

# Activities of Local Decarbonization Studies in AIM

2023 Sep. 15

29<sup>th</sup> AIM International Workshop

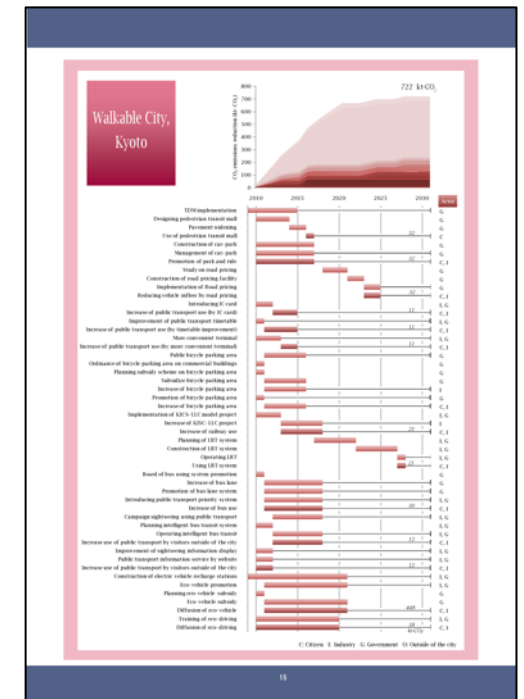
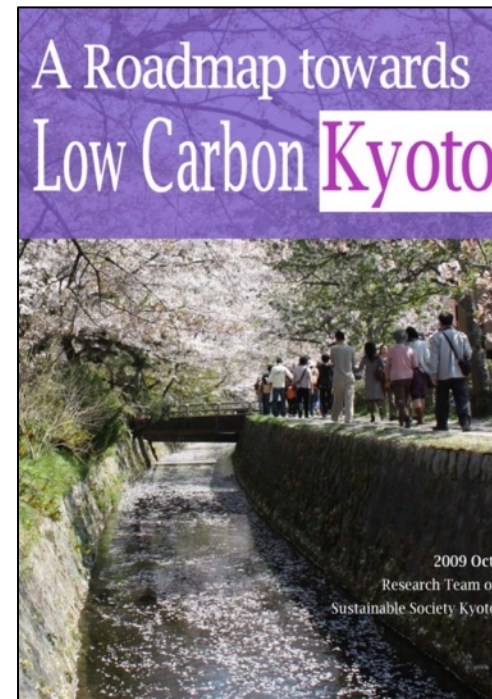
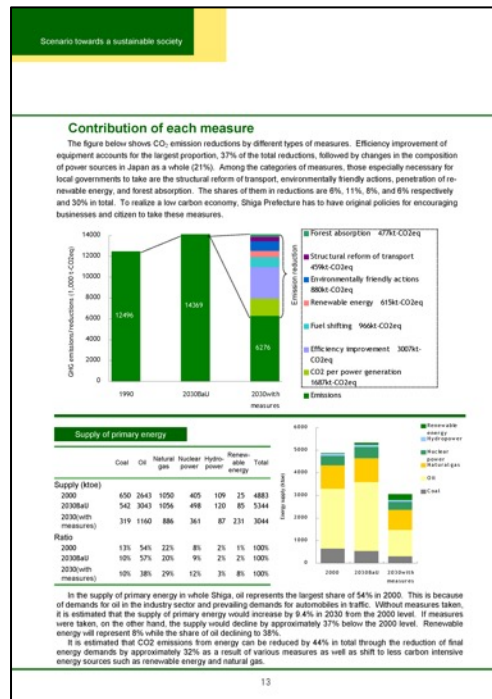
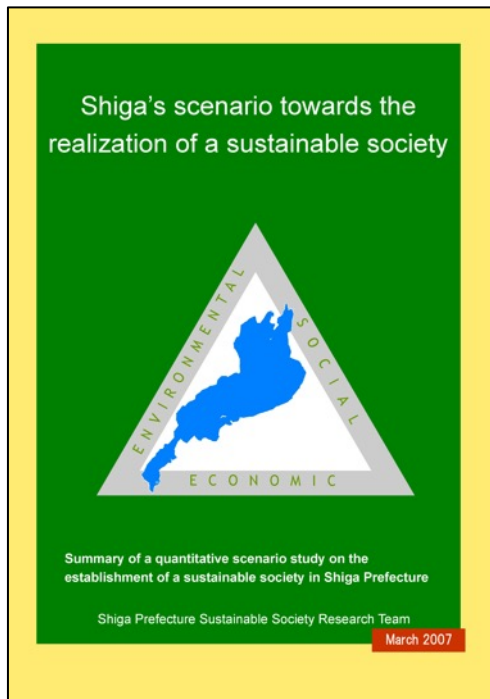
Shuichi Ashina, Kei Gomi

Since 2005, AIM tools and methods were applied in at least 24 cities / regions in 9 countries in Asia for developing low-carbon scenarios.



