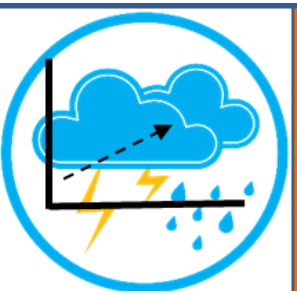
ISAP 2023
International Forum for Sustainable Asia and the Pacific

IGES Institute for Global Environmental Strategies

Circulating and Ecological Sphere (CES) approach towards the integration of climate and Sustainable Development actions in Asian city-regions

Bijon Kumer Mitra, Deputy Director, Integrated Sustainability Center, IGES

Sustainable Development Challenges

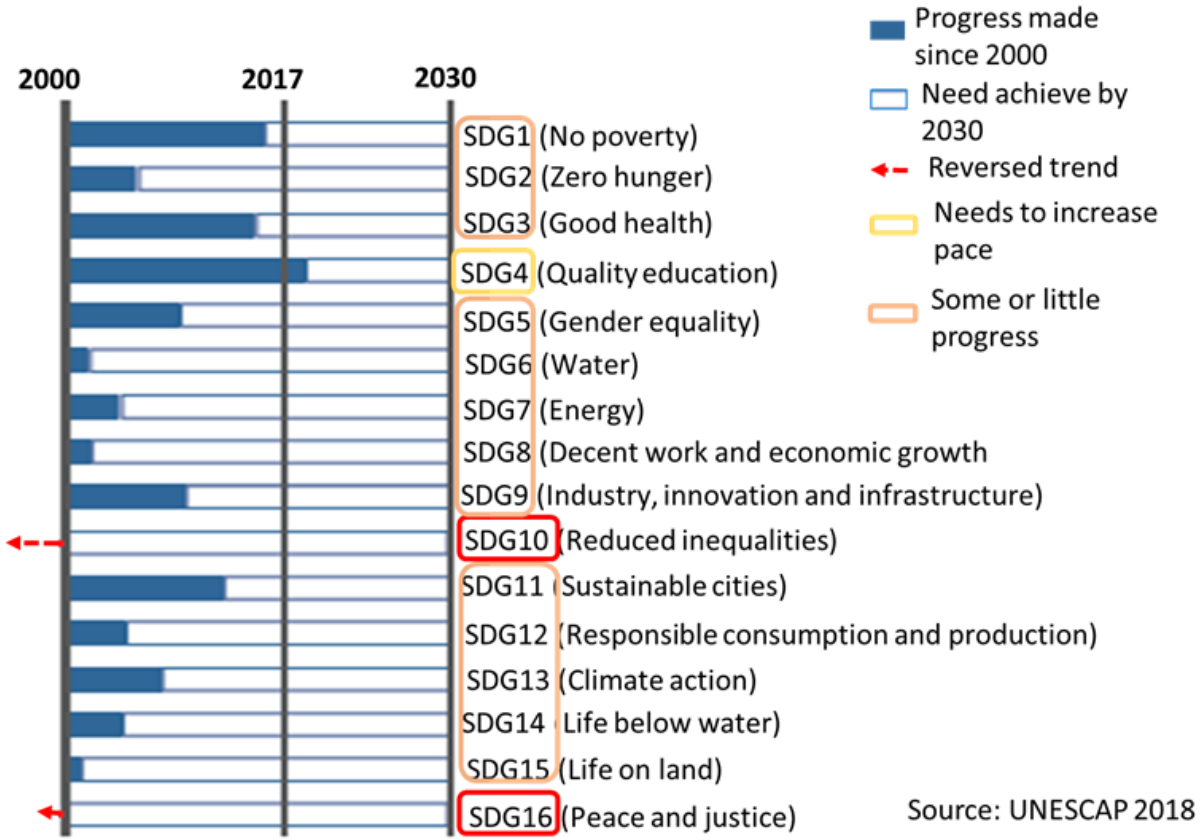


Climate change risk

Disaster risk

Ecosystem and biodiversity loss

Pressure on natural resources



Source: UNESCAP 2018

Pathway of Localization of Global Agendas

Globally agreed agendas

International partnership

Advocacy decentralization

SUSTAINABLE DEVELOPMENT GOALS

United Nations Climate Change

Convention on Biological Diversity

SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION 2015-2030

Voluntary National Reviews

Nationally Determined Contributions (NDCs)

