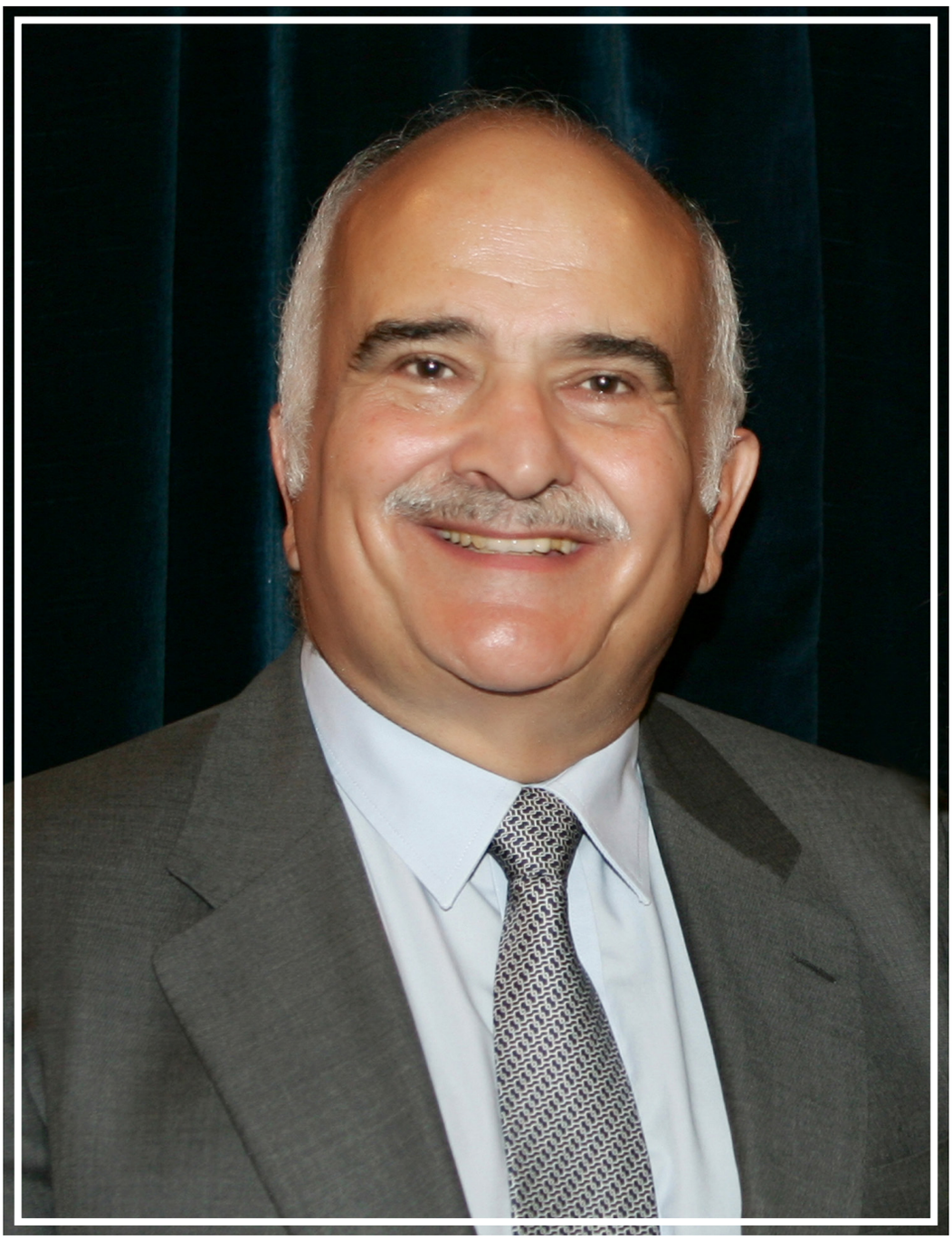
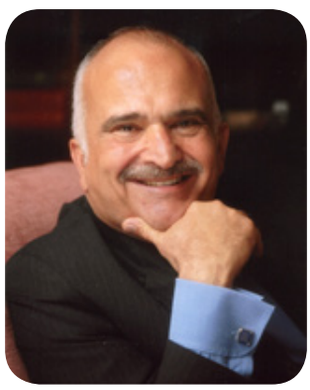
His Majesty
King Abdullah II bin Al Hussein

HRH Crown Prince
Hussein bin Abdullah II



HRH Prince El Hassan bin Talal

Lead Convener



His Royal Highness Prince El Hassan bin Talal was born in Amman in 1947. HRH is the youngest son of Their late Majesties King Talal and Queen Zein El Sharaf, the brother of His late Majesty King Hussein, and the uncle of HM King Abdullah II.

HRH served as Jordan's Crown Prince from April 1965 until January 1999. HRHs early schooling was in Amman. He later went to Summerfields, followed by Harrow and then Christ Church, Oxford University from where he graduated with a B.A. (Hons.) in Oriental Studies.

HRH Prince El Hassan chaired the committees overseeing Jordan's first development plan (1973-1975) and the three subsequent development plans (1976–1980, 1981–1985 and 1986–1990). HRH had a critical role in the Jordan-Israel Peace negotiations that culminated in the Peace Treaty between the Hashemite Kingdom of Jordan and the State of Israel in 1994.

A pluralist and staunch campaigner for the rights of all to live in peace and dignity, HRH established the Arab Thought Forum, the Royal Institute for Interfaith Studies, the Higher Council for Science and Technology, The Royal Scientific Society, and the West Asia North Africa Institute (WANA) in Jordan. HRH Prince El Hassan's international commitments have included co-chairing the Independent Commission on International Humanitarian Issues, and serving as Commissioner on Legal Empowerment of the Poor. HRH Prince El Hassan recently served as the Chairman of the UN Secretary-General's Advisory Board on Water and Sanitation, UNSGAB and continues to work on water related issues as the Chairman of the High Level Forum for the Blue Peace Middle East Initiative.

A pioneer of interfaith dialogue and understanding, HRH Prince El Hassan initiated and hosted on-going consultations with the Orthodox Centre of the Ecumenical Patriarchate at Chambesy, Switzerland and the Pontifical Council for Inter-religious Dialogue at the Vatican. HRH Prince El Hassan is co-founder and Chairman of the Board of Trustees of the Foundation for Inter-religious and Intercultural Research and Dialogue (FIIRD). Now President Emeritus, HRH Prince El Hassan was Moderator of the World Conference of Religions for Peace (WCRP) from 1999-2006.

HRH Prince El Hassan has long had an active engagement with environmentally focused organisations, in particular the Trans-Mediterranean Renewable Energy Cooperation (TREC) Network, and the Jordan based Badia Research and Development Program (in co-operation with the British Royal Geographical Society).

HRH Prince El Hassan is the author of several books, articles and papers, including *A Study on Jerusalem, Search for Peace, Palestinian Self-Determination and in* 2004 in collaboration with Alain Elkann, *To be a Muslim: Islam, Peace and Democracy*. Fluent in Arabic, English and French, HRH also has a working knowledge of German, Spanish and Turkish. He studied Biblical Hebrew as an undergraduate. HRH Prince El Hassan is the recipient of numerous honorary degrees from across the world.

As President of the Federations for Martial Arts, Polo and Squash, HRH Prince El Hassan has overseen the development of these three sports in Jordan to competitive international levels. HRH is himself an 8th Dan Black Belt in Tae Kwon Do and captain of the Royal Jordanian Polo Team. He is a qualified helicopter pilot, parachutist and qualified scuba diver. He skis and plays squash.

His Royal Highness married Her Royal Highness Princess Sarvath, in 1968. They are blessed with four children, Princesses Rahma, Sumaya, Badiya and Prince Rashid, and nine grandchildren.

Strategic Review

Achieving Sustainable Development Goal 2 (Zero Hunger) in Jordan by 2030

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FOREWORD

Jordan's continued endeavours to enhance its resilience and rate of development has become a necessity rather than a priority. We face a set of dynamic interactive challenges that play a major role in supporting the wellbeing of our citizens. Such challenges, which require a significant level of effort to ensure that the basic needs for survival are met, emanate from external threats as well as internal pressures. The logical approach would be to focus on one development field at a time to ensure an optimal and sustainable outcome. Unfortunately, however, Jordan does not have the luxury to do that, and consequently work on numerous parallel fronts is required.

As a strong believer in and advocate for human dignity, I believe in providing the basic needs for the citizens of the world so that they can grow and prosper. My vision is that of a resilient, strong Jordan that empowers its citizens in this way. This requirement becomes a more personal and emotional one when thinking in simple terms of enhancing the quality of life for Jordanians.

The link between food security, poverty, social cohesion and the comprehensive crosscutting nature of food security cannot be ignored. The increasing need to focus on preventing social and negative deficiencies, which can lead to violent extremism in some communities, only emphasizes the importance of expanding our efforts to sustain basic needs for households.

With regard to food security, the Zero Hunger Strategic Review can be seen as a stepping-stone. It leads in the right direction and will undoubtedly translate stakeholders' longstanding requirements for measurable outputs with clear-cut deliverables. Such deliverables in time will lead to community-based stability and security in Jordan and the region. This review presents an excellent opportunity to link with other Sustainable Development Goals and match local efforts with international ones.

The complexity of food security requires more than a review such as the Zero Hunger report; tactically the solution also requires a will to coordinate and work together. To place the correct emphasis on the point of inter-disciplinarity of the water-food-energy nexus without proper coordination, cooperation and implementation would render the suggestions in this review futile if not impossible. To bring the Zero Hunger recommendations into reality, it is absolutely essential that combined efforts by the relevant institutions and civil society are dedicated to the water-food-energy nexus under a single umbrella. Although the scope of this review is national, the beneficiary is the human dignity of the citizen. Solutions based on the nexus approach are a much-needed reality for a hunger-free Jordan and for healthy, empowered and enabled Jordanians.

El Hassan Bin Talal

الملخص التنفيذي

على الرغم مما حققه الأردن من تقدم في مؤشرات التنمية، وصمود كبير في مواجهة التطورات العالمية والإقليمية السّلبية منذ عام 2008، إلا أنّ معدلات النّمو الاقتصادي مازالت دون المستويات المرجوة بما يهدد مكتسبات التنمية، مما يتطلب زيادة الاستثمار للوصول إلى الأهداف المستقبلية المرجوة.

وقد التزم الأردن بأهداف التنمية المستدامة وأجندتها لعام 2030، ومن ضمنها، بطبيعة الحال، الهدف الثاني من أهداف التنمية المستدامة. إذ أنه من الممكن تحقيق هذا الهدف بحلول عام 2030، بعد أن تتم معالجة المعوقات الحالية والتحديات المستقبلية. وتشمل أبرز التحديات تلك المتعلقة بتعزيز الأمن الغذائي على الرغم من شحّ الموارد والتّقلبات المناخية، وإدارة النمو السكاني، وأزمة اللاجئين السوريين، وحماية الفقراء، وخلق الفرص لأكثر الفئات حرمانا، واحتواء الإفراط في التغذية، والحد من حالات النقص في المغذيات الدقيقة.

أهداف المراجعة الإستراتيجية

يقدم التقرير مراجعة استراتيجية حول التقدم الذي أحرزه الأردن نحو تحقيق غايات الهدف الثاني من أهداف التنمية المستدامة (صفر الجوع أو القضاء على الجوع)، حيث يتناول بالتفصيل الأولويات التي تهدف إلى تحقيق جميع الغايات المرجوة بحلول عام 2030. وتتمثل الأهداف المُحددة للتقرير بما يلي:

- مراجعة وضع الأمن الغذائي والحالة الغذائية لجميع السكان الذين يعيشون في الأردن، ومن ضمنهم اللاجئون، بما في ذلك استدامة القطاع الزراعي واستكشاف العلاقة بين الهدف الثاني من أهداف التنمية المستدامة (القضاء على الجوع) من جهة، والمتغيرات الإقليمية والسلام وأزمة اللاجئين وقضايا المياه والطاقة ومكافحة الفقر والتوسع الحضري، والكرامة الإنسانية من جهة أخرى.
- تحديد مدى التقدم الذي أحرزته السياسات والبرامج التي تهدف إلى تحسين الأمن الغذائي والحالة الغذائية لفئات السكان كافة في الأردن.
- تحديد الفجوات في الاستجابة مع التركيز على الثغرات البرامجية والقدرات المؤسسية والموارد المالية.
- مناقشة الخطط وتحديد أولويات تنفيذها لسد الثغرات في الاستجابة والتسريع في التقدم المطلوب نحو القضاء التام على الجوع، واقتراح توصيات ذات أولوية حول كيفية تطبيق هذه الخطط.
- تحديد الشراكات والفرص التي تتيح إسهام جميع الأطراف ذات العلاقة، ومن ضمنها القطاع الخاص، ومنظمات المجتمع المدني، والهيئات الدولية في تحقيق الهدف الثاني (القضاء على الجوع) وغاياته.

وتركّز المراجعة الاستراتيجية على تحليل العوامل والتحديات التي تؤثر في جهود الأردن إلى تحقيق الأهداف الوطنية المتوخاة من تنفيذ البرامج والخطط التي تساعد في تحقيق الهدف الثاني من أهداف التنمية المستدامة، وكذلك الأهداف الأخرى ذات العلاقة. وقد بُذلت الجهود للتعرف إلى الفرص التي تستدعي اهتماماً خاصاً من أجل تحقيق هذه الأهداف بحلول عام 2030، إضافة إلى المخاطر والمعوقات التي يمكن أن تحول دون ذلك إذا لم يتم التعامل معها بحرص وعناية.

الفرص

- **القضاء على الجوع (الهدف الثاني) وأجندة التنمية المستدامة 2030**

يوفر النهج الدولي لتعزيز حياة أفضل للمواطنين في أنحاء العالم فرصة مباشرة لتبني منهج منظم وموجَّه للتعامل مع التحديات التي يواجهها العالم. كما ويمثل التركيز على الهدف الثاني والمؤشرات ذات العلاقة به فرصة فريدة بالنسبة لدول العالم ومن ضمنها الأردن لتحديد الأولويات الوطنية، والعمل بطريقة منسقة ومنظمة لتوفير بيئة إصلاحية أفضل، وإيجاد فرص إيجابية للتنمية، وبالتالي تحقيق حياة أفضل للمواطنين.

