

International Innovation Forum on Solidarity and Cooperation for Carbon Neutrality

16-18 April 2024, Jeju Island, the Republic of Korea

Innovative technologies for achieving carbon neutrality in the Asia-Pacific

Preeti Soni
Head
APCTT-ESCAP



APCTT

Asian and Pacific Centre
for Transfer of Technology

Outline

Innovative technologies – key to sustainable development

Emerging technologies for climate resilience

Low-carbon pathway in Asia-Pacific

Role of regional cooperation

APCTT – A regional technology cooperation platform

Conclusions

Innovative technologies – key to sustainable development

Inclusive / grassroots innovation

Local solutions

Green technology

Wider application

Affordability

Accessibility

Localization of technology

Market readiness

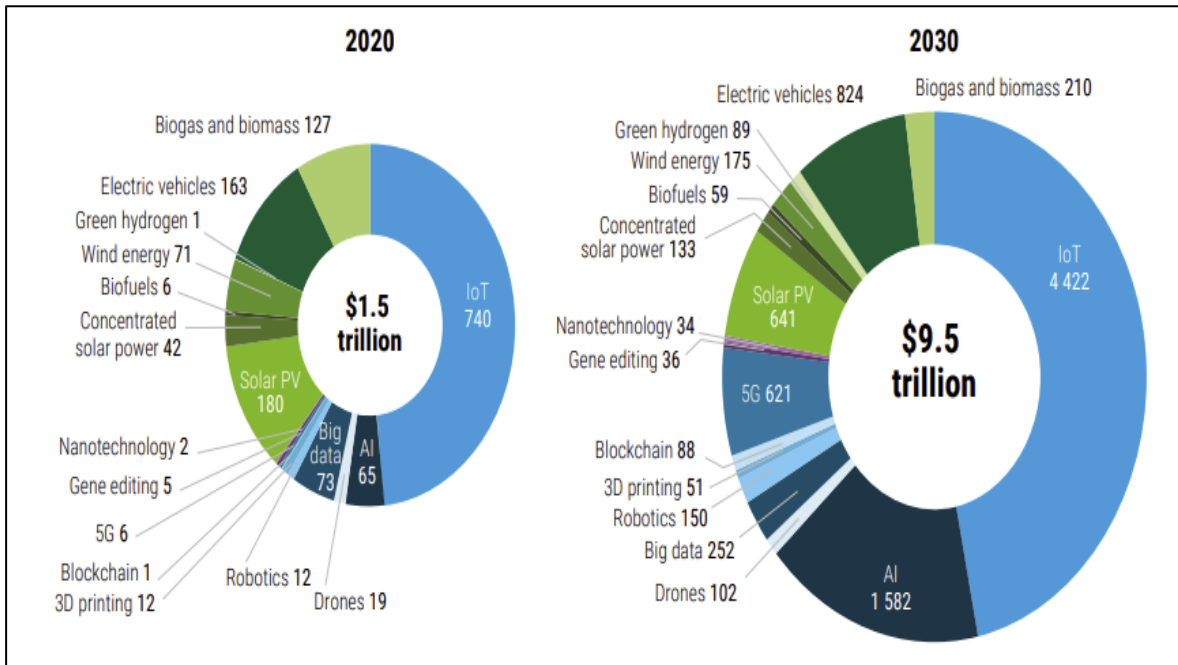
Emerging technologies – 4IR

70% of the 169 targets underpinning the SDGs could be enabled by 4IR technologies.



(Source: *Unlocking Technology for the Global Goals 2020*, WEF, PwC Research)

Emerging technologies for climate resilience



11 technologies represent \$350-billion market (by 2025 could be > \$3.2 trillion)

AI, IoT, Big data, Blockchain, 3D printing, Robotics, Drones, Gene editing, 5G, Nanotechnology, Solar PV

(Technology and Innovation Report 2023, UNCTAD)

Improved energy efficiency, reduce emissions, enhance reliability, optimize costs

