



Economic and Social Commission for Asia and the Pacific

Asian and Pacific Centre for Transfer of Technology

Governing Council

Eighteenth session

Bangkok and online, 7 and 8 December 2022

Item 2 of the annotated provisional agenda*

Report on the activities of the Centre for the period from December 2021 to November 2022

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December 2021 to November 2022**

I. Introduction

1. The Asian and Pacific Centre for Transfer of Technology, a regional institution of the United Nations Economic and Social Commission for Asia and the Pacific. As per the revised statute adopted by the Commission at its seventy-second session¹, the Centre assists member States to strengthen their capabilities to develop and manage national innovation systems; develop, transfer, adapt and commercialize technologies; improve the terms of transfer of technologies; and identify and promote the development and transfer of technologies relevant to the region.

2. The Centre has been fostering inclusive partnerships between governments, research and development institutions, academia, international organizations, private sector and civil society for innovation, transfer, adoption and diffusion of technologies for achievement of the Sustainable Development Goals in Asia and the Pacific.

3. The Centre supports creation of enabling environment for innovation, technology transfer and cooperation in Asia and the Pacific. The activities of the Centre contribute towards the Sustainable Development Goal 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation) and Sustainable Development Goal 17 (Strengthen the means of implementation and revitalize the global partnership for sustainable development). The activities also support other Sustainable Development Goals related to the Centre's programme of including: Goal 3 (Good health and well-being), Goal 7 (Affordable and clean energy), Goal 11 (Sustainable cities and communities), and Goal 13 (Climate action).

¹ Resolution adopted by the Economic and Social Commission for Asia and the Pacific 72/3, Statute of the Asia and Pacific Centre for Transfer of Technology (E/ESCAP/RES/72/3) dated 19 May 2016.

4. This report covers the activities carried out by the Centre during the period December 2021 to November 2022. During this period, the Centre carried out many demand-driven capacity building activities based on the proposals received from member States at the seventeenth session of the Governing Council such as those related to the areas of fourth industrial revolution technologies; biotechnology; energy and climate change; and industry-academia-government linkages for technology cooperation.

5. The Centre's primary focus areas in the reporting period included: (a) Strengthening regional technology cooperation, transfer and strategic partnerships; (b) Capacity building and enhanced knowledge on technology and innovation policy; and (c) Enhancing technology intelligence through production and dissemination of knowledge products.

6. During the reporting period, the Centre delivered and actively contributed to 15 demand-driven activities in virtual and/or hybrid mode (hosted by China, India, Thailand and Uzbekistan) in close collaboration with 81 partner institutions. The activities included regional consultation meetings, expert group meetings, international conferences, capacity building workshops, national stakeholder consultations, and knowledge products. The list of partner institutions, which worked with the Centre in delivering the activities is provided as Annex I.

7. The Centre reached out to over 1,100 target participants comprising representatives from governments, technology promotion agencies, technology transfer intermediaries, academia, research and development institutions, industrial enterprises, technology-based start-ups and financial institutions.

8. The Centre benefited from participation of experts from 28 UN Member States, namely Azerbaijan, Bangladesh, Bhutan, Cambodia, China, Denmark, India, Indonesia, the Islamic Republic of Iran, Japan, Jordan, Kazakhstan, Lebanon, Maldives, Malaysia, Mongolia, Nepal, Nigeria, Norway, Pakistan, the Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand, Trinidad and Tobago, Türkiye, and Uzbekistan. The experts shared their knowledge, experiences, and best practices with the target participants. The Centre's activities also benefited from participation of experts from many national and international organizations.

9. Through developing and disseminating knowledge products, the Centre enhanced technology intelligence of stakeholders from member States on key issues, and good practices in intellectual property management, diffusion of fourth industrial revolution technologies, inclusive innovations and technologies, air pollution control technologies, and regional cooperation for innovation and technology transfer (Annex II).

10. As recommended by the seventeenth session of Governing Council held in December 2021, the Centre developed a draft strategic plan (2023-2027) during this reporting period. The Council had recommended the Centre to develop a strategic plan and redesign the work programme to bring it into alignment with the current priorities and needs of the member States for consideration by the Council at its eighteenth session" (Decision 7). The draft strategic plan will be presented to the eighteenth session of Governing Council for consideration and adoption.

11. During the reporting period, the Centre contributed to strengthening the capabilities of stakeholders from countries with special needs such as Bangladesh, Bhutan, and Nepal.

