

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

**Vienna, Austria
15-17 January 2019**

Contribution of ESCWA

to the CSTD 2018-19 priority theme on 'The impact of rapid technological change on sustainable development'

DISCLAIMER: The views presented here are the contributors' and do not necessarily reflect the views and position of the United Nations or the United Nations Conference on Trade and Development.

ESCWA Contribution for CSTD (2018)

1. From the perspective of your region what are the key emerging technologies and their current and potential applications that could give an opportunity to solve great societal challenges and achieve the SDGs in your region?

Currently, emerging technologies with relation to pressing developmental challenges in the Arab region are concentrated in the following areas:

- Water related technologies: desalination, water saving, water recycling and treatment
- Energy related technologies: renewable (basically solar, and wind), energy saving
- Agriculture/food production technologies; fertilizers (composting), irrigation related, hydroponics, bioengineering (drought resistant seeds)
- Solid waste treatments technologies.
- ICT related technologies: hardware and software

Other promising and emerging technologies that are evolving in the Arab region include;

- Nanoscience and its Nanotechnology applications
- Biotechnology
- Health Technology: devices, medicines, vaccines, procedures and systems

Regarding digital transformation which could support the issues related to inclusiveness, leaving no one behind, enhancing delivery of services, access to information to all, facilitating education in remote areas, providing better health services, bridging inequalities, supporting economic growth and creating new job opportunities:

- Open data: facilitate monitoring the progress in achieving SDGs, enhancing transparency and supporting accountability, enhancing governance, offering opportunities to re-use data, promoting innovation and entrepreneurship, facilitating the creation of new services.
- Cloud computing
- IoT facilitating smart cities.
- Big data has applications in Statistic, Macroeconomy, financial sector, Geospatial, health and education.
- AI supporting development of a number of sectors especially, education, health, climate change and transport.

2. Can you provide examples of policies/projects/initiatives that promote rapid technological change in your region and mitigate their potential negative effects? Are there any of these policies/projects/initiatives directed to women, youth or other groups of the society? How have the policies targeted inequalities? What are the challenges confronted in implementing these projects?

National science, technology and innovation strategies and policies exist in most Arab countries. However, translating these strategies and policies into programs of tangible impacts on pressing developmental challenges is a critical issue. Below are examples of national strategies:

- The National Policy and Strategy for STI in Jordan (2013-2017)
- National Innovation Strategy in Jordan (2013-2017)
- National Strategy for the Development of Scientific Research in Morocco (Horizon 2025)
- National STI Plans in Saudi Arabia

- National Innovation Strategy and the Government Innovation Framework in UAE (2015)
- Arab Initiative for the Adaptation of Nanoscale Science and Technology (AIDMO)
- AI strategy (UAE, 2018), UAE Strategy for Fourth Industrial Revolution (September 2017), Internet of Things strategy (Dubai, 2017)
- Digital Morocco (Morocco, 2017)
- Digital Tunisia (Tunisia, 2016)
- Smart Qatar (Qatar, 2016)
- Smart Government in Sudan (Sudan, 2016)
- Open data initiatives in eight Arab countries: Jordan, UAE, Bahrain, Tunisia, Saudi Arabia, Oman, Qatar and Morocco.
- National strategy for STI (Egypt, 2015-2030)
- National Innovation Strategy and the Government Innovation Framework (UAE, 2015)

Target groups: Directed for all Researchers, Innovators, entrepreneurs (Youth, Women)

Challenges

- Absorption capacity
- Allocation of adequate financial and non financial resources
- Bureaucracy
- Limited Infrastructure and a lack of advanced equipment.
- Lack of proper IP infrastructure and governing policies and legislations
- Brain Drain
- Low FDI due to many reasons including political instability
- Weak private sector engagement in STI: limited resource funds, venture capitals, angel investors
- Legislations related to confidentiality, privacy and integrity of data
- Ethical issues related to the use of AI.

3. What are the actions that the international community, including the CSTD, can take to contribute to maximize the benefits and mitigate the risk associated to rapid technological change? Can you give any success stories in this regard from your region?

