UNITED NATIONS

E

ECONOMIC AND SOCIAL COUNCIL

Distr.
LIMITED
E/ESCWA/C.8/2021/3
18 January 2021
ORIGINAL: ENGLISH

Economic and Social Commission for Western Asia (ESCWA)

Committee on Technology for Development
Third session
Online, 15-16 February 2021

Item 4 of the provisional agenda

Implementation of activities under the ESCWA programme of work and of recommendations made by the Committee on Technology for Development at its second session

Summary

Since the second session of the Committee on Technology for Development, held in Beirut on 20 and 21 March 2019, the Economic and Social Commission for Western Asia (ESCWA) has undertaken several activities under subprogramme 4 on "Technology for development and regional integration", in accordance with the recommendations made by the Committee at its second session. The present document summarizes those activities for the period 2019-2020, which included conducting studies and publishing reports, holding expert group meetings and capacity-building workshops, undertaking projects, and creating tools and platforms to facilitate policymaking. The activities are classified along four main themes: innovation for development; emerging technologies; the information society and Internet governance; and digital and open government.

The Committee on Technology for Development is invited to take note of the present report and comment thereon.

Contents

Introduction

1.   Since the second session of the Committee on Technology for Development, held in Beirut on 20 and 21 March 2019, the Economic and Social Commission for Western Asia (ESCWA) has undertaken several activities under subprogramme 4 on "Technology for development and regional integration", in accordance with the recommendations made by the Committee at its second session.

2.   A number of those activities are linked to global processes led by the United Nations, including the 2030 Agenda for Sustainable Development, the World Summit on the Information Society, and the Internet Governance Forum, and those under the Commission on Science and Technology for Development and the United Nations Inter-Agency Task Team on Science, Technology and Innovation for the Sustainable Development Goals (SDGs).

3.   The present document summarizes the activities under subprogramme 4 for the period 2019-2020, which included conducting studies and reports, holding expert group meetings and capacity-building workshops, and preparing reports for ESCWA committees. The activities are classified along the following four main themes: innovation for development; emerging technologies; the information society and Internet governance; and digital and open government. In line with the current ESCWA reform, many of those activities have been implemented within integrated projects. Furthermore, ESCWA is developing a variety of knowledge-based platforms and tools that will support decision makers in Arab countries to leverage technology and innovation for sustainable development.

I. Activities under the ESCWA programme of work

A. Innovation for development

1. *Studies and reports*

**Arab Horizon 2030: Innovation and Technological Perspectives for the Arab Region
(E/ESCWA/TDD/2019/2)**

4.   ESCWA published the Arab Horizon 2030 report, which focuses on innovation and technology perspectives for the Arab region. The study provides an analysis of innovation approaches that embrace new and varied human, social, grassroots and cooperative trends that can be adopted in Arab countries. It discusses how various innovation models, including linear models, grassroot innovation, mission-oriented innovation and open innovation, can be used to adopt and adapt emerging technologies to address developmental challenges in the Arab region. It also provides an overview of the traditional linear approach to innovation related to research and development, which has long been rooted in the creative thinking of the majority of developed and developing countries.

5.   The study also describes new technological trends and identifies those that can support Arab countries in addressing social, economic and environment challenges, with concrete examples and case studies that demonstrate the feasibility of different technologies. The study concludes with recommendations on the adoption of innovation and technology in regional and national policies and strategies, and possible scenarios for the enhancement of science, technology and innovation (STI) in development plans in Arab countries to achieve the SDGs.

**Innovation and Entrepreneurship: Opportunities and Challenges
for Arab Youth and Women
(E/ESCWA/TDD/2019/TP.2)**

6.   Entrepreneurship is considered a possible solution to unemployment among young people, and a means to economically empower women in the Arab region. Frontier technologies and new approaches to innovation

also offer new employment and business opportunities, which can be harnessed to enhance entrepreneurship. However, numerous obstacles remain, making it difficult to exploit the economic development and social inclusion that entrepreneurship offers women and young people, in particular. The study discusses the opportunities available to and the challenges faced by women and young people when pursuing a career in innovation and entrepreneurship in the Arab region.

Intellectual Property for Fostering Innovation in the Arab World
(E/ESCWA/TDD/2019/5)

7.   Intellectual property is a key legal construct in today's economy. It contributes to sustainable development, and enhances innovation and entrepreneurship. Intellectual property policy is essential in managing research and development, and in various fields related to innovation, economy, information and creativity.

8.   The study is a desk review of intellectual property laws and practices in Arab countries, particularly patents and copyright. It explores the link between intellectual property, innovation, competitiveness, and achieving the SDGs. The study also proposes practical solutions to the dilemma of implementing strong or weak intellectual property protection to either protect innovators or ensure openness. The proposed solutions are based on the experience of several public institutes, academia and non-profit organizations.

