Economic and Social Commission for Western Asia

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Innovation Policy for Inclusive Sustainable Development in the Arab Region

Executive summary

Research has demonstrated the effects of innovation, particularly in technology, on economic growth, industrial optimization, improved social welfare and environmental protection. Innovation is linked to all three pillars of sustainable development: economy, society and environment. The 2030 Agenda for Sustainable Development, launched by the United Nations in 2015, gives high significance to innovation vertically and horizontally. Horizontally, innovation is mentioned in several Sustainable Development Goals (SDGs) and targets explicitly and implicitly.[i] Vertically, innovation is important for implementation modalities, creative solutions and new financing schemes for development. Innovation and technology have also been the subject of think pieces and analytical studies by the United Nations in connection with the SDGs.[ii]

In its modern understanding, innovation is defined in the Oslo Manual as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations".[iii] The Manual then broadens this definition, considering innovation: as the result of advanced research and development (R&D) leading to new industrial products and services, as well as the result of new marketing or work organization methods in business practices. In such a context, innovativeness lies in original ways of using technology, not necessarily owning or inventing it. Innovation is thus new within its own context, a specific market or country or organization. This is specifically important for the Arab region, as innovation does not necessarily result from cutting-edge or original development of scientific knowledge. Rather, its transformative potential can be realized in addressing local issues or improving the livelihoods of communities.

The Economic and Social Commission for Western Asia (ESCWA) has shown interest in innovation since the beginning of the millennium, through studies and events on innovation in specific sectors and on measuring science, technology and innovation (STI). Innovation also has been embedded in the work of ESCWA since 2003 on developing an information society. Since 2015, ESCWA has given high priority to innovation in terms of its importance for sustainable social and economic development in the Arab region, and it became an integral part of its work programme. The expert group meeting on "Innovation and technology for advancing the knowledge-based economy in the Arab region", for example, resulted in recommendations that emphasized the importance of innovation policy for the Arab region (Amman, 3 and 4 June 2015). This study dovetails with the need for a guide to develop national innovation policies that cater to the concept of inclusive sustainable development in the region.

A. International and regional perspectives on innovation

During the first half of the twentieth century, public policies in developed countries emerged specifically to improve the situation of STI. The concept of an innovation system is closely linked with the formulation of such public policies. At its heart, a national innovation system (NIS) has a core engine comprising interacting actors: public sector, private sector, academia, research and civil society. The NIS concept was the subject of studies and research, with two models emerging as reference: the model of the United Nations Conference on Trade and Development (UNCTAD) and the model of the Organisation for Economic Co-operation and Development (OECD). This study examines both models, explaining the main differences between them. It proposes a framework for the Arab region that considers its specific challenges and priorities in achieving the 2030 Agenda.

A policy specific for innovation is determined largely by the nature of the NIS it aims to realize and the national challenges it wishes to address. There is no single definition of a modern innovation policy, because every country has its own specific situation and priorities. There are notable differences between developed and developing countries. Developed countries spend far more than developing countries on R&D, for example. Another difference is that the private sector in developed countries plays a more significant role in R&D activities and spending, especially in terms of technological breakthroughs that occur mainly in private companies. That is why some countries, especially in Asia, have introduced catch-up strategies through technological learning and innovation, where firms address their commercial objectives by applying knowledge that is new to them, even if that knowledge is not new globally or nationally.

Five Arab countries were selected as case studies in order to discuss the innovation policies developed.

The study provides a summary on each innovation-related policy or strategy in Egypt, Jordan, Morocco, Saudi Arabia and the United Arab Emirates. While some countries have formulated policies specifically for innovation, others have incorporated innovation into STI policies or information and communications technology (ICT) strategies. Some national development plans refer to innovation, although in a limited way.

At a regional level, challenges associated with building a comprehensive NIS at the service of socioeconomic development are complex and costly. Arab countries should seek closer cooperation and integration while building and consolidating their respective NISs. The adoption of the Arab Strategy for Scientific and Technical Research and Innovation is a small step towards greater collaboration and a broader common approach to innovation.

B. The proposed innovation framework for Arab countries

The proposed framework, shown in the figure below, is a guideline for formulating innovation policies based on best practices drawn from the experience of advanced, developed and emerging countries, which managed to implement successful catch-up strategies and reach high technological and social development levels. The framework is customized to the needs and priorities of the Arab region while paying attention to inclusive sustainable development, which cuts across the framework's components. Different stakeholders are involved in various components of the NIS, which constitutes the core of the innovation policy. ESCWA focused on the need to develop a robust NIS, which is a high priority for Arab countries.

