International Online Conference
"Innovations in citizen engagement toward advancing the decarbonisation of cities and Lifestyles"

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Decarbonisation Efforts of Cities/Municipalities with Citizens:

1.5-Degree Lifestyles and Citizen Engagement

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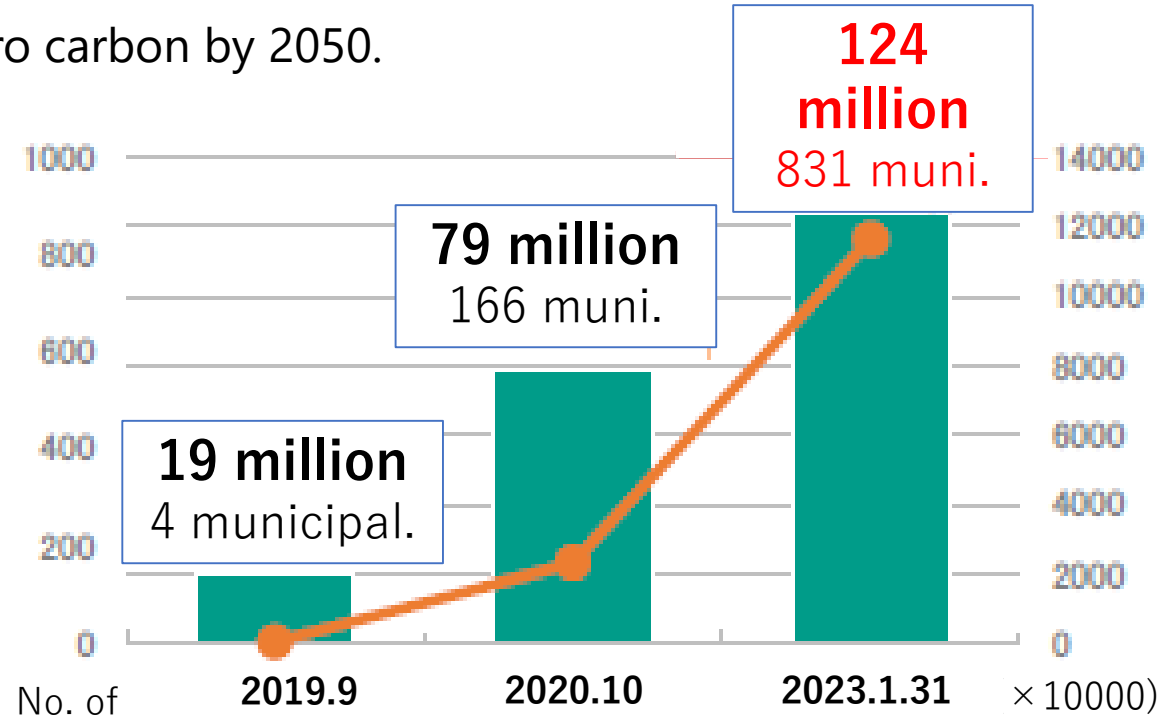
Decarbonisation transition at city/municipality level

- Increasing number of cities/municipalities declare net zero carbon by 2050.
  In Japan, 831 municipalities (covering more than 99% of total population) declared net zero carbon by 2050.

- Cities/municipalities have many opportunities to promote decarbonization:
  - ✓ Effective planning/implementation of decarbonization efforts reflecting local conditions
  - ✓ Close interaction/communication with citizens

- There are also challenges:
  - ✓ Provision of the goods and services consumed in the boundary highly depends on outside. Mitigation potential of direct emission generated in the boundary may be limited.
  - ✓ Related to the above, often difficult to identify concrete mitigation measures.



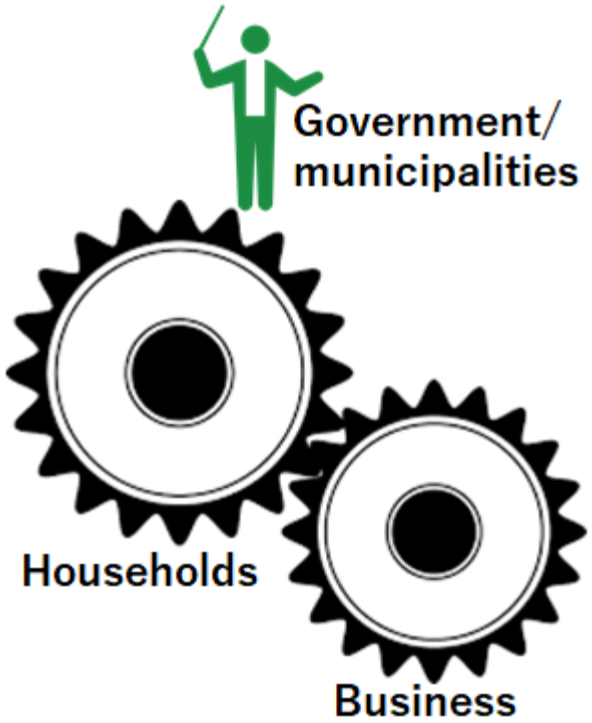
Municipalities declared net zero by 2050 in Japan