- **إنتاجية المياه وتوفرها**

يعاني الأردن من عجز مزمن في موارد المياه، ومن المتوقع أن يزداد هذا العجز في المستقبل. وتشير التوقعات المستقبلية إلى وجود اتجاهات تناقصيّة واضحة في توفر المياه العذبة التي يتم سحبها بشكل متزايد من قطاع الزراعة المروية لاستخدامها للأغراض المنزلية. لذا فإن استدامة نظام الزراعة المروية ستعتمد بشكل كبير على توفير نسبة ملائمة من المياه العذبة والمياه المعالجة. وتكاد زيادة إنتاجية مياه الري أن تكون الخيار المُجدي الوحيد لتأمين كميات مقبولة من المياه العذبة المخصصة للزراعة المروية، حيث تعدّ الزراعة المروية عماد الإنتاج الغذائي في الأردن، وذلك بسبب انخفاض إسهام الزراعة البعلية في الأمن الغذائي.

- **المحافظة على التّنوّع البيولوجي الزراعي**

يزخر الأردن بالموارد الجينية النباتية، ولدى الكثير من هذه النباتات إمكانيات جيدة لإعادة استغلال ملكيات الأراضي الصغيرة في الزراعة، وهو ما قد يمثل وسيلة مجدية لتعزيز التنمية الريفية. إن هذه الثروة النباتية والقيمة التي تمتلكها معروفة منذ مدة في الأردن، غير أن الحاجة قائمة لبذل المزيد من الجهود البحثية لتوطين أصناف معينة من هذه النباتات للاستخدامات الطبيّة أو الصناعيّة.

- **استصلاح الأراضي**

تعاني الموارد المتاحة من الأراضي ذات الطاقة الإنتاجية العالية من التناقص المستمر، وتتعرّض هذه الأراضي باستمرار للمزيد من الضغوط بسبب التوسع العمراني وتقسيم الملكيات إلى مساحات صغيرة. ومن الجدير بالذكر أنه تتوافر في المناطق المناسبة للزراعة البعلية في مختلف المحافظات ذات نسب الهطول المطري المرتفعة، والمنحدرات الخفيفة إلى المتوسطة، ما مساحته حوالي 1.5 مليون دونم من الأراضي التي تغطيها الصخور بشكل جزئي من الممكن استصلاحها، وزراعتها بالنباتات العشبية والطبية، أو الفستق الحلبي مما سيساعد في تحسين معيشة المجتمعات الريفية، إذا ما تم إدماج عملية استصلاحها بممارسات الحصاد المائي المناسبة.

- **تنويع المحاصيل**

هناك أعداد محدودة من المحاصيل الزراعية ينتجها الأردن ويصدرها بكميات كبيرة إلى الأسواق الإقليمية المجاورة، حيث يعدّ الدخل المتأتي من تلك المحاصيل متدنيا مقارنة مع محاصيل أخرى، كما ويصدر الأردن كميات بسيطة من المحاصيل ذات المردود الأعلى إلى الأسواق العالمية. إضافة إلى ذلك، تستهلك الزراعة المروية كميات غير مبرّرة من مياه الري. وتقتصر الجهود المتعلقة باستحداث محاصيل جديدة تتميز بالتنافسية العالية وإمكانيات التصدير على الجهود الفردية. كما تمثل كلفة إدخال التكنولوجيا الحديثة في الزراعة، والوصول إلى أسواق التصدير، والأمن الإقليمي والمهارات الإدارية المزيد من القيود التي تحدّ بصورة أكبر من القدرة على إدخال أنواع جديدة من المحاصيل المزروعة، كوسيلة لزيادة الصادرات من المحاصيل ذات القيمة العالية.

- **زراعة ملكيات الأراضي الصغيرة**

نتج عن تجزئة الأراضي اتساع المناطق التي تطغى عليها الملكيات ذات المساحة الصغيرة، والتي تمت زراعة الكثير منها بأشجار الزيتون التي تعاني من سوء الإدارة، وهو ما نتج عنه مستويات دخل متدنية جداً. لذا ينبغي البحث في الممارسات الزراعية المبتكرة ودراسة ملائمتها لأساليب الزراعة الحديثة بهدف إنتاج محاصيل ذات قيمة عالية في هذه الملكيات.

- **إنتاجية المناطق البعلية**

تعاني المحاصيل الحقلية (القمح والشعير) في المناطق البعلية من تدني إنتاجيتها. وقد أثبتت حُزمة فنية تم تطويرها من قبل الباحثين في الأردن على قدرتها لزيادة الإنتاجية بمقدار ثلاثة أضعاف المعدلات الوطنية الحالية. وسيحد هذا النوع من الحزَم من زيادة معدل تّدهور الأراضي، وبالتالي رفع مستوى المعيشة في المجتمعات الريفية.

- **إدارة قطاع المجترات الصغيرة (الأغنام والماعز)**

لا تزال إدارة هذا القطاع تقوم على أسس تقليدية، وتعتمد تغذية هذه الماشية، بشكل أساسي؛ على الرّعي في أراضي المراعي المفتوحة، حيث تعاني هذه الأخيرة من تدهورها بسبب التّصحّر وسوء استخدامها لمختلف الأغراض، ونقص الأعلاف المنتجة محليا، والاعتماد على المستوردة منها. ولا تزال إنتاجية هذا القطاع منخفضة لأسباب متعددة، ومن المتوقع أن تؤثر الجهود الهادفة إلى تحسين إدارة هذا القطاع بشكل واضح على معيشة عدد كبير من سكان الريف.

- **إدارة أراضي المراعي**

تشير الدراسات أن لدى مناطق الرعي في الأردن القدرة على تأمين ما يقارب 50 ٪ من متطلبات غذاء الحيوانات خلال المواسم المطرية الاعتيادية، في حال تمت إدارة هذه الأراضي بشكل جيد. هذا ولم تسفر الكثير من البرامج التي جرى تنفيذها لأغراض تحسين إنتاجيتها عن أية نتائج ملموسة. وعلى الرغم من ذلك فإنه من الممكن تحقيق نتائج تنموية جيدة إذا تم تبني منهجية ملائمة للمجتمعات المحلية تقوم على أساس اختيار الأراضي المناسبة، وحسن اختيار المواقع بدقة، واستخدام أنواع نباتات الرعي القادرة على التأقلم، وإدماج تقنيات حصاد المياه المناسبة، وإيجاد فرص أخرى لاستحداث الوظائف .

- **إدارة قطاع شجر الزيتون**

تسيطر زراعة شجر الزيتون بشكل متزايد على الزراعة البعلية في الأراضي المرتفعة، ولا تزال إنتاجية أشجار الزيتون منخفضة. إلا أن الممارسات التقليدية المتبعة في إدارتها توفر فرصة جيدة للترويج لهذا القطاع على أنّ زيت الزيتون المُنتَج حسب الممارسات المتبعة يُعَدُّ مُنتجاً عضويا، مما قد يؤدي إلى تُحوّل هذا القطاع إلى صناعة مستدامة. كما أن انتشار مزارع الزيتون بين المحافظات سيسهم إلى حد كبير في تنمية المناطق الريفية بشكل حقيقي والارتقاء بالمستوى المعيشي لسكان الريف.

المخاطر

- **الفقر**

لا تزال الإحصاءاتُ المتعلقة بالفقر حاليا قديمة، شأنها في ذلك شأن مسح نفقات ودخل الأسرة لعام 2010. إلا أنه من الواضح أن الفقر في الأردن في ازدياد، ووجود إحصاءات قديمة حول الفقر من شأنه أن يزيد من مخاطر عدم إعطاء صورة حقيقية عن قدرة الأسر على الحصول على المواد الغذائية أو شرائها. كما أنّ ارتفاع معدلات الفقر يشكّل تهديداً مباشراً للقدرة على الحصول على الغذاء، والقدرة على شراء الأغذية الصحية ومتطلبات المعيشة الأخرى. لكن من الجدير بالذكر أن دائرة الإحصاءات العامة أعلنت عن أن إحصاءات الفقر الجديدة سيتم نشرها قبل نهاية العام، حيث سيتم احتساب أرقام الفقر الجديدة على أساس الاستهلاك الفعلي لكل أسرة وليس بحسب معدلات الإنفاق، وبالتالي ستوفر الأرقام استنادا للمنهجية الجديدة المزيد من التفاصيل حول أنماط استهلاك الغذاء في جميع أنحاء المملكة.

- **الأزمة السورية**

ارتفع عدد السكان في الأردن جراء التدفق السريع للاجئين السوريين، بحوالي (1,38) مليون شخص خلال فترة وجيزة، حيث أدى ذلك إلى الضغط على الموارد المنهكة والموازنات المالية، ومنافسة الأردنيين على الوظائف، واستنزاف البنية التحتية، والإسكان والصحة والتعليم والتجارة والموارد المائية. ويشكل كل ذلك تحديا لصانعي القرار وبخاصة أنه ليس من الواضح كم من الوقت ستستمر هذه الأزمة.

- **التّغيّر المناخي**

تم القبول بظاهرةُ التّغيّر المناخي على أنها حقيقةٌ لا لبس فيها، ولا في أثرها المباشر على قطاعي المياه والزراعة، وإنتاج الغذاء والفقر وتدهور الموارد والصحة والكثير من القطاعات الأخرى. وسيكون للتراجع المتوقع في معدلات هطول الأمطار السنوية، واقترانه بارتفاع درجات الحرارة آثارٌ كبيرةٌ على تجدّد المياه الجوفية، والاحتياجات المائية للمحاصيل، والحاجة إلى إدخال أنواع محاصيل جديدة، وانتشار أمراض نباتية وحيوانية جديدة، وتناقص إنتاجية المحاصيل، وتدهور أراضي المراعي. وسيتسبّب ارتفاع درجات الحرارة في زيادة كلفة التبريد سواء كان ذلك فيما يتعلق بالمساكن أو بمزارع الدواجن، مما سيسهم في رفع تكاليف الإنتاج، وبالتالي الأسعار، مما سيؤثر على تنافسية المنتجات الزراعية في الأسواق العالمية.

- **متلازمة المياه والغذاء والطاقة**

يواجه الأردن تحدّيات متزايدة في قدرته على تلبية الاحتياجات المتنامية المرتبطة بالنمو السكاني السريع وتحقيق مستوى معقول من الأمن الغذائي (الهدف الثاني من أهداف التنمية المستدامة)، وتوفر الموارد المائية (الهدف السادس)، والطاقة (الهدف الثالث). ويرتبط الأمن الغذائي بحدّ ذاته في الأردن مع مدى توافر المياه المخصصة للري ، وحاليا يستأثر استهلاك قطاع الزراعة المروية بالحصة الكبرى من المياه، والتي تصل إلى 51 ٪ من مجمل الموارد المائية في الأردن. ويرتبط الحد من الفقر ارتباطاً وثيقاً مع تطوير هذا القطاع، وذلك نظرًا لعدم توافر الفرص الاقتصادية الأخرى في قطاع الزراعة البعلية. وتمثل الإدارة المائية الحكيمة العامل الأساسي في إنتاج المزيد من الغذاء السليم تلبيةً لاحتياجات الأعداد السكانية الآخذة في النمو. إلا أن توافر المياه والغذاء في الأردن يعاني حالياً من عدم الاستقرار إلى حدً كبير، متأثراً بارتفاع الطلب بسبب عدد السكان المتنامي والتغيرات المناخية والأزمات الاقتصادية والتّوترات السياسية. ويتسبب الطلب الآخذ في الازدياد على الموارد المائية المنهكة حالياً بمخاطر كبيرة، وبتحديات جديدة لنظام إنتاج الغذاء. إضافة إلى ذلك، فإنه من المتوقع أن يؤثر التغيّر المناخي العالمي على أنماط توزيع هطول الأمطار محليا، ما سيزيد من تفاقم عدم التوافق بين جانبي العرض والطلب على المياه. كما يواجه الأمن الغذائي في الأردن تحديات تتمثل في ضعف البنية التحتية للقطاع المائي، وضعف نظام توزيع المياه، وأنظمة الري القديمة، وستؤدي الأزمات المناخية، والموارد المتدهورة، وشحّ الموارد المائية، وتدهور التربة، والظروف الجوية القاسية التي تؤدي إلى الجفاف وحدوث الفيضانات، إلى الإضرار بالإنتاج الزراعي الأردني.

- **التّصحُّر**

يشمل التصحر عمليات متعددة تؤثر كل منها بطريقة مختلفة على استدامة خدمات النظام البيئي، وعلى إنتاجية الأنظمة الزراعية. وتتأثر المناطق ذات النظم البيئية المختلفة في الأردن بعمليات تدهور مختلفة تزيد من حجم التحديات المطلوبة لمواجهة المتطلبات المختلفة لمكافحة الآثار المترتبة على هذه الظاهرة. وتجدر الإشارة إلى أنه قد تم إعداد إستراتيجية لمكافحة التصحر أكثر من مرة وكذلك تحديثها، إلا أن معظم التوصيات والخطط التنفيذية المنبثقة عن هذه الاستراتيجيات لم تنفذ.

- **الجفاف**

ازدادت مؤخراً وبشكل ملحوظ، تكرار حالات الجفاف وموجات الحر، مما يسهم بشكل كبير في فشل مواسم المحاصيل ويؤثر على قطاع المياه، وبالتالي يحد من قدرة السكان والمزارعين في الأرياف على البقاء في مناطقهم، مما يشكل دافعا للهجرة إلى المناطق الحضرية. ويستوجب ذلك إعداد خطط وسياسات شاملة ومحددة تعالج مخاطر الجفاف بشكل ملح.

- **سلامة المياه الجوفية**

لوحظ أن معدلات هبوط الأمطار السنوية خلال العقود الأخيرة آخذةٌ في الانخفاض، وتشير الدراسات إلى أن ما يزيد على 85 ٪ من كميات الأمطار السنوية يترك ليتبخّر، بينما تعاني أحواض المياه الجوفية من الاستغلال الجائر بصورة مستمرة. ومن المتوقع أن يتفاقم هذا الخطر في المستقبل بسبب الانخفاض المتوقع في كميات هطول الأمطار الموسمية، وارتفاع درجات الحرارة الناجمة عن التغير المناخي. إلا أنه وإذا ما تم تحسين إدارة الجريان السطحي للمياه في فترات الهطول الكثيف فيمكن أن يساعد في رعادة شحن (تغذية) المياه الجوفية وتجميع كميات إضافية من هذه المياه خلف السدود.

