



**ECONOMIC AND SOCIAL
COUNCIL**

Distr.
LIMITED
E/ESCWA/SDPD/2018/WG.10/Report
26 November 2018
ORIGINAL: ENGLISH

Economic and Social Commission for Western Asia (ESCWA)

REPORT

6TH TECHNICAL COMMITTEE MEETING ESCWA TECHNOLOGY CENTRE (ETC) AMMAN, JORDAN, 2-3 OCTOBER 2018

Summary

ESCWA Technology Centre (ETC) organized its 6th Technical Committee Meeting in Amman during 2-3 October 2018. The meeting was held in accordance with the ETC Statute to advise the Executive Director on the formulation of the programme of work and on other technical matters concerning the Centre's operations, and to identify member countries' priorities and challenges in harnessing national capabilities in science, technology, and innovation. Meeting participants included 27 representatives from 13 ESCWA member countries from academia, research institutions, ministries, industry, and NGOs, along with international and regional organizations, and other UN system organizations.

The meeting resulted in key messages and recommendations that ETC will take into consideration in preparing its 2019 work plan.

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Introduction

1. ESCWA Technology Centre (ETC) organized its 6th Technical Committee Meeting in Kempinski hotel Amman during the period 2 - 3 October 2018.

This meeting was held in accordance with the ETC Statute where it states that technical committee shall be responsible for advising the Executive Director on the formulation of the programme of work and on other technical matters concerning the Centre's operations. Reports of meetings of the Technical Committee, and the Executive Director's observations thereon, shall be submitted to the Board at its next session.

2. The meeting was attended by 27 participants representing academia, research institutions, ministries, industrial sector, civil society in addition to other international and regional institutions including the UN system. The participants gathered from 13 ESCWA Member countries and deliberated on the role of ETC in serving its objectives.
3. The meeting derived key messages for ETC to develop its 2019 draft work program that will be further reviewed and discussed by ETC Board of Governors (BOG) in its next regular meeting in November 2018.

I. CONCLUSIONS AND WAY FORWARD

4. The meeting concluded with a set of recommendations and key messages for ETC to consider in their plans for 2019. Key messages and recommendations can be categorized as follows:
 - a) ETC to focus its work program in the coming period on promoting the transfer, adaptation, and scale-up of context-based innovative technologies in priority sectors that address main regional challenges including within Science and Technology Parks (STPs). The agriculture sector was highly recommended by participants due to its significant role in reducing poverty, and improving food security in rural and remote areas. Furthermore, it is understood that the agricultural sector is characterized by its multidimensional nature affecting use of water, wastewater, energy, land, and biodiversity, along with its increased vulnerability to climate change. Special attention to explore technology transfer, adoption, and adaptation in countries under conflict or occupation was also prioritized.
 - b) The need to work more on linking academia with industry tackling related issues like IPs, financing, and private sector investments in research centres. ETC to ensure involving the private sector as a key stakeholder in supporting and investing in technology and innovation projects while noting the relationship between graduates of universities and labour market demands.
 - c) Expand ETC role in coordinating and cooperating with stakeholders mainly global and regional entities and research centers: in particular, the participants stressed on coordinating with the Arab Organization for Industrial Development and Mining (AIDMO) and its related industrial technical committee, and the Climate Technology Centre and Network (CTCN) to assist ESCWA member countries in addressing the challenges of climate change, implementing their national contributions and investments in green technology.
 - d) Participants recommended to pilot technologies to scale up across the region, specifically those technologies that enhance agricultural and water productivity by improving the efficient use of main natural resource.
 - e) ETC to explore ways to support countries in using iSDG module focusing on SDGs technology. iSDG module support addressing the impact of technology on the achievements of SDGs. In

addition, discussions tackled using advanced technology to monitor the progress of SDGs achievements.

- f) The participants stressed on the importance of establishing a regional observatory for scientific research and secure joint cooperation in research with universities in the region by sharing projects and formulating strategies
- g) The participants stressed on the importance of developing an interactive platform to support technology and innovation including a database of expert information, future and implemented workshops, successful experiences, research, innovations and legislations concerning green technologies.
- h) Participants stressed on exploring options for contributing financially and substantively in the implementation of pilot projects in Arab countries, similar to the presented projects during the meeting: examples; waste to energy, agriculture, among others.
- i) ETC to support coordination and cooperation among the different stakeholders across the region, examples: disseminating the experience of Sultan Qaboos University on research assessment of country priority needs, the Egyptian National Research Center's ready to go products, the Royal Scientific Society dissemination of initiatives and experiences to other countries.
- j) ETC to provide awareness regarding financial mechanisms supporting green technology programs from various global and regional funds and financial institutions.
- k) The importance of having a monthly newsletter on the regional science, technology and innovation to connect the public with latest scientific and technological news.
- l) The green entrepreneurship is an important issue to be tackled and highlighted, since it is one of the important tools for supporting innovation.
- m) ETC to provide support and advisory services to stakeholders in the member states.

