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Acronyms & Abbreviations

1.	AAAID	Arab Authority for Agricultural Investment and Development
2.	ACSAD	Arab Center for the Studies of Arid Zones and Dry Lands
3.	AFD	French Agency for Development (<i>French</i>)
4.	AFESD	Arab Fund for Economic and Social Development
5.	AOAD	Arab Organization for Agricultural Development
6.	BRP	Badia Ecosystem Restoration Program
7.	BS	Budget support
8.	CAP	Common Agriculture Policy
9.	CBC	Cross-Border Cooperation
10.	CBJ	Central Bank of Jordan
11.	COSOP	Country Strategic Options and Opportunity Paper
12.	CPE	Country Programme Evaluation
13.	CPF	Country Programming Framework
14.	DOS	Department of Statistics
15.	DPL	Development Policy Loan
16.	EIB	European Investment Bank
17.	ENPI	European Neighbourhood Partnership Instrument
18.	ENRTP	Environment and Sustainable Management of Natural Resources(<i>French</i>)
19.	EUD	European Union Delegation (to Jordan)
20.	FAO	Food and Agriculture Organization of the UN
21.	GCC	Gulf Cooperation Council
22.	GDP	Gross Domestic Product
23.	GEF	Global Environmental Facility
24.	GOJ	Government of Jordan
25.	GIZ/GTZ	Deutsche Gesellschaft fuer Internationale Technische Zusammenarbeit (German)
26.	GVA	Gross Value Added
27.	ICARDA	International Center for Agricultural Research in the Dry Areas
28.	ICBA	International Center for Biosaline Agriculture
29.	IOE	Independent Office of Evaluation, IFAD
30.	ISDB	Islamic Development Bank
31.	ISSP	Institutional Support and Strengthening Program
32.	JCC	Jordanian Cooperatives Corporation
33.	IPCC	Intergovernmental Panel on Climate Change
34.	ISSP	Institutional Support and Strengthening Program
35.	JRV	Jordan Rift Valley
36.	JVA	Jordan Valley Authority
37.	KAC	King Abdullah Canal
38.	KF	Kuwait Fund
39.	KTD	King Talal Dam
40.	LHAP	Land and Human to Advocate Progress
41.	MIT	Ministry of Industry and Trade
42.	MOA	Ministry of Agriculture
43.	MOE	Ministry of Environment
44.	MCM	Million Cubic Meter
45.	MEMR	Ministry of Energy and Mineral Resources
46.	MOL	Ministry of Labour
47.	MOH	Ministry of Health
48.	MOPIC	Ministry of Planning and International Cooperation
49.	MWI	Ministry of Water and Irrigation
50.	NCARE	National Center for Agriculture Research & Extension
51.	NGOs	Non-Government Organizations
52.	NIP	Neighbourhood Involvement Program
53.	NPRRD	National Programme for Rangeland Rehabilitation and Development
54.	NVA	Net Value Added
55.	ODA	Official Development Assistance
56.	OECD	Organization for Economic Cooperation & Development

57.	OS	Operation Surplus
58.	POPs	Persistent Organic Pollutants
59.	SNC	Jordan's Second National Communication to the UNFCCC 2009
60.	SBS	Sector Budget Support
61.	SPA	Sector Programme I approach
62.	SWOT	Strengths, Weaknesses, Opportunities and Threats
63.	TAIEX	Technical Assistance & Information Exchange Instrument
64.	TIPOs	Technological, Institutional and Policy Options
65.	UNCBD	UN Convention on Biological Diversity
66.	UNCCD	United Nations Convention to Combat Desertification
67.	UNDAF	United National Development Assistance Framework
68.	UNDP	United Nations Development Program
69.	UNFCCC	UN Framework Convention on Climate Change
70.	UNFPA	UN Population Fund
71.	UNIDO	UN Industrial and Development Organization
72.	USAID	United States Agency for International Development
73.	VA	Value Added
74.	VCA	Value Chain Analysis
75.	WAJ	Water Authority of Jordan
76.	WLI	Water & Livelihood Initiative
77.	WWTP	Wastewater Treatment Plant
78.	WTO	World Trade Organization

1. EU- MISSION IN JORDAN

A Pre-identification Mission to Jordan (December 2011 –June 2012) was initiated with the main goal of informing the European Union on the relevance of supporting the development of the agriculture sector², especially in light of the European Union / Jordan Action Plan³ and the Association Agreement⁴ developed to realize this plan as embedded in the European Neighbourhood Policy.

The specific objectives achieved were: (i) obtaining up-to-date information (and subsequently identify information gaps) related to the agricultural sector and assess the magnitude of its contribution to poverty reduction and/or economic growth in Jordan; (ii) undertaking an in-depth analysis of key agricultural subsectors to identify their constraints, opportunities and potential interventions for development; (iii) identifying opportunities for possible future EU interventions that could enhance the competitiveness of the agriculture sector in Jordan (esp. through sustainable agricultural development, rational natural resource management, enterprise development, rural tourism etc.) and reduction of rural poverty.

The Mission Team conducted extensive review of documents, information and data which was used in developing an Inception Report (IR) that provided the framework for the subsequent phases of the Mission. The Team conducted intensive discussions with farmers and herders in all of the representatives Agro-Ecological Zones (AEZs) and crop and livestock production systems, and met with other relevant stakeholders from the public and the private sectors e.g. policy makers, retailers, exporters, importers, academicians, researchers, cooperative leaders, CSOs, NGOs and representatives of the international and regional partners.

Following extensive discussions and visits, the Team conducted a comprehensive in-depth analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the agricultural sector as a whole and its major subsectors (agronomic crops, vegetables and fruits, livestock, agro-food business). The results of the SWOT Analysis were presented and validated at a very well attended Stakeholders' Workshop (Annex 1)⁵.

The finding and conclusions that were generated evoked further discussions and consultations leading to the identification of the gaps, options for investigations, studies and possibilities of fast track priority project ideas. These were further discussed at various brainstorming and evaluation meetings with EUD and with the MOA's Focal Points Committee⁶ as part of the review process for the Mission's major product (Volume I: the Assessment Report).

This volume (Volume II) is a synthetic overview of the findings and recommendations of the Assessment Report that could be presented to the senior decision makers for further discussion and validation at a high level consultation workshop before finalizing Volume III (assessment of findings/ proposals for future actions).

² Agriculture is broadly defined to include all elements of the primary sector including crops (food and non-food), fruits, vegetables, livestock, poultry and honey.

³ http://ec.europa.eu/world/enp/pdf/action_plans/jordan_enp_ap_final_en.pdf.

⁴ http://europa.eu/eur-lex/pri/en/oj/dat/2002/l_129/l_12920020515en00030165.pdf.

⁵ Above 80 participants representing all stakeholder categories attended two plenary sessions and participated in 5 break-away Working Groups

⁶ The Committee of Focal Points (COFPs) was formed and chaired by the General Secretary of the MOA Dr Radi Al Tarawneh and consisted of Eng. Fuad Al Muhaisen AGS, Eng. Salman Al Rkeibat AGS for International Cooperation and Trade Agreements, Eng. Mohamed Abu Jamous Director of M&E and Dr Amani Khudair EU-Liaison Officer.

2. GENERAL OVERVIEW

2.1 The Economy

Jordan is a heavily urbanized⁷, small, low middle-income country with narrow natural resource base and scarce water resources. Jordan's score in the Human Development Index for 2011 is 0.698 ranking 95th of 187 countries, down from 0.760 in 2010. The major sources of earnings are services (tourism, transport and finance), industry, foreign aid and remittance. For example, the growing industrial sector (e.g. potash, phosphorous, fertilizers, clothing, and pharmaceuticals) collectively generates about 34% of the GDP. The remittance deposited by Jordanians working in foreign countries, especially the Gulf States, represented a very important contribution to the economy⁸ ranging from 15 to 25% of GDP between 1995- 2009 (US\$ 3.5 billion remittance was received by Jordan in 2009). However, 2011 was a year of challenge to Jordan as a result of the sweeping changes in the Arab region, the global shocks of increasing food and fuel prices, and sharp decline in tourism, remittances, and foreign direct investment (-16%, -3% and -32% respectively).

Jordan is among the most foreign aid assisted countries in the world. Its open relationships worldwide and favourable policies attract significant Official Development Assistance (ODA) resources. For example, the amount per capita received between 1998 and 2008 was USD 121 per year which is more than 10 times ODA received by lower middle-income countries⁹ worldwide^{10,11}. A major share of this support as well as the country's income from services, tourism and industry are directed to effective social benefits in education, health, infrastructure and transport. In spite of this the social stability of the country is threatened by high dependency on foreign labour¹², high unemployment rate (national 12.5% in 2011¹³, 37% youth, and 42% poor in 2004)¹⁴, relatively high poverty rates, high dependency ratio and low female participation rate¹⁵.

Jordan population increased from 0.9 million in the 1960s to 6.2 million persons in February 2012¹⁶ and is predicted to reach 10 million by 2050¹⁷. Most of the populations are urban; only 22% live in the rural areas (Figures 1, 2). The social structure of Jordan is complex, and includes about 0.7 million registered Iraqi refugees¹⁸. More recently another 10,000 persons fleeing the civil strife in Syria were located at Jordanian border refugee camps. About 13% of the Jordanian live below poverty line (2008 estimates)¹⁹, inequality is high (the Gini coefficient was 38.8 % in 2011²⁰) and poverty is highest in the rural areas than in the urban areas. The pockets of poverty are mostly rural²¹; some are in isolated and remote areas while others are in areas with a poor resource base and low population density. Water scarcity, climate change and rising food prices have major impact on food security in Jordan.

⁷ Urban population 79% of total population (2010 est.) at annual rate of 1.6% (2010-2015 est.). Source CIA Factbook ; www.cia.gov/library/publications/the-world-factbook/geos/jo.html

⁸ El-Sakka Kuwait University; IFAD

⁹ The WB classified countries according to the GNI per capita. Low income countries are those with GNI less than US\$975.

¹⁰ World Development Report , 2010

¹¹ World Development Indicators Database; www.data.worldbank.org

¹² Both Foreign and national agricultural labour earn a minimum of 250 JD per month. The labour force is 1.771 million (2011 estimates source CIA Factbook website).