Technology and Innovations for Developing Land Transport in the Arab Region
(Forthcoming)

9.   ESCWA prepared this study to promote the use of emerging technologies and innovation in various development sectors, and accelerate the achievement of the SDGs. The study targets officials and decision makers in ministries and authorities working in the transport sector and digital technology.

10.   The study presents the current digital technologies in land transport, and describes key emerging and future technologies and applications that are expected to transform land transport. The study portrays the situation in the Arab region, based on the results of a survey and a literature review.

11.   To support decision makers in Arab countries, the study provides comprehensive framework and a set of recommendations for introducing emerging technologies in land transport, which will ensure better safety, accessibility, efficiency and sustainability. The recommendations cover various areas, including policies, legal and regulatory aspects, technological requirements and capacity-building.

2.   *Projects and applications*

Job Monitor in the Arab Region

12.   As part of its endeavours to assess the impact of the Fourth Industrial Revolution on the Arab region in the field of jobs and the labour market, ESCWA is working on a job monitor, an electronic platform which analyses job advertisements published on the Internet and monitors changes to required skills in the job market. The Monitor is based on machine learning, artificial intelligence and big data. It allows policymakers in the Arab region to determine the fit between the skills required and those available in the labour market, and to develop appropriate policies to address the gap between supply and demand. ESCWA held an expert meeting with representatives of Arab member States on 21 December 2020 to inform them about the project and to obtain their proposals on future steps that meet their needs. The prototype of this platform is expected to be launched in the first quarter of 2021.

3. *Meetings and workshops*

Expert group meeting on intellectual property systems in the Arab region

13.   An expert group meeting on intellectual property systems in the Arab region was held in Beirut on 17 and 18 April 2020 to discuss the status and challenges of intellectual property systems in the Arab region, and their role in driving innovation and competitiveness in line with the SDGs. The meeting brought together experts from the region, including government officials concerned with intellectual property management, academia, research centres and the private sector, and representatives of the World Intellectual Property Organization (WIPO), the League of Arab States (LAS), and the Arab League Educational, Cultural and Scientific Organization (ALECSO).

14.   A series of consultative discussions informed the deliberations, focusing on the status of intellectual property in the Arab region, the role of technology transfer offices in intellectual property systems, and intellectual property regulations at the institutional level. The discussions were centred around an ESCWA publication on intellectual property systems; promoting entrepreneurship and technology transfer; gender and intellectual property rights; and regional initiatives on intellectual property.

15.   The meeting concluded with a set of recommendations on the relationship between innovation and intellectual property, awareness and training needs, institutional and legal aspects, and collaboration with regional and international organizations.

Expert group meeting on technological innovation, entrepreneurship, and science/technology parks for sustainable development

16.   The expert group meeting was held at the Royal Scientific Society in Amman from 26 to 28 November 2020. The meeting was organized by ESCWA in collaboration with the Arab Industrial Development and Mining Organization (AIDMO) to discuss bridging gaps in the innovation and entrepreneurship ecosystems in the Arab region at the policy and practical levels, with a focus on technopreneurs and their role in achieving the SDGs, and on science and technology parks as a source of innovative technologies.

17.   Government officials from the ministries of industry, higher education, economy, trade and ICT; technology transfer offices in member States; and experts from regional and international organizations discussed the status of national innovation, entrepreneurship ecosystems, and technology and innovation in the Arab region, and the role of a digital enabling portal for small and medium sized enterprises (SMEs) and technology development and transfer offices for knowledge commercialization and employment. Participants also discussed the role of science and technology parks in the adaptation, transfer and acquisition of technology, and of incubators in promoting sustainable industrial development and harnessing frontier technologies for entrepreneurs. Experts concluded with a set of recommendations and key messages on priority actions to strengthen innovation and entrepreneurship at the national and regional levels, including the importance of collaboration and networking among various players in the innovation/entrepreneurship ecosystem.

Online focus group meeting on technology and innovations for developing land transport in the Arab region

18.   ESCWA held an online focus group meeting on 1 December 2020 to discuss a draft study entitled "Technology and innovations for developing land transport in the Arab region". High-level experts from 10 Arab countries representing Governments, mainly from the ministries of transport and of ICT, participated in the meeting. They discussed the role of technology and innovation in land transport, and Arab countries' responses to ESCWA surveys. They also debated the proposed framework and recommendations for advancing the role of technology and innovation in land transport in the Arab region. They also made suggestions for enhancing the draft report, and promoted the exchange of good practices between Arab countries. Moreover,

they also endorsed recommendations proposed by ESCWA, including those related to enabling technologies, regulatory frameworks, building capacity, and strengthening collaboration between countries.