II. SUMMARY OF DISCUSSIONS

A. OPENING SESSION

5. *Mr. Alaa-Eldin Adris*, 5th ETC Technical Committee Meeting Chairperson, Chairman of Board of Trustees, the Egyptian Center for the Advancement of Science, Technology & Innovation (ECASTI), welcomed the participants and thanked ETC for convening the meeting.
6. *Ms. Reem Nejdawi*, Executive Director, ESCWA Technology Centre, Jordan, in her welcoming remarks stated the objectives of the meeting as being to consult and discuss technological issues to address Arab challenges and priorities and to contribute in guiding the work program of ETC for 2019. She also highlighted the role of ETC in facilitating regional cooperation in the fields of research, development, science and technology to address the challenges of regional development. Ms. Nejdawi also briefed the participants on the outcome of the 30th ESCWA Ministerial Session held in mid 2018. the session focused on the role of technology and innovation for decent work, improving productivity and empowering women and youth. Ms. Nejdawi indicated that the outcome document of the session "Beirut Consensus" would be discussed in order to translate relevant resolutions into practical steps that ETC can implement. She thanked the representative of the Ministry of Planning and International Cooperation in the Hashemite Kingdom of Jordan, Mr. Obeidat, Mr. Alaa-Eldin Adris and all participants for joining the meeting.
7. *Mr. Ziad Obeidat*, Acting Secretary General, Ministry of Planning and International Cooperation, Jordan, welcomed the participants stating that they represent a distinguished group of scientists, researchers, specialists and representatives from a number of regional and international institutions. He stressed that technology and innovation provide opportunity to support sustainable

development and advance the structural transformation of economies, improve productivity and create decent jobs in the Arab region. He mentioned that technologies present viable solutions to many of the challenges our countries face. Mr. Obeidat shed the light on the importance of national and international capacity building and calling for the development of regional solutions to innovate, adapt and protect technological achievements. He also spoke about Jordan's implementation of 2030 Agenda for Sustainable Development. He informed participants on Jordan National Voluntary Report that was presented to the HLPF of 2017 highlighting Jordan's 2025 vision that aims at improving citizen wellbeing and access to basic services. He indicated the important role of cooperation between governments, civil society and UN system organization in advancing the developmental process.

8. *Mr. Nael Al Mulki*, National Officer, ESCWA Technology Centre, presented the agenda of 6th ESCWA Technology Centre (ETC) Technical Committee Meeting, pointing out that the meeting outcomes will serve as a guide for ETC's work plan for 2019. Mr. Mulki ended by summarizing meeting objectives using technology to achieve sustainable development within the Beirut Consensus.
9. Then, the chair requested a tour de table inviting participants to introduce themselves and their organizations.

B. SESSION 1: INTRODUCTION TO ETC AND TECHNICAL COMMITTEE MANDATES

10. *Mr. Alaa-Eldin Adris*, Chairperson of 5th ETC Technical Committee Meeting, moderated the session and presented the 5th ETC Technical Committee Meeting summary of recommendations highlighting the need for a program that focus on developing science policies analysing policies' impact and providing data for policy makers on science policies. He mentioned one of the successful experiences in Japan National Institute of Science and Technology Policy. He highlighted the institutionalization of the work and dissemination of knowledge within the member states both in scientific journals and other media channels.
11. *Ms. Reem Nejdawi*, presented ETC mission, objectives, key functions and its main arms being the board of governors and ETC technical committee in terms of its memberships and roles and taking advantage of the capacities and experiences of the current members. Ms. Nejdawi indicated that the outcome of the technical committee meeting will be a key element in developing ETC work plan for 2019, highlighting the importance of focusing the future ETC work on sectors that have deeper impact on regional development.
12. The participants nominated *Ms. Rahma Ibrahim Al-Mahrooqi*, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman, to be the chairperson of 6th ETC Technical Committee Meeting. She was elected unanimously.

C. SESSION 2: UN FOCUS ON TECHNOLOGY AS ONE OF THE MEANS OF IMPLEMENTATION FOR GLOBAL AGENDAS

13. *Ms. Rahma Ibrahim Al-Mahrooqi*, the chairperson of 6th ETC Technical Committee Meeting moderator for the 2nd session.
14. Ms. Nejdawi presented a brief about the important role of technology in implementing global agendas, which she summarized as follows:
 - a) 2030 Agenda for Sustainable Development: all goals have technology related targets in addition to a dictated goal; Goal 17.
 - b) FfD & Addis Ababa Action Agenda (AAAA): the global mechanism for facilitating technology was developed, the Technology Bank for the Least Developed Countries was activated. She stressed on addressing the critical issue of investments in technology in general and green technology in particular.
 - c) CoP process and Paris Agreement on Climate Change provided strong messages to countries to cooperate in technology development and transfer to address Climate Change. In CoP 22, key announcements were related to dedication of \$23Million as Technology support to implement Paris Agreement.
 - d) She also indicated the role of technology in both HABITAT III AND SENDAI.
15. Ms. Nejdawi presented ETC progress during 2016-2018 highlighting the following achievements:
 - (a) Operationalize 6 national and technology transfer offices in 6 partner countries (Lebanon, Egypt, Tunisia, Morocco, Oman and Mauritania) through capacity building, mapping policies and legislation and analysing existing gaps.
 - (b) Strengthening the scientific content of various critical sectors through publishing technical reports and studies in green and appropriate technology in the region.
 - (c) Facilitate Arab regional cooperation in research, development and innovation to address regional challenges related to water, energy, food and climate change impact.
 - (d) Enhance the capacities of stakeholders through advisory services and regional workshops. ETC also dedicated effort for resource mobilization and partnership development.
16. *Mr. Rajiv Garg*, Regional Manager, East & Southern Africa and West & Central Asia, Climate Technology Center and Network (CTCN), Kenya, introduced participants to CTCN and its mission to promote the accelerated development and transfer of climate technologies at the request of developing countries for energy-efficient, low-carbon and climate-resilient development. He also explained about CTCN services that include capacity building, knowledge management and network & collaboration in order to meet the commitment towards the climate change. Mr. Garg explained that CTCN core sectors for mitigation are agriculture, energy supply, forestry, industry, transport and waste management and for adaptation are agriculture & forestry, coastal zones, early warning & environment assessment, human health, infrastructure, transportation and urban design, marine & fisheries and water. He also emphasized CTCN linkages with the Financial Mechanisms of UNFCCC; GEF, GCF and other mechanisms. He referred participant to check the website for further information, <https://www.ctc-n.org/>
17. *Mr. Elias Ghadban*, Regional Advisor on Food Security, ESCWA, Lebanon. presented outcomes of 30th ESCWA ministerial session including Beirut Consensus and emphasized the cross cutting themes with ETC scope of work and mandate. He highlighted main regional challenges and the potential role of ETC in addressing these challenges. Mr. Ghadban provided an example on context based technologies to serve the agriculture and industrial sectors.

