



APSEC Updates in EGEEC 56 & EGNRET 55 Joint Meeting

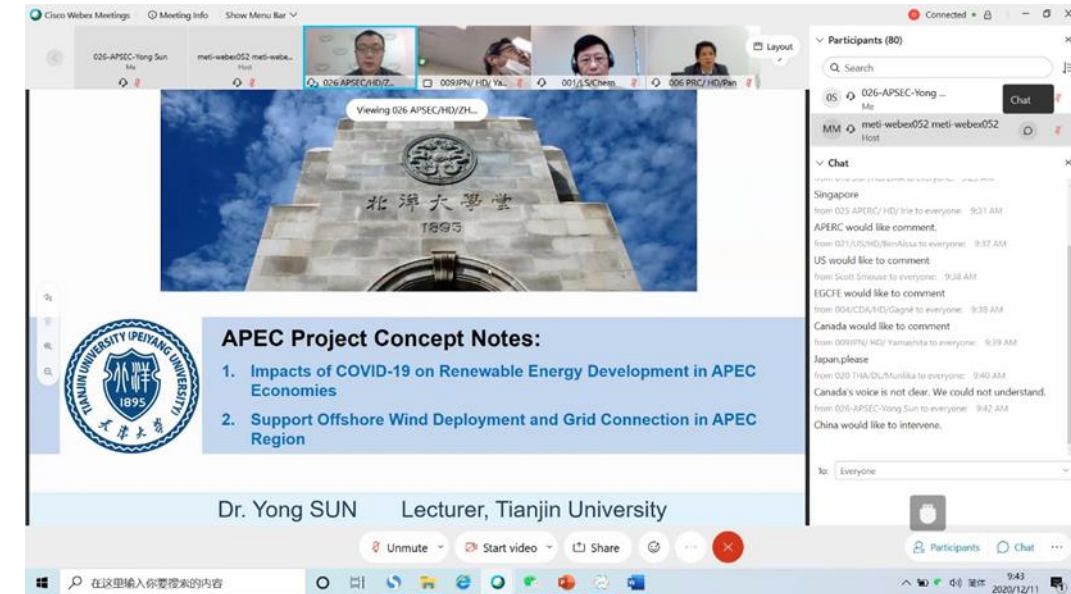
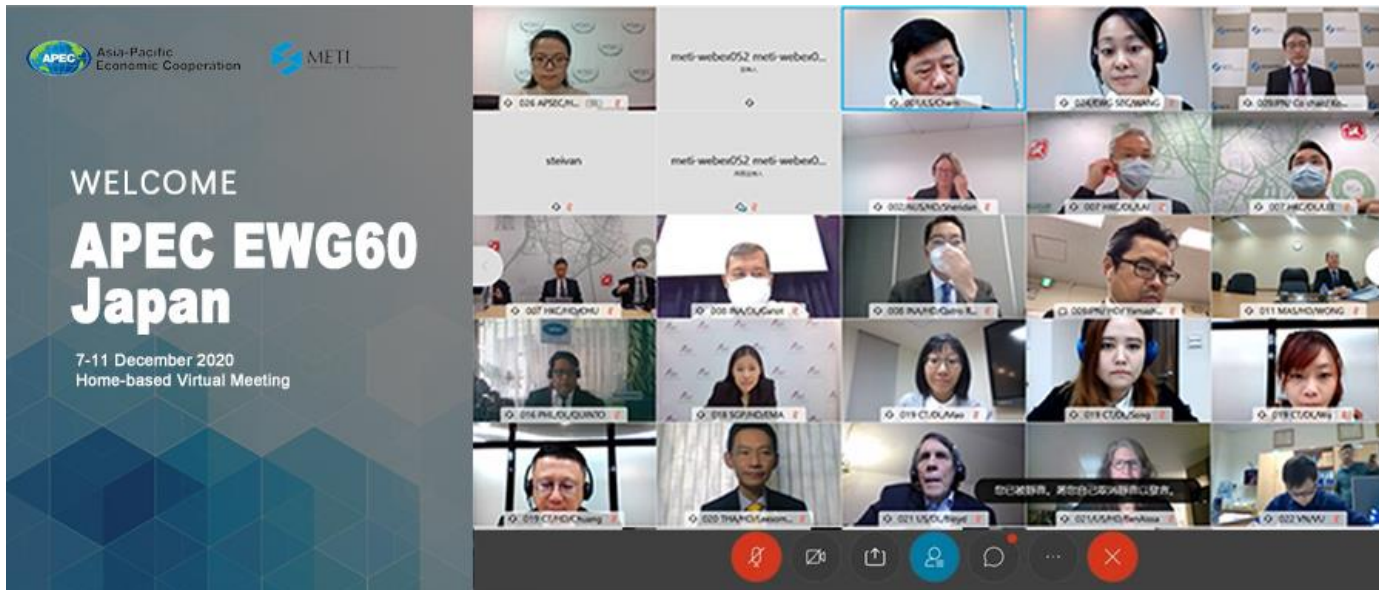
Jinlong MA

Vice President, APEC Sustainable Energy Center

■ Outline

- ◆ APEC Events
- ◆ APEC Projects
 - SPES Phase 2
 - Projects within ETS Pillar
 - Projects within CNSC Pillar
- ◆ About CCT Pillars
- ◆ Institution Building
 - Advisory and Resources Networks
 - Recognitions

■ Attended the 60th APEC Energy Working Group Meeting



Attended the 60th APEC Energy Working Group Meeting (EWG60) and reported related progress in daily work and APEC projects.