- **المياه العادمة المعالجة**

تشكّل المياه العادمة (مياه الصرف الصحي) المعالجة مصدراً قيّماً وغير تقليدي للمياه، حيث يتوفر هذا المورد بشكل متزايد، ويمكن أن يستغل للتعويض عن النقص الناجم عن تحويل المياه لقطاع الزراعة. ويثير استخدام هذا المورد من المياه بعض القلق فيما يتعلق بالإنتاجية، والنوعية، وسلامة المنتج الغذائي ما لم يتم وضع أسس للاستخدام الآمن لهذه المياه، إذ إنه لم يتم حتى الآن وضع أية سياسات تضمن السلامة البيئية، ودراسة الجدوى الاقتصادية، ودرجة التّقبّل الاجتماعي لاستخدام هذه المياه، وخصوصا في حالة عدم توفر المياه العذبة لخلطها مع هذه المياه للتقليل من الآثار المتوقعة من استخدامها في ري المزروعات.

التحديات

- **التجارة**

الأردن بلد محدود في الموارد الطبيعية واقتصاده صغير ويعاني من بطء النمو خلال السنوات العشر الماضية. ويعتمد على الأسواق الإقليمية لاستيراد الاحتياجات الغذائية للسكان وتصديرها، حيث يشكّل الغذاء جزءاً كبيراً من مستورداته. كما يعاني من الفجوة الكبيرة بين الصادرات والواردات، والآخذة في الاتّساع بوتيرة مطّردة تبعث على القلق، إذ إن ما نسبته 87 ٪ من احتياجات الطاقة الغذائية يتم تأمينها من خلال الاستيراد.

- **السكان**

يفرض النمو السكاني قيوداً كبيرة على تنمية مختلف القطاعات في الأردن، ليس هذا فقط ؛ بل ويفرض أيضاً تحديات أشد على مستويات المعيشة والعوامل المحرّكة للأمن الغذائي. ويمثّل توزيع السكان بين المحافظات أحد الأشكال الأخرى من هذه القيود حيث يؤثر ذلك على توافر الموارد وفرص العمل والخدمات، وهذا بدوره يؤدي إلى الهجرة من المناطق الريفية إلى الحضرية حيث تتوفر الخدمات وفرص العمل بشكل أفضل، إلا أن تكاليف المعيشة والسكن أعلى من المناطق الريفية.

- **مساحة الأراضي الزراعية**

يُسهم الإنتاج الزراعي في الحد من الفقر وتعزيز الأمن الغذائي (الهدف الأول من أهداف التنمية المستدامة). ولكن للأسف فقدت الزراعة البعلية 40 ٪ من مساحة الأراضي لصالح استخدامات أخرى، كما أن ما نسبته 33 ٪ من الأراضي المتوفرة لا تُستغّل سنوياً بسبب تقسيمها إلى ملكيات صغيرة حيث لم تبذل أي جهود حقيقية للحد من هذا النمط أو تغييره. إن ما يبعث على الصدمة هو أن خسارة ما يعادل 60 ٪ من المناطق البعلية التي كانت تُستخدم لإنتاج الحبوب في الأردن لم يقابله زيادة مكافئة في الاستخدامات الأخرى لتلك الأراضي، ما عدا المساحة المزروعة بأشجار الزيتون.

- **التنمية الريفية**

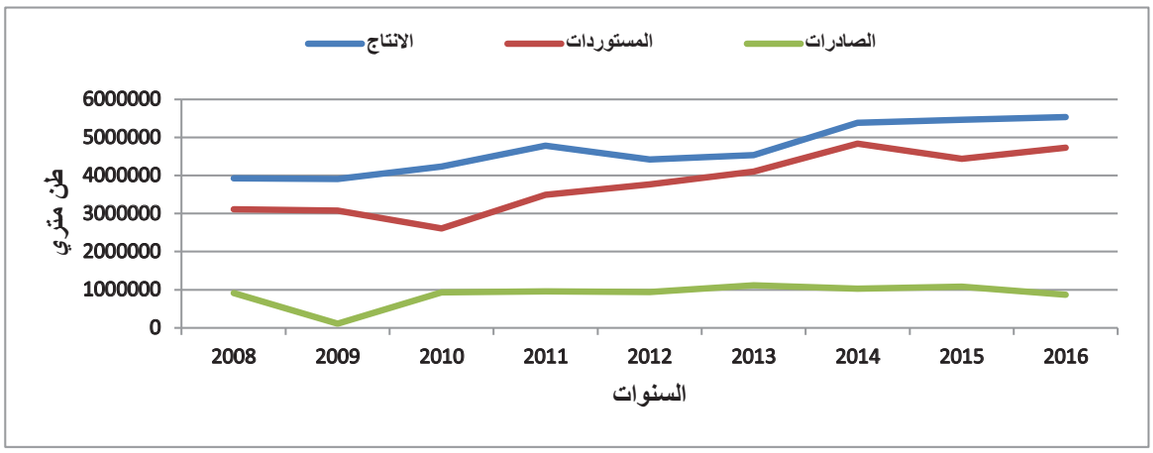
لا تزال المناطق الريفية تشهد تُغيراً كبيراً ومتسارعا منذ سبعينيات القرن الماضي، إذ إنها تعاني من خسارة من جراء تقسيم الأراضي الإنتاجية، ومن التقلبات المناخية التي أسهمت في عزوف المستثمرين عن الاستثمار فيها. وقد أدى ذلك إلى تراجع الإنتاجية، وأُرغم الكثير من المزارعين على بيع أراضيهم والهجرة نحو المناطق الحضرية. كما أسهم غياب التّخطيط الشّمولي لاستخدام الأراضي وتخصيصها للأغراض الملائمة في ضعف التنمية فيها، وافتقارها إلى الخدمات ومحدودية توفير فرص عمل إضافية فيها. كما أن ارتفاع عدد سكان المناطق الحضرية إلى حوالي 90 ٪ من مجمل السكان أسهم في فرض تكاليف باهظة على الخدمات في المراكز الحضرية، ومنها على سبيل المثال المواصلات والتعليم والإسكان والصحة. إضافة إلى ذلك، صاحب هذه الهجرة وتقسيم الأراضي تركُ ما يعادل حوالي 33 ٪ من الأراضي الصالحة للزراعة سنوياً دون زراعة مما أدى إلى تدهور تربتها.

- **وفرة الغذاء**

يصنف الأردن كمستورد صاف للأغذية. وعلى الرغم من أن صادرات الأردن من الخضراوات والمواشي قد ازدادت في السنوات الأخيرة، إلا أن معدلاًت الاستيراد قد ازدادت بشكل أكبر بكثير، واتسعت الفجوة بين الصادرات والواردات بشكل مضطرد. ويُستَدلُّ على المجالات التي تحتاج إلى بذل المزيد من الجهود، وعلى القطاعات التي تحتاج إلى اهتمام فوري.

إجمالي إنتاج الغذاء وصادراته ووارداته (بالمليون طن)

***تشمل الصادرات المواد المعاد تصديرها**



- **الاكتفاء الذاتي**

تشير الاحصاءات إلى انخفاض الاكتفاء الذاتي من القمح والشعير حيث يعاني الإنتاج من تناقص مستمر، مما سينجم عنه تزايد الضغوط الكبيرة على الحكومة لزيادة الاستيراد، وزيادة سعة مرافق التخزين، والحفاظ على المخزون الاستراتيجي تجنباً لتقلبات الأسعار، ولمجابهة التغييرات غير المتوقّعة في الأسواق العالمية. بينما يتميز الاكتفاء الذاتي من بعض الخضراوات بالارتفاع، والانخفاض لمعظم الفواكه. وأكثر ما يُنذر بالقلق هو تدني نسبة الاكتفاء الذاتي من المواد الغذائية الأساسية مثل اللحوم، ماعدا لحوم الدواجن، والتي أصبح استخدامها يتجه نحو الانخفاض بسبب ارتفاع أسعارها على الرغم من أن نسبة الاكتفاء الذاتي منها مرتفع حالياً، وكذلك الزيوت النباتية والحليب الجاف والأعلاف. وتشهد نسبة الاكتفاء من منتجات الألبان والبيض ارتفاعاً متزايداً، كما أن الأرز والسكر يتم استيرادهما بشكل كامل من الأسواق العالمية.

- **نصيب الفرد من الطاقة الغذائية**

يبلغ معدل إجمالي حصة الطاقة الغذائية المتوفرة للشخص الواحد حوالي (2907,4) سعرة حراري يوميا، إلا أنه يبدو أن نصيب الفرد بدأ بالانخفاض منذ عام 2012. وتُؤمّن المصادر المختلفة من النباتات 87 ٪ من متطلبات الطاقة الغذائية اليومية، بينما تغطي مصادر الأغذية الحيوانية 13 ٪ منها. ويشير ذلك إلى اعتماد الأردنيين بشكل كبير على الأغذية النباتية لتغطية المتطلبات اليومية من الطاقة الغذائية، علما بأنه يتم استيراد كميات كبيرة من هذه الأغذية النباتية نظراً لانخفاض إنتاجها محليا. وبينما تتوفر مصادر أقل أهمية، إلا أن استدامة إنتاجها مستقبلا تواجهه معيقات عديدة

بسبب الاعتماد على نظم الزراعة المروية التي تعتمد بشكل أساسي على توافر المياه بكميات ونوعيات مناسبة، ومن شأن ذلك زيادة التحديات التي يواجها توفر الغذاء والأمن الغذائي. وفي الوقت ذاته، تواجه مصادر الطاقة المُستمدة من مصادر حيوانية مشكلة الأسعار الآخذة في الارتفاع، مما يؤثر في قدرة الناس على شراء احتياجاتهم، ويجبر الكثير من الأسر على تغيير مكونات وجباتها الغذائية أو سلوكها الغذائي الذي سيؤثر على أوضاعهم الصحية، وازدياد الأعباء التي تتحملها الحكومة للتأقلم مع الكلفة المتزايدة للخدمات الصحية.

ووفق نتائج مسح نفقات ودخل الأسرة للعام 2018/2017، فقد "بلغ متوسط الإنفاق السنوي للأسر الأردنية على السلع الغذائية وغير الغذائية والخدمات حوالي 12591 ديناراً، حيث شكل الإنفاق على السلع الغذائية ما نسبته 32.6 ٪ من مجموع الإنفاق الكلي، في حين شكل الإنفاق على السلع غير الغذائية 67.4 ٪ من مجموع هذا الإنفاق" مقارنه بما نسبته 34.1 ٪ إنفاق على الغذاء كما ورد في مسح نفقات ودخل الأسره 2014/2013

- **البيئة وسلامة الغذاء**

صاحب إدخال نظم الزراعة المروية في الأردن ازدياد استخدام المواد الكيماوية، واللجوء إلى مزج المياه العادمة المعالجة مع المياه العذبة، وتملّح المياه الجوفية الناجم عن الضّخ الجائر لها. وتثير هذه المسائل القلق إزاء تدهور الموارد الأرضية، وتردّي نوعية المنتجات الغذائية، وسلامة المستهلك، واستدامة الصادرات، والتلوث، وزيادة هشاشة البيئة، والتقليل من قدرة المجتمعات المحلية على الصمود في وجه خطر الكوارث الطبيعية المتزايدة. حيث لا تتوفر أي نظم وطنية متكاملة لرصد المؤشرات البيئية وتغيراتها المستقبلية، وإنتاجية الأراضي، كما لا تتوافر أي قواعد بيانات متكاملة متعددة الوظائف لإدماج البيانات ذات العلاقة بالبيئة وسلامة الغذاء وتدهور الموارد.

- **الصادرات**

يُصدّر الأردن منتجاته الزراعية بشكل رئيس إلى أسواق البلدان المجاورة، كما يصدر بعض المحاصيل المرتفعة القيمة نسبياً، وبكميّات آخذة في الازدياد إلى أسواق أخرى وخصوصا الأوروبية. وتشمل الصادرات إلى الأسواق المجاورة المواشي والخضراوات والفواكه. ويعاني سوق التصدير من تدني مستوى التنظيم، إضافة إلى تعرّضه إلى معوقات كثيره جرّاء الوضع الأمني الإقليمي، وانسداد المسارات التي تمكنه من الوصول إلى أسواق جديدة واعدة، الأمر الذي أجبر المصدرين على إيجاد مسارات جديدة مقابل تحملهم كلف نقل عالية. وتشمل العراقيل التي تحدّ من قدرة الأردن على التوسع في تصدير المحاصيل ذات القيمة العالية عدة قضايا، مثل محدودية أصناف المحاصيل المزروعة، والنقص في وسائط النقل المبردة، وتدنّي مستوى مرافق ما بعد الحصاد، وعدم توفر سبل التصدير عن طريق النقل الجوي، وفشل القطاع الخاص في الاستثمار بتأسيس شركة للتصدير المتخصص.

- **التخطيط المتكامل لاستخدام الأراضي**

يطغى على إدارة المصادر الطبيعية في الأردن كلٌّ من ضعف التخطيط الحضري، وسوء التوزيع السكاني بين المحافظات المختلفة، وغياب التشريعات المناسبة والهادفة إلى حماية الأراضي الزراعية. وقد أدى الفشل في تبني التخطيط الشمولي لاستخدام الأراضي إلى خسارة أو تقسيم الأراضي المُنتجة إلى ملكيات صغيرة المساحة، وتمركّز حوالي 90 ٪ من السكان في المراكز الحضرية أو القريبة منها، والتّوسّع العشوائيَ على حساب الأراضي البعلية المُنتجة، وازدياد الضغط على سلطة المياه التي تضطّر إلى نقل مياه الشرب من المواقع البعيدة إلى تلك الأماكن، وتركّز كميات المياه العادمة المعالجة، الآخذة في الازدياد في مواقع قليلة.