B. Emerging technologies

1. *Studies and reports*

Impact of Fourth industrial Revolution on Development in the Arab Countries
(E/ESCWA/TDD/2019/3)

19.   The report sets out initiatives related to the Fourth Industrial Revolution (4IR) in Arab countries. Based on global trends and regional context and knowledge, the report examines 10 4IR technologies in Arab countries. Levels of activities, research, development and applications related to those technologies indicate a degree of maturity for several promising sectors in the region. Moreover, research and development programmes in the region have recently received strong political attention to support startups and innovation. Various national focus areas are being nurtured and are growing organically, driven by local challenges and youth talent.

20.   The report highlights the concurrent threats arising from the promised productivity benefits of 4IR. In that regard, the impact on employment is evaluated from several perspectives, using available data from the region. The manufacturing industry, the sector most affected by 4IR technologies globally, is weak in Arab countries and represents on average around 10 per cent of GDP. Hence, the region may not be as negatively affected as industrialized countries. Most jobs in Arab countries are in the service sectors encompassing many activities, which are not fully automatable. Furthermore, typical 4IR technologies augment rather than replace human productivity when complemented with young, abundant and affordable local labour. Most working women in the region are in the high-skills category of the service industry and will be less affected than men by automation resulting from 4IR.

Big Data Readiness Assessment: National Guide
(E/ESCWA/CL4.SIT/2020/TP.11)

21.   The guide aims to assist organizations, especially public institutions, in assessing their national readiness to appropriately harness the advantages of big data and reduce the risks of data mismanagement, so as to serve society more effectively and protect human rights.

22.   The key messages of this report are the following:

(a)   Public sector organizations should consider starting small, with single-function big data applications aligned with their current systems. Once realized and digested, scale-up is possible;

(b)   Readiness and effective capabilities are enhanced by focusing on institutional processes with dedicated data science expertise and information technology governance;

(c)   Inadequate applications of big data before mature readiness can backfire and cause serious long-term operational and institutional damage.

Developing an Artificial Intelligence Strategy: National Guide
(E/ESCWA/CL4.SIT/2020/TP.8)

23.   Artificial intelligence (AI) has become popular after decades of trials. Broadly speaking, AI describes software that mimics human cognition or perception. AI is part of applications used in daily life, including Google (search algorithms), Siri and Alexa (virtual assistants), and chatbots. More substantial applications supporting the SDGs can be found in personalized health-care treatments, education curriculums, smart cities,

and judicial sentencing. AI is the amalgamation of several fields and resources, and the result of a virtual ecosystem sustained by Government, the private sector and non-governmental organizations.

24.   AI should not be seen independently from the robotic process automation of repetitive tasks, where human involvement can be eliminated. AI also cannot be considered independently from security, data protection, privacy, safety, and data destruction, in addition to neuroscience and cloud and quantum computing. The ethical dimension of AI and related guidelines for responsible coding are core to national strategies, which need to address requirements and focus on multiple pillars across sectors and disciplines. Legislation should be innovation friendly, with Government as the enabler of innovation ensuring availability of AI infrastructure for all. AI will eliminate jobs but not work. Hence countries must update school curriculums to include coding skills, and skills that cannot be replicated by machines such as critical thinking, cooperation and team building, and social and emotional skills. AI industry is too broad to standardize and related application sectors vary from one country to another, but are always based on national competitiveness and priorities.

2.   *Projects and applications*

Leveraging behavioural and humanitarian data sources to analyse the development challenges faced by Syrian refugees and host communities in Lebanon

25.   The project was implemented between October 2019 and October 2020, in collaboration with the Central Administration of Statistics of Lebanon, Data Pop Alliance, and the Qatar Computing Research Institute. Throughout the development of the project, a series of non-traditional data sources were chosen to explore and analyse their potential to provide new insights or confirm previously calculated estimates. The project sheds light on how different data sources independently and collectively yield useful information for analysing the conditions and characteristics of host communities and refugee populations. In this pilot project, different non-traditional data sources were harnessed to support indicators relevant to SDGs 1, 8, 10 and 16.

26.   The project explores the potential of call detail records, Facebook advertising data, the Global Database of Events Language and Tone (GDELT), and Twitter data for this country-specific analysis.