# Shiga prefecture (2005-) & Kyoto city (2007-)

- A methodology for local low-carbon society scenarios was established through Shiga pref. and Kyoto city, including Extended Snapshot Tool (ExSS)
- The Shiga scenario (50% GHG reduction in 2030) has recently received renewed attention with carbon-neutral declaration of the government of Japan.

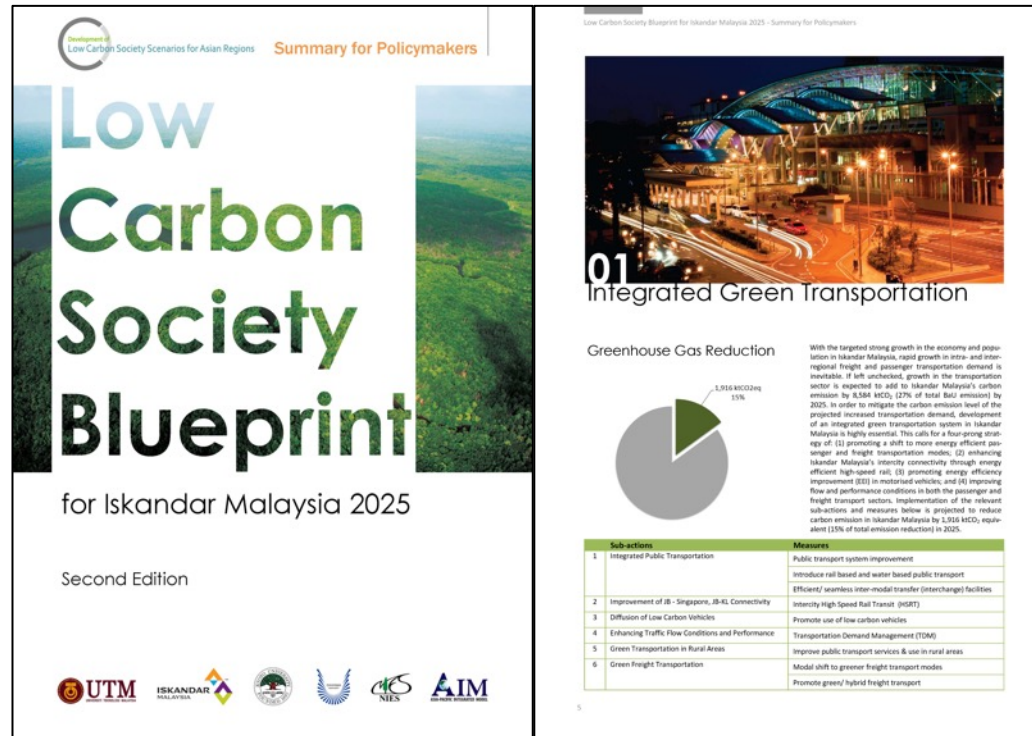


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(Jikan Kobo), Michiko Yamaguchi (Shiga Prefecture), Junji Izumi (Shiga Prefecture),  
Go Hibino (MHRI), Hiroyuki Akiyama (MHRI), Kei Gomi (Kyoto University)  
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# Iskandar Malaysia (2008-)

- The first large-scale international collaborative study of local AIM
- A SATREPS project with more than 40 researchers from Malaysia and Japan
- It was one of the most successful case for its wide scope and dissemination of the output

