



Jordan: Background Study

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Acknowledgements

This document was written as part of a series of InnovATE background studies. These are studies conducted on the AET system in a particular country, at times with particular attention paid to an AET institution or program. Background studies are based partially on USAID mission interest, partially on the presence of interesting AET activities or problems, and on providing a geographical balance. Most of the initial work on the studies will be done through desktop review of available literature and communication with experts. The remainder of the information is sometimes amassed through data collection visits. Lessons learned in one country can often be applied in other countries.

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Introduction

Innovation for Agricultural Training and Education (InnovATE) is a USAID-funded project supporting the capacity development of agricultural training and education systems from primary school through secondary institutions as well as vocational and technical schools and universities. The InnovATE program, implemented by a consortium of US universities led by Virginia Polytechnic and State University and including Pennsylvania State University, Tuskegee University, and the University of Florida, aims to strengthen the range of institutions that train and educate agricultural professionals (InnovATE, 2013).

The InnovATE program takes a "learn, design, train" approach to capacity development. The "learn" component of the program aims to "provide educators and practitioners with good practices and tools that promote agricultural training and education systems development" (InnovATE, 2013). Coupled with this are case studies, needs analyses, action-oriented research, and analytical work necessary to support and foster capacity development in agricultural education. The "design" component of the program "undertakes country scoping assessments that lead to program design recommendations to improve the effectiveness of agricultural training and education" (InnovATE, 2013). The "train" component "will develop materials for training programs that promote new strategies and approaches to agricultural education and training" (InnovATE, 2013).

In support of the "learn" component of the InnovATE program, a series of country desk studies will be commissioned to provide relevant background information to inform a basis for identifying gaps in Agricultural Training and Education (ATE) programs and institutions in target InnovATE countries. This paper aims to explore agricultural education in Jordan to better understand the overall educational structure, participation and performance in the educational system from pre-primary through tertiary and vocational institutions, the availability of agricultural education in Jordan, and gaps in and barriers to agricultural education.

This research examined secondary data and reports available in support of an AET assessment conducted by the innovATE team as a service to the USAID Mission. The first section of the paper will describe the overall structure of the Jordanian education system from pre-primary through tertiary and

vocational education. The second section will provide background information on participation and performance in the educational system. The third section will provide information on the availability of formal agricultural education. The fourth section will discuss gaps in and barriers to agricultural education. The final section will discuss next steps. Please feel free to provide comments and suggestions for this and any other of our publications through the contact information on the inside of the cover of this publication.

Background

The population of Jordan is 6.2 million, with 80% of the population living in urban areas, primarily located in the capital Amman and surrounding cities (WB, 2005). The population of Jordan is young with 37.3% of the population between 0-14 years in age, 56.4% between 15-64 years in age, and only 6.3% of the population over the age of 65. The median age in Jordan is 20 (FAO, 2012). The fertility rate is 3.7 children per family and the population growth rate is estimated at 4.4%, both figures which are higher than the average for the Arab States (FAO, 2010). Jordan is considered by some to be a service economy with the majority of consumption financed by remittances, a government that is heavily reliant on foreign aid, and where the state is the largest employer at over 25% of employed men and 46% of employed women (ETF, 2000; UNDP, 2011).

Jordan has low employment rates when compared to other countries in the the region estimated at 64.8% of men and 14.9% of women. Employment of women is particularly low where the regional estimates are at 28%, and global estimates in developing countries are at 46%. The foreign workforce in Jordan is estimated at 24.3% of the total workforce, with the majority of foreign laborers employed in low skills jobs (UNDP, 2011).

The share of the population participating in agriculture is placed at 6.3% which is a slight 0.9% decrease from 1990-2000 figures (FAO, 2010). Agriculture accounts for less than 4% of the GDP in Jordan, although the 2011 International Fund for Agricultural Development (IFAD) Jordan fact-sheet places the combined contribution of agriculture and agribusiness at 30% of GDP (IFAD, 2011). This finding is consistent with a 1993 United States Agency for Development (USAID) study on the contribution of agribusiness to the overall GPD of Jordan which finds that traditional definitions of GDP place the

contribution of agriculture at a significantly lower proportion than the combined contribution of agriculture and agribusiness (USAID, 1993).

Less than 4% of the land in Jordan is arable and of that only 30% is currently being cultivated. Agriculture in Jordan is predominately performed by non-Jordanians who make up 62% of paid agricultural workers (UNDP, 2011). This is attributed in part to poor working conditions, low wages, and rural-urban migration of Jordanian workers. Of the total agricultural workforce, 30% are rural poor. The rising cost of food, which represents 48-58% of income expenditures of the poor and of rural families, combined with growing water scarcity are contributing to a migration out of subsistence agriculture. "The Food and Agricultural Organization (FAO) warns that food security may be threatened for 25% of the people, the hardest hit being the already poor small farmers/cattle herder households, as the decrease in livestock is causing a significant drop in protein intake among the poor" (UNDP, 2011).

Educational Structure

Education in Jordan is overseen by three main ministries: the Ministry of Education, the Ministry of Labor, and the Ministry of Higher Education and Applied Scientific Research (MoHESR) (GEI, 2009). At the level of basic and secondary education, the Ministry of Education provides 70.5% of the educational services, private school organizations provide 19.2%, the United Nations Relief and Works Agency (UNRWA) provides 8.9% of educational services primarily to Palestinian, Iraqi, and Syrian refugee students, and other non-governmental and governmental organizations provide the remaining 1.4% (ETF, 2000; MOE, 2004). This latter category includes the Armed Forces Department of Education which offers educational services to students in remote and poor areas. The Ministry of Labor provides education to students who enter the applied secondary vocational track which is intended to provide skills-based labor (Al-Sa'ad, 2007).