Leveraging big data sources for policy evaluation and analysis in crisis settings

27.   The project was implemented between September 2020 and January 2021, in collaboration with the Central Administration of Statistics of Lebanon, the Department of Statistics of Jordan and DPA. This project took place against the backdrop of multiple crises in Lebanon, including the COVID-19 pandemic, the Beirut port explosion, the ongoing economic and political crises, and the ongoing refugee crisis. Similarly, in Jordan, the COVID-19 pandemic is exacerbating existing vulnerabilities, especially among refugee populations, and is threatening the livelihoods of refugees and host communities. The project sought to achieve the following two main objectives:

- Evaluating the effectiveness of a number of government policies in both countries, adopted in response to the crisis, with an emphasis on using alternative sources of data in evaluation. This includes analysing the main priorities, features and key observable effects of government and other institutional responses to COVID-19 in Jordan and Lebanon, and highlighting how data has played an enabling or impeding factor;

- Developing a prototype platform for policymakers to help develop responses, and implementing and monitoring policies by leveraging new kinds of data and analytical approaches to ensure their effectiveness in tackling shocks and stressors, including the pandemic. This entails drawing and disseminating key lessons and recommendations from the project analysis and other sources, and developing a dedicated tool (the prototype) to build the capacity of policymakers and present incentives to access and use new kinds of data to develop better policies and programmes.

3. *Meetings and workshops*

Expert group meeting on artificial intelligence and industry

28.   This meeting was co-organized with the League of Arab States, AIDMO and the Tala Abu Ghazaleh Organization, and held in Beirut on 1 and 2 July 2019. Participants discussed AI and related applications in industry; the role of education in the Fourth Industrial Revolution; investments in AI and related technologies; and the Arab initiative for AI strategy. Fifty experts from 12 Arab countries participated in the meeting.

29.   Key messages included the need to develop and adopt national AI strategies, to establish a regional platform for AI readiness assessment and relevant policies, and to develop a template for national AI strategies.

C. Information society and internet governance

1. *Studies and reports*

Arab Digital Development Report 2019: Towards Empowering People and Ensuring Inclusiveness (E/ESCWA/TDD/2019/6)

30.   Linking ICTs to sustainable development, the publication addresses the theme of empowering people and ensuring inclusiveness of societies, leaving no one behind. It examines existing digital transformations and emerging technologies, and their central role in the future of digital development, with a special focus on the multidimensional synergies between digital technologies and various strategic and socioeconomic policy areas. Through a regional assessment, the publication evaluates digital progress and identifies gaps and policy options for enabling digital transformation towards sustainable development. It addresses growing digital technologies in the Arab region and potential development challenges, and proposes policy measures that could allow Governments and relevant stakeholders to overcome these challenges and benefit from ICTs and digital transformations.

31.   The publication is based on national digital development reports received from member States participating in the national review exercise, and expert contributions in various areas. It addresses the implications of digital technologies for various economic sectors and sustainable development. The thematic areas covered are in line with global trends addressing the links between digital technologies and sustainable development, particularly the themes of the High-level Political Forum on Sustainable Development. Consequently, this edition of the report provides a review of digital development in the Arab region, with a focus on empowering people and ensuring inclusive societies in line with the theme of the 2019 High-level Political Forum.

Proposed Arab digital agenda: A preliminary framework for an Arab ICT strategy (E/ESCWA/TDD/2019/TP.4)

32.   In June 220, ESCWA produced the "Proposed Arab digital agenda: A preliminary framework for an Arab ICT strategy" in Arabic, which is a technical paper proposing an integrated framework for action along several clusters at the technological, development, economic, social and governance levels. It highlights the importance of developing a pan-Arab agenda as a platform for more detailed digital strategies, inspired by the European Digital Agenda, the African ICT Strategy, and the Digital Agenda for Latin-America and the Caribbean, among others. It was submitted to relevant meetings of the League of Arab States Ministerial Council's mandated working group, and was endorsed by Arab countries to be a reference document to member States in their quest to develop an Arab ICT strategy for the region.

2. *Projects and applications*

Arab Digital Inclusion Platform

33.   In 2020, ESCWA launched the Arab Digital Inclusion Platform (ADIP) to support policymakers in developing and improving their national policies and guidelines for enhanced e-accessibility, so as to bridge the digital divide and enable all people to access and use ICT. ADIP supports the implementation of the Convention on the Rights of Persons with Disabilities, to which all ESCWA member States are signatories, and contributes to the implementation of the United Nations Disability Inclusion Strategy to strengthen system-wide accessibility and mainstreaming of the rights of persons with disabilities. ADIP is also closely linked to the Beirut Consensus on Technology for Sustainable development in the Arab region and the 2030 Agenda, by providing member States with quality guidance and specific support on technology and innovation for sustainable development, with a focus on including persons with disabilities and promoting social wellbeing of all. Under the ADIP framework, ESCWA developed two templates discussed at an online consultative meeting, namely the ESCWA template on national policy of e-accessibility for the Arab region; and the ESCWA template on technical guidelines of e-accessibility for the Arab region.[*] The ADIP project team is also developing a digital platform to assist Arab policymakers in using those templates. The platform prototype is expected to be ready in early 2021.

