





## Introduction

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The integration of the youth and the localisation of knowledge in the Arab World is a vital issue for the present and the future. In addressing this issue, the current report offers a pivotal step in the journey towards establishing the knowledge society, for which the Arab youth are the main pillar. It is a quest to enable the Arab youth to actively participate in achieving sustainable human development in their countries through the wide horizons of the knowledge society.

As the region's population steps into the 21st Century, the Arab communities are no longer capable of sustaining traditional development approaches. They need to adopt innovative development approaches to enable them to effectively address the growing challenges on various social and economic levels, as well as on local, regional and international levels. Given the association of knowledge with power and progress, building the knowledge society and economy in the Arab region has become a necessity for prosperity and competitiveness in the current age of globalisation. At this stage in history of science and technology, and with the implications of this knowledge and technological revolution in terms of population bulge and a tremendous openness to various nations that constantly compete over the control of knowledge sources and world leadership, the Arab states are facing major challenges. The question is no longer about how to constantly adjust to this "globalised" and "renewable" reality, or how to deal with its impacts and challenges while incurring the least possible damages and maximising its benefits. It is rather about how to change the facts of our reality, including opportunities and challenges, how to deal with these challenges and how to increase the opportunities and transform them to support the empowerment of minds and spirits capable of establishing knowledge societies in the Arab region, while effectively contributing to the global

knowledge system and the advancement of human civilisation.

Given the importance of the youth at all stages, addressing the challenges at the present time is of utmost importance. The development phase that the Arab region is going through clearly shows the growing role of the Arab youth and their emergence as a critical mass. The youth are the most powerful age group in society, with the greatest impact on determining the overall developmental course and trends as well as on instilling change and hope for progress in the Arab future. The youth are the pillar of every nation and the most important resource to invest in for achieving integrated and sustainable development. As the Arabic proverb states: "investing in humans is better than investing in stones". Targeted initiatives and effective strategies should be devised to develop the capacities of the youth and turn them into a positive productive force. They must not be merely a force of criticism and objection, but rather one that builds and develops society on all levels. The most important of these levels is knowledge, as it is the foundation from which communities and nations can rise.

The Arab region today – at a time when its people are aspiring to achieve comprehensive and sustainable development – needs to concentrate on two vital areas: establishing the knowledge society and actively engaging the youth in the establishment of this society, while providing the required enabling environments through social justice and supporting the values and principles of enlightened citizenship. We are suffering from a knowledge gap that is driving us further apart from the world and are facing challenges in finding the required enabling environments. Yet, there still exists a historic opportunity to build the knowledge society, fuelled by the momentum of the rising youth and their energies and desires to change for the better to achieve sustainable human development and the welfare of the Arab people.

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The integration of the youth and the localisation of knowledge in the Arab World is a vital issue for the present and the future

## The Necessity and Challenges

### Continuous Steps for Building the Knowledge Society in the Arab World

The two previous knowledge reports established the basic steps towards the goal of building the knowledge society in the Arab region. The first Arab Knowledge Report 2009 “Towards Productive Intercommunication for Knowledge” aimed at exploring the cognitive performance in the Arab region, at a time where the importance and role of knowledge had increased, with all the horizons it opened up in various community aspects. The report identified the developments in relation to countries that had achieved a knowledge society. It showcased the status of Arab knowledge with all its gaps and shortcomings, as well as the promising opportunities that await exploitation. The report, therefore, established a referential diagnosis on the status of Arab knowledge and the spectrum of potential knowledge gains. It also assessed the available opportunities and challenges in relation to establishing the required social, economic and political conditions for knowledge investment. The report concluded that “the Arab region is importing and consuming knowledge products without producing them”, let alone localising and nurturing knowledge. It recommended studying the status of the “emerging youth” in the Arab region, and their readiness to assume the responsibility of achieving progress and establishing the knowledge society.

The second Arab Knowledge Report 2010/2011 “The preparation of future generations for the knowledge society” addressed the foundation for building the knowledge society. Towards that end, the report developed principles on the methodologies and mechanisms of preparing and forming future generations to actively participate in building the cognitive future and accessing its wide horizons. The second report indicated that bridging the knowledge gap was possible if the political will was made available as a first condition, then through mobilising the capabilities and

resources required for building the aspired-for knowledge society. The report targeted the youth or the new generations of less than 18 years of age; which represent, on the education scale, the period starting from early childhood until the end of the secondary cycle. This orientation was at the core of the second report that focused on the extent of availability of the necessary triad of skills, values and enabling environments among this age group in the Arab region. The report concluded by identifying the weaknesses of the enabling environments and their failure to prepare the future generations and provide them with the required skills and values to move forward into the knowledge society. The conclusion of the report emphasised the necessity of continuing to study the methods of transfer, localisation, diffusion and employment of knowledge, as well as youth integration in building an Arab development, based on the knowledge society requirements, in order to achieve the welfare of the Arab people and assert their right to a free and decent life.

Within the framework of the Arab Knowledge Reports’ enlightening journey, comes the third Arab Knowledge Report 2014, entitled “Youth and Localisation of Knowledge”. It is a continuation of the efforts that have started with the first and second knowledge reports and a pursuit of identifying the capabilities and mechanisms that enable the Arab region to achieve the objective of building a knowledge society and participating in the advancement of the global civilisation. The current report aims to discover how to address the integration of the youth, the 19-29 age group, in the processes of knowledge transfer and localisation. It attempts at exploring the opportunities and challenges by identifying the status of the Arab youth with respect to their possession of knowledge, cultural, economic and political skills and activities that enable them to contribute to building the knowledge society. The report also explores the status of the enabling environments and their capability to extend these opportunities to the youth. This approach places the third Arab Knowledge Report 2014 directly in the context of preparing and forming the

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Arab people to increase the opportunities of building the knowledge society and benefiting from its fruits, within the wider context and greater objective of achieving sustainable human development.

### **The Inherent Relation between Knowledge and Development**

The organic and dynamic relationship between knowledge and development remains one of the basic principles that has been highlighted in both the first and second knowledge reports. We have established that knowledge is a tool and an outcome of development and have associated the right to knowledge and development with renaissance and enlightenment.<sup>1</sup> This was also confirmed by the World Bank Report 2013 that measured the relationship between the per capita GNP and readiness to the knowledge economy indicated by the Knowledge Economy Index.<sup>2</sup> The connection between knowledge and development is clearly showcased in EU countries, the United States of America and Singapore for instance. These are all countries with a high level of income and readiness, where the annual per capita income is about \$52,000 (USA), and \$72,000 (Singapore),<sup>3</sup> and the readiness level in terms of the knowledge economy index exceeds 8.7 and 8.2 points out of 10 respectively.<sup>4</sup> This does not deny the existence of other models of wealthy states that have been incapable of turning their natural and physical resources into a knowledge-based capital towards establishing the knowledge economy. This is mostly due to their inability to develop the required enabling environments such as appropriate education policies, the localisation of technology and transparency in the exchange of information.

Far from these exceptions and in conjunction with several reports, one can say that it is hard for the economy of a society to grow and become competitive without investing in its intangible assets, with knowledge at their core. Researchers are unanimous in stating that factors of economic growth are embedded in knowledge, innovation, education, ICT

and the impact of developmental research on economic development and job opportunities. Knowledge is a renewable source that accumulates through usage, investment and innovation in contrast to natural resources that are limited and continuously depleting.<sup>5</sup>

What we must emphasise in the context of the inherent relation between knowledge and development is that the core of the development we aspire to supports freedoms. Freedom is development; and freedom takes numerous forms.<sup>6</sup> First, it is the liberation of the individual from poverty and the provision of minimum requirements for a decent life for all members of society. Second, it is the liberation of the individual from unemployment while expanding opportunities for self-fulfilment, and engaging in life and society as a productive member. Labour is the first step in social participation. Third, is guaranteeing the individual's freedom in choosing a job. Fourth, expanding the margins of choice in the labour market to be able to choose the appropriate job. Fifth, the freedom to build oneself and one's own capabilities by expanding education opportunities and guaranteeing the right to healthcare. Sixth, the freedom to move in space and time in search of sustenance and enjoy life according to the options and opportunities brought about by development. As we will explain in a subsequent chapter, these six foundations represent the social and economic conditions that can guarantee the individual's political freedom and the broader participation in the community, as well as social justice and citizenship. Without these social and political conditions there can be no talk of political participation or enjoyment of citizenship rights for any individual. This includes supporting women's freedoms and guaranteeing children's rights.