Pre-basic education consists of a two year optional cycle for students aged four-five years old. Kindergartens in Jordan are not sponsored by the state and are instead only available through private schools or non-governmental organization (NGO) funded schools (ETF, 2000; UNICEF, 2007; GEI, 2009). Basic education is free and compulsory beginning from ages six through 15, and includes the first grade through the tenth grade. All public schools are segregated by gender with the exception of some remote rural schools (Al-Sa'ad, 2007). After the completion of the 10th grade the Ministry of Education places

students into one of two academic secondary tracks or into applied vocational training based on their school scores from the eighth through the tenth grades, students expressed interests, and the availability of spots in academic programs (ETF, 2000). The academic tracks, called the comprehensive secondary stream, include an academic or vocational sub-stream. The academic sub-stream includes scientific, literary, or religious specializations, while the vocational sub-stream includes 32 specializations in commercial, agricultural, nursing, hotel and catering, home economics, and education fields (Figure 1).





Adapted from: MOE, 2004; WB, 2005; UNESCO, 2011

At the conclusion of secondary school, students in both the academic and vocational sub-streams sit for the General Certificate of Secondary Education Exam, known as the Tawjihi, which determines entry into higher education (Al-Sa'ad, 2007; GEI, 2009). Typically, students from the academic sub-stream are placed into higher education institutions and students from the vocational sub-stream are placed into community college or technical schools (ETF, 2000).

The applied vocational track is under the auspices of the Ministry of Labor and is intended to prepare students for direct workforce entry (GEI, 2009). The applied track is a three year program including two years of training and a one year supervised employment, with most programs in industrial and women's craft fields. Students who participate in the applied track are ineligible to participate in the Tawjihi and thus are unable to enter into higher education (Al-Sa'ad, 2007).

In addition to state-run secondary schools, UNRWA provides education to Palestinian, and more recently Iraqi and Syrian refugee students. UNWRA schools operated on a separate budget from Ministry of Education schools and differ in infrastructure, school supplies, and school schedules – most of which operate on double shifts (83% of primary and 62% of secondary) (GEI, 2009).

Most Palestinian students have been absorbed into government schools, however exact figures are unavailable. In 2007 the Jordanian government started allowing Iraqi refugee students free access to public schools, and UNICEF (2012) estimates that 27,000 Iraqi students have been absorbed into the Jordanian school system as of 2011. In 2011, the Jordanian government also started allowing Syrian refugee students free access to public schools, and it is estimated that 4,000 Syrian students were absorbed into the Jordanian school system in that year (UNICEF, 2012).

Higher education is available in two-year community and technical colleges and in four-year university level bachelors programs. The approximately 60 community colleges in Jordan are overseen by the Al Balqa' Applied University which is also responsible for the accreditation of private colleges (ETF, 2000). There are 26 four-year universities in Jordan, ten of which are public. Approximately 75% of students enter public universities. There are a limited number of masters and PhD level disciplines which are primarily available at The University of Jordan and the Jordan University of Science and Technology (ETF, 2000; Khader, 2009). A 2000 document prepared by the European Training Foundation (ETF) states that the Ministry of Higher Education was dissolved as part of educational reforms and was replaced by a Higher Education Council chaired by the Prime Minister which now oversees public four-year institutions of higher education in Jordan (ETF, 2000). However, a more recent 2009 document prepared by the Georg Eckert Institute for International Textbook Research (GEI) states that the Higher Education Council

is in fact housed under the Ministry of Higher Education (GEI, 2009). It is unclear from Jordanian governmental websites if the Ministry of Higher Education has been dissolved and under what sponsorship the Higher Education Council is functioning.

Participation and Performance

Primary Participation

Net enrollment¹ in primary education in Jordan has increased slightly from 1999 at 89% of school-aged children to 91%, which is consistent for the region though slightly low in comparison to Algeria and Tunisia with 96% and 98% of students enrolled in primary school, respectively. Jordan reached gender parity in primary education in 1999 and this has remained consistent since that time. Although total participation has increased, the percent of out-of-school children has increased as a function of the high-fertility rate and young population with an increase from 57,000 out of school children in 1999 to 83,000 in 2010. Of these children there are a nearly equal number of male and female out-of-school children at 51% and 49%. This is a more equal gender representation of out-of-school children than Algeria at 65% and Syria at 87% represented by female students (Table 1).

_	Net enrollment ratio (NER) in primary education (%)									Out of school children (000)			
Country	1999				2010				1	1999	2010		
	Total	Male	Female	GPI (F/M)	Total	Male	Female	GPI (F/M)	Total	% Female	Total	% Female	
Algeria	91	93	89	0.96	96	97	95	0.98	340	61	82	65	
Egypt	90	94	87	0.93	94	-	-	-	674	70	368	-	
Jordan	89	88	1.01	91	91	91	91	1.00	57	45	83	49	
Lebanon	92	94	90	0.97	92	92	91	0.99	22	60	30	51	
Syria	94	97	90	0.93	93	94	92	0.98	87	-	19	87	
Tunisia	94	96	92	0.96	98	99	98	0.99	64	68	5	-	

Table 1. Net Enrollment Ratio (NER) in Primary Education (%) in Select Middle-Income Arab States

Source: Table 5: Participation in primary education. (UNESCO, 2012b)

The gross enrollment ratio² in Jordan is very low in comparison with other countries within the region at 96% in 1999 and decreasing to 92% in 2010, indicating a low level of grade repetition and late entry into the primary school system. This is particularly illustrated when comparing the 2010 NER at 91% with the 2010 GER at 92% indicating a very low level of over-aged school children in Jordan (Table 2). This is likely a function of enforcement of mandatory school participation beginning at age six combined with a

¹ Net enrollment ratio (NER): the number of children enrolled in school within the official age-group of a given level schooling.