It also introduced two APEC project concept notes: “Impacts of COVID-19 on Renewable Energy Development in APEC Economies” and “Support offshore wind deployment and grid connection in APEC region”.

■ EWG 13 2019A-Demonstration and Promotion of Energy Resilience tool based on Solar-Powered Emergency Shelter Solutions (SPESS) for Natural Disaster in APEC

◆ Request for Proposal

Due to the current COVID-19 situation, this project has sent an extension request until Dec 2021. Now the RFP is approved by APEC Secretariat, and the project is under the selective tender process.

- **Middle of May 2021:** Contractor to submit preliminary organizational plan, consisting of an outline for the expected work, and hold the first planning meeting to confirm the implementation plan for the identified tasks.
- **May 2021:** Identify examples and conduct technical review, draft the *Technical Review of Examples of Emergency Shelters in the APEC region*, and review and discuss with the project overseer.
- **June 2021:** Workshop to be held online and Chinese participants and speakers will be invited to attend the meeting on site. The first draft Project Report will be presented during the Workshop and feedback, comments and data will be collected from other speakers and participants.
- **June-October 2021:** Finalize the *'Technical Review of Examples of Emergency Shelters in the APEC region'*. Based on previous research work, draft the Project Report *'Demonstration and Promotion of Energy Resilience Tools based on Solar-Powered Emergency Shelter Solutions (SPESS) for Natural Disasters in APEC'* and send to PO for review first, and submit to the Secretariat for acceptance and then to EWG members for endorsement.
- **30 November 2021:** The final Project Report and invoices will be submitted to APEC.

■ Research & Activities within ETS Pillar Program

◆ On-going Research Task — APEC Self-Funded Project (EWG 04 2020S)

Innovative Approaches for Scaling-Up Renewable Energy Deployment in APEC Region

◆ Planned Research Tasks — Two In-Principle Funding APEC Projects (Session 1 2021) CNs

(1) Impacts of COVID-19 on Renewable Energy Development in APEC Economies

(2) Support Offshore Wind Deployment and Grid Connection in APEC Region

◆ Completed Research Task — National Energy Administration of China Funded Project

Development and Practice of Smart Final Energy System and Application of Distributed Energy

■ On-going Research Task — APEC Self-Funded Project

Innovative Approaches for Scaling-Up Renewable Energy Deployment in APEC Region (EWG 04 2020S)

- **Proposing economy:** China
- **Co-sponsoring economy:** Hong Kong, China
- **Endorsed by EWG members:** 21 August 2020
- **Expected start/completion date:** 01/11/2020 - 30/04/2022

■ Project summary

- With focuses on RE power generation, the project **aims to explore innovative approaches for scaling-up RE application** in APEC region, which **facilitates achieving the APEC RE goal**.
- Through review, investigation and stakeholder consultation, the project assesses the RE development from performance of energy system, sustainability and energy access perspectives.
- Barriers and drives for RE development will be analyzed, suggestions and recommendations on innovative approaches will be put forward through analysis of policy, technologies, business environment, case study.
- **Research results will be synthesized in project report and shared**. Presentations to be made in EGs' meeting and APSEC events for members to exchange experience and disseminate relevant know-how.

■ Planned Research Tasks—Two endorsed APEC Project CNs

(1) Impacts of COVID-19 on Renewable Energy Development in APEC Economies

■ Endorsed CN Submitted to APEC Secretariat: **19 March 2021**

■ CN approved in-principle by APEC' s BMC: **10 May 2021**

- APEC forum: **EWG / EGNRET**
- Co-sponsoring economies:
Hong Kong, China; Thailand; Singapore; Malaysia
- Expected start/completion date:
July 2021 - December 2022

- **Project Overseer:**
Name: Jinlong MA
Title: Professor
Organization: Tianjin University (TJU), China
Tel: +86 22 2740 0847
E-mail: jinlong_ma@tju.edu.cn

- **Total cost of proposal: (APEC funding+self-funding)**
USD 95,000 + 100,000

Objectives

- Examine the impacts of COVID-19 pandemic on renewable energy development in APEC.
- Reviewed and assess economies' recovery strategies and priority and the approach to address sustainability and support renewable energy development including relevant policy, investment support and regulatory framework adjustment.
- Recommendations will be provided to facility sustainable recovery, support renewable energy development in APEC economies, and contribute to achieving APEC renewable energy doubling goal.

