

AIM local LCS scenarios and beyond

Junichi FUJINO
NIES/IGES

6 Nov 2018, Tsukuba

The 24th AIM International Workshop





- AIM has contributed processes to formulate climate policies in Japan.
- One of main activities of AIM is developing **local low carbon scenarios** to contribute formulating regional climate targets and policies.
 - Shiga Prefecture: 2007, 2009
 - Kyoto City: 2009: 2015
- The activities are expanded to Asia from 2009.
 - Iskandar Malaysia: 2009
 - We are developing LCS scenarios for Quezon City and Hanoi this year.

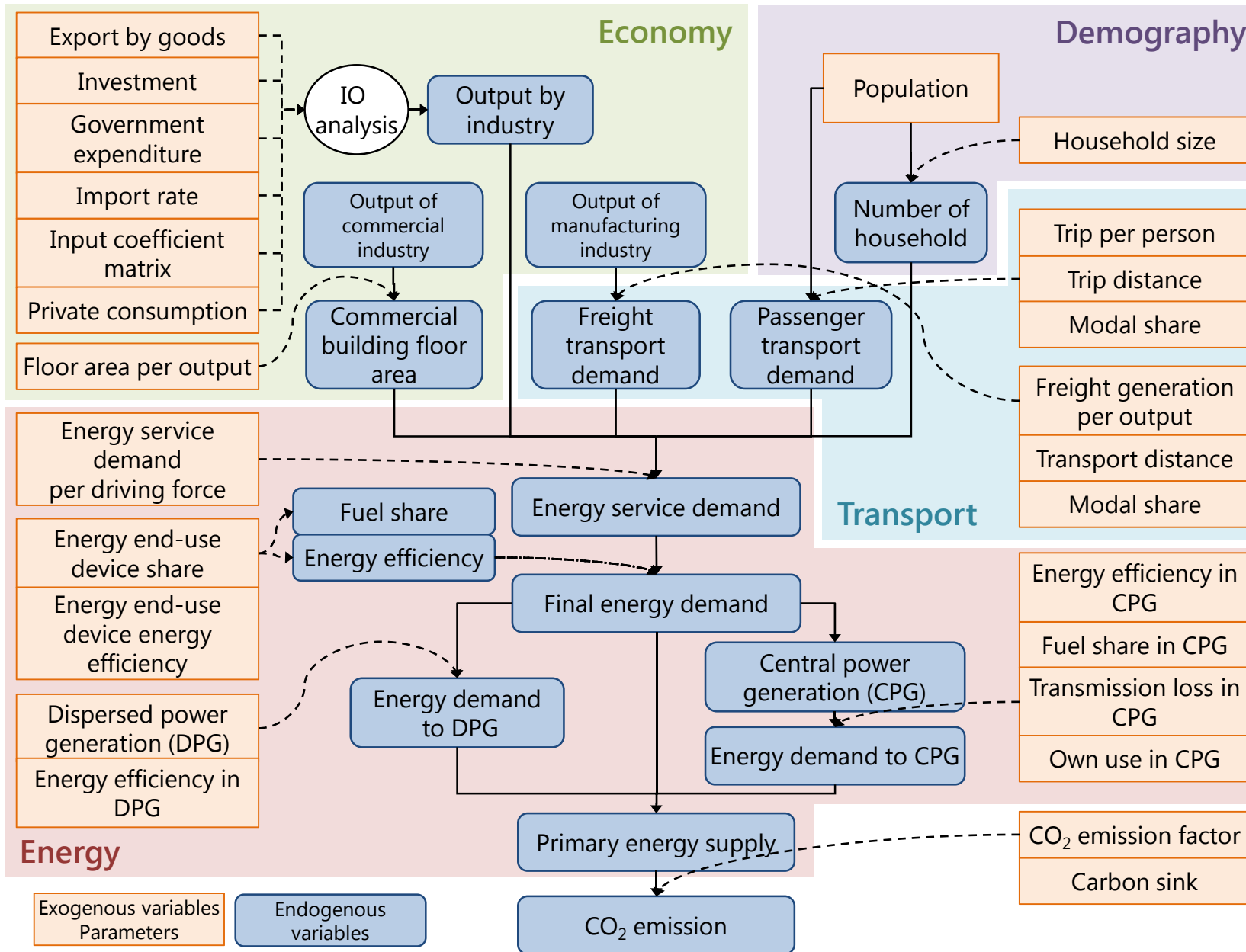
Low Carbon City/Regional Scenarios developed with AIM

Nation	City/Region	Year	Nation	City/Region	Year
Japan	Shiga Prefecture	2007, 2009	Korea	Gyeonggi Province	2012
	Kyoto City	2009, 2015	Vietnam	Ho Chi Minh City	2014, 2015
Malaysia	Iskandar	2009, 2012		Da Nang	2016
	Cyberjaya	2011		Hai Phong	2016
	Putrajaya	2012, 2013, 2015		Can Tho	2017
China	Jilin	2009		Hanoi	2018 (Ongoing)
	Guangzhou	2013	Indonesia	Semarang	2017
India	Ahmedabad	2009, 2010	Cambodia	Phnom Penh	2017
	Bhopal	2011	Philippines	Quezon City	2018 (Ongoing)