II. Activities carried out by the Centre during the reporting period (December 2021 – November 2022)

A. Regional technology cooperation strengthened

12. The Centre facilitated four consultative meetings to strengthen technology cooperation among member States in healthcare biotechnology and biomedical technologies, emerging energy technologies for climate change mitigation, and industry-academia-government collaboration. These activities contributed to the following:

- a) Identified country needs, availability of resources, and opportunities of collaboration for strengthening healthcare biotechnology research and testing facilities, and energy sector;
- b) Identified priorities and actions required through Industry-Academia-Government collaboration to accelerate transfer and adoption of emerging energy technologies;
- c) Explored strategies and modalities to share their resources, expertise and experiences among member States in the focused areas;
- d) Enhanced knowledge and understanding of 206 target stakeholders from 17 countries in enabling policies, strategies and good practices to address the challenges; and
- e) Provided policy recommendations for strengthening regional technology cooperation.

13. Following are the key technology cooperation activities carried out and/or contributed by the Centre:

(a) Expert group meeting on strengthening regional cooperation in healthcare biotechnology and biomedical sector, 22 March 2022 (Virtual):

The expert group meeting brought together 36 participants from ten ESCAP member States, namely Bangladesh, India, Indonesia, Kazakhstan, Malaysia, Nepal, Pakistan, the Republic of Korea, Sri Lanka, and Thailand. The participants included national focal points of the Centre, biomedical experts on research and development strategy and management from member States. The policymakers and experts shared knowledge, experience and good practices, discussed country needs and availability of resources for strengthening healthcare biotechnology research and testing facilities, identified opportunities of collaboration, and explored modalities to share their resources, expertise and experiences.

Key recommendations: developing affordable, and state-of-the art healthcare biotech products, drugs and vaccines through collaborative efforts; identifying gaps in the vaccine ecosystems in countries and develop targeted interventions; identifying common research problems and collaborative research strategies to bring down the costs of developing drugs and vaccines; establishing common facilities for collaborative research; implementing co-funded projects by multiple partners across the region for cost reduction; and building capacity of researchers, among others.

(b) Brainstorming session between STI agencies of India and APCTT for promoting regional technology cooperation, 19 April 2022, New Delhi, India:

The Centre organized a brainstorming session jointly with

Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. The participants included 12 senior policymakers and experts representing six key ministries, departments and national agencies of the Government of India. They shared priorities for regional technology cooperation, identified potential areas of collaboration with the Centre, and explored strategies for regional cooperation using the Centre's platform.

Key recommendations: conducting mapping of relevant actors and stakeholders in India as per the Sustainable Development Goals; listing of technologies from India for transfer; conducting technology demand survey in member States; identifying innovative technology solutions to address specific challenges; preparing good case studies of specific technology solutions; identifying specific problems and digital technology-based solutions; training, capacity building and developing tailor-made courses to enhance research capacity and promote good clinical practices; and cross-learning of good practices in renewable energy.

(c) Strategic priorities for adoption of emerging technologies in the energy sector for climate change mitigation (side event of seventy-eighth session of the Commission), 24 May 2022 (Virtual): The Centre organized this regional consultation meeting as a side event of the seventy-eighth session of the Commission. The event was jointly organized with the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. The meeting brought together 72 participants from 14 countries (namely Bangladesh, Denmark, India, Indonesia, the Islamic Republic of Iran, Kazakhstan, Lebanon, Malaysia, Norway, Pakistan, the Philippines, the Republic of Korea, Thailand and Uzbekistan) comprising of policymakers, experts and practitioners from the member States. The experts shared experience and good practices on strategies to facilitate transfer and adoption of emerging technologies in the energy sector for climate change mitigation.

Key recommendations: building capacity of maintenance and servicing professionals and local entrepreneurs of renewable energy equipment; conducting matchmaking events to connect innovators and inventors with investors; identifying and scaling up renewable energy technologies for commercialization; conducting technology feasibility studies, and technology piloting; and developing standards for renewable energy products.

(d) Industry-Academia-Government consultative meeting to address the challenges of energy sector (conventional & non-conventional) and energy devices, 17 October 2022 (Virtual): The Centre organized this consultative meeting jointly with the Council of Scientific and Industrial Research and the Department of Scientific and Industrial Research, Ministry of Science and Technology of Government of India. The meeting deliberated on strategies for addressing the challenges of energy sector (both conventional and non-conventional) and energy devices. The meeting was attended by 86 participants from six ESCAP member States, namely China, India, Nepal, Pakistan, Sri Lanka and Thailand. They included national focal points of the Centre, representatives from Government, academia, industries and related agencies and institutions; and experts from energy associations and relevant stakeholders from the region.