18. During the general discussions participants raised the following issues:

- (a) Further collaboration with CTCN by ESCWA member countries to address climate change challenges and achieve their INDCs, encouraging all member countries to appoint their National Designated Entities.
- (b) Enhance partnership development and networking between the diverse regional stakeholders.
- (c) Encourage multi country approach (regional & sub-regional approach) when working with CTCN because it is more impactful enabling a harmonized and sizeable market to which private sector is attracted and provide a platform of large scale investments.

D. SESSION 3: GROUPS DISCUSSION: IMPLEMENTATION OF BEIRUT CONSENSUS

19. *Ms. Rahma Ibrahim Al-Mahrooqi, chaired session 3.*

20. *Mr. Elias Ghadban*, divided the participant into three groups to discuss ETC priorities within Beirut Censuses. He guided the groups' discussions through the following questions:

- a) What do you recommend ETC to prioritize for 2019 work plan?
- b) How can ETC leverage other resources (technical and financial) to promote technology and innovation?
- c) What advocacy role can ETC play to promote technology use?
- d) On the level of policy development for inclusive technology adoption, how do you see ETC's role?

21. The key outcomes of the groups' discussions in relation to the focus of ETC work program is as follow:

- (a) Promoting technology and innovation for the 3 sectors that address regional challenges namely water, energy, and agriculture.
- (b) Focusing on technology for agriculture and water sectors for 2019 work plan is advised.
- (c) Establishing a platform for technology and innovation to include: experts – best practices - research and innovation – policies and legislations.
- (d) Building capacity on writing proposals and targeting funding agencies and in technology transfer and adaptation of green technologies.
- (e) Involving the private sector as a key stakeholder in supporting and investing in technology and innovation projects.
- (f) Supporting governments in providing incentive to support startup companies, this could attract and create more opportunities.

E. SESSION 4: ROLE OF ETC IN IMPLEMENTING BEIRUT CONSENSUS

22. *Ms. Rahma Ibrahim Al-Mahrooqi, chaired session 4.*

23. *Ms. Faten Al Jabsheh*, Acting Division Director, Kuwait Institute for Scientific Research, Kuwait was the moderator for session 4, she mentioned that the first part of the session is focused on the role of ETC in supporting technology parks and other actors. The second part will address ETC role in supporting research and academic institutions.

24. *Mr. Nael Al Mulki*, made an introduction to this session, summarizing the commitments of member states in Beirut Consensus related to technology parks, incubators, and technology entrepreneurs, as well as the countries' requests from ESCWA to further its activities. He urged the participants especially the stakeholders of this cluster (Science parks, Incubators and Entrepreneurs) to discuss their needs and how ETC in its mandate and capacity can assist in achieving their goals and objectives.
25. *Mr. Laith Kassis*, CEO, Palestine Techno Park, Palestine, presented an overview of Palestine Techno Park (PTP) which was established in 2016 as a non-profit organization to enable growth as well as to bridge the gap between private sector & academia through capacity building, and promoting technology and innovation. He indicated that the role of PTP is mainly related to supporting knowledge and technology transfer, commercialization, global network integration in addition to new business establishment via incubation and spin-offs.
26. *Mr. Osama A. Rayis*, Director General, Africa City of Technology (ACT), Sudan, introduced a brief summary of ACT's mission, objectives, services, and its scope of work. He pointed out to the projects and activities undertaken by ACT, especially in the field of technology parks. He ended by asking ETC to deliver best practices from Arab countries in the Agriculture sector, especially in designing and implementation of green agricultural models.
27. *Ms. Serene Duwayri*, Director of iPARK Incubator, Jordan, provided a background review on iPARK which was established in 2003. She outlined the services provided by iPARK, including Incubation, Intellectual Property and commercialization services and promoting entrepreneurship. Ms. Duwayri also stated some of the success stories and projects such as Shamal Start. She mentioned that even though, iPARK was established originally to enhance the innovation in ICT sector, it is now supporting other sectors such as agriculture. She requested ETC to assist in establishing networks for knowledge sharing in other sectors, and to improve policies and legislations related to import of the state-of-art technologies to Jordan, as well as awareness sessions for start-ups on taxation systems.
28. The following additional issues were raised during the first part of session 4 discussions:
- a) The need for dissemination of success stories and lessons learned in the field of incubation, technology and entrepreneurship among Arab countries.
 - b) Requesting ETC to establish a platform and a network to share innovative ideas and implementation and localization of technology in the Arab region
 - c) Need for awareness in taxation system for start-ups and new businesses.
29. The chair, Ms. Rahma Ibrahim Mahrooqi, announced the start of the 2nd part of the session *Mr. Nael Al Mulki*, made an introduction to this section summarizing the commitment of member states in Beirut Consensus related to academic and research institutions, as well as requests of member states from ESCWA to further its activities, with an emphasis on technology and innovation. He asked the panellists to discuss their needs and how ETC in its capacity can assist and help them in achieving and promoting their goals and objectives.
- a) *Mr. Fadhl Al Nozaily*, Professor of Water & Sanitation, Sana'a University, Yemen, presented a brief on achievements of Water and Environment Centre (WEC), its mission and vision as well as the main local and international partners. Mr. Al Nozaily also suggested an action plan to support IWRM/ MSC program at WEC involving coordination and support the twining with other universities for master's programs in Integrated Water Resources Management (IWRM); training on carbon emission calculation from digesters in cooperation with CTCN, and technologies to alleviate climate change impact and support of Internal Displaced Peoples IDPs including technologies of biogas production, groundwater recharge, fluoride removal from groundwater, and desalination of brackish water. He also stressed on promoting the use of green technology such as wind and solar

energy, water harvesting and reuse of treated wastewater as a complementary water resource.