Index Simulators for Policymakers in the Arab Region

34.   Based on several requests to provide technical support to member States in enhancing performance in some international indicators related to technology and innovation, ESCWA developed a simulator of the main composite indicators in technology and innovation. These indicators are: the E-Government Development Index 2020, and the E-Participation Index 2020, the Network Readiness Index 2019, the Global Cybersecurity Index 2018, the ICT Development Index 2017, the Global Innovation Index 2020, and the Digital Accessibility Rights Evaluation Index 2020.

35.   The simulator allows policymakers to view the current assessment of their countries, and estimate the direct impact of national policies on the ranking and final value of the indicators they want to track. ESCWA held an expert meeting with representatives of Arab member States on 10 December 2020 to inform them about the project and to obtain their proposals on future steps that meet their needs. The prototype of this platform is expected to be launched in the first quarter of 2021.

3. *Meetings and workshops*

Support to the League of Arab States to develop the Arab Digital Agenda 2030

36.   ESCWA played a key role in the thirtieth and thirty-first meetings of the Working Group on Arab ICT Strategy by preparing and presenting the ESCWA Vision on Work Modalities (E/ESE/ESCWA/CL4.SIT/2020/TP.1) that was approved on 29 September 2020. The proposal provides a unique approach to work modalities to guide the development of a unified Arab digital agenda and Arab ICT strategy (ADAICTS), through a joint ESCWA-LAS project.

37.   ESCWA, in collaborations with the League of Arab States and several regional and international organizations, held the first regional workshop to develop the Arab ICT strategy (online, 21 December 2020). The meeting kicked off the collective work that will unite all 22 Arab countries and a plethora of United Nations and regional entities interested in developing ADAICTS over the next 10 years. The meeting also brought together regional and international experts to brainstorm the ADAICTS building blocks and next steps.

---

[*]   www.unescwa.org/events/online-consultation-accessibility-national-policy-guideline-templates.

**Regional consultative expert meeting on national digital development reviews –
review of the methodology and guiding template**

38.   Within the framework of the project on Advancing Digital Cooperation and Development - Arab States Action Programme (ADCD-ASAP), ESCWA organized an online regional expert meeting on national digital development reviews – review of the methodology and guiding template, held on 18 November 2020.

39.   The meeting brought together representative of 10 Arab countries (Iraq, Jordan, Kuwait, Mauritania, Oman, the State of Palestine, the Sudan, the Syrian Arab Republic, Tunisia and the United Arab Emirates) that had participated in the first round of national digital development reviews (NDDRs) for 2019.

40.   The meeting examined lessons learned and suggestions for an enhanced NDDR methodology, an updated process and advanced tools, a guiding template and a new manual, in preparation for the second round of NDDRs for 2021. The outcome of the meeting will serve to finalize the NDDR methodology, framework and manual, which was presented and adopted at an online regional meeting held on 15 and 16 December 2020.

**Regional experts meeting on the ESCWA digital development process:
Adoption of national digital development reviews**

41.   ESCWA organized a regional consultative experts meeting on the second edition of the ESCWA digital development agendas framework and processes manual (online, 15-16 December 2020), which built on the first regional expert meeting on national digital development reviews – review of the methodology and guiding template, held on 18 November 2020. The meeting brought together 10 countries that participated in the first round of NDDRs, as well as newcomers. It presented the first version of the manual for the next edition of the Arab digital development national and regional reports, which was discussed and endorsed by participating countries and organizations.

42.   The manual also included conceptual proposals for member States interested in partnering with ESCWA to pilot new complementary and supporting tools for the digital development process. These proposals include developing/piloting a digital development measurement model/maturity index to enrich NDDRs and ADAICTS by the end of the 2021 round onwards; and establishing a smart and interactive online regional digital development platform that represents a compendium, repository and observatory of NDDRs to augment the classical track of reviews by the end of the 2021 round onwards.

Fifth Arab Internet Governance Forum

43.   ESCWA and the League of Arab States, in collaboration with the National Telecom Regulatory Authority of Egypt (the secretariat of the Arab Internet Governance Forum), organized the Fifth Arab Internet Governance Forum on 22 and 23 January 2020. The event was hosted by the Arab Administrative Development Organization (ARADO) at its premises in Cairo, with support from the Internet Society and Rakmana.

