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Report on the activities of the Centre during the period December 2017 to November 2018

Report on the activities of the Asian and Pacific Centre for Transfer of Technology during the period December 2017 to November 2018

I. Introduction

1. The 2030 Agenda for Sustainable Development, unanimously adopted in 2015 calls upon the member States of the United Nations to strive for a more secure and sustainable world by 2030. Science, technology and innovation have been identified as key catalysts to achieve the Sustainable Development Goals that are an integral part of the Agenda 2030.

2. The Asian and Pacific Centre for Transfer of Technology assists member countries to strengthen their capabilities to develop and manage national innovation systems; develop, transfer, adapt and apply technology; improve the terms of transfer of technology; and identify and promote the development and transfer of technologies relevant to the region. The Centre's activities directly support the Sustainable Development Goal 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation), and 17 (Strengthen the means of implementation and revitalize the global partnership for sustainable development), among other goals.

3. This report covers activities which the Centre carried out during the period of December 2017 to November 2018.

4. The Centre's primary focus in the reporting period were as follows:

(a) Development and management of sound national innovation systems;

(b) Capacity Building support to develop, transfer, commercialize and adopt new and emerging technologies that have the transformative potential to achieve the Sustainable Development Goals;

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(c) Dissemination of information related to science, technology and innovation policy, technological innovations, market developments and events;

(d) Production of publications and knowledge products on science, technology and innovation policy, new and emerging technologies and other related areas; and

(e) Facilitation of regional cooperation and networking in science, technology and innovation, cross-border trade and technology transfer.

5. During the reporting period, the Centre delivered and/or actively contributed to 13 demand-driven capacity building activities organized in 7 member countries (China, India, Indonesia, Kazakhstan, Malaysia, the Philippines, and Thailand) in close collaboration with 17 partner institutions. The activities include international workshops and conferences, regional consultations and training workshops. The Centre reached out to about 2,600 target participants such as science, technology and innovation policy makers, and representatives from small and medium enterprises, academia, research and development institutions, technology promotion agencies and technology transfer intermediaries.

6. The Centre benefited from expert participants from Asia-Pacific member countries namely Afghanistan, Bangladesh, Bhutan, China, Fiji, India, Indonesia, Islamic Republic of Iran, Japan, Kazakhstan, Kyrgyzstan, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Republic of Korea, Uzbekistan, Singapore, Sri Lanka, Tajikistan, Thailand and Turkey, who had shared their domain knowledge, experiences and best practices with other target participants. The Centre's activities were also benefited from the expertise shared by other United Nations entities and international organizations such as United Nations Economic Commission for Europe, United Nations Conference on Trade and Development, Association of Southeast Asian Nations, Asian Development Bank, Indian Ocean Rim Association, and Non-Aligned Movement Centre for South-South Technical Cooperation.

7. The Centre's online periodical *Asia-Pacific Tech Monitor* delivered latest information on: technology trends and developments; science, technology and innovation policies; technology market; innovation management; and technology transfer.

8. During this period, the Centre extended its outreach of capacity-building activities on technology transfer and commercialisation to Central Asian countries such as Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

9. List of partner institutions who worked with the Centre in delivering activities during the reporting period is attached in Annex I.

II. Major results in capacity-building activities between December 2017- November 2018

A. Strengthening of National Innovation Systems

10. The Centre provided capacity building support to foster technology

innovation, technology-based entrepreneurship and competitiveness of small and medium enterprises. Following are the key activities carried out and/or contributed by the Centre:

(a) **Regional Consultation on Achieving Sustainable Development Goals through Science, Technology and Innovation, Bangkok, Thailand, 20 March 2018**: The Centre supported the regional consultation, organized by the Thailand Institute of Scientific and Technological Research of Ministry of Science and Technology of the Royal Thai Government. The objective was to share best practices, experiences and lessons learnt in the areas of science, technology and innovation for achieving the Sustainable Development Goals. The regional consultation discussed how enhanced cross-border cooperation among these countries would benefit the region in achieving the Sustainable Development Goals. 97 participants including experts from the Republic of Korea, Japan, the Philippines, Myanmar and Singapore shared their perspectives on science, technology and innovation policy interventions and the role of science, technology and innovation in achieving the Sustainable Development Goals.