² Gross enrollment ratio (GER): The total number of children enrolled in school regardless of the official age-group. This reflects the total number of students within the official age-group and the total number of students who are over-aged due to late entry or repetition.

system of automatic promotion with standardized testing only occurring after conclusion of basic education at the tenth grade level.

Table 21 Gross Enrollment hallo (GER) in Finnary Education (35) in Sciece initiale income Alab States											
Country	Gross enrollment ratio (GER) in primary education (%)19992010								Enrollment institutior total enr	in private ns as % of collment	
	Total	Male	Female	GPI (F/M)	Total	Male	Female	GPI (F/M)	1999	2010	
Algeria	106	110	101	0.91	110	113	107	0.94	-	0.1	
Egypt	98	102	93	0.91	101	103	98	0.90	-	-	
Jordan	96	95	96	1.01	92	92	92	1.00	29	33	
Lebanon	112	115	110	0.96	105	106	103	0.97	67	73	
Syria	108	113	104	0.92	118	119	116	0.98	4	4	
Tunisia	115	119	111	0.93	109	111	107	0.96	0.7	2	

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Source: Table 5: Participation in primary education. (UNESCO, 2012b)

Secondary and Vocational Participation

Data for net enrollment in secondary school in 2010 are not available but the gross enrollment rates (which include over-aged participation) show a very slight increase in participation in secondary school with 85% participating in 1999 to 87% participating in 2010. In both years represented female students attend school at a slightly higher frequency than male students indicated by a gender parity index (GPI)³ of 1.04 in 1999 increasing slightly to 1.06 in 2010. Enrollment in vocational school in 2010 is represented by 4% of students, with 38% of those enrolled being female (Table 3). However, it is unclear if this number represents Jordanian students in both the applied secondary vocational track and the comprehensive academic vocational sub-stream. Of those students enrolled in secondary schools, 19% attend private institutions.

Table 3. Gross Enrollment Ratio (GEI	R) in Secondary Education	(%) in Select Middle-Income	Arab States
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Country	Gros	s enrol	llment ra	atio (GE (%	ER) in se 6)	econda	ry educa	ation	Enrol progra	Enrollment in private institutions			
	1999				2010			Total Secondary 2010		Upper Secondary 2010		as % of total enrollment	
	Total	Male	Female	GPI (F/M)	Total	Male	Female	GPI (F/M)	Total	Female %	Total	Female %	2010
Algeria	-	-	-	-	95	94	96	1.02	10	35	12	55	0.1
Egypt	80	84	76	0.91	72	74	71	0.96	18	43	51	45	-
Jordan	85	83	87	1.04	87	85	89	1.06	4	38	15	38	19
Lebanon	77	73	80	1.09	81	77	86	1.12	15	42	27	45	60
Syria	44	46	42	0.92	72	72	73	1.01	4	40	21	40	4
Tunisia	74	74	74	0.99	90	88	93	1.06	12	35	11	30	4

Source: Table 7: Participation in secondary education. (UNESCO, 2012b); Table 6: Secondary Education. (UNESCO, 2012a).

³ ³ Gender Parity Index (GPI): Measures relative access to education on a scale of 0-1 with 0 indicating 0 girls in school for every 100 boys and 1 representing 100 girls in school for every 100 boys. A GPI ranking between 0.97-1.03 indicates parity.

Although the GER for Jordan in secondary schools indicates that 85% of students are participating in secondary education, a study by Sanchez and Sbrana (2009) indicates that participation drops as students' progress through secondary school. In Sanchez and Sbrana's study based on the 2002 Jordanian Household and Income Survey it was found that in both private and public schools, 94.3% of students at age 16 were participating in secondary education which dropped to 76% at age 17 and 29.74% at age 18. The high enrollment at age 16 is presumed to be attributed in part to late enrollment in secondary education, while the low number at age 18 is attributed to high dropout rates (Sanchez & Sbrana, 2009).

Second Chance and Alternative Secondary Institutions

Second chance schooling for youth who have dropped out of the school system is primarily provided by the international NGO, Quetscope which has been in existence in Jordan since 2000 and has a presence in 60 communities (Engel, 2012). Quetscope provides 24 months of accelerated classes with tutoring aimed at providing education through the tenth grade standard curriculum in order to allow participants to re-enter the education system or to be eligible for micro-loans which are frequently only available to graduates of the formal education system. Quetscope targets male students from ages 13-18 and female students from ages 13-20. Approximately 7,000 students have participated in the program with 98% of students passing the Tawjihi exam (Engel, 2012; UNESCO, 2012b). In addition, Quetscope provides participants with skills training, job training, and life skills (Education for All [EFA], 2013; Engel, 2012).

Other providers of second chance and alternative secondary training include Save the Children, which includes the Najah program to train youths aged 18-24 through a six month program in life and work skills aimed at high-demand labor sectors, and the Ta'leem Emergency Education Program providing non-formal education to Iraqi refugees. The Jordanian Hashemite Fund for Human Development and the East Amman Princess Basma Youth Resource Center provide short-term training in IT and life skills (Engel, 2012).