Studies show that the internal growth expected in the long term, in any contemporary society, is directly and proportionally linked to the productivity of research and development activities (R&D), as well as to the human capital growth rate.<sup>7</sup> Innovations and R&D are the drivers

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Innovations and R&D are the drivers of internal growth

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While the Arab countries are striving to access the knowledge society, certain disquieting reports and studies have emerged during the past two decades

of internal growth.<sup>8</sup> According to one theory,<sup>9</sup> the investment in these facilities of knowledge is considered to be a major factor explaining the size, structure and dynamics of the industries. Based on this, some studies show that the discrepancies in productivity and growth across countries are related to the quality of human capital and production factors, in particular the capability of creating, producing and employing new knowledge. The studies note the importance of non-materialistic/intangible human capital represented by investments aimed at producing and disseminating knowledge (i.e. the formation, education, R&D, ICT) and investments aimed at supporting the development of the human capital.

Modern literature on development is further evidence of the increasing relative importance of intangible human capital as part of the total wealth productivity and the rising GDP share.<sup>10</sup> For instance, in the United States in the late 1960s, the then-current value of intangible capital supply (dedicated to knowledge and the creation of human capital) exceeded the value of tangible capital (physical infrastructure, equipment and natural resources). This reflected in the development leaps the USA had witnessed in that period. During the last two decades of the previous century, the rates of annual investment in R&D, public education and software steadily grew at an annual rate of 3% in the Organisation for Economic Co-operation and Development (OECD) countries.<sup>11</sup>

Tracing the history of development in the modern age reveals that obtaining scientific and technological knowledge coupled with the ability to use it have become among the critical strategic factors in the economic performance of various countries, particularly with the increase of globalisation and economic competition. The leading countries in knowledge, science and technology have sustained a long-term economic growth rate much higher than that of the developing countries. From 1986 to 1994, the average growth rate for the group of leading countries in knowledge, science and technology was approximately three

times higher than that of other countries, where the average per capita income wealth grew by 1.1% per annum, while the per capita income decreased in the group of countries with the least successful performance in those fields by 1.5% per annum during the same period. All these results point to a new breakdown of the global economy, based on the extent of access to knowledge and the ability to benefit from it and employ it.<sup>12</sup>

This also confirms the importance of addressing the transfer and localisation of knowledge as a doorway to development, with an emphasis on the centrality of the human element in this correlation, especially the youth. Thereafter emerges the pressing need to highlight the issue of enabling the Arab youth and inspect the enabling environments available to them, in view of assisting the officials and stakeholders in setting plans and strategies for achieving active integration of the youth in the processes of knowledge transfer and localisation.

But before addressing this vital issue, we must identify the specifics of the Arab context, as well as the opportunities and challenges that need to be addressed.

## **The Arab Context for Development, Knowledge and Youth Integration**

### ***A Multi-Faceted Knowledge Gap***

While the Arab countries are striving to access the knowledge society, certain disquieting reports and studies have emerged during the past two decades. The two previous Arab knowledge reports showcased the size and dimensions of the knowledge gap in the Arab region. The second AKR 2010/2011 revealed a worrying status of the Arab youth in light of the results of field studies conducted in five major cities and four Arab countries to assess the availability of cognitive, emotional and social skills, as well as the enabling values and environments. It indicated low levels of readiness among the youth in terms of the tools and mechanisms they possess for knowledge-based progress and global

competition; they have not yet mastered the qualifying skills for this purpose. However, the report also showcased certain strengths that can be invested in, and indicated the major elements required for mobilisation,<sup>13</sup> which are also highlighted by the current report.<sup>14</sup>

The two AKRs were not alone in raising the alarm and calling on people to seize the historical opportunity to integrate knowledge, innovation and technological advancement to drive development and prepare the future generations and the youth for this task. International and Arab reports on the status of Arab development and its enabling environments, as well as results of international and Arab tests of cognitive skills of the youth and adolescents in the region, strongly support the existence of a large knowledge gap between the Arab region and the developed world, which is cause for concern and highlights the necessity of mobilisation and action. Most reports show that the pace of progress in knowledge and development across the Arab region remains below the expected levels. This has led to many calls during the last decade to bridge this gap in knowledge and development. One major cause for concern is that reports, studies and experimentations have highlighted a deficiency in the ability of the youth to assume their historical responsibilities in the transfer, localisation and employment of knowledge in the Arab region to keep up with global developments. Several reports and studies attributed this to an inability to provide enabling environments that support and develop the capacities of the Arab youth, or at least protect the youth, especially women, from poverty, unemployment and poor educational service. Worse still, many Arab youth have long been prone to marginalisation and exclusion.

The Arab Human Development reports 2002 and 2003 confirmed the existence of a deficiency in the process of enabling the generations to acquire knowledge in its broad sense, and a decline in many areas of knowledge production, especially in research. It was clearly noted that the Arab countries

must take action to create opportunities for the generations to come. This would occur through the adoption and implementation of active policies and strategies for acquiring knowledge and diffusing information technology, in addition to addressing the inefficiencies in education and creating social arrangements that address the issue of youth employment and enable women to participate economically and politically. This in turn supports the creation of a human capital capable of contributing in building the knowledge society. This is the biggest challenge facing the Arab states, and it is not restricted to catching up with other countries on the knowledge indices. It rather transcends this to encompass the hard work needed for effective institutional structures and an accomplished political will backed up by sufficient resources in the region to produce knowledge and employ it in developing high-level technological exports, as a main precondition for achieving the sought-after technological and knowledge revival.<sup>15</sup>

The Arab Human Development Report (AHDR) 2004<sup>16</sup> attributed the deficiency in human development in the Arab countries to the absence of freedoms including societal freedoms, women's freedom and inequality. These all are factors that weaken knowledge effectiveness among the youth, who are the main human capital, and hinder development. In this context too, the AHDR 2005,<sup>17</sup> which focused on "the Rise of Women in the Arab World", stressed that the Arab countries would achieve tremendous gains once it established equality between women and men, especially in the opportunities of acquiring and employing knowledge and societal advancement. It added that what is actually depriving the region from achieving this is the discriminatory practices hindering community advancement and knowledge development.<sup>18</sup> In addition to that, the human development indices indicated that the Arab world was unable to turn its material wealth into a human wealth. The knowledge indicators pointed out that the Arab reality in general was still far from reaching knowledge levels that enable it to achieve "the knowledge economy" required for advancement and

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that constitute a substitute for the current development patterns, which did not lead to significant achievements in developing an Arab knowledge capital.<sup>19</sup>

***The Evolving Knowledge Gap as Reflected in the Knowledge Indices<sup>20</sup>***

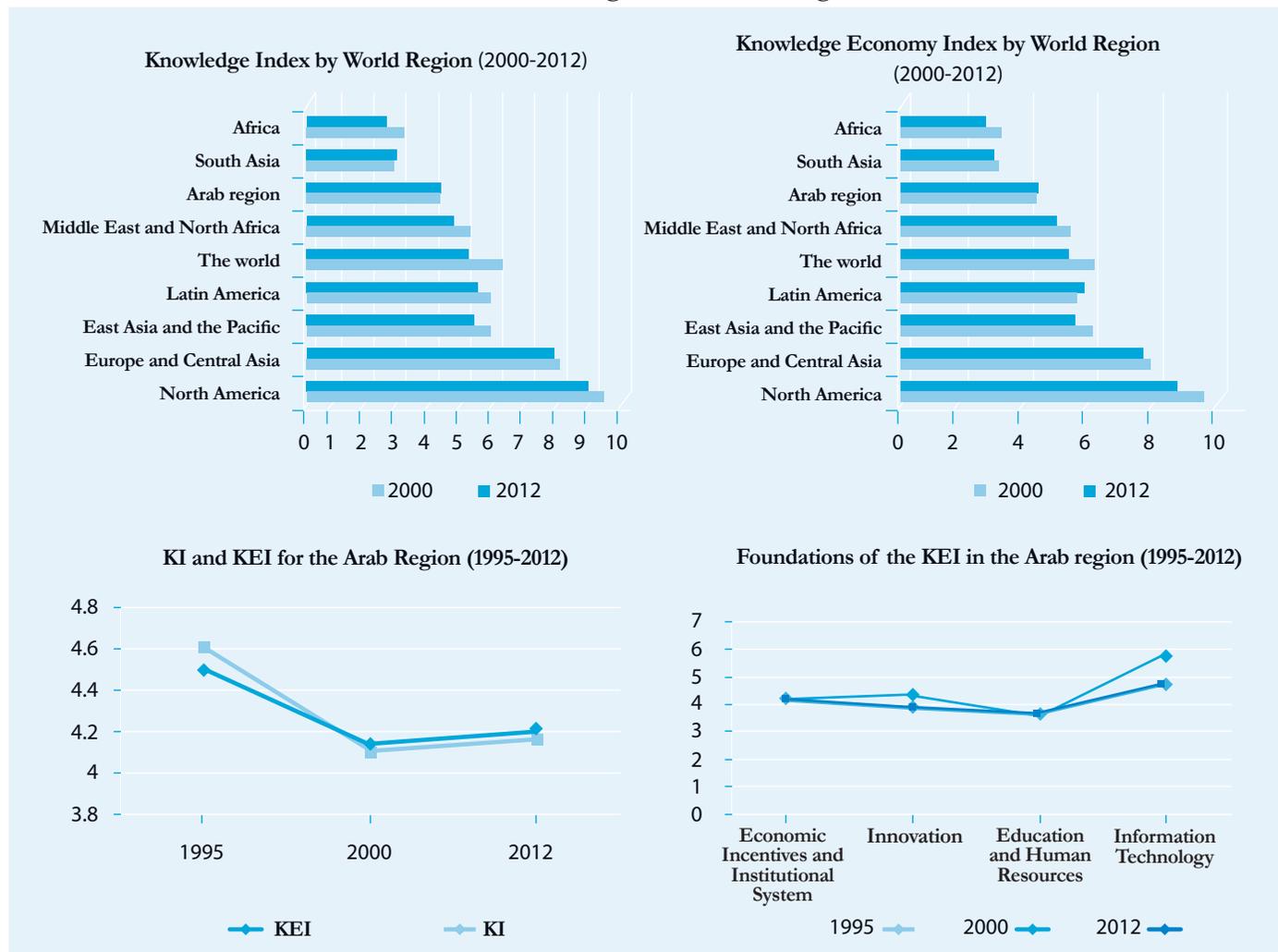
The Knowledge Index (KI) prepared by the World Bank<sup>21</sup> indicates a mediocre Arab performance and an increasing gap between the Arab region and other regions of the world, in both KI and KEI from 2000 to 2012. Progress in the Arab region is reported in minute increases in few indices (the KI, the KEI, the Innovation System sub-index, the Education and Human Resources sub-index...). And despite the progress achieved by some Arab countries in

