Objective of the Research

To encourage sustainable consumption through the development of tools that easily show the relationship between lifestyle and CO2 emissions:

- We will develop a tool that makes it easy to appreciate the amount of CO2 emissions that come with a lifestyle choice.
- By offering such a tool, consumers will be able to determine what level of CO2 is being emitted in their current lifestyle and what level would be emitted by a lifestyle they wish to lead. This will encourage a voluntary shift to a very environmentally efficient lifestyle (that is, sustainable consumption).

Step 1. Module Development

For each lifestyle aspect, we established patterns of leisure and consumption behavior that correspond to hobbies and interests. We then described lifestyles as combinations of these.

1. We divided lifestyle into nine regions. For each region, we then established patterns (modules) for the leisure and consumption behavior that corresponded to hobbies and interests.
2. In order to make the assumptions about potential lifestyle choices, we eliminated areas that depended on conditions that could not be changed over the short term, for instance, residential area, job, and family makeup.
3. For each module, we calculated the standard monetary consumption and volume of consumption, and then, volume of CO2 emissions assumed for those.
4. The volume of CO2 emissions of a lifestyle can be calculated easily by describing lifestyles as a combination of the modules mentioned above.

Lifestyle Categories

- Home location
- Eating habits
- Living room / kitchen
- AV and computer
- Fashion
- Indoor hobbies
- Outdoor hobbies
- Travel
- Car

Criteria for establishing categories:
- Easily reflects hobbies and interests
- Major differences in volume of CO2 emissions
- Worth using to describe lifestyles

Example of a Lifestyle Module

Car

For me, a car is an important companion. I am very particular about the model.

A car is essential to living. It would be nice to have one. I would like to choose it based on fuel efficiency.

I am fond of cars, but because of my concern about the environment, I would like to choose a hybrid car or eco-car.

I don’t need a car. When I need one, it is sufficient to rent one or use a taxi.

We calculated a standard volume of CO2 emissions for each lifestyle module established in step 1.

- For the items with examples of LCA calculations for each individual product, we made use of that data. For other items, we used the LCA calculations in the inter-industry transactions table of the independent National Institute for Environmental Studies to calculate the standard monetary consumption and volume of consumption.
- For items that generate CO2 directly through combustion when used, for instance, natural gas and gasoline, that portion was calculated separately.
- Of the above, the standard amount of monetary consumption and volume of consumption were established from national studies of consumption, leisure white papers, statistics from various industries and the survey questionnaires.
Examples of Methods of Calculating CO2 Emissions (Cars)

- Questionnaire data
- Configuration of cars used for each module
- Annual distance driven per module
- Average number of passengers per module
- Inter-industry transactions
- Table data
- Amount of CO2 emissions when gasoline produced

The annual volume of CO2 emissions for each module is calculated based on the data above using the methods shown below.

When a car is produced:
1. Multiply the volume of CO2 per kilogram when the car is produced by using the standard configuration for each module and divide by the average years of use, 0.20 years.

When a car is used:
2. Calculate the annual amount of gasoline used by multiplying the average distance driven for each module by the average fuel efficiency of the standard model configuration. Then multiply the result by the volume of CO2 emissions per kilogram when gasoline is produced and when combusted.

Volume of CO2 emissions per man-year = \( \text{Emissions when produced} \times \text{emissions when used} \) / average number of users

Examples of Results of Calculating CO2 Emissions (Car)

For me, a car is an important companion. I am very particular about the model. A car is essential to living. It would be nice to have one. I would like to chose one based on fuel efficiency. I don’t need a car. When I need one, it is sufficient to use one or use a taxi. I am fond of cars, but because of my concern about the environment, I would like to chose a hybrid car or eco-car.

Example of Results of Calculating CO2 Emissions (Car)

<table>
<thead>
<tr>
<th>CO2 Emissions (Cars)</th>
<th>Car</th>
<th>City living oriented</th>
<th>Emphasis on the home</th>
<th>Service use oriented</th>
<th>Outdoor amusement oriented</th>
<th>City living oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 614.23 ) kg/ man-year</td>
<td>( 1,128.66 ) kg/ man-year</td>
<td>( 66.31 ) kg/ man-year</td>
<td>( 20.64 ) kg/ man-year</td>
<td>( 22.97 ) kg/ man-year</td>
<td>( 31.21 ) kg/ man-year</td>
<td>( 13.9) kg/ man-year</td>
</tr>
</tbody>
</table>

Environmental Efficiency of Each Lifestyle

- Calculate environmental efficiency indicators for representative samples from each cluster.

Examples

- Emphasis on the home
- Outdoor amusement oriented
- City living oriented

Future Evolution

- The development of a CO2 emissions simulator that uses the CO2 emissions data per module
  - The development of a simulator that projects the standard CO2 emissions as a consequence of choosing modules of the lifestyle you are currently leading or the one you would like to lead in the future.
  - The encouraging of an understanding of the relationship between a lifestyle and the amount of CO2 emissions associated with it using the simulator described above and linking this to the promotion of sustainable consumption.
Examples of a CO2 Simulator

Your lifestyle is quite old-fashioned. You are emitting large amounts of CO2. Please lead a more sustainable lifestyle and take better care of the Earth.

You have selected the above items and your CO2 emissions are 4800 kg/year.

Comments:
Your lifestyle is quite old-fashioned. You are emitting large amounts of CO2. Please lead a more sustainable lifestyle and take better care of the Earth.