الحوكمة

- **التنسيق:** لاتزال الجهود الوطنية الهادفة إلى التّعامل مع إشكاليات تعزيز تنفيذ متطلبات الهدف الثاني من أهداف التنمية المستدامة مبعثرة بين الجهات المعنية المختلفة، حيث يسود التنسيق الضعيف بين الأطراف المختلفة. إضافة إلى ذلك، لا تتضمن الاختصاصات المحددة بناء على التشريعات الممنوحة لبعض الوزارات مساراً واضحاً للتنسيق المؤسسي. ويتجلّى سوء التنسيق بوضوح ما بين القطاعين العام والخاص، وغالباً ما تتسم نتائجه بالضعف أو الفشل.
- **التخطيط البيني الحكومي:** يتسم تنفيذُ الأنشطة القطاعية المقترحة من خلال الخطط التنموية التنفيذية بوجود جوانب قصور في تحقيق تلك الأنشطة لأهدافها المحددة، حيث تفتقر إلى المتابعة والتنسيق، وضعف تخصيص التمويل الكافي للبرامج المقترحة، وغياب نظم الرقابة الصارمة والهادفة والتقييم الدوري الذي يهدف إلى قياس مدى فعّالية البرامج.
- **السياسات:** تعكس السياسات أنشطة الحكومة المستدامة، وتنفذ السياسات الوطنية عادة من خلال لوائح تنظيمية خاصة أو مخصصات محددة للموارد. ومن الملاحظ أن تعامل الحكومة حيال بعض القضايا، التي تمثل تهديداً واضحا،

غير مجد كثيرا. فالتخطيط الاستراتيجي يتّسم بتنفيذ الكثير من البرامج بمعزل عن بعضها البعض. وغالباً ما ينتج المزيد من المشاكل بدلاً عن حلّها بسبب عدم وجود أية سياسات واضحة تهدف إلى مأسسة التنسيق بين القطاعات ذات الصلة. إضافة إلى ذلك، فإن تغيير اللوائح التنظيمية أو السياسات، وتحديث بعضها بشكل مستمر، لا يؤدي دائماً إلى النتائج المرجوة.

- **التشريعات:** تحد بعض التشريعات من الأنشطة ذات العلاقة الوثيقة بتخصص بعض الوزارات، حيث تتداخل الاختصاصات مع الدور العام الذي تؤديه بعض الوزارات الأخرى. ومن الأمثلة على هذا التّداخل تحويل الأراضي الزراعية إلى استخدامات غير زراعية وتجزئتها، إذ إن استخدام الأراضي لا يقع ضمن اختصاص وزارة الزراعة وهي المناط بها تطوير القطاع الزراعي بحسب القانون، مما أدى إلى عدم استغلال حوالي 33 ٪ من الأراضي الزراعية سنوياً، ونشأ عن ذلك التوزيع العشوائي للمراكز الحضرية. ومن الأمثلة الناجحة على تطبيق القانون حسب الاختصاص، ما نجم عن تطبيق قانون يختص باستعمالات الأراضي في وادي الأردن، إذ حد هذا القانون بشكل فعال من تقسيم الأراضي إلى مساحات أقل من المساحة المحددة، بل إنه شجع على تجميع الملكيات الصغيرة إلى ملكيات بمساحات أكبر، مما سيكون له أكبر الأثر على استدامة استغلال الاراضي الزراعية في الوادي.

القيود على الموارد

- **الموارد الاقتصادية:** من المعروف أن الأزمة الاقتصادية التي يمر بها الأردن حالياً، تقود إلى المزيد من الضغوط على الموازنة، وهذا في حدّ ذاته يفرض قيوداً على الموارد الحالية، ويُشكّل تهديداً للأنشطة والخطط القائمة حالياً.

- **الاستثمار في المناطق الريفية:** لم تحظ المناطق الريفية في الماضي من حصتها العادلة من الجهود التنمويّة الوطنية بشكل يسهم في دعم سبل العيش لسكان الأرياف، ولم تعتمد تنمية الأرياف على تطوير الزراعة. ويعدّ الاستثمارَ في الأنشطة المُولّدة للوظائف، مثل مشاريع الأعمال الصغيرة، أو مشاريع تصنيع المنتجات الحيوانية والنباتية، من الأنشطة التي توفر أُفقاً جيداً لتحسين سبل العيش، والحد من الفقر. وقد يساعد التخفيف من بعض الإجراءات الحكومية، التي تحكم الحصول على التمويل أو القروض، في تعزيز هذه الأنشطة، كما تساعد زيادة الاستثمارات في تعزيز قدرة المناطق الريفية على الصمود في وجه مختلف أنواع التحديات.

- **بناء القدرات:** يواجه الأردن تحديات متعددة تعيق قدرته على تحسين إنتاجية موارده، وتشمل هذه التحديات قضايا بيئية متنوعة مثل سلامة الغذاء، والتلوث وما يرتبط به من المشاكل الصحية، ونقص المياه، والبطالة ، والتّوسّع الحضري. لذا فإنه من الأولويات أن تنال برامجُ بناء القدرات الهادفة إلى توفير الموارد البشرية المدربة على مهارات الإدارة الحديثة، وتأمين البنية التحتية لمواجهة هذه التحديات، الاهتمام الكافي الذي تستحقه.

- **نظام البحث العلمي الوطني:** يضمُّ نظام البحث العلمي الوطني الجامعات الرسمية والمراكز البحثية، وعدد قليل من الشركات الخاصة التي تنفذ الأبحاث والدراسات بشكل غير منظم، حيث يعدّ إسهامها في تحقيق أهداف التنمية الوطنية محدودة بشكل كبير، وفي كثير من الأحوال لا توفر نتائج هذه الأبحاث أية دعم للتنمية الوطنية أو في وضع الحلول اللازمة لمواجهة التحديات أو المخاطر الناشئة التي تواجه القطاعات المعنية. كما تتّسم العلاقة بين المؤسسات البحثية بالضعف، أو بأنها غير موجودة أصلاً، بالرغم من إعداد استراتيجية وطنية للأبحاث الزراعية كان الهدف الرئيس منها توفير مظلة لإجراء الأبحاث التي تقوم بها المؤسسات الزراعية الوطنية.

- **تعظيم الفائدة من التلازم بين القضايا الرئيسة:** إن أوجه التلازم بين التّغير المناخي، والتّصحر، والتّنوع الحيوي (البيولوجي) الزراعي، والتخفيف من الفقر واضحة جداً، وينبغي استغلالها إلى الحد الأقصى؛ فالعديد من خطط العمل المتصلة بهذه القضايا تجمعها برامج عمل مشتركة، أو تتداخل بدرجة كبيرة فيما بين أهدافها وبرامجها المقترحة. وعليه فإن تحسين مستوى التنسيق والتخطيط سيحدّ من الكلفة والوقت، ويحفز التعاون الحكومي المؤسسي، وينعش التنسيق القائم بين الجهات المعنية ذات العلاقة.

- **التّحضّر:** لقد أسهم تسارع أنشطة التوسع الحضري في الأردن خلال العقود الثلاثة الماضية إلي نشوء آثار سلبية شديدة على العديد من القطاعات ذات العلاقة بإنتاج الغذاء؛ وهدّد هذا التوسع استدامة مصادر الإنتاج، وزاد من الضغوط البيئية، وساهم في رفع تكلفة بعض الاحتياجات المعيشية للأسر، وتكاليف المعيشة المتصلة بتركيز نسبة كبيرة من السكان في عدد قليل من المدن ذات الكثافة السكانية العالية أصلاً، وزيادة أرباح مالكي الأراضي المحيطة بالمدن الكبرى. لذا شكلت الهجرة من المناطق الريفية إلى المدن الكبرى مقصداً منطقيّاً، بسبب توافر فرص عمل أفضل في تلك المدن، مضافا إلى ذلك الإخفاق في تحقيق تنمية ريفية ملموسة بسببَ غياب العزم للتعامل مع قضية التوسع الحضري. حيث تسبّب الفشل في تبنّي سياسات وإجراءات متعددة، ومن ضمنها التشريعات، والتخطيط المتكامل لاستخدام الأراضي، والنهج الشمولي للتنمية الريفية، والتّمكين الفعّال للسكان النّاشطين من الأرياف إلى الوصول إلى هذا الوضع.

- **الطاقة:** يستورد الأردن تقريباً جميع احتياجاته من الطاقة من الأسواق الخارجية. وتحدّ الكلفة المتزايدة لنقل المنتجات محلياً أو خارجياً من تنافسيّة المنتجات الوطنية. وتحول كلفة الطاقة العالية دون استخدام التكنولوجيا المتقدمة والمؤتمتة في زراعة وتصنيع المحاصيل الغذائية عالية القيمة. إن مختلف تقنيات الإنتاج والتصنيع التي تؤمن الطاقة متوفرة، غير أنّ هناك حاجة ماسة إلى التمويل والتدريب.

القضايا الاجتماعية والاقتصادية

- **سكان الأرياف والمناطق الحضرية:** تسبب عدم الاستقرار في المنطقة إلى تدفق اللاجئين إلى الأردن، حيث تضاعف مجموع السكان تقريباً خلال الفترة من 2004 إلى 2017، مما زاد من حجم الطلب على الغذاء وأدى إلى ضرورة توفير السلع والخدمات بشكل كبير وغير مسبوق. ويعيش حاليا حوالي 90,3 ٪ من السكان في المناطق الحضرية التي تتميّز بكونها مجتمعات موجّهة نحو الحصول على الخدمات، بينما شكّل سكان المناطق الريفية نسبة 9,7 ٪، وهم أكثر ارتباطاً بالأنشطة الزراعية. ويفرض ذلك ضغطاً أكبر على الاقتصاد الأردني بشكل عام، وعلى الأمن الغذائي بشكل خاص؛ ذلك أن الهجرة الداخلية من المناطق الريفية إلى المناطق الحضرية تعني أن الزراعة تعاني من نزيف القوى العاملة في الزراعة، وتزايد الضغوط على الأرضي الصالحة للزراعة في المناطق الحضرية.

- **التشغيل:** يسهم انخفاض معدل نمو الناتج المحلي الإجمالي، وعدم قدرة الاقتصاد على إيجاد الوظائف بصورة كافيه في تفاقم مشكلة البطالة، التي وصلت إلى حوالي 18,3 ٪ عام 2017، مع ارتفاع هذه النسبة في المناطق الريفية بالمقارنة مع المناطق الحضرية. وبالرغم من حصول المرأة على فرص متساوية في التعليم، إلا أن مساهمتها في القوى العاملة مازالت منخفضة. إضافة إلى ذلك، وإذا ما اقترنت هذه التحديات بجمود الدخل، ورفع الدعم عن بعض السلع الأساسية، وازدياد أسعار الوقود، فإن ذلك سيتسبّب في المزيد من تدهور المستويات المعيشية للأردنيين، وبالأخص الفقراء منهم، وسيضرّ بأصحاب الدخل المحدود. ووفقاً للأرقام المتوفرة من مؤسسة الضمان الاجتماعي، يتمحور معدل الدخل الشهري للفرد تقريباً حول خط الفقر، إن لم يكن أقلّ منه، إذ بلغ معدل الدخل الشهري للفرد 493 ديناراً أردنياً عام 2016 (510 دينار للذكور و447 ديناراً للإناث)، ويتساوى ذلك تقريباً مع الأرقام المتوافرة لدى دائرة الإحصاءات العامة. كما سيؤدي ارتفاع معدلات البطالة ودخل المتقاعدين المنخفض، وما يرافق ذلك من ارتفاع في أسعار السلع والخدمات، إلى المزيد من التدهور في مستوى المعيشة، وانعدام الأمن الغذائي بصورة متزايدة.

- **مشاركة المرأة:** ترتبط المساواة بين الجنسين ومشاركة المرأة في الاقتصاد بالحدّ من الفقر الشديد والجوع. وتقليدياً، تعدّ النساء في المجتمع الأردني مسؤولات عن أمن الأسرة الغذائي وعن تغذية أفرادها. وتنفذ العديد من النساء في الأردن مجموعة من مشاريع إنتاج الغذاء محدودة النطاق والتي تسهم في توفير الدخل للأسرة، ويتم دعم هذه المشاريع من قبل المؤسسات الوطنية والدولية التي تهدف إلى تمكين النساء اقتصاديا في المجتمعات المحلية. غير أن نسبة النساء الأردنيات المشاركات في قطاع الزراعة هي نسبة ضئيلة جدا حيث تبلغ فقط 0,6 ٪. ويؤثر عددٌ من العوامل على مشاركة المرأة في أنشطة إنتاج الغذاء والزراعة. ومن هذه العوامل عدم قدرة العديد من النساء على تملك الأراضي الزراعية، ومساحة الأراضي المملوكة، وأنظمة الزراعة المستخدمة الغير متطورة والتي تحول دون قدرة المرأة على المشاركة الفاعلة في هذا القطاع، والممارسات الخاصة بإدارة الأراضي، وقوى سوق العمل، بالإضافة إلى بعض المحددات الاجتماعية الأخرى مثل عمر المرأة ووضعها الاجتماعي إذا ما كانت متزوجة أم عزباء. وبالتالي تبقى نسبة مشاركة المرأة في سوق العمل متدنية في الأردن حيث تصل إلى حوالي 15 ٪، وهي من أدنى النسب في المنطقة العربية وفي العالم. ويزداد الوضع سوءا بصورة خاصة في فئة النساء الشابات، اللواتي تبلغ نسبة البطالة في أوساطهن 36 ٪ مقابل 19 ٪ لدى الشباب. فالبيانات المتوافرة من البنك المركزي الأردني، عام 2015، تشير إلى انخفاض قدرة النساء على الحصول على التمويل المالي (من خلال المصارف التجارية) مقارنة بالرجال مما يعيق استملاكهن للأراضي وإنشاء المشاريع. كما تحول مجموعة من الأسباب الأخرى دون عمل المرأة كغياب الدعم الأسري، ومحدودية توافر خدمات الرّعاية النهارية قليلة التكلفة لأطفال النساء العاملات، وغياب وسائل النقل العامة اللائقة.

- **حالة الأمن الغذائي:** أُجري أحدث مسح للأمن الغذائي في الأردن عام 2013 / 2014 ، إذ أظهر هذا المسح وجود زيادة طفيفة في نسبة الأسر التي تعاني من انعدام الأمن الغذائي من 0,3 ٪ في عام 2010 إلى 0,5 ٪ في عام 2014، حيث لم يستفد من المعونة الغذائية إلا 29 ٪ من الأسر عام 2010 و17 ٪ عام 2014. بينما أشارت دراسة أُحدث أن 70 ٪ من الأسر المستفيدة من صندوق المعونة الوطنية إما أنها تفتقر إلى الأمن الغذائي 11 ٪ وإما أنها عُرضة لانعدام الأمن الغذائي 59 ٪.