30. *Ms. Faten Al Jabsheh*, presented an overview on activities and projects undertaken by KISR as well as its mission and vision. She also demonstrated the type of research and services currently undertaken by KISR. Ms. Al Jabsheh gave a brief on KISR semi-autonomous research centres that deals with issues related to petroleum, water, energy, buildings, environment, and life sciences. She also discussed the collaboration with regional and international research and technology providers. She ended her intervention by suggesting areas of cooperation between KISR and ETC in the fields of technology transfer and commercialization.
31. *Ms. Rahma Ibrahim Al-Mahrooqi*, in her capacity as Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman, provided a brief about the university, and its specialized centres. She elaborated on the Innovation and Technology Transfer Center, which consists of innovation factory to develop ideas and prototypes. She stressed on the importance of establishing joint committees between various institutions, companies and ministries for cooperation. Ms. Al-Mahrooqi expressed the university's intention to become a green campus that uses advanced technology and IoT. Ms. Al-Mahrooqi emphasized the importance of the obligation of "fair and equitable treatment" by the various ministries when dealing with national expertise versus foreign counterparts.
32. *Mr. Khalid Al Quradaghi*, Director, Knowledge & Innovation Systems Research & Development, Qatar Foundation, Qatar, presented Qatar national vision for 2030 and Qatar national development strategy. He also highlighted some important statistical indicators about Qatar stating that Qatar ranked first in the Arab world and 13th in the world's competitiveness index for 2013/2014. Mr. Al Quradaghi clarified the Foundation's role in education, science & community development and he provided a brief on Qatar Science and Technology Park. The park operates under four main themes: energy, environment, health sciences and ICT. Mr. Al Quradaghi also highlighted the role of the Office of Intellectual Property Rights and Technology Transfer to establish a knowledge-based economy in Qatar. He ended his input by giving recommendations to increase research cooperation and exchange of experiences between member countries.
33. The following issues were raised by participants during the 2nd part of session 4
 - a) Enhancing ETC role in supporting regional cooperation
 - b) ETC role in creating or enhancing an awareness campaign among researches on IPs
 - c) ETC potential contribution and collaboration in enhancing cooperation in selecting thematic areas between Arab countries and fund raising
 - d) Assistant to countries in conflict like Yemen
 - e) Advised ETC to revive the idea of STI observatory to monitor the science, technology and innovation in Arab countries

F. SESSION 5: POLICIES TO SUPPORT GREEN TECHNOLOGY IMPLEMENTATION

34. *Ms. Rahma Ibrahim Al-Mahrooqi, chaired session 5.*
35. *Mr. Fawaz El Karmi, Assistant Secretary General, Higher Council for Science & Technology, Jordan, moderated the session and addressed the creation of The National Centre for Innovation (NCI) as affiliated center. Mr. El Karmi stated the importance of establishment of this center as it will eliminate the duplication of services, address inefficiencies in providing funding and support to the private sector, and provide vital national statistics. He mentioned that all coordinating activities of the NCI will be wrapped into a robust technology platform that will combine existing data resources with the data to be collected in order to coordinate resource referrals, monitor and evaluate innovation activities and other key performance indicators reflecting the economic shifts towards innovation*
36. *Mr. Cameron Allen, Independent Consultant and Expert on SDG implementation, University of New South Wales (UNSW), Sydney, Australia, shared his experience on SDGs, policy analysis and evaluation, and enabling frameworks for green technology to support both SDGs implementation as well as STI. He also outlined a range of decision support tools, including indicator-based assessments and integrated assessment modelling that support the analysis of policies and investments that drive technological change and SDG achievement. Mr. Allen highlighted the technology-related targets within SDGs, as one of the pillars for means of implementations (MoI), as well as references to technology in 23 SDG's targets, and over 70 SDG targets with a strong linkage to green technology in various forms. He also stated that STI implementation should be integrated within SDG implementation based on national SDG strategies/roadmaps. Mr. Allen explored a case study about SDG prioritization for Australia's development progress assessed based on trend analysis and comparison against international benchmarks and target values then demonstrated how dashboards and 'traffic lights' can be used to communicate results. He explained that progress on one goal can enhance or diminish progress on other goals and therefore many approaches, tools, and models are available as well as integrated assessment models (IAMS) which can be used to understand and address this complexity and provide an experimental platform for 'testing' and simulating the effectiveness of different policies, investments, technologies or interventions to achieve SDGs. One of these tools included the iSDG Integrated Simulation Tool developed by the Millennium Institute in the USA.*
37. *Mr. Zaghoul Samhan, Director General, Policies and Planning, Palestinian Environment Quality Authority, Palestine, indicated that similar approaches to what was discussed by Mr. Allen was used in Palestine to prioritize the targets to be implemented by 2022. He added that Palestine prepared the VNR. He also highlighted the importance of technology in implementing national policies agenda that focus on sectoral and cross-sectoral priorities and strategies, including three main axes; the road to independence, repairing and improving the quality of public services, and sustainable development. He elaborated on the ability of the Palestinian government to develop and use policies and legislation to stimulate investment in green technology taking into consideration that Palestinian laws and annexed economy is tightly linked with Israeli laws. He also explained the obstacles and pressures exerted by the occupation authorities to prevent and delay the acquisition of modern technology. Finally, he highlighted the National Action Plan on Sustainable consumption and Production in addition to other national initiatives and projects that are being implemented in Palestine pointing to the critical challenge of data at the Arab regional level.*
38. *Mr. Yousif Muayad Yousif, Manager, International Relations, Environmental Department, Ministry of Health and Environment, Iraq, spoke about the policies and strategies for sustainable development and technology transfer, particularly those mentioned in the (INDCs) and their implementation on the ground, which did not exceed 25%. He also pointed out to the investment*

and funding, as well as ETC role in coordinating with all parties to activate the commitments mentioned in the INDCs. Mr. Yousif discussed the importance of public awareness and efforts to ensure community, food and water security as well as the role of the private sector in sustainable development and the possibilities for financing provided by the Green Climate Fund (GCF), especially in the field of renewable energy.