Tertiary Participation

Data for gross enrollment in tertiary education are available for 2004 and 2010 (Table 4). Participation in tertiary education remains consistent across both years at 39% in 2004 and 38% in 2010. The gender parity index at 1.13 in 2004 and 1.16 in 2010 indicates that significantly more female students are attending tertiary education than male students. However, this is consistent within the region with Algeria, Lebanon, and Tunisia also reporting significantly more female students enrolled in tertiary

education than male students. Similarly, total participation in tertiary education ranges from 19% in Algeria to 42% in Lebanon, with Jordan near the median.

	Gross enrollment ratio (GER) in tertiary education (%)										
Country			2004		2010						
	Total	Male	Female	GPI (F/M)	Total	Male	Female	GPI (F/M)			
Algeria	19	19	20	1.08	31	25	37	1.46			
Egypt	29	32	26	0.79	32	34	31	0.91			
Jordan	39	36	41	1.13	38	35	41	1.16			
Lebanon	42	40	44	1.10	54	49	59	1.19			
Tunisia	29	25	33	1.32	34	28	41	1.51			

Source: Table 8: Tertiary Education (UNESCO, 2012a); UNESCO Statistical Database (UNESCO, 2013)

Educational Reforms

In the mid-1980's Jordan began evaluating the education system and in 1994 extensive educational reforms were passed Education Act No. 3 (Al-Sa'ad, 2007; UNICEF, 2007). The first phase of reforms, taking place from 1989-1995, focused on:

"providing the necessary infrastructure for the development of the education system and encompassed the following aspects: philosophy and objectives of the educational policy; restructuring the education system; new curricula and textbooks; educational technologies, buildings and facilities; certification and training; educational planning; research and development; cooperation with universities; preschool education; literacy and adult education; educational evaluation and administration; computer services; and educational innovations" (UNICEF, 2007).

The second phase of reforms, taking place from 1996-2000, focused on a litany of changes including improving facilities, teaching methods, equipment, educational innovations, improving assessments, and improving TVET programs (Al-Sa'ad, 2007; ETF, 2000; UNICEF, 2007). More extensive education programs were instituted such as special education for gifted and special needs children; and curricula focus such as political education, justice and democracy, military education, environmental culture, and promoting social participation (Al-Sa'ad, 2007; ETF, 2000; UNICEF, 2007).

The third phase, from 2000-2005, focused on "reorienting the educational policy, objectives, and strategy through governmental and administrative reform" (UNICEF, 2007), improving infrastructure and learning environments, building capacity of kindergartens, and developing active learning outputs. More current reforms are focusing on collaboration and cooperation with the private industry to form public/private partnerships (UNICEF, 2007).

From a vocational perspective, according to the European Training Foundations 2000 report on vocational education and training in Jordan, the educational reforms have faced significant barriers. These include overcoming traditional barriers, particularly gender barriers; a growing population; a reluctance from the private sector to contribute financially to the school system; continuing irrelevance of vocational training even under reforms; poor teacher training; and poor communication between educational institutions, training institutions, and the labor market (ETF, 2000).

Curriculum and Availability of Agricultural Education

Curriculum and Agricultural Education in Primary Schools

Jordan has a standard national curriculum that is taught in every public school throughout the country and standardized state-mandated grading procedures (Adely, 2004). In the 1990's and 2000's as a part of educational reforms, Jordan reformed their curriculum to integrate appropriate pedagogies, inservice teacher training, and equipped schools with information technologies including internet and computers (WB, 2008). Curriculum reforms have focused on core subjects of Arabic, social studies, math, science, English, information management, Islamic studies, chemistry, biology, and physics with a focus on preparing students for the "knowledge economy" (WB, 2008; GEI 2009). However, analyses of Jordanian textbooks show that Jordanian women are only presented on an equal footing as men in the fields of education, and otherwise curriculum reinforces the traditional role of women as wives, mothers, and sisters (GEI, 2009).

"The education system still sustains stereotyped gender roles and limits students' capabilities and future opportunities, directing girls into 'appropriate' professions and women into female segregated jobs. It may also perpetuate traditional social norms, which run counter to the country's current vision for a fair and open society for all" (WB, 2005). Further criticisms of the reformed system illustrate that options are limited for students who wish to change secondary tracks and that the high emphasis placed on the Tawjihi exam leads to a culture of "teaching to the test" (Shepp, 2013).

Included in the Jordanian curriculum are a series of classes forming pre-vocational education which are taught in grades 8-10. Students spend four hours a week on pre-vocational education and can choose two subjects from industrial, health, business, home-economics, and agriculture fields (WB, 2005). According to Al-Saaideh (2010), within the pre-vocational agricultural course are three main subjects, including: plant production, harvesting of crops and flowers, and animal production (Al-Saaideh, 2010). The pre-vocational agricultural curriculum is basic and practically oriented, primarily related to skills for the home.

"The provision of PVE in Jordan is intended to achieve a variety of general objectives, such as: inculcating positive attitudes towards manual work and workers, enabling students to acquire practical and applicable skills with economic and social benefits, providing the students with an opportunity to discover their affinities and aptitudes in order to facilitate their selections of prospective careers based on informed and realistic experiences" (Al-Saaideh, 2010).

Curriculum and Agricultural Education in Secondary Schools

Upon entering secondary school, students in the applied secondary vocational schools and students in the academic vocational secondary schools have the option to specialize in agriculture. Applied secondary vocational schools offer programs in industrial, business, nursing, home-economics, and agricultural fields. In the agricultural track, there were a reported 847 students over 12 educational sites with a total of 82 teachers, only two of whom were female (ETF, 2000).

Within the academic vocational sub-stream there are two agricultural sub-fields. The curriculum in the academic vocational sub-stream includes 12 hours per week of core subjects, six hours of basic science, eight hours of vocational science, and 16 hours of practical training.