Key recommendations: increasing investments for moving towards emission reduction; upscaling affordable and economically viable technologies; establishing a common electrical grid for the region; integrating international research collaboration efforts into formal decision-making

processes; and creating digital platforms to share research findings among member States.

B. Innovation and technology transfer capacity enhanced

14. During the reporting period, the Centre organized the 5 demand-driven capacity building activities in areas such as innovation, transfer and diffusion of fourth industrial revolution technologies, energy resilience through decentralized power plants and smart grid integration, mechanisms for technical cooperation on green innovation, innovation and challenges in international technology transfer, and innovation, technology transfer and cooperation for addressing climate change. These activities contributed to the following:

- a) Enhanced knowledge and capabilities of over 800 target stakeholders from 26 countries in challenges, opportunities, enabling policies, strategies, good practices;
- b) Explored potential collaboration opportunities for cross-border technology transfer; and
- c) Provided recommendations on enabling strategies for innovation, technology transfer and regional technology cooperation.

15. Following are the key capacity building activities carried out and/or contributed by the Centre.

(a) International conference on innovation, transfer and diffusion of fourth industrial revolution technologies, 30 June 2022, Guangzhou, China (Hybrid): The Centre organized this conference jointly with the Department of International Cooperation, Ministry of Science and Technology, People's Republic of China, and hosted by the Asia-Pacific Regional Innovation Knowledge Network for 4th Industrial Revolution Technologies and Secretariat Office at Guangzhou University, People's Republic of China. International and national experts deliberated on the challenges, mechanisms and good practices of innovation, transfer and diffusion of fourth industrial revolution technologies. The conference brought together 132 participants from 16 UN Member States, namely Azerbaijan, Bhutan, China, India, Indonesia, the Islamic Republic of Iran, Japan, Malaysia, Nepal, Pakistan, the Philippines, the Republic of Korea, Singapore, Thailand, Trinidad and Tobago and Uzbekistan. They included policymakers and government officials from the member States in Asia and the Pacific, representatives from the academia, national laboratories, research and development institutions, and industrial and research organizations engaged in development and deployment of fourth industrial revolution technologies.

Key recommendations: digital skilling and capacity building in the domain of fourth industrial revolution technologies; implementing joint research and innovation programmes; facilitating cross-border sharing of talent; incubation funding to research institutes to upscale and commercialize fourth industrial revolution technologies; and strengthening inter-institutional linkages between research and development institutes, academia and industry.

(b) Regional conference on energy resilience through decentralized power plants and smart grid integration, 15 September 2022, Bangkok, Thailand (Hybrid): The Centre organized this conference jointly with the Ministry of Higher Education, Science, Research and Innovation, Government of Thailand, and Thailand Institute of Scientific and Technological Research. It was held in conjunction with ASEAN Sustainable Energy Week 2022, 14-

16 September 2022. Key international and national experts shared experiences, success stories and challenges of decentralized energy generation and smart grid systems. They deliberated on the opportunities and challenges of decentralized power plants integration with smart grids and discussed enabling strategies for facilitating investment and commercialization of smart grids. The conference brought together 126 experts and participants from 10 ESCAP member States (namely Bangladesh, India, Indonesia, Japan, Malaysia, Nepal, Pakistan, Philippines, Singapore and Thailand). They included policy makers, representatives from international organizations, research and development institutions and private sector representatives involved in electricity regulation, generation and consumption.

Key recommendations: linking decentralized energy solutions with livelihoods; developing regulations for operation of smart grids and data security; scaling up and replication of decentralized renewable energy systems for wider and largescale use; establishing larger scale demonstration plants for smart grids and smart microgrids for increased adoption; and developing standards for the implementation of smart grid projects.

