# Knowledge Society
## ESCWA activities in 2015

UNITED NATIONS

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ESCWA

# Contents

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# About the Newsletter

The aim of the newsletter on the knowledge society is to update readers on the main activities of the Technology for Development Division (TDD) of the United Nations Economic and Social Commission for Western Asia (ESCWA). In its second issue, the newsletter provides briefings on the activities of TDD for 2015, under its thematic clusters of work, covering the three TDD entities, namely the Information and Communications Technology (ICT) Policies Section, the Innovation Section and the ESCWA Technology Centre (ETC). It also presents the regional advisory services on ICT policies.

# Science, Technology and Innovation for Development

## Science, technology and innovation policy

### Fourth ESCWA Technology Centre Board of Governors Meeting - May 2015

The fourth meeting of the Board of Governors of the ESCWA Technology Centre (ETC) was held on 19 May, at the Royal Scientific Society in Amman. It was chaired by HRH Princess Sumaya bint El Hassan, President of the Board and of the Royal Scientific Society of Jordan.

In their discussions, members of the newly appointed Board, representing 16 Arab countries, emphasized the importance of cooperation in the areas of science, technology and innovation (STI) to achieve socioeconomic development, namely in the area of food, energy and water security. The need for a regional database and a clear road map for research and development policies was also discussed. The Centre's progress over the past three years was reviewed, in addition to the work plan for 2015-2016.

## ESCWA Science, Technology and Innovation Consultative Committee Meeting - May 2015

The ESCWA Science, Technology and Innovation Consultative Committee (ESTIC) was established as per resolution 225 (XXI) of 11 May 2001. The Committee holds its meetings biennially to support member States in the development of advanced technology; suggest appropriate methods to promote regional cooperation for technology transfer; and provide advice on priorities in the development of STI capabilities.

The seventh ESTIC meeting was held in Amman, on 20 May, following the ESCWA Technology Centre Board of Governors meeting. The purpose was to discuss the work of the Technology for Development Division (TDD) and present its new structure, especially after its name and mandate had been changed. The implemented and planned activities of the Innovation Section and ICT Policies Section of TDD were reviewed. The meeting also included discussions on the role of technology in achieving the SDGs and the impact of research, development and innovation on employment and youth.

The ESTIC meeting was attended by experts in the fields of STI, and ICTs, representing academic institutions, research centres, government


Photo credit: ETC-ESCWA

Members of the ETC Board of Governors Meeting


Photo credit: ETC-ESCWA

Session during the ESTIC Meeting

organizations and ministries. An opening statement was given by the Deputy Executive Secretary of ESCWA, who underlined the role of technology in achieving the Sustainable Development Goals (SDGs) and their importance for Arab countries.

The main meeting recommendations, addressed to the ESCWA secretariat and to member States, were to focus on innovation policy in the Arab region and include innovation in national development policies; to enhance the ecosystem of innovation in the Arab region, with a focus on the intellectual property system; to support the development of the information and communications technology (ICT) infrastructure and advance e-services; to focus on technology projects related to the environment and other development areas; and to direct projects and initiatives towards advanced technologies, such as biotechnology and robotics, and encourage the inclusion of technology in the agriculture sector.

## Innovation, Technology and the Knowledge-based Economy in the Arab Region - June 2015

How can innovation and technology aid in advancing the knowledge-based economy (KBE) in the Arab region? On 3 and 4 June, 52 experts gathered in Amman to discuss this issue. Representing ministries, science and technology authorities, national research centres, universities and the private sector of 13 ESCWA member States, as well as regional and international organizations such as the United Nations Conference on Trade and Development (UNCTAD), the Arab Regional Office of the International Telecommunications Union (ITU-ARO), the World Bank, the United Nations University (UNU), the United Nations Development Programme (UNDP) and the Islamic Educational, Scientific and Cultural Organization (ISESCO), they discussed the needs and priorities of the Arab region and the ways in which innovation and technology could be harnessed to achieve the transition to KBE.

This expert group meeting was organized by TDD in collaboration with UNCTAD. Seven sessions focussed each on a specific aspect of innovation, technology and KBE. The results of two ESCWA studies, "Role of Innovation and Technology in Building a Knowledge-based Economy in the Arab Region" and "Incentives for Arab Countries: Private Sector Engagement in Research and Development", were also presented.

The meeting resulted in recommendations on priority areas for future work and possibilities for knowledge-sharing and transfer among countries. Experts also stressed the need to clearly identify the innovation system and ecosystem, and to analyse their status in the Arab region and in individual countries.



Photo credit: Lize Denner/ESCWA

Speakers during the EGM in Jordan on 3 and 4 June 2015

## Legislative Directives to Enhance Private Sector Engagement in Research and Development Activities

In today's highly globalized and knowledge-based economy, the need to build strong innovation capacities has been recognized by Arab Governments. Although in recent decades considerable efforts have been exerted in that regard, innovation systems in most Arab countries remain relatively weak, and technology applications are not adequately exploited for commercial activities. A lack of private sector investment and the absence of a regulatory framework for collaboration between the private sector and relevant stakeholders contribute to this weakness. A recent study titled "Legislative Directives to Enhance Private Sector Engagement in Research and Development Activities" was produced by ETC to discuss this issue. It highlighted the importance of developing legislative tools that encourage the engagement of the private sector to support research and development activities in the innovation process. The study also confirmed the need to enhance collaboration between the private sector, academia and the public sector.