(b) **Third Forum on China-South Asia Technology Transfer and Collaborative Innovation, Kunming, China, 14 – 16 June 2018:** The Centre supported this event at the occasion of the 5th China-South Asia Expo. The event was organized by the Ministry of Science and Technology of China and the People's Government of Yunnan Province of China. The Forum aimed at strengthening regional cooperation in science, technology and innovation for sustainable development. It also organized one-on-one business match-makings, facilitating concrete technology transfers among participating institutes and enterprises. The Forum brought together about 800 participants from government departments, science and technology authorities, technology transfer agencies, industrial associations, businesses, academia, and institutions in China and South Asian countries such as Afghanistan, India, Myanmar, Nepal, Pakistan and Sri-Lanka.

(c) **Regional Forum on Strategies to Enhance Innovation and Management Capacities of Start-ups and Small and Medium Enterprises, Manila, the Philippines, 18-19 July 2018:** The Centre jointly organized the regional forum with Technology Application and Promotion Institute of the Department of Science and Technology, the Philippines. The Forum deliberated on the new and emerging policy frameworks and tools, institutional/infrastructural support systems, national/regional collaboration networks and platforms, and innovative financing models. Case studies and best practices for the promotion of technology-based start-ups and small and medium enterprises were shared and concrete recommendations were made. 81 participants including experts from India, Malaysia, the Philippines, Republic of Korea, and Asian Development Bank participated and contributed to the deliberations of the Regional Forum.

(d) **6th Forum on China- ASEAN Technology Transfer and Collaborative Innovation, Nanning, China, 11September 2018:** The Centre contributed to the forum, organized by the Ministry of Science and Technology of the People's Republic of China and the People's government of Guangxi Zhuang Autonomous Region; and co-organized by Guangxi Science and Technology Department, and China-ASEAN Technology Transfer Centre. The Forum aimed to facilitate technology transfers in the region, and to strengthen cooperation among the participating Science and Technology Parks. One-on-one business match-makings were also organized to facilitate concrete discussions on

technology transfers among participating institutes and enterprises. The Forum was participated by over 800 science, technology and innovation stakeholders from China, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Thailand, and Viet Nam.

(e) **International Conference on Technology Transfer and Internationalization of Technology-based Businesses, Tangerang, Indonesia, 1-2 November 2018:** The Centre jointly organized this conference with Indonesian Institute of Sciences, in cooperation with the Indian Ocean Rim Association, Japan-ASEAN Science, Technology and Innovation Platform, and Non-Aligned Movement Center for South-South Technical Cooperation at the occasion of the Innovation Summit. The conference deliberated on the challenges and opportunities for technology transfer and internalization of technology-based small and medium enterprises and start-ups. The conference was attended by 143 participants including senior officials, experts, and industry managers from India, Indonesia, Japan, Republic of Korea, Sri Lanka and Tunisia.

B. Promoting new and emerging technologies such as renewable energy, information and communication technologies

11. The Centre organized/or contributed to the following capacity building activities for promotion of new and emerging technologies during the reporting period:

(a) **Regional Consultation on Achieving Sustainable Development Goals through Sector-focussed Science, Technology and Innovation Policies, Bangkok, Thailand, 27-28 August 2018:** The regional consultation was jointly organized with Thailand Institute of Scientific and Technological Research and Ministry of Science and Technology of the Royal Thai Government. The consultation brought together 95 participants including experts from India, Islamic Republic of Iran, Japan, Malaysia, the Philipines, Republic of Korea, Singapore, Sri Lanka, and Thailand. The experts deliberated on the principles and methodologies for innovation strategy development; multi-sectoral policy coordination; policy, regulatory, technological and business perspectives in the renewable energy, and information & communication technology sectors.