¹³ CIA Factbook www.cia.gov/library/publications/the-world-factbook/geos/jo/html

¹⁴ Unemployment among the youth is between 15-24 years of age is 27% " male 22.6% and females 45.9% Source: CIA Factbook

¹⁵ IFAD Country Strategic Opportunity Program (COSOP) 2007

¹⁶ DOS, 2012, http://www.dos.gov.jo/dos_home_a/main/index.htm

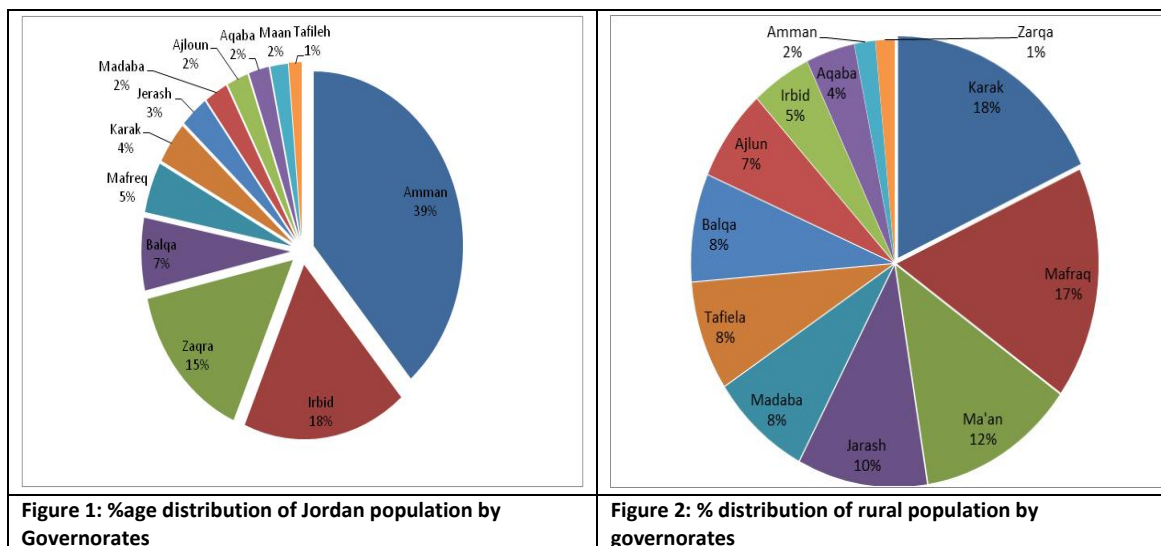
¹⁷ UNFPA State of World Population 2011.

¹⁸ UNHCR estimates

¹⁹ Jordan Poverty Report(DOS 2011) based on analysis of 2008 Household survey results

²⁰ Source:World Bank 2011a World Development Indicator www.worldbank.org

²¹ Jordan poverty line was estimated as 1.9 JD per person per day (\$2.7). The minimum agriculture wages are about 250 JD per month (or about 8.5 JD per day). It is surprising to note that most of the youth in Jordan are not motivated to earn this available income whereas it attracts large numbers of immigrant workers from Egypt and Syria



Participation of women in the economic life remains low. For example, women represent only 21% of the economically active population. The rural women who were traditionally active in family farming and herding activities are threatened by the advances in large scale commercial farming and herding.

2.2 Agriculture in the Jordanian economy

The contribution of agriculture to the GDP declined sharply in relative terms from 40% in the 1950s to less than 2.9% in 2010^{22, 23, 24}, while its contribution in absolute terms has increased (e.g. from 32 million JD in 1964 to 560 JD million in 2010 as shown in Table 1 .

Table 1: Industrial origin GDP at current prices (Contribution of agriculture to GDP)

YEAR	1950s	1964	1974	1984	1994	2004	2010
Contribution in actual terms (million JD)	15	32	57	98	193	195	560
Contribution in relative terms (%)	40	30	20	6	4.5	3.4	2.9
Total national GDP(million JD)	15	200	281	1764	4300	8000	18800

Source: The Central Bank of Jordan, 2011

In spite of the above increase in absolute monetary terms, the proportionate contribution of agriculture to the national economic growth is very modest, which is reflected in the remarkable decline in the sector's share in comparison to other fast growing sectors (Figure 1)²⁵. Irrespective of how humble is its relative performance, crop farming and herding remain economically and socially important, and enjoys a respectable agricultural production index (**Annex 6 in Volume I**)²⁶. The importance of the agricultural sector stems from the fact that it is not only the major source of food items (especially poultry, dairy products, fruits and vegetables), but also as one of the sources of hard currencies earned from exports. About 25% of the total poor in Jordan live in the rural areas depending mostly on agriculture (livestock keepers, smallholder farm households and landless former agriculturalists), and in spite of poor motivation of the

²² Bahdousheh, M. et al, (2010). Country Case Study-CFS 36th Session 11-14 and 16 October 2010, *National Initiatives for Food Security and Nutrition*, Committee on World Food security.

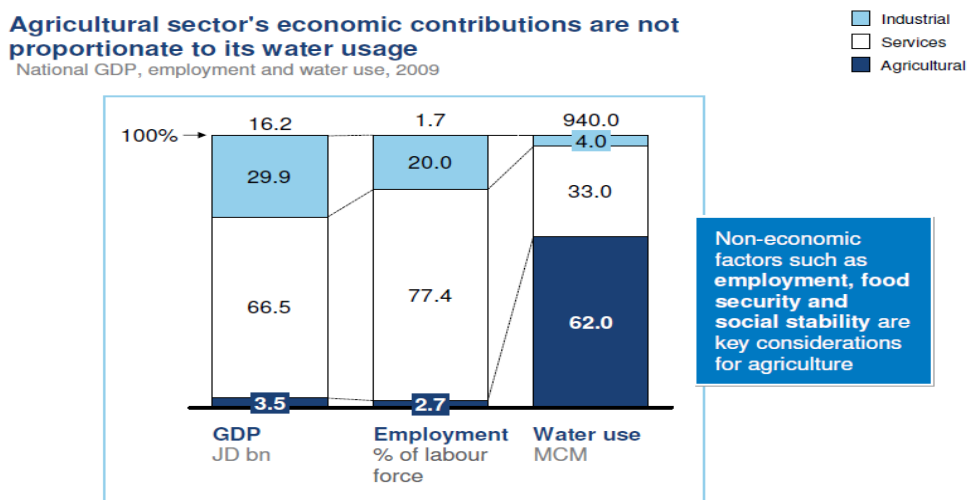
²³ GDP per capita (PPP) 2011 estimates was US\$5,900

²⁴ Source: The Central Bank of Jordan , 2011

²⁵ Source MOA (Dr Mahaddin) Directorate of Studies and Polices 2011

²⁶ Source : DOS - Agricultural Production index (of crop and livestock commodities) 1968-2011

rural youth, agriculture is an important employer of the rural communities. Also, for cultural, social and environmental considerations and mainly because of its strong forward and backward linkages with other sectors and activities, agriculture remains a very important sector that must be considered in the rural development and poverty reduction plans and initiatives.



SOURCE: CIA World Factbook; Jordan National Water Strategy; team analysis

Figure 1: National GDP, Employment and Water Use, 2010

The sector employs about 124,000 people²⁷ (2.1% of the total population or about 7.7 % of the active labour-force of 1.771 million in 2012²⁸), and contributed to 17 % of total national exports (equivalent to JD 795 million) in 2011²⁹, of which the contribution of vegetables and fruits has amounted to JD 385 million – vegetables JD 313 million; and Fruits JD 67.9 million - as detailed in (Annex 2).

Jordan is a food deficit country^{30,31}, which is rated as being among the 7 most vulnerable to the impact of high food prices; and among the top four ranking water-poorest nations in the world. The country imports above 90% of its cereal requirements and 80% of animal feed requirements (barley grain and wheat bran). Jordan has not been self-sufficient in wheat at any time during the last 50 years³². Self-sufficiency for wheat declined from 70% in the 1960s to meeting only 12 days of need at present, mainly caused by sharp increase in population at a stable per capita consumption. In addition the areas under cereals declined during the past 15-20 years as farmers turned from the more variable cereal to more controlled and predictable vegetable farming. For example, depending on the amount of rainfall, the country produces only between 3% and 10% of its annual demand for wheat (production 20,000 to 70,000 Tonnes compared to annual consumption of 780,000 Tonnes). The high dependency on imported wheat was caused in part by a reduction in the area under wheat cultivation from 2.7 million du in the early 1960s to less than 200,000 du during the last 5 years, and to meet the stable per capita consumption needs of the fast growing Jordanian population. This reduction was caused by: the changes in cropping patterns that favoured the

²⁷ Unconfirmed data indicate that foreign agricultural labour is in the range of 23% to 50% of the labour force while the balance (77% to 50%) are self-employed family labour (See Section 1.B below)

²⁸ DOS, 2012, http://www.dos.gov.jo/dos_home_a/main/index.htm

²⁹ Source: MOA Directorate of Studies and Policies (2012) - details in Annex 6

³⁰ The World Trade Organization (WTO) and the Food and Agriculture Organization (FAO) classify Jordan as a net importing country of food and animal feed.

³¹ Jordan produces only 14% of the caloric needs per capita (Department of Statistics . www.dos.gov.jo)

³² Steve Goss. Policy issues related to food security in Jordan - Seminar presented on behalf of UNDP 23 April 2012

high value horticultural crops, land fragmentation, and the encroachment of urban dwelling and road over agricultural areas. Furthermore, the price of most consumed imported wheat is subsidized³³ (Box1).

Box 1: Most imported wheat is subsidized. The annual consumption of unsubsidized wheat (Zero) is 100,000 Tonnes, while the annual consumption of subsidized flour (Unified) is 450,000 Tonnes. Currently, a subsidized Tonnes of wheat costs the government approximately JD280 (USD is equal to .708 JD); the government sells it to bakeries at JD70. Consequently, the total subsidy for wheat during the first nine months of 2010 was JD64 million, compared to JD78 million for the same period in 2009, an 18% reduction in subsidies. It is expected that the size of the wheat subsidy will reach JD140 million in 2011. Source: WFP 2010

Animal feed subsidies that started in 1980 remain a controversial matter. Attempt to remove or modify the subsidies between 1995 - 2001 and 2006 -2007 failed as a result of social and political pressures. Once subsidies were resumed, sheep and goats numbers peaked to the current 3.2 million head³⁴. Attempts to put a cap on the number of subsidized animals or to sell only to those who possess tagged flock card are not fully successful, in spite of continued efforts to tag animals and to authenticate the animal cards. The implication of the increase in livestock numbers, coupled with rangeland nationalisation policy, has been devastating on the rangeland cover and health. At present Jordan Rangelands cannot provide livestock to the existing flocks for more than one month a year in normal years and three months in very good years³⁵

The vast majority of the irrigated agricultural production is in the form of fresh fruits and vegetable. Horticultural crops are grown in about 90% of the irrigated areas. The fruits and vegetables produced enjoy a high local demand (Table 2).

Table 2: Self-Sufficiency Ratio (SSR) of cereals, vegetables and fruits in 2010

Group	SSR	Production (Tonnes)	Exports (Tonnes)	Imports (Tonnes)
Filed crops	4.3	22,125	98	489,639
Vegetables	147.2	1,394,259	617,477	51,988
Fruit Tress	78.8	180,752	8,656	105,497
Olives	102.4	171,672	4,057	0

Source: DOS 2012

Whereas Domestic poultry meets almost all of the domestic needs (102 % of eggs and 96% of meat), domestic dairy provides 64% of the consumption needs, sheep and goats provide 45% of local consumption (Table 3). The deficit is exasperated during years of droughts.

Table 3: Contribution of locally produced Animal Source Foods to domestic consumption in Jordan

Animal source foods in 2007	Sheep and Goat Meet	Cattle meat	Poultry meat	Milk (all species)	Eggs
Production (1000 tonnes)	23	14	143	345	39
Consumption (1000 tonnes)	51	34	149	531	38
Self-Sufficiency (%)	45	41	96	64	103

Source: Adopted from Steve Goss. Policy issues related to food security in Jordan - Seminar presented on behalf of UNDP 23 April 2012

A major weakness of the Sector is caused by the scarcity of irrigation water and overexploitation of groundwater; use poorly treated brackish and sewage water, land fragmentation and reduction in the size

³³ WFP: The Wheat Supply Chain, 2010

³⁴ Source L MOA to IFAD Range Project (NRRP) mission may 2011

³⁵ Source; NRRRP IFAD evaluation mission May 2011

of agricultural holdings; weak extensions services; poor transportation, packaging and processing; infrastructure; unfavourable price policies, low investment in marketing infrastructure, post-harvest and quality enhancing facilities (grading, packing, storage, etc.). The claim that agriculture consumes 62% of the Jordanian scarce water resources (Figure 1 above) leaving scant reserves for domestic and industrial use is unrealistic and is yet to be proven. However, the claim generally reflects the extent of poor water use practices in agriculture, and points to the need for adopting alternative and modern agricultural practices and techniques.