The study concluded with a set of recommendations focusing on partnership building between decision makers and opinion leaders, to set the foundations for a safe and sustainable environment that attracts investments.

## Capacity-building Workshop on Innovation in the Public Sector - November 2015

ESCWA organized a workshop on "Innovation in the Public Sector" on the sidelines of the 2015 ICT4All Forum in Hammamet, Tunisia. The workshop highlighted innovation as a means to enhance the quality of public sector services and better respond to the changing needs of citizens, in the context of a transition to a knowledge-based economy.

This workshop aimed at raising awareness of the opportunities and challenges that arise when innovative approaches are applied in the public sector, and their expected benefits. It constituted a platform for the exchange of knowledge and good practices on innovation in the public sector and the promotion of inter-institutional networking and dialogue.



Photo credit: Nibal Idlebi-ESCWA

Some of the participants at the workshop in Tunisia on 17 November 2015



Photo credit: Nibal Idlebi-ESCWA

Session during the workshop in Tunisia

An ESCWA study titled "Integration of Service Delivery in the Arab Region: Role of Standards and Interoperability" was presented. It provides an overview of the status of service integration in the region and proposes a strategic framework and guidelines for achieving better integration of government services. The workshop also included a presentation by the International Telecommunications Union on global efforts for fostering innovation, and two presentations by Tunisian experts on open government and success stories of innovation in the public sector in Tunisia.

## Regional Forum on Science & Technology Diplomacy - December 2015

The Regional Forum on Science and Technology took place in Amman on 1 and 2 December, under the patronage of HRH Princess Sumaya bint El Hassan, President of the Royal Scientific Society. The overall objective of the event was to bring together diplomats, policymakers and scientists to discuss the contribution of science and technology in addressing the socioeconomic challenges faced by the Arab region. The role of potential "science diplomats" was also discussed.

# Innovation development and management

## Expert Group Meeting on Developing an Innovation Scoreboard for the MENA Region - March 2015

While all countries in the Middle East and North Africa (MENA) region recognize the importance of innovation on the road to the knowledge economy, an articulated understanding of national innovation systems is still lacking, and little data are available on countries' capacities and performances in innovation. The European


Photo credit: ETC-ESCWA

Session of the EGM in Amman on 19 and 20 March 2015

Investment Bank, as a lead in the Centre for Mediterranean Integration Innovation Capacity Programme, ETC, the Arab League Educational, Cultural and Scientific Organization (ALECSO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and ISESCO co-organized an expert group meeting in a joint effort to assist Arab countries in the development of a regional innovation scoreboard and strengthen the innovation ecosystem in the region.

This meeting, which was held on 19 and 20 March at the Royal Scientific Society in Amman, built upon a workshop with regional experts held on 19 and 20 November 2014 at the League of Arab States. The experts had proposed 61 indicators to measure innovation in the region, based on international indexes such as the Global Innovation Index (GII) and the European Union Innovation Scoreboard. This second meeting gathered national coordinators from Egypt, Jordan, Morocco, Palestine, the Sudan, Tunisia, Qatar and Yemen, in addition to experts from international organizations such as ALECSO, the Islamic World Academy of Sciences and the UNESCO Regional Office in Cairo. Participants reviewed and categorized the 61 indicators and selected a final set of 25 indicators, which will effectively assess several dimensions of the innovation capacity in the participating countries.

## Regional Workshop on Science and Technology Parks in the MENA Region - March 2015



Photo credit: ETC-ESCWA

Participants in the workshop on STI Parks in Tunisia

In a collective effort to promote science and technology parks in the MENA region, EIB, ETC and ISESCO organized a workshop on Key Performance Indicators for Science and Technology Parks on 25 and 26 March in Tunis, in cooperation with Elgazala Technopark. The aim was to develop key performance indicators (KPIs) that are suitable to audit, measure and evaluate the activities of science and technology parks in the region.

Science and technology parks are different in terms of objectives, structures and business models. Therefore, it is necessary that each park, representing a local initiative to answer local challenges, be evaluated against its declared objectives and desired outcomes. The meeting proposed a basket of useful standardized KPIs that each park can customize to its own context and needs.