National Biodiversity Strategy and Action Plan

Integrated policy

City Region integrated planning

Catalytic partnership

Rural

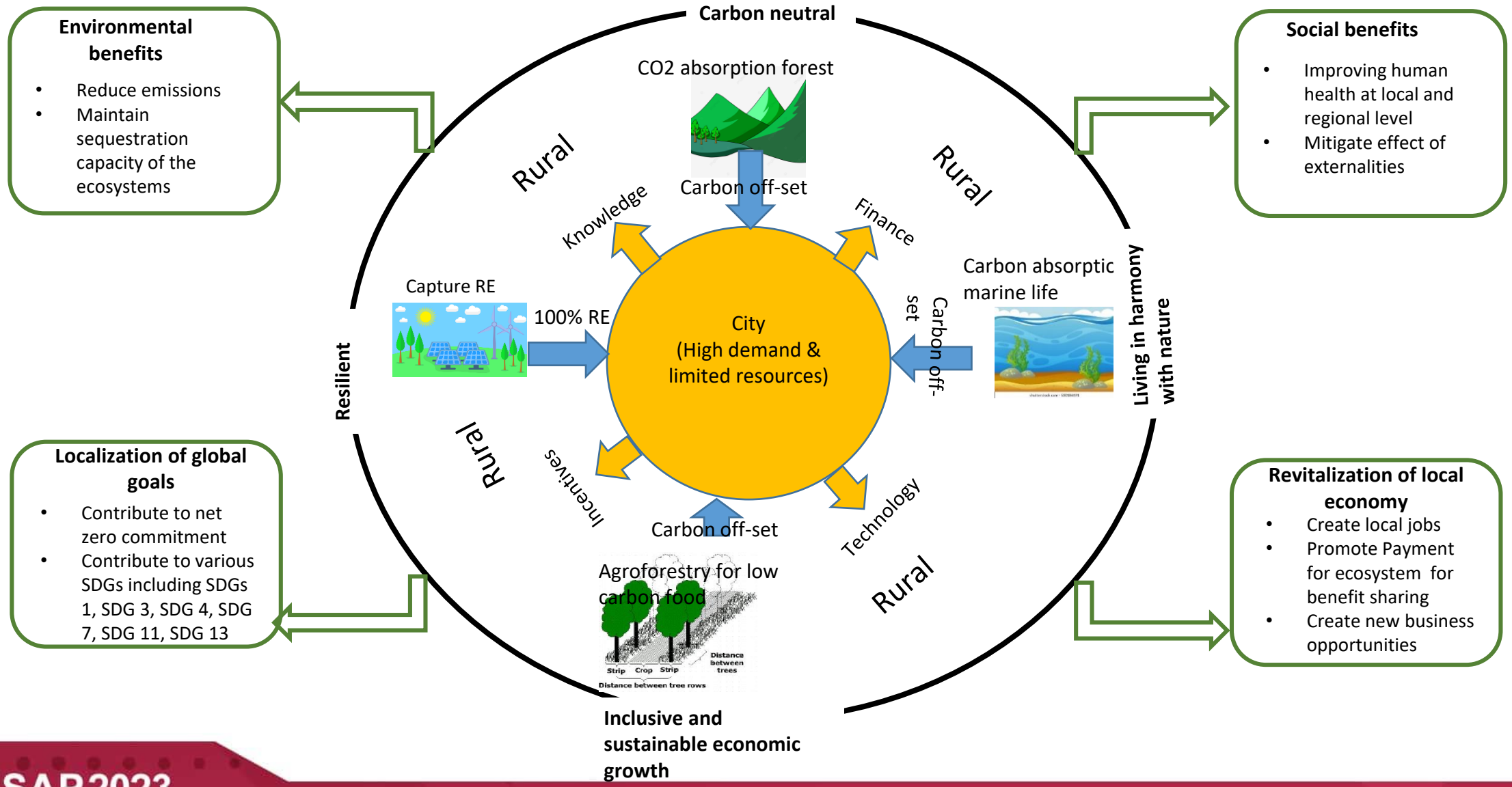
Urban

Collective actions

Commitments & integrated planning implementation of Global Agendas

Achieve national commitments

Urban-rural linkages for optimum utilization of local resources towards the sustainable development



Environmental benefits

- Reduce emissions
- Maintain sequestration capacity of the ecosystems

Social benefits

- Improving human health at local and regional level
- Mitigate effect of externalities

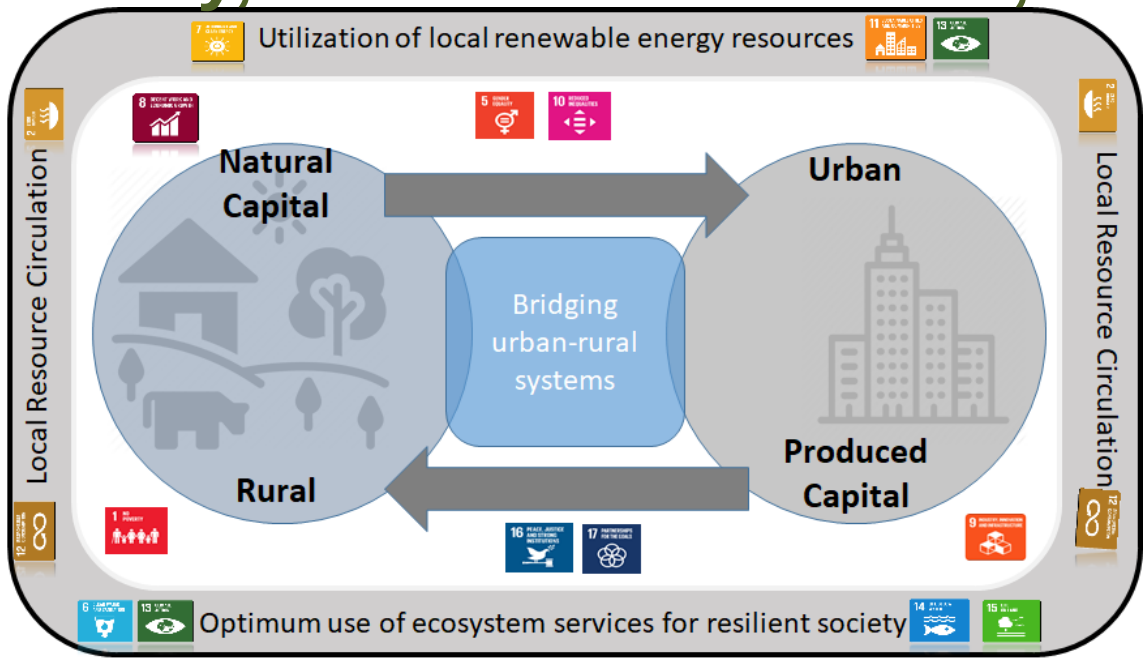
Localization of global goals

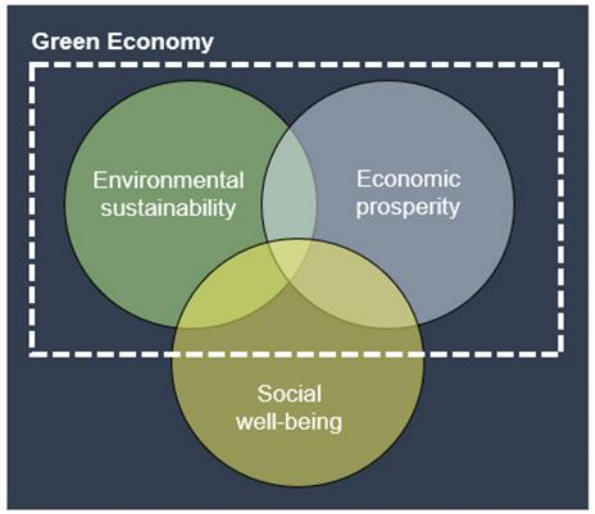
- Contribute to net zero commitment
- Contribute to various SDGs including SDGs 1, SDG 3, SDG 4, SDG 7, SDG 11, SDG 13