2.3 The competitiveness of Jordan's agriculture sector

For a large number of small farmers and herders in Jordan agriculture is a means of livelihoods practiced under unreliable environment, scarce water resources, limited coping strategy and low/ no basis for commercial stability. The competitiveness of the agriculture sector is further challenged by: (i) poor access to technology, markets and rural financing; (ii) high input prices; (iii) unfavourable tax rates and tax laws, and; (iv) over-reliance on increasingly expensive public service providers. For example, the total average annual budget of MOA is approximately equally divided between current (*Salaries and Administrative*) and capital (*investment*) expenditure. Whereas the cost of the Administration Department increased by 46% between 2008 and 2012, the investment costs declined by 26% (Table 4)³⁶. The overall spending trend by all MOA departments also reflected an increase of 61% in salaries and administration cost and a decrease of 27 % in the investment budget during the same period. Obviously the increase in the salaries reflects a burden on the investment resources. This may suggest that most of the investment expenses could be offered a competitive way through lean private and semi-private farmers' companies (e.g. commercially established small and medium sized Farmers' Organisations (FOs). These commercially organised FOs (agricultural producers) should also purchase the services (extension, vaccination, plant and animal diagnostic laboratories, food hygiene, and farmers' training, etc.) from public or private service providers from the profits gained after the sale of the products or on direct cost recovery basis.

Table 4: Spending by the MOA on agriculture and sub sectors (2008, 2010, 2011 and 2012) in million JD

Year	2008		2010		2011		2012	
Expenditure	Current	Capital	Current	Capital	Current	Capital	Current	Capital
Administration	9.46	7.98	12.31	5.89	13.54	3.36	14.52	5.90
livestock & Veterinary	2.13	3.88	2.66	3.36	2.93	2.54	3.38	2.54
Forests and Pastures	1.88	6.22	2.55	4.50	3.82	4.08	3.48	4.19
Plant Production/Protection	1.82	3.73	2.51	2.33	3.40	3.70	3.67	1.59
Land Reclaiming	0.53	2.26	0.75	2.93	0.86	5.28	0.84	3.12
Research & Extension	3.48	2.66	4.74	1.93	5.23	2.55	5.22	1.88
Total	19.30	26.73	25.53	20.94	29.78	21.46	31.09	19.51

Source: MOA 2011

³⁶ Source: MOA 2011 and discussions with the Focal Point Committee and Mission in 2012

3. SUMMARY AND SYNTHESIS OF FINDINGS

3.1. Summary findings:

3.1.1. The biophysical landscape

Jordan is mostly arid (90%) and semi-arid about (8%). Jordan's diverse AEZs (Figure 2, Table 5) are distributed over a total land area of 89,200 km². The land surface is dominated by vast areas of desert and semi-desert ecosystems in the east and south-east. The mountains are limited to the highlands of the north, west and south west. The Jordanian agriculture is established along three major climatic regions: (i) the lowlands (Jordan Valley) that thinly stretches from the North West (NW) to the South West (SW); (ii) the highlands and Marginal steppe where most of the rain-fed farming is practiced, and; (iii) Badia (or desert) mostly livestock systems and some cultivation in watershed and from deep bore irrigation. Agriculture (animal and crop farming) are mostly influenced by water availability and the ability to adopt advanced water harvesting and to use technologies and interventions to mitigate the impact of the climate change.

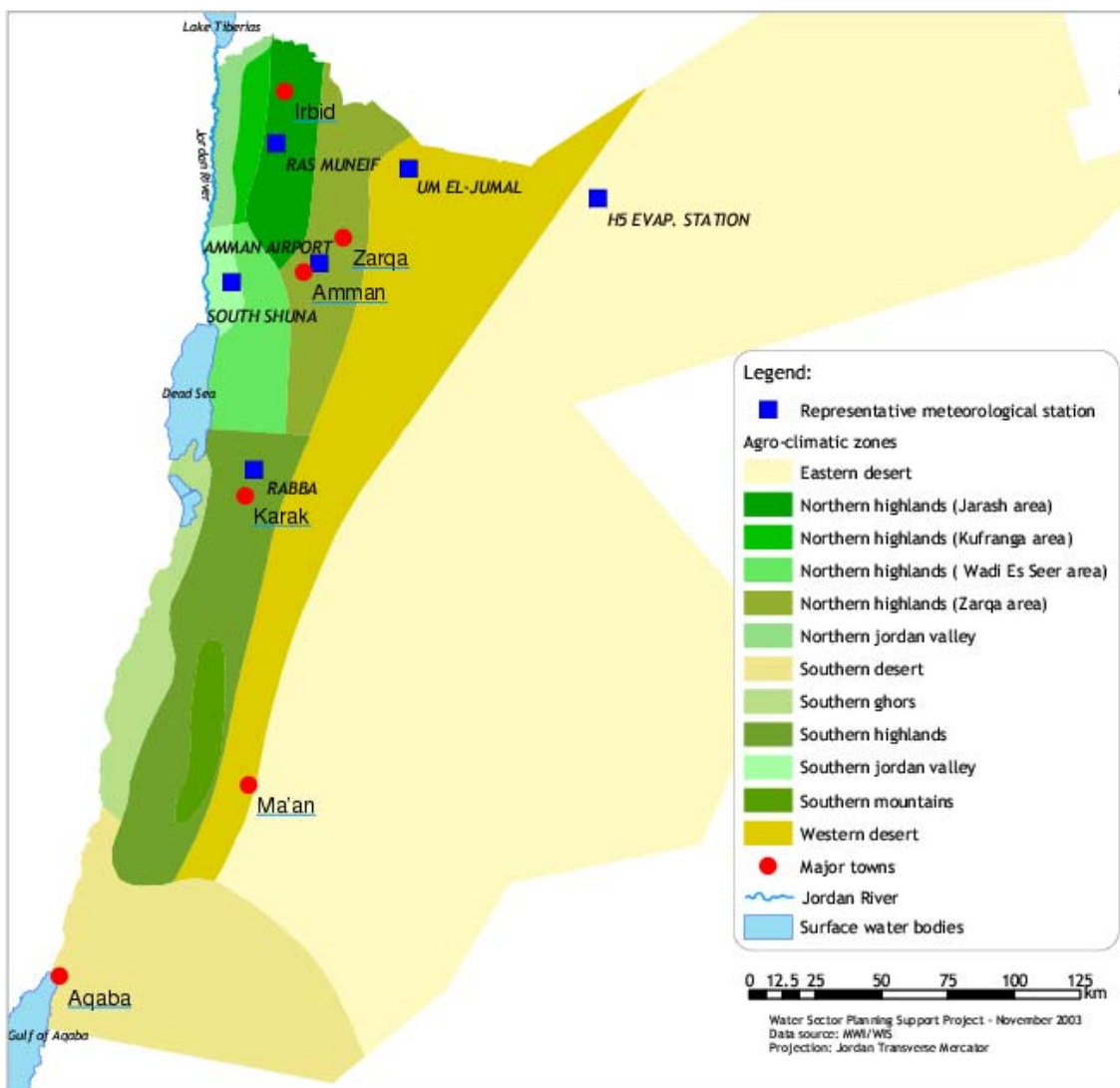


Figure 2: The agro-ecological zones of Jordan

Table 5: Jordan Agro-ecological zones³⁷

Agro-ecological Zone*	Annual rain (mm)	Area/ Dunum (m).	Area (%)
Arid	<200	80.28	90
Marginal Zone	200-300	5.62	6.3
Semiarid	300-500	1.34	1.5
Sub humid	500-800	0.89	1.0
Jordan valley	200-350	1.07	1.2
Total		8.92	100

Badia <100 mm rain 82% of land mass, Steppe 100-200 mm 11% of land mass; Highlands >200 mm rainfall 2.55 of land mass,. Vegetables (mostly tomatoes, cucumbers, aubergines, cauliflower, cabbages); Fruits (mostly olives, citrus and bananas, melons and grapes)

3.1.2 Sub-sectoral issues

3.1.2.1 The Agronomic Crops: The country produces wheat, barley and food legumes mostly under rainfed cultivation (200-500 mm rain). The produce is far below consumption and the country imports, and distributes at subsidized costs, significant amounts of wheat and animal feed. The main issue is whether low-water demanding alternatives to wheat and barley could replace wheat and barley production e.g. fodder plantation for animal feeding in the rainfed areas, flood plains and watersheds; continued increase in high technology water saving protected agriculture (plastic houses), increased attention to herbal and medical plants, etc.

3.1.2.2. Vegetables and Fruits: Vegetables and fruits are mainly produced in the Jordan river Valley (45% of national production and 40% of cultivated areas and use of about 215 mcm of surface and blended treated wastewater in the lowland areas, but also all over the country where water resources are available (e.g. - crops like tomato in the centre and the south; underground borehole irrigation in Dice in the SE, Mafreq in the NE), about 55% of national Production and 60% of cultivated areas. Agriculture in the highland consumes about 444 mcm of water, mainly groundwater. Land fragmentation, high land value and increasing number of absentee and commercial famers have caused a shift from the traditional family based open cultivation to the commercial production under large plastic house businesses manned by foreign labour. An issue influencing the competitiveness of the subsector is the open import markets where cheaper products from Syria and Egypt are fetched by the consumers.

Olives: One impact of land fragmentation and high land value is the increase in olive plantations even in unsuitable cracking clay areas in NW Jordan. On the positive side, commercialization of fragmented lands lead to diversification, use of modern technologies and varieties and the expansion of plastic covered vegetable export plantations. The production of olives is highly variable, with a good crop every other year. Most of the olive trees are planted in the rainfed areas, distributed over relatively small farms using traditional farming techniques and minimal use of chemicals. Irrigated olive plantations areas cover fewer areas compared to rainfed and has failed in most years because of water scarcity or over exploitation of ground water (Disi and Azraq regions).

3.1.2.3. Livestock

3.1.2.3.1. Small ruminants production systems: Sheep and Goat production has become mostly a feed based (grown or purchased) commercial enterprise. The Smallholders who do not own a number of flocks above a certain threshold (50 head in the high rainfall areas and above 100 in the low rainfall) that allows them to profits from selling the offspring after securing enough cash to purchase feed for the breeding

³⁷ MOA 2011 Compiled by Sidahmed for IFAD Evaluation Mission April 2011

flocks , are driven out of their traditional herding business³⁸ . For example, the number of sheep and goat in Jordan was reduced from 29,650 families in 2010 to 25,469 in 2011 (May 2011 figures³⁹) because of the vulnerability of the smallholders to market and environmental shocks (Box 2). Most of the viable flocks livestock systems are commercial. Dairy, poultry and large flocks of sheep and goats are raised fully on commercial basis, depending mostly on imported animal feed and employing foreign labour, mostly from Syria and Egypt. The major policy problems that needs attention is how to regulate and economise feed subsidy, so it could reach out for most sheep and goat producers , and the need for a clear strategy about the sheep and goat productions e.g.: a rangeland based prime production of the renown *Awassi* sheep breed for export markets. or large number of mixed breed flocks produced using imported and subsidized feeds to satisfy local markets.