44.   To strengthen dialogue and cooperation on Internet governance among all stakeholders in the Arab region, the Forum discussions covered regional priority topics and issues related to ICT, Internet policies and digital cooperation for sustainable development. The meeting was attended by 120 participants from 22 countries from the Arab region and beyond, in addition to a number of online participants representing all categories of stakeholders, including policymakers, experts and technologists from ministries of communication, regulatory agencies, information technology bodies, private sector companies, universities, research centres, civil society, international and regional organizations; and independent experts interested in the fields of Internet governance.

45.   The Forum's plenary sessions covered the themes identified and prepared by members of the Arab Multi-stakeholder Programme Advisory Committee (AMPAC), and resulted in key messages in the following fields: contributing to Internet global public policymaking: from Internet governance to digital cooperation; meaningful access for inclusion and diversity; digital transformation and digital economy; and cybersecurity, privacy, trust and peace. The event also included two parallel sessions on digital economy in the Arab world: possibilities and challenges; and on an effective response to emerging threats to cybersecurity.

Consultative meetings on the Arab Internet Governance Forum and digital cooperation in the Arab region

46.   As part of the World Summit on the Information Society Forum (WSIS) 2020, ESCWA organized the first multi-stakeholders consultative meeting on the theme "Towards a digital decade of action - through digital cooperation and development - in the Arab region" (online, 11 August 2020).

47.   The event illustrated the interlinkages between the WSIS action lines and the SDGs, and resulted in an initial consensus among Arab partners and stakeholders towards a unified approach in 2021 and beyond on consolidating existing information society tracks and well-established platforms and processes in the region, such as the Arab Internet Governance Forum (since 2010) and the Arab WSIS (since 2016), under the new concept of "Digital cooperation and development" to advance digital cooperation and digital development in the Arab region. It considered ways to create synergies among existing knowledge and expertise to inform the envisaged Arab ICT Strategy/Arab Digital Agenda.

48.   To continue Arab consultations on the envisaged roadmap for an improved Arab digital cooperation and digital development process, ESCWA, in cooperation with the League of Arab States, ARADO and other regional partners, organized the second multi-stakeholders consultative meeting on the Arab Internet Governance Forum and digital cooperation in the Arab region: towards consolidated platforms for a decade of action (online, 3 December 2020), which brought together the Arab Internet community and relevant United Nations regional entities to pursue consultations and consider the way forward better Internet governance that addresses issues of concern to the Arab citizens.

D.   Digital and open government

1.   *Studies and reports*

Report on Government Electronic and Mobile Service (GEMS) Maturity Index (E/ESCWA/TDD/2019/TP.3)

49.   In 2014, ESCWA, in collaboration with the Office of the Prime Minister of the United Arab Emirates, launched an initiative to develop an index that measures the maturity of electronic and mobile government services, called the GEMS Maturity Index. This indicator is an assessment tool that policymakers can use to measure the level of digital transformation in government services. The indicator includes the following three main pillars: the availability and development of services; service usage and user satisfaction; and the public's outreach to those services. ESCWA rolled out this indicator officially in 2019 in 12 Arab countries, namely Bahrain, Egypt, Iraq, Jordan, Mauritania, Oman, the State of Palestine, Saudi Arabia, the Sudan, the Syrian Arab Republic, Tunisia and the United Arab Emirates. In 2020, a full evaluation of the index was conducted for the second time, and the results are expected to be announced in the first quarter of 2021.

Capacity development material on open data
(E/ESCWA/TDD/2019/TP.1)

50.   Data created and copied are doubling in size every two years. Data are being referred to as the new oil, and an important driver of growth and change. Data flows have created new infrastructure, businesses, economics and models for the public sector, and also new monopolies. Governments collect large amounts of data through their services, which can be used in various ways to improve the social and economic aspects of people's lives. Moreover, openly publishing government data increases transparency in government operations, making it possible to better hold the government accountable for its actions, in line with SDG 16. To ensure sustainable access to government data, it is necessary to launch a well-planned initiative for open data at the national and institutional levels.

51.   Targeting public sector employees in Arab countries, the report offers practical guidelines on initiating and managing open government data programmes. It explains open data and its relationship to better governance and the SDGs. It also offers a phased approach to plan, implement and manage open data initiatives, and steps on data cataloguing, data quality, and evaluation initiatives. Furthermore, the report describes tools and platforms are described, and provides case studies on initiatives in some developed and developing countries.

Legal aspects of open government and open data
(E/ESCWA/CL4.SIT/2020/TP.2)

52.   Laws and regulations related to access to information and openness are important for implementing open government principles. Legislation on the promotion of open government and open data focus mainly on the principles of open government, namely participation, transparency and accountability, and open data. Consequently, such legislation covers several areas, such as access to information, protection of personal data, citizen participation and anti-corruption. In the context of open data, legal provisions are needed to allow the unrestricted reuse of open government data, and stipulate the issuance of a reuse license for each published data set.