(b) **Fourth Industrial Revolution Conference 2018 "New and Emerging Technologies in Achieving Sustainable Development Goals", Putrajaya, Malaysia, 23-24 October 2018**: The Centre jointly organized this conference with Ministry of Energy, Science, Technology, Environment & Climate Change, Malaysia and MIMOS Berhad, Malaysia. The conference deliberated on the policy, regulatory, technological and business aspects of Fourth Industrial Revolution technologies such as internet of things, artificial intelligence, augmented reality, big data, additive manufacturing, cloud computing and cyber security. The conference brought together 254 participants including international experts, and senior government officials from Japan, China, India, Fiji, Malaysia, and Russian Federation. One of the key recommendations of the conference is to launch an Asia-Pacific Regional Information and Communication Technology Knowledge Network for Fourth Industrial Revolution Technologies (APRIKNET-4IR) to support cross-border collaboration on innovative information and communication technology applications for achieving the Sustainable Development Goals.

(c) **International Conference on Inclusive Science Technology and Innovation Policies for Promoting the Transfer of New and Emerging**

Technologies in Water and Energy Sectors, Bangkok, Thailand, 27 November 2018: The international conference will be jointly organized with Ministry of Science and Technology of the Royal Thai Government, and Thailand Institute of Scientific and Technological Research. The conference aims to facilitate knowledge sharing on inclusive policy for promoting commercialization and transfer of technologies in water and energy sectors, and learn about the latest technological advances and trends. The conference would be attended by about 100 participants including senior Government officials and experts from Bangladesh, China, India, Indonesia, Islamic Republic of Iran, Fiji, Kazakhstan, Malaysia, Pakistan, the Philippines, Republic of Korea, Sri Lanka and Thailand.

C. Technology transfer capacity building

12. During the reporting period, the Centre organized the following capacity-building activities:

(a) **Workshop on Strengthening Technology Transfer and Technology Commercialization Capacities of Countries in Central Asia, Astana, Kazakhstan, 30-31 May 2018:** The Centre jointly organized this regional workshop with United Nations Economic Commission for Europe, and National Agency for Technological Development, Kazakhstan. The workshop aimed at strengthening capacities of countries in promoting cross-border transfer of technologies and innovations. The workshop brainstormed and deliberated on critical aspects of policy, regulatory and institutional ecosystems for facilitating cross-border technology transfer among the countries in Central Asia. The workshop was attended by 171 participants from Kazakhstan and other Central Asian countries including senior policy makers, private sector representatives and experts from Kyrgyzstan, Tajikistan, Turkey, and Uzbekistan.

(b) **Training Programme on Technology and Innovation Management, Ghaziabad, India, 26 June 2018:** The Centre supported to this training workshop organized by Human Resource Development Centre of the Council of Scientific and Industrial Research, Ministry of Science and Technology, Government of India. The workshop provided a platform for senior scientists and researchers of India's public-funded research laboratories to enhance their knowledge, understanding, and best practices in technology innovation management. The workshop deliberated on the technology commercialization aspects, and how to effectively manage commercialization of innovations emerging from research laboratories. The workshop was attended by 25 senior scientists and business development heads of premiere research laboratories from all over India.

(c) **Workshop on Rural Industries: Establishment, Sustainability and Challenges, Sonipat, India, 27-29 June 2018:** The Centre co-organized this workshop with Centre for Rural Development and Technology, Indian Institute of Technology Delhi, India. The workshop deliberated on the challenges, good practices and strategies related to: skill development for rural industries; market efficiency improvement; rural industry start-ups; social and digital safeguards for technology transfer in the rural value chain; and agro-based (mushroom) and non-agro-based (leather) rural industries. 30 participants from various engineering colleges, technical institutes and the private sector in India participated in the programme.

(d) **International Training Programme on Skill Development and Employment Generation, New Delhi, India, 25 September 2018:** The

Centre contributed to this training programme organized by V.V. Giri National Labour Institute, Ministry of Labour, Government of India. The programme was supported by the Ministry of External Affairs of Government of India under the Indian Technical and Economic Cooperation / Special Commonwealth Assistance for Africa Programme. 25 government officers from Bhutan, Botswana, Ethiopia, Kenya, Madagascar, Mauritius, Namibia, Niger, Oman, South Sudan, Sri Lanka, Tanzania, Zambia, and Zimbabwe participated in this programme. The training covered topics such as web-based platforms and tools for technology transfer and market linkages, technology transfer facilitation mechanisms, knowledge networks for innovation and technology transfer, university-industry partnerships, and technology-based entrepreneurship and start-ups.