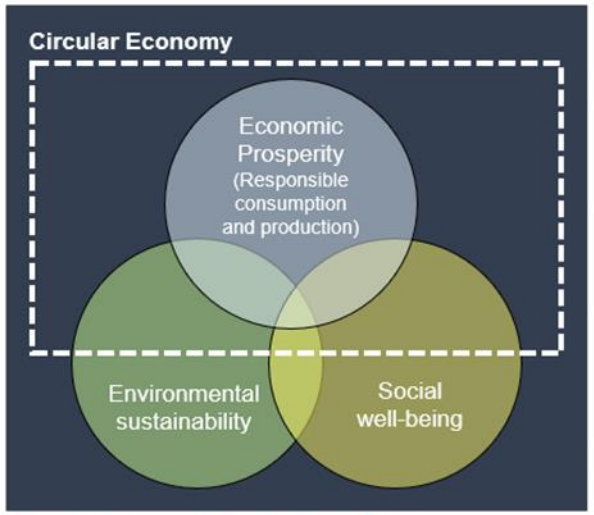
Revitalization of local economy

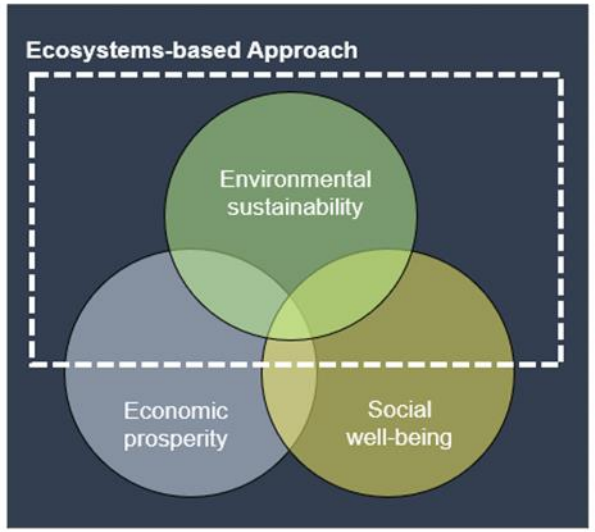
- Create local jobs
- Promote Payment for ecosystem for benefit sharing
- Create new business opportunities

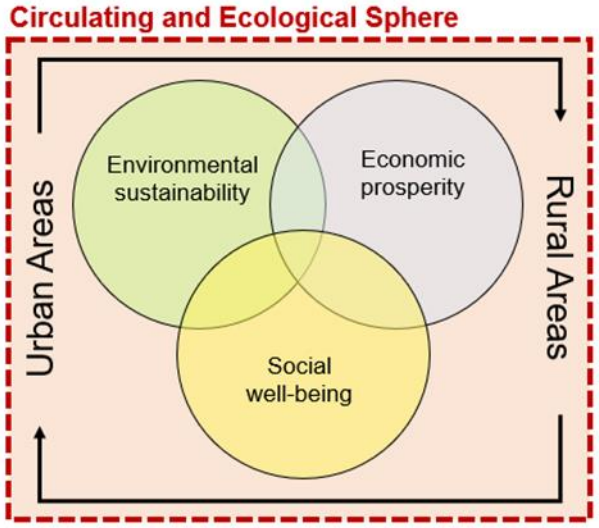
The Regional-CES is framed based on integration of low-carbon society, resource circulation, and living in harmony with nature