Box 2. Herders' profile
 An average small to medium-sized Badia family solely dependent on herding:

- raises 100 to 300 sheep and goats (15-20% goats);
- grazes animals from zero to max 3 months in good season;
- purchases a limited quota of subsidized barley (180 JD/Kg) and bran (87JD/kg);
- Sells 60 to 240 lambs and goats kids for feeding and living expenses.

The owner of 100 heads is vulnerable to losing all assets after two years of consecutive droughts; the owner of 200 is vulnerable to barley feed market fluctuations. Most of small livestock keepers who succumbed to the ever increasing feed prices, living expenses and to the reduction of the purchasing power of the JOD are among this category.

Source:

Sidahmed IFAD Mission Evaluation of NPRRD Performance - based on interviews with herders, 2011

3.1.2.3.2. Dairy farming: Dairy farming in Jordan is commercial depending on purchased feed mostly from imported source. The dairy farmers complain about high feed prices, but admit availability of free veterinary services for the major national diseases. Milk production cost is high due to the high feed prices. The industry fulfils significant portion of the local consumption. The larger commercial plants monopolize the market and the only possibility for the smaller business(one to 10 dairy cows) to thrive is to work under the umbrella of well organised and commercially trained and managed dairy farmers organisations capable of insuring vertically integrated food supply chain (Figure 3). The dairy cows are generally excellent exotic breeds, improved crosses of local or adapted imported breeds. At present the national dairy products provide 64% of the local consumption requirements. However, there is need for clear strategies of milk pricing specially in relation to competing cheaper imported powdered milk. At present farmers have difficulty competing and need a pricing policy that helps them to marketing their milk. Also fresh milk pricing is not associated with feed prices. An option to reduce feed cost could be through integrating crop and dairy production. Also there is need to follow up on the BRP proposal to produce forage crops in the improved watersheds; or to seek possibilities for profitable use of recycled. Harvested (bonds) water for forage production.

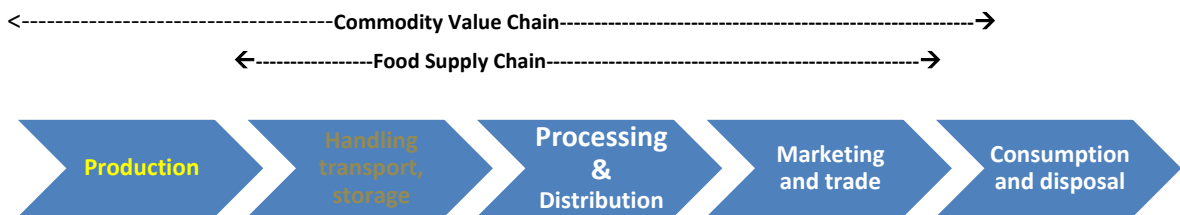


Figure 3: Models of vertically integrated commodity value chain and food supply chains

³⁸ Source: IFAD Evaluation Mission for NPRRD, 2011

³⁹ Source: MOA 2011

3.1.2.3.3. Poultry production: The poultry subsector is a viable and productive industry which responds to the local market demands. For example, production has increased from 115.000 tonnes in 2005 to 168, 900 tonnes in 2010⁴⁰. Although the operations is moving from numerous and smaller farms to fewer and larger farms (e.g from 2202 broiler farms in 2005 to 1920 farms in 2010), the production capacity remained stable (27.5 million birds in 2005 compared 28 million birds in 2010) . The sub-sector is operated mainly by small number of large scale producers who have full access to modern technology, breeds and imported feed. In spite of high investment value, the subsector is creating jobs in supporting activities e.g. feed processing units, conversion of poultry by-products into animal feed and organic fertilizers. The smaller poultry farms (operating between 5000 and 1000 birds) rely upon local processing units in the provinces (de-feathering (*nattafaat*), marketing etc.) and compete in accessing imported feed with the large producers. The poultry famers met by the EU-Team informed that feed cost is their major problem. It seems that access to public animal health services is possible and well facilitated to most poultry farmers.

3.1.2.4. Agro-Food Business: Agro-industry is still in its infancy but gaining momentum. The position of Jordan and the abundance of foreign labour might advance this sector, but uncertainties and risks such as: the amount produced, quality of the product, effectiveness of toxic residue monitoring systems, compliance with food safety and environmental health regulations and policies, adherence to trade agreements and regulations, sustainability of the foreign labour, among many other reasons, need the highest attention of the policy and decision makers.

High value products: Some locations in Jordan are suited for honey production and for the expansion in medicinal herbs and aromatic plants (MHAP). These commodities possess high water use efficiency, and relatively high economic returns per unit area compared to conventional crops. In addition, MHAPs and Honey community organisations, along with dairy cooperatives and community broiler schemes, could offer important opportunities for women who are increasingly abandoning agriculture with disappearing family farming and herding practices.

3.1.3. The natural resource

3.1.3.1. Water resources: Jordan is one of the top four water poorest countries in the world. The Country has developed and implemented successful policies, strategies and projects for water harvesting and recycling. Also there are successful projects supporting water users associations (WUAs)⁴¹ . However, in view of the increasing competing demand for water and the impact of the climate change, there is continuous need to adopt and develop technologies and innovations such as (i) maximizing water use efficiency; (ii) crop diversification and cultivation of high value crops that fetch competitive local and international markets while replacing crops that use proportionately higher amounts of water; (iii) develop food and feed crop varieties that are tolerant and adaptive to climate change; and (iv) enhance the integration and complementarity between crop and livestock production systems.

3.1.3.2. Climate Change: Jordan is strongly committed to the objectives of the international community for the integrated environmental and economic response to the threat of climate change. Based on Intergovernmental Panel on Climate Change (IPCC) scenarios, among other negative impacts of Climate

⁴⁰ MOA, Annual Report , 2010, page 128

⁴¹ Source : GIZ water users association (WUAs), 2011

Change, Jordan will suffer from reduced agricultural productivity and water availability. Most serious challenge at the adaptation level is the impact of Climate Change on water scarcity specially noting that Jordan is the fourth most water scarce country in the world. The scarcity of water in Jordan is the single most important constrain to the country growth and development. Priority actions and choices were developed based on the recommendations of the Second National Committee (SNC)⁴² developed within the context of integrated water resource management and the focus on providing adequate water to meet the MDGs and national water and environment objectives. The SNC is the product of a fruitful partnership between the Ministry of Environment and the UNDP through leadership of MOE and participation of other public and NGO institutions including MOA.

3.1.3.3. The Rangelands: Most of Jordan land surface are rangelands which are mostly in dismal situation having lost the vegetation cover because of overgrazing, recurring droughts, cultivation in the marginal areas and other human activities (roads, settlements). Restoration and reclamation require holistic approaches which were tried in the past but failed (e.g. IFAD supported NPRRD) because of weak or inequitable community participation and lack of functioning civil society organisations⁴³. Therefore, national attention and support should be given to the recently launched UNCC funded USD 160 million Badia Ecosystem Restoration Program (BRP), which aims to implement a holistic long-term community driven approach that incorporates the linkages between livestock, water, soil, grazing and supplementary feed resources, while considering income-generating activities such as ecotourism, forest products, honey, high value medicinal and herbal plants. A major task of the program is to deal with the land tenure system in a fashion that does not contradict with the laws, but provide the Badia dwellers the incentive to manage and protect the rangeland resources. One significant innovation to be sought by the BRP would be the devolution of the full responsibility of managing and improving the fragile Badia resources to the local communities, a pursuit that must be supported by favourable policies and legislations.

3.1.4. Cross cutting issues

3.1.4.1 Agricultural Extension Services in Jordan are not performing efficiently due to lack of extension officers training and budgets. This is reflected on poor adoption of technologies, low productivity and competitiveness. For example, in spite of the significant increase in veterinary services and facilities during the last decade, animal health extension is still poor, and cannot provide farmers with the knowledge needed to keep their animals free of diseases. Also, there is shortage of animal breeding extension programs and no effective advice on animal nutrition and feed management at a time when feeding strategies hold the key to profit or loss. The first agricultural extension policy was formulated in 1997, aiming to improve efficiency and effectiveness of agricultural sector in Jordan. Recently the government applied a new strategy resulted in amalgamating public research and extension in the National Center for Agricultural Research and Extension (NCARE).

3.1.4.2. Marketing: Government policies consider marketing a supplementary service despite the fact that marketing starts before production, creates greater economic benefits, and significantly influences economic returns. Most policies have focused on increasing production, which resulted in over-supply of some products, and post-harvest waste especially of the horticultural produce because of the imbalance between supply and demand. The lack of organized production plans and weak farmer organizations also add to the problem of poor marketing. The marketing infrastructure suffers from several weaknesses, especially in the fruit and vegetables sub-sectors. Fruit and vegetables wholesale markets do not represent

⁴² Source: Jordan's Second National Communication to the UNFCCC 2009

⁴³ Source: IFAD Project Performance Evaluation , NPRRD, 2011

real markets, with the exception of the Amman market. However all marketing outlets in the country lack the supply and demand data needed for price formation.

There are also significant weaknesses in the provision of marketing support services, including market research, agricultural extension services, market information, and financing. The few policies for direct economic market intervention are characterized by their temporary nature and instability, such as in the case of protecting local production, or by the unsuitability of the mechanism used for their objectives, such as in the subsidies provided to sheep and goat breeders. There is need for developing a comprehensive marketing policy

3.1.4.3. Post-harvest losses: Significant post-harvest losses and waste are recorded in Jordan for crops and livestock commodities, especially perishables such as vegetables and fruits and dairy products⁴⁴ the main threat to the smallholder farming is poor vertical integration along the production and food supply value chains. The post-harvest operations, especially of the small farmers lack transportation, pre-cooling, grading, packaging, refrigerated transport and storage, and processing of products. The agricultural cooperatives in Jordan are very weak and cannot assist the small farmers through empowered small farmers' groups (farmers' organisations) in addressing the above problems.

3.1.4.4. Competitiveness: Generally most of the Jordanian agriculture lacks favourable political, policy, strategic, legal and financial environments that attract investors and provides the farmers with sustainable inputs and services. Therefore, it is highly important to assure effective implementation of the existing policies and strategies, and to formulate appropriate policies and strategies at the sub-sector and commodity levels. Also, there is need for legislations that assure sustainable and equitable use of the natural resources by the small farming and herding communities. Furthermore, it is rather important to assist the producer segment of the stakeholders along the value chain to access technology, inputs, financing most appropriately through collective actions of viable Producers' organisations (e.g. Farmers, herders).