## Project on Establishing National Technology Transfer Systems in the ESCWA Region - July 2015

Technology transfer has been identified as an essential key to prosperity in many parts of the world. By the late 1980s, many developed countries had already implemented a consistent technology transfer model that answered their needs and proved to be of great value to their economic and social growth. However, Arab countries, as other developing countries, still face an array of challenges in that domain. The experience of technology transfer in the region lacks sustainability and modernity.
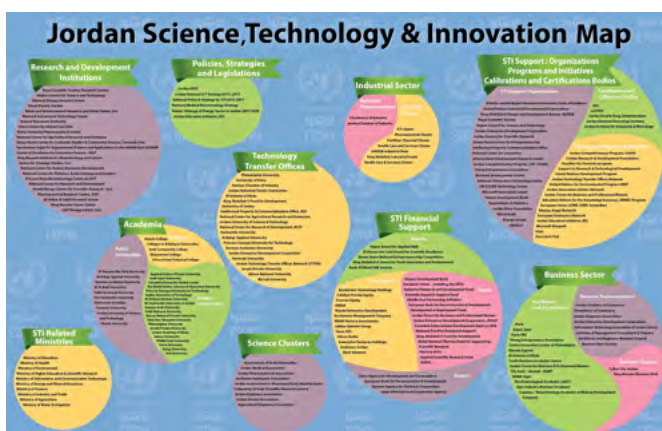
In an effort to help remedy this situation, ETC has launched a project on establishing national technology development and transfer systems in Arab countries. The project aims to enhance and promote the capacity of national innovation systems by updating the related policies and establishing national technology offices. These offices will be linked to universities and research institutions, facilitating the partnership between the research community and economic sectors on the one hand, and between the industry and relevant governmental and non-government actors on the other hand. This two-year project, launched in collaboration with the Academy of Scientific Research and Technology in Egypt, the National Council for Scientific Research in Lebanon, the Research Council in Oman, the National Centre for Scientific and Technical Research in Morocco and the National Agency for the Promotion of Scientific Research in Tunisia, will conclude in July 2017.



Photo credit: ETC-ESCWA

Launch of the National Technology Transfer Systems project

## Jordan STI Map - September 2015

In view of the need for mapping the existing STI capacity in Arab countries, ETC devised an STI map for Jordan, available from *http://etc-un.org/PFiles/Jordan%20STI%20Map.png*. The aim of the exercise is to identify areas of interdependence and overlap between various sectors to strengthen and develop the national innovation system.



Science, Technology and Innovation Map of Jordan

# Information and the Knowledge Society

## Internet governance

### Open consultations, and AMAG and EBJC meetings - June 2015

The open consultations that preceded the eighth Arab Multi-stakeholder Advisory Group (AMAG) and Arab IGF Executive Bureau of Joint Coordination (EBJC) meetings were held in Cairo from 14 to 17 June, in collaboration between ESCWA and the League of Arab States as the umbrella organizations of the Arab Internet Governance Forum (IGF) process, and the Egyptian National Telecom Regulatory Authority as the Arab IGF secretariat.

The consultations started with an overview of the existing Internet governance processes at the global level and an update on progress made to enhance the participation of the Arab region to the global WSIS+10 process. In this context, reference was made to the open call for contributions on the theme of "Policy Options for Connecting the Next Billion", which is the subject of the intersessional work within the global IGF process for 2015.

> **2015 Arab IGF Activities**
>
> 1. Arab IGF capacity-building - open consultations (Cairo, 14 June)
> 2. Eighth meeting of AMAG (Arab IGF Multi-stakeholder Advisory Group) (Cairo, 15-16 June)
> 3. Meeting of the Arab IGF EBJC (Executive Bureau of Joint Coordination) (Cairo, 17 June)
> 4. Virtual AMAG follow-up meeting (WebEx, 11 November)
> 5. Ninth meeting of AMAG (Beirut, 9-11 September)
> 6. Fourth annual meeting of the Arab IGF (Beirut, 17-18 December) and the capacity-building pre-event (Beirut, 16 December)

The open consultations engaged various stakeholders in the identification of the themes and subthemes of the Fourth Annual Meeting of the Arab IGF (AIGF-IV) and its activities. The adopted theme was "Internet Economy for Sustainable Development".

### Ninth AMAG meeting - September 2015

The ninth AMAG meeting, held in Beirut from 9 to 11 September, was hosted by OGERO, the Lebanese telecom operator, and held in collaboration between the Arab IGF main partners. The meeting resulted in an announcement of the date and venue of AIGF-IV (Beirut, 17-18 December). A capacity-building pre-event on Internet governance issues was also scheduled for 16 December.

Discussion during the 9th AMAG Meeting in Beirut, September 2015

The draft programme for AIGF-IV was prepared, based on the experiences and lessons learned from the previous annual meeting, and the various AMAG working groups were briefed on progress made in the preparation for the forum. Two new working groups were formed to work prepare the AIGF-IV catalogue and the preceding capacity-building workshop.

## Fourth Annual Meeting of the Arab IGF and capacity-building pre-event -
### 17-18 December 2015

The Fourth Annual Meeting of the Arab IGF was held in Beirut under the theme "Internet Economy for Sustainable Development". It addressed the



following issues: Internet-related international public policies; cybersecurity environment and trust; access and infrastructure; and the human and social dimensions of the Internet. The event brought together a large number of participants, including government representatives, policymakers, decision makers and experts from the business sector, civil society, the technical community, academia and intergovernmental organizations.

The meeting was preceded by a capacity-building workshop on governance issues that addressed the following themes: Internet-related international public policies; cybersecurity environment and trust; access and infrastructure; and human and social dimensions of the Internet.