certain knowledge indices, the Arab World KEI prepared by the World Bank for 2012<sup>22</sup> (which included 17 Arab states) has a much lower value than most of the regions in the world. These indices confirm the severity of the gap between the Arab region and other regions, where the average performance of the Arab region exceeds only the average performances of both Africa and South Asia but remains much lower than that of North America, Europe, Central Asia, East Asia, Pacific, Latin America and the world. This is evident in Figure 1.1, which shows the progress in the KI and the KEI for the Arab region, compared to other regions of the world from 2000 to 2012.<sup>23</sup>

The World Bank Index also reveals some discrepancies in the performance of

Figure 1.1

The Evolution of the KI and the KEI for the Arab Region and Other Regions of the World between 2000 and 2012

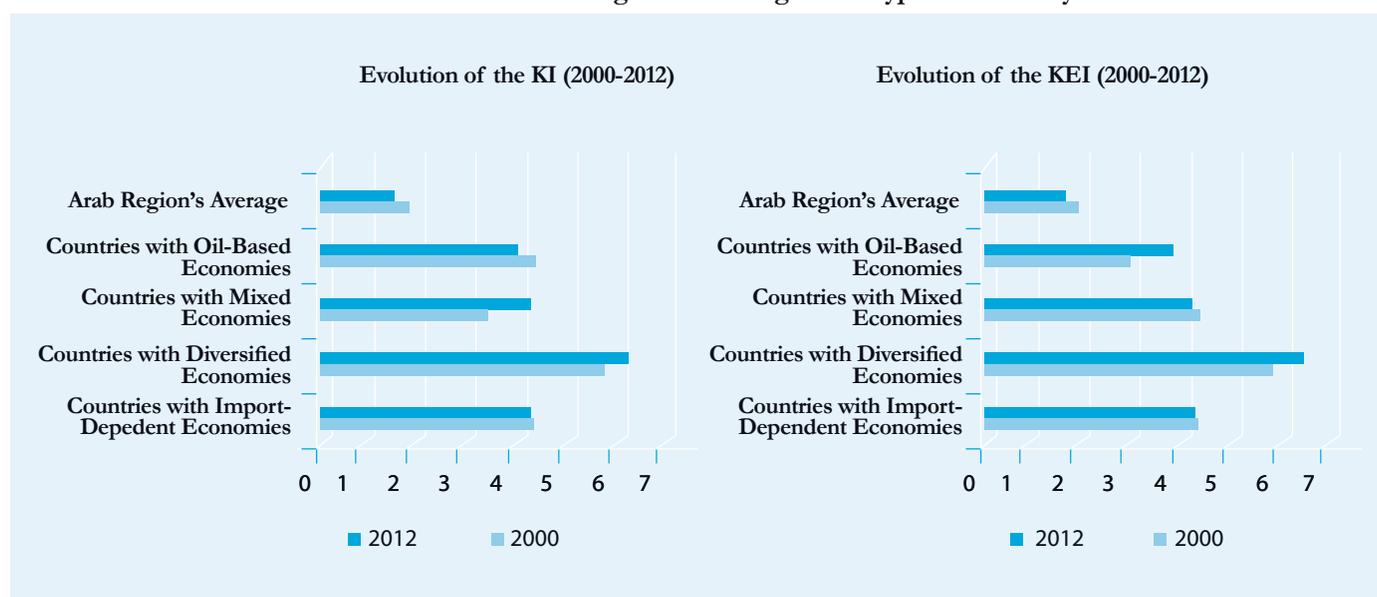


Source: World Bank data and statistics K.A.M. World Bank 2012.

Note: The statistics for the Arab region were calculated based on the data for the Arab countries available in the World Bank Database (Samia Satti, background paper for the report).

Figure 1.2

The Evolution of the KI and the KEI for the Arab Region According to the Type of Economy between 2000 and 2012



Source: World Bank data and statistics. World Bank 2012.

Note: The statistics for the Arab region were calculated based on the data of the Arab countries available in the World Bank Database (Samia Satti, background paper for the report)

knowledge indices across the Arab countries, asserting the precedence of the oil-based economies, the Gulf States, over other Arab states. While the countries' ranking in 2012 compared to those of 2000 revealed advancement in the positions of some Arab states and the regression of others,<sup>24</sup> the data also clearly shows that the advancement of the Arab region towards the knowledge economies and in bridging the knowledge gap is still insignificant. This is particularly true when compared to the increase in the developmental requirements and challenges resulting from structural changes, including the increasing population, the change in living patterns and the rise of the youth.<sup>25</sup>

### **The Evolving Gap as Reflected in International and Arab Competitiveness Indices**

The consecutive global competitiveness reports are considered among the important references and indicators on the economic and social conditions of the countries, as well as their relative rankings.<sup>26</sup> "Knowledge", with its components and indices, is of major importance in determining the competitiveness rank of countries in the Global Competitiveness Index. This index features many sub-indices that are directly

related to the pillars of the knowledge society, such as education, technology, formation and creativity, where the cognitive element is reflected in indirect forms in all the indices used in the Global Competitiveness reports.<sup>27</sup>