Source: MOEJ (https://www.env.go.jp/content/000108145.pdf)

1.5℃ Lifestyle Approach

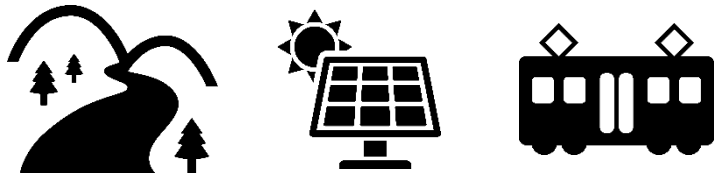
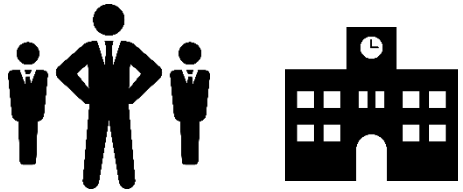
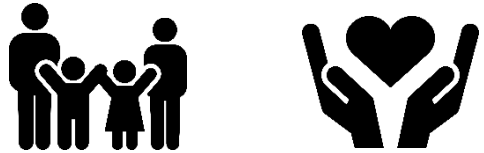
- ◆ **Aiming to achieve both comfortable and quality living and decarbonisation transition**
- ◆ **Combining quantitative analysis with carbon footprint (CF) and citizen participation**

- Set lifestyle CF reduction targets consistent with the 1.5℃ target
- Propose a variety of specific actions for lifestyle CF reduction
- Propose supporting measures by other stakeholders (government and business) for implementation and dissemination of citizens' actions



Quantification of the current lifestyle CF and reduction potential of mitigation effects gives a real sense of both the decarbonisation impacts of citizens' efforts and the necessity of very ambitious actions across society to achieve the 1.5℃ target.

Citizen engagement in 1.5-Degree Project

Local environment and infrastructure 	Available products and services 
 Rules of work places/schools/communities	 Own needs and family needs

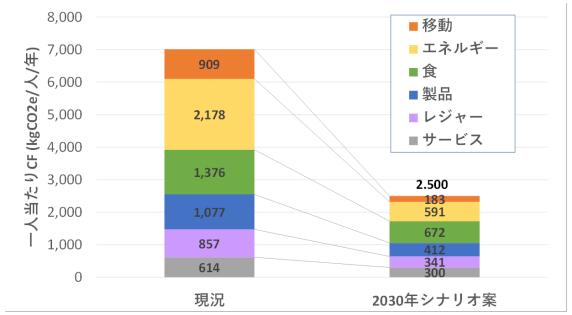
Think, test, learn and share what we want to change and what we can change together as a community and family

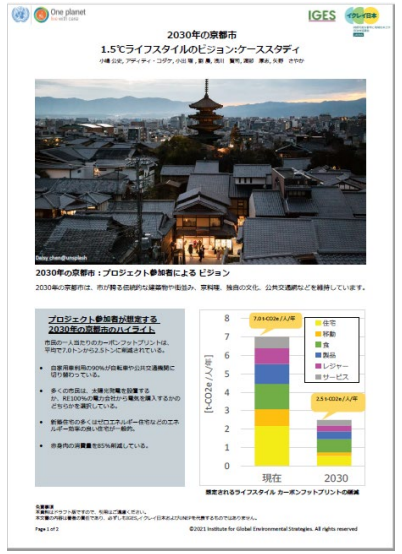
Identify barriers against actions through household experiments of actions, and propose supporting measures