The true value of this framework lies in its details, along with the case studies that provide precedents for Arab Governments to emulate. The framework provides concrete approaches for devising innovation policies while considering social and environmental issues, in line with the SDGs. Such a framework requires a paradigm shift in the Arab region.

1. Innovation policy vision

The innovation policy should begin with a clear vision reflecting political will and commitment, while fulfilling broader socioeconomic objectives that address national challenges. The vision should be linked to the national developmental agenda. Absence of such linkage would create inconsistency in the policy's vision and/or show that policymakers do not view innovation as a contributing factor to socioeconomic development.

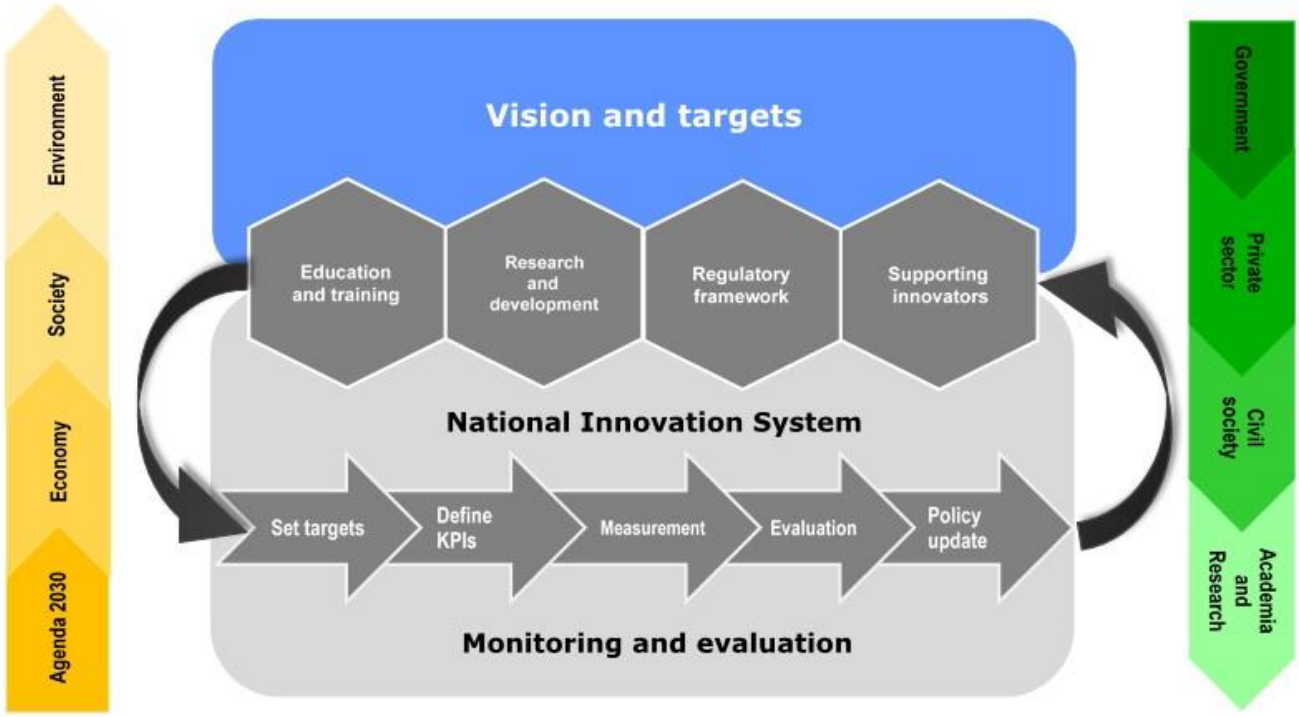
The innovation policy vision should provide answers to three questions: What for? By what means? By whom? The first question should be addressed through a set of strategic objectives or initiatives. The second question should be addressed by focusing on shortcomings and gaps of the NIS in order to propose projects and programmes. The third question should be addressed in terms of the needs and qualifications of stakeholders. The present study provides suggestions for an innovation policy vision in Arab countries.

Endorsement of the vision at a high level emphasizes the vision's strategic importance and increases the likelihood that administrations and stakeholders will work together to achieve it. In practical terms, that is likely to require the formation of a high-level steering committee to oversee innovation policy formulation, implementation, evaluation and update. It is recommended that details of implementation be delegated to another agency with proper authority over other actors involved. The systemic nature of any innovation policy will lead to its implementation through policy measures under the responsibility of distinct ministries and government agencies dealing, for example, with education, industry, public research centres, trade, competition authorities and patent offices.