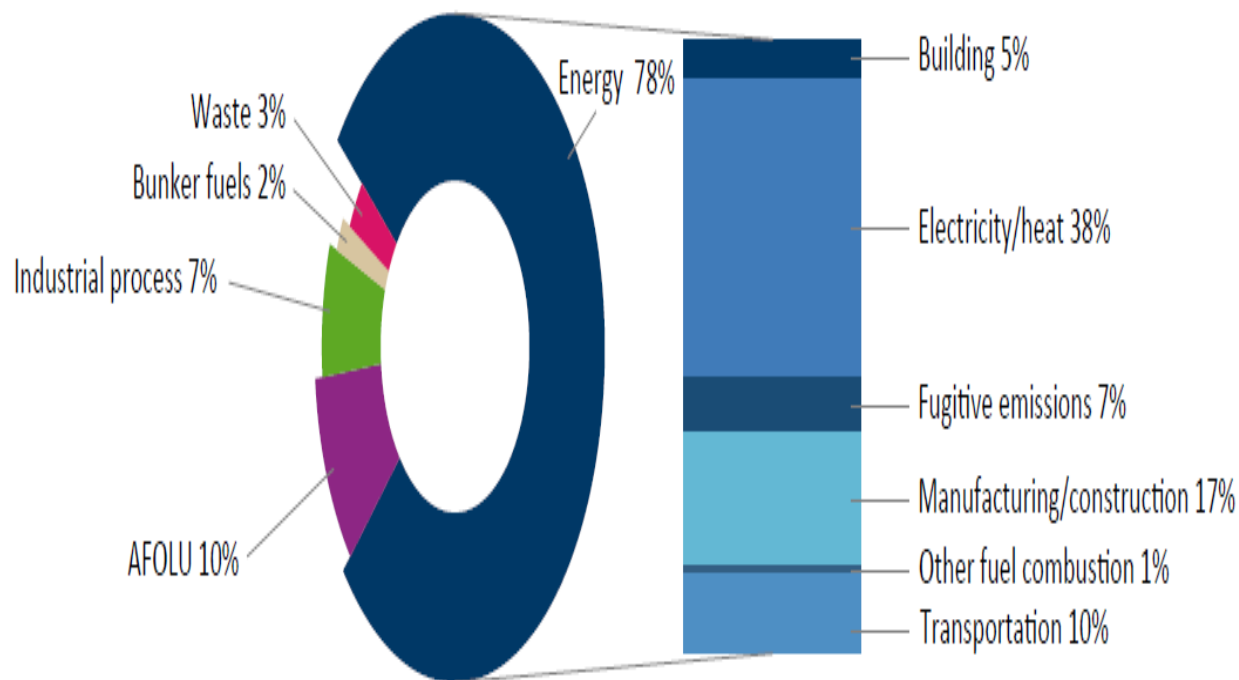
- IoT enabled smart energy systems; Intelligent motors; 5G wireless systems networks; Cloud-based control centres

Enablers of climate resilience

- IoT applications to reduce traffic pollution; Machine learning for accurate rainfall and climatic projections; Drone-based solutions for sustainable agriculture; Smart sensors to improve efficiency of post-combustion carbon capture

Low carbon pathway in Asia-Pacific

GHG emissions in the Asia-Pacific by sectors, 2020



(Sources: *The Race to Net Zero: Accelerating Climate Action in Asia and the Pacific*, ESCAP, 2023; IPCC, AR6, Synthesis Report: *Climate Change*, 2023)

By 2022, 39 countries of the region have committed to carbon neutrality and net zero between 2050 and 2060.

Most countries plan to use **nature-based solutions** (NbS) to increase carbon storage and avoid greenhouse gas emissions.

Renewables (e.g., solar, wind) and **Green fuels** (e.g., methanol, green hydrogen, ammonia) are promising technologies for achieving carbon neutrality.

Climate change mitigation efforts are now utilizing **4IR technologies** (e.g., AI, IoT, smart meters, 5G based smart grids etc) towards achieving net-zero targets.

(Sources: *The Race to Net Zero: Accelerating Climate Action in Asia and the Pacific*, ESCAP, 2023; APCTT Working Paper on 4IR technologies for climate change mitigation in Asia Pacific, 2022)

Accelerating energy transition

Restructuring of national energy systems

New technical capacities

Investment in supply and infrastructure

Decarbonization of industry (renewables; electric furnaces; hydrogen)

Improved energy efficiency (incentives, standards; efficient products; building codes)

Cross-border electricity grids



Towards low-carbon mobility

Improved fuel efficiency of motor vehicles

Electrification of two- and three-wheelers (e.g., in China and India); electric buses

Improved energy and vehicle efficiency and performance standards

Shift from road to rail transport for freight

Innovative transport technologies (passenger information systems, automatic toll payment, real-time route planners, contactless and paperless border crossing)



Building low-carbon industry

- Eliminating fossil fuel subsidies
- Establishing carbon pricing mechanisms
- Disincentivizing carbon leakage
- Introducing low-carbon technologies
- Removing trade barriers for environmental goods (*e.g., climate technologies, solar panels, wind turbines*)
- Introducing mandatory emission standards, energy ratings labels and certification
- Integrating climate considerations into regional trade agreements