39. *Ms. Rouida Nahar*, Director, Renewable Energies & Cleaner Production, Ministry of Local Administration and Environment, Syrian Arab Republic, started her intervention by focusing on the consequences of the war in Syria impacting the natural resources of the country. She highlighted the needed rehabilitation of the infrastructure using green technologies. She also provided a brief on the laws and legislations that are adopted by the government to encourage investment in green technologies including tax incentives, customs tariffs, as well as laws of energy trade (first of its kind in the Arab region). Ms. Nahar referred to some examples of renewable energy projects, including street lighting and pumping of wells using solar energy.
40. *Mr. Amin Shaban*, Director of Research, the Lebanese National Council for Scientific Research, presented a brief about the National Council for Scientific Research (CNRS-L), its mission, activities and programs. He provided a summary of water resource management projects elaborated by CNRS-L, and introduced examples, such as the use of airborne infrared radiation for groundwater discharge into the sea, as well as the use satellite images technologies in water resources applications. Mr. Shaban provided suggestions to ETC related to focusing on one or two thematic areas in the coming technical committee meetings, as well as having joint activities that all partners can contribute to.
41. *Mr. Mohamad Afaneh*, Director, Policy & Development, Ministry of Environment, Jordan, informed participants on the efforts of the government in the areas of policies and legislations related to the green economy, sustainable consumption and production, and the established Green Economy Unit. He also briefed participants on the new regulations regarding the use of renewable energy and energy efficiency in order to attract investments in these areas. He also highlighted the impact of policies that encourage the use of hybrid and electric cars in increasing the sale of such cars in the Kingdom. Mr. Afaneh addressed the misconceptions about green technology, being too advanced and very expensive, while it can be very basic but resource efficient.
42. The following issues were raised by participants during session 5:
 - a) There is a need to have an inventory or data base on the existing technology/research (or related innovation) in the ESCWA Region so that it becomes easier to share experiences and best practices.
 - b) An integrated pan Arab project managed by ETC on green technologies
 - c) A request to ETC to provide support and advisory services to the National Center for Innovation (NCI) in Jordan
 - d) To address closely the issue of SDGs financing, especially with regard to technology required to achieve them
 - e) Suggestion was made to ETC to provide support in using iSDG module presented by Mr. Allen by focusing on technology related issues in SDGs and the importance of building national capacities to produce dynamic models to support decision makers in member countries.
 - f) The need to have a data base on the existing technology/research (or related innovation) in the ESCWA region as well as exchanging experiences and best practices regarding implementation and adoption of green technologies in the Arab countries
 - g) To focus on one or two thematic areas in the next ETC technical committee meetings
 - h) The importance of ETC coordinating all parties to activate their commitments mentioned in the INDCs.

G. SESSION 6: CONSENSUS IMPLEMENTATION: GREEN TECHNOLOGY IMPLEMENTATION IN THE AGRICULTURAL SECTOR

43. *Ms. Rahma Ibrahim Al-Mahrooqi*, chaired session 6.
44. *Mr. Khaldoun Khashman*, Secretary General, Arab Countries Water Utilities Association (ACWUA), Jordan, moderated this session. He gave a brief on ACWUA work in the region and highlighted cooperation and coordination with ESCWA.
45. *Mr. Ahmed El Hadj*, Assistant Director, the Higher Institute of Technological Education, Mauritania, presented a brief on the technology of conversion of the Typha plant to coal and how it is used as a fuel would also help combat the Typha invasion in Senegal river in Mauritania, which has contributed to habitat destruction and biodiversity loss and important consequences on human activities and the ecosystem. He explained the process of production of coal using the traditional way as well as the industrial production method.
46. *Mr. Nizar Haddad*, Director General, National Agricultural Research Center (NARC), Jordan, provided a brief about the center, pointing out to the importance of involving regional experts and researchers. He also noted that the high cost of implementing the advanced technology can become an obstacle to small farmers, stressing that attention and support to small farmers is needed, and the awareness regarding the benefits of such technology is worthwhile. In addition, he stressed that there are many simple and inexpensive techniques that could be used to address challenges faced by farmers. He also mentioned the critical issues related to financial allocations for research in most Arab countries.
47. *Mr. Bassam Hayek*, Team Leader & Coordinator, Energy for Water, GIZ, Jordan, gave an overview of GIZ's work and shed light on some of the projects being implemented in the water portfolio. In addition, he presented an example of energy and green house reduction in water utilities, where the issues of energy costs in water utilities are becoming increasingly critical for sustaining services. This required urgent solution such as by advancing energy efficiency and use of renewables in water utilities extensively.
48. *Mr. Ihab Jomaa*, Head, Department of Irrigation & Agrometeorology, Lebanese Agriculture Research Institute (LARI), presented a brief about LARI in various fields of agriculture sector. He also provided an overview of the existing agricultural meteorology that is being used to estimate the evaporation and water needs for plants. He informed participants about various projects that introduced modern technologies, such as water and fertilizer feeders.
49. *Mr. Suhaib Ababneh*, ESCWA Technology Centre, Jordan, introduced a proposed project on "Treatment Technology for Clean Community". He started his input explaining the main problem that the project addresses and the opportunities through which the problem can be transformed into a success story. Mr. Ababneh demonstrated the waste to energy technology anaerobic fermentation technology (Biogas Technology). He provided a brief on the methodology used for assessment, and technology improvement. He also identified the project key stakeholders, indicating that implementation takes almost 3 years.
50. *Mr. Mohammad Al Faqeh*, ESCWA Technology Centre, Jordan, presented a project on cactus plants implemented with support from the Scientific Research Fund in Jordan. It aimed at cultivating the cactus plants in the arid regions. He explained the benefits of using cactus plant as alternative feed for sheep. Mr. Al Faqeh demonstrated that many industries use products that are manufactured using cactus plant such as the cosmetic industry. He also indicated that the goal here is to empower and train women in rural areas and Badia to produce such products at small and

medium scales. Mr. Al Faqeh urged the dissemination of such experience in region. He also asked the participants to try the samples he brought and give their feedback to improve the products presented.