(c) Regional workshop on mechanisms for technical cooperation on green innovation, 19 October 2022, Tashkent, Uzbekistan (Hybrid): The Centre organized this workshop jointly with the Ministry of Innovative Development, Republic of Uzbekistan. It was held as part of International Week of Innovative Ideas 2022 (InnoWeek 2022) from 17-21 October 2022 in Tashkent, Uzbekistan on the theme of ‘Green Innovations for Sustainable Development’ (<https://innoweek.uz/>). Key international and national experts shared experiences, and perspectives on enabling mechanisms for technical cooperation to foster green innovation. They deliberated on strategies to adopt new and emerging mechanisms for technical cooperation on green innovation. The workshop brought together 137 experts and participants from 15 UN Member States (namely Cambodia, China, India, Kazakhstan, Malaysia, Maldives, Mongolia, Nepal, Nigeria, Pakistan, the Philippines, Sri Lanka, Thailand, Türkiye and Uzbekistan). They included policymakers, Government officials, representatives from technology and innovation centers, universities, educational institutions, research and development institutions, innovators, business entities and private sector.

Key recommendations: strengthening collaborations, networks and partnerships to increase awareness of policymakers and to promote low cost, inclusive green innovation; scaling-up financing to achieve green innovation; promoting enabling policies including intellectual property protection to accelerate green innovation; and enhanced private sector engagement approaches to promote technology innovations but also a business model for green innovation by understanding the market demands.

(d) International knowledge-sharing workshop on cross-border innovation, acceleration, and challenges in international technology transfer, 14-15 November 2022, New Delhi, India (Hybrid): The knowledge-sharing workshop was jointly organized with the Council of Scientific and Industrial Research and the Department of Scientific and Industrial Research, Ministry of Science and Technology of Government of India, and coordinated by Human Resource Development Centre of the Council of Scientific and Industrial Research and the Department of Scientific and Industrial Research of India. The workshop provided a platform to deliberate on the challenges and share knowledge, experience and good practices on innovation and cross-border transfer of technologies in the Asia-Pacific region. The workshop enhanced the knowledge and capacity of innovators and promoted regional cooperation between innovators from India

and other member States through cross-learning from experience and good practices, identifying potential collaboration opportunities and strategies for cross-border technology transfer. The workshop was attended by around 350 participants comprising policymakers, innovators and relevant stakeholders from 16 UN Member States (namely Bangladesh, Cambodia, the Islamic Republic of Iran, India, Indonesia, Jordan, Lebanon, Malaysia, Nepal, Pakistan, the Philippines, the Republic of Korea, Sri Lanka, Thailand, Trinidad and Tobago, and Uzbekistan) engaged in development of policies, innovation, development or deployment of technologies to support Sustainable Development Goals.

Key recommendations: addressing information asymmetry between licensee and licensor during the technology transfer process; testing and demonstration of new technologies thoroughly before public acceptance; addressing system barriers through developing infrastructure, market and public incentives; and focusing on commercially viable research; identifying mechanisms to collaborate with industry among others.

(e) International conference on innovation, technology transfer and cooperation for addressing climate change, 6 December 2022, Bangkok, Thailand (Hybrid): The international conference is organized to facilitate sharing of technical and institutional experiences on the complex policy and technology issues around urban climate resilience and sustainability in the Asia-Pacific region and explore possible strategies and pathways to overcome the challenges. The conference will provide a platform to foster collaboration among policymakers and Government officials from member States, city administrators, representatives of international organizations, research and development institutions, private sector, and relevant stakeholders involved in urban governance and climate resilience technologies. The conference will discuss opportunities and challenges related to climate technologies, innovative applications of climate technologies, case studies and good practices, mechanisms to accelerate technology adoption and diffusion for climate resilient urban development and strengthening regional cooperation for adoption of innovative technologies for climate resilient cities. The conference will enhance the knowledge and understanding of over 100 participants including senior Government officials and experts from the region.

16. During the reporting period, the Centre provided substantive contributions to the capacity building activities organized by external partner institutions.

(a) Workshop on opportunity for low-emission transportation in South Asia, Pacific & African regions, 20-23 June 2022, New Delhi, India: The Centre contributed to this workshop through a keynote presentation on opportunities, challenges and cost-effective strategies and pathways for reducing greenhouse gas emissions from the transportation sector in the Asia-Pacific region. The workshop was jointly organized by Climate Technology Centre and Network, The Energy and Resources Institute, and Green Technology Centre, the Republic of Korea.