Structure of AIM/ExSS

Design of LCS Projects and Projection of Future Scenario





Low Carbon Society Scenario Semarang 2030

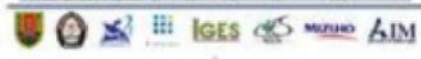
Author: Bambang HARYONO, Mochamad FARHAN, Muhammad Luthfi Eko NUGROHO, Maryono, Satria UTAMA, Hadiyanto, Tomoki EHARA, Junichi FUJINO, Sudarmanto Budi NUGROHO, and Kazuya FUJIWARA

Copyright: Institute for Global Environmental Strategies | 2017-11

Following up the Presidential Regulation 61/2011 and 71/2011, Semarang City as one of the cities in Indonesia has a liability in the GHG reduction activities. This research on the low carbon society (LCS) scenario for Semarang City are carried out aiming to contribution to promoting climate change actions and policies in the city. This study is one of the outcomes of the collaboration among Municipality of Semarang, Diponegoro University and Asia-Pacific Integrated Model (AIM) team in Japan. Two kinds of scenarios, namely Business as Usual (BaU) scenario and Countermeasure (CM) scenario, are prepared to analyze reduction potential of CO2 emission in future. In BaU scenario, it is assumed that there is no policy or technology intervention to reduce carbon emission, while attempt to reduce carbon emission is assumed in CM scenario. In the CM scenario, Semarang City Government will promote five LCS actions and implement various LCS projects belonged to the actions. One of the action named "Sustainable Transport", which promotes energy efficient vehicle and modal shift, will contribute to the reduction of 4,220 ktCO₂e. These actions and projects help Semarang City to reduce

The introduction of climate change in the city is a global issue. Semarang City as one of the cities in Indonesia has a liability in the GHG reduction activities. This research on the low carbon society (LCS) scenario for Semarang City are carried out aiming to contribution to promoting climate change actions and policies in the city. This study is one of the outcomes of the collaboration among Municipality of Semarang, Diponegoro University and Asia-Pacific Integrated Model (AIM) team in Japan. Two kinds of scenarios, namely Business as Usual (BaU) scenario and Countermeasure (CM) scenario, are prepared to analyze reduction potential of CO2 emission in future. In BaU scenario, it is assumed that there is no policy or technology intervention to reduce carbon emission, while attempt to reduce carbon emission is assumed in CM scenario. In the CM scenario, Semarang City Government will promote five LCS actions and implement various LCS projects belonged to the actions. One of the action named "Sustainable Transport", which promotes energy efficient vehicle and modal shift, will contribute to the reduction of 4,220 ktCO₂e. These actions and projects help Semarang City to reduce

Scenario	CO2 Emission (ktCO2e)	Reduction Potential (ktCO2e)	Reduction Rate (%)
BaU	10,000	0	0
CM	5,780	4,220	42.2



Downloads

Topics: Low-Carbon Societies
Region/Country: Indonesia
Language: English

Collaborative work with Semarang and AIM team

Objective

- Support developing and accelerating a climate change action plan in Semarang by quantitative analysis with integrated modeling approach
- Capacity building and knowledge transfer of Low Carbon Society (LCS) scenario development and implementation

Research Team

Semarang City

Local Government



**Development Planning Agency
(Bappeda)**

University



Diponegoro University



AIM team, Japan



**Ministry of Environment
Japan**



**Institute for Global
Environmental Strategies**



**National Institute for
Environmental Studies, Japan**

Consulting firm



E-Konzal Co. Ltd.