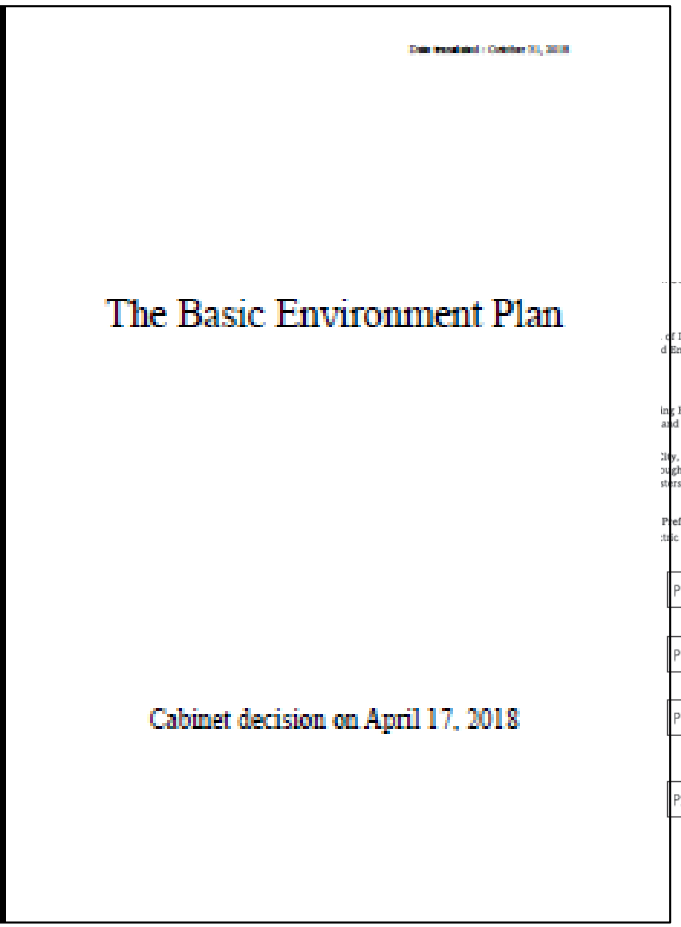


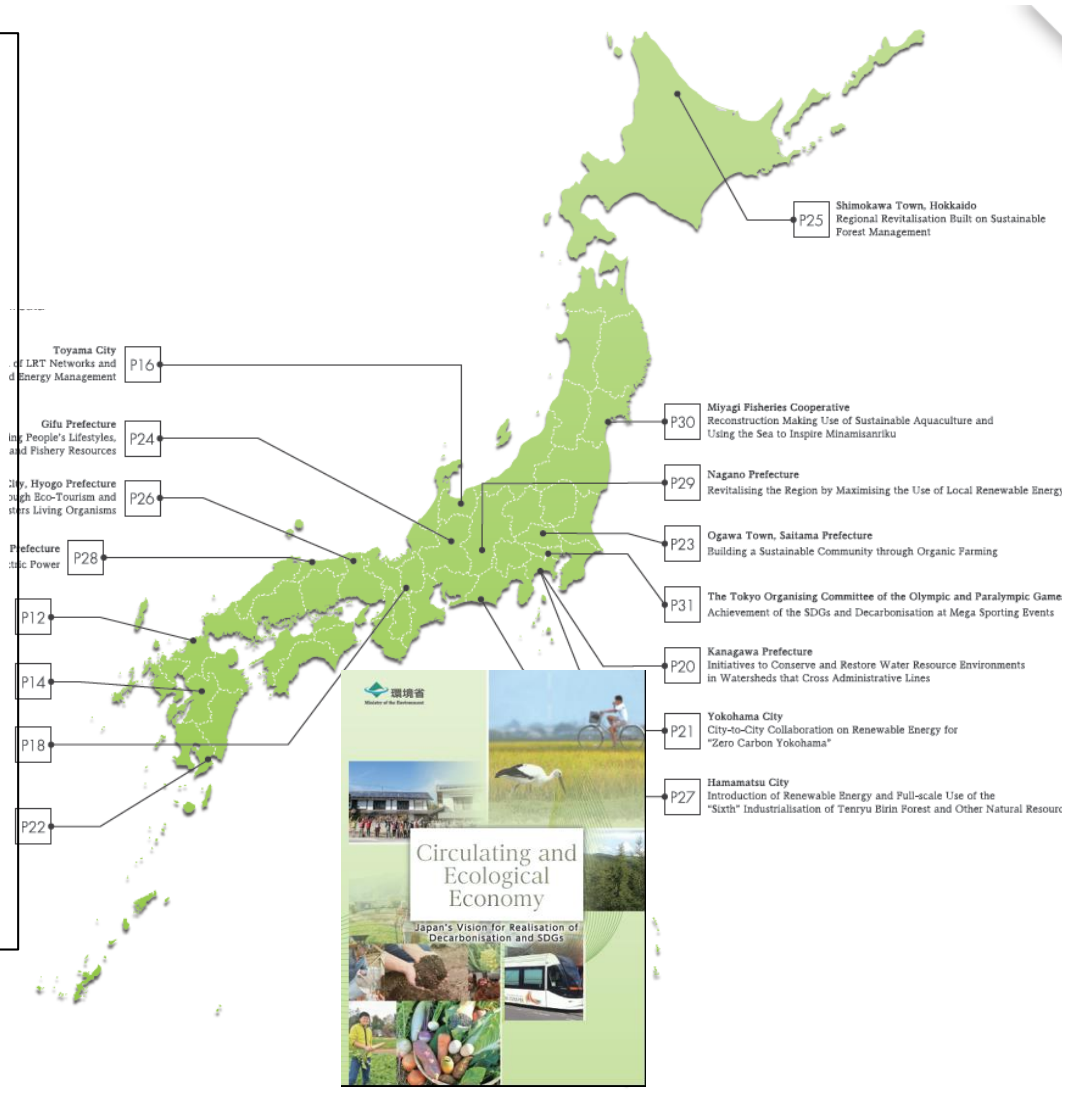


Basic Approach

- Explore simultaneous solutions for economic, regional and international challenges
- Maximize sustainable use of regional resources
- Enriching and strengthening partnerships

CES in Action in Japan for localization of SDGs and climate actions





- Sustainable forest management for Regional revitalization
- Use of local renewable energy for regional revitalization
- Local circulation of recourses and energy
- Disaster resilient decentralized energy system
- Local resource based community business
- Urban rural partnership of managing catchment forest health for quality water sources
- City-rural partnership for net zero
- Organic farming based sustainable community
- Organic farming based sustainable community

The CES-Asia Consortium was established on 14th October, 2021

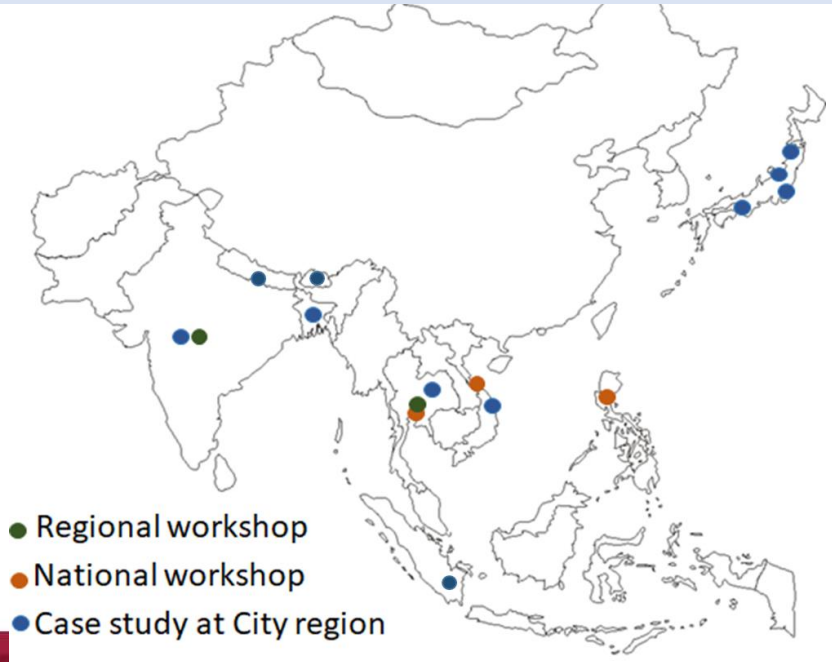
Goal: Mainstreaming the Regional-CES concept to address sustainability challenges through integrated actions in city regions of Asia