# Digital Arabic content

## Third Annual Digital Arabic Content Forum - October 2015

For the third year in a row, the Annual Digital Arabic Content Forum was jointly organized by ESCWA, the Arab Regional Office of the International Telecommunication Union (ITU-ARO) and the Ministry of Communications and Information Technology of Egypt, under the auspices of the League of Arab States. The host and co-organizer for 2015 was the Telecommunications Regulatory Authority of the United Arab Emirates. The forum was held in Dubai, on 19 and 20 October, under the theme "Arab Content in the Era of Major Digital Transformations". A dedicated website was developed and is available from http://arabiccontentforum.org.

The main objective of the event was to promote digital Arabic content (DAC) and explore prospects for its development in the context of modern technology solutions and digital transformations. Four main sessions addressed the following topics: the status and aspirations of the DAC industry and its

Photo credit: TRA-UAE

Panel members during the DAC Forum in the United Arab Emirates

management; Arabic content in the age of modern technological developments; research, development and innovation (RDI) as modern pillars for developing DAC; and opportunities and challenges of journalism content between traditional and digital environments. An ESCWA study titled "Improving the Quality of Digital Arabic Content" was also launched, and a detailed presentation of the forum's organizational framework was made by the technical secretariat of the League of Arab States.

The forum gathered experts from government authorities, regional and international organizations, universities and the private sector. It concluded with a set of recommendations on the role of national entities, capacity-building and education, RDI, coordination and knowledge exchange in the development of DAC, and on organizational aspects of the forum itself. The recommendations included the following: (a) to coordinate various dispersed efforts and activities taking place in Arab countries and develop a road map for DAC and its industry; (b) to develop national strategies for DAC and complement these strategies with implementation plans; (c) to organize awards and competitions for innovative DAC endeavours; (d) to stimulate collaboration in research activities for natural Arabic language processing; (e) to raise awareness on the importance of citizen journalism and the need for capacity-building programmes in that regard; and

(f) to strengthen the link between academic research activities for developing DAC on the one hand and market needs and industrial production on the other hand.

The forum was convened as per a resolution adopted by the Arab Telecommunications and Information Council of Ministers (ATICM) at its sixteenth session (Ouahran, Algeria, June 2012). During its eighteenth session (Cairo, December 2014), ATICM also recommended that Arab Governments and administrations increase their participation in DAC forums and that coordination with the Council of Arab Ministers of Information be improved, in order to support the development of DAC.

## Study on Improving the Quality of Digital Arabic Content - September 2015

Statistics indicate that DAC is still at an estimated 2-3 per cent of the growing size of the Internet, while speakers of the Arabic language constitute 5 per cent of the world population. There are also questions on the quality of the already available content.

In this context, ESCWA undertook a study titled "Improving the Quality of Digital Arabic Content", which specifies the necessary quality standards to improve DAC. The study builds on international standards while taking into consideration the specificities of the Arabic language. It covers general principles for developing websites, as well as technological standards, graphic production standards and ethical standards. The study reviews the indicators available for measuring the success of websites and

how they may be combined according to the type of content presented.

A special section is dedicated to the evolution of the web from the early days of Web 1.0 to Web 2.0, which is interactive and dynamic in nature, to Web 3.0, i.e. the semantic web. The Arabic language poses specific challenges, being written from right-to-left, using diacritics and having letters with changing shapes. The weak development of natural language processing tools for Arabic and the underdeveloped Arabic ontological library remain to be addressed.

The study was officially launched during the Third Annual Digital Arabic Content Forum (Dubai, 19-20 October) and is available online from:

*https://www.unescwa.org/sites/www.unescwa.org/ files/page_attachments/arabic_digital_content.pdf*

## Building trust in cyberspace

### E-commerce and the fight against cybercrimes - August 2015

The Second International E-Commerce Conference on Combating Cybercrimes was held in Salalah, Oman, on 25 and 26 August. The Oman Chamber of Commerce and Industry Salalah branch and


Photo credit: Nibal [illegible] ESCWA

Some participants during the conference on cybercrime

the Middle East Centre for Social Studies and Consultancies in Dhofar co-organized the two-day conference in collaboration with the Sultan Qaboos University, ESCWA, the Information Technology Authority and the Oman National Computer Emergency Readiness Team.

Representatives of Governments, non-governmental and private sector organizations, and experts on cybercrime and e-evidence took part in the conference and discussed the following topics: concepts and challenges in fighting cybercrime; the new trends of cyberattacks and cyberthreats, securing e-transactions and IT infrastructure; international efforts in fighting cybercrime; and cyberlegislations.

An ESCWA study titled "Policy Recommendations on Cybersafety and Combating Cybercrime in the Arab Region" was presented during the conference. The ESCWA representative also made a presentation on the impact of cybercrimes on the growth of e-commerce, in which the importance of e-commerce, the types of cybercrimes and the technical standards and solutions were tackled.

Conference participants made recommendations at the closing session, which included reviewing and revising cybercrime law and updating it in cooperation with the United Nations; harmonizing legal terms related to cybercrime; enhancing awareness and building capacity in the Arab region as an efficient means to fight cybercrime and improve e-commerce; and encouraging innovation to improve e-commerce and limit the impact of cybercrimes.