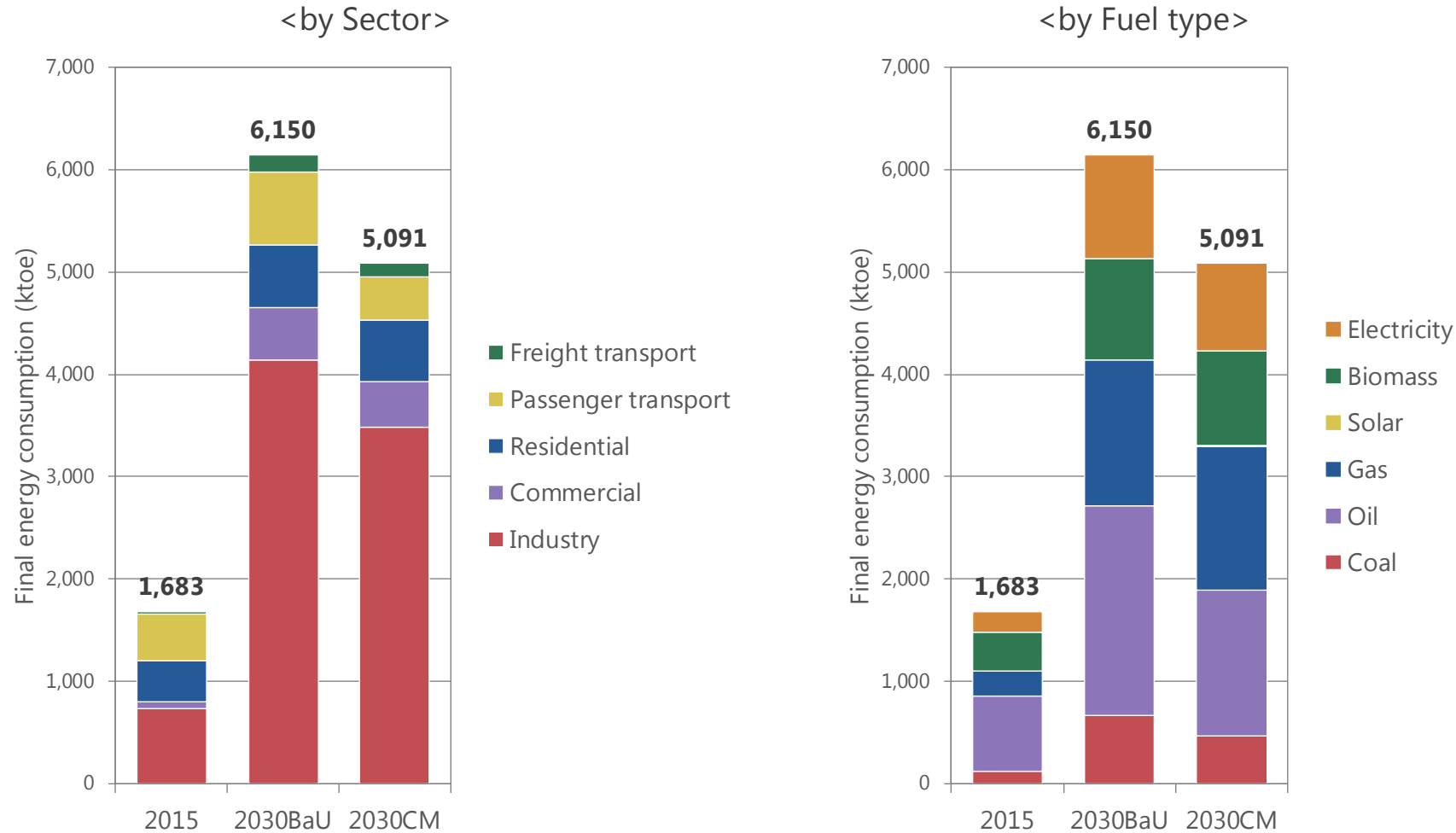


**Mizuho Information and
Research Institute, Inc.**

Energy consumption by AIM

- Energy consumption in BaU scenario will increase by 3.7 times as much as 2015.
- In CM scenario, Energy consumption can be reduced by 27%.
- Share of natural gas and electricity is increased in CM scenario.

Final energy consumption



CO₂ reduction by action/project by AIM

Action	Project	Sector	Emission reduction (ktCO ₂ eq)	
1 Green Industry	1-01	Energy saving support scheme such as ESCO (Energy Saving COmpany) project for industries	Industry	964.6
	1-02	Installation high energy efficiency facilities	Industry	346.6
	1-03	Regional energy supply system	Industry	489.7
	1-04	Improvement of kiln and furnace technology	Industry	692.3
	1-05	Promotion of fuel shift of furnaces and boilers from coal to natural gas	Industry	58.8
Total			2,552.0	
2 Smart Building	2-01	Installation of insulated glasses to commercial buildings	Commercial	84.1
	2-02	Installation of insulated glasses to households	Residential	12.2
	2-03	Introduction of incentive to low energy buildings	Commercial	15.9
	2-04	Introduction of insulating material to houses	Residential	7.0
	2-05	Energy efficiency technology applied to buildings	Commercial	35.8
	2-06	Shift to natural gas in buildings	Commercial	17.1
	2-07	Introduction of solar water heater to commercial buildings	Commercial	52.3
	2-08	Introduction of solar water heater to households	Residential	23.9
Total			248.4	
3 Smart Device	3-01	Energy saving support scheme such as ESCO (Energy Saving COmpany) project for commercial buildings	Commercial	150.6
	3-02	High efficiency lighting in commercial buildings	Commercial	66.5
	3-03	High efficiency lighting in households	Residential	22.8
	3-04	High efficiency air conditioners (such as air conditioners with inverter controllers) in commercial buildings	Commercial	137.3
	3-05	High efficiency air conditioners (such as air conditioners with inverter controllers) in households	Residential	33.7
	3-06	Promotion of energy-efficient appliances	Residential	23.1
Total			434.1	

Nov 13, 2017

@Bonn, COP23

NIES/IGES/UTM/MHIR/E-konzal
COP23 Japan Pavilion Side Event

Make Asian Cities as Low Carbon Champions

- supporting city-to city collaboration
among Japanese and Asian cities-

UTM/IGES



Date: 17:30-18:15, Nov 13 (Mon), 2017
Venue: Japan Pavilion, Bonn

Transformal




Fujino/Quezon/Toyama/UTM/IRDA/Tokyo/HCMC/ex-Tokyo

**IRDA, Kota Kinabalu,
Malaysia**

**Semarang
Indonesia**

**Toyama
Japan**



低炭素社会形成に向けた
都市間連携
フォーラム

入場無料
申込不要

平成29年12月14日(木)
9時00分～11時00分

議場
会議室

(IGES)
上

環境と国際連携をテーマとした基調講演をはじめ、イスカンダル地域開発庁（マレーシア）、スマラン市（インドネシア）などを招いたパネルディスカッションを開催し、これからの都市の果たすべき役割の国際...