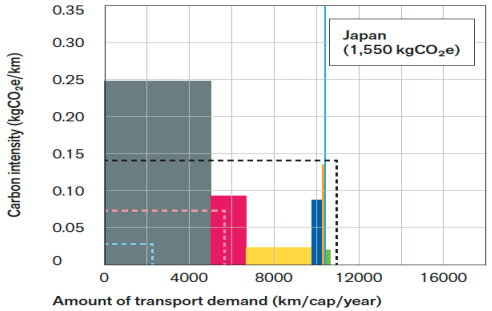
Work flow (original plan)

Develop workshop tools

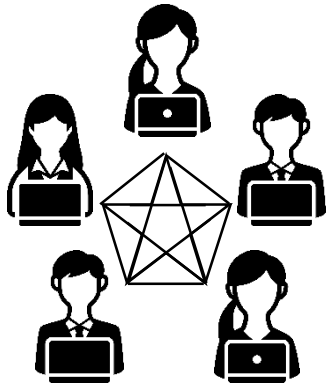
Develop city scenario towards 1.5 lifestyle



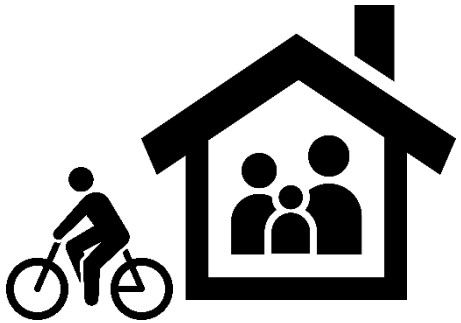




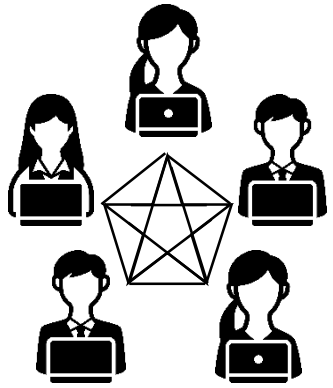
Estimation of existing carbon footprint in a city



