually calculate realistic tourism carbon emissions, and the results of this study will be the basis for this influence.



Source: Lenzen et al.(2018)

3. Calculation of Carbon Emissions in the South Korea Tourism Sector

Calculation of carbon emissions (Top-Down)

Sector	Emission (ktonCO ₂ eq)	Share	
1. Tourist accommodation	743.43	0.9%	
2. Food and beverage	6,648.58	8.0%	
3. Rail transportation	233.83	0.3%	
4. Road transportation	31,866.42	38.3%	
5. Marine/water transportation	1,488.76	1.8%	
6. Aviation	7,476.58	9.0%	
7. Rental/maintenance service(transport)	Commercial	443.85	0.5%
	Road	6,682.99	8.0%
	Energy/fuels	6,179.82	7.4%
8. Travel agency/operation/guide	90.69	0.1%	
9. Cultural service	425.56	0.5%	
10. Sports/leisure/recreation	1,604.78	1.9%	
11. Products for tourists	Pet./Cem.	1,375.00	1.7%
	Food/tobacco	2,953.60	3.5%
	Tex./clothing	1,747.97	2.1%
12. Services for tourists	Public	4.66	0.0%
	Private	2,301.10	2.8%
A.2. Connected products	1,316.97	1.6%	
A.3. Non-tourist products	Manufacturing	936.78	1.1%
	Pet./Cem.	5,707.43	6.9%
	Commercial	2,890.50	3.5%
B.1. Jewelry/precious prod.	100.73	0.1%	
Total	83,220.03	100.0%	

[Reference table]

The amount of TSA input has been set excessively, so the inspection is underway.

4. A public survey

Research need

- ❖ **Carbon neutrality in the tourism sector can be realized when tourists participate**
- ❖ **Pro-environmental behavior is influenced by complex factors such as personal characteristics, perception of climate change situations, and norms.**

Purpose of the survey

- Understanding the perception of climate change and carbon neutrality
- Understanding the status of eco-friendly tourism behavior
- Identify ways to induce Pro-environmental Tourism Behavior

Research design

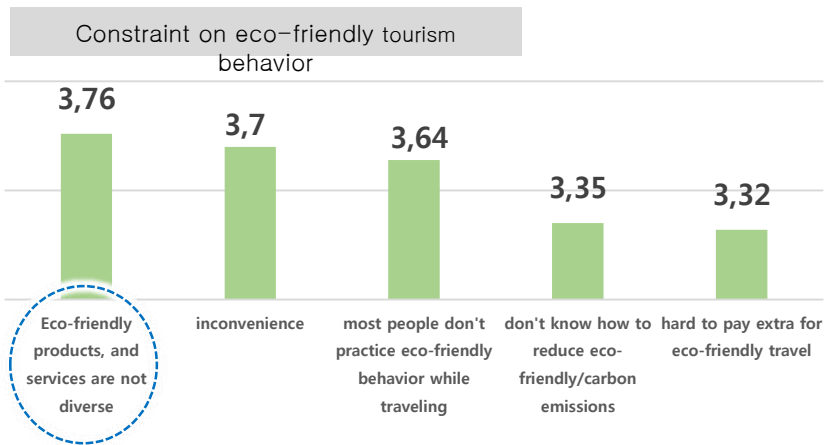
- Population: Koreans aged 19 or older nationwide.
- Number of samples: 1,015 valid samples.
- Sampling method: Proportional allocation (regional, gender, and age population distribution)

4. A public survey

Key Results and Implications

1 Expand low carbon tourism facilities, products, and services

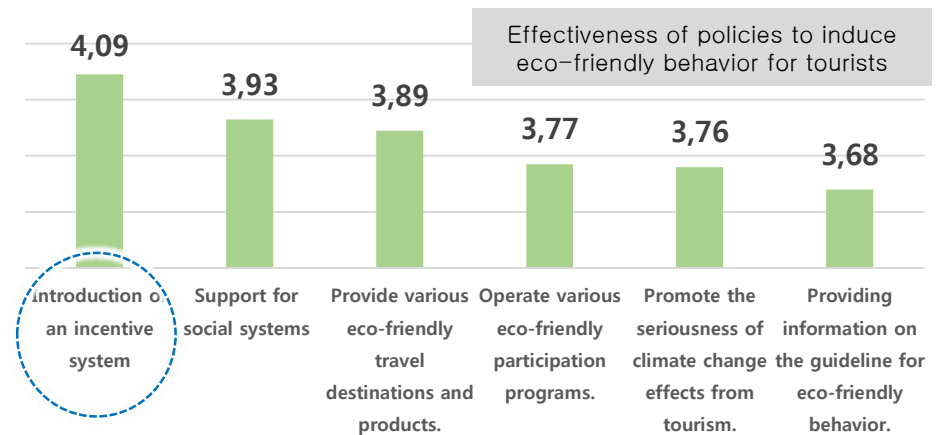
- As a constraint on eco-friendly tourism behavior while traveling, "Eco-friendly tourism facilities, products, and services do not diverse" is the highest than inconvenience, freedom, and cost issues