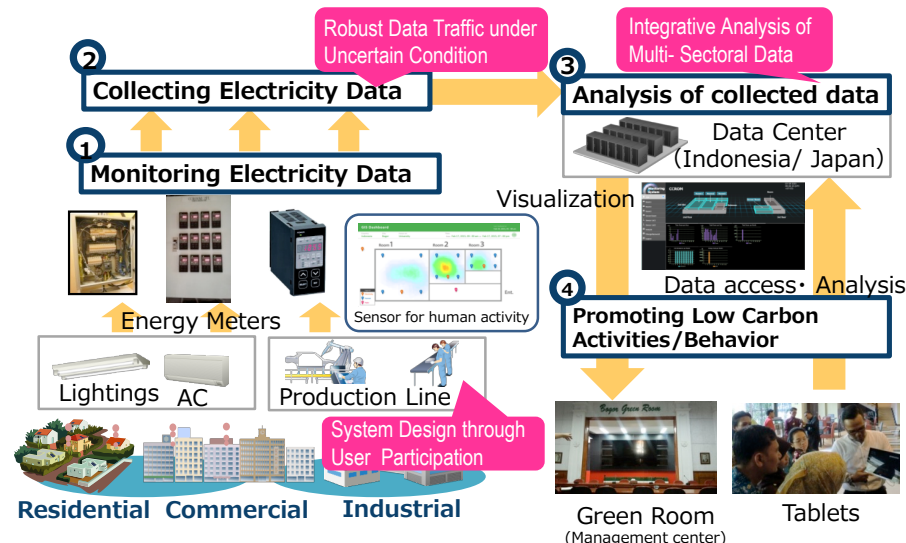


Zaini Ujang, Mohd Azraai Kassim, Ho Chin Siong, Koichi Okabe, Ahmad Nazri Muhammad Ludin, Mohd Ismail Abd Aziz, Mohd. Hamdan Ahmad, Ibrahim Ngah, Mohammad Rafee Majid, Kasturi Devi Kanniah, Chau Loon Wai, Teh Bor Tsong, Azilah Mohamed Akil, Muhamad Azahar Zikri Zahari, Abdul Rahim Ramli, Anis Syahira Zulkifli, Kang Chuen Siang, Malik Tassaduq Abbas, Yasmin Sofia Hussain, Fatin Aliah Phang, Wong Wai Yoke, Haslenda Hashim, Ho Wai Shin, Lim Jeng Shiun, Zainura Zainon Noor, Lee Chew Tin, Mohd Razman Salim, Siti Nadzirah Othman, Tan Sie Ting, Nawal Shaharuddin, Mohd Rashid Mohd Yusof, Muhammad Zaly Shah Muhammad Hussein, Gobi Krishna Sinniah, Afsaneh Afzali, Nurain Mohd Sith, Yuzuru Matsuoka, Takeshi Fujiwara, Junichi Fujino, Mikiko Kainuma, Reina Kawase, Kei Gomi, Janice Jeevamalar Simson, Miho Kamei, Yuri Hayashi, Maiko Suda, Shuichi Ashina, Diego Silva Herran, Siti Norbaizura Md. Rezab, Tomohito Hamada, Hiroaki Obayashi, Gakuji Kurata



# Other Asian Cities

- The methodology was localized for each target area
- Networking and human-resource development were key for successful modeling, scenario development, and implementation
- In some cases, limited data availability was supplemented by original survey/monitoring



Asia Local Scenario

Quezon		Quezon City Low Carbon Society Scenario 2030	Nov. 2018
Phnom Penh		Phnom Penh's Low Carbon Society Scenario Toward 2030	Mar. 2018
Can Tho		Can Tho Low Carbon City	Feb. 2018
Semarang		Low Carbon Scenario Semarang 2030	Nov. 2017
Hai Phong (Vietnam)		Hai Phong Low Carbon City	Nov. 2016
Danang (Vietnam)		A study on Danang Low Carbon City	Oct. 2016
Ho Chi Minh (Vietnam)		GHG emissions reduction potential of Ho Chi Minh City's Climate Change Action Plan 2020	Jan. 2016
Putrajaya (Malaysia)		Towards Putrajaya Green City 2025	Nov. 2015
Putrajaya (Malaysia)		Putrajaya LowCarbon Green City Initiatives Report	Jun. 2015
Ho Chi Minh (Vietnam)		Low Carbon Scenarios for Ho Chi Minh City, Vietnam 2030	Aug. 2014

Putrajaya (Malaysia)		Towards Putrajaya Green City 2025	Oct. 2013
Khon Kaen (Thailand)		Khon Kaen - Towards Low Carbon Society	Jul. 2013
GuangZhou (China)		Low Carbon Society Scenario Towards 2030 GuangZhou	May 2013
Putrajaya (Malaysia)		Putrajaya LowCarbon Green City Initiatives Report	Dec. 2012
Gyeonggi Province (Korea)		Preliminary study on Low Carbon Development towards 2030 in Gyeonggi Province, Korea	Dec. 2012
Putrajaya (Malaysia)		Putrajaya Green City 2025 - Baseline and Preliminary Study- Revised Edition	Nov. 2012
Cyberjaya (Malaysia)		Cyberjaya Digital Green City 2025 - Feasibility Study -	2011
Bhopal (India)		Low-Carbon Society Scenario Bhopal 2035	Jun. 2011
Ahmedabad (India)		A road map towards Low carbon Ahmedabad 2050	Oct. 2010
Iskandar (Malaysia)		Low-Carbon City 2025: Sustainable Iskandar Malaysia	Jan. 2009
Jilin City (China)		Scenario Analysis on Low-Carbon Economy Development of Jilin City	Oct. 2009
Ahmedabad (India)		Low-Carbon Society Vision 2035: Ahmedabad	Oct. 2009

Monitoring system in Bogor city (special thanks to Prof. Rizaldi and his team in IPB)





# Promotion of Planning for Municipalities

- Simplified excel tool is developed for local decarbonization scenario analysis by assuming use by officials and policymakers.
- The tool applied to all (1,741) municipalities in Japan.