1st workshop

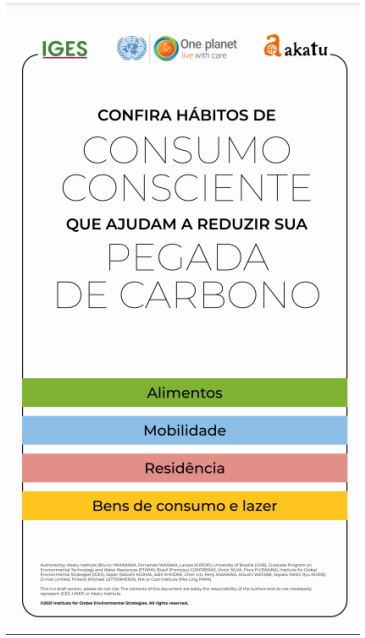


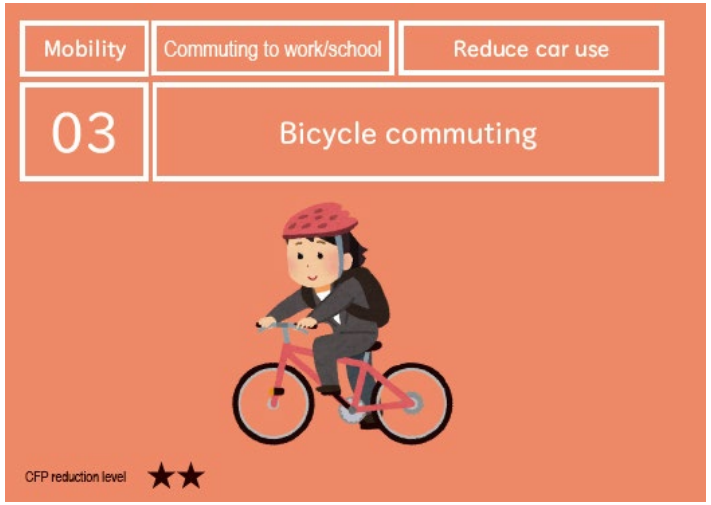
Household experiments

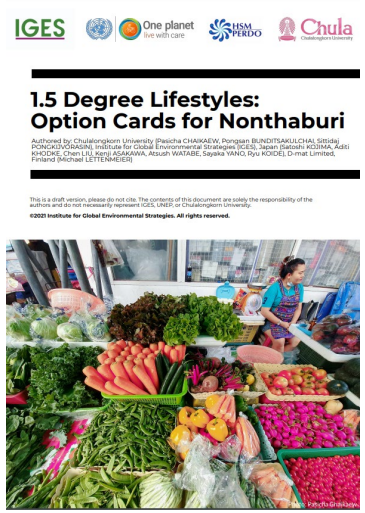


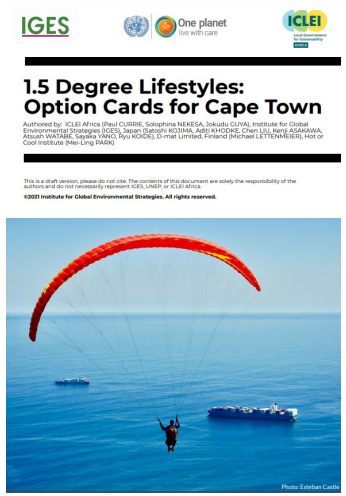
2nd workshop

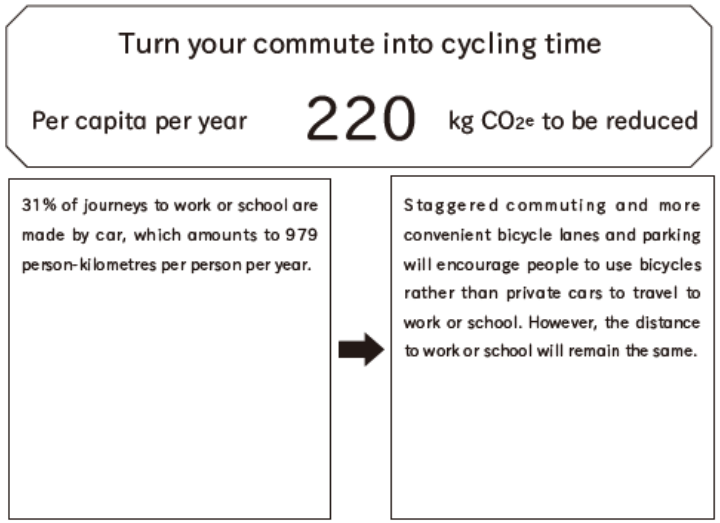
Key workshop tool: City-specific Catalogue of Lifestyle Change Options











- ✓ For 1.5 Degree Lifestyles combine actions in the areas of food, housing, mobility, goods, services and leisure.
- ✓ Identify and introduce contextually appropriate carbon footprint reduction options.
- ✓ Choice of options that fit personal circumstances and preferences while reducing their overall carbon footprint is necessary.

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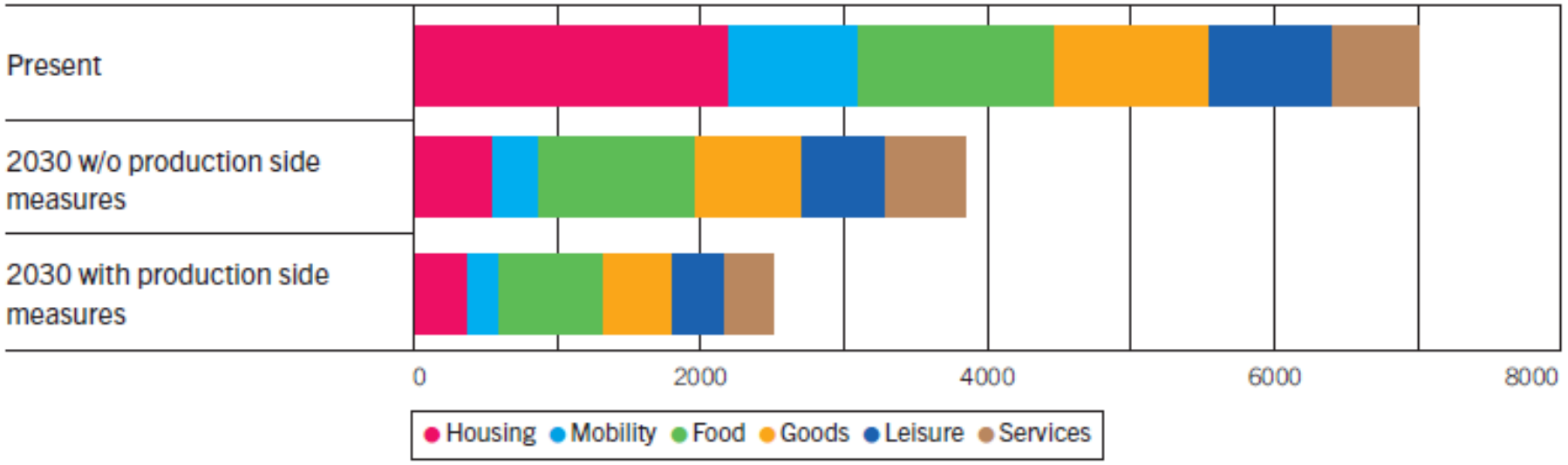
Customisation according to the objectives of citizen engagement