■ Planned Research Tasks—Two endorsed APEC Project CNs

(2) Support Offshore Wind Deployment and Grid Connection in APEC Region

■ Endorsed CN Submitted to APEC Secretariat: **19 March 2021**

■ CN approved in-principle by APEC' s BMC: **10 May 2021**

- APEC forum: **EWG / EGNRET**
- Co-sponsoring economies:
Korea; Hong Kong, China; Singapore; Thailand; Indonesia
- Expected start/completion date:
July 2021 - December 2022

- Project Overseer:
Name: Jinlong MA
Title: Professor
Organization: Tianjin University (TJU), China
Tel: +86 22 2740 0847
E-mail: jinlong_ma@tju.edu.cn

- **Total cost of proposal: (APEC funding+self-funding)**
USD 95,000 + 50,000

Objectives

- Investigate, review and summarize the experience of offshore wind power development in APEC region.
- Analyze the challenges, barriers, and opportunities for offshore wind investment.
- Provide recommendations on technical solutions for promoting offshore wind in APEC region.
- Build up relevant capacity and disseminate the knowledge on innovative approaches, best regulatory add policy framework, and market mechanism for supporting offshore wind development among the key stakeholders in APEC economies, including government and financing institutions, utilities and project developers.

■ Research & Activities within CNSC Pillar Program

◆ Completed Research Task — APEC Self-Funded Project EWG 11 2018 S

APEC Integrated Urban Planning Report – Combining Disaster Resilience with Sustainability

◆ On-going Research Task

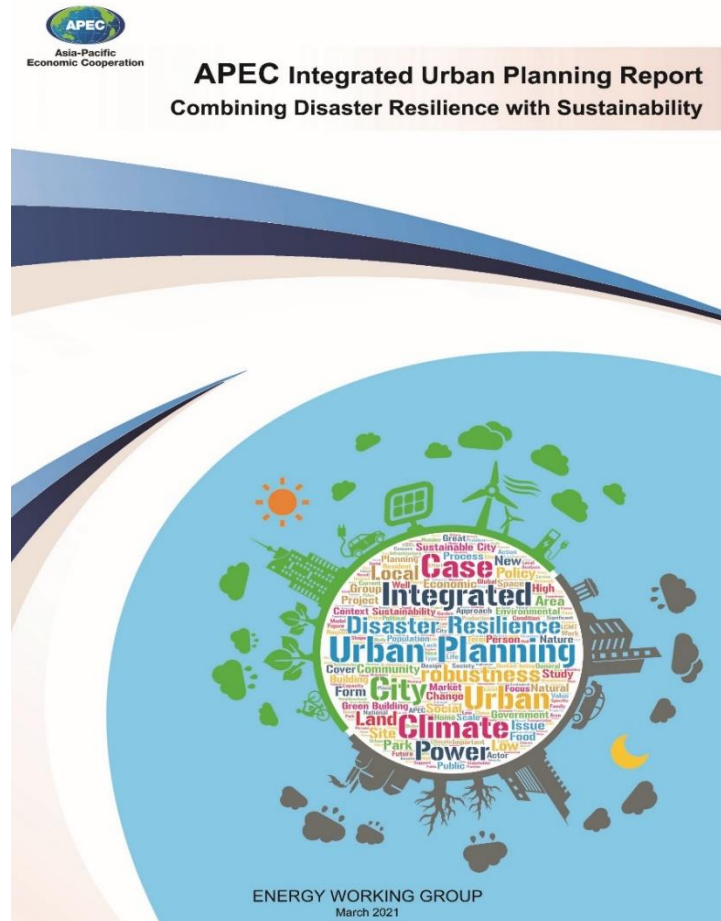
APEC Sustainable Urban Energy Progress Report

◆ Planned Research Tasks — APEC Self-Funded Project

Research on means to overcome shortage of basic urban energy-climate data

■ Completed Research Task — APEC Self-Funded Project EWG 11 2018 S

APEC Integrated Urban Planning Report – Combining Disaster Resilience with Sustainability