53.   The report addresses laws that have a significant impact on aspects of open government principles, particularly transparency and the right to access open information and data. It provides two legislative frameworks, one on open data and one on citizen participation, and sheds light on legislation that impact accountability, such as laws related to integrity, anti-corruption and protection of whistle-blowers.

2. *Meetings and regional workshops*

Workshop on open government and emerging technologies in the Arab region

54.   Within the framework of the Development Account project entitled "Institutional Development for Better Service Delivery Towards the Achievement of Sustainable Development Goals in Western Asia", ESCWA organized a second capacity-building workshop on open government and emerging technologies, held in Beirut from 2 to 4 July 2019. The workshop aimed at building the capacity of government officials on open government to enhance accountability and develop participatory approaches in public institutions. The capacity-building material was based on an ESCWA four-phased framework on open government, open data, participation, collaboration and engagement to provide participants with knowledge, options, tools and actions to develop and implement open government initiatives in the Arab region, especially related to open data and participation. Government decision makers and officials working on enhancing the use of technology in the public sector to improve performance, effectiveness, transparency and accountability discussed issues related to the role of emerging technologies, legal and regulatory aspects of open government and open data initiatives, innovation as a driver of change, and international, regional and national experiences and case studies.

**Webinar on agile government responses to the COVID-19 pandemic in the Arab region:
what are we learning for a better future?**

55.   To consider good government responses to the COVID-19 pandemic in the Arab region and identify good lessons for the future, ESCWA collaborated with the United Nations Department of Economic and Social Affairs (UNDESA) and the joint European Union-OECD initiative SIGMA (Support for Improvement in Governance and Management) to hold a webinar on agile government responses to the COVID-19 pandemic in the Arab region: what are we learning for a better future? (online, 17 November 2020). Aimed at rethinking public services and leveraging innovation to improve their quality, the webinar formed part of the Government After Shock Global Forum initiated by the OECD Observatory for Public Sector Innovation. Over 100 participants actively engaged in the webinar, including international experts and speakers from Arab countries, namely Egypt, Iraq, Lebanon, Morocco, the State of Palestine, Tunisia and the United Arab Emirates.

56.   Webinar conversations asserted that the Arab region needs to accelerate digital transformation through using new technologies and providing innovative solutions for responding to the Covid19 pandemic. In this context, the status of digital transformation and development in the Arab region was overviewed with highlights to the emerging trends in government responses to the pandemic, including sharing up to date information, providing innovative services, interaction and collaboration with all stakeholders, formulating policies and strategies to speed up digital transformation, and using emerging technologies, especially Artificial Intelligence, Big Data and Robotics, in the provision of advanced services. Furthermore, conversations considered digital technologies and innovation as a must for expanding public services, and that trust in governments is a major factor in the Arab region where countries need to build resilient, open, transparent and accountable institutions to meet the public's expectations. For more information: https://www.unescwa.org/events/agile-government-responses-covid19.

II. Implementation of the recommendations of the Committee on Technology for Development

57.   The Committee on Technology for Development held its second session in Beirut on 20 and 21 March 2019, and made 10 recommendations to the ESCWA secretariat. Based on these recommendations, the secretariat implemented the activities referred to in the first section of the present document. The table below maps each recommendation with the section above that corresponds to it, adding some details where necessary.

Recommendations	Related implemented activities
1. Prepare a regional report on digital development to review progress in implementing the outcomes of the World Summit on the Information Society in the Arab region, and present analyses on the current state of the information society in the Arab region from a development perspective	Activities in section C of the present document.
2. Continue collaborating with the League of Arab States on the Arab Internet Governance Forum and its mechanisms in line with its development initiative, and on the periodic organization of the Arab High-level Forum on the World Summit on the Information Society and the 2030 Agenda for Sustainable Development, and consider new challenges raised by the Internet, such as privacy and access, when preparing for the two forums to develop regional positions thereon	Activities in section C of the present document.