(e) **Training on Innovation, Technology Transfer and Technology-based Entrepreneurship for Senior Officials from Royal Government of Bhutan, 26 September 2018, New Delhi, India:** The Centre organized this tailor-made training for 2 senior officials from the Department of Cottage and Small Industry of the Ministry of Economic Affairs, Royal Government of Bhutan. The training focussed on regional technology cooperation and collaborative networks, the Centre's online Technology4SME database for technology transfer, knowledge networks for innovation and technology transfer, university-industry partnerships, and technology-based entrepreneurship and start-ups. Upon completion of the training, the Centre received an official request from the Royal Government of Bhutan to assist in developing a national technology database as well as to organize a more comprehensive training on planning and managing technology transfer in Bhutan.

D. Providing technology intelligence through publications

13. The Centre has been disseminating information on recent technological trends and developments through its technology intelligence programme to help policy makes, institutions, and technology transfer intermediaries to address the challenges of business and technology cooperation in the region. The online periodical (www.techmonitor.net) Asia-Pacific Tech Monitor features articles on the latest technology trends and developments, technology policies, technology market, innovation management, technology transfer and new products and processes. The Annex II provides a list of the Centre's publications during the reporting period.

14. The Centre published 4 issues of Tech Monitor focussing on special themes such as: Big data innovation for sustainable development and humanitarian action (Oct – Dec 2017); Enhancing technology access to reduce inequality (Jan-March 2018) in support to the theme of the 74th ESCAP Commission Session held in May 2018; Technology–based entrepreneurship and innovative start-ups (April-June 2018); and Financing innovation in the Asia Pacific (July- Sep 2018) (in press at the time of reporting). The Tech Monitor issues featured 15 articles contributed by authors/experts from Australia, Austria, Bangladesh, India, Japan, Malaysia, Nepal, Republic of Korea and the United Kingdom. The articles presented data and analysis with respect to critical issues related to the 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 startups and small and medium enterprises, and selected technology offers and requests from countries such as China, Hungary, India, Poland, Sri Lanka, Thailand, and the United Kingdom.

15. The Centre shared its online periodicals with readers from member countries and outside the region as well. During this period, the online Tech Monitor periodical has 11,063 pages views. Countries with top viewership were India, France, the United States, China, tthe Philippines, Indonesia, Thailand, Japan, Italy, Germany, Australia, Malaysia, Nepal, Canada and the United Kingdom among others. The Centre also disseminated the e-periodicals through social media platforms such as Facebook and twitter. Printed copies of Tech monitor were also distributed among participants in the capacity building workshops and conferences.

E. Cooperation with ESCAP programmes and divisions

16. The Centre participated and provided substantive contributions to the following ESCAP meetings:

(a) Seventy Fourth Commission Session of ESCAP, 11-16 May 2018, Bangkok, Thailand: The Centre made a report on the thirteenth session of the Governing Council, held in Manila to the Commission. The followings are the outcomes of the 74th Commission session on the Centre's work programme:

(i) The Commission endorsed the report of the Governing Council of the Asian and Pacific Centre for Transfer of Technology on its thirteenth session (ESCAP/74/7) (Decision 74/19).

(ii) The Commission took note of the note by the secretariat on the overview of partnerships, extrabudgetary contributions and capacity development (ESCAP/74/38) and expressed its appreciation for the contributions to APCTT pledged by members and associate members for 2018 (Decision 74/42). They are: China ($30000), India ($200000), Macao, China ($5000), and Thailand ($15000).

(iii) The Commission recognized the importance of the capacity-building work carried out by the Asian and Pacific Centre for Transfer of Technology for policymakers in areas of policymaking on science, technology and innovation; the development, adoption and adaptation of new and emerging technologies; and technology transfer and commercialization. The Commission expressed its appreciation for the work carried out by the Centre (ESCAP/74/44).