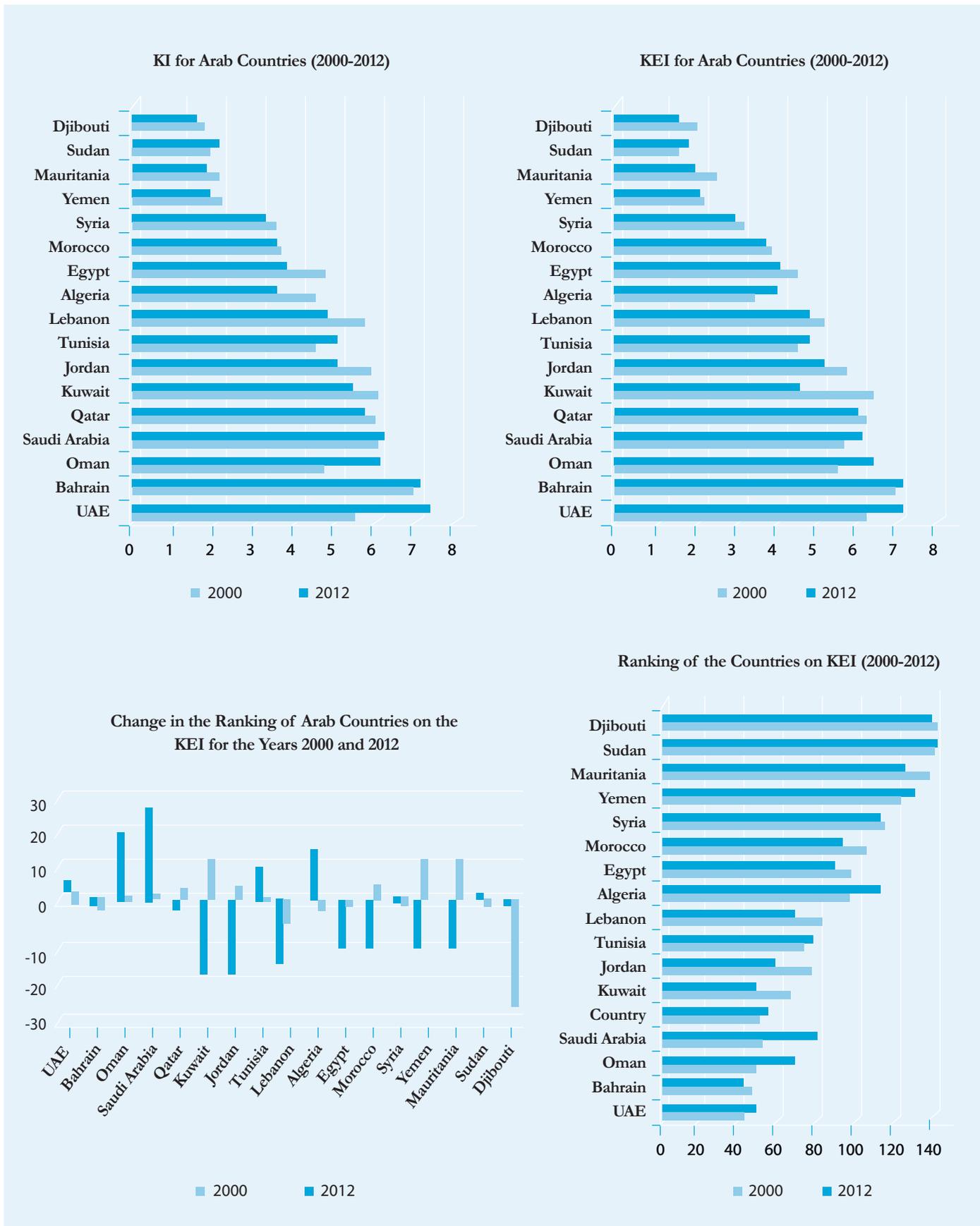
The ranking of the Arab states in the Global Competitiveness Report 2013 – 2014 reflects the developmental economic and social conditions. And to a great extent, it reflects the knowledge conditions with all the gaps and discrepancies they entail, whether across each other or with other world countries. Among the 148 states that were listed in the Global Competitiveness Report published by the World Economic Forum, the Gulf countries in general have occupied relatively advanced positions, reflecting their economic advancement, and their advancement in the knowledge axes. Qatar ranked 13th worldwide, followed by the UAE at 19th and Saudi Arabia at 20th. On another hand, other Arab states came at low positions on the international list, where Mauritania ranked 141st and Yemen 145th.<sup>28</sup>

There has been a recent increase in the interest in competitiveness as a theoretical concept and as a topic linked to development and social welfare. In light of this, the concept

Among the 148 states that were listed in the Global Competitiveness Report published by the World Economic Forum, the Gulf countries in general have occupied relatively advanced positions, reflecting their economic advancement, and their advancement in the knowledge axes

Figure 1.3

The Evolution of the KI and the KEI for Selected Arab Countries between 2000 and 2012



Source: World Bank data and statistics KAM, World Bank 2012.

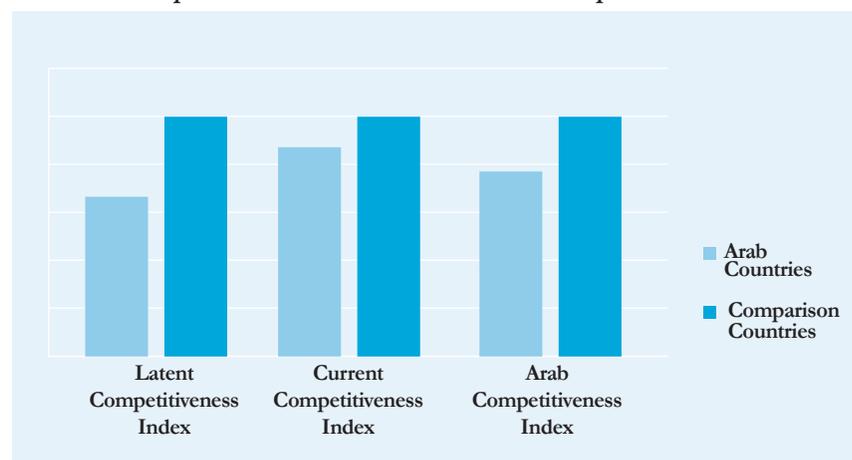
of “Competitiveness” was reformulated and removed from the scope of traditional economic theories which rely on the revealed comparative advantage represented in the availability of natural resources and production factors. It was placed within the acquired competitive advantage, which can be developed by adopting a targeted and conscious policy aimed at building a national competitive ability, particularly if there is an absence of resources.<sup>29</sup> In this context, the Arab Planning Institute in 2003 came to develop the competitiveness concept and the methodology for its measurement. This led to the creation of an indicator to measure and monitor the competitiveness of the Arab states in international markets. The index is composed of two sub-indices. The first focuses on the current performance and the factors that influence it, such as market structure, business climate and companies’ operations and strategies, while the second is the latent competitiveness; the deep-impact capabilities which guarantee the sustainability of competitiveness, then the sustainability of growth and the achievement of economic and social development objectives, especially if coupled with policies directed towards achieving these objectives. Three main areas have been defined to determine the latent competitiveness: the human capital, the localisation of technology and the technological infrastructure.<sup>30</sup>

It is to be noted that the Arab Competitiveness Report differs from international reports in terms of the number of countries listed in the ranking and their selection based on their relative performance, which relies in its calculations on the comparison of Arab states to a group of non-Arab countries representing a benchmark to the Arab performance in international markets.<sup>31</sup> These countries have been selected because their performances were at some point in the past similar to that of the Arab countries, but they surpassed them in competitive performance.<sup>32</sup> This report revealed the superiority of the comparative performance and individual performance of the concerned states over the performance of the Arab region, whether at the level of the aggregate indices or sub-indices

(0.5 for the comparison countries on the competitiveness index versus 0.39 for the Arab countries).<sup>33</sup> The chart (Figure 1.4) indicates the gap between the performances of the Arab states as a group, versus the group of comparison states.

Figure 1.4

The Arab Competitive Performance and That of Comparison Countries



Source: Arab Planning Institute 2012.

As for the ranking of the countries in the Arab Competitiveness Index, Bahrain came 4th (an average of 0.53) and UAE 5th (an average of 0.52). These are the only two Arab rankings among the top 10 countries, headed by South Korea (an average of 0.68), then Ireland (an average of 0.65), Malaysia (an average of 0.53), while Sudan, Yemen, Mauritania and Syria held positions in the last five ranks.

The Arab region's index for the year 2012 compared to that of 2009 reveals a decline from 0.33 to 0.11,<sup>34</sup> a drop that the report attributed to the performance of the Gulf States which achieved advanced positions, where their average reached 0.48. The decline included the current competitive gap, where the region had an aggregate economic performance index equal to that of the comparison states (0.51), and slightly surpassed them in terms of the government intervention index (the average for the Arab states is 0.62, the comparison states 0.59). The region recorded averages that were close to those of the comparison countries in most of the other current competitiveness sub-indices, except the governance and

The Global Innovation Index 2014 indicates a major gap in the innovation indices and knowledge indices in the Arab region

institutions' efficiency index, where the gap amounted to approximately 30%, and the cost of doing business (a gap of 21%).

In latent competitiveness however, the Arab region needs to make long-term efforts and investments, particularly in developing technology infrastructure, the human capital and innovative energy. The gap reached 30% between the Arab region and comparison countries; South Korea ranked first scoring 0.74 on the Latent Competitiveness Index. The two Arab states that ranked in the top were Bahrain (8th position, scoring 0.48) and the UAE (9th position, scoring 0.47).