In 2009 there were an estimated 10,000 students in the applied vocational schools, and 20,000 students in the academic vocational sub-stream (Engel, 2012) over a total of 190 schools. In both the applied and academic vocational schools, industrial, hotel, and agricultural tracks are almost exclusively maledominated, whereas home-economics and nursing are female-dominated (WB, 2005). In addition to public academic vocational secondary schools, the Armed Forces Department of Education supervises 20 schools with an estimated 12,000 students, including the provision of infrastructure and supplies, including some school buildings that are specialized for agriculture (MOE, 2004).

Tertiary Agricultural Education

The gross enrollment ratio in tertiary education in Jordan is 38%, with a GPI of 1.16, indicating significantly more female students attending then male students (UNESCO, 2012e). Enrollment in agricultural programs at the tertiary level has declined since 2004 and 2005 when participation was as high as 6% and 9%, respectively. The trend since 2006 has been between 1-1.7% of tertiary enrollments in agricultural programs, with 2011 reporting only 1%. Of these enrollments, from 2004-2010 more female students were enrolled in agricultural programs than male students and in 2011 there was an equal split at 50% of total enrollments in agriculture as male and female. Interestingly, the graduation rates of students in agricultural fields is highest among female participants in all four years reported, with the highest number in 2011 at 73% of agricultural graduates as female (Table 5). This is particularly interesting when considering the streaming of girls away from agricultural fields in secondary vocational schools, and may be attributable to the participation of female students in the fields of nutrition and

dietetics, which fall under the agricultural umbrella and would be considered appropriate for female students. This will be discussed further in the following sections on gender-barriers and in the focus group discussion.

Table 5: Tertiary agricultural edu	cation in Jordan
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		Tertiary Graduates in Agriculture				
Year	Total Tertiary Enrollment	Enrollment in Agriculture (%)	Total Enrollment in Agriculture	Female Enrollment in Agriculture (%)	Total	Female (%)
2004	28,255	6	1,599	54	763	56
2005	42,714	9	3,797	54	899	60
2006	31,156	1.2	3,768	55	-	-
2007	31,625	1.2	3,800	54	705	54
2008	32,842	1.3	4,131	56	-	-
2009	32,613	1.5	4,745	52	-	-
2010	24,734	1.7	4,286	52	-	-
2011	48,667	1	4,715	50	1,822	73

Source: UNESCO Statistical Database (UNESCO, 2013)

A cursory investigation of the 26 public and private four-year universities in Jordan have shown that four public institutions and one private institution offers agricultural programs at the tertiary level (Table 6). The University of Jordan offers the greatest variety of programs including eight bachelors and masters programs and six PhD programs. The Jordan University of Science and Technology offers four bachelors programs and five masters programs in agriculture. Mutah University and Al Balqa' Applied University offer four bachelors and one masters programs, and the Jerash Private University offers four bachelors

programs. Most community colleges in Jordan are satellite programs of The University of Jordan and the Al Balqa' Applied University.

Jordan Ranking	World Ranking	Public Institutions of Higher Education	Agricultural Programs	Bachelors	Masters	PhD
			Agricultural Biotechnology		Х	
1			Agricultural Economics and	v	v	v
			Agribusiness	^	~	^
			Animal Production	Х	Х	
	1070	The University of	Food Science and Technology	Х	Х	Х
	18/8	Jordan	Horticulture and Crop Science	Х	Х	Х
			Land, Water, and Environment	Х	Х	Х
			Landscaping and Floriculture	Х		
			Nutrition and Dietetics	Х	Х	Х
			Plant Protection (Pathology?)	Х	Х	Х
			Animal Production	Х	Х	
			Integrated Natural Resources		v	
		Jordan University of Science and Technology	Management		Х	
2	2285		Science and Nutrition and Food Technology			
			Plant Production	Х	Х	
			Soil and Irrigation	Х		
			Soil Water and Environment		Х	
	3336		Animal Production	Х		
			Nutrition and Food Technology	Х		
7		Mutah University	Plant Production	Х	Х	
7			Plant Protection and Integrated Pest	x		
			Nanagement			
			Production	x		
0	2450	Al-Balqa' Applied	Biotechnology	Х	Х	
0	5459	University	Nutrition and Food Processing	Х		
			Water Resources and Environmental	v	v	
			Management	^	^	
Jordan Ranking	World Ranking	Private Institutions of Higher Education	Agricultural Programs	Bachelors	Masters	PhD
			Animal Production	Х		
		lavash Duivat-	Economics and Agricultural	v		
20	12,598	98 Jerash Private University	Extension	X		
			Food Science and Nutrition	Х		
			Plant Production	Х		

Table 6: Institutes of Higher Education and Agricultural Programs

Barriers to Access and Gaps in Education

Gender Barriers

Access to primary and secondary school education in Jordan is widespread with little difference shown between participation in rural and urban areas (MOE, 2004). There is some evidence that there are gendered barriers in the level of educational attainment between female and male students, such as learning gaps reported between socio-economic groups where, for example in 2009, 16% of rural school girls had achieved a level 2 in mathematics versus 57% of girls from wealthier households (UNESCO, 2012c)

Gendered barriers to education in Jordan are largely reflected in curriculum bias, conflicting discourses on the value of women's education, gendered streaming into fields that are deemed appropriate for men and women, and an inability to enter the workforce once education is completed. Women and girls typically enroll in secondary and tertiary programs that support their roles as wives and mothers, in fields of art, humanities, education, and the medical sciences, with far fewer women entering the fields of social sciences, natural sciences, business, law, and engineering (WB, 2005).