Dec 14, 2017
@Toyama

**Mayor Hendrar
Semarang**

City to City Collaboration (Semarang)

©Semarang, Republic of Indonesia

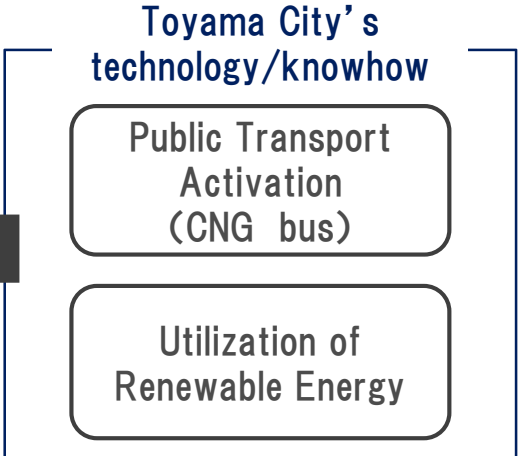
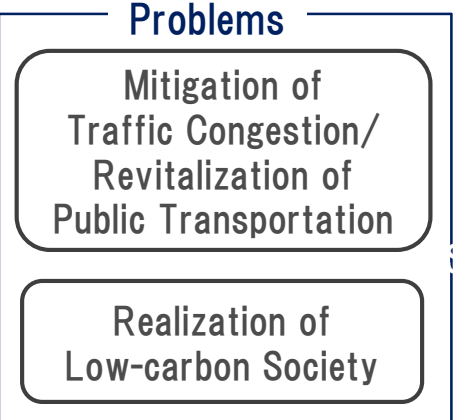
Toyama City and Semarang City selected as “Resilient Cities of 100RC” by the Rockefeller Foundation are deepening friendship as a result of “Resilient City Summit in Toyama” held in 2016. This year we will conduct a survey project to apply the knowledge and expertise of Toyama City and city enterprises, aiming at promoting low carbonization in Semarang City. This JCM(Joint Crediting Mechanism) project is the first collaborative project among 100 RCs in Asia.



LOI conclusion 2017



Resilient City Summit in 2016





City Taskforce

FUNCTION 1 :

Encourages and supports cities to take actions for low-carbon/decarbonised and sustainable development

FUNCTION 2:

Catalyse existing IGES activities/research on cities

+

Create opportunities and generate impacts through network with various stakeholders

5 professional staff (+2 from the 6th phase) + Collaborators



Fujino



Kataoka



Asakawa



Toto



Nakano



Uchida
(ICLEI Japan)



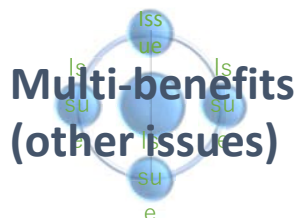
Inoue
(Team-K)



Expected Impact 1: Enhance capacity of cities on SDG planning and implementation through providing inputs to Japanese cities, case studies, and etc.



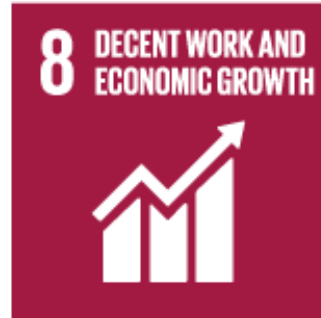
Expected Impact 2: Support cities to develop carbon neutral strategies through scenario development, capacity development via city-to-city collaboration



Expected Impact 3: Support city activities to bring multi-benefit activities toward sustainability

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD





HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT



9 - 18 JULY 2018



NEW YORK



**Theme: Transformation towards sustainable
and resilient societies**

Opening at CR4 (9 July 2018)



HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

1st Week (9-13 July)

Week 1, 9-13 July 2018

	Monday, 9 July (CR 4)	Tuesday, 10 July (CR 4)	Wednesday, 11 July (CR 4)	Thursday, 12 July (CR 4)	Friday, 13 July (CR 4)
9 AM – 1 PM	<p>9 – 10 AM <u>Opening</u></p> <p><u>Scene setting</u> How far have we come on the SDGs?</p> <p><u>Introduction of SG's SDGs progress report</u></p> <p>10 AM – 1 PM <u>Implementing the SDGs: Lessons from the regions</u></p>	<p><u>Review of SDGs implementation</u></p> <p>9 – 11 AM <u>SDG 6 – Ensure availability and sustainable management of water and sanitation for all</u></p> <p>11 AM – 1 PM <u>SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all</u></p>	<p><u>Review of SDGs implementation</u></p> <p>9 – 11 AM <u>SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable</u></p> <p>11 AM – 1 PM <u>SDG 12 - Ensure sustainable consumption and production patterns</u></p>	<p><u>Review of SDGs implementation</u></p> <p>9 – 11 AM <u>SDG 15 – Protect, restore and promote use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</u></p> <p>11 AM – 1 PM <u>Building on synergies and addressing trade offs</u></p>	<p><u>Review of SDGs implementation/Thematic review</u></p> <p>9:00 – 11:00 am <u>SDG 17 – Strengthen the missions of implementation and revitalize the global partnership for sustainable development: Investing in and financing for SDGs</u></p> <p><u>Thematic review</u></p> <p>11:00 – 1:00 pm <u>Transformation towards sustainable and resilient societies</u></p> <p>Perspectives of LDCs, LLDCs and MICs</p>
	Review of SDGs (6, 7, 11, 12, 15, 17)				
3 – 6 PM	<p><u>Thematic review</u></p> <p><u>Transformation towards sustainable and resilient societies</u></p> <p>Building resilience</p>	<p><u>Thematic review</u></p> <p>3 PM-4:30 PM <u>Advancing science, technology and innovation for SDGs</u></p> <p>4:30 PM-6 PM <u>What scientists tell policy makers: Science policy interface and emerging issues</u></p>	<p><u>Thematic review</u></p> <p><u>Transformation towards sustainable and resilient societies</u></p> <p>Stakeholders' perspectives</p>	<p><u>Thematic review</u></p> <p><u>Transformation towards sustainable and resilient societies</u></p> <p>SIDS perspective</p>	<p>3 – 5:30 PM <u>Leaving no one behind: Are we succeeding?</u></p> <p>5:30 – 6 PM <u>Wrap-up of the first week</u></p>
	Thematic Review				