(b) International conference: Systems analysis for enabling integrated policy making, 10-12 August 2022, New Delhi, India: The Centre delivered a technical presentation titled “Technology innovations for achieving SDGs in the Asia-Pacific - challenges, opportunities and regional cooperation” at this conference which was jointly organized by the Technology Information, Forecasting and Assessment Council, Government of India and the International Institute for Applied Systems Analysis. The Centre shared key perspectives on the global challenges, SDG progress in the Asia-Pacific, enabling innovation ecosystems to achieve SDGs, and regional technology

cooperation.

(c) East Asia Summit New Energy Forum 2022, 20 October 2022 (Virtual): The Centre delivered a presentation on “Fourth industrial revolution technologies and regional cooperation to promote clean energy” at this forum. It was hosted by the Department of International Cooperation, Ministry of Science and Technology, China and organized by the Yunnan Academy of Scientific and Technical Information. The Centre shared perspectives on significance of fourth industrial revolution technologies and role of regional cooperation for transfer, adoption and dissemination of such technologies for climate change mitigation and clean energy transition.

C. Project-based activities

17. During the reporting period, the Centre organized 3 capacity building activities under ongoing projects. The projects are: ‘Evidence-based innovation policy for effective implementation of 2030 Agenda for Sustainable Development in the Asia-Pacific region’, and ‘Enhanced capabilities to adopt innovative technologies for city air pollution control in select countries of the Asia-Pacific’.

18. Two capacity building activities were organized under the project ‘Evidence-based innovation policy for effective implementation of 2030 Agenda for Sustainable Development in the Asia-Pacific region’. The activities supported enhancing knowledge of stakeholders of inclusive innovations and technologies vis-à-vis Sustainable Development Goals, criteria for selecting inclusive innovations and technologies, and roadmap for developing database of inclusive innovations and technologies. The events were:

(a) National consultation: Bangladesh - Development of enabling strategies for transfer of inclusive innovations and technologies, 15 February 2022 (Virtual): This consultation workshop was organized to discuss the national study report prepared by the Centre with relevant stakeholders from Bangladesh. The meeting was attended by 12 participants comprising Government officials and stakeholders from Bangladesh, officials from the Centre and the international experts engaged in the analytical study. The deliberations provided recommendations for finalization of the report which would help provide direction for promotion of inclusive innovations and technologies at the regional level. Key recommendations: focus on criteria for the technologies selected, and how these would be beneficial at the national level; include affordability costs and intellectual property aspects of the technologies; elaborate the roadmap for developing database of inclusive innovations and technologies; and include homegrown technologies developed by indigenous institutions.

(b) National consultation: Nepal - Development of enabling strategies for transfer of inclusive innovations and technologies, 24 February 2022 (Virtual): This consultation workshop was organized to discuss the national study reports prepared by the Centre with relevant stakeholders from Nepal. The meeting was attended by 28 participants comprising of Government officials and stakeholders from Nepal, officials from the Centre and the international experts engaged in the analytical study. The consultation provided recommendations to finalize the Nepal study report which would help provide direction for promotion of inclusive innovations and technologies. Key recommendations: inclusion of the latest Science, Technology and Innovation policy of Nepal (2019); addition of financial resource requirements for promotion of inclusive innovations and technologies; cover aspects of Industry-Academia collaboration and

intellectual property; inclusion of technologies for smart cities and e-governance; and focus on mobile technologies related to cashless payments; among others.

19. **Inception meeting for the project ‘Enhanced capabilities to adopt innovative technologies for city air pollution control in select countries of the Asia-Pacific’, 23 September 2022 (Virtual):** In the Inception meeting, the Centre introduced the project, discussed implementation modalities and explored cooperation and support from project implementing partners, key stakeholders and knowledge partners. The meeting was attended by twelve participants including representatives from project target countries (namely Bangladesh and India), United Nations Resident Coordinator in Bangladesh; Environment and Development Division of ESCAP; and Subregional Office for South and South-West Asia of ESCAP. Key outcomes/suggestions: commitment and ownership of the project from Bangladesh and India; identifying of city-level nodal agencies for implementing project activities; facilitating agreements between the Centre and the target cities; organizing multi-stakeholder consultations in Dhaka in partnership with United Nations Resident Coordinator in Bangladesh; and initiating the development of technology compendium and city-level assessment studies.

D. Technology intelligence enhanced through knowledge products

20. The Centre enhanced technology intelligence of stakeholders from member states through developing and disseminating knowledge products including periodicals, study report and publications. The list of the Centre’s periodicals and publications during the reporting period is provided as Annex II.