There is no doubt that the indices on which latent competitiveness is built are closely and organically related to all of the development pillars, as well as with the knowledge status and the other competitiveness indices. The Innovative Energy and Localisation of Technology Index, in which the Arab region shows a gap of 50%, has an impact on other basic indices, such as the Human Capital Index. The report mentioned several problems facing the Arab countries in this regard, of which include: "the few resources allocated to R&D, the scientific research options, fields, quality of outputs and prospects of its application, in addition

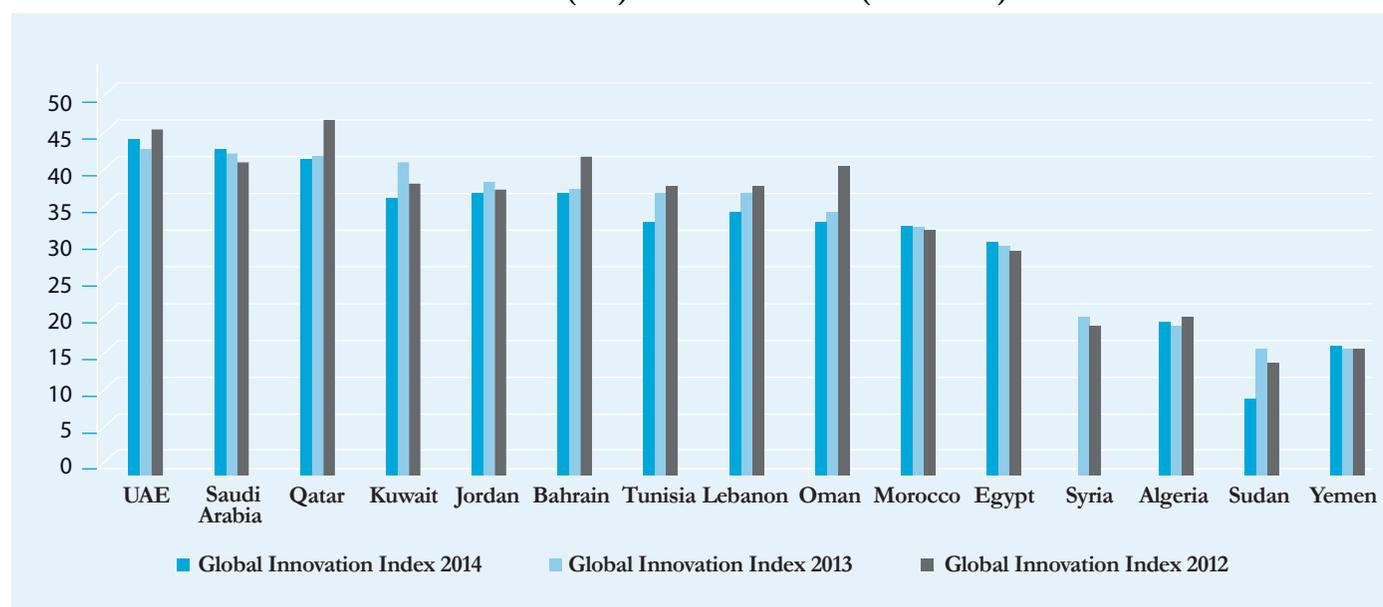
to weak basic ties between education, technology and production, as they work separately".<sup>35</sup>

***The Evolving Gap as Reflected in the Global Innovation Index***

Business School for The World, known as INSEAD, has been publishing the Global Innovation Index (GII) annually since 2007. The 2014 report was published in partnership with the World Intellectual Property Organisation (WIPO) and Cornell University. This index is not only concerned with measuring the inputs and outputs of the innovation process, but rather with the wider innovation policies that aim at creating the innovation links through the partnership between industry and knowledge, the formation of innovative groups and the spread of knowledge. The GII 2014 indicates a major gap in the innovation indices and knowledge indices in the Arab region, reflected in the value, rank and progress of the "Global Innovation" indices for the region, in comparison to other regions of the world. The Index also shows the discrepancy in performance in some knowledge indices across Arab countries, with the Arab Gulf countries of oil-based economies being more advantaged (Refer to Figure 1.5).

Figure 1.5

The Evolution of the Global Innovation Index (GII) for Arab Countries (2012 – 2014)



Source: Cornell, INSEAD & WIPO 2014.

On the sub-indices level, Kuwait ranked first in the per capita average of the Electricity Output Sub-Index. Qatar ranked second in the Technology & Organisational Model Creation Index and first in the Innovation Linkages Index, where UAE ranked second. UAE ranked first in the Ease of Paying Taxes Sub-Index, followed by Qatar in second place and Saudi Arabia in the third. UAE shared the first place globally with Oman, Jordan and Bahrain in the Cost of Redundancy Dismissal of Workers Sub-Index. UAE also shared first place globally with Oman, Qatar and Jordan in the Strategic Alliance Deals sub-index. UAE has also ranked first globally in the Intangible Creative Outputs Assets index, followed by Saudi Arabia in fifth place.<sup>36</sup>

It appears, from what preceded, that the situation of knowledge in the Arab region has witnessed a slight progress, with the persistence of discrepancies of varied importance from one country to another and from one field to another, as well as the widening of the gap between the Arab region and other regions of the world. This is evidenced in several indices: the implicit knowledge, the written knowledge and the World Bank indices, which include the KI and the KEI (the pillars of economic incentives and the institutional regime, education and human resources, the innovation system, and ICT). All of this confirms the currently limited capability of the Arab countries to produce, employ and diffuse knowledge in the Arab region, which requires drafting optimal strategies that can support the development of knowledge, and this is to be addressed in subsequent chapters.

### ***The Youth Bulge in the Arab Region***

The Arab region is considered among the regions of the world with the highest population growth rates, estimated at approximately 2.4% annually between 1980 and 2010,<sup>37</sup> and 2.06% in 2013.<sup>38</sup> The total population in the Arab states in 2012 was estimated at approximately 370 million people.<sup>39</sup> The available data indicate that the proportion of the population in the Arab region belonging to the economic activity

age group (15 – 64) is approximately 63% of the total population according to 2013 estimates.<sup>40</sup>

The Arab Development Challenges Report 2011 estimates, for instance, the population of the Maghreb states [Morocco, Algeria and Tunisia] at around 84.7 million in 2010, expected to increase to 90.5 million in 2015. The percentage of the youth in the age group 15-24 in these states reached 20% in 2010, and it is the same percentage for the entire Arab region; while the age group 25-64 had a percentage of 48% in the Maghreb states and 43% in the Arab region for the same year. It is to be expected that this percentage will in 2015 reach around 51% and 45% in the Maghreb states and the Arab region respectively. In Egypt, the population reached 84.5 million people in 2010, and is expected to reach 91.8 million in 2015;<sup>41</sup> the youth (15-24 years) constituted 20% of the population in 2010, and the percentage is expected to decrease to 18% in 2015. The Arab Development Challenges Report states that the expansion of the youth proportion in the region will increase to its highest levels in 2015 in countries such as Yemen and the state of Palestine, while it is expected to decrease in other countries like UAE, Tunisia, and Qatar.<sup>42</sup> The general percentage of the youth will drop in 2025 to 17% approximately, but the actual numbers of youth between 15 and 24 years are expected to increase by more than 7 million people for the total regional population.<sup>43</sup>

What raises concern in this demographic situation is that the estimates of the age group under 15 years for the year 2015 amount to 32%,<sup>44</sup> and that more than half of the population in the Arab region is under 25 years of age. In addition, and according to some estimates, one in every five people in the Arab region is aged between 15-24 years.<sup>45</sup> These percentages indicate that the Arab youth will, for the years or decades to come, put increasing pressure on resources in the Arab region to provide education, work and social services. If these needs are not fulfilled, this will lead to the spread of illiteracy and ignorance, with an increase in unemployment and poverty rates and

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**Table 1.1**

**Statistics and Proportion Estimates for the Population under the Age of 24 in Selected Arab States (%)**

Country	2000	2020	2030
Egypt	55.7	32.5	28.1
Iraq	61.7	53.9	47.2
Yemen	65.3	68.4	65.7
Algeria	56.5	40.9	37.4
Morocco	55.1	43.4	38.4

*Source: Cabras 2010.*

This demographic challenge exists in all countries of the Arab region; the rich and the poorer ones

what this entails later in terms of negative social effects, an increase in instability and escalation of radical movements. The mobilisation of the youth since the end of 2010 and to now, must be seen as a possible result of neglect by the Arab societies. Such results can include regression of personal, social and economic development, in addition to threatening the foundations of cultural cohesion and social stability in these communities.

The youth status constitutes a challenge, particularly with the high rate of population growth in the region; even if it has relatively decreased in recent years. This places a lot of pressure on policymakers to establish a clear development vision and effective strategies in light of the accelerating global variables and culture requirements of the knowledge society era. This is possible by leading the process of investing in the youth capital, or more appropriately, asset, not only to drive economic growth, but also to achieve the historical task of Arab advancement. This demographic challenge exists in all countries of the Arab region; the rich and the poorer ones. The countries that produce oil and enjoy wealth need labour, and they have become targets for willing workers. However, as the numbers of incoming workers are growing, exceeding sometimes more than double the numbers of the citizens themselves, new challenges and concerns are arising, especially over the economic and social compositions of these states. However, this does not overshadow the challenge of active integration of young citizens in the Gulf States in the development process, including the participation in the transfer and localisation of knowledge.

As for less developed countries, such as Yemen, the challenge lies, in addition to poverty, in the mixture of the tribal and religious composition with the demographic constitution.