2nd Week (16-18 July)

ECOSOC high-level segment, including ministerial meetings of the HLPF (16-19 July 2018)

Monday, 16 July		Tuesday, 17 July		Wednesday, 18 July		Thursday, 19 July	
		<i>Parallel meetings</i>				<i>Parallel meetings</i>	
9 AM – 2 PM OR 10 AM – 1 PM	(CR 4) 9 – 10 AM <u>Opening of HLS / Ministerial segment</u>	(CR 4) 9 AM – 2 PM <u>Voluntary national reviews</u>	(TRI) 10 AM – 1 PM <u>Voluntary national reviews</u>	(CR 4) 9 AM – 2 PM <u>Voluntary national reviews</u>		(ECO) 10 AM – 1 PM <u>High-level policy dialogue with international financial and trade institutions</u>	(TRI) 10 AM – 1 PM <u>General debate (conclusion)</u>
	10 AM – 2 PM <u>Voluntary national reviews</u>						
<i>Parallel meetings</i>		<i>Parallel meetings</i>		<i>Parallel meetings</i>		<i>Parallel meetings</i>	
3-6 PM OR 3:30 – 6:30 PM	(CR 4) 3:30 – 6:30 PM <u>Voluntary national reviews</u>	(TRI) 3 – 6 PM <u>Introduction of SG report on theme of ECOSOC 2018 session</u>	(CR 4) 3:30 – 6:30 PM <u>Voluntary national reviews</u>	(TRI) 3 – 6 PM <u>General debate (continuation)</u>	(CR 4) 3:30 – 4:45 PM <u>Voluntary national reviews</u>	(TRI) 3:30 – 5 PM <u>General debate (continuation)</u>	(ECO) 3 – 5:30 PM <u>Thematic discussion on the main theme of ECOSOC 2018 session</u>
		(TRI) 3 – 6 PM <u>Introduction of CDP report</u>			(TRI) 5 – 6:30 PM <u>Adoption of the Ministerial Declaration and the draft report of HLPF</u> <u>Conclusion of the HLPF</u>		(ECO) 5:30 – 6 PM <u>Adoption of the Ministerial Declaration</u> <u>Conclusion of the high-level segment</u>

Voluntary National Reviews (VNR)

World First Report to HLPF2018

**SDGs
City
Reports**



Kitakyushu Toyama Shimokawa

Sustainable Development Goals Report on Cities

- Launch of SDG City Reports on Shimokawa, Toyama, and Kitakyushu

HLPF2018 Special Event Local and Regional Governments' Forum



Emilia
SG, UCLG

Parks
President
UCLG

Bernadia
UCLG
ASPAC



HLPF2018 Japan Side Event

ISAP2018/ICLEI Cafe

Fujino
IGES

Okamoto
Cabinet Office

Bernadia
UCLG ASPAC

Katinka
ESCAP

Kitahashi
Kitakyushu

Takemoto
UNU-IAS

Takahashi
MOEJ

Rafael
UN-HABITAT

Kanie
Keio Univ.



UNDESA

UN HABITAT
FOR A BETTER URBAN FUTURE



LOCAL 2030



HIGH-LEVEL POLITICAL FORUM
ON SUSTAINABLE DEVELOPMENT

- High-level participation including 50 mayors (only 1 from Japan/Asia)
- UCLG plays key role to coordinate this forum with UN-HABITAT
- Mr. Kenji Kitahashi, Mayor of Kitakyushu joined panel 5. UCLG kindly announced launch of Kitakyushu/Toyama/Shimokawa SDGs report
- UCLG launched the second "Towards the Localization of the SDGs" report.
It includes our activities (3 Japanese local SDGs report, ASEAN ESC program).



For the second year in a row, the Global Taskforce of Local and Regional Governments (GTF), facilitated by United Cities and Local Governments (UCLG) and the Global Observatory on Local Democracy and Decentralization (GOLD), has presented the report of the local and regional governments' constituency on the Localization of the Sustainable Development Goals (SDGs) to the 2018 High-Level Political Forum (HLPF).