### Policy recommendations to enhance cybersafety in the Arab region - April 2015

The openness of the Internet and cyberspace in general has made it susceptible to abuse and left users vulnerable to attacks by criminals and hackers.

The growing Internet-connected populations of the Arab region are exposed, which underscores the need for concerted efforts at all levels to ensure cybersafety and limit electronic threats.

This study focuses on procedural aspects of cybercrime, providing an analytical overview of the current situation at the regional and international levels and identifying the specific challenges of the Arab region. It also proposes a guiding policy framework to enhance cybersecurity and build confidence in ICTs and cyberspace, and the establishment of law-enforcement bodies and cybercrime investigation offices. The framework also focuses on the importance of awareness-raising, education and specialized training; public-private partnerships to support cybersecurity; and regional and international cooperation, given the cross-border nature of cybercrime. The study also includes a model law on the procedural aspects of cybercrime and digital evidence, which Arab States can adapt when enacting procedural laws.

The complete study is available online in Arabic from:

http://www.escwa.un.org/information/publications/edit/upload/E_ESCWA_TDD_15_1_A.pdf; and an English summary is available from:

http://www.escwa.un.org/information/publications/edit/upload/E_ESCWA_TDD_15_1_SUMMARY_E.pdf.

# ICT Academy for Government Leaders

In February 2013, TDD started implementing the project on Academy of ICT Essentials for Government Leaders in the ESCWA Region (AIGLE), a three-year endeavour funded by the United Nations Development Account for capacity development. AIGLE aims at building the capabilities of government officials and leaders in Arab countries in the areas of ICT for development through both traditional and online training systems. It provides policymakers, trainers and project leaders in the public sector with the basic knowledge and skills needed to take advantage of the opportunities offered by ICTs to achieve national development objectives and bridge the digital and knowledge divides. It also seeks to enhance the capacities of national partners and pave the way for national training programmes in the area of ICT for development.

The Academy of ICT Essentials builds on the achievements and lessons learned from a similar academy project launched in 2008 in South Korea by the Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT), within the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).

## Needs assessment and priority topics

From the start, a number of institutions were identified by the AIGLE project management as potential partners for the various phases of implementation. The first activity conducted was a study to assess the needs of Arab Governments in the area of ICT for development. A regional survey was designed and undertaken in collaboration with the identified potential partners in order to determine the priority topics to be developed in the training modules.

## Four training modules

Four core training modules were produced in Arabic in 2015; they form the essential knowledge and skills base to leverage ICT for national and regional socioeconomic development. The titles of these modules are:

1. Linkages between ICT and development.
2. ICT for development policies: main elements and tools for management.
3. E-government policies, strategies and applications.
4. Internet governance.



### Summary of AIGLE Modules

Module 1:  Linkages between ICT and development

The module invites readers to explore the various dimensions of the linkages between ICT and development through case studies of ICT applications in key sectors of development in Arab countries.

It highlights key issues and decision-making points related to the use of ICT to meet development needs, starting from policy formulation to implementation. The aim is to foster a better understanding of the best means and methods for using ICT for development, and to equip policymakers and programme managers with development-oriented frameworks and approaches that are either ICT-based or ICT-supported in a range of economic and social sectors.

Module 2:  ICT for development policies: main elements and tools for management

The module discusses issues related to the development and implementation of ICT for development policies, and the obstacles that might face countries as well as the practical methods to address them. It overviews the means for measuring progress in ICT for development policies and undertaking cross-country comparisons.

Module 3:  E-Government: policies, strategies and applications

This module provides an overview of e-government, including key concepts and theoretical aspects of e-government and e-governance and the means for building the related strategies. It also shows how to link between theory and practice through a number of case studies selected to cover a wide range of experiences.

Module 4:  Internet governance

This module provides readers with the main features of Internet governance and the history of the Internet and its technical development. It also describes regional efforts in this context, and the activities of the League of Arab States and the Arab Working Group on Domain Names and Internet Issues. It overviews the Arab Regional Roadmap for Internet Governance, launched by ESCWA in partnership with the League, which was followed by the launch of the Arab Internet Governance Forum (Arab IGF).

More information on the project is available from *http://www.escwa.un.org/sites/aigle/index.asp.*

## Two regional training-of-trainers workshops



Photo credit: ESCWA

Participants of the first Training of Trainers Workshop in June 2015

In 2015, the AIGLE team convened two regional training-of-trainers workshops, which were held in Beirut, from 8 to 12 June and from 24 to 27 August. These workshops were attended by some 105 participants, including 88 trainers, experts and national coordinators from the participating 14 Arab countries (Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Palestine, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia and United Arab Emirates). There was also high-level remote participation from the APCICT Academy in South Korea. Participants in these training workshops

emphasized the importance of the AIGLE project for the Arab region and its ICT leaders. The need for a periodic update of the modules with case studies and experiences from the Arab region was underlined.