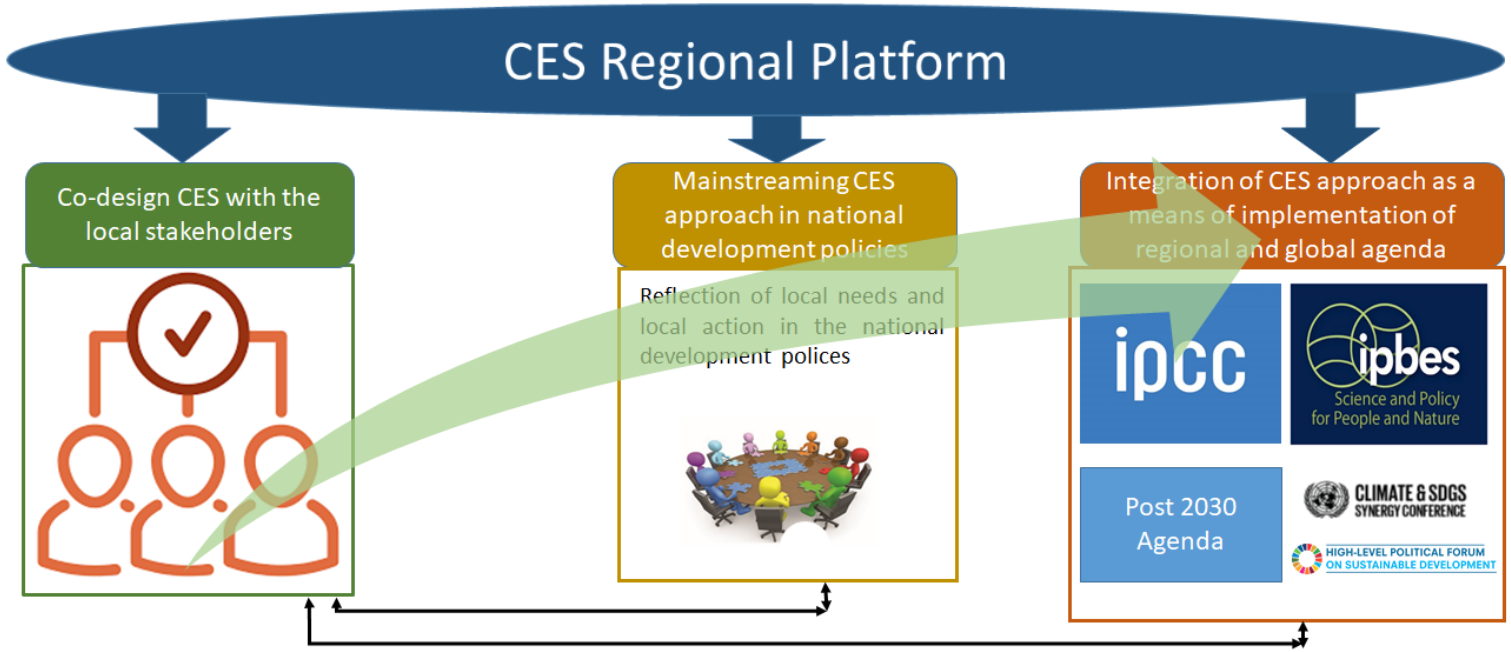
Ten (10) consortium members have signed the Partnership Agreement