There is also preliminary evidence that raises concern over the current policies and their ability to make a change in the development pattern, achieve a historical quantum leap in terms of preparing the youth and expand the opportunities and capacities of participation and advancement in the Arab region. These challenges are exacerbated by the different forms of marginalisation and social and political exclusion of the youth in many countries,<sup>46</sup> the insufficient environments of equality and deficiency in social justice policies,<sup>47</sup> the continuity of some forms of gender discrimination,<sup>48</sup> the weak quality of education,<sup>49</sup> the deficiency in health and food<sup>50</sup> and high unemployment rates among the youth (27%) which significantly exceeds the global rate (12.6%).<sup>51</sup>

All these issues raise concern about the future of the youth and the capability to prepare them for the historical mission of establishing the aspired-for knowledge society.<sup>52</sup> They also raise concern about the future of the Arab region in an era of globalisation where only those capable of competing in education, knowledge and technology shall prevail.

On the opposite side, there are many successful models worldwide on youth welfare and empowerment; in relatively small states (such as Finland and Singapore), middle-sized states (such as the Republic of Korea), and other large states (such as

China and India). These have been able, in varying degrees, to invest their human resources in building a cognitive human capital that encompasses education, knowledge, skills and technology, thereby gaining a technological grasp and effectively competing in the world economy. The question to be posed here is: can Arab states adopt serious policies and strategies that can transform this demographic challenge of youth inflation from a developmental threat into a developmental opportunity? Can these policies succeed in forming the youth and engaging them in the processes of knowledge localisation while achieving a social and cultural change coupled with economic growth? Can this be achieved while also transforming the youth into a knowledge-producing force that contributes to the achievement of economic growth, in areas where only developed countries or countries that are earnestly striving to access the knowledge society will thrive?

The demographic status of the Arab youth oscillates between optimism and pessimism. There is a sociological and economic truth indicating that when job opportunities increase, the youth group becomes a source and a support for an incentivising force. This status of the youth in the Arab world can create a favourable opportunity for the success of development; if the Arab countries succeed in integrating the youth effectively in the development process. The labour force in the region outnumbers the retired elderly. This is an opportunity that will remain until 2050, as is the case in Iraq, Yemen and Gaza.<sup>53</sup> However, the situation might change when job opportunities become scarcer. This youth could become a dangerous force that might threaten social stability and hinder development. Therefore, the status of distorted development might transform the youth inflation in Arab countries into a channel of exhausting resources instead of being a source of strength and economic and social development.<sup>54</sup>

Herein lies the root of the problem: the youth represents, in any given society, a force for change and a lever for advancing towards

the transfer and localisation of knowledge with what they own in terms of cognitive and economic efficiencies, participation in production, high productivity and strong incentive in knowledge economies. Nevertheless, in the Arab world, we find them to be marginalised and excluded. The question therefore becomes: what is the cost of excluding and marginalising the youth (in aspects of unemployment, idleness, dropouts, the weakness of education quality and vocational formation, immigration, poverty and weakness of participation)?

### ***The Challenges Facing the Integration of the Youth in Knowledge and Development***

The knowledge gap and the youth bulge are two major indicators that raise concern over the future of the knowledge society in the Arab region. They point out the necessity of economic and political reforms to expand the opportunities for growth and development and integrate the youth as a productive force in the process of the transfer and localisation of knowledge. This would pave the way for a move towards the knowledge economies and political and developmental systems capable of integrating into the global culture for the welfare of the Arab people. However, the Arab region is facing, in addition to the knowledge and youth integration gap, a series of challenges in moving towards the knowledge economy. These differ in their nature and intensity according to the diversity of the countries in the region, which vary between those that are rich in resources and/or labour; and others that are rich in resources or that import labour; and underdeveloped countries.

The first challenge to the processes of transfer and localisation of knowledge lies in the weakness of education, training and scientific research institutions, on which the preparation of the human capital capable to achieve this mission depends. This results in the spread of illiteracy and technological illiteracy, and the emergence of a knowledge and skills gap between education outputs and the needs of the labour market. This is due to the weak foundation of human

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Arab countries are in need of around 17 million new job opportunities until 2020, in order to maintain a constant level of unemployment. It is to be noted that this number would increase to about 28 million if the Arab region seeks full employment, and a more challenging 56 million jobs to achieve full employment with a high level of women participation in the labour force. Other estimates suggest even higher numbers

capital which has led to a lack of young people trained in knowledge management, a limited capability of benefitting from advanced ICT, and a lack of information systems and databases for disseminating and employing knowledge. Furthermore, the new projects in the region were restricted to the transfer and use of technology instead of the processes of the transfer and localisation of knowledge and technology. The lack of technical cadres has also led to the weakness of both research and development networks and innovation and renovation ones. This has resulted in the absence of relations and networks of communication between research centres and universities and between research centres and production and investment sectors.

The second challenge is embodied in the expansion of the governmental public sector, and its ability to attract young job seekers. With employment being solely based on diplomas and not on merit and competency, the youth have lost the motivation to acquire new skills and knowledge that prepare them for the knowledge economy; as long as the governmental sector is guaranteeing them a secure job they will accept it, even if it offers lower wages. The reports indicate that the public sector in the countries of the region has expanded to great degrees, providing 22% of the total jobs in Tunisia, approximately one third of the jobs in Syria, and 35% in Jordan and Egypt; while if the agriculture workers are not to be included in the number of workers, this percentage will increase to 42% in Jordan and 70% in Egypt.<sup>55</sup>

The third challenge is the weakness of the private sector, which in turn leads to the weakness of the manufacturing industries. For instance, a study conducted in Sudan in 2010 linked the limited benefits from foreign projects and their returns in terms of technologies, to the weakness of the local producers and suppliers. Another study confirmed that the absence of the private sector and the weakness of entrepreneurship were hindering the localisation of knowledge and technology. The obstacles lie in the scarcity of supply and local resources

necessary for producing knowledge, as well as in the shortage of internal demand that motivates production and not appropriately benefitting from the knowledge and technology that are transferred.<sup>56</sup>

The fourth challenge is related to the weakness of the private sector and the expansion of the public sector, and lies in the weakness of the entrepreneurship public policies in the countries of the region. A report on world competitiveness indicators in the Arab region showed that while the project registration rate for every 1,000 workers aged 15-65 years was 4 in the high-income states in the world, this rate was around 0.666 projects per 1,000 workers in the MENA countries, which are mostly Arab states; an average that slightly exceeds that of the countries of Sub-Saharan Africa. The report stated that Tunisia and Oman ranked first among the Arab states in the averages of entrepreneurship projects, with approximately one project for every 1,000 workers of the labour age.<sup>57</sup>

The fifth challenge lies in youth unemployment. As previously noted, the youth bulge in the Arab region is among the highest in the world, and features at the same time the highest unemployment rates. This marginalisation of young men and women in the labour market will lead to their marginalisation in all areas of public life (e.g. the inability to own a home, consumption, delayed age of marriage), and will hinder them from moving into adulthood. This makes the Arab region lose the force that can bring about the transfer and localisation of knowledge, and its transition to the knowledge society. In this context, the UNDP Report confirms that the Arab countries are in need of around 17 million new job opportunities until 2020, in order to maintain a constant level of unemployment. It is to be noted that this number would increase to about 28 million if the Arab region seeks full employment, and a more challenging 56 million jobs to achieve full employment with a high level of women participation in the labour force.<sup>58 59</sup>

The sixth challenge is youth migration or

the Arab brain drain. Among all region in the world, the Arab region is one of the most affected by the emigration of highly skilled academics and researchers. Migration estimates show that between 10 to 15% of the Arab youth migrate, and that the migration rate is high among graduates of higher education institutions (9% on average) in the MENA region, which is constituted mostly of Arab countries. This is double the global rate. The rate increases to reach 35% in Lebanon and 17% in Morocco. This results in a loss of human capital in these countries.<sup>60</sup>

The seventh challenge lies in the weakness of governance, especially with respect to the mobilisation of institutions, and the lack of transparency. Economic researchers agree that transparency and integrity play a role in motivating the markets and incentivising the capitals. The absence of these factors weakens the economic mentality. In this respect, the Global Transparency Index points to a decrease or stagnation in the vast majority of the Arab states regarding the value of the Index between 2012 and 2013. Most of the Arab states occupied positions below the top 50, except UAE (rank 26 of 177) and Qatar (rank 28), while 6 Arab states recorded positions among the last ten. These are: Yemen (167), Syria (168), Iraq (171), Libya (172), Sudan (174) and Somalia (175).<sup>61</sup>

The eighth challenge is that of the Arabic language. There is no doubt that language is a receptor that fosters, feeds and establishes the pillars of culture and knowledge. Within this scope, especially if we consider the pivotal role of language in fostering and feeding knowledge, the creation of the knowledge society calls for continuous care, development and reform of the language, in line with the changing and increasing requirements of the knowledge societies and economies. Furthermore, neglecting such a need can be very costly when it comes to the cognitive, cultural, social and economic aspects. Reform and support in this context refer to enabling the language to play its knowledge-incubating role, as well as its role as a facilitator and a yielding instrument for creativity and productivity, instead of holding

on to rigid undeveloped moulds. Within this general scope, the Arabic language is facing a number of challenges in which the cultural, institutional and internal factors mix, as will be elaborated in Chapter 4.