A 2004 study on the perceptions of secondary school girls of the value of educational attainment reveal strong conflicting discourses between girls' perceptions of themselves in the traditional role of mother, wife, and sister versus their perceptions of themselves as being "modern (Adely, 2004)." Research by Adely in a girl's secondary school in Tel Yahya, Jordan revealed that school curriculum, teaching practices, and school culture reinforces a girl's role as the respectful mother and wife in society. Some girls in the school reinforced this belief by citing the importance of being an educated mother, the requirement of Islam to educate themselves as a religious duty, and the role of education in increasing marriageability. This conflicts with other perceptions of the girls of the role of education in allowing them to be economically independent and participate in modern society (Adely, 2004). Adely's study also reveals the limited mobility of women and girls, where being seen in places other than the home and school are damaging to a girls reputation. As a girl reaches adolescence her mobility becomes more restricted to a close proximity to the home, even when desiring to visit family. Thus secondary and tertiary education often provides women and girls with the opportunity to leave the household in a manner that is deemed appropriate. Evidence that the completion rate of women in tertiary education

is significantly lower than male completion, with women often citing marriage as the reason for leaving tertiary education (WB, 2005), seem to support this assertion.

Educational Relevance and Quality

There are significant gaps in the relevance and quality of education in Jordan where there are severe mismatches between the supply of students from the secondary and tertiary systems versus the demands of the labor market. At the vocational level, employer and trade unions are represented on the boards of training institutions at a national level and often times at a local level. However:

"Although employer representatives are appointed on the board of most vocational education and training institutions they complain that vocational education and training programs provided by those institutes are not relevant to their needs and that school graduates need several months to a year to integrate in the workplace. Moreover, they argue that besides low technical skills, graduates show weaknesses in work attitudes, behavior and in social skills (ETF, 2000)."

Additionally, employers claim that students are not trained with the skills needed for the workforce and that training in vocational schools is poor with many teachers lacking relevant experience themselves (ETF, 2000). Employers also contend that students graduating from academic secondary schools are not prepared to enter the workforce.

There is a prevailing negative perception of vocational education in Jordan with significant bias against vocational education on the part of both parents and students. For example, being placed in the vocational track is a frequently cited reason for girls being removed from secondary school, as this level of education is deemed less worthwhile (Adely, 2004). This bias stems, in part, from a system where streaming into the vocational school tracks is associated with low performance on the Tawjihi examination, and in large part based on low perceptions of the value of manual or skilled labor and a prevailing bias towards white-collar jobs (ETF, 2000; Adely, 2004; UNICEF, 2007).

"The preference for academic education instead of vocational education is historically based on the sociocultural development of our value system which, over the years, has given white collar professions like medical doctors, engineers, and lawyers a higher prestige and reputation than blue collar occupations like mechanics, carpenters, bakers, or even farmers. Even our social relations, customs and such traditions as marriage have been deeply affected by such a negative value system (Al-Sa'ad, 2007)." However, these attitudes are in direct opposition of the demands of the labor market where over twothirds of jobs require vocational skills (UNICEF, 2007).

After the educational reforms in 1999, the Ministry of Education began the pre-vocational classes at the basic education level in order to raise awareness and improve the perceptions of vocational education among students, along with measures to attract more students into the vocational programs (ETF, 2000). This has resulted in an increase in participation in vocational education from 15% in 1989 to 36% in 2006. However, the increase in participation in vocational programs has not resulted in better employment where an estimated 64% of vocational graduates are unable to find work, indicating a continued mismatch between the output of vocational workers versus the demands of the labor sector (AI-Sa'ad, 2007; UNICEF, 2007; Engel, 2012).

At the tertiary level there is a similar mismatch between graduates and the demands of the labor force, as indicated by a 29% unemployment rate of those with university degrees (Khader, 2009). Khader (2009), in a critique of higher education in Jordan, outlined issues in the higher education system in quality and accountability, relevance, access, management, teaching, and in finance. In regards to quality and accountability Khader states that "Most universities have no direction for their programs, courses, candidate competencies, community service, accountability, assessment system, field experiences and knowledge base." Higher education institutions are not held to a set of standards and performance indicators and institutions do not conduct performance reviews (Khader, 2009; Khasaweneh, et al., 2008).

Relevance is an issue where graduates from tertiary institutions are unable to find jobs and where their skills are mismatched with the demands of employers. Access to tertiary education is an issue with systems such as parallel admissions that allow students with poorer grades to pay more to enter tertiary education, and quota systems that give preferential treatment to students from certain sectors, such as armed forces personnel. It is estimated that the parallel admissions and quota systems reduce the number of students who gained entry into tertiary education on their own merit to 40%.

Management of higher education is centralized and key stakeholders are not involved in management decisions. This includes issues of lack of transparency and lack of accountability. Teaching and pedagogy are criticized as antiquated and irrelevant with faculty relying on lecture and assessment models that

promote memory and recall over critical thinking and high level cognitive processes, a lack of the use of appropriate technologies into teaching and learning, inadequate measurements of students learning and outcomes, and poor preparation for teaching. Additionally, the curriculum is criticized as overly theoretical and lacking in the provision of appropriate job skills such as teamwork, analytical skills, communication, and self-directed learning (WB, 2008). And finally, public spending on higher education is decreasing while the demand for education is increasing. Funding is directly related to student enrollment rather than university rankings, research activities, and quality of education (Khader, 2009).