3.1.4.5. Socio-economic: Agriculture in Jordan is influenced by several socio-economic circumstances especially in rural areas. The following are major issues and recommendations: (i) agriculture is not a mere economic activity; rather it is a major contributor to the livelihood of the rural poor, small farmers and marginalized segments of the society. Therefore, more attention and investment should be geared to the sector; (ii) unlike their parents and grandparents; the rural youth are not motivated to work in agriculture because of social and economic factors in addition to low salaries compared with other sectors in the economy. Such attitude could be reversed if agriculture labour could gain similar attraction as other jobs that provide allowances for housing, transport, insurance and pension; (iii) Small and fragmented holdings and common titles to land negatively affect the efficiency and profitability of the different agricultural practices. Producer Organisations e.g. Farmers Organisations (FOs) and Herders Associations have proven to be effective tools to minimize the negative effects of such issues. The proper environment and incentives need to be in place to overcome and remedy the situation; (iv) Agriculture is not a sector that stands alone, it has its own forward and backward linkages, and requires proper enabling environment to flourish. Supportive infra-structure and services such as schools, health, rural roads and rural development activities

⁴⁴ Source: Role of Agro-Industry in reduction of food losses in MENA Region An FAO / University of California Davis Report (December 2011)authored by Drs O. Abdin, A. Hussein, A. Kader,L. Kitinoja, A. Jabarin, and A.E . Sidahmed

must be made available in order to motivate the farming communities to adopt profitable and sustainable agricultural practices.

3.1.4.6. Land use planning: There is a need review the land use policies and laws and bylaws with the purpose of providing the farmers and herders the incentives to improve land use practices (sustainability, reduced land fragmentation).. Also, there is a need for programmes supporting breed improvement, flock management and range management and stop the expansion of crop cultivation (usually low yield field crops) at the expense of the fragile rangeland ecosystem. It is also rather important to assess the threats caused by urbanization and the encroachment of human settlements in the arable areas, and poor support to green belts around the cities.

3.1.4.7. Overall: Promotion and dissemination of appropriate knowledge and technologies mainly those related to water management, farm and herd management, marketing and processing are important for all sub-sectors (agronomic crops, vegetables and fruits, livestock systems; and agro-food businesses). This could be achieved through: (i)provision of appropriate agricultural services, infrastructure and enabling environment such as finance, labs, quarantines, quality assurance, roads, transportation, storage, vet services, extension and research; (ii) cost reduction and return maximization to farmers through the promotion of farmer’s cooperatives, reduction of post-harvest losses, diversification of production, reducing marketing margins and enhancing farmers capabilities; (iii)Improved rangeland productivity and restoration of the Badia eco-system;(iv) improved competitiveness of the agricultural products in the local and foreign markets by producing quality certified products at right prices benefiting from Jordanian comparative and competitive advantages.

3.2 Synthesis of findings

The in-depth SWOT analysis of the major agricultural sub-sectors and the sector as a whole conducted by the EU-Mission and verified by a large number of stakeholders (Volume I) was the culmination of a very extensive and elaborate review of documents, field visits, discussions with famers and other stakeholders. The Team took into primary consideration the pivotal role of agriculture in social stability, rural poverty reduction and employment and food security at the present circumstances of rapid regional and international economic, social and cultural changes. The SWOT analysis highlighted a number of challenges that need to be addressed in order to revitalise the agricultural sector in Jordan. The recommendations of the SWOT analysis validation workshop (Annex 4, Volume I) emphasize the urgent need for serious galvanised efforts by the national and global community to develop measures to strengthen the agricultural sector in Jordan. However, such measures must be pragmatic and focused, especially in light of the fact that agriculture sector faces - among many challenges - high competition from other sectors for the use of the scarce natural, social and financial resource. Below is a discussion of the challenges and gaps facing the agriculture sector in Jordan:

3.2.1 Challenges/ Issues Related to the Natural Resource Base

a. The gradual decrease in water allocated for agriculture:

Jordan is one of the top four water poorest countries in the world. Most of the water is from renewable resources (surface, 65% and ground water, 35%) distributed over a small number of water basins and managed through dams and catchments. The non-renewable water resources (24%) are mainly limited to *Disi* and *Jafar* basins. About one fifth of the surface water is replenished annually, but this also varies

according to rainfall. Most of the ground water is potable while most of the surface water is allocated for irrigation.

The proportion and quality of irrigation water is continuously declining mainly as a result of the following combined factors: (i) Low precipitation as a result of the impact of climate change combined with declining annual rainfall and more frequent and longer droughts; (ii) Insufficient water harvesting and collection measures at the national, watershed and farm levels; (iii) Misuse of irrigation water and over pumping of ground water resources which ultimately affect the availability, returns and quality of agricultural water.; (iv) Increasing population and competition over water by other sectors; and (v) Ineffective water policy and strategies and poor coordination between the concerned institutions. The direct impact of water shortage on the performance of the agriculture sector is reflected in the followings:

- Declining farmer's income
- High production costs (both animals and crops)
- Increasing conflict over water rights and allocation
- Decreased investment in agricultural
- Abandonment of agriculture, transfer of fragmented farm lands into other uses (urban dwellings, factories)

b. Climate change, drought, frequent frost, desertification and land degradation

Jordan's climates are mainly Mediterranean in the west, and arid in the east and south. The country is subject to winds from northwest that bring cold wet air during winter and spring and mild air during summer and autumn, and from Arabia and India in the east and southeast, bringing cold air during winter and spring and hot dry air during summer and autumn. This pattern of cold and hot climate has been further complicated by frequent recurrence of temperature and precipitation extremes, severe water scarcity and desertification. The on-going land degradation processes, in the absence of /or weak mitigation and coping mechanisms for the advancing climate change phenomenon is undermining any development and social gains in Jordan in general and among the rural farming and herding communities in particular. The direct and indirect impact of the above on the agriculture sector could be summarised under the followings:

- Decline of production and productivity
- Damages to the structures and infra-structure of the farms, consequently losses in capital
- Declining number of livestock that depend on grazing
- Overuse and misuse of natural resources

c. Overgrazing and unsustainable use of the rangelands

Most of the land surface in Jordan is classified as rangelands. The Badia (or desert) was predominantly covered with high value biomass of natural vegetation (annual, perennials and shrubs). However, over the past 60 years the rangelands of the Badia witnessed progressive deterioration in the quality and quantity of the natural vegetation cover which has been completely eroded in many areas. Moreover the watersheds in the Badia constitute only 2% of its area the causes of this extensive loss were many : (i) increasing human and livestock population⁴⁵ leading to overgrazing and cutting trees for domestic use; (ii) encroachment of

⁴⁵ For example sheep and goats have increased from 65,000 head in the 1960s to about 3 million head nowadays. Advances in transport, trucking of water and livestock and supplemental feeding afflicted heavy pressure on the natural vegetation leading to complete desertification especially in southern and central Badia.

cropping in the marginal areas (iii); erosion of the traditional Badia practices and poor participation of local community in the decision making process; (iv) unfavourable land tenure policies, and inappropriate and weak enforcement of laws and regulations; (v) weak institutions, cooperatives and farmers' organizations; (vi) Market distortions and subsidies; (vii) recurring droughts and shortage of water, and; (viii) advancing climate change. The major effects and impacts are:

- Deterioration of biomass and land cover
- Soil erosion, land degradation and desertification
- Social conflicts and unrests
- Increasing import of feed stuff and animal source foods

d. Increasing pressure on the natural resources mainly water and agricultural lands

In spite of the existence of policies, strategies and laws for land use, water use and rangeland use, the adverse pressure on the natural resources continues, mainly in response to high population growth rate and urbanisation. The population of Jordan has increased from few hundred thousand people in early 20th century to 6 million at present. Stretches of prime agriculture lands were converted to urban dwelling, roads and industrial building due to the lack of proper land use planning and weak implementation of policies strategies and regulations. The consequences and impacts could be summarised in the following:

- Water depletion and over pumping of ground water
- Abandoning of farming
- Decrease in production, productivity and quality of produce
- Unemployment of rural youth (boys and girls)
- Increased number of the rural poor
- Social problems and unrest

e. Land fragmentation.

The size of the average agricultural land holding was reduced from 63 du in 1991 to 40 du in 2007, but the lower range goes far below 4 du. Land fragmentation is mainly a result of two factors: (i) Inheritance laws which results in distribution of lands to several relative who either cultivate the land jointly under a common title or distribute it into smaller pieces; and (ii) The high value of agricultural lands attracts the owners of small areas to sell their lots to the growing industries or for urban housing. The direct and indirect impacts of land fragmentation on the agricultural sectors are:

- Low production, productivity and profitability
- Keeping the land idle and not using it
- Selling the land for agricultural or non-agricultural purposes
- Moving to the cultivation of olives and other fruit trees in suitable or unsuitable areas
- Environmental degradation and soil erosion

3.2.2 Challenges/ issues related to the institutional and legal framework

a. Low efficiency of the public sector agricultural institutions

Most of the public sector agricultural institutions are oversized and feature highly complicated technical, administrative and hierarchical structures, and afflict - to a greater extent- budgetary burdens to the national economy. Most institutions lack effective human resource development plans and do not observe transparent recruitment procedures especially for the high ranking positions. Moreover, the high turnover of the most senior staff has proven to be an obstacle to the implementation of most policies and

strategies. Hostility, lack of cooperation and overlapping responsibilities are a major impediment to any attempt to integrate, coordinate or streamline related business processes. Some of the staff met by the Mission at the departmental levels expressed frustration because of lack of recognition, poor motivation and incentives and improper allocation of financial resources mainly for developmental purposes. Further complexities exist because of the absence of legal frameworks and capacities to implement policies and laws; weak partnership and coordination mechanism especially with the private sector and the NGOs. Many institutions do not take full advantage of women and youth. This handicap is also prominent in the civil society institutions and community organisations that are dominated by a few elder elites at the expense of exposing the young and representatives of the poorest and most vulnerable. There is lack of effective cooperatives and agricultural community organizations (range management groups, herders' associations and - to a lesser extent- water users associations) and the few that exist serve the interests of very small dominant individuals or lack recognition and support. The impacts of the above on the agriculture sector are highlighted through the following bullets:

- Delivery of poor and improper services
 - Poor delivery of services;
 - High, continuously increasing cost of services, leading to high production costs;
 - Weak application of standards, specification and quality control measures and regulations;
 - Weak quality assurance measures particularly in relation to food safety and hygiene (e.g. use of contaminated or untreated brackish water);
 - Brain drain of qualified staff who seek employment opportunities in regional and international countries.

b. Generally poor and/or inefficient agricultural services.

Extension messages were delivered through MOA (directly through its provincial offices) or indirectly through NCARE after 2007. Also extension and technology messages and models are delivered through projects implemented by MOPIC, NGOs as well as JVA which is responsible for the allocation and delivery of irrigation water to the farmers in the irrigated areas. Rural financing is mainly the responsibility of the ACC. Also some project deliver small and medium term loans and grants as parts of projects (e.g. IFAD loans, or donor supported grants). Others services include quality assurance, public health protections, residue and toxic control delivered by MOA, MOH and JFPA, the diagnostic laboratories and others, and support to the cooperatives through Jordan Cooperative Corporation (JCC).

Whether the recent movement of extension services from the direct responsibility of the MOA and its provincial agricultural offices to the direct responsibility of the semi-autonomous research institution (NCARE) and its branches in the governorates will succeed in enhancing delivery of research results and extension messages nationwide is to be seen. Also not clear is the extent of cooperation between NCARE and other institutions such as the JVA and the institutions responsible for assisting farmers through credit (ACC) or cooperative organisations (JCC). In addition to the organisational uncertainties and the lack of/poor implementation of service delivery strategies, the major and common causes for poor delivery of services are: (i) low efficiency and performance of staff; (ii) limited financial resources available to the institutions; (iii) lack of transportation means equipment and tools, and; (iv) weak private sector involvement, and; (v) weak farmers organizations and cooperative system. The direct and indirect impacts of these deficiencies on the agricultural sector could be summarised in the following points:

- Low productivity, quality of agricultural products
- Low famers income from cropping or herding
- Inefficient use of the natural resources

- Spread of plant and animal and epizootic diseases

c. Weak cooperative system and limited private sector involvement in certain sub-sectors and activities.