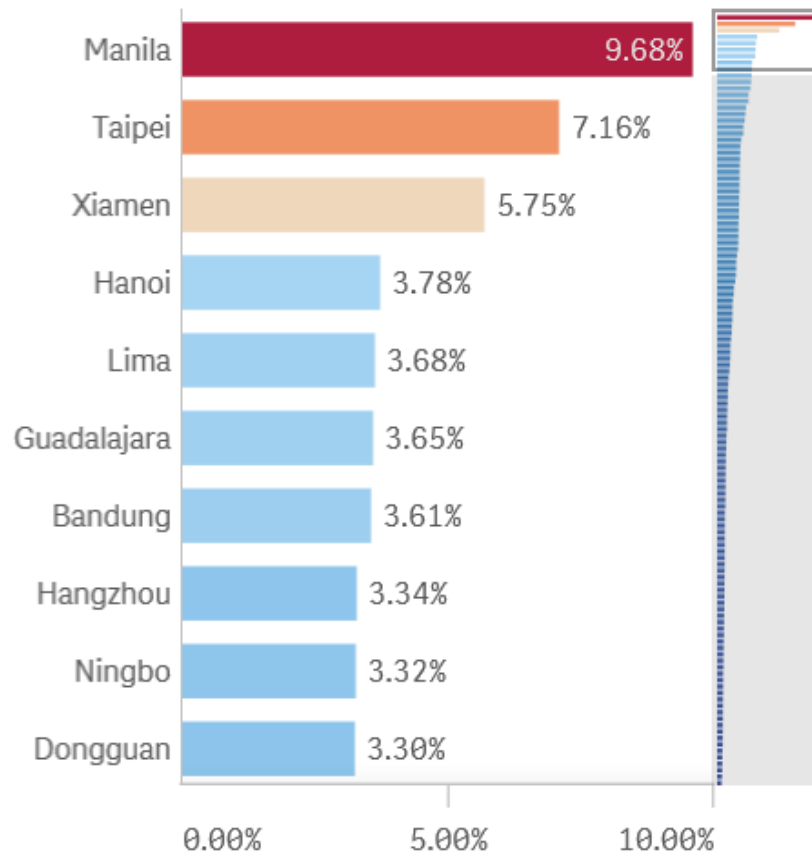
■ Contents of the Report

- Understanding the causes of disaster mortality and GDP loss due to disaster risk in APEC cities
- Integrating sustainable development to urban planning: theory and best practice cases in the APEC region
- Disaster resilience of APEC cities: synergies with measures to enhance sustainable energy
- Results-oriented monitoring of local SDGs: Energy, information technology and innovation can accelerate the path towards sustainability of APEC cities.

Endorsed by APEC-EWG on 2 Feb 2021. Electronic version available on:

<https://www.apec.org/Publications/2021/03/APEC-Integrated-Urban-Planning-Report>

APEC Cities: highest Risk to GDP (except for war-torn cities)



Manila is worldwide the most threatened city that is not war-torn, with 9.68% GDP at risk. Manila is also the most disaster-threatened APEC city

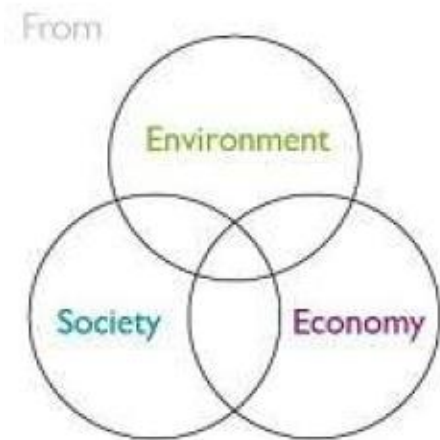
World's most exposed cities (in %GDP) for all 22 threats cumulated are all war-torn:

- Kabul 17%,
- Tripoli 16%,
- Saana 15%,
- Baghdad 15%,
- Khartoum 13%,
- Kinshasa 11%,
- Beirut 10%

Bearable risk level (all threats) < 1-2% GDP, e.g. Hong Kong: 0.93% GDP

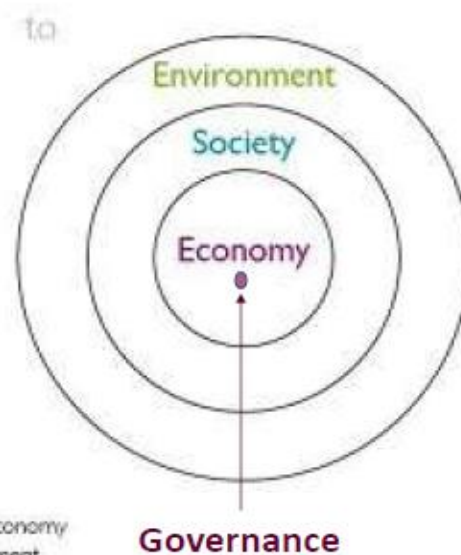
Sustainable Development (SD) Concepts 1992 to 2019

UNCED, Rio 1992

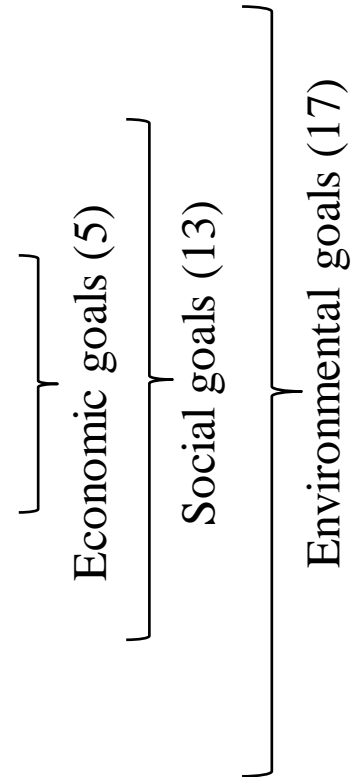


Source: B. Giddings, B. Hopwood, G. O'Brien, Environment, Economy and Society: fitting them together in Sustainable development, Wiley-Interscience, 2002

Giddings, Hopwood, O'Brien, 2002



APSEC 2020



Governance goal (1)