51. The following issues were raised by participants during session 6:
- a) ETC to promote the technology incubation activities in Arab countries
 - b) ETC to work on policies to facilitate the private sector involvement in R&D
 - c) The importance of keeping records of research areas and
 - d) Disseminating the experience of Sultan Qaboos University on assessing country research priority needs.

H. SESSION 7: CONSENSUS IMPLEMENTATION: GREEN TECHNOLOGY IMPLEMENTATION IN THE INDUSTRIAL SECTOR

52. *Ms. Rahma Ibrahim Al-Mahrooqi, chaired session 7.*

53. *Ms. Rouida Nahar, Director, Renewable Energies & Cleaner Production, Ministry of Local Administration and Environment, Syrian Arab Republic, moderated this session*

54. *Mr. Sari Hanafi, Founder & Director, Issam Fares Institute for Public Policy and International Affairs, AUB, Lebanon, presented a brief about AUB Portal for Social Impact of Scientific Research (PSISR). He stated that it is an open repository to benchmark the whole life cycle of research including knowledge transfer and public or policy-oriented research activities.*

55. *Ms. Hala ElKady, Head of Engineering Division, National Research Center, Egypt, presented a brief about the National Research Center, its departments and executed projects. She also advised participants on the development of the Innovation Center, and she highlighted the main objectives of the center and its structure. In addition, she elaborated on the importance of forming bridges between investors and researchers, including scaling up of lab products to semi-industrial scale in research pilot lab. Ms. Elkady informed the participants on the "try it first at NRC ", as a direct application of the project ideas. She offered to send the NRC ready to go innovative products electronic file to ETC disposal, to start a data base for innovative products of different partners. Ms. ElKady ended her intervention by highlighting the main areas that need support from ETC and other stakeholders.*

56. *Ms. Jehan Haddad, Manager, Air Studies, Royal Scientific Society(RSS), Jordan, presented the SwitchMed Transfer of Environmentally Sound Technology (TEST) initiative that has been implemented in seven Arab countries, supporting stakeholders to expand social and environmental innovations, providing stakeholders with tools and contacts to establish productive economies. Ms. Haddad indicated that this initiative, funded by EU. was implemented through United Nations Industrial Development Organization (UNIDO), the Cleaner Production Unit (CPU) at RSS in Jordan, along with other local partners. She also submitted few recommendations for ETC to transfer the experience of TEST to other Arab countries, assist the implementation of awareness raising workshops for the stakeholders to enhance the implementation of Resource Efficient and Cleaner Production (RECP) measures; and assist in the implementation of the actions recommended through the RECP Scaling-up roadmaps issued in 7 Arab countries.*

57. *Mr. Ayad Jalloul, Director, R&D Department, Arab Industrial Development and Mining Organization (AIDMO), Morocco, presented a brief about ADMO reviewing the areas in which it operates, and advisory committees, experiences, studies and projects. He also provided an overview about the Arab Initiative for the Development of Nano sciences and Nano technology as well as other projects and committees which include ETC as a member. Mr. Jalloul stressed on AIDMO's role in supporting green technology and green industries*

58. *Mr. Abdelilah Benyoussef*, Director, Materials and Nanomaterials Center, Moroccan Foundation for Advanced, Science, Innovation and Research, Morocco, presented an overview on the work of the Materials and Nanomaterials Center. He also highlighted its researches, fields of work including plant biotechnology, biomedical technology, packaging, embedded systems, and nanomaterials. Mr. Benyoussef demonstrated few implemented of projects such as video surveillance of traffic and leukemia diagnose Kit.
59. *Ms. Batoool Al-Mulaji*, Expert of SME Development & Supervisor for Green Help Desk, Public Authority of SME Development, Oman, presented an overview of development of the Authority and the services it provides. In addition, she presented the experiences and projects implemented under the umbrella of the Green Help Desk in Oman. Ms. Al-Mulaji ended her intervention with few suggestions for implementation including ETC to create an effective electronic platform that transforms all research and innovation into tangible and feasible projects, assist in establishing SMEs that help farmers to use new technologies and raise awareness, and initiate communication to discuss areas of cooperation among member states.
60. During session 7 the following points were raised:
- a) Create a data bank for member countries on innovations ready for commercialization, including support in promoting the Egyptian National Research Center's ready to go products.
 - b) Support training programs, capacity building and raising awareness among the service providers
 - c) Facilitate networking with national and regional funding agencies and the ones that support technical evaluation of industries
 - d) Dissemination of experiments in the industry sector, which can achieve results and financial returns in a short period including application of the RSS (TEST) initiative experience.