Out of 1350 registered agricultural cooperatives in JCC, only 800 are active⁴⁶ of these only one third is agricultural cooperatives. The agricultural cooperatives do not receive technical or risk management support services from JCC. The weakness of the cooperative movement in Jordan is not only evident from the small number of cooperatives, but also from the absence of impact of the functioning cooperatives on the agricultural economic scene. For example, the agricultural cooperatives do not provide incentives to the rural youth to work in agriculture, and fall under the subjugation to the private sector. Moreover, the present cooperative law is not compatible with the needs of the cooperative sector, and there is no governance structure capable of supporting future improvement possibilities. In addition to the above the cooperatives are burdened by the following constraints: the high risks and uncertainties of farming in Jordan; weak control and regulatory frameworks; farmers attitude and culture; most of the agricultural cooperatives are small in size, poorly organised and staffed, and; inadequately trained and empowered members. Accounting and data management is limited in most cooperatives. The direct and indirect effects and impacts are:

- Low productivity, resource use efficiency and profitability
- High vulnerability of farmers to changes and shocks
- Limited investment available to farmers

d. Improper legal framework that govern the agricultural sector, some of regulation either lacking, weak or weakly enforced

There are many legislative reform strategies designed to improve the performance of the agricultural sector. These include policies, strategies, laws, and temporary laws for agriculture, land use, livestock, rangeland use, water resources, environmental protection and biodiversity. The diversity of the instruments is also reflected in the diversity of the public institutions instructed to formulation and implementation (e.g. MWI, MOE, MOA, etc.). Some are not effective or have not yet led to the expected impact. Among many reasons is the lack of qualified field and HQ staff in the concerned public sector institutions who could be engaged in the development, formulation, analyses and implementation of policies, strategies and plans. Also most of the legal frameworks lack of instruments for effective enforcement and implementation. Furthermore, most communities lack awareness or cannot see the reason for instruments that consider as not responsive to their social and cultural values. The main impacts of ineffective legal frameworks are:

- Low efficiency and performance of agricultural practices
- Public, plant and animal health problems
- Low competitiveness in the markets especially in the foreign markets
- Misuse of the natural resources
- Social conflicts and troubles

e. Weak commitment of the government and donors' support to agricultural sector:

⁴⁶ Source: JCC General Manager and www.jcc.gov.jo. JCC's main role is to offer services and advise to cooperative members (farmers, etc.). Only 30- 35% of the registered cooperatives are agriculture oriented

MOA, the main public institution responsible for the agriculture sector is known to be the Ministry with the extraordinarily highest turnover at the Minister's and high levels. This reality is an impediment to the functioning of the MOA and to its capacity to coordinate the implementation of the sectors policies and strategies. This situation has a negative impact on the donor communities who depend strongly on constructive dialogues with the host institutions. Other reasons are; weak awareness of the importance of agriculture; weak institutional (infrastructure and human resources capacities; declining of contribution of agriculture in the national economy; reluctance of the private sector to invest in agriculture; weak farmers organizations and pressure groups, and ; high risks and uncertainties. The major impacts are:

- Limited investment and development budgetary allocations
- Low efficiency and performance
- Mistrust and frustration of farmers and farming community
- Poor support of the donors' community to agriculture. There are several major donor institutions that did not support agriculture for close to a decade.

f. Inconsistent and weak data, agricultural statistics, information, GIS and MIS systems

One major issue that surfaced during the assessment mission is the need for coordinated and reliable system of ICT. At present agricultural data systems lack coordination and harmonisation. The mechanisms by which DOS and MOA coordinate data collection purposes and methodologies are not clear, and there is no evidence of a coordinated effort. Also use of ICT advances (GIS, MIS, Mobile telephones, internet) is poor, and there is lack of trained human resources and adequate funding. The major impacts on the agriculture sector are:

- Unreliable data and information
- Poor decision making and decision support system
- Loss of opportunities and financial resources
- Poor capacity for risk management and preparedness leading to high vulnerability to natural disasters

3.2.3. Challenges/ issues related to the socio-economic aspects

a. More young people are not willing to work in agriculture, despite the availability of jobs at family and village level

There is a noticeable lack of motives and involvement of the youth (men and women) in agriculture. A significant proportion of Jordanian agricultural labour force is migrant foreigners. This is a matter of great concern that impacts on the social strength as well as the food security of the Nation, and must be addressed through the concerted effort of the highest decision makers. There are many reasons that it is a challenge to address them in a simple way or through one programme or strategy. The most important causes are: (i) many young have poor concept about the value of field work, especially university graduates who think that they should not be engaged on manual tasks; (ii) with the decay of the family labour, the youth and specially the women are losing the traditional farming knowledge and are not culturally motivated to travel to work in remote farms and plastic house fields compared to the foreign labour; (iii) compared to other employments agricultural jobs do not seem to reward for the grudge, lack compensation for travelling to other locations, and do not offer insurance and pension whereas the unemployed receive social security compensations; (iv) farm labour is not supported by the government institutions and there is absence of awareness, rehabilitations and training facilities, and; (v) the youth is reluctant to work in the family farms because of land fragmentation, low return , poor incentives in the predominantly subsistent agriculture in the rainfed areas. The major consequences and impacts are:

- Social problems and unrest (the youth are hidden time bombs)
- Loss of major labour force
- Increasing dependency of guest workers
- Political consequences
- Food insecurity

b. Progressive neglect of the importance of agricultural sector

There is poor awareness about the importance and role of agriculture in the national economy, especially compared to the thriving and dominating tourism, industrial and service sectors. Many people are not aware of the social and environmental impacts of agriculture, specially the donor community who were mostly interested in supporting other sectors. Also the agricultural support groups and lobbies are rare and weak, and did not provide any defence against the misconception that the scarce water resources are misused by the agriculture sector. One further cause of the neglect is the fact that many members of the rural communities who have migrated to well-paying regional and foreign countries provide their relatives with remittance, which discourages them from working in agriculture. The direct and indirect effects and impacts on the agriculture sector are:

- Low efficiency and performance of the sector
- Many farming communities abandoned agriculture
- Negative social and environmental consequences

3.2.4. Challenges/ issues related to the production, productivity and profitability

a. Low productivity and profitability

The weak performance of the smallholder production systems (small household based subsistence farming; emerging commercial crop and livestock systems; irrigated, rain fed, livestock, crop-livestock systems) could be attributed to some or all of the following reasons: poor agricultural services and infra-structure; weak application of appropriate technologies; inefficient and overuse of inputs and natural resources; stock and land fragmentation; weak institutions and legal frameworks; weak enforcements and appropriateness of the legislations; weak cooperatives and producers organisations, and; lack of feed resources and flock management inputs. The direct and indirect effects and impacts are:

- Traditional farmers and herders shifting to other jobs or stay without jobs
- Depletion of the traditional capital (getting rid of the land or livestock)
- Degradation of the natural resources (soil and rangeland)
- Migration to urban or foreign job opportunities

b. Limited competitiveness of Jordanian agricultural products in the foreign markets, especially the export of quality and high value crops

The Jordanian agriculture competitiveness is weak and lacks favourable political, policy, strategic, legal and financial environments that attracts the investors and provides the farmers with sustainable inputs and services. Mostly this is caused by: weak extension and technology transfer systems; lack of awareness of the stakeholders along the value chain of the innovative interventions; weak implementation of regulations and quality control measures; competitive low prices of the agricultural products from other countries that offer the farmers subsidies and cheap inputs; poor marketing services and infra-structures; unfavourable farm-gate pricing policies, and; poor compliance with SPS and related mechanisms. The direct and indirect effects and consequences:

- Low returns to farmers and dealers
- Marketing more in the local Markets

c. Widening gap between the consumers prices and farm gate prices

There are no pricing policies that favour the producer. This matter was further aggravated by a flexible food import policy that allows for the importation of commodities which are close to meet self-sufficiency such as livestock meat and dairy products, and by Jordan's compliance with the international trade agreements (WTO) which allows for the importation of products for sale at lower prices than the local products. For example, the prices of the locally produced tomatoes and strawberries displayed at Amman's wholesale marketing facilities were higher than products imported from Egypt and Syria. On the other-hand, the farmers who cannot transport their products to the wholesale markets are further disadvantaged by the gap between the consumer's prices and farm gate prices, as it reached about 34% for vegetables and 38% for fruits in 2010. The major causes of this gap are the following: (i) high profit margins of the dealers, middle men, and the retailers; (ii) lack of marketing standards (iii) Absence of competition with imported products at certain times; (IV) poor quality including packing and packaging, and (v) weak cooperative marketing. The main impact is the low return to the farmers.

4. GAP ANALYSIS AND FUTURE EU SUPPORT

4.1. Information and Knowledge gaps that require studies and surveys

- A. Inadequate knowledge of the causes of poor coordination and harmony between the sector's public institutions: The public sector institutions remain very important contributors to providing services and framing strategies and policies of the sector. However, these institutions are mostly oversized and are highly complex thus afflicting budgetary burden on the economy. The Mission noted the hostility and lack of cooperation and overlap among these institutions. Any reform will not be possible unless collective actions that reflect sincere determination for correction and streamlining are devised.

Recommendation: *An agricultural sector institutional reform driven study acceptable and significantly supported by the highest ranking authorities is needed. The study should look at the strengths and weaknesses of these intuitions, and develop reform options.*

- B. The small farmers form the majority of the agriculture families, but they are being driven out of their cultural and traditional livelihoods domains without other income generating alternatives. The holdings or the flocks owned by the small farmer are too small to withstand shocks. Farmers' Organisations (FOs) could offer the farmers (as shareholders) the collateral and the power to borrow and repay loans. Also the cooperative system is not functioning properly being constraint by poor coordination, mandates, competition with the private sector and poor governance.

Recommendations: *To conduct a detailed socio-economic and biological study with the aim of identifying options to strengthen the Farmers' Organisations (FOs) in forms that assure equity, empowerment and voice to the smallholders and poor herders. Options to ensure full representation of the smallholders as shareholders in all relevant FOs business ventures will be studied benefiting from successful experiences in other countries and communities.*

- C. Cooperatives and farmers orqanizations: The majority of farmers in Jordan are classified either small or middle size farmers, which directly affects and impact their efficiency, profitability and sustainability. Farmer organizations and cooperatives constitute a major solution to solve this problem, yet the

experiences in Jordan are far from being successful, as most of the agricultural cooperatives and farmer organizations are not properly functioning

Recommendation: *Conduct an evaluation and assessment of the agricultural farmer organizations and cooperatives in Jordan, analysing their performance, major problems and constrains, SWOT analysis, lessons learned and to recommend future actions and interventions in order to activate and operationalize farmer groups and agricultural cooperatives as a major tool to achieve the strategic objectives of agricultural sector.*

- D. **The youth in Jordanian agriculture:** The Jordanian youth are averting from agriculture! The youth prefer to stay without jobs for several years rather than being exposed to the grudge of living away from their families in the commercial agricultural farms. Although the Jordanian women enjoy constitutional rights to work and to be involved in the public life, they are driven out of the agriculture labour market because of the decline in household farming and herding. The Mission was given a number of explanations for this situation. However, as the unemployed youth increase in number, finding solutions becomes more difficult, leading to the volatility of the geopolitical environment of Jordan and its surrounding countries. This is a matter of great concern that impacts on the social strength as well as the food security of the Nation, and must be given high attention;

Recommendation: *A study to investigate causes of poor participation of the young men and women in the agricultural sector is urgently needed. Similar to above the study must be highly supported and facilitated. Although social in nature, the study must look at all aspects of the problem*

- E. **Women in Jordanian agriculture:** The role of women in agriculture is diminishing with increasing commercialization and disappearance of family based smallholder. Most women in the rural areas cannot work as hired farm labour especially in far distances from their households. This is because of practical reasons as women are engaged in several domestic activities such as child rearing, and for cultural reasons where it is difficult for women to stay away from their immediate families.