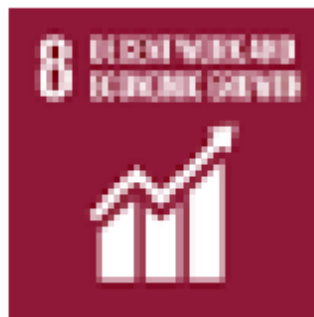
- abbreviations in page 7, "IGES – Institute for Global Environment Strategies"
- note in page 22, "22 For example, three cities in Japan are also planning to present local SDG reports: Toyama city, Kitakyushu city and Shimokawa town. "
- note in page 22, "23 IGES Policy Report (April 2018), Early view of ASEAN's 'Frontrunner cities' on the Sustainable Development Goals and Local Data Management, Japan, p.9. Survey answered by 30 respondents from national and local governments in first quarter 2018. From this study, awareness on the SDGs appears to be higher in Cambodia, Indonesia, Singapore, Thailand and the Philippines, and lower in Lao PDR, Myanmar and Vietnam."
- note in page 22, "24 For European countries, as mentioned above, CEMR/Platforma collected answers based on a specific survey. Similar considerations are quoted in IGES for ASEAN countries (2018), p.9. 'Many city officials are unsure if SDGs will be directly useful in their daily work. Similar to the national officials, they are taken aback by "so many" goals and targets, and they think that the SDGs are "abstract" and purely "aspirational". They are unsure of the real benefits of explicitly reframing all local actions in reference to the SDGs.'
- left column in page 37, "In Japan, 34 cities and towns are involved in the implementation of the SDGs with the support of the national government through a number of programmes (e.g. 'Future city' and 'Ecomodel city'). Three cities (Toyama, Kitakyushu and Shimokawa) are launching Voluntary Local Reviews for the HLPF 2018."
- note in page 83, "138 See also: <http://www.iclei.org/details/article/japanese-cities-and-regionsrally-behind-100-percentrenewable-energy.html>."





HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

- 2019 July HLPF under the auspices of the Economic and Social Council
8-17 Empowering people and ensuring inclusiveness and equality
- Sep
24-25 HLPF under the auspices of the General Assembly
(every 4 years since 2015)



ASEAN SDGs Frontrunner Cities Programme (2018.3-2020.2)

The 9th HLS-SC welcomed the ASEAN SDGs Frontrunner Cities (FC) Programme, a successor of the ESC Model Cities Programme that will serve as a driver to support selected local governments in ASEAN Member States to plan and implement SDGs in collaboration with local stakeholders and also as an important mechanism to foster good local actions aligning with SDGs that can become regional good practices to be shared with the rest of world.



ASEAN ESC Model Cities Programme

Established with support by the Japan-ASEAN Integration Fund (JAIF), **ASEAN ESC Model Cities is ASEAN's platform of cities** who implement innovative bottom-up practices (mainly on environmental improvement) since 2011, thereby improving local quality of life and also contributing to national/global goals.

Main activities:

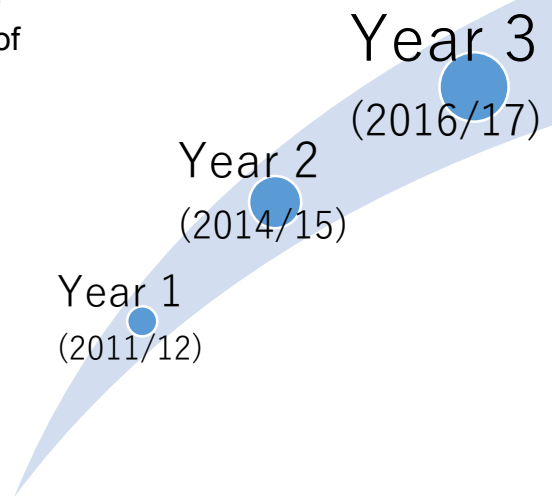
- Provide training and seed funds to Model Cities
- Connect Model Cities within countries and across ASEAN
- Recommend additional project and training opportunities by other supporting organisations

Achievements of the Model Cities Programme:

- Over 40 Model Cities (total no. Year 1 - 3)
- 8 Countries
- 300++ Activities
- 80,000++ People Engaged

ASEAN SDGs Frontrunner Cities Programme (2018-2020)

The new programme was approved by JAIF in March 2018.



The **ASEAN Frontrunner Cities Programme** is a new programme aims to support ASEAN cities to achieve inclusive, sustainable, resilient and dynamic development in line with ASEAN Vision 2020 by creating multi-dimensional benefit model cases to become ASEAN SDGs Frontrunner City and also developing capacity of next generation cities towards clean and green ASEAN.