Recommendations	Related implemented activities
3. Continue implementing the Beirut Consensus on Technology for Sustainable Development in the Arab Region	All activities in sections A, B and C of the present document.
4. Continue providing support for policy development and implementation in the field of technology and innovation, and promote them in all development sectors to meet society's needs, especially those of young people, women and marginalized groups, and focus on the role of technology and innovation in reconstruction and recovery efforts in Arab countries affected by conflict	All activities in sections A (1) and (2) and B (1) and (3) of the present document. A number of advisory services were provided, and a number of capacity-building workshops were held in member States on technology and innovation policies, as mentioned in the report on technical cooperation activities presented to the Committee under agenda item 5.
5. Provide support on issues related to new technologies so as to optimize their benefits and mitigate resulting harm, especially regarding labour market issues, while focusing on legal, regulatory and policy frameworks that promote creativity and innovation in member States' economies	Activities in sections A (1) and (3) and B (1) and (3) of the present document. Several advisory services were provided, and a number of capacity-building workshops were held in member States on new technology policies, as mentioned in the report on technical cooperation activities presented to the Committee under agenda item 5.
6. Launch the third phase of the GEMS Maturity Index in Arab countries, and participate in integrating the Index into the global system as a tool for evaluating the performance of e-government services	First activity in section D (1) of the present report. The new assessment of the Index was launched in 2020, and the results are expected to be published at the beginning of 2021.
7. Continue implementing projects related to open government, open data and big data, and employ them in development work	Activities: the second activity in section B (1), the second activity in section B (2), and all activities in section D (1) of the present report. An advisory service was provided on the national readiness assessment for big data, as shown in the report on technical cooperation activities presented to the Committee under agenda item 5.
8. Provide support in transferring and localizing green technologies, especially agricultural technologies aimed at improving food security in the Arab region	ESCWA Technology Centre provided support and advisory services on improving national capacity for adopting green technologies in Jordan, Lebanon and the State of Palestine. An online tool is being developed, the "Compendium of green technologies for sustainable agriculture in the Arab region", to facilitate technology transfer in sustainable agriculture and food security.

Recommendations	Related implemented activities
	In addition, in cooperation with the Food and Agriculture Organization of the United Nations, the International Centre for Agricultural Research in the Dry Areas, and the WANA Institute, several webinars and workshops were conducted to promote the use of appropriate agricultural technologies and drive the agritech transition in the Arab region.
9. Strengthen partnerships and coordination in the field of technology for development with specialized United Nations organizations, the League of Arab States and its affiliated bodies, especially with regard to developing a joint Arab vision on technology, digital economy and cybersecurity that the Arab Information and Communication Technology Organization is undertaking, and to implementing the Arab Strategy for Scientific and Technical Research and Innovation	ESCWA contributed to the organization of several events with the League of Arab States and with Arab regional organizations such as ALECSO, AIDMO and AICTO. ESCWA also collaborated with several United Nations entities such as UNDESA, ITU, UNESCO, UNCTAD. Moreover, ESCWA contributed to the UNDESA e-Government survey 2020, and provided contributions to UNCTAD on the follow-up of WSIS and Internet governance, and collaborated with UNCTAD on an e-commerce report, among others. In cooperation with UNDESA, an advisory service on the E-Government Development Index and digital transformation was jointly delivered, as mentioned in the report on technical cooperation activities presented to the Committee under agenda item 5.
10. Propose projects to support investments in technology and innovation, especially through an investment fund for technology and digital economy established at the fourth Arab Economic and Social Development Summit, held in Beirut on 20 January 2019; and work with member States and stakeholders to benefit from existing facilitations	ESCWA explored supporting the fund by highlighting some of the issues it can tackle, including the following: • Developing inclusive development criteria with stakeholders and instilling them to impact operational values of technology startups; • Promoting corporate civil responsibility and sustainable development values; • Ensuring efficient coordination, reporting, auditing and quality assurance for technology startups; • Enhancing operational technology mentorship with national technology transfer offices, the private sector and relevant United Nations entities.

Recommendations	Related implemented activities
	These issues were covered in a round-table discussion on "Enhancing small and medium enterprises' (SMEs) access to finance in Arab countries", held on 29 August 2019 to explore options for developing the fund's strategy and ways for collaborating with financial organizations, including banks, venture capital funds and incubators, on supporting SME financing. The focus was on the following: • Providing liquidity to financial intermediaries to be channelled to SMEs; • Financing the 'missing middle' SMEs, unable to access bank credit and too large for microfinance lending; • The need for credit guarantees; • The need for quasi equity, mezzanine debt or other financial products; • Islamic banking products for financing SMEs; • Other means for facilitating SME financing. These issues were taken up with the Arab Fund for Economic and Social Development in Kuwait, one of the entities entrusted with operationalizing the fund, and other stakeholders. ESCWA, in collaboration with ICC, established the ICC-ESCWA Centre of Entrepreneurship (CoE) to prepare the next generation of entrepreneurs in the Arab region by developing the skills of young people who face uncertain employment prospects, and by mobilizing them to help catalyse local entrepreneurship and future jobs. CoE facilitated several interactive community workshops that built the capacity of tens of SME leaders in the Arab region to digitize their business by providing tools and advice, including on accessing new customers and funding sources.