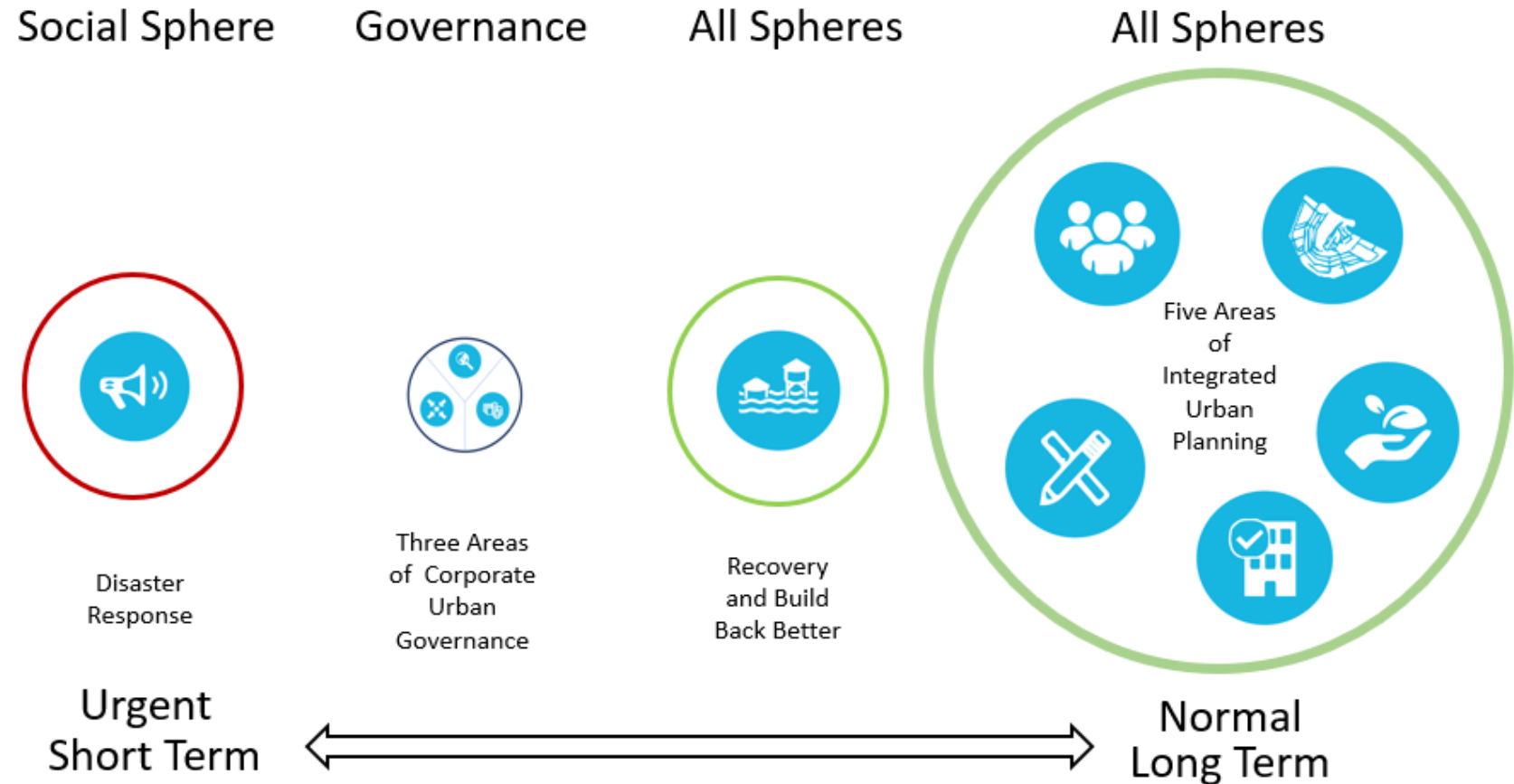
Disaster Resilience (DR): From DR Scorecard for Cites

Three major areas:

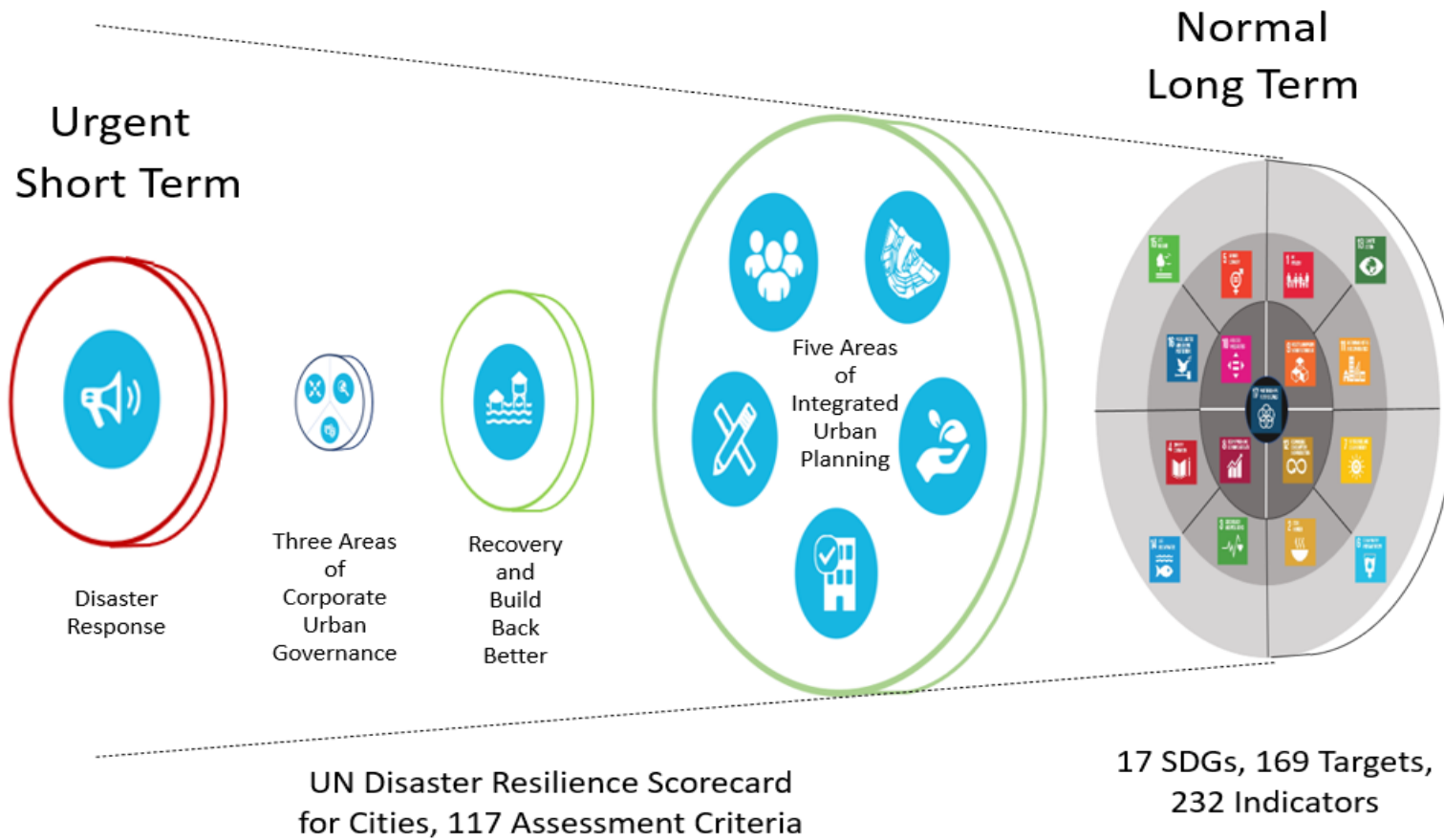
Response planning

City governance

Integrated planning



Integrating DR with SD



Systems-theoretical elements:

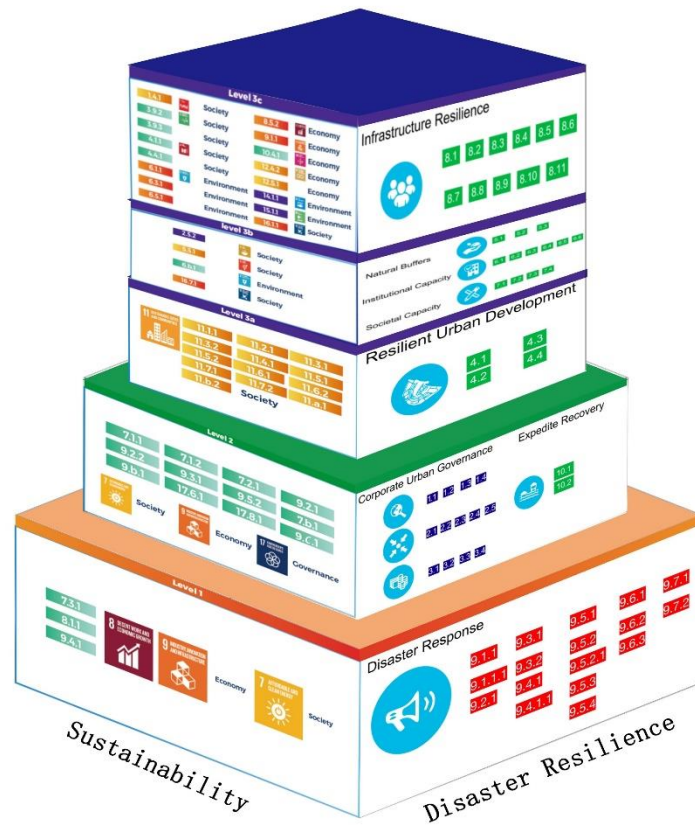
SDGs = objectives or targets

Each target needs at least one instrument to attain it

Disaster Resilience = instruments to attain the targets

Three Steps towards an Urban SDG Tracker

Step-by-step build-up according to Commitment Levels



→ **Commitment level 3:** Implementing and evaluating local action plan
Objective: In-depth transformation towards integrated sustainable development and disaster resilience. Data requirement aiming at monitoring equilibrated in-depth development in all major urban areas