In conclusion, despite the major importance of human capital on all levels of sustainable human development and in building the knowledge society, as well as the impossibility of moving forward without the human element, the Arab states are still far from what is required to achieve tangible results. The outcomes and facts revealed in international and Arab reports, as well as scientific research, highlight the great responsibility that has been placed on Arab researchers and intellectuals to continuously research and investigate issues of knowledge and youth empowerment and approaches for preparing them for the transfer and localisation of knowledge as well as providing enabling environments in politics, economics, society, culture and language. This shall assist Arab governments in assuming their historic responsibilities and adopting national policies that can effectively achieve the aspired-for quantum leap in Arab development and move from traditional economic activities with low knowledge added-value, to a new development structure aimed at building a knowledge society with the active integration of the youth in the global competition arena. This would result in greater advancement and welfare for the generations to come; a decent living, justice and freedom for the people in the Arab region. This is what makes the integration of the youth in the processes of knowledge transfer and localisation a multi-dimensional and challenging issue.

## General Methodology

This report adopts three approaches for critically and comprehensively addressing the central issue; “the efficient integration of the Arab youth in the transfer and localisation of knowledge”. The first approach is based on a desk review that offers a critical analysis of the results of the available international reports, scientific research, as well as international

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and Arab literature, that are relevant to this report's intellectual frameworks, and thus providing a continuation of the methodological journey towards the establishment of the knowledge society in the Arab region since the first AKR report in 2009. A comprehensive critical review has been carried out on the most important and relevant regional and international literature, including those issued by the United Nations, international organisations, the World Bank, the Arab Monetary Fund, the International Monetary Fund, the International Labour Organisation and the Arab Labour Organisation, as well as the most important studies and research issued by Arab and international research centres and bodies.

The second approach, and in continuation of the field approach adopted by the previous AKRs, is the field study carried out by the AKR team on the status of the youth and their integration in the process of the transfer and localisation of knowledge. The research included four case countries: the UAE, Jordan, Tunisia, and Morocco. It adopted two testing tools to measure a range of cognitive skills and on a questionnaire to gather the views of students and their perceptions concerning the mechanisms of the transfer and localisation of knowledge and the associated enabling environments.

The third approach is also an inclusive one, and it included the organisation of national and regional meetings and brainstorming workshops with a selection of participants from a variety of backgrounds related to the topics of this report. Brainstorming workshops were organised in Tunisia, Jordan and the United Arab Emirates. They brought together, in addition to groups of university students, influential intellectuals, researchers and specialists from various Arab countries and from different sectors related to the topic of the transfer and localisation of knowledge.

### Structure of the Report

Within the developmental context in the Arab region and the surrounding obstacles

and difficulties faced by the region in building the knowledge economy and the knowledge society, the issue of the integration of the youth in the process of the transfer and localisation of knowledge requires addressing three dimensions:

- The first dimension is the challenges posed by the knowledge gap: the Arab world experiences a “knowledge gap” as shown by the various knowledge indicators as well as Arab and international competitiveness indices. This gap is represented by the fact that the Arab region lacks the main engines to bring about tangible development with regards to the requirements of the knowledge economy and the knowledge society.
- The second dimension is the challenges associated with the youth bulge: the Arab world faces a demographic reality characterised by a large and unprecedented “youth bulge”. The Arab world has yet been unable to transform this bulge into a “human capital” capable of effective engagement in the processes of knowledge transfer and localisation.
- The third dimension is the challenges of the surrounding environments: the Arab world faces a range of challenges related to knowledge, youth and the surrounding environments (cultural and institutional). Such challenges weaken the efforts aimed at the transfer and localisation of knowledge and at integrating the youth in these processes, and thus hinder the bridging of the knowledge gap and prevent the building of the sought-after knowledge economies and societies. This inability means that there is a necessity to rehabilitate the Arab environments to become more supportive and empower young people to carry out their vital role in achieving a knowledge renaissance.

These are the most important dimensions that constitute the essence of the issue addressed in the present report, which

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In continuation of the field approach adopted by the previous Arab Knowledge Reports, a field survey was conducted in 4 Arab countries (Jordan, UAE, Morocco, Tunisia)

aims at enriching the intellectual dialogue on the situation of Arab knowledge, and putting further pressure on the Arab region to find ways to address the challenge of the transfer and localisation of knowledge through reinforcing the role of the youth and increasing their readiness to effectively integrate into the process. This would set the foundations for a new Arab development based on the knowledge engine and achieve at the same time cognitive security, economic growth, social justice and progress in civilisation.

In addressing the issue of youth integration in the processes of knowledge transfer and localisation, this report builds on an in-depth understanding of the importance of knowledge and its necessity to bring about the economic development capable of expanding the opportunities for young people and unleashing their creative abilities. The report comprises six main chapters. The introductory chapter addressed the importance of knowledge and the challenges faced by the Arab region in its pursuit of knowledge economies and the knowledge society. The chapter noted the widening knowledge gap in the Arab region based on the available standards, including those from the World Bank, the Arab competitiveness and the GII. The second challenge according to the chapter is the youth bulge, which should be transformed from being a burden on development to a lever for development and progress brought about by the transfer and localisation of knowledge. The third challenge is related to the pattern of economic and social development which, as data and analysis show, is a rentier system that neither provides sufficient employment opportunities for the Arab youth nor predisposes the establishment of knowledge societies and knowledge economies. This is reflected in high unemployment, the inflation of the public sector, the weakness of the private sector and the inability to create systems of equality and participation, as well as the weakness of scientific research systems necessary for development processes that lead to the knowledge economies.

The second chapter discusses the key concepts related to the variables needed to address the knowledge gap and build competitive economies that focus on scientific research, development and innovation. The discussion highlights the importance of four factors – knowledge, youth, development and globalisation – as an integrated system in which each factor interacts with the other. The chapter goes over the intellectual efforts to define the youth, taking into account the different concepts and classifications, and justifying the selection of the age group, 19 to 29, for the field studies sample; the category of young people pursuing undergraduate and graduate studies and on the verge of stepping into the labour markets. In all cases, youth is a state of psychological and social awareness that reflects the period of transition to adult life and the integration in it. As for the concept of globalisation – the third concept – the chapter also discusses its meanings, historical developments and the relation between this and the technology and knowledge revolution, the emergence of giant multinational corporations and the associated tools in the regulatory and governing institutions, including the World Bank and the World Trade Organisation. In addressing the fourth concept that completes the quartet, namely development, the discussion focuses on the concept of the knowledge society in its broader social, cultural and economic dimensions. This leads to an emphasis on the fact that the elements of the knowledge society are not only limited to knowledge but also include elements of social justice and cultural contexts based on the triad of: the development of individual capacities, the enabling environments and positive citizenship based on participation, equality and women's empowerment.

In light of what is presented in Chapter 2 in terms of frameworks and concepts, the third chapter addresses the issue of efficient youth integration in the transfer and localisation of knowledge. It addresses the issue through four axes: the cognitive effectiveness, the cultural effectiveness, the economic effectiveness,

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In addressing the issue of youth integration in the processes of knowledge transfer and localisation, this report builds on an in-depth understanding of the importance of knowledge and its necessity to bring about the economic development capable of expanding the opportunities for young people and unleashing their creative abilities

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The report emphasises the role of universities and higher education institutions as incubators and as a key mechanism in the preparation and rehabilitation of young people to this historic task of dealing with knowledge, globalisation and development in their countries

and the social effectiveness. The cognitive effectiveness is identified in four levels: the first refers to the extent to which young people master the minimum basic level of required knowledge and skills. The second level refers to the extent to which young people have distinctive knowledge and skills that enable them to interact with the requirements of globalisation and the building of a knowledge society. The third level deals with young people's capability in dealing with technology, notably ICT. Then comes the fourth level, which discusses the ability of young people to conduct scientific research and innovate, given that these are some of the most important pillars in contributing to the development of a country and supporting its capacity to compete globally. The chapter also addresses cultural efficiency, noting the various factors influencing the formation of culture, values and identity among young people in open worlds that are expanding with knowledge societies, globalisation and the ICT revolution. The chapter explains the different influences of multiple factors; from what people are exposed to or what they inherit, the openness to the world, the absence of cultural development policies, the emergence of an intergenerational cultural disparity, and the emergence of a hybrid culture among young people. This chapter also addresses the economic and social efficiency of young people through the analysis of the states of unemployment, the absence of social justice, weak protection policies and the marginalisation of women.