- As a policy that can induce tourists' eco-friendly tourism behavior, "providing various eco-friendly travel destinations and products that can be selected" is included in the top response
- Therefore, policies to expand and promote low-carbon tourism facilities, products, and programs are needed

2 Provide incentives for tourists' eco-friendly behavior

- The policy to provide incentives to tourists was answered as the most effective (80% = effective, average = 4.09 points)



- Ex) Boutique Hotel Stadthalle
- These incentives/rewards can be expanded nationally and internationally through connection/cooperation.
- Ex) Singapore Reverse Vending Machine(RVM)

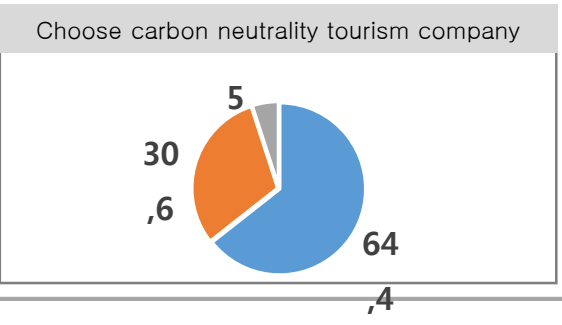
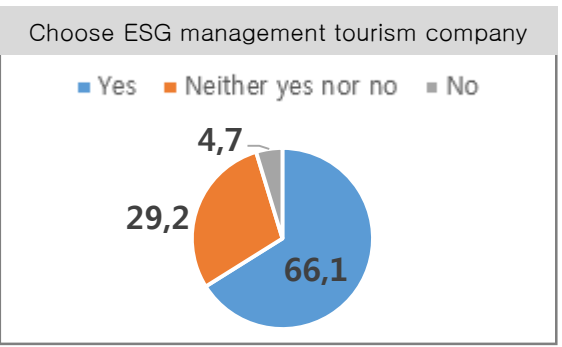


4. A public survey

Key Results and Implications

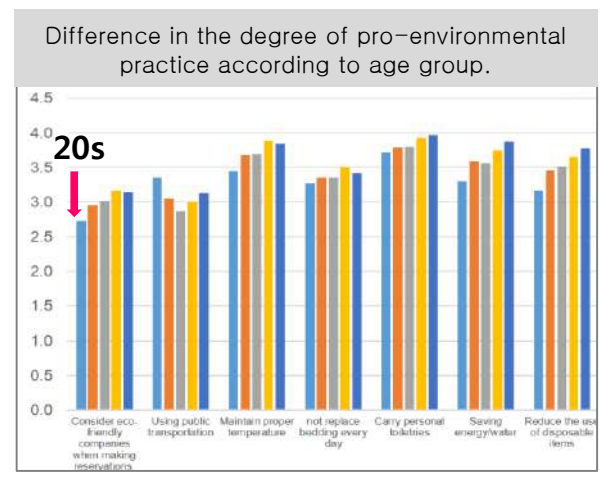
3 Enhance tourism companies' participation in ESG management and carbon-neutral certification

- When consumers choose a tourism company in the future, whether the tourism company manages ESG and certification of carbon neutrality will be an important criterion.