→ **Commitment level 2:** Local 2050 vision, 2030 targets, elaborating integrated holistic local action plan
Objective: Data requirement aiming at achieving rapid progress, driven by key areas: Energy, Industrial Innovation, IT

→ **Commitment level 1:** Improve sustainable development and disaster resilience and showcase results
Objective: Allowing APEC communities of any size to participate in the Cooperative Network of Sustainable Cities CNSC network whereby only basic data is needed

Synergies between Disaster Resilience and Sustainable Energy

Fight against Extreme Temperatures

- Generalize passive housing and solar-powered HVAC
- Generalize use of renewables for space cooling
- Promote solar-powered district cooling
- Define cooling as energy product
- Generalize heat-reflective paint
- Promote integrated PV-crop cultures
- Promote PV-cooled greenhouses

Fight against all other disaster types

- Combine economic stimulus packages with measures attaining key SDG targets
- Equip HVAC with UV-C disinfection
- Existing buildings: combine seismic and energetic exterior insulation
- Generalize wastewater-to-energy treatments
- Storage basins combined with floating PV
- Avoid building thermal power stations except along coasts
- Improve building standards for cyclones and tropical windstorms
- Regulate risk of artificial earthquakes (e.g. fracking)
- Highest standards for water dam cascades

■ On-going Research Task

APEC Sustainable Urban Energy Progress Report

■ Project summary

- Research on the innovation path of scaling-up urban renewable energy. Investigate the status of urban energy supply and energy consumption in APEC economies, as well as the status of renewable energy development. Investigate the development status and practical cases of new business forms and new models of urban renewable energy applications such as smart energy micro-grid, multi-energy complementary integration, and integrated energy system. Analyse the typical technology paths and innovation paths of urban renewable energy for different application scenarios.
- Research on urban low-carbon energy system and energy efficiency improvement. Investigate the composition, key technologies and practical cases of the supply side and consumption side of the urban energy system, analyse and summarize the development trend of the city's low-carbon energy system. Analyse and summarize the solutions for improving the urban energy efficiency.
- Collect basic data of representative cities in the APEC region, best practice cases of urban energy systems, technical data, etc., and build an energy information system for sustainable development of APEC cities.

■ Planned Research Tasks— endorsed APEC Self-Funded Project Proposal

Research on means to overcome shortage of basic urban energy-climate data

■ Endorsed Project Proposal: 6 May 2021

- **APEC forum:** EWG
- **Expected start/completion date:**
May 2021 - March 2022

- **Project Overseer:**
Name: DEFILLA Steivan
Title: Professor
Organization: Tianjin University
(TJU), China
Tel: +86 22 2740 0847
E-mail: steivan@steivan.com

Project summary

- This self-funded project aims at exploring the feasibility of constructing an urban Sustainable Development Goals (SDG) data base for APEC cities provisionally called “APEC Urban SDG Tracker for Energy and Climate” .
- The purpose of this data base is to contribute to filling the data shortage of SDG-relevant urban data as described in project reports EWG 11 2018S and EWG 09 2019S. The latter also explains the benefits of addressing simultaneously local SDG indicators as well as criteria of the Disaster Resilience Scorecard for Cities.
- The planned activities comprise discussing the definition of the feasible input data sets and the desired output visualization tools with a group of APEC pilot cities and a data user group, programming the input and output portals and the data base, receiving feed-back from the test runs, and discussing ways of how knowledge transfer and capacity building can be organized for further development.

■ On the way to upgrade CCT Pillar Program to CET Pillar Program

国家能源局

国际司函〔2021〕314号

APEC 可持续能源中心:

来函收悉。经研究,我对你中心将“亚太地区清洁煤技术转移项目”升级为“未来清洁能源技术支柱项目”无不同意见。

下一步,请你中心与有关单位就升级事项做好衔接,继续坚持高质量发展目标,提升能力水平,更好地支撑我参与APEC 框架下能源合作。

特此函复。



抄送:国家能源技术经济研究院(CCT中心)

◆ Background

- **CCT establishment:** APEC Clean Coal Technology Transfer (CCT) Program Joint Operation Center was established on 20 September 2018.
- **CCT mission:** CCT program is committed to promote and disseminate China's clean coal technologies, especially clean and efficient coal-fired power generation technologies, to promote international cooperation and exchange of clean energy technologies between China and other APEC economies.
- **Driving force for transformation and upgrading:** At the General Debate of the 75th Session of the UN General Assembly, President Xi Jinping stated that China will reach carbon neutrality before 2060 and will seize time to formulate an action plan for peaking carbon dioxide emissions before 2030.

Aim of emission peak by 2030 and carbon neutrality by 2060: China's National Energy Administration (NEA) agrees transformation and upgrading of the CCT Pillar Program to the Future Clean Energy Technology (CET) Pillar Program.