- **استراتيجية التّكيّف:** أشارت المعلومات الواردة في تقرير الأمن الغذائي لعام 2014 إلى أن ثلث الأسر في المملكة قد لجأت إلى استخدام نوع من آليات التكيف في نظامها الغذائي للتعويض عن نقص بعض احتياجاتها الغذائية، وهذا يدل أن تّراجع طفيف في دخل الأسرة بإمكانه أن يتسبّب في خلخلة قدرة العائلة على التكيف، ويدفع بالأسر الأكثر هشاشةً نحو انعدام الأمن الغذائي. كما دلٍ التقرير أن 26,2 ٪ من مجمل الأسر استخدمت آليات تكيّف غذائية، بينما استخدمت 7,3 ٪ من مجمل الأسر مزيجاً من آليات التكيف الغذائية وغير الغذائية، واستخدمت 0,2 ٪ منها آليات تكيّف غير غذائية.

- **أسعار السّلع الغذائية:** ارتفعت أسعار المواد الغذائية بشكل مضطّرد منذ عام 2010، وأثر هذا الارتفاع على نسبة إنفاق الأسرة على خدمات أخرى، مثل المواصلات والتعليم والصحة. وسجل الإنفاق على السّلع الغذائية أعلى نسبة، تبعته مباشرة كلفة المواصلات، ومن ثم التعليم والصحة. وقد أدى ارتفاع أسعار المواد الغذائية في البلدان التي تعتمد أساسا على استيراد الحبوب والأغذية الأساسية إلى المزيد من الضغوط على ميزانها التجاري والفئات السكانية الهشة، وبالذات في المناطق التي تتسم بارتفاع معادلات النمو السكاني.

- **إصلاح آليات دعم الأسعار:** بدأ الأردن، منذ عام 2005، بتطبيق برنامج إصلاحي للحدّ من العجز في الموازنة، من خلال إلغاء دعم الأسعار، وتعزيز الجباية الضريبية، وزيادة الإنفاق العام. وتمثلت الخطوة الأولى في رفع الدعم عن المحروقات بشكل تدريجي، في الفترة الواقعة بين 2005 و2008. وتم رفع الدعم عن المحروقات في الجولة الثانية من رفع الدعم، عام 2012. وفي عام 2018، رفعت الحكومة الدعم عن الخبز، وحددت سقفاً جديداً لسعر الخبز. وكتدبير بديل، أعلنت عن تخصيص مساعدات نقدية لتعويض الأسر الهشّة.

- **الحماية الاجتماعية:** لا تحدد القوانين الأردنية جهة واحدة لتنسيق خدمات الحماية الاجتماعية، ويتم تنظيم برامج الحماية الاجتماعية تحت مسمّيات مختلفة، منها المعونة الوطنية، والضمان الاجتماعي، ونظام الدعم المالي، والتدخلات في سوق العمل. وتقود وزارة التنمية الاجتماعية برامج المعونة الاجتماعية، وصندوق المعونة الوطنية، وذلك بدعم من العديد من المنظمات غير الحكومية. وتقوم الحكومة بمشاركة منظمة الأمم المتحدة للطفولة (يونيسف)، حاليًا، بإعداد الإستراتيجية الوطنية للحماية الاجتماعية ومكافحة الفقر المزمع إطلاقها في الربع الأول من عام 2019. وسيتم توفير المؤشرات المحدثة حول قضايا الهشاشة والفقر في مسح دخل ونفقات الأسرة / مسح السكان والصحة الأسرية لعام 2018. ومن المهم ملاحظة أن مستوى الفقر ما زال يأخذ اتجاها يتسم بالارتفاع بالرّغم من جميع الجهود المبذولة في سبيل تأمين الحماية الاجتماعية.

- **التغذية:**

أدت التحديات الناتجة عن التّحول الغذائي، والتّغيّرات التي طرأت على أسلوب الحياة إلى ازدياد مستوى انتشار التغذية المفرطة كما يتجلّى من خلال ارتفاع نسب السكان ممن يعانون من السُّمنة (البدانة)، والأمراض المرتبطة بها مثل أمراض القلب، وداء السكري، وارتفاع ضغط الدم، والنقرس والتهاب المفاصل.

ويؤثر انتشار نقص المغذيات الدقيقة، مثل فيتامينات ألف، ودال، وباء 12، وحمض الفوليك، والمعادن مثل الحديد والزنك بشكل رئيسي على الوضع التّغذوي للفئات السكانية الهشّة، مثل الأطفال الرضع، والأطفال دون سنّ الخامسة، والنساء الحوامل، وكبار السن. ـ

التّوصيات:

تمّت صياغة التّوصيات التّالية لتسريع عجلة التقدم نحو تحقيق الهدف الثاني من أهداف التنمية المستدامة. ويحتاج تنفيذ هذه التوصيات إلى التزام واضح من قبل الحكومة إذ يجب أن تعتمد في تنفيذها على اتباع نهج تكاملي ومتعدّد المحاور، وتفعيل مشاركة القطاع الخاص، وتحديد وتنفيذ خطط عمل محددة.

1) التوصيات العامة

- تعزيز الهيكلية المؤسسية، وإدارة الأمن الغذائي، والأهداف التنموية.
- تعزيز جاهزية تدابير مكافحة الفقر.
- وضع خطة أمن غذائي شمولية موجّهة لتنفيذ الإجراءات المحددة.

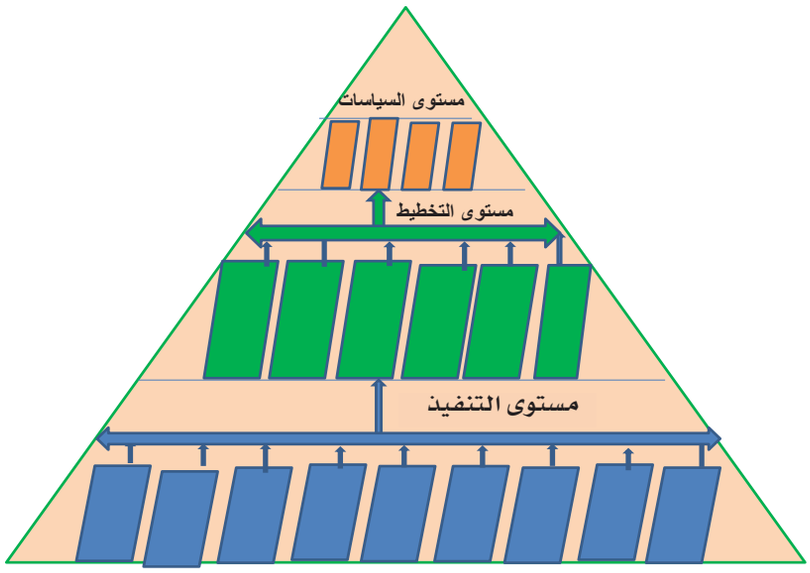
- اعتماد نظام بحثي موجه نحو تعزيز الأمن الغذائي والأهداف التنموية الوطنية.
- تعزيز سياسات الشمول الاجتماعي وبرامج المعونة (المساعدات).
- صياغة استراتيجية متوسطة الأجل لإدارة أزمة اللاجئين السوريين.
- رصد المؤشرات البيئية وجودة الأغذية.
- تنسيق الأنشطة المرتبطة بأهداف التنمية المستدامة وإدارتها، واستغلال التلازم بين إدارة المناخ والماء والطاقة والغذاء.

2) التوصيات القطاعية

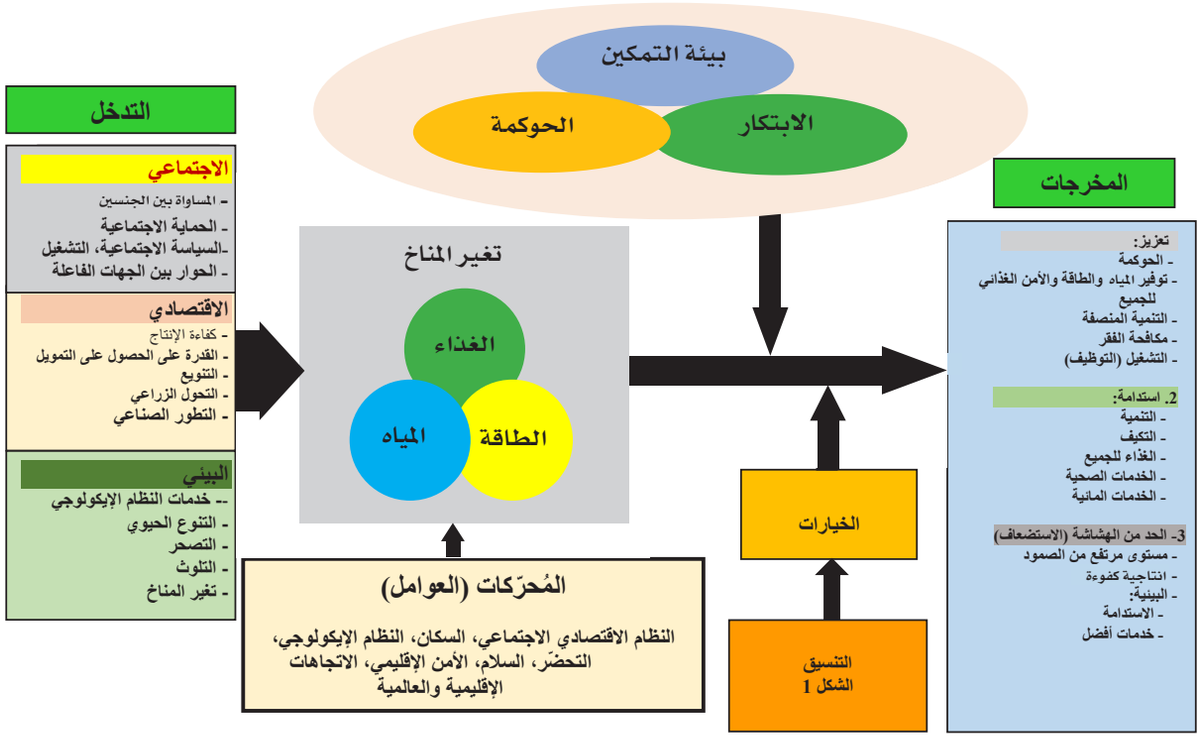
- زيادة الإنتاجية الزراعية وضمان ديمومة القطاع الزراعي وإمدادات (مصادر تزويد) الغذاء.
- تحسين الممارسات والإدارة الزراعية.
- تعزيز الأمن الغذائي والتغذوي.
- تعزيز نظام الرعاية الصحية الأولية.
- تحسين إنتاجية المياه والحد من المخاطر البيئية.
- إدخال المكننة والتقنيات المُوفّرة للطاقة في الإنتاج الزراعي.
- تقوية المشاركة الفعّالة للمرأة الريفية في قطاع الزراعة.

تنسيق نظام الهدف الثاني من أهداف التنمية المستدامة وإدارته

يدعو المقترح لمأسسة التنسيق الوطني إلى اعتماد مسار متعدد المستويات يتضمن تأسيس لجان تنسيق وطنية على مستوى السياسات والتخطيط والتنفيذ (تحت مسمّى خطة التنسيق لإدارة الأنشطة الهادفة لتحقيق هدف التنمية الثاني (الشكل ١). مع الأخذ بالاعتبار مدخلات ومخرجات الأنشطة المقترحة بتعظيم متلازمة (المناخ – الطاقة والغذاء والمياه)، (الشكل ٢)



شكل ١ - مخطط تنسيق إدارة الهدف الثاني من أهداف التنمية المستدامة



شكل ٢ - المسار الترابطي لتحقيق الهدف الثاني من أهداف التنمية المستدامة بحلول عام ٢٠٣٠

Executive Summary

Jordan has achieved exemplary progress in various development indicators and has demonstrated high resilience to negative global and regional developments since 2008. But growth has stagnated, development gains are threatened and increased investments are required to achieve future targets. Jordan is committed to the Sustainable Development Goals (SDGs) and the 2030 Sustainable Development Agenda in general: SDG 2 is a priority. Achievement of SDG 2 is possible by 2030 but residual issues and future threats need to be addressed: the most pressing challenges include containing over-nutrition and reducing micronutrient deficiencies, increasing food stability despite resource constraints and international fluctuations, managing demographic growth and the Syrian refugee crisis, protecting the poor and creating opportunities for the most disadvantaged people.

Objectives of the Strategic Review

The report provides a strategic overview of Jordan's progress toward the targets of SDG 2, and set out priority actions to achieve all targets by 2030. The objectives of the report are to:

- review the food security and nutrition situation; this includes sustainable agriculture and relates to all people living in Jordan, including refugees, and involves exploration of the linkages between SDG 2 and regional dynamics, peace processes, the refugee crisis, water and energy issues, poverty reduction, urbanization and human dignity;
- determine the progress that policies and programs aimed at improving food security and nutrition have made for women, men, girls and boys;
- identify gaps in the response, with focus on programmatic gaps, institutional capacity and financial resources;
- discuss and prioritize actions that will be required to meet response gaps and accelerate progress toward zero hunger, and provide an overview of how these actions may be implemented; and
- identify partnerships and opportunities for the contribution of all stakeholders, including the private sector and United Nations agencies.

The review focuses on analysing the drivers and challenges affecting Jordan's ambition to achieve SGD 2 and related targets at the national level. It attempts to identify opportunities, threats and challenges to ensure that appropriate and adequate actions are immediately initiated.

Opportunities

SDG 2 and the 2030 Agenda

The international approach to enhancing the lives of people worldwide is a major opportunity to set up a focused and structured approach to dealing with the world's challenges. Along with many other countries, Jordan is focusing on SDG 2 and the related indicators. This constitutes a unique opportunity to set priorities and work in harmony with others to enhance the lives of citizens, to create an enabling environment and promote development.

Water productivity and availability

Jordan suffers from chronic shortages of water, which are expected to intensify in the future. Predictions clearly show that freshwater is increasingly being withdrawn from irrigation for domestic use. The sustainability of irrigated farming will therefore depend on a suitable ratio of fresh and wastewater. Increased water productivity is the only viable option to secure sufficient fresh water for irrigated farming, which is now the main pillar of food production in Jordan as a result of the shrinking contribution of rainfed farming to food security.

Conservation of agro-biodiversity

Jordan is rich in plant genetic resources. Many plants have good potential for small-scale farming, which could be a viable means of boosting rural development. The value of such plant variety is recognized in Jordan but more research is needed with a view to domesticating selected plant species that have medicinal or industrial uses.