- At the beginning of city level applications of 1.5-degree Lifestyle project, it was designed to develop city specific scenario to achieve 1.5-degree target (2.5t-CO_2e/capita) with mitigation actions selected by participants with adoption rates set by participants.
- In collaboration with partners in Brazil, India, South Africa and Thailand, we conducted citizen workshops and household experiments in 6 cities: Kyoto and Yokohama (Japan), Sao Paolo (Brazil), New Dehli (India), Cape Town (SA), and Nonthaburi (Thailand). The major challenges and lessons learned are as follows:
  - ✓ In order to engage citizens who commit to attend all sessions (2-WS and household experiments), we recruited participants through citizens groups for environmental activities. The participants did not reflect diversity of citizens.
  - ✓ With limited discussion time (to avoid too long sessions), selection of mitigation measures and setting adoption rates by participants were heavily influenced by facilitation of the discussion.
- Not only elaboration of methodology to pursue original objectives, customisation of methodology according to various objectives (falimiarisation/outreach purpose, education purpose, etc.) is necessary.

Original design (Kyoto City case) : Setting adoption rates to achieve 1.5-Degree Target

Name of Mobility Related Option	Carbon footprint reduction potential ($kgCO_2e$/capita/yr)	Adoption rate in 2030 (%)
Telework	279.4	50
Online Home Coming Visit	170.4	45
Domestic Vacation	57.2	45
Shifting from Long Distance Driving to Train	278.1	40
Car Sharing	212.7	40

In the first workshop, participants were asked to select mitigation actions to be implemented and to propose adoption rate of each selected action.



It was found that even all actions were fully implemented, 1.5-degree target cannot be achieved with the fixed energy mix and technologies (emission coefficient).

Source: IGES (2021) Kyoto in 2030: Envisioning 1.5-Degree Lifestyles (https://www.iges.or.jp/en/pub/kyotolifestyles/en)