Role of regional cooperation

Actions needed

- Planning well-formulated strategy for increased usage of innovative technologies
- Strengthening institutional and digital infrastructure
- Strengthening R&D, innovation and demonstration
- Augmenting financing for the scaling up of innovations and commercialization
- Addressing issues of safety and data set related protocols
- Supporting workforce through capacity-building, training, exchange programmes
- Establishing multi-stakeholder partnerships and collaborations

APCTT - An Introduction

Established in 1977 by the member States of the United Nations ESCAP

All member (53) and associate members (9) of ESCAP are de facto members of APCTT

APCTT is based in New Delhi, India (since 1993)

Host facilities are provided by the Department of Scientific and Industrial Research (DSIR), Govt. of India



*Inauguration of APCTT building on 18th November 1993
at New Delhi*

APCTT is governed by GC, comprising members & associate members of ESCAP, elected for 3 years

11 GC members (2023-2026): Bangladesh, China, India (permanent member), Iran, Pakistan, Philippines, Republic of Korea, Russian Federation, Tajikistan, Thailand, Uzbekistan

GC meets annually to review (activities, administration and financials) and advise (work programme)

Mandate of APCTT

Strengthen capabilities of member States to

- Develop and manage national innovation systems
- Develop, transfer, adapt and apply technologies
- Improve the terms of transfer of technologies
- Identify and promote the development and transfer of technologies relevant to the region