Land reclamation

Land resources with high potential productivity are shrinking and subjected to increasing pressure from random urbanization and land fragmentation. In Jordan's various governorates there are potentially 1.5 million *donum* of land suitable for rainfed farming with high annual rainfall, slight to medium slopes and partial rock cover. Reclamation of such land integrated with water harvesting for the production of herbal and pharmaceutical plants or pistachios could substantially improve livelihoods in rural communities.

Crop diversification

Few crops are produced and exported in large quantities to regional markets, and income from such exports is generally low; and few low-quantity/high-value products are exported to international markets. Irrigated farming consumes unjustifiable amounts of water. Scattered individual attempts to introduce new crops with high competitiveness and export potential have been initiated, but the cost of modern technology, long routes to export markets, regional insecurity and lack of management skills are among the constraints that restrict further crop diversification as a means of increasing exports of high-value crops.

Small-scale farming

Land fragmentation has resulted in more and more areas being dominated by small-scale land ownership. Many such enterprises are planted with olive trees, but lack of farming management skills means that they yield very low incomes. Innovative farming practices should be investigated to evaluate their suitability for modern farming practices that could produce more high-value crops.

Productivity of rain-fed areas

Wheat and barley production in rainfed areas is low. A locally designed management package has been shown to increase production three-fold, exceeding current national averages. Implementing such a package will help to prevent the further degradation of land resources and hence will improve livelihood in rural communities.

Management of the small ruminants (sheep and goats) sub-sector

Management of the sheep and goat production sector is a traditional trade. Feeding depends primarily on the availability of open-range grazing land, but such areas suffer from increasing degradation by desertification, human misuse and other constraints, and productivity remains low. A good deal of animal food is imported. National interventions to improve land management will have profound effects on the livelihoods of rural populations.

Management of rangeland

Range areas have the potential to provide 50 percent of animal feed requirements during normal seasons provided they are properly managed. Many management support programmes, however, have not produced tangible results. Development potential can be increased if approaches take into account the suitability of land, selection of appropriate sites, the use of adaptable plant species, integration with water harvesting and provision of alternative income-generating opportunities for communities.

Management of the olive production sector

The cultivation of olive trees is increasingly dominating farming in the Upland region. The productivity of olive orchards is still low, but traditional management practices provide a sound basis for promoting the sector far beyond its potential. This is because it is relatively easy to promote olive oil as an organic product, which in turn could transform the sector into a sustainable industry. The dispersion of olive orchards among governorates will contribute substantially to rural development and could potentially improve community livelihoods.

Threats

Poverty

The 2010 Household Income and Expenditure Survey is not up to date, so the number of people in poverty is not accurately known. It is, however, evident that poverty in Jordan is increasing. Outdated information about poverty levels results in ignorance of the actual status of the ability of households to access and purchase food, hence the increasing poverty rates pose a direct threat to food accessibility and people's ability to purchase healthy food. The Department of Statistics announced that new poverty figures will be published by November 2018. The new poverty figures are calculated based on actual consumption per household and not on expenditure as was done in previous studies conducted by DoS. While the results cannot be compared with previous poverty figures, they provide more details regarding food consumption patterns around the country.

The Syrian crisis

The inflow of Syrian refugees has increased the population of Jordan by 1.38 million. The resulting effects on services and the burden of sustaining the refugee population puts pressure on already stretched resources and financial budgets, increases competition in the labour market and overstretches infrastructure, housing, health and education services, trade and water resources. This crisis is a great challenge to decision-makers because it is not clear how long this crisis will endure.

Climate Change

Climate change will have profound effects on the water and agriculture sectors, and multiple effects on food production, poverty, degradation of resources and health. The expected reduction in annual rainfall coupled with increasing temperatures will have serious impacts on surface water quantity and quality, groundwater recharge rates, crop water requirements, the introduction of new crop varieties, new plant and animal diseases and the productivity of crops and rangelands. Rising temperatures will add to the cost of cooling in human residences, and poultry farms, which will increase production costs and hence consumer prices and reduce Jordan's ability to compete in external markets.

The water-food-Energy nexus

Jordan faces mounting challenges in meeting the growing demand for food, water and energy for a rapidly growing population. Food security in Jordan is intrinsically linked to water availability. The agriculture sector accounts for 51 percent of total water use. In the absence of other economic opportunities in rural areas, poverty reduction is closely linked to the development of water resources for irrigated agriculture. Prudent management of water resources is therefore the key to ensuring that more and safer food can be produced. The provision of water and food in Jordan is highly unstable. It is driven by rising demand, climate change, economic crises and political tensions. This adds to the stress on water resources and creates new challenges for food production.

Climate change is expected to alter precipitation patterns in Jordan, further aggravating the mismatch between water supply and demand. Weak water infrastructure, poor allocation systems, damaged irrigation systems, climate challenges such as drought and flooding, land degradation and the scarcity of water resources all challenge food production and hence food security.

Desertification

Desertification involves many processes with various impacts on the sustainability of ecosystem services and the productivity of farming systems. The different eco-regions in Jordan are affected by different degradation processes, which calls for different approaches to combat them. A strategy for combating desertification has been prepared, but has not yet been implemented.

Drought

Droughts and heat waves are noticeably increasing in Jordan. This creates major risks, particularly with regard to harvest failures and the availability of water, and reduces the resilience of rural farmers and populations, which in turn could induce migration to urban areas. A comprehensive policy and action plan is needed to deal with the risk of drought.

Safety of groundwater

Total annual rainfall is gradually decreasing, and 85 percent of annual rainfall is left to evaporate; current groundwater basins are over-used. This risk will be exacerbated in future as a result of the projected reduction in rainfall and rising temperatures associated with climate change. Improving the management of water runoff in periods of heavy rains and the use of small injection units would help to recharge groundwater resources.

Treated wastewater

Treated wastewater is a valuable but non-traditional resource that could help to compensate for the withdrawal of fresh water from agriculture. Its use raises food-safety concerns, so a system for safe use of this resource needs to be established, especially in view of projected climate change in the near future. Currently no strategy has yet been formulated to ensure that the approach is environmentally safe, economically viable and socially acceptable.

Energy

Traditional energy sources in Jordan especially oil and gas are quite modest. There are no coal deposits and quite limited amounts of oil, extracted at a rate of 500 barrel a day and modest quantities of gas, extracted at a rate of 2300 barrel a day of oil equivalent, which threatens energy security. Energy Security is becoming a major concern to every country. Energy security has four components i.e. accessibility, availability, continuity and affordability. In other words every country is keen to have extractable primary energy sources such as oil, gas or coal at reasonable costs to guarantee the continuity of supply within the affordability range of the consumer and the national economy as a whole.

Challenges

Trade

Jordan has limited natural resources and a small but slowly growing economy. It depends on regional markets for exports and imports, of which food products constitute a large share. The gap between imports and exports is increasing at an alarming rate, particularly in that 87 percent of dietary energy requirements are currently provided by imported foods.

Population

Jordan's increasing population constrains development in all sectors and affects standards of living and the various drivers of food security. The distribution of population among governorates is another constraint in that it affects resource availability, job opportunities and services, which in turn can trigger migration to urban areas where better services and more jobs are available, and where accommodation and living expenses are considerably higher.

Shrinking land resources

Agricultural production contributes to reducing poverty and enhancing food security under SDG 1. But 40 percent of land used for rainfed farming has been lost to other utilizations, and 33 percent of cultivable land is not farmed annually because of land fragmentation. Nothing has yet been done to halt or reverse this trend. It is shocking that the loss of 60 percent of the areas used for rainfed cereal production has not been reflected by a proportional increase in other farming sectors, except for olive production.

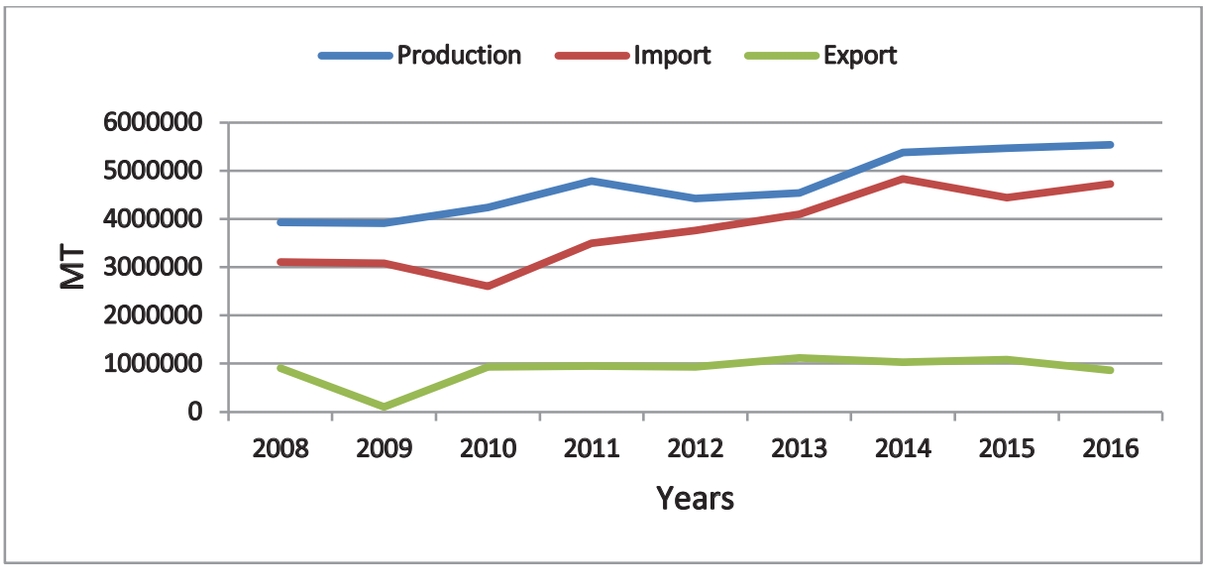
Rural development

Rural areas have changed dramatically since the 1970s and have suffered from losses and fragmentation of substantial areas of productive land, which discourages investment in rural areas. Failure to adopt holistic planning for proper land allocation, lack of services and new job opportunities have resulted in declining productivity and have forced farmers to sell their land and migrate tow urban areas. This has affected around 90 percent of the population, left 33 percent of arable land uncultivated and hence prone to degradation, and increased the cost of services such as transport, education, housing and health in urban centres.

Food availability

Jordan is a net food importer. Although exports of vegetable and live animals have increased in recent years, imports have also increased at even higher rates. This has increased the gap between exports and imports. It is clear that attention must be given to promoting self-sufficiency and providing new sources of energy. A strategic assessment is needed to determine the areas where this work should begin, and the sectors that need immediate attention.

Total Food Production, Exports* and Imports (mt)



*Exports include re-exported goods.

Self-sufficiency

Self-sufficiency in wheat and barley is low, and production is constantly declining. This puts considerable pressure on the Government to increase imports, enlarge storage facilities, maintain strategic stocks to avoid price fluctuations and to address any changes in world markets. Self-sufficiency in some vegetables is high, but it is low for most fruits. An alarming factor is declining self-sufficiency in major foods such as non-poultry meat, plant oil, dried milk and animal feeds. The production of various dairy products and eggs for the table is, however, increasing. All rice and sugar are imported.

Energy intake levels

Average energy intake is 2,907.4 calories per capita per day. There appears to have been a descending trend since 2012. Plant sources provide 87 percent of daily energy intake; animal resources provide 13 percent. The plant sources are mostly imported in large quantities as a result of declining local production. The future sustainability of other plant-based energy sources is uncertain because they rely on irrigated agriculture, which could in turn constrain food availability and food security. The prices of other sources of diets from animal products are increasing, which raises the issue of affordability and forces many households to change their diets or behaviour. This has clear implications in terms of people's health and increases the pressure on the Government to address the increasing cost of health services.

According to the results of the Household Expenditure and Income Survey for 2017/2018, the average annual expenditure of Jordanian households on food items was 32.6 percent, compared to 34.1 percent of the expenditure on food in the Household Expenditure and Income Survey for 2013/2014.

Environment and food safety

Intensive irrigated farming is associated with increased use of chemicals and treated wastewater blended with fresh water and the salinization of groundwater caused by over-pumping. This raises concerns about resource degradation, deterioration of the quality of food products, negative effects on the health of consumers, the sustainability of exports, pollution, environmental vulnerability and the resilience of communities to increasing risks of natural disaster. There is as yet no national system to monitor trends in a range of environmental issues, or the productivity of land resources and food quality by means of a multifunctional database to integrate the various data.

Exports

Jordan exports agricultural products, live animals, vegetables and fruits mainly to regional markets, with increasing amounts of relatively high-value crops to other markets. The export market is not well organized, and has been severely suppressed by regional insecurity and the blockage of routes to some promising new markets; this has forced exporters to look for other routes, but the transport costs are higher. Low crop diversification, lack of refrigerated transport vehicles, poor post-harvest structures, the absence of air freight options and failure of the private sector to invest in a specialized export organization are among constraints that limits Jordan's ability to increase its exports of high-value crops.

Integrated land-use planning

Poor urban planning, the unbalanced distribution of the population among different governorates, and the absence of effective legislation to protect land resources are constraining the management of Jordan's natural resources. Loss or fragmentation of productive land, the fact that around 90 percent of the population live in or near urban centres, random expansion into productive rainfed lands, increasing pressure to transfer drinking water from remote locations and increasing use of treated wastewater are among the inevitable results of failure to adopt holistic land-use planning.

Governance

Coordination

National efforts to deal with issues affecting the implementation of SDG 2 are scattered among various stakeholders, and relationships between different parties are characterized by weak coordination. The mandates of some ministries do not provide clear pathways for institutional coordination, and poor coordination between the public and private sectors often results in failure or inadequate outputs.

Inter-governmental planning

Activities implemented at the sector level have clearly failed to achieve the goals of the Executive Development Plans. Follow-up and coordination have clearly been lacking. The allocation of adequate funds, robust monitoring and periodic assessment systems are needed to measure the effectiveness of programmes as they are implemented.

Policies

National policies that guide government-supported activities are usually implemented by means of special mandates or specific allocations of resources. Unfortunately, however, the Government's response even to threatening issues is not encouraging in that strategic planning is characterized by the implementation of numerous unrelated programmes. The absence of clear policies to institutionalize coordination among related sectors results in failure to resolve existing problems. Upgrading existing policies and regulations does not always produce the intended results. It is abundantly clear that "... a holistic, coordinated approach to development policies and planning is required."