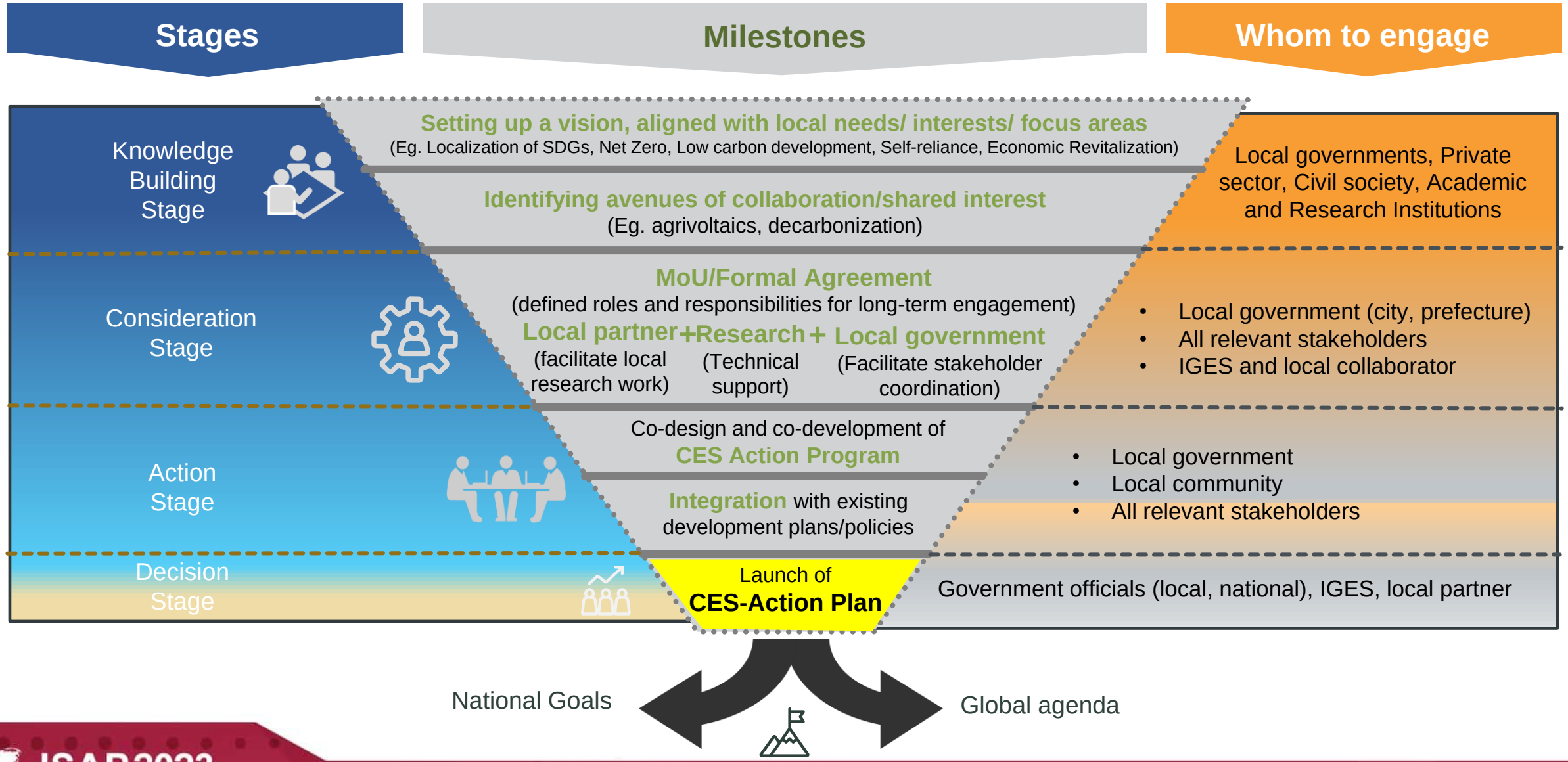

Footprint of CES-Asia Consortium

Bangladesh I Bhutan I India I Indonesia I Japan I Nepal I Philippines I Thailand I Vietnam



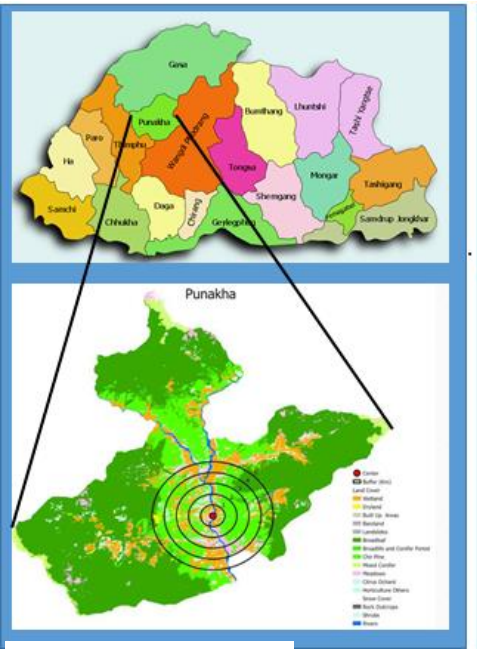


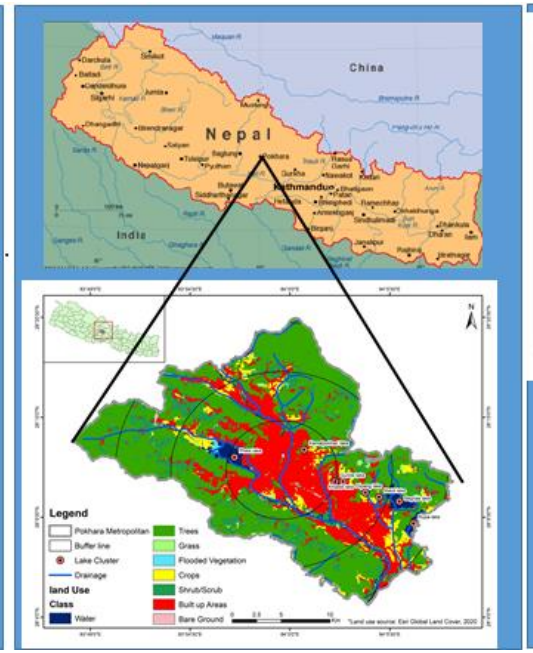
Our Approach: Towards Advancing the CES-application

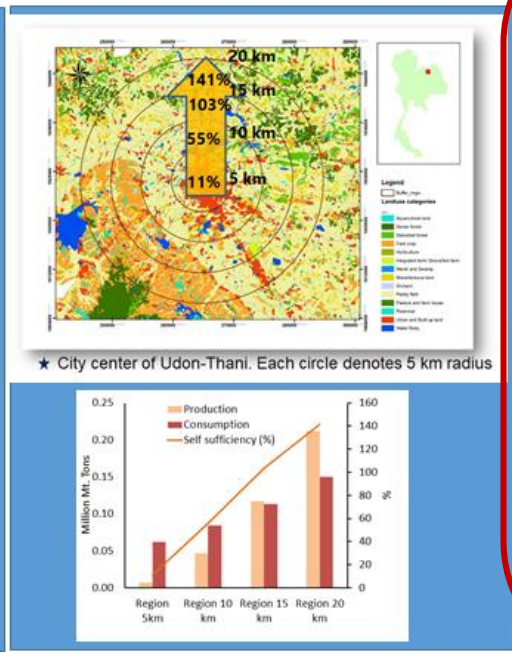


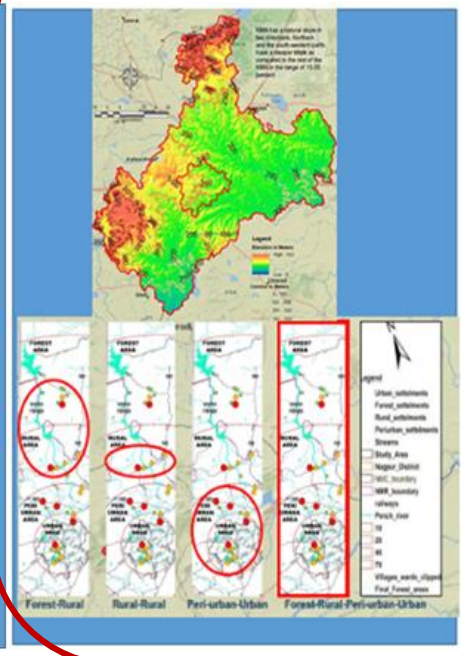
Evidence based Scientific Knowledge Generation for CES for Application of CES in the Local Context