Recommendation: *to study the options and opportunities for generating additional income generating activities such as processing of agricultural products e.g. yoghurt and cheese making, bee keeping, women groups managed high value herbal and medicinal plants production and processing enterprises, etc.*

- F. **Foreign labour:** Migrant labour from the neighbouring countries specially Egypt and Syria are currently of high demand to the commercial and emerging agricultural systems

Recommendation: *The A study of the impact of foreign labour on the sustainability of the agricultural sector*

- G. **Crop diversification** In order to maximize farmers profitability and to benefit from Jordan's diverse production, there is need to establish practical approaches to improve the efficient use of the natural, human and financial resources. For example, there is need to explore possibilities of shifting the cropping systems from the high water consuming crops to (i) high value export crops such as, herbal and medicinal plants, date palm, cut flowers, cherry tomatoes, yellow and red bell pepper, strawberries among others; (ii) fodder plantation for animal feeding in the rain-fed areas, flood plains and watershed; (iii) bee keeping and other forest products, among others. In order to achieve such goals, there is need for favourable environment (finance, extension, postharvest facilities and treatment, marketing, information and quality assurance services).

Recommendations: *to conduct a comprehensive sector value chain analysis with the purpose of (a) identifying the competitiveness of Jordanian agriculture nationally, regionally and internationally; (b) exploring means of improving the potentials of certain commodities and production systems.*

- H. Extension and research organizational structure and linkages The recent amalgamation of the public research and extension services has contradictory and mixed judgment from different stakeholders being farmers, extension workers or researchers and their institutions including the agricultural directorates in the governorates.

Recommendations: *Conduct a study to (i) evaluate and assess the impact of the merger on the extension and research services delivered to farmers in terms of efficiency, effectiveness and sustainability and to recommend appropriate remedial interventions and measures; (ii) assess options to reinvigorate and expand the benefits from NCARE and to modernize its approaches for R&D service delivery and innovation mainstreaming*

- I. Land fragmentation and common title Due to the inheritance laws and increasing prices of agricultural lands, the holding size is continuously decreasing which negatively affect the production and productivity of agricultural sector.

Recommendations: *Review the extent and consequences of land fragmentation on agricultural and suggest policies, regulations and institutional interventions such as cooperative, shareholding companies and agricultural land consolidation fund.*

- J. Review of the agricultural policies, strategies and laws. There are many legislative reform strategies designed to improve the performance of the agricultural sector. However, most of these are not effective or have not yet led to the expected impact. Among many reasons is the lack of qualified field and HQ staff in the concerned public sector institutions who could be engaged in the development, formulation, analyses and implementation of policies, strategies and plans.

Recommendation: *To undertake a comprehensive evaluation of the policies, strategies and laws that impact on the agricultural sector in collaboration with other partners (e.g. NDAF, USAID) ;to design and support a project aiming to enhance and upgrade the capacities and capabilities of relevant staff and institutions to perform the tasks properly*

- K. Farm Management Survey: The farm management survey provides accurate data on costs and revenue of farming in the area of plant and animal production. Also it helps in the study of the relationships between inputs and outputs of the different agricultural production systems. Such living enterprise budget for different crops grown in different agro-climatological zones and updated annually is an important decision making tool. However, the Mission noted that a survey was carried out by the Department of Statistics (DOS) only once in 1988.

Recommendation: *To undertake a farm management survey in order to provide comprehensive and up to date information on all of the agricultural operations that are within the possession. The data, once collected and analysed would be important for making economic decisions and policies concerning the development of the agricultural sector. The results, if based on surveys modelled to generate socio-economic and farming community livelihoods based data, will also help the farmers to make sound economic decisions*

- L. Quarantines and diagnosis for commodity and public health Overall Jordan enjoys a reasonable capacity for cross border control of animals and plant material. Also laboratory diagnostic services are available supported by sufficient epidemiological surveillance, especially in preparedness for actions to combat

epidemics and national threats. Farmers and livestock producers have access to public supported diagnostic laboratories. However, the major livestock quarantines are owned and monopolised by large commercial companies. Also quarantines and diagnostic laboratories are not equally distributed in the country. In addition, there is need for coordination and integration of the concerned crop, livestock and public institutions. In general the magnitude of the problems and the possible solutions need close assessment.

Recommendations: *to study the situation, limitations and opportunities for developing cost effective and coordinated capabilities for crop and livestock diseases control and prevention*

- M. Studies aiming to support the creation of agricultural Investment windows. The results would be useful in providing the rationale for engaging the local communities in leasing their land in return for contractual and economic benefits

- N. Olive studies: Demand of high quality olive oil and processed oil is increasing worldwide. In response, the past decades witnessed an increase in olive plantations and production, sometimes in unsuitable soils and production systems. Also this expansion was not supported by measures to enhance the competitiveness of the Jordanian olive oil in the regional and international markets.
Recommendation: *to study the potentials and prospects for developing a sustainable and competitive olive production and processing industry.*

- O. Price policy surveys

- P. Detailed value chain analysis for the main horticultural crops

4.2. Fast Track Project ideas

4.2.1 Agriculture Development Fund (ADF)

The challenges facing the smallholders agriculture are complex and numerous, the most important being lack of financing, small unviable land areas or flock sizes, and poor access to affordable services (technology, inputs, health services, etc.). A further and most threatening challenge to the poor households is the dominance of competitive income generating sectors that enables off-farm income earning families of rural origin and others to purchase agricultural land from the marginalized and vulnerable smallholders. Similarly small livestock keepers who lack the viable herds that allow them to purchase feed especially at the times of soaring prices, are forced to sell out all or parts of their flocks to capable families who have the cash from off-farm wages or remittances received from family members who work in foreign countries.

A fast track prototype of funding mechanism supported by EU and other donors is proposed. The mechanism would be dedicated to support small farmers groups (SFOs) of selected representative communities organized in shareholder-type private business operations (cropping, livestock production, processing of products, etc.). The funding mechanism should be operated in the form of Trust Fund (an Agricultural Development Fund –ADF) under the governance and execution responsibilities of representatives of the stakeholders (SFOs - not JFU) in compliance with the existing legal and institutional frameworks. The Fund will be used as a tool to promote and disseminate certain activities and results that either contribute to alleviating poverty among the small farmers and the rural poor and /or improving competitiveness and profitability of farmers and farming communities. The fund should be managed effectively and should avoid unnecessary delays and lengthy procedures. The items of expenditure, modality of disbursement will be developed during a 6 month preparatory period that would also allow for the identification of the custodian of the Trust Fund (e.g. a UN organization or a private bank).

Timeframe: 18 months including 6 months preparatory and needs assessment phase

4.2.2 Agriculture Service Providers

To trace back when the Jordanian farmers have acquired traditional knowledge of crop and livestock production would be as challenging as finding solutions to the complexity of reasons that have made the sector the least competitive sector in Jordan. Although, the Jordanian farmers are relatively exposed to advances in technology, farm machinery, water use, ICT and markets, there are several obstacles and deficiencies along the production and food supply value chains that must be addressed for a viable, cost effective, profitable and sustainable agriculture; for both the smallholders as well as the expanding commercial firms. A major constraint is the poor or inconsistent access to public delivery services (technology, training, marketing and information and knowledge sharing), dearth and high cost of private sources of inputs. This Assessment undertaken by this Mission has concluded that, under the current public institutional structure, service provision is expensive and in some areas, inadequate. Also there are bottlenecks and obstacles facing extension and technology transfer specially at the governorate levels.

Several successful models of privatized service delivery systems have been applied worldwide. There are models of profitable cost recovery-based and producers' managed approaches such as breed improvement, training, hiring subject matter specialists, contracting research stations to solve specific production problems, technology transfer and input delivery. However, success of producer-organisations, cooperatives, resource users associations etc. is country and community specific. In the case of Jordan, and considering the inefficiencies of the cooperative system, and the problems and constrains facing farmers union, support must be given to new structure which aims to commercialise the smallholders approach to agriculture as an alternative to the nonviable subsistence farming. This could be achieved if the producers are full members of share based organisations (smallholder farmers organisations SFOs, small herders organisations (SHOs), medium level commercial producers organisations (CPOs) etc., which are designed and promoted for profit.

A fast track prototype of viable and cost recovery based service delivery models is proposed. The profit based producers organisations will receive extensive training and capacity development in prioritisation, administration, management and accounting. The Farmers' Organisations (FOs) would contract services from the relevant private service providers (members of the group, retired public service providers who have returned to their farming communities). EU funding would also include provision of starter loans from the ADF to both the farmers and private service providers).

Timeframe: 24 Months including a 6 month preparatory phase

4.2.3. Farmers Organisations

The general common features of most cooperatives in the developing countries are poor efficiency, skewed benefits and weak sustainability. Jordanian cooperatives are no exception. The present cooperative law is not compatible with the needs of the cooperative sector. Also most of the cooperatives are not functional and have no risk management support from JCC. The Jordanian Farmers' Union (JFU) is more of an advocacy and political front. In spite of its defined authority to deliver services and commercial business to its members JFU, in its current structure, lacks the capacity of being involved in investment and sector development activities that generate direct and specific economic benefits to the members. Although the small farmers form the majority of the agriculture families, they are increasingly being driven out of farming and livestock rising with few income generating alternatives. Furthermore, the few

functioning cooperatives are poorly governed and are not protected against dominance and monopoly of the larger private sector firms.

The above underscores the need for alternative organisational structures that could directly represent the commercial interest of the producers (e.g. herders organisations, vegetable and fruit producers organisations and farmers organisations), and have the legal and financial capability to manage or own vital functions such rural financing, extension services, technology transfer, product processing, food safety and hygiene. This fits well within the framework of the widely spreading concept of production and marketing oriented Farmers' Organisations (FOs) which offers the farmers (as shareholders) the collateral and the power to borrow and repay loans. An important feature of the FOs is the ability to empower the farmers and the FOs through training, capacity development, awareness building, food security, priority setting, institutional capacity in management, accounting, financial control governance, trade, sharing knowledge and networking (locally, nationally, regionally and internationally).

A fast track commercially oriented organisational models of the **Small and Medium Farmers' organisations (SFOs and MSOs)** and **Farmers Marketing Associations (FMSs)** is proposed. Each of the supported FOs model will ensure full representation of the smallholders as shareholders in all of its relevant business ventures. Each would provide services, to its shareholding members and others for a fee. The services should be variable according to need e.g. Expert information Centres, for-profit supply companies. Experiences of on-going association JEPA should be consulted. The results and experiences generated from the commercially oriented organisational model are expected to be up-scaled and spread benefiting from the lessons learned.