(iv) The Commission noted that science, technology and innovation were major driving forces for sustainable development in the region, and welcomed the inclusion of technology and innovation in its programme of work. It also noted the vital role of new and emerging technologies for sustainable development (ESCAP/74/44).

(v) One representative was of the view that the Committee on Information and Communications Technology, Science, Technology and Innovation should pay due attention to the dissemination of science and technology best practices to developing and least developed countries, and support their capacity building to achieve the Sustainable Development Goals (ESCAP/74/44).

(b) Second session of ESCAP Committee on Information and Communications Technology, 29-31 August 2018, Bangkok, Thailand: The Centre made a report on the work of the Centre to the Committee at the session on Regional Mechanisms for Technology Transfer for Sustainable Development.

The following are the recommendations made by the Committee with specific reference to the Centre (ESCAP/CICTSTI/2018/9):

(i) The Committee recommends the continuation of the current work of the Asian and Pacific Centre for Transfer of Technology in addition to the emerging areas on information and communications technology, big data, artificial intelligence and the Internet of things.

(ii) The Committee, being of the opinion that the mandate and the work of the Asian and Pacific Centre for Transfer of Technology is crucial and relevant to the implementation of the 2030 Agenda, recommends that the Centre's current mandate should not be changed or diluted in any form and calls for the further strengthening of the Centre.

(iii) The Committee expresses the concern that the current human resources and financial capacities of the Asian and Pacific Centre for Transfer of Technology are not satisfactory in terms of carrying out mandated activities and meeting the growing demand for the Centre's activities. The Committee requests non-contributing member States to consider providing voluntary financial contributions, and member countries to enhance their level of voluntary contributions to strengthen support for the Centre.

During the Committee session, member States expressed appreciations to the work of the Centre and made the following requests to be considered in the Centre's future work programme:

(i) The representative of China stressed the importance of the exchange of personnel working in areas of science, technology and innovation in the region and the joint building of laboratories, cooperation in science parks and technology transfer.

(ii) The representative of Fiji expressed interest in climate-smart technologies and renewable energy for the benefit of Pacific island countries including Fiji.

(iii) The representative of the Islamic Republic of Iran requested that the Centre set up a start-up network as an online platform for dissemination of information on promoting technology start-ups, technology capacity-building programmes.

(iv) The representative of Sri Lanka requested the Centre to consider helping member States with the harmonization of standards and prototyping and testing of high-tech products and to set up a network of standards testing organizations and laboratories and an online database of institutions involved in that area.

(v) The representative of Thailand requested the Centre's support on intellectual property management in the field of renewable energy technology transfer and further cooperation on water-related technologies and new applied materials for energy and water.

F. Cooperation with United Nations organizations, international organizationsand other partners

17. During this reporting period, the Centre jointly delivered activities/ closely worked with United Nations agencies and international organizations including United Nations Economic Commission for Europe, World Intellectual Property Organization, World Trade Organization and Asian Development Bank while implementing capacity-building activities in the Member States.

H. Evaluation of the Asian and Pacific Centre for Transfer of Technology

18. In line with Commission resolutions 66/15 and 71/1, ESCAP conducted an evaluation of the Centre which was carried out by an independent consultant. The specific objectives of evaluation were:

(a) To assess the substantive relevance of the Centre's mandate in the context of the ongoing reform of ESCAP and 2030 Agenda for Sustainable Development; sustainability of the Centre in terms of its financial and the level of human resources; and results and efficiency of the Centre's delivery of its capacity building activities.

(b) To recommend specific actions for improving the results-orientation, relevance, sustainability and efficiency of the Centre.

19. The Centre fully supported the evaluation exercise, by providing full and comprehensive background documents, arranged stakeholder interviews and provided comments as one of the ESCAP reference group members.

20. The report will be discussed at the occasion of the fourteenth session of the Centre's Governing Council on 28 November 2018.

I. Resource mobilization activities

21. The Centre made the following resource mobilization efforts during the reporting period:

(a) **Host country contribution**: ESCAP is actively in discussion with the Department of Scientific and Industrial Research, Ministry of Science and Technology, Ministry of Commerce and Industry, and Ministry of External Affairs, Government of India for enhancement of institutional support to the Centre.