International communities can support Arab countries/region in the below issues;

- Policy advice
- Capacity building
- Assist in securing adequate resources
- Use the convening power for international and regional cooperation
- Facilitate North-South and South-South cooperation
- Awareness campaigns
- Assist Arab countries in developing related legislations
- Disseminating success stories from the region and the world

- develop legal framework to allow the use, transfer and localization of new technologies;
- Publish studies on the impact of new technologies on social and economic development.
- Promote and draft template adequate policies, strategies, guidelines, framework and regulation relevant to frontier technologies and their applications.
- Measurement, benchmarking and conducting survey about frontier technology in different countries
- Encourage governments to use tax policy as means to enhancing the STI eco systems in the countries.

4. Could you suggest some contact persons of the nodal agency responsible for policies related to rapid technological change and its impact on sustainable development as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

The below are only examples of active stakeholders, however, the list can be a long one for actors in this field at the national level:

- Jordan, The Royal Scientific Society and the Higher Council for Science and Technology (Gov.)
- Egypt, the Academy of Science, Research and Technology (Gov.)
- Kuwait, Kuwait Institute for Science and Research
- UAE, Minister of State for AI
- Oman, The Research Council
- Lebanon, The National Council for Scientific Research (CNRS)
- Tunisia, eGovernment Unit, Presidency of the Government
- Syria, Higher Institute of Applied Science and Technology

5. Do you have any documentation, references, or reports on the specific examples on the priority theme in your region?

You may access the full list of related publications under publications of natural resources in ESCWA website. Below are examples that can be accessed

- The ESCWA 30th Ministerial Session focused on Technology for sustainable development. Beirut Consensus on Technology for Sustainable Development in the Arab Region <https://www.unescwa.org/events/ministerial-session-30th>
https://www.unescwa.org/sites/www.unescwa.org/files/resolutions_and_outcome_document_english_6_july.pdf

Arab Climate Change Assessment Report

<https://www.unescwa.org/publications/riccar-arab-climate-change-assessment-report>

Arab Horizon 2030 prospects for enhancing food security in the Arab Region

<https://www.unescwa.org/publications/arab-horizon-2030-prospects-enhancing-food-security-arab-region>

National Technology Development and Transfer System in Egypt

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/egypt_ntto_book.pdf

National Technology Development and Transfer System in Lebanon

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/lebanon_ntto_book.pdf

National Technology Development and Transfer System in Mauritania

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/mauritania_ntto_book.pdf

National Technology Development and Transfer System in Morocco

Link: https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/morocco-ntto_book_final.pdf

National Technology Development and Transfer System in Tunisia

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/tunisia_ntto_book.pdf

National Technology Development and Transfer System in Oman

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/amnd_oman_ntto_book.pdf

Technology Opportunities for Sustainable Development in Arab countries

https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/report_on_technology_opportunities.pdf

<https://www.unescwa.org/publications/water-energy-nexus-technology-transfer-module>

<https://www.unescwa.org/publications/policy-reforms-promote-renewable-energy-uae>

<https://www.unescwa.org/publications/policy-reforms-promote-renewable-energy-lebanon>

<https://www.unescwa.org/publications/gtf-regional-report-arab-region-progress-sustainable-energy>

Technology for Sustainable Development: Creating Decent Jobs and Empowering Youth in Arab Countries

https://www.unescwa.org/sites/www.unescwa.org/files/events/files/technology_for_sustainable_development.pdf

Technology for sustainable development in the Arab region

https://www.unescwa.org/sites/www.unescwa.org/files/events/files/technology_for_sustainable_development_in_the_arab_region_round_tables.pdf

CSTD Contribution (2018)
Technology for Development Division at ESCWA

Part (2)

The impact of rapid technological change on sustainable development

1. From the perspective of your region what are the key emerging technologies and their current and potential applications that could give an opportunity to solve great societal challenges and achieve the SDGs in your region?

- Digital transformation could support the issues related to inclusiveness, leaving no one behind, enhancing delivery of services, access to information to all, facilitating education in remote areas, providing better health services, bridging inequalities, supporting economic growth and creating new job opportunities

- Open data: facilitate monitoring the progress in achieving SDGs, enhancing transparency and supporting accountability, enhancing governance, offering opportunities to re-use data, promoting innovation and entrepreneurship, facilitating the creation of new services.

- AI supporting development of a number of sectors especially, education, health, climate change and transport.

- Big data has applications in Statistic, Macro economy, financial sector, Geospatial, health and education

- Cloud computing

- IoT facilitating smart cities.

2. Can you provide examples of policies/projects/initiatives that promote rapid technological change in your region and mitigate their potential negative effects? Are there any of these policies/projects/initiatives directed to women, youth or other groups of the society? How have the policies targeted inequalities? What are the challenges confronted in implementing these projects?