Legislation

Some legislation defining ministerial mandates has led to overlaps in the roles of different ministries. One outcome of this has been uncertainty as to land use, particularly in terms of conversions to non-agricultural use, land fragmentation, failure to use a third of potentially cultivable land and random distribution of urban centres within areas suitable for farming. A special law implemented in the Jordan Valley, however, has curtailed land fragmentation. Similar legislation that could help to promote sustainable use of rainfed farmland has not, however, been applied at the national level.

Resource constraints

Economic resources

It is clear that Jordan's current economic crisis is triggering further budget cuts at the local and national levels. This alone imposes a constraint on the available resources and also threatens current activities and plans.

Investment in rural areas

Rural areas have not received their fair share of national development programmes. Rural development focusing on agriculture alone can never support the livelihoods of rural inhabitants. Investment in activities that generate work opportunities such as small-scale businesses or the processing of animal or plant products offers good prospects for improving livelihoods and reducing poverty. Relaxing government regulations governing access to funds or loans would also promote such activities. Investment should focus on improving people's resilience against all types of threats.

Capacity building

Jordan faces a number of challenges with regard to improving the productivity of its resources. These include issues related to the environment, food safety, pollution, health matters, water shortages, unemployment and urbanization. Capacity-building programmes to provide training in modern management skills and the provision of infrastructure to meet these challenges should be a government priority.

National research system

The national research system embraces the public universities and other academic centres, and a few private companies. Research is piecemeal and in many cases irrelevant. It makes little contribution to national developmental goals or solutions to emerging challenges. Coordination among research institutions is weak or non-existent, though a national strategy for agricultural research has been prepared to coordinate the work of national agricultural institutions.

Optimizing synergies

The synergies among action plans addressing climate change, desertification, agro-biodiversity, and poverty alleviation are obvious and should be fully exploited. Many action plans have common programmes or a high degree of overlap in their goals and proposed interventions. Optimizing these synergies by improving coordination and planning reduces costs, saves time, activates inter-governmental cooperation and promotes coordination among stakeholders.

Urbanization

Urbanization in Jordan during the last three decades has had severe negative impacts on many sectors related to food production. It has threatened the sustainability of production resources, increased pressure on the environment and increased the daily living costs of some households. The increase in the cost of living is a result of the fact that most of the population live in a few densely populated cities. High housing costs in areas round large cities that have to absorb migrants from rural areas have contributed to increased living expenses. Migration to large cities is inevitable in view of the better job opportunities combined with failure to achieve tangible rural development because of lack of resolve to deal with the issue. The evacuation of rural areas resulted from failure to adopt appropriate polices, laws and measures to integrate land use planning and adopt a holistic approach to rural development, and failure to empower the rural population.

Energy

Jordan imports almost all of its energy from external markets. Transforming Jordanian food production through the use of automated high-tech farming and processing of high-value crops will be constrained by the high cost of energy. Various energy-efficient production and processing technologies are available – but funding and proper training are required to exploit their potential. The increasing cost of transporting products to markets is reducing the competitiveness of national products.

Socio-economic issues

Rural and urban populations

Regional instability resulted in an inflow of refugees to Jordan. The total population almost doubled between 2004 and 2017, which decreased the availability of commodities and services and increased the demand for food. Urban areas, which are characterized as service-oriented communities, are home to 90.3 percent of the population, whereas the rural population, who are more involved agribusiness accounted for only 9.7 percent. This situation adds to the pressure on the Jordanian economy in general and food security in particular; and internal migration to urban areas means that fewer human resources are available for rural agriculture and that pressure on arable land in and near urban areas is increasing.

Employment

Low growth in gross domestic product and the inability of the economy to create jobs is contributing to unemployment, which increased to 18.3 percent in 2017; unemployment is worse in rural areas than in urban areas. Women's participation in the labour force remains low and is out of step with academic attainment. Ongoing stagnation in income levels, government subsidies for a number of basic commodities and increasing fuel prices are reducing Jordanian living standards, especially among the poor and limited-income consumers. According to data from the Social Security Corporation, average monthly income is close to the poverty line: it stood at 493 Jordanian dinars (JOD; currently = USD 0.709) in 2016 – JOD 510 for men and JOD 447 for women; the data available at the Department of Statistics indicates almost the same level. The high unemployment rate and low level of retirement pensions along with rising prices for commodities and services will further reduce the standard of living and will increase food insecurity.

Women's contribution

Gender equality and women's participation in the economy are linked to a reduction in extreme poverty and hunger. Women are traditionally responsible for household food security and nutrition, and many vulnerable women are engaged in small-scale home-based food production. But only 0.6 percent of Jordanian women work in agriculture: this is because of factors such as landlessness, the size of landholdings, farming systems, land management practices, labour market forces and the age and marital status of women. Women's participation in the labour force is approximately 15 percent, which is among the lowest in the region. The situation is particularly difficult for young women, 36 percent of whom are unemployed compared with 19 percent for young men. Various explanations have been offered to account for high unemployment among women: data from Jordan's Central Bank in 2015, for example, showed that women's access to formal financing through commercial banks was low compared with men's access. Underlying challenges constraining women's employment are related to lack of family support, lack of affordable day care and lack of adequate public transport.

Food security status

The latest food security status survey of Jordanian households was in 2013/2014. The survey noted a slight increase in the proportion of food-insecure households from 0.3 percent in 2010 to 0.5 percent in 2014. A more recent study has indicated that among vulnerable Jordanians receiving National Aid Fund support found that approximately 70 percent of households were either food-insecure – 11 percent – or vulnerable to food insecurity – 59 percent.

Coping strategies

According to the 2014 Food Security Report, a third of Jordanian households use coping mechanisms to compensate for shortages of food. This demonstrates that a limited decline in household income could quickly erode coping capacities and push vulnerable households into food insecurity. Of these households 26.2 percent used food-based coping mechanisms, 7.3 percent used a combination of food and non-food coping mechanisms and 0.2 percent used non-food coping mechanisms.

Food prices

There has been a steady increase in food prices since 2010, which has affected the proportion of household expenditure on services such as transport, education and health care, in that order. Increased food prices have a significant impact on countries that are net importers of cereals and staple foods and exerting additional pressure on their trade balances and their vulnerable populations, particularly in a region with a high rate of population growth.

Subsidy reform

Since 2005 Jordan has been implementing a reform programme to reduce the budget deficit by eliminating subsidies, enhancing tax collection and increasing public expenditure. The first step was to eliminate fuel subsidies gradually between 2005 and 2008, with a second round in 2012. In 2018 the Government lifted subsidies on bread by setting a new national price cap, and as an additional measure it announced cash payments to compensate vulnerable households.

Social protection

Jordanian laws do not designate a single entity to coordinate social protection services. Social-protection programmes have different titles such as social assistance, social insurance, the fiscal subsidy system and labour market interventions. Social assistance programmes are led by the Ministry of Social Development and the National Aid Fund and the Zakat Fund, with support from various non-governmental organizations (NGOs). The government and the United Nations Children's Fund are currently developing the National Social Protection and Poverty Reduction Strategy, to be launched by the first quarter of 2019. Updated vulnerability and poverty assessments will be based on household income and expenditure surveys and demographic and health surveys for 2018. It is important to note that even with these social protection initiatives poverty is still on the rise.

Nutrition

Challenges resulting from changed nutrition and lifestyles could lead to increasing prevalence of over-nutrition manifested in obesity and related diseases such as cardio-vascular disease, *diabetes mellitus*, hypertension, gout and arthritis. The prevalence of micronutrient deficiencies in terms of vitamins A, D, B12, folic acid, iron and zinc mainly affects the nutritional status of vulnerable groups – infants, children under 5, pregnant women and older adults.

Recommendations

The following recommendations are designed to accelerate progress towards SDG 2. Clear government commitment is needed to implement the proposed recommendations. An integrated multi-disciplinary and participatory approach should be adopted to devise and implement specific action plans.

1. General recommendations

- Strengthen the institutional establishment and the management of food security and development plans.
- Enhance poverty-reduction measures.
- Develop a holistic and comprehensive action-oriented food-security plan.
- Adopt a research system that is oriented to support national food security and development objectives.
- Strengthen social inclusion policies and assistance programmes.
- Design a mid-term strategy to manage the Syrian refugee crisis.
- Monitor the quality of food and the environment.
- Coordinate and manage activities for achieving the SDGs using the climate, water, energy and food management nexus

2. Sector-level recommendations

- Increase agricultural productivity, and ensure sustainable agriculture and food supplies.
- Improve farming practices and management.
- Enhance food security and nutrition.
- Strengthen the primary health-care system.
- Improve water production and minimize environmental threats.
- Introduce mechanization and energy-efficient technologies in agriculture.
- Empower rural women to engage in agriculture.

Coordination and management of the SDG system

The proposed platform calls for the establishment of national coordination committees at the strategic, planning, policy and action planning levels under the Scheme for Coordination Management (Figure 1). Figure 2 shows the relationships between the inputs and outputs of proposed activities using the climate-energy-food-water nexus approach.

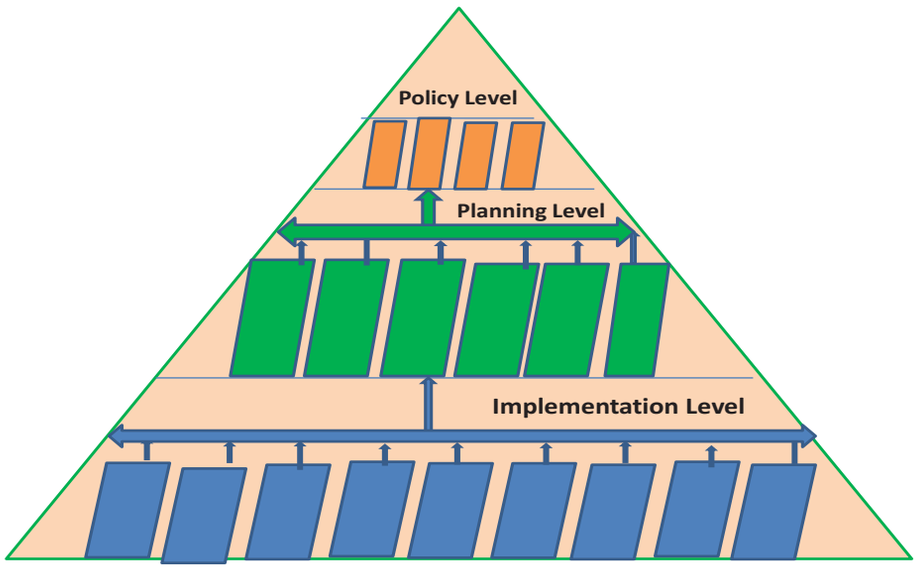


Figure 1: Coordination Scheme for Management of SGD 2

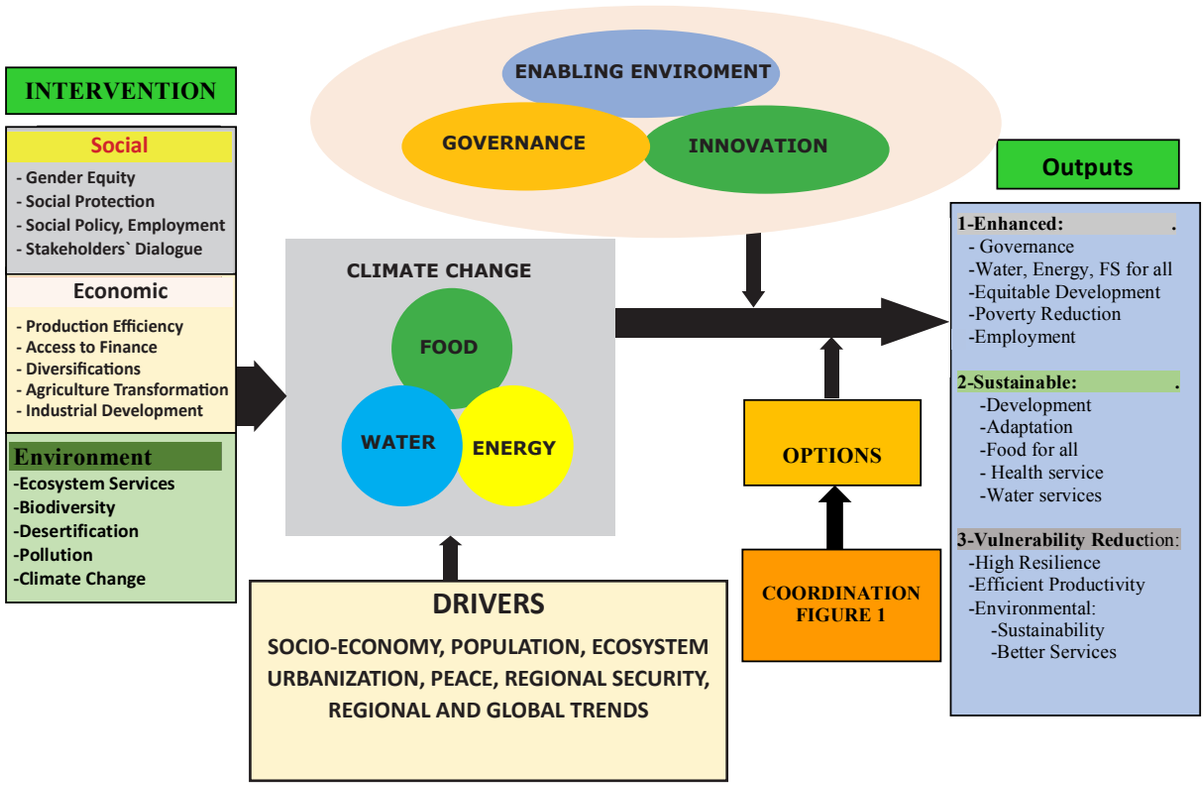


Figure 2: The Nexus Approach: A Path for the Achievement of SDG 2 by 2030

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INTRODUCTION

1. Jordan has a small emerging economy and scarce natural resources; its high degree of economic openness makes it vulnerable to regional and global crises. The global financial crisis in 2008 and the popular uprisings in Arab countries known as the Arab Spring imposed new challenges on Jordan, including an unprecedented influx of refugees and migrants from neighbouring countries. The economic growth rate slowed and the budget deficit, public debt, poverty and unemployment rose; there was also increased pressure on basic services such as education, health and infrastructure and resources such as land, water and energy.