2. Components of the National Innovation System

ESCWA identified four main components of the NIS that require special attention in innovation policy for Arab countries. These components are organized under four clusters of issues related to education and training, strengthening the research and development base, elaborating a proper regulatory framework for innovation, and supporting innovators.

Innovation policy framework for inclusive sustainable development



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(a) Improving education and training

Developing quality education requires a new approach that differs from rote learning and memorization currently prevailing in Arab countries. That would require serious reform of the educational system and integration of new teaching methods focusing on critical thinking and active learning while paying attention to student well-being. At the level of secondary and tertiary education, policies should focus on the development of strong generic skills, so that specific skills can be acquired more easily during lifelong learning.

Vocational education training at higher secondary and post-secondary levels also should be central in a national educational reform policy, so as to increase the scope of skills and to address the scarcity of mid-level or craft competencies, such scarcity hindering industrialization efforts. Developing vocational education training is best carried out with active involvement of private companies.

Tapping on the skills of diasporas will contribute to building national skills. That is achievable through temporary recruitment of expatriate experts for developmental projects; offering expatriates the possibility to launch businesses in their home countries, and offering returning expatriates appropriate conditions to connect with global knowledge networks in their respective specialties.

(b) Strengthening research and development base

Arab countries should carefully consider legislation that addresses the main R&D challenges, which are: low overall spending on R&D, limited contribution of private companies to R&D, and the disconnection between R&D programmes and socioeconomic needs.

Policy measures should favour Bayh-Dole-type patent legislation and the establishment of technology

transfer offices (TTOs). The open science movement, which Arab countries can join as contributors and/or beneficiaries, should be investigated. Innovation policies should give high priority to scientific collaboration among researchers in Arab and other countries, so as to strengthen national R&D programmes and participate in international research programmes. Arab Governments also should consider developing a grant mechanism to support R&D in the private sector. Whereas developed countries often opt for tax incentives that would not be the optimal choice for Arab countries because of weak tax systems.

(c) Consolidating the regulatory framework for innovation

Proper regulatory and legislative frameworks supporting the NIS are essential for Arab countries to ensure suitable technology transfer and development through trade, foreign direct investment (FDI) and public procurement. They are also essential to nurture and protect innovative start-ups through intellectual property protection and fair competition.

To enhance FDI, Arab countries should consider measures to establish predictable, non-discriminatory and transparent regulatory and legal frameworks plus simpler business-related procedures; reinforce and deepen regional economic integration along the principles outlined in the 2013 amendment of the Arab League Investment Agreement; and improve data collection of FDI statistics. Arab countries should also strengthen public procurement for creation of innovative solutions as well as catalytic procurement, where the public sector acts on behalf of end users.

Arab countries should strengthen their intellectual property frameworks and legislation, including patenting procedures. Fair and transparent competition is still absent in the vast majority of Arab countries and is a reflection of the rentier economic model, which is fundamentally harmful for innovators, particularly young entrepreneurs whose main assets are their energy and inventiveness. Fair competition laws are an essential complement to intellectual property frameworks because they contribute to the establishment of fair market behaviour.

(d) Supporting innovators

Young entrepreneurs need support and nurturing for their innovations to thrive. Arab countries should support innovators through business support schemes such as incubation and information services, financing (particularly early stage), and development of networks and clusters. Public-private partnerships are one way to offer such business services. Public policy should also seek to develop venture capital funds and provide public-guarantee instruments in cooperation with the banking sector, so as to meet the borrowing requirements of young firms.

Science and technology parks as well as business clusters are important mechanisms that help shape an innovation ecosystem. Networks are more formal types of relationships built around specific projects. Arab countries and firms should seek to improve networking with developed and emerging countries (in Europe, for example), as well as establish intra-Arab networks and/or reinforce existing ones.