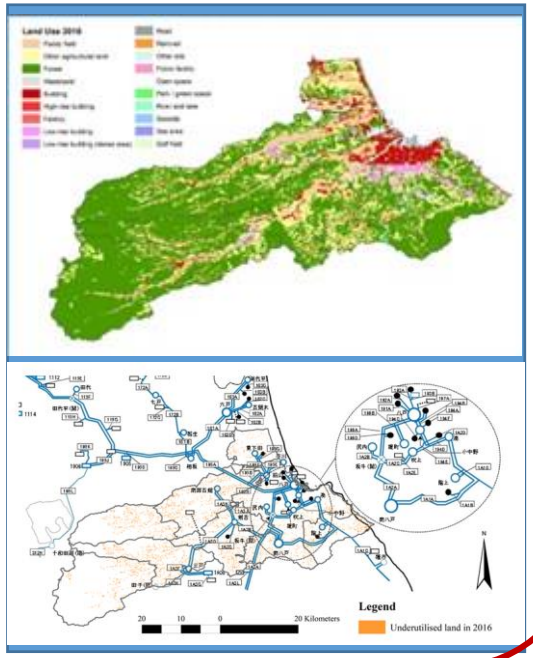
Punakha, Bhutan | **Pokhara,Nepal** | **Udon Thani, Thailand** | **Nagpur, India** | **Hachinohe, Japan**

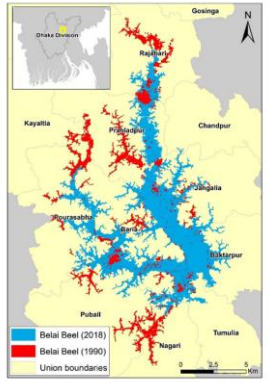


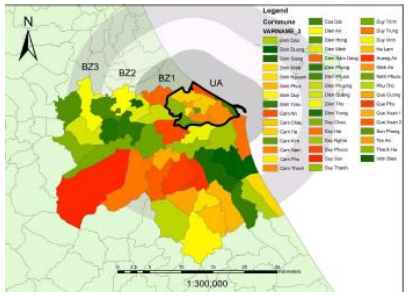






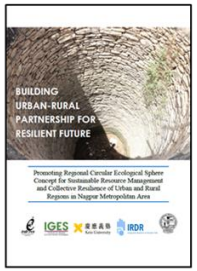


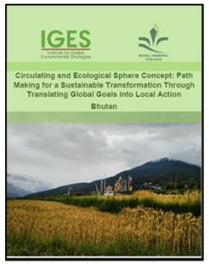




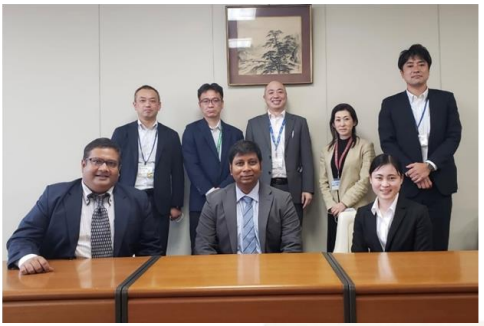
Knowledge generation

1. Joshi, S.; Morey, B.; Deshkar, S.; Mitra, B.K. Applying Circulating and Ecological Sphere (CES) Concept for Post-Pandemic Development: A Case of Hingna Tahsil, Nagpur (India). Sustainability 2022, 14, 9386. https://doi.org/10.3390/su14159386
2. Morey, B.; Deshkar, S.; Sukhwani, V.; Mitra, P.; Shaw, R.; Mitra, B.K.; Sharma, D.; Rahman, M.A.; Dasgupta, R.; Das, A.K. Towards Circulating and Ecological Sphere in Urban Areas: An Indicator-Based Framework for Food-Energy-Water Security Assessment in Nagpur, India. Sustainability 2022, 14, 8123. https://doi.org/10.3390/su14138123CES perspectives for post-pandemic development: A case of Hingna tahsil, Nagpur (India)". Sustainability.
3. Wijitbusaba Marome, Pimnara Rodkul, Bijon Kumer Mitra, Rajarshi Dasgupta, Yatsuka Kataoka. 2022. Towards a more sustainable and resilient future: Applying the Regional Circulating and Ecological Sphere (R-CES) concept to Udon Thani City Region, Thailand, Progress in Disaster Science, Volume 14





Exploring Entry points for CES Application in Hachinohe: Stakeholder consultations and evidence based knowledge generation



			Hachinohe city	Oirase town	Sannohe town	Gonohe town	Takko town	Nanbu town	Hashikami town	Shingou village
Energy dominant scenario	Electricity generation	GWh	534.05	103.16	490.62	558.67	291.40	387.36	259.76	342.69
	Electricity generation compared to consumption	%	36.92%	65.52%	828.87%	532.45%	907.26%	354.87%	298.79%	2320.61%
Agriculture-energy combination scenario	Electricity generation	GWh	400.54	77.37	367.96	419.01	218.55	290.52	194.82	257.02
	Electricity generation compared to consumption	%	27.69%	49.14%	621.65%	399.34%	680.45%	266.16%	224.09%	1740.46%