## Snapshots of the tool (for Tsukuba city)

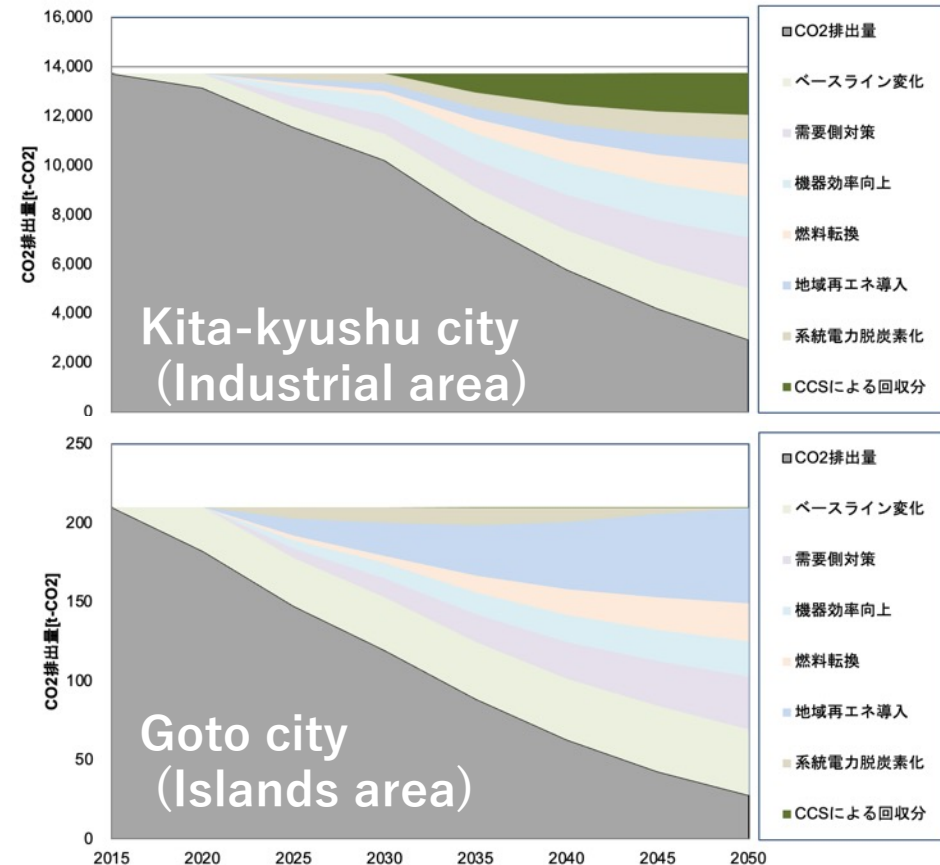
### No Action Case



### Decarbonization Case



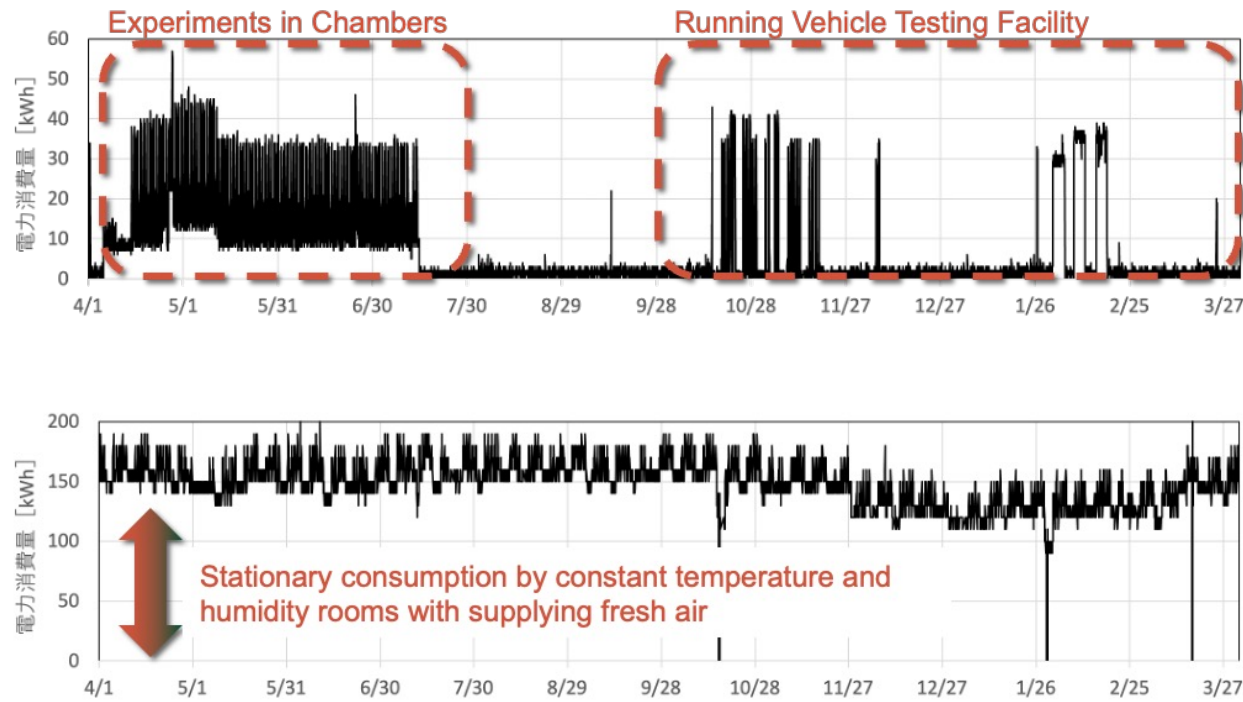
## Example of results



# Digital Transformation (DX) with Energy Monitoring

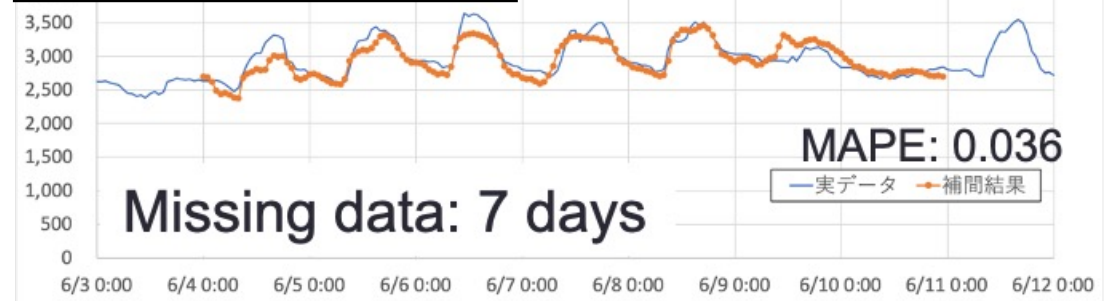
- NIES set up electricity monitoring system in NIES and several areas.