## Ten national training plans

Ten national training programmes on the four modules were also planned for the period 2015-2016, targeting more than 6,000 employees of the public sector, leaders and decision makers in Egypt, Iraq, Jordan, Morocco, Oman, Palestine, the Sudan, the Syrian Arab Republic, Tunisia and the United Arab Emirates. These national trainings have started in a number of countries, and several academic institutions have included the modules in their curriculum in coordination with ESCWA.
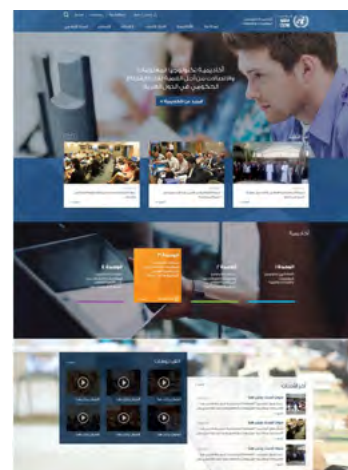
## The AIGLE online platform

An online platform was built to disseminate training materials online in several forms: module files, training sessions, presentations and videos of training workshops. The virtual platform will enable all participants to register, discuss and exchange experiences and opinions. A database of case studies from the participating Arab countries will also be developed.



Photo credit: George Younes-ESCWA

Participants of the second Training of Trainers Workshop in August 2015

## AIGLE sustainability - December 2015

To ensure the sustainability of the AIGLE project and enhance its capacity-building impact in the Arab region, ESCWA has formed collaborative partnerships with stakeholders concerned with training programmes from the public administrations and governmental and academic bodies in the participating Arab countries. Nine advisory service missions were undertaken in that context in 2015, targeting Egypt, Morocco, Oman, the Sudan and the Syrian Arab Republic.

A regional workshop on Assessment of Achievements and Future Perspectives for the Sustainability of the ICT Academy for the Arab Region was also held in Beirut, on 21 and 22 December. This meeting presented the project components and main achievements, discussed progress made in the national training plans and the future prospects of the Academy.
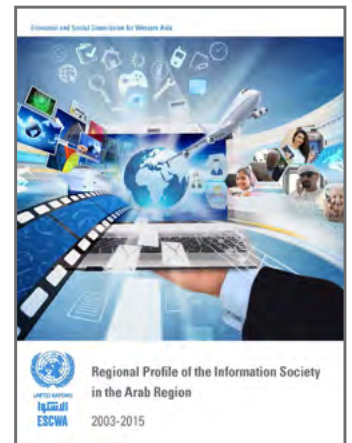
# Follow-up on the World Summit on the Information Society

## Regional Profile of the Information Society in the Arab Region, 2003-2015 - December 2015

Building the information society holds significant potential for achieving sustainable development within the framework of internationally agreed development goals. In fact, the year 2015 witnessed a historic event as the new Sustainable Development Goals (SDGs) were adopted. The previous year was also a milestone for the World Summit on the Information Society, during which the ten-year review process (WSIS+10) took place. In its seventh edition, the 2015 Regional Profile of the Information Society in the Arab Region covers the progress made by Arab countries in building their information societies since the launch of WSIS in 2003. It evaluates specific components of the information society and the development of ICTs through the study of

nine WSIS action lines of highest relevance to the region, namely the role of Governments and stakeholders, ICT infrastructure, access to ICTs, capacity-building, building confidence and security, enabling environment, cultural and linguistic diversity, ICT applications and e-services, and the ICT sector. Each chapter is substantiated by case studies, success stories and best practices from the region; it identifies strengths and weaknesses and provides recommendations for advancing the information society. The roles of ESCWA and other regional organizations, such as the International Telecommunication Union and the League of Arab States, are also highlighted.



Regional Profile of the Information Society in the Arab Region
2003-2015

The report provides an analysis of the region's progress in the ICT field in comparison with other regions. It notes impressive improvements in the Arab countries on some fronts, such as the increase in mobile phone penetration rates from less than 25 per cent in 2005 to over 108 per cent in 2015. The regional Internet penetration rate also increased from around 10 per cent in 2005 to 37 per cent in 2015. Nonetheless, broadband penetration rate is still at 3.7 per cent which is less than the world average of 10.8 per cent. It underlines that security and trust in cyberspace, limited development and use of e-services including e-government, human capital and some deficiencies in the ICT sector in the Arab region remain to be addressed. The last chapter of the publication highlights priorities for the region beyond 2015.

# Peaceful uses of outer space

## Space and satellite technologies for development in the Arab region

Space and satellite technologies (SSTs) play an important role in a variety of applications and

various sectors of the economy. They provide widespread and affordable broadband access to remote locations, opening the door to new opportunities in various areas such as education, health care, environment and the empowerment of women. Other SST applications include cartography; satellite imagery; remote sensing; food, water and energy security; sustainable agricultural activities; fishing; ocean monitoring; combating desertification; monitoring of arable land; urban environmental planning; disaster prevention; or the production of food in outer space to help with the sustainability of human life on earth.