Following selected initiatives that are linked to new technologies in ESCWA and some Arab countries:

- ESCWA is preparing a number of studies and activities related to new technologies and their potential for sustainable development such as:
 - A study on Arab Horizon 2030: Innovation and Technology perspectives for the Arab region.
This study examines the new trends of technology and new models of innovation and propose recommendations and scenario for the adoption of these technologies to address the developmental challenges of the Arab region especially for achieving the SDGs. This study is under preparation and it will be published in 2019.
 - A report on Innovation and Entrepreneurship for Job creation with focus on youth and women. This report is under preparation and it will be published in 2019.
 - The third Expert Group Meeting on Innovation and Technology for achieving the 2030 Development Agenda, planned for 2019.

Some initiatives from the ESCWA region:

- AI strategy (UAE, 2018), UAE Strategy for Fourth Industrial Revolution (September 2017), Internet of Things strategy (Dubai, 2017)
- Digital Morocco (Morocco, 2017)
- Digital Tunisia (Tunisia, 2016)
- Smart Qatar (Qatar, 2016)
- Smart Government in Sudan (Sudan, 2016)
- Open data initiatives¹ in eight Arab countries: Jordan, UAE, Bahrain, Tunisia, Saudi Arabia, Oman, Qatar and Morocco.
- National strategy for STI (Egypt, 2015-2030)²
- National Innovation Strategy (Jordan)
- National Strategy for the Development of Scientific Research (Morocco, Horizon 2025)
- National STI Plans (KSA)
- National Innovation Strategy and the Government Innovation Framework (UAE, 2015)

Target groups: All individuals (no specific group)

¹ <https://www.unescwa.org/publications/fostering-open-government-arab-region-2018>;

² <https://www.unescwa.org/publications/innovation-policy-inclusive-sustainable-development-arab-region>

Challenges

- Availability of funds for all countries, except GCC.
- Political stability
- Skilled managers and engineers
- Legislations related to confidentiality, privacy and integrity of data
- Implementation of strategies/plan and monitoring the progress of achievement
- New technologies could cause widespread unemployment.
- Ethical issues related to the use of AI.

3. What are the actions that the international community, including the CSTD, can take to contribute to maximize the benefits and mitigate the risk associated to rapid technological change? Can you give any success stories in this regard from your region?

- One action could be to develop legal framework to allow the use, transfer and localization of new technologies;
- Another action could be to develop capacity building resources on the use of these technologies in development policies;
- Stocktaking of success stories and case studies about the use of new technologies for addressing real development challenges.
- Publish studies on the impact of new technologies on social and economic development.
- Promote and draft template adequate policies, strategies, guidelines, framework and regulation relevant to frontier technologies and their applications.
- Measurement, benchmarking and conducting survey about frontier technology in different countries

4. Could you suggest some contact persons of the nodal agency responsible for policies related to rapid technological change and its impact on sustainable development as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

Following suggested institutions from the ESCWA region:

- UAE, Minister of State for AI
- Egypt, Academy of Scientific Research & Technology (ASRT)

- Oman, The Research Council
- Jordan, Higher Council for Science and Technology
- Lebanon, The National Council for Scientific Research (CNRS)
- Tunisia, eGovernment Unit, Presidency of the Government
- Syria, Higher Institute of Applied Science and Technology

5. Do you have any documentation, references, or reports on the specific examples on the priority theme in your region?

- The ESCWA 30th Ministerial Session focused on Technology for sustainable development³;
- Beirut Consensus on Technology for Sustainable Development in the Arab Region⁴;
- Technology for Sustainable Development: Creating Decent Jobs and Empowering Youth in Arab Countries⁵;
- Technology for sustainable development in the Arab region⁶;
- A number of reports are under preparation today at ESCWA.

³ <https://www.unescwa.org/events/ministerial-session-30th>

⁴ https://www.unescwa.org/sites/www.unescwa.org/files/resolutions_and_outcome_document_english_6_july.pdf (page 1-5)

⁵ https://www.unescwa.org/sites/www.unescwa.org/files/events/files/technology_for_sustainable_development.pdf

⁶ https://www.unescwa.org/sites/www.unescwa.org/files/events/files/technology_for_sustainable_development_in_the_arab_region_round_tables.pdf