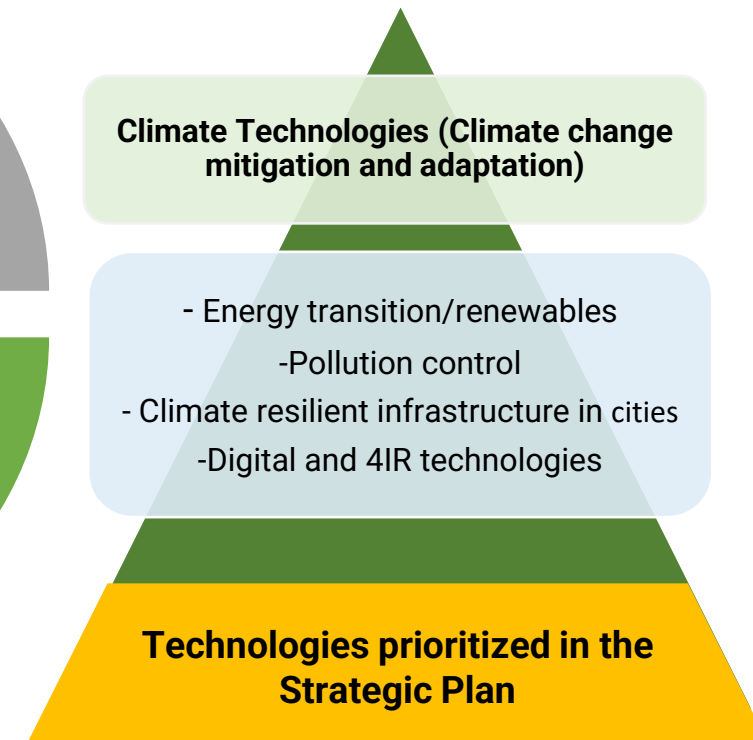
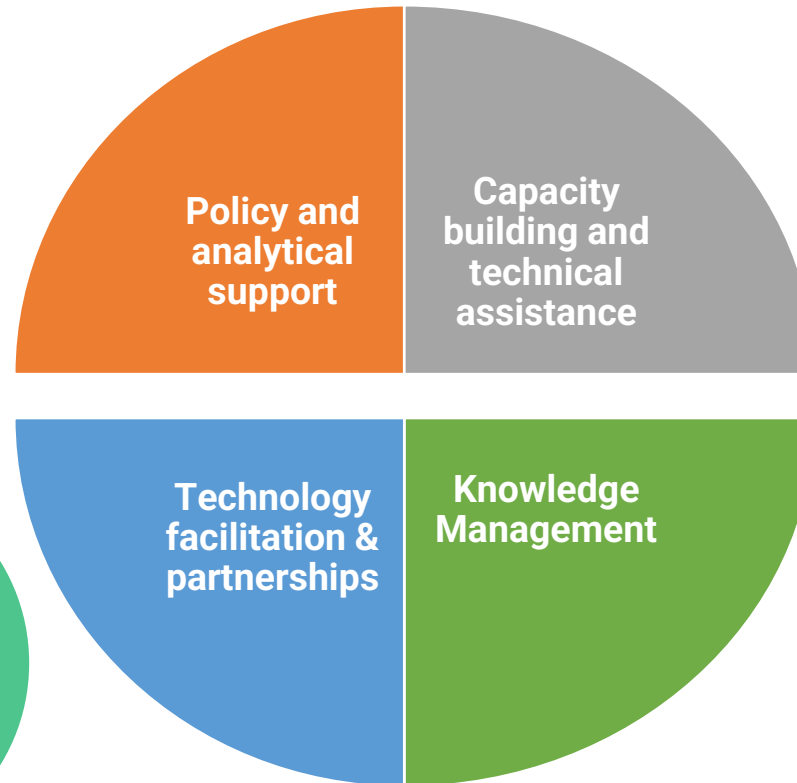
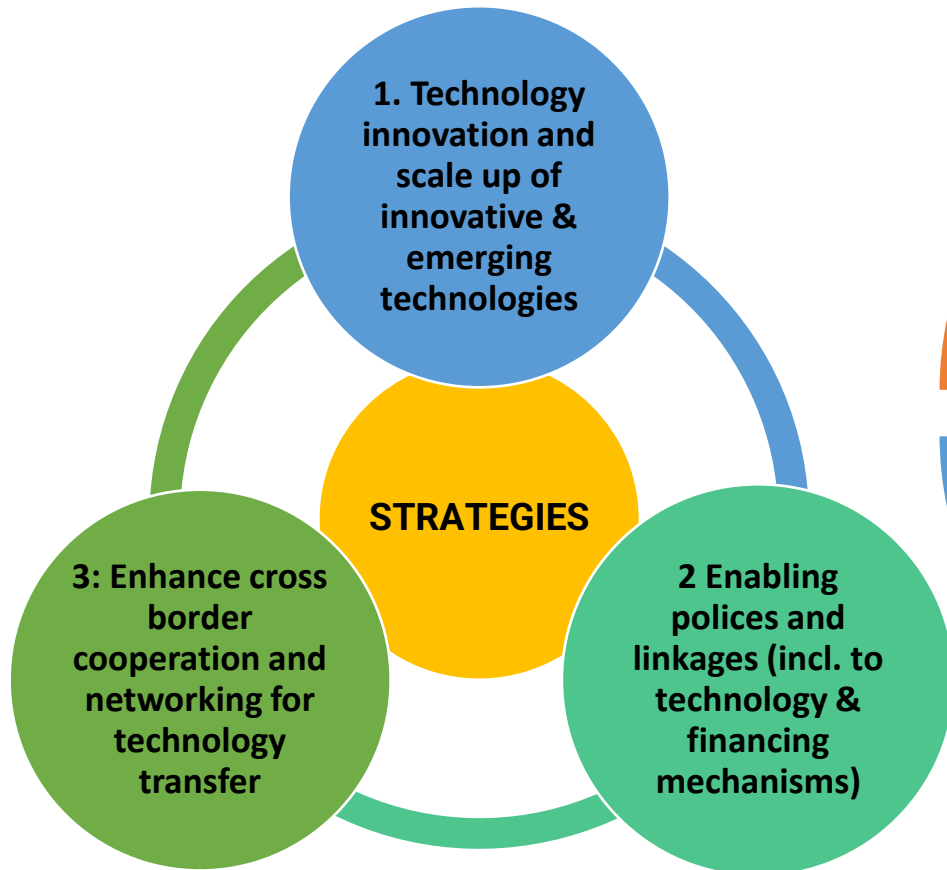
Strengthen regional technology cooperation and transfer

» Support achievement of SDGs with particular focus on SDGs 3, 7, 9, 13 and 17



Strategic Plan (2023-27)

Enhanced cooperation for adoption, diffusion and transfer of innovative and emerging technologies in the Asia Pacific region for addressing climate change and achieving sustainable development goals



Information and knowledge sharing

Databases

Technology Databases

Technology4SME

- The Database serves as an online platform for information exchange on the availability and sourcing of technologies for small and medium sized enterprises in countries in the Asia Pacific region.
- The Database provides information on the technologies available for transfer (**technology offers**), technologies needed (**technology requests**) as well as the opportunities for business cooperation (**Joint venture and Partnerships**).
- The use of Technology4SME database is free of cost.
- If you are interested to submit Technology Offer, Technology Request or Joint Venture and Partnerships, please register (new users) and login (existing users).