Original design: Lack of dynamic projection of technologies and energy mix

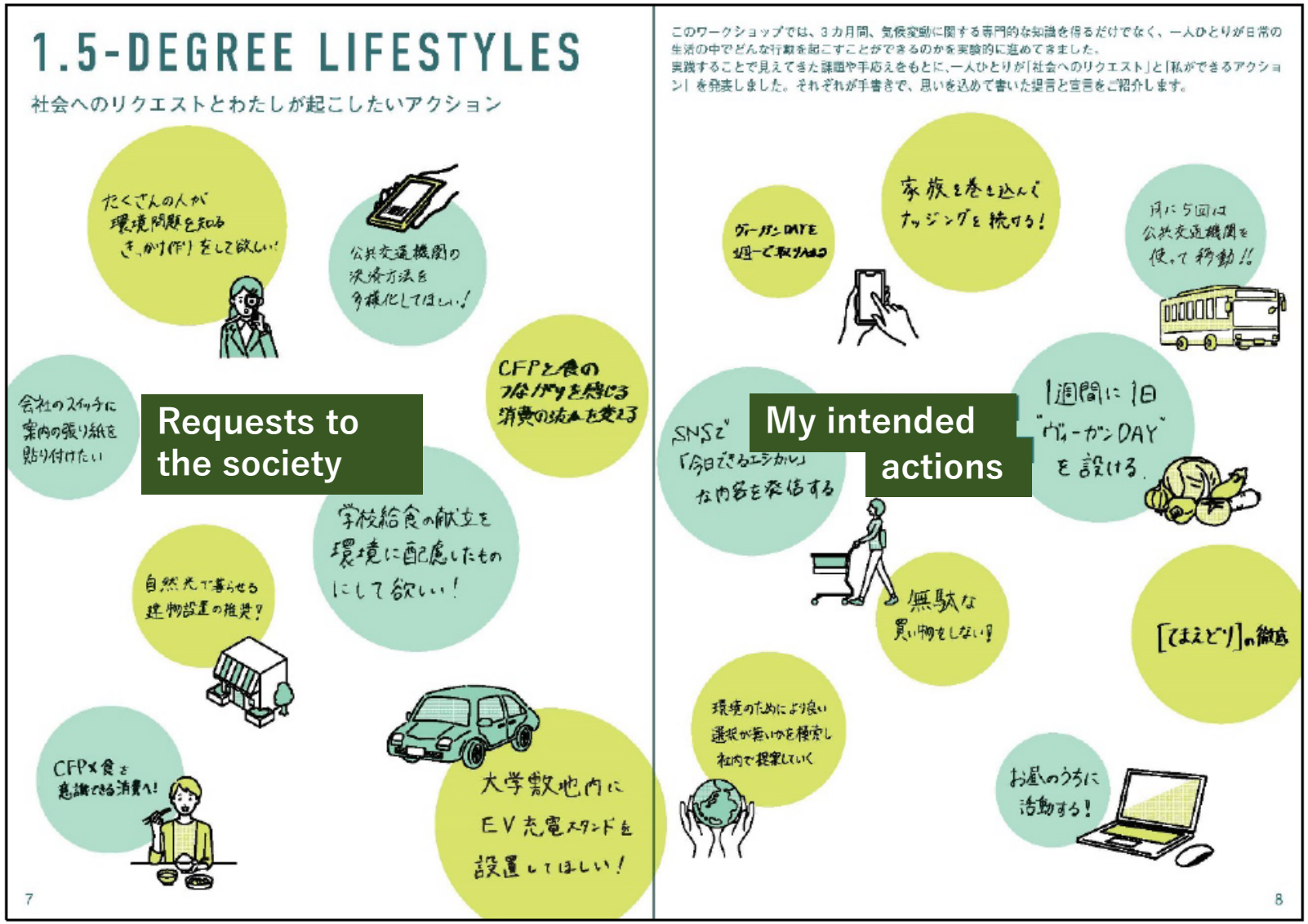
CITY	BASELINE CARBON FOOTPRINT	POTENTIAL CARBON FOOTPRINT REDUCTION
Cape Town, South Africa	10.3 tCO2e/capita/year	**5.5 tCO2e/capita/year**
Kyoto, Japan	7.0 tCO2e/capita/year	**4.1 tCO2e/capita/year**
Nonthaburi, Thailand	2.5 tCO2e/capita/year	2.5 tCO2e/capita/year
New Delhi, India	2.8tCO2e/capita/year	2.5 tCO2e/capita/year
Sao Paulo, Brazil	3.6 tCO2e/capita/year	2.5 tCO2e/capita/year
Yokohama, Japan	7.1 tCO2e/capita/year	**4.2 tCO2e/capita/year**

The globally unified target for a 1.5 Degree Lifestyles of 2.5 t-CO2e/capita/year by 2030 cannot be achieved without transformative systemic changes on the production side, which require adequate actions by the government and the business sector.

Customisation (Kagoshima City case) : Encourage ownership of participants

Kagoshima workshop prioritised encouraging ownership of the participants, in particular those of young generation.

Instead of having discussion session on adoption rates setting, prioritised free discussion on the desired society and what each participant wants to do for it.



Source: IGES (2022) Kagoshima 1.5°C Lifestyle Workshop (pamphlet)

Customisation: Environmental Education

- Based on the findings from 1.5-degree lifestyles project, a 2-volume book for children was published.
- This book was used to our environmental education sessions at some junior high schools in Yokohama city.
- It is also planned to develop education materials to encourage interest in decarbonisation transition and carbon footprint.

Key messages

- Decarbonisation actions at city/municipality level is crucial to realise decarbonisation transition of the society, as this level can reflect local conditions to the actions and can provide effective intervention points of citizens' lifestyles.
- The expected benefits of citizen engagement in decarbonisation efforts of cities/municipalities include:
  - ✓ Encourage citizens' ownership to implement decarbonisation transition
  - ✓ Improve citizens' understanding/awareness of decarbonisation and relevant knowledge such as carbon footprint
  - ✓ Utilise ideas of citizens in formulating decarbonisation strategies/action plans
  - ✓ Reflect diversity of citizens and ensure "just" aspect and inclusiveness of decarbonisation transition.
- We believe that the methodology of 1.5 lifestyle project provides a good starting point to develop a variety of methodologies/tools to exploit the benefits of citizen engagement.

Thank you for your kind attention