The fourth chapter then discusses the enabling environments that are favourable to the formation of young people, with and through which they deal with the processes of knowledge transfer and localisation. The chapter stresses that these enabling environments are either supportive or inhibitive to the ability of the youth and their integration into the processes of the transfer and localisation of knowledge. The chapter emphasises the role of universities and higher education institutions as incubators and as a key mechanism in the preparation and rehabilitation of young people to this historic task of dealing with

knowledge, globalisation and development in their countries. It also discusses the status of scientific research and innovation in terms of regulatory policies and the governance of incubating institutions and their structure. The chapter then tackles the third element in enabling environments, i.e. development, in terms of its nature, the level of conduciveness of governance, the labour market atmosphere, the foreign direct investment, and the poverty situation that cripples all human capabilities.

The fifth chapter presents the results of the field study conducted by the AKR team on a sample of higher education students in four Arab countries (the UAE, Jordan, Tunisia, and Morocco). The study was based on tools that were developed and tailored specifically for the purposes of this report. One such tool was a test to measure a number of cognitive skills and a questionnaire to collect data on youth activities, the surrounding enabling environments and youth's relationship with the issue of the transfer and localisation of knowledge. The results revealed a lack of required skills, along with a low level of cultural, economic, social and political events. They also showed a variation in the degree of satisfaction with the various components of the higher education system, and with the role of economic and youth institutions in empowering young people and helping them integrate into the processes of the transfer and localisation of knowledge. The chapter concludes with a set of major findings and recommendations to better enable young people to perform their role in achieving the development of their society at all levels.

The report concludes with a sixth chapter that sums up the challenges identifies and indicates the dilemmas and problematics of the status of the Arab region in its interaction with this historical process aimed at the efficient integration of young people in the transfer and localisation of knowledge. Following the approach of the previous knowledge reports, the chapter provides a future vision on how to navigate the "ship of Arab knowledge". The sail of this ship relies on building the capacity of youth, its base is

the enabling and supportive environments, its body is the processes of knowledge transfer and localisation, and its main engine is the mechanisms to activate the efficient participation of the youth in the transfer and localisation of knowledge. These elements are only complete with the activation of the mechanisms of governance, accountability, openness, communication and institutions, and on the basis of active citizenship, justice and knowledge.

In presenting these perceptions, this report aims ultimately at establishing a fruitful dialogue on the needs and approaches for action to grasp the current historic opportunity and its elements represented in the knowledge revolution, youth bulge and wealth of countries in the region. This happens in a changing world that heads towards a globalisation that is based on knowledge, sciences, innovation and creativity as well as the foundations of social justice.

## ENDNOTES

- <sup>1</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2009. (Reference in Arabic)
- <sup>2</sup> Utz & Aubert 2013.
- <sup>3</sup> GNP per capita 2013, according to UNDP 2014. (Reference in Arabic)
- <sup>4</sup> World Bank 2012a.
- <sup>5</sup> Utz & Aubert 2013, UNDP 2009 (Reference in Arabic) and UNDP 2003 (Reference in Arabic).
- <sup>6</sup> Amartya Sen 2004 & Kishore Mahbubani 2009. (References in Arabic)
- <sup>7</sup> Aghion & Howitt 2004.
- <sup>8</sup> Klette & Griliches 1998.
- <sup>9</sup> Nelson & Winter 1982.
- <sup>10</sup> Abramovitz & David 1996.
- <sup>11</sup> David & Foray 2002.
- <sup>12</sup> OECD 1997.
- <sup>13</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
- <sup>14</sup> Refer to Chapter 5 of this report for the field study.
- <sup>15</sup> UNDP 2002 & 2003. (Reference in Arabic)
- <sup>16</sup> UNDP 2004. (Reference in Arabic)
- <sup>17</sup> UNDP 2005. (Reference in Arabic)
- <sup>18</sup> UNDP 2004 & UNDP 2005. (Reference in Arabic)
- <sup>19</sup> UNDP and Mohammed bin Rashid Al Maktoum Foundation 2012. (Reference in Arabic)
- <sup>20</sup> This part is largely based on a background paper prepared by Samia Satti Nour for the report
- <sup>21</sup> The World Bank uses the Knowledge Index and the Knowledge Economy Index, which explain the rating of the countries based on their capability of producing, employing and diffusing knowledge. The KEI is used to compare knowledge across the countries of the world. This approach is based on the assumption that the knowledge economy comprises four sub-indices: economic incentives and the institutional regime, education, the innovation system, and the ICT. The economic incentives and institutional regime sub-index comprises the tariff and other restrictions, the regulatory quality, and the rule of law. The education and human resources sub-index includes literacy skills, average years of education, enrolment in secondary and university education. The innovation sub-index includes Royalty and License Fees Payments and Receipts for Intellectual Property, Utility Patents Granted by the US Patent and Trademark Office, and Scientific and Technical Journal Articles. The Information and Communication Technology (ICT) sub-index comprises the telephone, mobile, computers, and internet users. The KEI value is calculated based on data for twelve indicators. The index value falls on a scale of 0-10 (for more details about the structure of the KI, refer to Annex 1, Figure A 1-1).
- <sup>22</sup> World Bank 2012a.
- <sup>23</sup> Samia Satti Nour (background paper).
- <sup>24</sup> Samia Satti Nour (background paper).
- <sup>25</sup> For more figures explaining the evolution of the sub-indices of the KI and the KEI, refer to Annex (A 2-1, A 2-2, A 2-3).
- <sup>26</sup> It is to be noted that the competitiveness reports rely in some of their indices on opinions surveys that take place in all the countries included in the report, and encompass, among others, the business schools and certain decision-makers. For more details on the index elements, refer to Annex 1, Figure A 1-2.
- <sup>27</sup> For more details on the composition of the Index, refer to Annex 1, Figure A 1-2.
- <sup>28</sup> World Economic Forum 2013.
- <sup>29</sup> Arab Planning Institute 2012. (Reference in Arabic)
- <sup>30</sup> Arab Planning Institute 2012. (Reference in Arabic)
- <sup>31</sup> These countries are Ireland, the Czech Republic, Mexico, South Korea, Chile, Portugal, Malaysia, South Africa, Argentine, Brazil, China, Greece and Turkey.
- <sup>32</sup> Arab Planning Institute 2012. (Reference in Arabic)
- <sup>33</sup> The index value falls on a scale of 0 (for worst performance) to 1 (for best performance)
- <sup>34</sup> It is to be noted that the sample of compared states in the Arab Competitiveness Report 2009 is different from the sample for the same report for the year 2012, which is reflected on the relative performance of the states.
- <sup>35</sup> Arab Planning Institute 2012. (Reference in Arabic)
- <sup>36</sup> Cornell University, INSEAD & WIPO 2014.
- <sup>37</sup> Mirkin 2013.
- <sup>38</sup> Report team calculations based on the World Bank data. The geometric mean was used for calculating the ratio, if the arithmetic mean was used, the ration increases to 2.45%. For more information, please refer to Annex 4, Table A 4-1. Source: World Bank 2014a.
- <sup>39</sup> Report team estimations based on the data of the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat for the year 2013. World Population Prospects: The 2012 Revision. New York: United Nations.) Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. Please refer to Annex 4, Table A 4-1.
- <sup>40</sup> For more details, refer to the annex. Source: US Census Bureau 2014.
- <sup>41</sup> UNDP 2011.
- <sup>42</sup> UNDP 2011.
- <sup>43</sup> Cabras 2010.
- <sup>44</sup> Report team calculations based on the UNDP database UNDP 2011.
- <sup>45</sup> UNPY & ESCWA 2011.
- <sup>46</sup> Bush & Ayeb 2012.
- <sup>47</sup> Salehi-Isfahani & Dhillon 2008.
- <sup>48</sup> World Bank 2013. (Reference in Arabic)
- <sup>49</sup> World Bank 2008.
- <sup>50</sup> UNDP 2011.
- <sup>51</sup> Mirkin 2013.
- <sup>52</sup> Refer to a more detailed discussion on the effectiveness of the Arab youth – Chapter 3 of the Report.
- <sup>53</sup> Cava et al. 2010.
- <sup>54</sup> Cabras 2010.
- <sup>55</sup> Ahmed et al. 2012.
- <sup>56</sup> Nour 2011.
- <sup>57</sup> O'Sullivan et al. 2012.
- <sup>58</sup> UNDP 2011
- <sup>59</sup> Cabras pointed out (Cabras 2010) that in order for the rate of workers to reach 64% in the year 2020, the MENA region needs 80 million job opportunities.
- <sup>60</sup> Chaaban 2012.
- <sup>61</sup> Transparency International 2013.