Shingou village

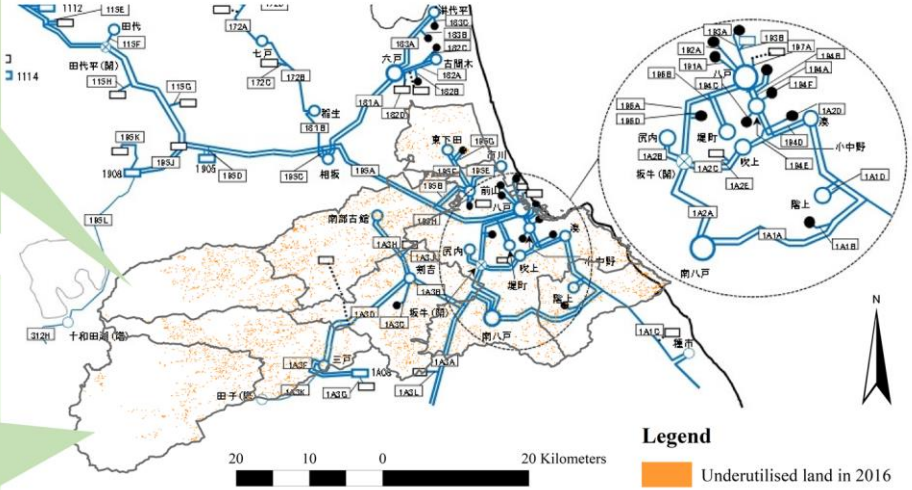
Elec. generation compared to consumption

Energy dominant	2320.61%
Agri.-energy combination	1740.46%

Takko town

Elec. generation compared to consumption

Energy dominant	907.26%
Agri.-energy combination	680.45%



2006 to 2016 Agriculture land became vacant 60.24km ^{2}

Assessment of alternative land resource utilisation towards Net-Zero and regional revitalisation through the circulating and ecological sphere in depopulated city regions in Japan: a case study of Hachinohe City Region

Leveraging Co-benefits for A Healthy Net Zero Transition: Long-term partnership with Hachinohe City

IGES and Hachinohe city signed MOU of collaboration

Roadmap for Decarbonization Region

Pathways for Revitalization

Co-benefit Strategy of Net Zero Action Hachinohe

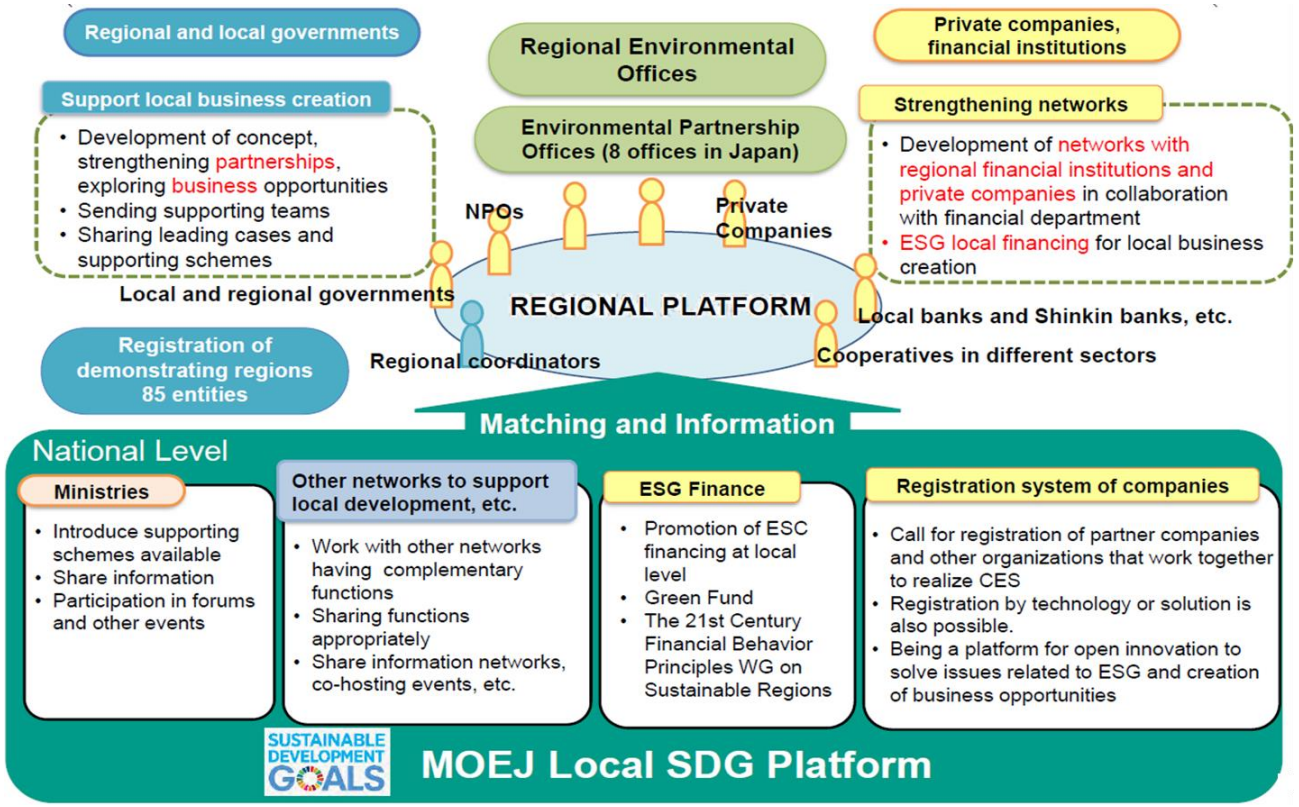
Mid-term and Long-term Master Plan

Challenges for implementation of CES approach

- Lack of information and knowledge on the integrated approach concept
- Lack of understanding of spatial linkages and integration (eg. different approaches between urban and rural settings)
- Need evidence based knowledge generation (eg. Assessment of locally available resources
- Incompatibility between top-down implementation and local needs.
- Lack of location-based law, regulation, policies (eg. Existing policies are not supportive to urban-rural partnership)
- Obstacles of financial supports, research funds, lack of awareness of Regional-CES among local people, and lack of networking

Enabling environment for implementation of CES approach for integrated localization of SDGS and Climate goals

- Need assessment based knowledge generation
- Co-development and implementation of research with local/regional stakeholders that should have very clear framework of science policy interface
- Long-term partnership and engagement with stakeholders
- Co-development of local solutions in order to give ownership to the stakeholders
- Facilitate collaboration and cross learning through regional platform



Japanese Approach: Platform to connects people, goods, money and skills

ご清聴ありがとうございました。

Thank you very much for your attention.

IGES Institute for Global Environmental Strategies
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