21. The Centre developed and disseminated four issues of its online periodical *Asia-Pacific Tech Monitor* (<https://www.apctt.org/techmonitor>). The Tech Monitor issues focussed on special themes such as: Harnessing fourth industrial revolution technologies for healthcare (Oct-Dec 2021), Technology transfer for sustainable development in the Asia-Pacific (Jan-Mar 2022), Innovative technologies for air pollution control (Apr- Jun 2022), and Regional cooperation for innovation and technology transfer – emerging strategies, models and collaborative networks (Jul-Sep 2022). The articles provided information on latest technology trends and developments, technology policies, technology market, innovation management, technology transfer and innovative technologies. The special issues featured 10 special articles contributed by 21 authors and experts from Australia, France, India, Indonesia, Italy, Japan, the Republic of Korea, Switzerland, and Thailand. The articles presented data and analysis on critical issues related to the respective special themes and included case studies and best practices from the region and outside. The periodical also disseminated short articles on- useful guides; best practices for start-ups and small and medium enterprises; technology networks and databases, and selected technology offers and requests from Germany, Hungary, India, Thailand and Uzbekistan.

22. The Centre shared its online periodicals with readers from the member countries and outside the region as well. During the reporting period, the web-version of the *Tech Monitor* was distributed to 1941 stakeholders and e-subscribers from the member States. The Centre also disseminated the e-periodicals through social media platforms such as Twitter and Facebook.

23. The Centre produced and disseminated the publication titled *Intellectual Property Management and Technology Licensing - Guide for Policymakers*

and Managers of Research and Development Institutes, 2022, among national focal points and relevant stakeholders in member States. The target users of the publication and the training manual are policymakers, managers of technology licensing and transfer offices of research and development institutes, and the private sector enterprises.

24. The Centre finalized and disseminated three thematic papers related to innovation, transfer and diffusion of fourth industrial revolution technologies for sustainable development, healthcare, and climate change mitigation, among stakeholders of member States.

25. The Centre developed a study report on ‘*Development of enabling strategy for the transfer of inclusive innovations and technologies*’ for policymakers to develop and adopt enabling strategies for enhancing access to inclusive innovations and technologies. A major outcome of the report is the strategic roadmap for an online database of inclusive innovations and technologies. The report covers analysis of three countries from South Asia and includes mapping of policy landscape vis-à-vis Sustainable Development Goals, technology needs assessment, and methodology for identification and selection of inclusive innovations and technologies.

E. Support to inter-governmental meetings of ESCAP

26. **Seventy-eighth session of the Commission 23-27 May 2022, Bangkok, Thailand:** The Centre provided substantive support and submitted the report on the seventeenth session of its Governing Council, held in New Delhi, India. The following are the outcomes of the session regarding the Centre’s work programme:

(a) The Commission endorsed the report of the Governing Council of the Asian and Pacific Centre for Transfer of Technology on its seventeenth session (ESCAP/78/18). (Decision 78/5)

(b) The Commission took note of the overview of partnerships, extrabudgetary contributions and capacity development (ESCAP/78/29) and expressed its appreciation for the following contributions pledged by members and associate members for 2022. They are Bangladesh - \$7,000, India - \$870,000, People’s Republic of China - RMB 180,900, and Republic of Korea - \$26,548. (Decision 78/11)

27. **Committee on Information and Communication Technology, and Science, Technology, and Innovation, fourth session, 31 August – 2 September 2022, Bangkok, Thailand:** The Centre provided substantive support, and presented a study report on ‘Fourth industrial revolution technologies for sustainable development’ under agenda item 4 of the session (ESCAP/CICTSTI/2022/3). The following are the outcomes of the deliberations of agenda item 4.

(a) The Committee strongly supports the promotion of fourth industrial revolution technologies for the sustainable development of the region and recommends that the secretariat further strengthen its support to members and associate members through demand-driven programmes and activities, including policy and advisory support, research and analytical support, strategy and road map development, training and capacity-building. The secretariat could provide support for facilitating strategic stakeholder collaborations and networking, managing intellectual property, establishing technology banks and facilitating regional cooperation. The secretariat could

also provide support to coastal and small island developing States to accelerate the adoption of fourth industrial revolution technologies for sustainable development. (Recommendation 5)

(b) In line with the priorities of members and associate members, the Committee recommends that the secretariat develop programmes, for example through the Asian and Pacific Centre for Transfer of Technology, to support youth engagement in developing innovative technology solutions in support of sustainable development. (Recommendation 9)