4. Monitoring and evaluation

Monitoring and evaluation (M&E) should be an integral part of any innovation policy/strategy. Indicators that measure innovation policies generally address spending on R&D, innovation carried out by firms, exports of high-tech products and patenting, plus quality and quantity of graduates in technical and scientific disciplines. Choosing the most appropriate metrics for M&E depends on the specific targets and means set for the innovation policy. There is no one-size-fits-all recommendation, particularly in relation to impact and outcome indicators. It is appropriate to choose metrics that are relevant, measurable and feasible for targets and priorities set by the policy. In all cases, Arab countries should improve their statistical data collection efforts for innovation-related indicators. In the monitoring system, a distinction should be made between indicators that measure the progress of implementing the adopted innovation policy/strategy based on the policy's proposed targets, contrasted with indicators measuring innovation at national level.

Composite innovation indices allow countries to be compared at the international level. The resulting rankings should, however, be handled with some caution as they most often reflect issues relevant for the most advanced countries. The best-known index for measuring innovation is the Global Innovation Index (GII). The GII, however, might not be the best index for developing countries, including Arab countries, for various reasons. Many regional and

international organizations have worked since 2013 on the definition and implementation of an innovation scoreboard for the Middle East and North Africa (MENA) region. Nine Arab countries have joined that initiative. Other Arab countries are invited to join the project and to collect periodically the data related to the index.

C. Adaptation to the Sustainable Development Goals

As stated in the 2030 Agenda for Sustainable Development,[iv] STI is an important issue that can provide countries with new opportunities to enhance economic, social and environmental development. In order to benefit from STI, it is necessary to optimize STI capacities and initiatives across national and thematic development platforms. This resolution includes the 17 SDGs with their 169 targets that countries and stakeholders will work to achieve during the next 15 years as part of the new Agenda.[v] Innovation was included in Goals 9 and 17. When inspecting the targets of other goals, it becomes clear that STI activities should and/or could be used to help achieve many other targets.

The main challenge brought by the SDGs lies in their holistic nature, encompassing economic, social and environmental goals. An innovation policy adapted to address the SDGs need not include new additional components within the elements of its framework, but rather a broadening of focus from exclusively economic goals to goals that are social and environmental as well. The adapted innovation policy takes into account a more diverse range of actors; considers the regional and global situations; and integrates the concepts of openness and inclusiveness.[vi] For Arab countries, such integration is feasible when Governments undertake the following: provide visionary leadership for STI as an integral component of SDG strategies; address social economy when building an enabling environment for STI; provide financing for social and environmentally relevant projects; provide incentives for talent to address social and environmental issues; and foster inclusive innovation, which allows the development of innovation driven by and made for the needs of poor and marginalized populations, particularly in low-income developing countries.

For the purpose of demonstrating how innovation policy could be customized to serve specific SDGs, the following three themes were selected:

- Youth employment. Policies and initiatives that target youth education, training and employment are necessary in all Arab countries, given that the region has the highest unemployment rate worldwide. Examples include macroeconomic policy coherence and active labour market programmes comprising employment services, career guidance, job counselling, labour market information, and support for micro and small enterprises;
- Climate change. The Arab region stands as an example of potential adverse impacts of climate change at social, economic and environmental levels. Policies and innovations are needed to support mitigation measures, develop knowledge and capacity, and improve R&D programmes and expenditure;
- Social innovation. The Arab region needs to find innovative approaches, solutions and products to address social issues that public policies often fail to foresee or tackle. For social enterprises to succeed, they need a proper environment where social innovators can be mentored, financed and supported by public policy.

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i Innovation is mentioned explicitly in Goal 9 as well as targets 9.4, 9.5 and 9.b. In Goal 8, two targets explicitly mention innovation: 8.2 and 8.3. Innovation is also linked to other goals, especially those containing targets on STI, which are: Goal 1 on combating poverty, Goal 5 on gender equality, Goal 7 on energy technology research and sustainable services, and target 12.a. Finally, Goal 17 has three targets linked to innovation: 17.6, 17.7 and 17.8.

ii United Nations Department of Economic and Social Affairs, DESA (2016a). *Global Sustainable Development Report*. New York.

iii Organisation for Economic Co-operation and Development, OECD, and Eurostat (2005). Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd edition. Paris. Available from http://www.oecd-ilibrary.org/science-and-technology/oslo-manual_9789264013100-en.

iv A/RES/70/1.

v United Nations Department of Economic and Social Affairs, DESA (2016a). *Global Sustainable Development Report*. New York.

vi Economic and Social Commission for Asia and the Pacific, ESCAP (2016). Harnessing Science, Technology and Innovation for Inclusive and Sustainable development in Asia and the Pacific. Bangkok. Available from http://www.unescap.org/sites/default/files/STI_Theme_Study.pdf. ST/ESCAP/2754. p. 5.

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