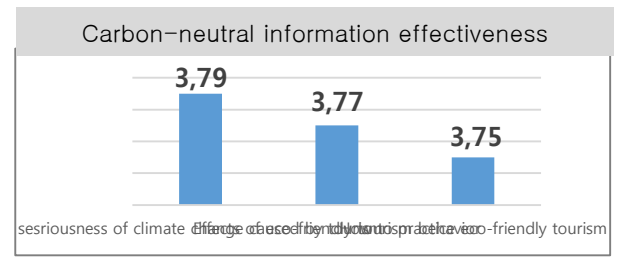
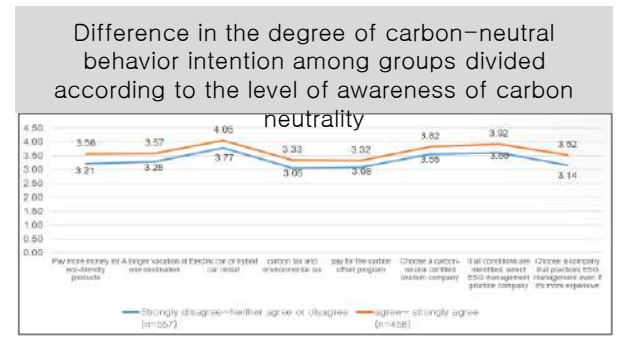
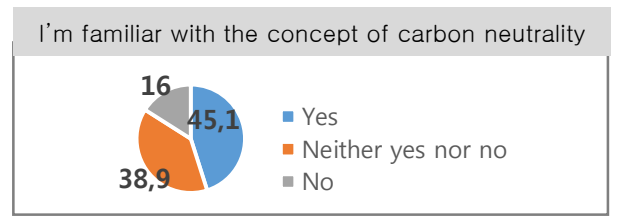


4 Differentiated policies by age group, especially for 20s

- The average value of the 20s was the lowest in terms of the level, intention of eco-friendly tourism behavior practice
- Those in their 20s were found to access climate change or carbon-neutral information in the order of Internet > television > SNS > YouTube > newspaper magazine.



5 Providing information on the seriousness of climate change and the effectiveness of carbon-neutral behavior to raise awareness.



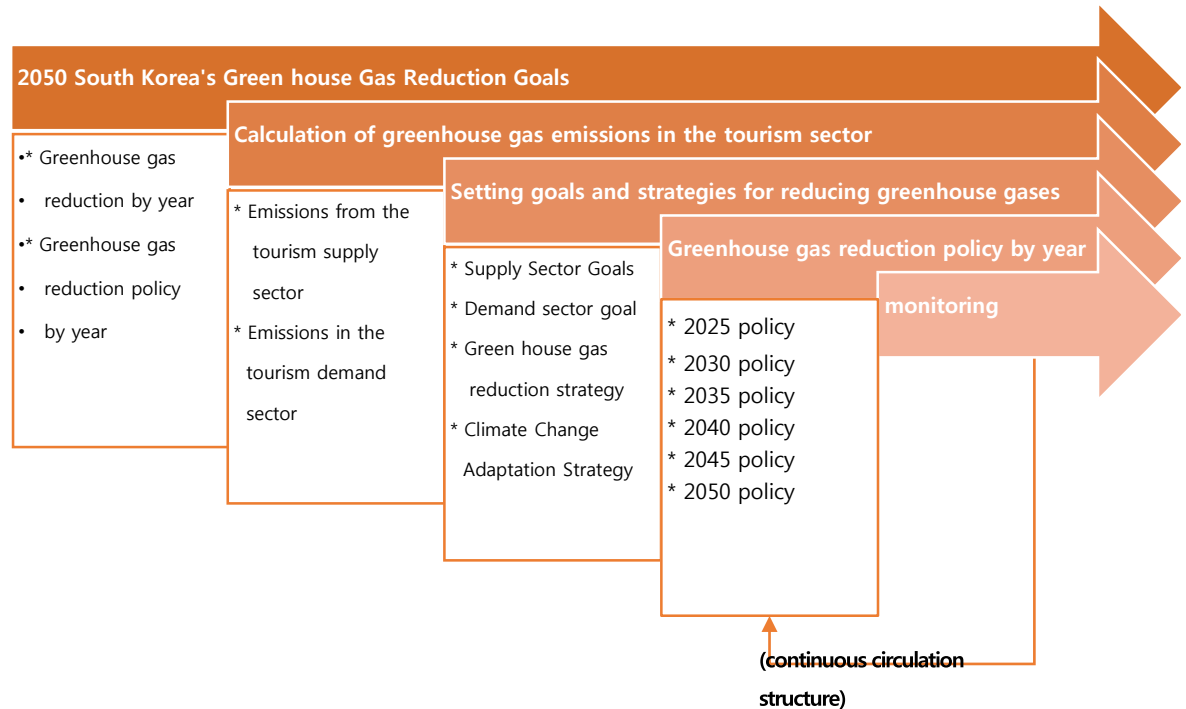
5. Global Carbon Neutral Response Tourism Policy Framework

2050 South Korea's tourism sector Carbon Neutral Policy Roadmap

- ❖ Establishing a 2050 Korea Tourism Sector Carbon Neutral Policy Roadmap based on the calculated carbon emissions in the tourism sector
- ❖ Establish annual greenhouse gas reduction goals and policies, and monitor actual reduction and offset through a continuous reporting system