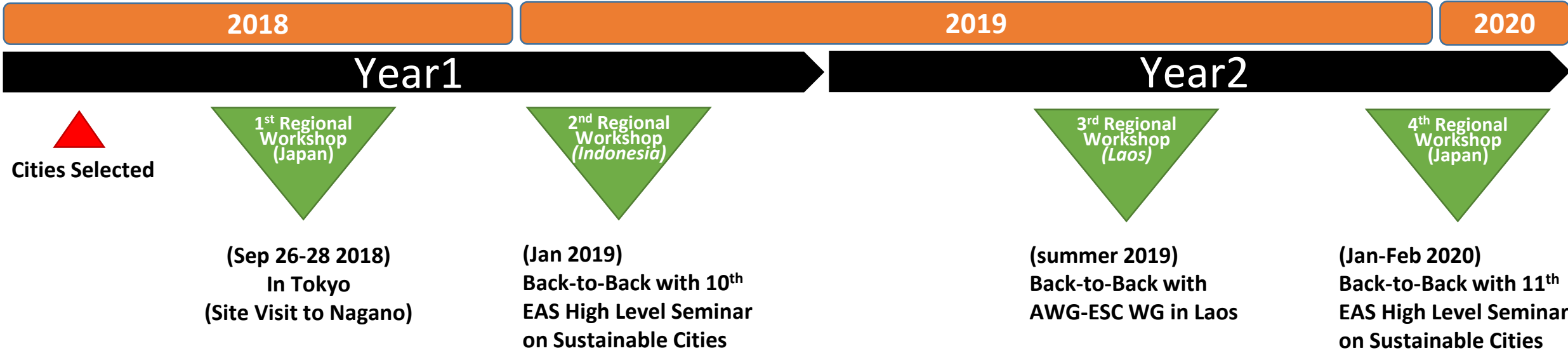
Country	SDGs-FC Candidate	Model Cities
Cambodia	1. Kep	1. Kampot 2. Pursat
Indonesia	2. Banjarmasin 3. Malang	3. Banyuwangi
Lao PDR	4. Luang Prabang 5. Xam Neua	4. Kaysone
Malaysia	6. Shah Alam (t.b.c.)	5. Kampar (t.b.c.) 6. Pantai Cunang (t.b.c.)
Myanmar	7. Mandalay 8. Yangon	7. Bagan 8. Nay Pyi Taw
Philippines	9. General Marcos Alvarez Cavite 10. San Carlos, Negros Occidental	9. Valenzuela, Metro Manila
Thailand	11. Phuket 12. Udon Thani	10. Bangsang Municipality, Phayao Province 11. Chaman Municipality, Chantaburi Province 12. Thaklee Municipality, Nakhonsawan Province 13. Weingteong Municipality, Chiang Rai Province
Viet Nam	13. Hai Phong (t.b.c.)	14. Bac Lieu (t.b.c.)

ASEAN Frontrunner Cities Programme

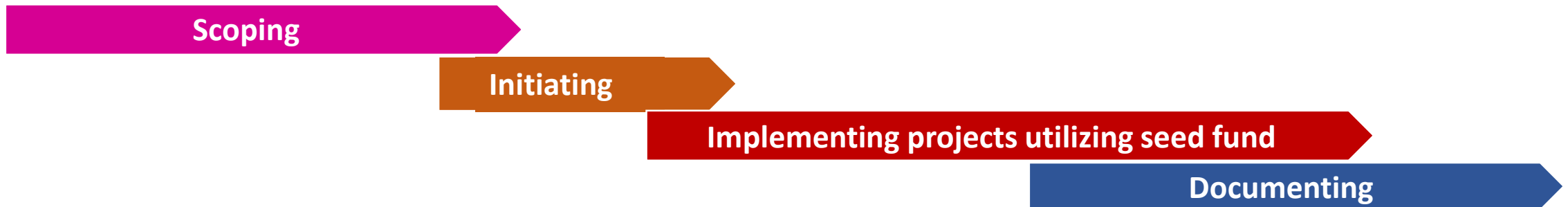
- Work plan (Two Year)



▼ May 2018



<City* Activities>



(*Approximately 1 ASEAN SDGs Frontrunner Candidate City and 2-3 Model City will be selected / Country)

The High-Level Seminar on Sustainable Cities (HLS-SC)

The High-Level Seminar on Sustainable Cities ((formerly the 'High Level Seminar on Environmentally Sustainable Cities) has been held as part of activities under the East Asia Summit Environmental Ministers Meeting. The Seminar is organised annually since 2010.

The 9th EAS High-Level Seminar on Sustainable Cities (HLS-SC) was organised by the Government of Cambodia, Government of Japan, the ASEAN Working Group on Environmentally Sustainable Cities (AWGESC) and the ASEAN Secretariat in Siem Reap, Cambodia, on 8-10 March 2018. Aligned with the set of six SDGs4 to be reviewed at the High Level Political Forum (HLPF) in July in 2018, New York, **the 9th HLS-SC shared practical experiences and discussed how to promote local sustainable actions related to the six goals by ASEAN cities, national governments, development partners, and private companies in their efforts to achieve sustainable cities in Asia.**

More than 250 participants participated in the seminar including representatives of 10 national governments, 38 local authorities and 14 supporting organisations. **The key messages of the seminar was shared at the APFSD in Bangkok, March 2018.** The message will be also reported to EAS Environment Ministers and at relevant ASEAN meetings.

The 10th HLS-SC will be held in Indonesia, Jan 2019



Joint Communiqué

The 20th Tripartite Environment Ministers Meeting among China, Japan and Korea

23-24 June 2018, Suzhou, China

21. The Ministers welcomed the preparatory work done to date and agreed on launching the joint research on cities towards decarbonization and sustainable development in 2018.

China-Japan-Korea Joint Research on Cities towards Decarbonization and Sustainable Development

1. Start as CJK ministers climate initiative at COP22, and then IGES is appointed as focal research institute to coordinate city program.
2. IGES organized 1) city session in Japan-China Climate Policy Research Workshop in Sep 2017, Beijing, 2) COP23 side event.
3. NCSC/IGES/KEI organized joint research WS on 14 Oct 2018, Beijing to discuss about 1) national gov support to local actions, 2) local actions of each 3 cities (China: Shenzhen, Wuhan, Zhenjiang; Japan: Nagano pref., Yokohama, Toyama, Korea: Jeju, Gwangju, Suwon), 3) future steps.