I. CLOSING SESSION: DISCUSSION ON THE WORK PROGRAM FOR 2019

61. This session was chaired by Ms. Rahma Ibrahim Al-Mahrooqi and co-chaired by ESCWA, Ms. Reem Nejdawi and Mr. Haidar Fraihat. Ms. Al-Mahrooqi emphasized on the importance of collaboration between technical committee members and transferring the produced outcomes into implemented initiatives
62. Ms. Nejdawi thanked participants for their input and discussions and provided a brief summary of the deliberations of the two days meeting.
- She advised participants that the meeting report will be prepared and shared with participants for feedback. Ms. Nejdawi indicated that the main key messages were as follows:
- a) The importance of the agricultural sector and technologies in all its sub sectors, especially with regard to water, climate change and energy
 - b) ETC to assist and promote technology transfer in member states
 - c) Importance of developing a platform and a data base for innovations, researches, projects, green technologies, related workshops in the technology field that will be available to exchange experience and success stories.
 - d) Importance of cooperation and coordination with CTCN and AIDMO
63. Mr. Haider Fraihat presented a summary on the Technology for Development Division (TDD) at ESCWA, Beirut, stressing on the need to coordinate the future ETC plan with that of the rest of ESCWA, chiefly TDD. He also stated that participants can communicate with ESCWA focal points in their countries for cooperation on technology related matters and that ESCWA is always ready to assist and support member countries.

III. ORGANIZATION

A. DATE AND VENUE

The meeting was held in Kempinski hotel Amman, Jordan, 2-3 October 2018.

B. AGENDA

The meeting agenda included 7 main sessions in addition to the opening and closing sessions. The detailed agenda is shown in Annex I.

C. PARTICIPANTS

The meeting was attended by 27 representatives from thirteen countries in the Arab region, including experts from governments, non-government organizations and academia. In addition, the meeting was attended by international and regional organizations including the UN system. The list of participants is in Annex II.


D. EVALUATION OF THE MEETING

An evaluation questionnaire was distributed to assess the substantive and logistical aspects of the meeting. Nineteen participants responded to the questionnaire. 100% of respondents said the overall quality of the meeting was good to excellent, 90% said it had clear objectives, while 10% said that the latter were fair. Written comments mentioned “good speakers and agenda” and suggested to “place more time on group discussions”. Most of the participants strongly agreed or agreed that all seven sessions were relevant and a forum for information exchange. In addition, 94% of the participants expressed the need for follow up actions. Similarly, presenters were rated as knowledgeable, prepared, and attentive. In addition, the importance of private sector participation and development of a plan of research that may benefit SMEs were mentioned. Finally, participants requested to expand the theme to include climate change topics for future similar meetings; as well as to follow up with participants on specific requests on publications, training and/or TC project

E. DOCUMENTS

Meeting background paper, information note, agenda and presentations delivered during the meeting may be accessed through the following meeting webpage: <https://www.unescwa.org/events/technical-committee-etc-6th-meeting/>

ANNEX I. AGENDA

UNITED NATIONS		E
		Distr. LIMITED E/ESCWA/SDPD/2018/WG.9/L.1 30 September 2018 ORIGINAL: ENGLISH
Economic and Social Commission for Western Asia (ESCWA)		
6th ESCWA Technology Centre (ETC) Technical Committee Meeting Amman, Jordan, 2-3 October 2018		
AGENDA		
DAY 1: TUESDAY 2 OCTOBER 2018		
09:00 – 09:30	Registration and Networking	
09:30 – 10:00	Opening Session	
Chair:	Mr. Alaa-Eldin Adris, 5 th ETC Technical Committee Meeting Chairperson, Chairman of Board of Trustees, the Egyptian Center for the Advancement of Science, Technology & Innovation (ECASTI), Egypt	
	Opening Remarks	
	<ul style="list-style-type: none">• Ms. Reem Nejdawi, Executive Director, ESCWA Technology Centre, Jordan• Mr. Ziad Obeidat, Acting Secretary General, Ministry of Planning and International Cooperation, Jordan	
	Presentation of 6 th ETC Technical Committee Meeting Programme	
	<ul style="list-style-type: none">• Mr. Nael Al Mulki, National Officer, ESCWA Technology Centre, Jordan	
	Tour de table	
Session I	Introduction to ETC and Technical Committee mandates	
Chair:	Mr. Alaa-Eldin Adris, 5 th ETC Technical Committee Meeting Chairperson, Chairman of Board of Trustees, the Egyptian Center for the Advancement of Science, Technology & Innovation (ECASTI), Egypt	
10:00 – 11:00	Mandate of ETC and its Technical Committee	
	<ul style="list-style-type: none">• Ms. Reem Nejdawi, ESCWA Technology Centre, Jordan	
	5 th ETC Technical Committee Meeting summary and recommendations	
	<ul style="list-style-type: none">• Mr. Alaa-Eldin Adris, 5th ETC Technical Committee Meeting Chairperson, Chairman of Board of Trustees, the Egyptian Center for the Advancement of Science, Technology & Innovation (ECASTI), Egypt	
	Election of 6 th ETC Technical Committee Meeting Chairperson	
	Q & A	
11:00 – 11:30	Coffee Break	

Session II		UN Focus on Technology as one of the means of implementation for global agendas
		Elected 6 th ETC Technical Committee Meeting Chairperson
Chair:		<i>Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman</i>
11:30 – 12:30		Global agendas and ETC Implementation for 2016-2018, <ul style="list-style-type: none"> • <i>Ms. Reem Nejdawi, Executive Director, ETC, Jordan</i>
		Establishing linkages with other technology centers - update on Climate Technology Centre and Network <ul style="list-style-type: none"> • <i>Mr. Rajiv Garg, Regional Manager, East & Southern Africa and West & Central Asia, Climate Technology Center and Network (CTCN), Kenya</i>
		ESCWA 30 th Ministerial Session Outcome (2018): Beirut Consensus and outcomes of the three high level roundtable discussions <ul style="list-style-type: none"> • <i>Mr. Elias Ghadban, Regional Advisor on Food Security, ESCWA, Lebanon</i>
		Q & A
Session III		Groups Discussion: Implementation of Beirut Consensus
Chair		<i>Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman</i>
Moderator:		Mr. Elias Ghadban, Regional Advisor on Food Security, ESCWA, Lebanon
12:30 – 14:00		Key Outcomes of the Groups Discussion
14:00 – 15:00		Lunch Break
15:00 – 15:15		Cont... Key Outcomes of the Groups Discussion
Session IV		Role of ETC in Implementing Beirut Consensus
Chair		<i>Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman</i>
Moderator:		<i>Ms. Faten Al Jabsheh, Acting Division Director, Kuwait Institute for Scientific Research, Kuwait</i>
15:15 – 16:00		a) <i>What ETC can do to support technology parks and other actors (service providers for SMEs, innovators and entrepreneurs)</i> Introduction: <ul style="list-style-type: none"> • <i>Mr. Nael Al Mulki, National Officer, ESCWA Technology Centre, Jordan</i> Panelists: <ul style="list-style-type: none"> • <i>Mr. Laith Kassis, CEO, Palestine Techno Park, Palestine</i>