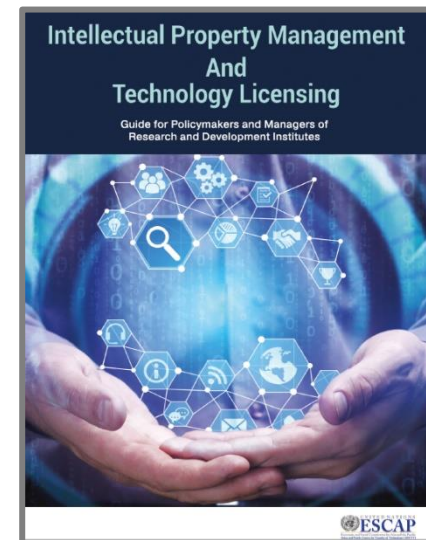
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Renewable Energy Technology Bank (RET-Bank)

The primary objective of the Renewable Energy Cooperation-Network for the Asia Pacific (RECAP) established by APCTT is to facilitate technology transfer cooperation among countries in the Asia-Pacific region in the area of renewable energy. Towards this end, APCTT has developed a "Renewable Energy Technology Bank (RET-Bank)" of tested and proven renewable energy technologies (RETs) initially in the areas of solar, biomass, wind, mini-hydro power and geo-thermal energy. APCTT has developed this Renewable Energy Technology Bank as on-line technology database freely available for public access through its RECAP website.

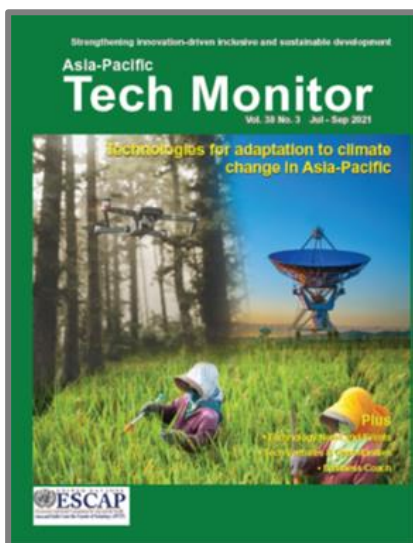
Guidebooks

Intellectual Property Management and Technology Licensing – Guide for Policymakers and Managers of Research and Development Institutes



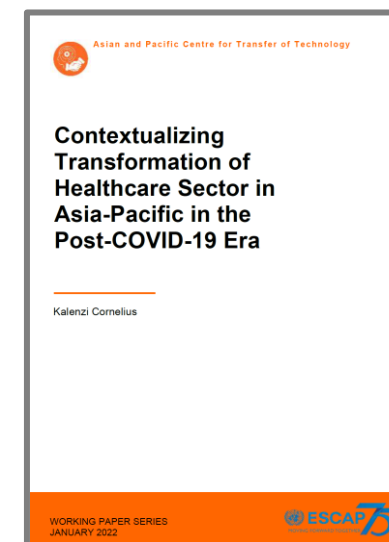
Periodicals

Asia-Pacific Tech Monitor – A quarterly online periodical



Working papers

Contextualizing Transformation of Healthcare Sector in Asia-Pacific in the Post-COVID-19 Era



Cooperation with the Republic of Korea

- ROK is a member of APCTT's **Governing Council (2023-2026)**
 - National Focal Points: MSIT, STEPI

- APCTT implemented a KECF-funded project "**Enhanced capabilities to adopt innovative technologies for city air pollution control in select countries of the Asia-Pacific**" in 2022-2023.
 - *Study Tour on Innovative Technologies and Good Practices for Air Pollution Control for City Officials of Bangladesh, India and Thailand, 18-21 September 2023, Republic of Korea*

- Jointly organizing a session "**Digital Innovations for Enhancing Sustainable Local Livelihoods in the Mekong Subregion based on the Water-Energy-Food (WEF) Nexus approach**", 24 April 2024, UNCC, Bangkok [Side event of 80th session of ESCAP]

- Participated in **TEKTiTE 2024 online technology brokerage event**, 26-29 March 2024

- Jointly organized a session "**Research and Development for Social Problem Solving: The Living Labs Approach**" at the International Conference on Green Technologies for Climate Action and Resilience, 5 December 2023, Tashkent, Uzbekistan

In conclusion

- Innovative technologies are critical for achieving sustainable development including carbon neutrality
- Inclusiveness, affordability, accessibility, market readiness and localization of innovations are important considerations for innovative technologies
- Low-carbon pathway could focus on accelerating energy transition, low-carbon mobility, and building low-carbon industry
- Invest in human resources development and collaboration
- Strengthen international and regional cooperation
- Leave no one behind



Thank you



APCTT

Asian and Pacific Centre
for Transfer of Technology

Contact details:

APCTT Building
C-2, Qutab Institutional Area
New Delhi 110016
India

Telephone: +91-11-30973700
Fax: +91-11-26856274
Email: apctt@un.org
Website: <https://apctt.org/>