Labor Force Participation

Youth Workforce Development

Unemployed and underemployed youth are a significant issue in Jordan, where the youth unemployment rate is three times that of the adult unemployment rate (Guarcello, Kovrova, & Lyon, 2012). First-time job seekers make up 53.4% of the unemployment rates and overall participation in the labor force is low (Engel, 2012). A 2005 World Bank report puts the unemployment rate of youth under 25 at 60% and among 15-29 year olds at 76%, this latter group including 82% of women (WB, 2005). A similar report prepared for the 2012 Education for All Global Monitoring report on Youth and Skills places the unemployment rate of youth in Jordan at 19.4% with 16.2% of men unemployed and 32.3% of women, with over 25% of youth who have achieved higher education in Jordan as unemployed (Guarcello, et al. 2012).

When using a more relaxed definition of unemployed that includes youth who are not actively seeking employment, the number of unemployed youth increases to an average of 25.2% across education levels, and up to 30% of tertiary level graduates (Guarcello, et al. 2012). This is further illustrated by a 2013 World Development Report that places the unemployment rate of youths at closer to 22% of men and 45% of women (Shepp, 2013), and a statement in 2012 by the labor minister that only half of the 50,000 Jordanians that graduate from universities are able to find employment (Shepp, 2013).

Underemployment is also an issue in Jordan where employees often take jobs for which they are overqualified. This is particularly true for female workers where there are significant disparities between the level of educational attainment and job placement. For example, Jordanian women must attain an additional 1.7 years of schooling than men for the same job placement (WB, 2005).

Some of the issues contributing to underemployment include: job creation primarily found in Amman while many unemployed are living in rural areas, brain-drain as highly educated people migrate abroad for better paying jobs, secondary school training that is seen by employers as inadequate – particularly for the provision of skilled labor, and prevailing bias against vocational training in an economy that is shifting towards skilled jobs (Engel, 2012). These latter two issues are illustrated by a 2001 study cited by the World Bank (2009) that states:

"...only 36% [of applied vocational students] went on to fulltime employment and despite the precarious employment situation for youths, enrollment in vocational training had been declining." In addition to the prevailing bias against vocational training, employers also state that secondary school graduates "are ill prepared for work, despite the ambitious standards demanded of them... the Ministry of Education is not interested in training students for the labor market and that, even in the vocational stream where students are prepared for higher education, the curriculum is too theoretical (ETF, 2000)."

Women's Workforce Participation

The high levels of educational attainment of women in Jordan are not resulting in women entering the workforce where there are significant cultural barriers to mobility and where acceptable work for women is narrowly defined. In 2010 the Jordanian Ministry of Labor reported that the unemployment rate of women was 21.7% compared to 10.4% of men. When looking at economic participation, they report that participation of women is at 14.7% compared to 63.5% of men (UNDP, 2011). Unemployment of women by level of education is also revealing where 55% of unemployed women have graduated from tertiary education with a bachelor's degree, a rate that is three times that of men with the same level of education (UNDP, 2011).

Participation of women in the workforce is largely skewed towards fields that are deemed acceptable for a woman including civil service and nursing, with the majority of women working in education (Al-Manasra, 2013). The public sector provides the majority of jobs for women. Private companies are significantly less likely to hire women with small-medium enterprises employing 4.28 times more male employees than female employees (UNDP, 2011). Women are more likely to take jobs for less than minimum wage, are more often found in entry-level administrative jobs and in education, and must achieve a higher level of education for the same jobs as men. When women are able to attain jobs outside of education they face significant vertical discrimination with male employees given preference for bonuses and promotions, and gendered gaps in pay with women earning 88% of male wages. (UNDP, 2011; Al-Manasra, 2013). The barriers to participation of women in the workforce are the subject of many studies and development reports (Adely, 2004; WB, 2005, 2008; UNDP, 2011; Al-Mansara, 2013). Findings of cultural preference for male employment and lack of women's mobility are prevalent including issues such as: men are able to remain outside of the home longer than women resulting in greater employment options, women must work closer to home and are less likely to leave their governorate than men, families often do not allow women to work unless it is an all-female environment or family-owned business, and women's employment is only deemed acceptable in specific sectors such as education and care (UNDP, 2011; Al-Manasra, 2013). In the field of agriculture, the 2009 World Bank Gender in Agriculture sourcebook states that: "Case studies by organizations in the field in the Caribbean community, Cote d'Ivoire, Jordan, Nigeria, and the Philippines revealed that women's completion of higher agricultural education did not necessarily translate into an equal opportunity to benefit from that education; nor did it prevent discrimination against women in employment and in public life (WB, 2009)."

Focus Group Results and Discussion

In October of 2013 a focus group was conducted at the University of Florida to discuss the agricultural education system with Jordanian students. Two Jordanian students participated in the focus group, one of whom is studying political science and the other who is studying English. A third student was interviewed individually with the same focus group questions. The students provided information regarding the educational structure in Jordan, the perceptions of agricultural education, limitations and strengths of the system, what they perceived to be priorities to improve the agricultural education system, and gendered barriers to agricultural education.

The focus group participants discussed the quality of secondary education as lacking with parents with financial means often sending their children to private schools. This is particularly true among the elite who send their children to very expensive private schools and many of the middle class who are able to send their children to private schools that are less expensive. However, the participants felt that the public university system is held in high regard and is often more respected than private universities, particularly the University of Jordan. Interestingly, the participants revealed that admission into public universities works on a two-tiered system where students who are able to pay higher levels of tuition

are given preference for acceptance into the university than students who pay the regular university tuition.