- *Mr. Osama A. Rayis, Director General, Africa City of Technology, Sudan*
- *Ms. Serene Duwayri, Director iPARK Incubation, Jordan*

16:00 – 16:15 Coffee Break

16:15 – 17:15 b) What ETC can do to support research and academic institutions

Introduction:

- *Mr. Nael Al Mulki, National Officer, ESCWA Technology Centre, Jordan*

Panelists:

- *Mr. Fadhl Al Nozaily, Associate Professor, Water & Sanitation Sanaa University, Yemen*
- *Ms. Faten Al Jabshah, Acting Division Director, Kuwait Institute for Scientific Research, Kuwait*
- *Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman*
- *Mr. Khalid Al Quradaghi, Director, Knowledge & Innovation Systems Research & Development, Qatar Foundation, Qatar*

DAY 2: WEDNESDAY 3 OCTOBER 2018

Session V Policies to support green technology implementation

Chair *Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman*

Moderator: *Mr. Fawaz El Karmi, Assistant Secretary General, Higher Council for Science & Technology, Jordan*

09:00 – 11:00 SDGs and Green Technology: integrated approaches and modelling to support decision making and policy formulation.

- *Mr. Cameron Allen, Independent Consultant and Expert on SDG implementation, University of New South Wales (UNSW), Sydney, Australia*

Panelists:

- *Mr. Zaghoul Samhan, Director General, Policies and Planning, Palestinian Environmental Quality Authority, Palestine*
- *Mr. Yousif Muayad Yousif, Manager, International Relations, Environmental Department, Ministry of Health and Environment, Iraq*
- *Ms. Rouida Nahar, Director, Renewable Energies & Cleaner Production, Ministry of Local Administration and Environment, Syrian Arab Republic*
- *Mr. Amin Shaban, Director, the Lebanese National Council for Scientific Research, Lebanon*
- *Mr. Mohamad Afaneh, Director, Policy & Development, Ministry of Environment, Jordan*

11:00 – 11:30 Coffee Break

Session VI Consensus implementation: green technology implementation in the agricultural sector

Chair *Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman*

Moderator: *Mr. Khaldoun Khashman, Secretary General, Arab Countries Water Utilities Association (ACWUA), Jordan*

11:30 – 13:30

Panelists:

- *Mr. Ahmed El Hadj, Assistant Director, the Higher Institute of Technological Education, Mauritania*
- *Mr. Nizar Haddad, Director General, National Agricultural Research Center (NARC), Jordan*
- *Mr. Bassam Hayek, Team Leader & Coordinator, Energy for Water, GIZ, Jordan*
- *Mr. Inab Jomaa, Head, Department of Irrigation & Agrometeorology, Lebanese Agriculture Research Institute, Lebanon*
- *Mr. Suhaib Ababneh, ESCWA Technology Centre, Jordan*
- *Mr. Mohammad Al Faqeh, ESCWA Technology Centre, Jordan*

13:30 – 14:30

Lunch Break

Session VII Consensus implementation: green technology implementation in the industrial sector

Chair *Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman*

Moderator: *Ms. Rouida Nahar, Director, Renewable Energies & Cleaner Production, Ministry of Local Administration and Environment, Syrian Arab Republic*

14:30 – 14:45

Overview of PSISR, portal for social impact of scientific research targeting research in/out the Arab region

- *Mr. Sari Hanafi, Founder & Director, Issam Fares Institute for Public Policy and International Affairs, AUB, Lebanon*

14:45 – 16:00

Panelists

- *Ms. Hala El Kady, Prof. & Head, Engineering Division, National Research Center, Egypt*
- *Jehan Haddad, Manager, Air Studies, Royal Scientific Society, Jordan*
- *Mr. Ayad Jalloul, Director, R&D Department, Arab Industrial Development and Mining Organization (AIDMO), Morocco*
- *Mr. Abdelilah Benyoussef, Director, Materials and Nanomaterials Center, Moroccan Foundation for Advanced, Science, Innovation and Research, Morocco*
- *Ms. Batool Al-Mulaji, Expert of SME Development & Supervisor for Green Help Desk, Public Authority of SME Development, Oman*

16:00 – 16:15

Coffee Break

Closing Session Discussion on the work program for 2019

- Chair:** Elected 6th ETC Technical Committee Meeting Chairperson
Ms. Rahma Ibrahim Al-Mahrooqi, Deputy Vice Chancellor for Postgraduate Studies and Research, Sultan Qaboos University, Oman
- Co-Chair:** Ms. Reem Nejdawi, Executive Director, ESCWA Technology Centre, Jordan
Mr. Haidar Fraihat, Director, ESCWA Technology Development Division, Lebanon
- 16:15 – 17:15 This session will distill outcomes from the previous sessions' discussions and offer an open platform for developing proposed forward path for ETC for 2019. This concluding session should deliver priority themes for collaborative work among ETC stakeholders in the Arab countries, as well as opportunities for partnerships and resource mobilization.

Conclusion and Way forward

ANNEX II. LIST OF PARTICIPANTS

List of participants

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