In view of this strong connection between SSTs and development, a long-term vision and a clear strategy are necessary to maximize the benefits that the Arab region can derive from space technology and its applications. TDD is thus seeking to determine the needs, opportunities and priorities of the Arab region with regard to the various applications of the peaceful uses of outer space. Two studies on space and satellite technologies for development in the Arab region were produced in 2015.

The main aims of the first study were to identify the various SST applications that are currently in use in the Arab region, and profile and classify public administration institutions, national and regional organizations, private sector entities and higher learning institutions that work in the various applications of the peaceful use of outer space technologies.

The main aims of the second study were the following:
1. To survey and report on the effectiveness of the various SST applications that are in use or on offer by the private sector and establish if they are locally produced or imported;
2. To identify linkages between SSTs and knowledge-based economies and propose guidelines on how a government can employ these technologies to improve its national economy;

3. To formulate guidelines that will help policymakers create policies and strategies for the management and governance of the peaceful uses of outer space, create national, all-encompassing SST policies and strategies that will encourage relevant local SST research, and promote enabling environments - be they legal, legislative or regulatory - for the fast development of a healthy SST sector;
4. To determine the weaknesses in the academic sector that hinder the development of a local SST sector, suggest remedial steps and propose guidelines that will help academic institutions establish research facilities and programmes that are aimed at encouraging local researchers develop SSTs;
5. To propose guidelines that will help the private sector become a producer and exporter of ideas and applications that are related to the peaceful uses of outer space.

# Technology and the Sustainable Development Goals

## Second Session of AFSD: Technology for Sustainable Development - May 2015

Under the patronage of HRH Prince Khalifa bin Salman Al Khalifa, Prime Minister of Bahrain, ESCWA and the United Nations Environment Programme (UNEP), in cooperation with the League of Arab States, convened the Second Session of the Arab High-level Forum on Sustainable Development (AFSD) from 5 to 7 May in Manama. During the Forum, TDD specifically organized session 4B on "Means of implementation: Technology for sustainable development in the Arab region".

The purpose of this session was to discuss the role that technology can play as a means to achieve sustainable development in the Arab region. Three presentations were delivered, followed by an open discussion. The issue of mainstreaming technology in sustainable development in the context of the SDGs was discussed, namely promoting the role of research, development and innovation, and the transfer of technology to improve productivity, increase economic diversity and create new job opportunities; using technology as a means of implementation for the SDGs; and advancing access to green technologies. The role of technology in the development of the Arab region was also tackled, namely the persistence of the digital divide as a root cause for inequalities between countries in the region. Finally, the need for investments in technology in order to better achieve the SDGs was underlined. Such investments, together with an enabling environment and national innovation systems that focus on policy, science and enterprise, are essential to deliver technologies with a greater impact on larger populations.

The open discussion at the end of the session concluded that an Arab STI strategy was still needed, along with greater human capacity and increased investments in research and development; that partnerships between

Some attendees at the AFSD

universities and the private sector should be strengthened in order to provide an enabling environment that creates opportunities for the region's students, so that it becomes a developer rather than a consumer of technology. New education systems are necessary, with new contents and learning methods in support of innovative thinking, and small and medium-sized enterprises (SMEs) should be better empowered to develop local technologies geared towards the Arab region. Much remains to be done so that the right policies are put in place to truly support the harnessing of ICTs for sustainable development.

## Subregional workshop on inclusive and sustainable industrial development - June 2015

In its continuing efforts to support and strengthen the overall process of formulating the SDGs at the regional and country levels, the United Nations Industrial Development Organization (UNIDO) convened a subregional workshop with ESCWA in Beirut, on 10 June, on Inclusive and Sustainable Industrial Development and the Post-2015 Development Agenda: Views from Lebanon and Jordan. The present state of the Jordanian industry sector and the related opportunities and challenges were discussed, as well as the industrial development strategy included in the country's vision for 2025. The importance of research and development in bringing economic value to industrial operations was underlined.

## Arab Forum for Scientific Research and Sustainable Development - December 2015

The third annual Arab Forum for Scientific Research and Sustainable Development took place in Beirut from 10 to 12 December. It was jointly organized by the Arab League Educational, Cultural and Scientific Organization (ALECSO), ESCWA and the Hariri Foundation, in collaboration with the General Union

Photo credit: ESCWA

ESCWA Panel on Innovation and Technology policies

of Chambers of Commerce, Industry and Agriculture for Arab Countries, and the Maghribian Institute for Research and Strategic Studies (MIRSS). The forum aims at promoting effective partnerships between education, scientific research and other sectors concerned with development in the Arab region.

TDD organized a session on "Innovation and Technology Policies for an Inclusive Knowledge Economy". The session addressed the role of innovation in achieving the knowledge economy; STI indicators in the Arab region; and the importance of networking and technology transfer. The funding of scientific research activities in the Arab countries and the development of scientific publishing were also tackled. Experts from Egypt, Jordan, Qatar and the Syrian Arab Republic contributed to the discussions.

## Contribution to the Arab Sustainable Development Report



Technology plays a critical role in transforming societies and economies by enhancing efficiency and connectivity, and facilitating access to resources and services. But it may also contribute to resource depletion, overconsumption, climate change and pollution. In the coming years, the major challenge for States will be to ensure that technology is used to enhance resource management, prevent overexploitation of nature and achieve sustainable development.