- By applying AI/Machine Learning, numerical experiments are conducted for interpolation of monitoring data and forecast of future consumptions.

## Monitored electricity data (case of NIES)

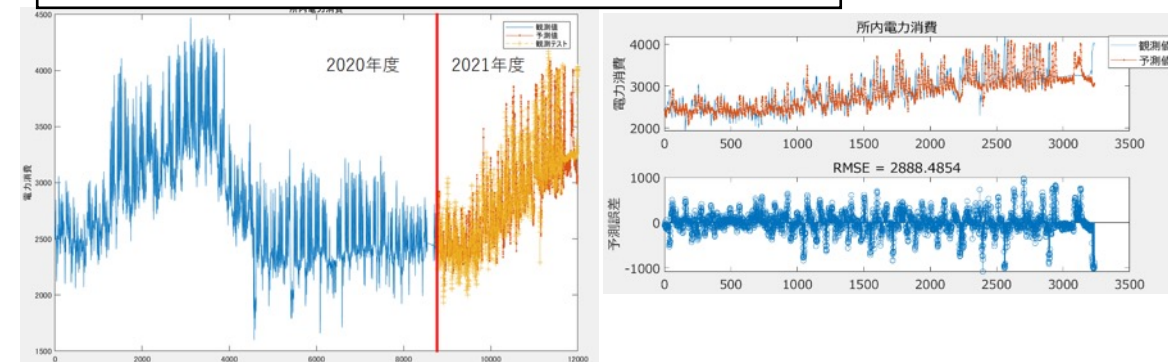


## Numerical experiments with AI/ML

### Interpolation of Data



### Forecasting Energy Consumptions





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