(c) Recognizing the vital importance of the fourth industrial revolution technologies to achieving the Sustainable Development Goals, the Committee decides to support the efforts of the secretariat as implemented by its regional institution, the Asian and Pacific Centre for Transfer of Technology, to strengthen the capacity of members and associate members to accelerate the transfer, adoption and diffusion of these technologies in the region, particularly focusing on climate change mitigation and adaptation. (Decision 6)

F. Development of strategic plan of the Centre

28. As recommended by the seventeenth session of the Governing Council, held in December 2021 (Decision 7), the Centre developed a draft strategic plan (2023-2027). The strategic plan aims at redesigning the work programme of the Centre to bring it into alignment with the current priorities and needs of the member States. The draft strategic plan will be presented to the eighteenth session of Governing Council for consideration and adoption.

G. Cooperation with international organizations and other partners

29. During this reporting period, the Centre jointly delivered activities/ worked closely with international organizations including Asia-Pacific Economic Cooperation, Asian Development Bank, Climate Technology Centre & Network, Economic Research Institute for ASEAN and East Asia, Gavi the Vaccine Alliance, Global Antibiotic Research and Development Partnership, International Energy Agency, International Renewable Energy Agency, International Solar Alliance, International Vaccine Institute, South Centre, and World Economic Forum while implementing regional consultation meetings, capacity-building activities and developing knowledge products including periodicals and reports.

H. Digital outreach

30. The Centre continued to extend its outreach to stakeholders, policy makers and institutions through digital tools (e.g., website, technology databases), and social media including Facebook ([facebook.com/UNAPCTT](https://www.facebook.com/UNAPCTT)) and Twitter ([@UNAPCTT](https://twitter.com/UNAPCTT) / [Twitter](https://twitter.com/UNAPCTT)). The Centre coordinated with the Communications and Knowledge Management Section of ESCAP to disseminate information about its activities and outputs through ESCAP website, newsletters and Twitter updates.

Annex I – List of Partner Institutions

1. Asia-Pacific Economic Cooperation
2. Asian Development Bank
3. Bangladesh Council of Scientific and Industrial Research, Bangladesh
4. Bansomdejchaopraya Rajabhat University, Bangkok, Thailand
5. Centre for East Asian Studies, Jawaharlal Nehru University, India
6. Centre of Excellence for Electrical Energy Storage Technology and Department of Industrial Engineering, Universitas Sebelas Maret, Indonesia
7. Center for Industry, SME and Business Competition Studies, Universitas Trisakti, Indonesia
8. Centre for the Fourth Industrial Revolution India, World Economic Forum, India
9. Center for Research on Health and Social Care Management, SDA Bocconi School of Management, Bocconi University, Italy
10. Climate Technology Centre & Network, Copenhagen, Denmark
11. Council of Scientific and Industrial Research, Government of India
12. CSIR-Central Electrochemical Research Institute
13. CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB), New Delhi, India
14. Department of Biotechnology, Tribhubhan University, Kathmandu, Nepal
15. Department of Industry, Ministry of Industry Commerce & Supplies, Government of Nepal
16. Department of International Cooperation, Ministry of Science and Technology, People's Republic of China
17. Department of Science and Human Resources of the Ministry of Healthcare, Kazakhstan
18. Department of Science and Technology, Government of India
19. Department of Scientific and Industrial Research
20. Economic Research Institute for ASEAN and East Asia, Indonesia
21. Environment and Development Division of ESCAP
22. Gavi, the Vaccine Alliance, Geneva, Switzerland
23. Global Antibiotic Research and Development Partnership, Drugs for Neglected Diseases Initiative
24. Graduate School of International Studies, Yonsei University, Seoul, The Republic of Korea
25. Green Technology Centre, Republic of Korea
26. Guangdong HUST Industrial Technology Research Institute, China
27. Guangzhou University, People's Republic of China
28. Hong Kong University of Science and Technology, China
29. India Smart Grid Forum
30. Indian Council of Agricultural Research, Government of India
31. Indian Council of Medical Research, Government of India
32. Indian Institute of Technology Bombay, Mumbai, India
33. Indian Institute of Technology, Delhi, India
34. Indian Institute of Technology, Kanpur, India
35. Indian Institute of Technology, Kharagpur, India
36. Indian Institute of Technology Madras, Chennai, India
37. Indo-German Energy Forum
38. Industrial Engineering Department, Faculty of Engineering, Bina Nusantara University, Jakarta, Indonesia
39. Industrial Technology Development Institute, Department of Science and Technology, Government of Philippines, the Philippines
40. Infrastructure Development Company Limited, Bangladesh
41. Institute for Global Environmental Strategies, Japan
42. Institute of Developing Economies, Japan External Trade Organization, Japan
43. International Energy Agency, Paris, France
44. International Renewable Energy Agency
45. International Solar Alliance, India
46. International Vaccine Institute, the Republic of Korea
47. Japan Science and Technology Agency
48. Korea Drug Development Fund, Seoul, the Republic of Korea