■ Advisory Network



APEC Sustainable Energy Center

■ Advisory Network

Till May 2021, the three-tier intelligence network:

APEC Advisory Board Committee, 14 experts from 9 economies;

36 domestic experts;

6 Tianjin University academic committee chaired by TJU President, Prof Jin Donghan.

(ongoing invitations and renewal)

Year	Batch/Term	Experts Tier		
		TJU	Domestic	APEC
2017	B1T1	6	7	9
2018	B2T1		26	3
2019	B3T1		4	5
2020	B1T2/B4T1		2	10*

** In December 2020, Prof. Christopher Chao from Hong Kong, China joined the APEC Advisory Board Committee as the 4th batch member.*

■ Included as an achievement in the white paper released by China's State Council Information Office



China's State Council Information Office on Dec 21 released a white paper titled "Energy in China's New Era."

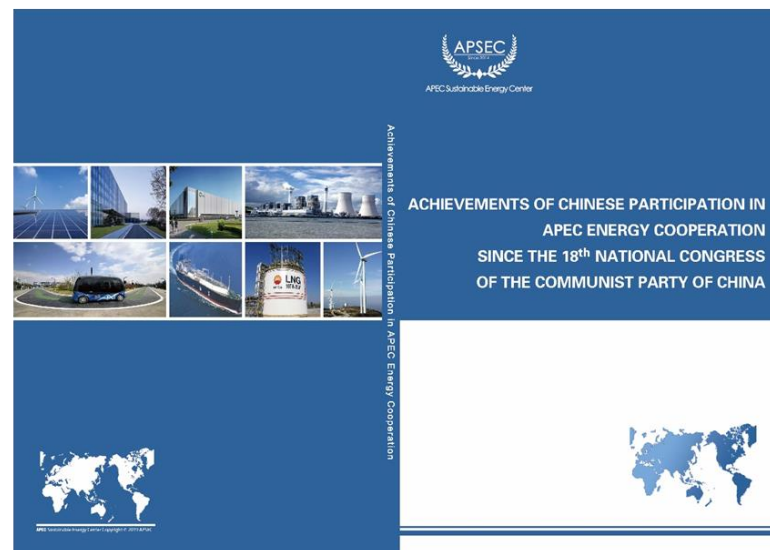
The white paper states that, China is an active participant in international energy cooperation under multilateral mechanisms such as the UN, G20, APEC and BRICS. **It is making positive progress in joint research, releasing reports and founding agencies, including host of the APEC Sustainable Energy Center in China.**

Panel 13 China's Efforts to Improve the Global Energy Governance System

Within the framework of international multilateral cooperation, China actively promotes the formulation and implementation of initiatives on global energy market stability and supply security, the transition to green and low-carbon energy, greater access to energy, and higher energy efficiency.

- Advocate of a global energy network to meet global power demand with clean and green alternatives
- Facilitator of the G20 Energy Efficiency Leading Programme, the Enhancing Energy Access in Asia and the Pacific: Key Challenges and G20 Voluntary Collaboration Action Plan, and the G20 Voluntary Action Plan on Renewable Energy
- Co-host of the International Forum on Energy Transitions in cooperation with the IRENA and other international organizations
- Proponent of the Shanghai Cooperation Organization Energy Club
- **Host of the APEC Sustainable Energy Center in China**
- Proponent of the BRICS Energy Research Cooperation Platform
- Founding member of the IEA's new Energy Efficiency Hub

■ Reports appreciated by the Ministry of Foreign Affairs



中华人民共和国外交部

经函〔2021〕70号

关于报送 APEC 能源合作有关成果 研究报告的复函

APEC 可持续能源中心：

亚太经合组织可持续能源中心（APSEC）自 2014 年成立以来，密切关注 APEC 能源合作形势，积极开展能源领域信息交流、技术推广和能力建设等活动，取得显著成效。中心牵头编制的《十八大以来中国参与 APEC 能源合作成果与展望》全面回顾了过去一个时期中国参与 APEC 能源合作的历程和所作贡献，结合全球能源未来发展趋势对中国参与 APEC 能源合作提出了具体建议，具有重要参考价值。

希望中心加强自身机制建设和研究职能，深入参与 APEC 能源领域合作，实施务实合作和能力建设倡议，促进 APEC 经济体能源领域政策沟通和技术交流，落实 APEC 2040 年愿景，为构建亚太命运共同体作出积极贡献。

特此函复。

外交部国际经济司
2021 年 1 月 25 日

抄送：国家能源局国际司

- In order to actively respond to the new opportunities and new challenges brought about by the adjustment of the global pattern and the tremendous changes in the world situation, NEA has made active strategic deployment and work arrangements in deepening and broadening Chinese participation in APEC energy.
- The report issued by APSEC systematically sorts out the main work and important achievements of this period.

The Ministry of Foreign Affairs appreciates the important reference value of the of the report and expects APSEC to deepen APEC's practical cooperation on energy.

THANK YOU!

Copyright © 2021 APSEC