As part of its contribution to the 2015 Arab Sustainable Development Report, TDD undertook a study on the role of technology in sustainable development in the Arab region. The study reviewed the basic concepts and theories of sustainable development and the SDGs. It also appraised how technology is used by various sectors, including water, food, energy, environment, rural development and education, to achieve the SDGs. The study documented policies and experiences in technology for development and determined the possibilities and challenges of technology transfer in the Arab region.

# Advisory Services

During 2015, several advisory and capacity-building missions to ESCWA member States were implemented by the TDD Regional Advisor, the Innovation Section and ETC.

## Jordan

### Second event of the Med-Dialogue Project - October 2015

In Jordan, a mission was conducted from 11 to 12 October to contribute to the second focus event of the Med-Dialogue Project, which is funded by the European Union. The aim was to discuss the digital agenda for Mediterranean partner countries. TDD made several suggestions in that regard, such as fostering research, development innovation and entrepreneurship, and including the role of ICTs in

Photo credit: ESCWA

Participants in the meeting on the Med-Dialogue Project.

implementing the SDGs in the draft common ICT vision of partner countries.

## Study on improving Jordan's Dead Sea products sector

ETC conducted a study titled "Identifying Innovation Opportunities to Improve the Competitiveness of the Jordanian Dead Sea Products Sector" as an advisory service to the Jordan Chamber of Industry, available from http://etc-un.org/PR/Default.aspx?ln=1&pid=4928&pvr=0. The study aims to identify structural challenges facing the sector and determine where efforts can be focused for maximum benefit. Particular attention is paid to innovation, development, promotion, export expansion and the economic activity of this promising sector. The results will be presented and discussed at a workshop in the presence of relevant industries and other stakeholders.

## Lebanon

## Matching event for innovators and investors in technology - April 2015

As part of Lebanon's efforts to maximize the benefits from its innovation and entrepreneurship capacity for start-up projects, the Lebanese Centre for Innovation and Technology and ETC hosted a

Technology Investment Tour. The event aimed at matching innovators with investors in technology-related fields. This activity, which took place on 27 April, brought together representatives from investors, bankers, SMEs, incubators and research and development centres. The event served as a platform for innovators to present their products to a wide variety of investors. At the same time, it encouraged networking and thoughtful discussions among investors, helping them to share their experiences and identify future opportunities.

## Morocco

## Workshop on ICT indicators and the ICT business survey - October 2015

Upon the request received from the Ministry of Trade, Industry, Investment and Digital Economy, a mission was carried out by TDD, in coordination with the ESCWA Statistics Division, from 6 to 8 October to conduct a workshop on ICT indicators and the Moroccan ICT business survey, in coordination with the Statistics Division at ESCWA. Suggestions and comments were made to update the survey. More than 15 participants from the Ministry and other national entities attended the workshop and actively contributed to discussions about ICT indicators and surveys. During the workshop, ESCWA presented best international and regional practices in the subject matter.



Photo credit: ESCWA

Participants in the workshop held in Morocco

# Oman

## Peer-review of the draft law on personal data protection - May/July 2015

ESCWA continued its advisory services for the development and harmonization of cyber legislation this year, by peer-reviewing the draft Omani law on personal data protection. This advisory service was delivered in two parts: the first consisted in reviewing the draft law and proposing improvements, and the second in preparing a specific report on personal data protection that includes the problems raised by the protection of personal data in the digital age, international laws and national laws, personal data protection laws in the Arab region, and a list of recommendations for the formulation and enforcement of such a law. ESCWA had published six directives on cyber legislation in 2012, and had organized a number of capacity-building workshops on these directives. Additionally, it had provided advisory services to 11 Arab countries on the formulation of cyber legislation.

# Sudan

## Capacity-building on ICT for development - November 2015



Photo credit: ETC-ESCWA

Participants in the AIGLE workshop held in Khartoum

In the Sudan, an advisory mission was undertaken within the AIGLE project from 9 to 12 November to contribute to two capacity-building workshops on ICT for development. The training modules 1 and 3 of the AIGLE project were presented and discussed. The first workshop, attended by more than 50 trainees from several ministries and public administrations, was dedicated to data centre directors in Khartoum, and the second workshop, attended by more than 80 trainees, targeted high-level officials in the state of Kassala.

# Syrian Arab Republic

## Capacity-building on ICT for development - July 2015



Photo credit: ETC-ESCWA

Participants in the AIGLE workshop held in July 2015 in Syria

In the Syrian Arab Republic, two advisory missions were implemented within the AIGLE project, from 26 to 29 July and from 30 August to 2 September, to contribute to capacity-building workshops on ICT for development. The training modules 1 and 3 of the AIGLE project were presented and discussed. Presentations also tackled strategies and e-government applications in the Arab region. The first workshop was dedicated to officials from the Ministry of Communication and Technology and attended by more than 30 trainees from several public institutions. The second workshop targeted the Ministry of Local Administration staff and was attended by more than 15 trainees.