Results will be reported at COP24 official side event at 15-16:30 on 11 Dec 2018



Study on Local Climate Actions Towards Zero Carbon in Japan

Open seminar will be organized on Nov 29, 2018 and Feb 2019 in Tokyo

1. Coordinate study group among 40 staffs in local and central governments, experts/researchers, by IGES/ICLEI Japan/MOEJ since Dec 2016
2. Conduct intensive meetings focusing on 3 hot topics in Japan: 1) data collection in building sectors, 2) local PPS (power producer and supplier), and 3) new approaches such as local finance and behavioral science
3. Organize symposium “Local Climate Actions towards 2 degree target” in Tokyo on Nov 24th 2017, sharing the latest news in COP23 and presenting our summary by study group meetings (<https://www.iges.or.jp/jp/smo/kc/20171124.html>)



Study group meeting in TSF



Mr. Nakai (MOEJ)

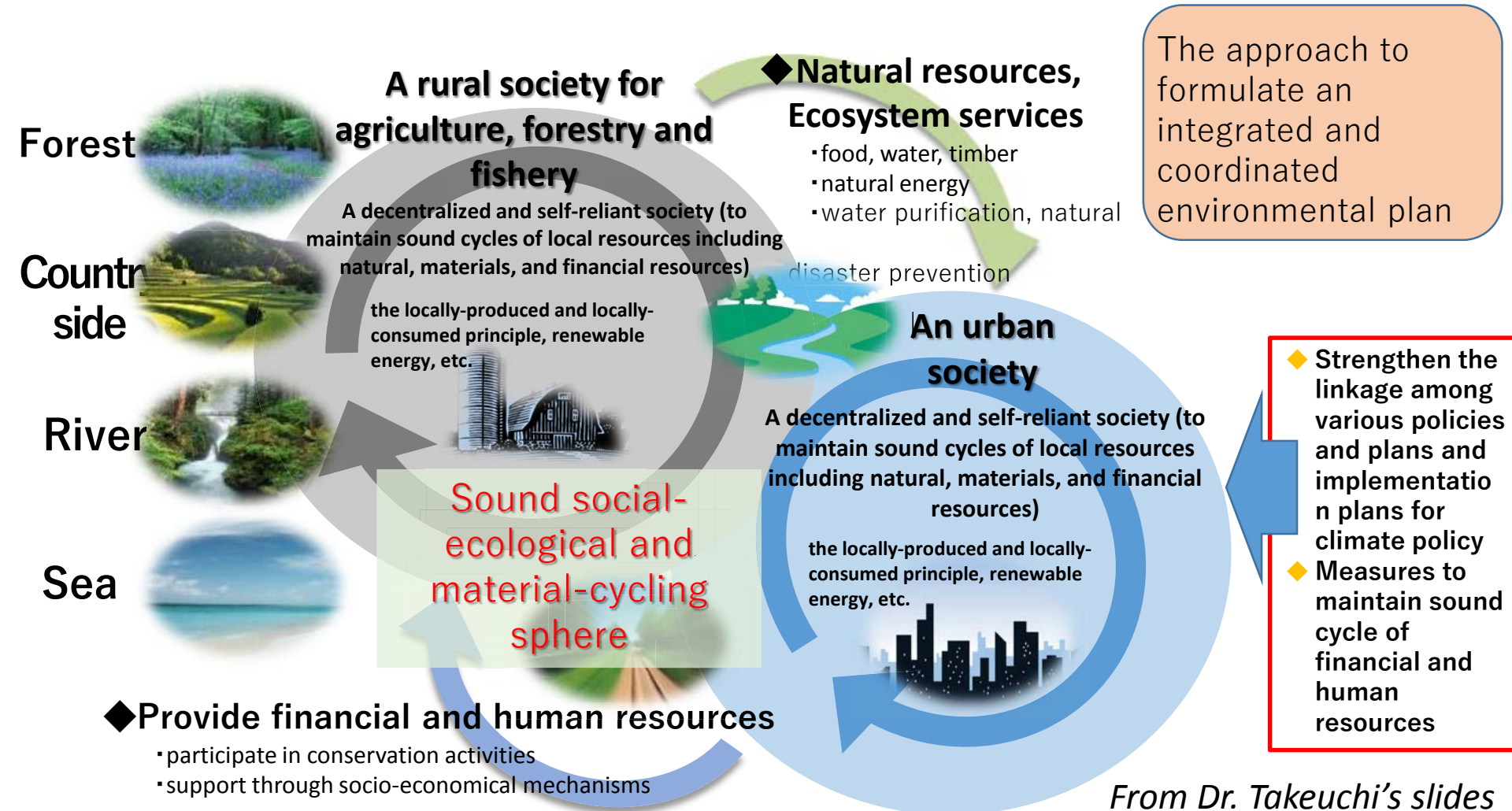


Video message by Mr. Matsui, Mayor of Hiroshima City



Closing remarks by Mori san

Sound Social-Ecological and Material-Cycling Sphere



The approach to formulate an integrated and coordinated environmental plan

◆ Strengthen the linkage among various policies and plans and implementation plans for climate policy
 ◆ Measures to maintain sound cycle of financial and human resources

Regional Circular and Ecological Sphere

SDGs city

From Dr. Takeuchi's slides

Local climate actions + NDCs

Climate Actions + SDGs

ASEAN + CJK

AIM + spatial planning

-> detail design of
zero carbon/SDGs city
to make it happen!



藤野 純一

Junichi FUJINO



fujino@nies.go.jp