The participants discussed recent changes (within the last five years) to the vocational system that now allow students from the vocational system to enter into higher education, where there were not able to do so in the past. When students pass the Tawjihi they are able, from either track, to enter four-year tertiary institutions. This was an effort by the government to encourage more students to go into the vocational tracks. Students who enter tertiary education through the vocational track are unable to enter into specific fields such as medicine. The participants discussed that these students are often at a disadvantage in higher education as the level of courses in the vocational track are lower, particularly in the math and science. One participant, who worked for the Ministry of Education in Jordan, stated that there was a difference in the education level of tertiary graduates who entered tertiary education through the vocational track versus the scientific track in secondary school.

The cultural bias against vocational education and towards white-collar jobs was discussed at length by both participants, with value being placed highest on the field of medicine and followed by engineering and architecture. The pressure to enter fields such as engineering is seen as a significant issue where value is placed on white-collar jobs for purposes of marriage and status, even when engineers have a very high unemployment rate and where, as one participant expressed, mechanics and farmers make more money and have better job security. The participants described this as "a culture of shame" or "the shame culture" stating that Jordanians are obsessed with labels and status, particularly regarding education and employment sectors.

The pre-vocational training offered in the eighth through tenth grades, which includes an agriculture component, was seen by the participants as a time to "take a nap" as the course is not taken seriously, is ungraded, is used to fill gaps in the school day, and has no bearing on entry into tertiary education. Agricultural education as a component of the secondary vocational education tracks was seen as the least prestigious of all of the tracks, as it is associated with low intelligence, low academic performance, and a negative perception of manual labor. One participant, hailing from rural areas, states that this is the case even when agriculturalists earn more money than engineers.

Agriculture as a career was seen as a good economic option by one participant who stated that people who are in agribusiness make good money, but that it is not a prominent or well respected field. The participant also discussed a program run by agricultural engineer syndicates to encourage students to study agricultural engineering by supplementing their income once they enter governmental positions. The participant stated that this elevated the income of one of his peers to above his own income. Participation in agriculture was only seen as profitable when a person owned his own land, and that those who work as agricultural laborers are typically foreign labor. However, most people who graduate from agricultural institutions work for the government, in education, for universities, and similar fields rather than working in agriculture directly. This is again attributed to a strong cultural bias against manual labor including agriculture as a field, where the participants expressed that a career in agriculture is seen as a field for people of low intelligence and that it would even reduce marriageability.

When asked about gender barriers to education and work the participants expressed that there have been a lot of changes in Jordan over the past twenty years and some of the barriers for women were improving. One participant hailing from a rural Bedouin area stated that even in the very conservative Bedouin segments of society there have been some improvements such as in the mixing of men and women in certain situations. However, the participants also expressed that there are still a lot of barriers to overcome and expressed issues of mobility, a cultural bias against women operating vehicles, and an inability of women to manage male laborers. Gender bias in tertiary programs prevails where few women enter into fields such as engineering. Agriculture was seen as an area where women are able to participate in equal numbers to men, but in specific areas of agriculture such as nutrition and milk production, with some able to participate in plant production, but rarely in agricultural specialties involving animals or livestock.

In workforce participation the participants suggested that barriers are still very high as it is seen as unacceptable for women to run a business, work alongside men, or participate in fields outside of nursing, administrative jobs, and education. In rural and agricultural areas it is acceptable for a woman to work only in family businesses.

Recommendations

Based on research of the Jordanian educational system and focus group interviews with Jordanian nationals, the following recommendations for building the capacity of Jordanian agricultural and education training systems are worthy of consideration and further exploration:

All levels

- Improve existing infrastructure and increase facilities.
- Improve efficiency in public investment in education, particularly for the poor and rural populations.
- Improve teacher training programs particularly for teachers working in rural areas.
- Improve teaching methods, practices, and biases to improve the relevance of education.
- Upgrade curriculum and teaching practices by placing less emphasis on theoretical models and more on practical application.
- Ensure that the agricultural curriculum is relevant to societal needs would ensure that agriculture and provides students with the necessary skill sets to be successful in the labor market.
- Examine teaching practices, curriculum, and school structures for gender-based stereotypes and discrimination.

Primary Education

- Implement early inclusion of agriculture courses to stimulate students' interest in agriculture.
- Ensure that agriculture is presented to girls as well as boys as an option for employment in both school curriculum and in teaching methods.

Secondary Education

- Strengthen the capacity of vocational and training programs to provide agricultural vocational classes for both short and long-term training programs.
- Improve the efficacy of vocational and training programs through improved funding mechanisms, public/private partnerships with agricultural industries, improved teaching methodologies, and better trained and paid instructors.
- Provide role models, programs, and incentives to encourage female students to pursue agricultural education.

- Collaborate with institutions and firms in the labor market to create an agricultural curriculum that is relevant to the needs of the sector.
- Create and implement awareness raising campaigns to show agriculture in a positive light both as an occupation and as an educational opportunity.

Second Chance and Alternative Secondary Education

- Increase the coverage and funding for alternative secondary education.
- Increase the availability of alternative secondary education programs that offer an agricultural vocational focus.
- Create and implement a standardized curriculum for agricultural education in alternative secondary schools.

Tertiary Education

- Increase availability of tertiary level agricultural education institutions and increase the capacity of existing institutions.
- Explore new and innovative ways of funding institutions make agriculture institutions sustainable and accessible to students from poorer backgrounds.
- Collaborate with institutions and firms in the labor market to create an agricultural curriculum that is relevant to the needs of the sector.
- Increase opportunities for relevant agricultural field practice, internships, and research.
- Increase relationships between tertiary agricultural programs and institutions and agricultural businesses in order to ensure that curriculum is relevant, to increase visibility of the agricultural sector, and to increase opportunities for employment.

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