(b) **Project on "Evidence-based innovation policy for effective implementation of 2030 Agenda for Sustainable Development in the Asia-Pacific region":** The Centre successfully developed the project with the Trade, Investment and Innovation Division of ESCAP, and secured funding of US 500,000 dollars from the United Nations Development Account (11th Tranche). The Centre will implement this project with the Division during the period 2018 to 2021. The main objective of the project is to strengthen the capacity of developing countries, in particular Least-Developed Countries in South Asia, Southeast Asia and the Small Island Developing States in the Pacific, to formulate evidence-based, integrated and inclusive innovation and technology policies. Through such policies, the countries should be able to use science technology and innovation as an effective means of implementation for the achievement of the Sustainable Development Goals.

(c) **Section 23 Regular Programme of Technical Cooperation fund of the United Nations**: The Centre is discussing with Strategy and Programme Management Division of ESCAP to secure funds from Section 23 Regular Programme of Technical Cooperation fund of the United Nations to deliver a capacity building activity in Bhutan in 2019 focusing on technology transfer and commercialization for enhancing the capacity of cottage and small industries in Bhutan.

(d) **In-kind contribution from member States**: The Centre successfully secured in-kind support and contributions from member States (namely China, India, Indonesia, Kazakhstan, Malaysia, the Philippines and Thailand) for organizing programme activities during the reporting period.

(e) **Secondment of national officer**: Discussions are currently at an advanced stage between ESCAP and Ministry of Science and Technology of Royal Thai Government to send a national officer to work at the Centre for a limited duration.

J. Digital Outreach

22. The Centre continued to extend its outreach to stakeholders, policy makers and institutions through digital tools including twitter (twitter.com/UNAPCTT), Facebook (facebook.com/UNAPCTT) and LinkedIn (RE Mapping in Asia and the Pacific). The Centre also coordinated with Strategic Communications & Advocacy Section of ESCAP for disseminating information about its activities and programme outputs through ESCAP newsletters and twitter updates.

Annex I

List of Partner Institutions

1. Technology Application and Promotion Institute of the Department of Science and Technology, the Philippines
2. Human Resource Development Centre of Council of Scientific & Industrial Research, India
3. Thailand Institute of Scientific and Technological Research of the Ministry of Science and Technology, Royal Thai Government
4. Yunnan Academy of Scientific and Academic Information, China
5. World Intellectual Property Organization, Geneva
6. Asian Development Bank
7. Ministry of Energy, Science, Technology, Environment and Climate Change,Malaysia
8. National Agency for Technological Development, Kazakhstan
9. United Nations Economic Commission for Europe
10. Indian Institute of Technology Delhi
11. Indonesian Institute of Sciences
12. MIMOS Berhad, Malaysia
13. Indian Ocean Rim Association
14. Department of Cottage and Small Industry of the Ministry of Economic Affairs, Royal Government of Bhutan
15. Japan-ASEAN Science, Technology and Innovation Platform
16. V.V. Giri National Labour Institute, Ministry of Labour of Government of India
17. Non-Aligned Movement Center for South-South Technical Cooperation

Annex II

List of Publications of the Centre (December 2016- November 2017)

Publication Title	Focus Area	Periodicity	Target Audience
Asia-Pacific Tech Monitor	Big data innovation for sustainable development and humanitarian action (Oct – Dec 2017);	Quarterly	Small and medium enterprises, policymakers, institutions, academia, technology transfer intermediaries.
	Enhancing technology access to reduce inequality (Jan- March 2018) in support to the theme of the 74th ESCAP Commission Session held in May 2018;	Quarterly	Small and medium enterprises, policymakers, institutions, academia, technology transfer intermediaries.
	Technology–based entrepreneurship and innovative start-ups (April- June 2018)	Quarterly	Small and medium enterprises, policymakers, institutions, academia, technology transfer intermediaries.
	Financing innovation in the Asia Pacific: Challenges, opportunities and enabling mechanisms (July- Sep 2018) – In press	Quarterly	Small and medium enterprises, policymakers, institutions, academia, technology transfer intermediaries.