49. Korea Research Institute of Bioscience and Biotechnology, Daejeon, the Republic of Korea
50. Malaysia Genome and Vaccine Institute, National Institutes of Biotechnology, Malaysia
51. Ministry of Electronics and Information Technology, Government of India
52. Ministry of Environment, Forest and Climate Change, Government of India
53. Ministry of New and Renewable Energy, Government of India
54. Ministry of Science and Technology, Government of Pakistan, Pakistan
55. MMGH Consulting GmbH, Switzerland
56. National Agency for Research and Innovation, Indonesia
57. National Center for Genetic Engineering and Biotechnology, Thailand
58. National Energy Technology Center, National Science and Technology Development Center, Thailand
59. National Engineering Research & Development Centre, Government of Sri Lanka
60. National Institute of Biotechnology, Dhaka, India
61. National Institute for Environmental Studies, Tsukuba, Japan
62. National Institute of Technology, Arunachal Pradesh, India
63. National Office for the Implementation of Innovations and Transfer of Technology, Ministry of Innovative Development, Uzbekistan
64. Pakistan Science Foundation (PSF), Islamabad, Pakistan
65. Research and Information System for Developing Countries, New Delhi, India
66. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore
67. School of Engineering, Macquarie University, Australia
68. School of Renewable Energy and Smart Grid Technology, Naresuan University, Thailand
69. Sri Lanka Institute of Biotechnology, Homagama, Sri Lanka
70. South Centre, Geneva, Switzerland
71. Subregional Office for South and South-West Asia of ESCAP
72. Technology Application and Promotion Institute, Department of Science and Technology, the Philippines
73. Thailand Institute of Scientific and Technological Research, Thailand
74. Thailand Program Management Unit for Competitiveness, Thailand
75. Thammasat University, Pathum Thani, Thailand
76. The Energy and Resources Institute, India
77. United Nations Resident Coordinator, Bangladesh
78. University of Philippines Los Banos, the Philippines
79. University of Technology Sydney, Australia
80. World Economic Forum
81. Yunnan Academy of Scientific and Technical Information, China

Annex II – List of Publications of the Centre (December 2021-November 2022)

Publication title	Focus area	Periodicity	Target audience
Asia-Pacific Tech Monitor	Harnessing fourth industrial revolution technologies for healthcare (Oct-Dec 2021)	Quarterly	Science technology and innovation policymakers, small and medium enterprises, research and development institutions, academia, technology transfer intermediaries
	Technology transfer for sustainable development in the Asia-Pacific (Jan-Mar 2022) in support to the theme of the 78 th ESCAP Commission Session held in May 2022	Quarterly	
	Innovative technologies for air pollution control (Apr- Jun 2022)	Quarterly	
	Regional cooperation for innovation and technology transfer – emerging strategies,	Quarterly	

	models and collaborative networks (Jul-Sep 2022) – In press		
Study report on ‘Development of enabling strategy for the transfer of inclusive innovations and technologies’	Inclusive innovations and technologies	One-time report	Policy makers and Government officials, technology promotion agencies
Publication on ‘Intellectual Property Management and Technology Licensing’	Intellectual Property Management and Technology Licensing – Guide for Policymakers and Managers of Research and Development Institutes	One-time publication	Policymakers, managers of technology licensing and transfer offices of research and development institutes, and the private sector enterprises
Three theme papers on innovation, transfer and diffusion of fourth industrial revolution technologies for (i) sustainable development, (ii) healthcare, and (iii) climate change mitigation	Fourth industrial revolution technologies for sustainable development, healthcare, and climate change mitigation	One-time reports	Policy makers and Government officials, technology promotion agencies, public, private as well as non-governmental organizations, research and development institutions and academia