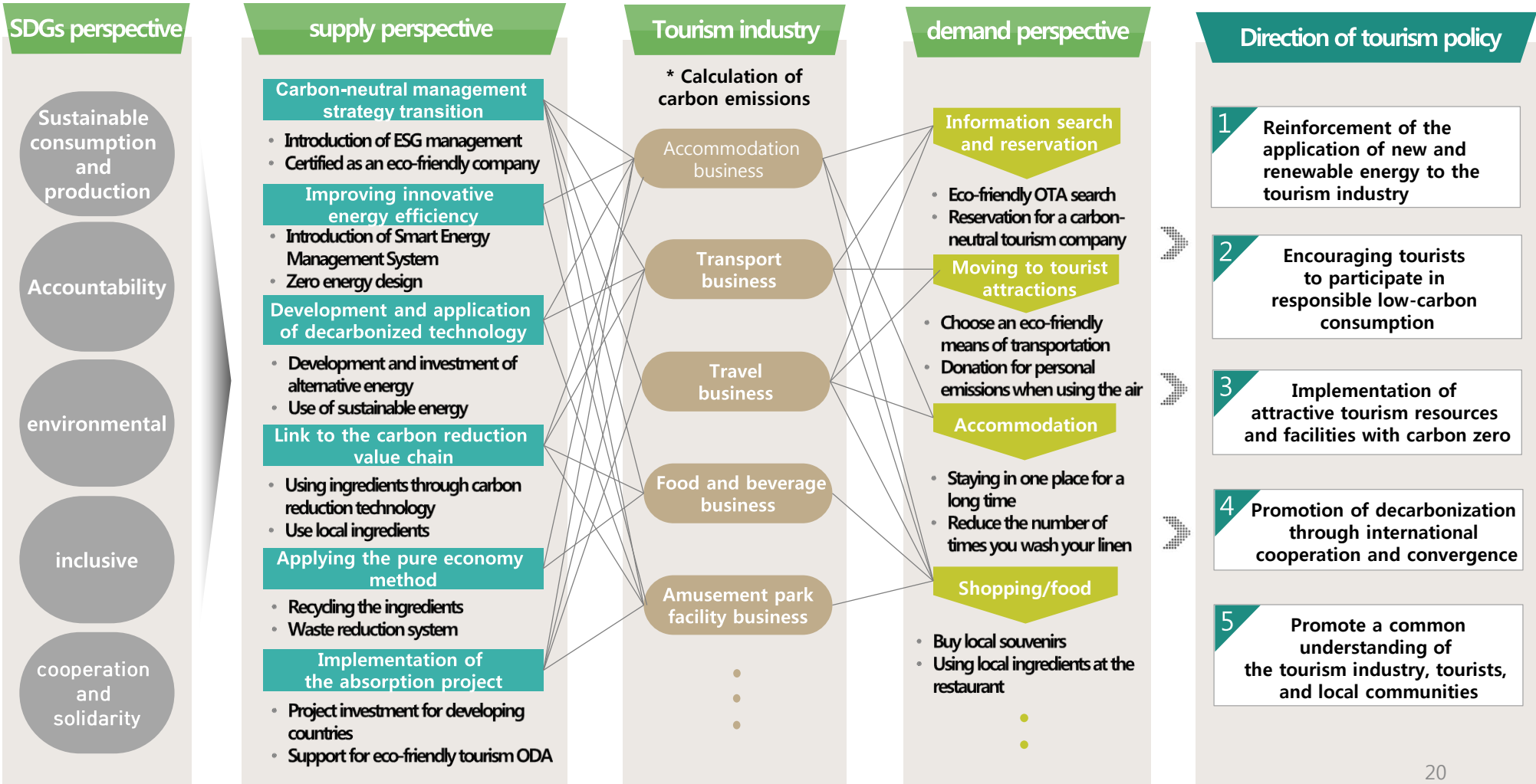
2050 Roadmap for Carbon Neutrality Policy in Tourism

- Calculation of greenhouse gas emissions in the tourism sector based on the goal of reducing greenhouse gas emissions in South Korea in 2050
- Setting goals to reduce greenhouse gas emissions in the tourism sector
- Setting up strategies to reduce green house gases
- Selection of greenhouse gas reduction policies by year
- Continuous monitoring (continuous cyclical structure)



5. Global Carbon Neutral Response Tourism Policy Framework

Direction of carbon-neutral tourism policy



「 Thanks 」