Time frame: 24 Months including 6 months preparatory phase

4.2.4. Sustainable Badia Development

The Badia Region (Eastern Desert) occupies about 82% of Jordan's land mass. The Region is characterized by dry, hot climate, and is scarcely populated. Past and current attempts to develop the Badia achieved mixed results; mostly failure or lack of sustainability. The most significant on-going program is the recently launched UNCC supported UU\$160 million Badia Ecosystem Restoration Program (BRP). The BRP plans to focus on developing 12 watersheds, mostly in the Northern Badia, through a holistic approach that aims to involve the communities through capacity building and empowerment. The approach aims to incorporate the linkages between soil, water, range vegetation, livestock, feed resources, forest and wildlife products while considering rural financing and alternative income generating activities. This complex program is designed to involve several public institutions (an untested approach). Advocacy and political support is expected to be ensured and supported through a high level consultative council. Furthermore, the GOJ has recently agreed to borrow 3.3 million JD from the World Bank to promote environmental services and enhance the livelihoods in three pockets of poverty in the Badia region. Some untested design features of the BRP and the areas to be covered by both projects leave room for improvement and for including other Badia areas especially in the drier and less environmentally favored Southern Badia. Also EU's involvement would assure opportunity for widening the base of partners' assistance in this complex and highly volatile area and would support testing and scaling up of the promising innovative approaches.

A flexible and open minded fast track project aiming to widen the scope of Badia restoration possibilities through a thorough investigation of success/ failure options of the existing attempts is proposed. The approach will be innovative by investing in a pre-design phase that allows for exploring in selected Badia areas the best entry points based on (i) intensive community awareness campaign;(ii) community training in decision making and prioritization; (iii) review of the options to address the land tenure legislations and

laws in view of the current and future land use possibilities; (iv) achieving collective action and consensus of a wide range of stakeholders; and (v) application of appropriate measures and interventions.

Timeframe: 24 months including 6 months of preparatory and community awareness phase.

Annex 1: SWOT Analysis -EU Mission Team (13-14 March 2012)

1. Agronomic Crops

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Low Input Costs • Traditional / Indigenous knowledge • Social Capital , livelihood , family business • Local Preferences (ethnic foods) • Low perish ability 	<ul style="list-style-type: none"> • Land fragmentation • Limited adoption of modern technology & equipment • Weak agriculture services • Poor investment in seed productions & storage • High post-harvest losses
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Increasing global food prices • Local Preference • Potential job creation for rural communities • Poverty reduction and improved livelihoods • Eco- tourism 	<ul style="list-style-type: none"> • Water Scarcity • Climate change, rainfall variability & fluctuations • Urbanization • Lack of motivation, migration of youth • Lack of certified seed & machinery

2. Fruits & Vegetable

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Year round production • Well established private sector businesses • Cheap cost of labour (local & migrant) • Diverse products • Water use efficiency 	<ul style="list-style-type: none"> • Inadequate quality assurance & enforcement of regulations • Low water quality and quantity • Inadequate agricultural services & risk management • High marketing margins • Weak farmers cooperatives • High post-harvest Losses
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Unmet demands • Off-season production • Euro-Mediterranean partnership & trade agreements • Contract farming 	<ul style="list-style-type: none"> • Disease outbreaks • High competition in local & foreign markets • Climate change • High dependency on migrant labour

3. Livestock Sector

Livestock summary of all subsectors	
STRENGTHS	WEEKNESSES
<ul style="list-style-type: none"> • Preference of local products • Livelihood for rural poor • Family enterprise /commercial • Use of local feed & range vegetation • High contribution in Agriculture GDP. • Use of marginal lands 	<ul style="list-style-type: none"> • High dependence on imported feeds , and migrant labour • Unreliable feed supply and quality • Fluctuating feed Prices • Uncontrolled grazing • Weak farmers organization & cooperatives • Small holdings • Low productivity
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Increasing demand for animal source foods (ASF) • High demand in neighbouring countries (Sheep and goats) • Badia Ecosystem Restoration Program 	<ul style="list-style-type: none"> • Climate change • Outbreaks of animal diseases
Sheep and Goat sub-Sector	
Strength	Weakness
<ul style="list-style-type: none"> • Preference of Local Products • Livelihood for Rural People and Family enterprise • Utilize local Feed and Rangeland vegetation • High contribution to agricultural GDP. 	<ul style="list-style-type: none"> • High dependence on imported feed and migrant labor • Unreliable feed supply and quality • Fluctuated feed Prices • Over and uncontrolled grazing • Weak farmers organization & Cooperatives • Small livestock holding
Opportunities	Threats
<ul style="list-style-type: none"> • Increasing demand for animal source foods • High demand in neighboring countries • Existing Badia ecosystem restoration program • Improving carrying capacity of rangeland 	<ul style="list-style-type: none"> • Climate change impacts • Outbreaks of Animal Diseases • Transboundary movement and diseases

Poultry Sub-Sector	
Strength	Weakness
<ul style="list-style-type: none"> • The demand of Freshness Products • Affordable and Cheapest Source of Animal Protein • High Backward and Forward Integration • High Technical Advance 	<ul style="list-style-type: none"> • Volatility and High Variability of Feed Prices • All Inputs are imported • Insecurity and Instability of Feed Supply • Dominant of Oligopolies in the Inputs & Feed Market • Lack of storage Capacity of Feed and Products • Lack of quality control of Raw materials and Inputs • Low enforcement of regulations • Lack of Proper Market Organization, protection
Opportunities	Threats
<ul style="list-style-type: none"> • Investment in Slaughterhouses • Investment in Raw Material Storage, Silo 	<ul style="list-style-type: none"> • Shortage of Raw Material Supplies • High Competitiveness of Frozen Poultry • Domination of few Oligopolies
Dairy Cattle sub- Sector	
Strength	Weakness
<ul style="list-style-type: none"> • • The demand of Fresh Products • Active Dairy breeders association • Good Management and animal health Program • Dairy processing factories are highly capitalized Using Modern technology 	<ul style="list-style-type: none"> • High Feed Prices, especially Forage • Shortage of Forages • Lack of Cold Storage Facilities • Lack of quality control of Raw materials and Inputs • Several metabolic problems develop because of unbalanced rations • There is an absence of a clear farm gate pricing strategy. • Factories process fresh milk in addition to the powdered milk. • Low competition between dairy factories created a situation where factories sign long term contracts with farmers
Opportunities	Threats

<ul style="list-style-type: none"> • Increase efficiency introducing modern technology such as artificial insemination • reduce the monopoly dominated by big dairy factories 	<ul style="list-style-type: none"> • Diffuse of Animal diseases • High Price of Raw material • Shortage of Forage Supply
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Honey sub-Sector	
Strength	Weakness
<ul style="list-style-type: none"> • Suitable agro ecology and biodiversity. • Income generating • Low level disease infestation. • Does not require land ownership • value added products 	<ul style="list-style-type: none"> • Modest financial resources • Low level of knowledge of beekeeping and post-harvest handling practice • Use of traditional hives and low level of modern Apiculture practice
Opportunities	Threats
<ul style="list-style-type: none"> • Honey has social acceptance as food & healing product. • Sustainable demand for honey and its products in local and regional market. 	<ul style="list-style-type: none"> • Environmental deterioration, damaging the potential flora. • Low level purchasing power of honey in local market. • Uses of pesticides are expanding. • Mite incursions • Bee diseases • Reduced access to resources

4. Agro-Food Business

STRENGTHS	WEEKNESSES
<ul style="list-style-type: none"> • Low cost of raw material/primary products • Preference for local products, e.g. olive, <i>Jameed</i>. • Attracts local employment • Reduces marketing bottlenecks 	<ul style="list-style-type: none"> • Dependence on imported raw materials • Highly competitive imports • Low manufacturing, managerial and marketing skills • High cost of packing materials • Inadequate compliance with quality and food safety requirements

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Export potential for processed high value crops • Trade agreements and marketing windows • Competitive prices 	<ul style="list-style-type: none"> • Prices of primary inputs • Frequent change in rules and regulations • Difficulty to meet export requirements

5. Agriculture Sector

STRENGTH	WEAKNESSES
<ul style="list-style-type: none"> • Well established public institutions • Progressive and motivated farmers • Strong higher agricultural education system • Diversified agro-ecological zones • Relatively modern laws • Adequate Infrastructure • Access to low cost labour 	<ul style="list-style-type: none"> • Water scarcity and quality • Land fragmentation • Urban encroachment • Improper division of labour and conflict among institutions • Fluctuating prices of inputs and outputs • Weak agricultural services • The youth unwilling to work in agriculture • Low capacity of staff and institutions • Inadequate legislations and poor compliance • Poor governance, inconsistent policies and strategies • Lack of ICT
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • High local and international demand for agricultural products • Water harvesting and efficient use • Open markets and trade agreements with other countries • Increasing interest by international community • Stability and security in the country 	<ul style="list-style-type: none"> • Competition over freshwater • Climate Change, drought, frost • Desertification and land degradation • limited budget • Increasing prices of inputs

Annex 2: Export value of Jordanian vegetables and fruits in 2011

7.1 Export quantities (million Tonnes), ratios () and value (JD millions) of Jordanian vegetables in 2011

Country	Tomatoes	Cucumbers	Eggplant	Sweet Pepper	Squash	Cauliflower	lettuce
Bahrain	17,502 (4)	2,010 (2)	1,001(2)	1,999(6)	1,397 (5)	1,755(7)	1,621 (7)
Iraq	88,116 (20)	67,291(54)	20,086(31)	3,654(11)			20
Kuwait	37,925 (9)	0.876 (1)	2,184(3)	4,176(12)	3,145(11)	4,245(17)	3,818 (17)
Lebanon	10,073 (2)	2,519 (2)	2,327(4)		1,751(6)		1381)
Oman	16,484 (4)	319	(0)	1,360(4)	1,037(4)	2,194(9)	1,381(6)
Qatar	32,200 (7)	1,400 (1)	1,737(3)	3,666(11)	1,922(7)	3,409(13)	3,013(13)
Syria	122,401 (28)	25,663 (21)	35,562(55)	2,629(8)	12,907(45)		741(3)
UAE	94,314 (22)	2,269(2)	1,261(2)	5,472(16)	5,447(19)	13,701(54)	12,093(53)
Turkey			556(1)				
Russia		12,655 (10)					
Britain					837 (3)		
Germany					90(0)		
Hungaria	(1)			3,218(10)			
Romania				4,475(13)			
KSA							20
Total	433,85	124,096	65,164	33,867	28,753	25,346	22,809
Export Value (million JD)	160	71	26	24	15	12	5

7.2 Export quantities of Jordanian fruits in 2011

Country	Orange	Clementine	mandolins	Lemons	Peach	Nectarines	Dates	Water melons	cantaloupes
Bahrain		252	22	188		289			
Germany								1,291	
Hungarian									
Iraq	5,036		3,756		17,299				979
Israel	11								
KSA	229	3,318	41	325	5,869		120		
Kuwait		330	15	266		335		1,040	
Lebanon							786	2,720	725
Qatar				135					
Romania								1,921	
Syria	17				7,517	1,616		5,486	454
Germany									391
Turkey							186		
UAE		183			1,274	635	221		373
Total	5,313	4,235	3,837	1,071	34,909	3,329	1,796	16,262	3,683
Total Value (MJD)	3.5	5	0.9	52	7.5	2.7			

Source: MOA Courtesy of Dr. Mahaddin Directorate of Studies and Policies.