2. Despite the challenges, Jordan's Human Development Index[1] increased from 0.620 to 0.741 between 1990 and 2015. Jordan has shown clear and consistent commitment to the Sustainable Development Goals (SDGs). National work to achieve the SDGs are currently led by the Higher Steering Committee headed by the Prime Minister that includes ministers and representatives of the private sector and civil-society organizations. The committee endorses long-term plans such as Jordan 2025 and operational plans such as the executive development programmes (EDPs) based on this overarching vision. It is supported by the national Higher Committee for Sustainable Development, the Coordination Committee and working groups (see Annex 1).

Objectives

3. The report provides a strategic overview of Jordan's progress towards the SGD 2 targets and sets out priority actions to achieve all targets by 2030. The specific objectives are:
   - To review the food security and nutrition situation, including sustainable agriculture, for all people living in Jordan, including refugees, and explore the interlinkages between SDG2 and regional dynamics, peace processes, the refugee crisis, water and energy issues, poverty reduction, urbanization and human dignity;
   - To determine the progress that policies and programs aimed at improving food security and nutrition have made for women, men, girls and boys;
   - To identify gaps in the response, with focus on programmatic gaps, institutional capacity and financial resources;
   - To discuss and prioritize actions that will be required to meet response gaps and accelerate progress toward zero hunger, and provide an overview of how these actions may be implemented; and
   - To identify partnerships and opportunities for the contribution of all stakeholders, including the private sector and United Nations agencies.

Methodology

4. The Review adopted a consultative approach that brought together a team of experts to cover all dimensions of SDG 2 and related goals. The approach included consultations with individual stakeholders and the organization of a multi-stakeholder workshop on 7 February 2018 to validate initial findings and agree on issues for further analysis.

5. Research focused on the assessment of the challenges hampering the achievement of SDG 2 in Jordan, an analysis of policies and programmes adopted to address these challenges and of the financial and institutional resources that must be allocated to solve them. On the basis of these results the team recommended priority actions that would help to overcome existing challenges and accelerate the achievement of SDG 2.

6. The team carried out a literature review and a national consultation to discuss analysis findings, and organized a national validation workshop. Experts conducted semi-structured interviews with selected stakeholders.

1 A geometric mean of life expectancy, education and per capita income indicators, which are used to rank countries into very high, high, medium and low tiers of human development.

Structure

7. The strategic review was led by HRH Prince El-Hassan Bin Talal, the Chairman of the Higher Council for Science and Technology. The strategic review study was managed by the National Centre for Research and Development, as shown in the table above; its work was overseen by an advisory board representing the Government of Jordan and the private sector.

Table 1: Project organization, and roles

Project Organisation	Roles
LEAD CONVENER HRH Prince El-Hassan bin Talal , Majlis el-Hassan	**Leadership** • Convenes high-level stakeholder consultation • Guides project management • Signs off on report and recommendations
BOARD OF THE HIGHER COUNCIL FOR SCIENCE AND TECHNOLOGY (HCST) HRH Prince El-Hassan Bin Talal; President of the Royal Scientific Society; Minister of Planning and International Cooperation; Minister of Industry and Trade; Minister of Finance; Minister of Agriculture; Minister of Education, Minister of Higher Education and Scientific Research; Minister of Telecommunications; Minister of Energy and Mineral Resources; Chairman of the joint Chiefs of Staff; SG of HCST; President of Jordan Chamber of Industry; President of Jordan Chamber of Trade *Augmented by the Minister of Social Development*	**Advisory Board** • Brainstorming and advisory • Review report(s) • Design recommendations
NATIONAL CENTER FOR RESEARCH AND DEVELOPMENT (NCRD)	**Secretariat** • Set up and manage research team • Oversee analysis and consultations • Draft and finalize report
MAJLIS EL-HASSAN, HCST AND NCRD FOCAL POINTS Dr. Hakam Al Alami, H.E. Dr Khaled Shrydeh and Eng. Isam Mustafa	• Support project management
STAKEHOLDER GROUPS Other Ministries and Selected Civil Society; Donor and Private Sector Representatives; UN & International Stakeholders	**Reviewers** • Data input • Bilateral or multilateral consultations
WORLD FOOD PROGRAMME (COUNTRY OFFICE WITH SUPPORT FROM REGIONAL BUREAU AND HEADQUARTERS)	**Support** • Support project implementation as needed

8. The strategic review process was launched in December 2017 at an advisory board meeting, after which the study team was selected and appointed to conduct the review. On 7 February 2018 the study team presented its preliminary findings to an audience representing a range of stakeholders – public and private sector organizations, non-governmental organizations (NGOs) and international organizations. Between 9 and 13 September 2018 the study team worked with a smaller group of stakeholders representing the Food and Agriculture Organization of the United Nations, the World Food Programme, the Ministry of Agriculture and the Ministry of Planning and International Cooperation to discuss the draft report, which was then presented to all stakeholders at a consultation workshop in October 2018, after which the final draft was shared with the advisory board for final review and validation. The final report was published at a special launch event on 13 December 2018.

I. ANALYSIS OF THE FOOD SECURITY AND NUTRITION SITUATION

1. Macroeconomic overview

1.1 Slowing economic growth

9. Jordan covers an area of 89,100 km^2 and has a population of approximately 10 million. Its emerging economy of USD 41 billion (2017 figure) is one of the smallest in the Middle East. Gross domestic product (GDP) per capita was USD 5,400 in 2017 – 50 percent of the global average. Jordan's GDP grew by an average 6.5 percent from 2000 to 2009 before entering a period of slow economic growth averaging 2.5 percent from 2010 to 2017. The slowdown was mainly caused by the repercussions of the global financial crisis on the Gulf Cooperation Council, conflict in neighbouring countries and a massive influx of refugees and migrants.[2] Slow growth and an increased resident population reduced Jordan's per capita income, which caused reclassification as a lower-middle income country from July 2017 to July 2018.

10. Jordan's economy is driven by services, followed by industry. Remittances, mainly from Gulf Cooperation Council countries, ranged between 12 percent and 19 percent of GDP from 2007 to 2015, settling at 11 percent of GDP in 2016 and 2017[3]. Unlike its neighbours Jordan has only minor reserves of oil and gas and some reserves of phosphate and potash. Natural resources are limited and there are shortages of water and arable land; rainfall is scarce.

Table 2: Sector contributions to GDP in constant prices (%)

	2016	2017
Agriculture, hunting, forestry and fishing	3.4	3.5
Mining and quarrying	1.4	1.6
Manufacturing	16.4	16.2
Electricity and water	2.5	2.5
Construction	4.6	4.5
Wholesale and retail trade, restaurants and hotels	9.9	9.8
Transport, storage and communications	14.7	14.8
Financial and insurance services	20.5	20.7
Social and personal services	4.6	4.6
Government services	11.3	11.1
Net taxes on products	15.4	15.3

Source: DOS, 2018

11. An imminent return to pre-2010 growth levels is not likely in the near future in view of medium-term challenges in the regional situation, slow reforms and challenging fiscal and monetary policies.[4] Official development assistance makes a substantial contribution to Jordan's economy amounting to 7 percent of gross national income in 2016.[5]

2 Jordan Economic Monitor, fall 2017: Towards Stronger External Trade Performance. Washington DC, World Bank.

3 See: https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?end=2017&locations=JO&start=2007&view=chart

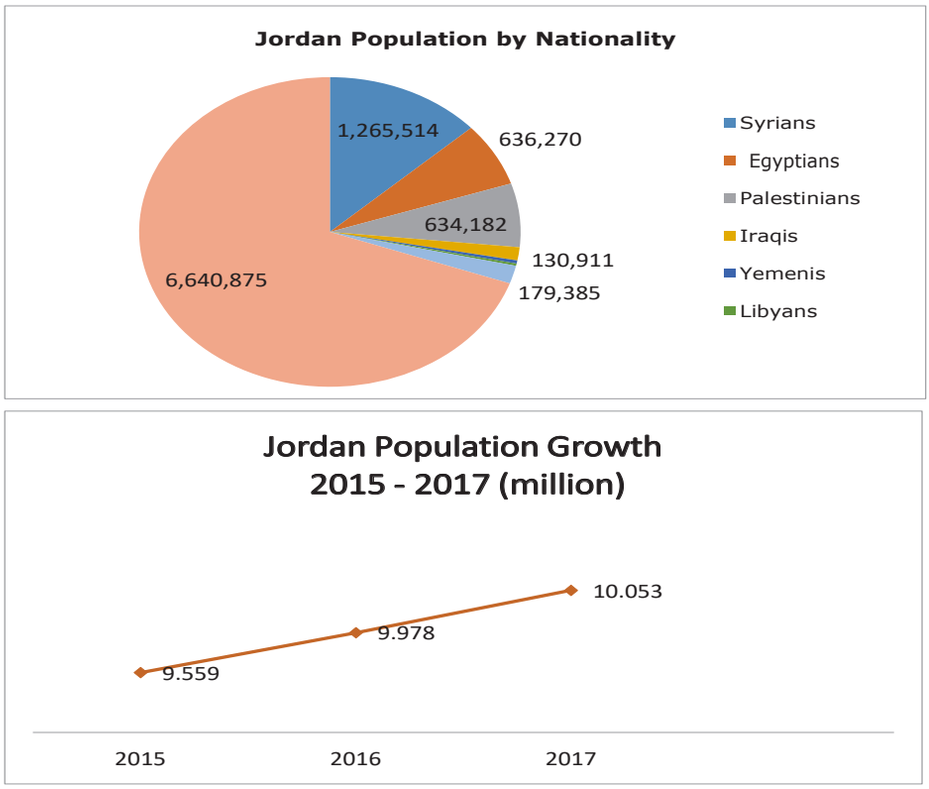
4 As footnote 2.

5 See: https://data.worldbank.org/indicator/DT.ODA.ODAT.GN.ZS?end=2016&locations=JO&start=2004

1.2 Demographic pressure

12. Jordan's resident population increased from 6.1 million in 2007 to 10 million in 2017 (DOS, 2018) as a result of consecutive waves of refugees, mainly from Iraq starting in 2003 and Syria starting in 2011, and a rise in the number of migrant workers. The number of migrants, including refugees, tripled between 1990 when 1.1 million people arrived and 2015, when there were 3.1 million. Of the migrants and refugees in 2015, approximately 2 million came from Palestine, 700,000 from Syria, 138,000 from Egypt, 36,000 from Iraq and 13,000 from Sri Lanka[6]. Amman is home to 42 percent of the population, Irbid to 18.6 percent and Zarqa to 14.3 percent. Only 9.7 percent of the population live in rural areas. The number of males per 100 females was 112.5 in 2017, and 63 percent of the population was aged under 30 – males 62.5 percent and females 63.3 percent.

Figure 1: Population of Jordan by nationality and growth



Source: DOS, 2015.

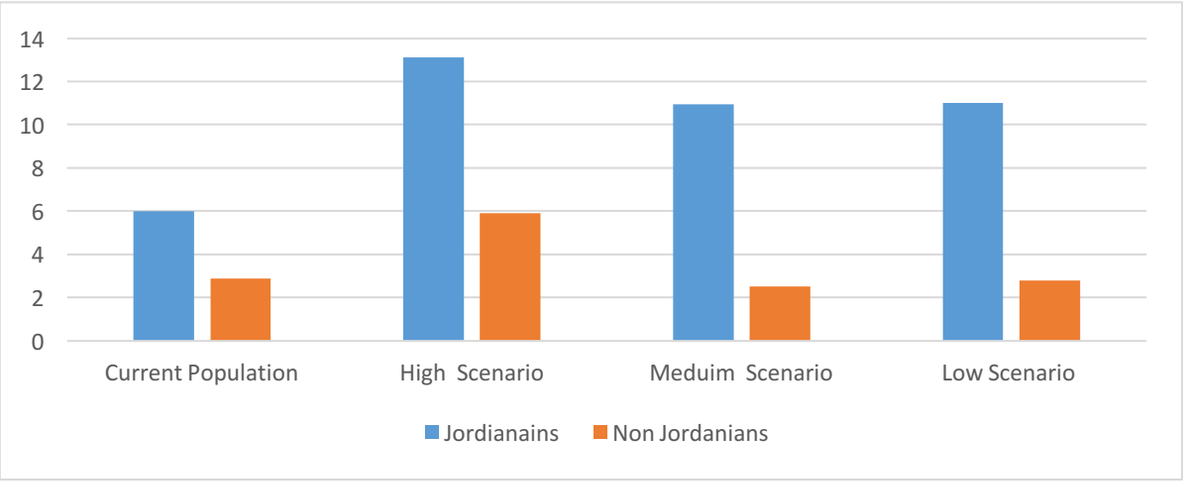
13. Population growth has increased pressure on Jordan's economy, infrastructure, education and health facilities, water, energy and the environment. According to the Department of Statistics (DOS), the population will increase from 10 million in 2017 to 12.9 million by mid–2030 and to 19 million by mid–2050. The growth rate in the 15–64 age group – those of working age – is expected to grow faster than the under 15 and over 64 dependent population. According to the high-basic scenario, which is a continuation of the current situation, the number of non-Jordanians will rise to 3.9 million in mid-2030 and to about 5.9 million in the middle in 2050; this is an increase of 3 million compared with 2015.

6 2017 Situation Report on International Migration: Migration in the Arab Region and the 2030 Agenda for Sustainable Development. Economic and Social Commission for Western Asia, E/ESCWA/SDD/2017/1.

14. Population projections indicate that Jordan will face serious challenges in the coming years because it will suffer from overburdened infrastructures, strained social services such as healthcare and education and increased competition for jobs. Significant changes in per capita income will be influenced by the large population growth and the regional economic recession. There will consequently be pressure on food consumption and demand. Expenditure on food is strongly related to population size and per capita income. This in turn puts pressure on the Government to provide sufficient staple foods and on the population to be able to afford them.

15. Various projections indicate that the expected demographic transition will reach its peak in the early 2030s, when the percentage of people of working age will significantly exceed that of the dependent population: is expected that 66 percent of the population will be of working age and that the age dependency ratio will be 52 people for every hundred individuals in 2030.

Figure 2: Estimated population (2015–2050)



16. According to the DOS, population projections indicate that the population will increase during 2015–2050 from 10 million in 2017 to 12.9 million by mid–2030, and to 19 million by mid-2050. According to the medium scenario the population will reach 13.4 million by 2050, an increase of 43 percent; the low scenario indicates a figure of 12.9 million, an increase of 37.2 percent. The predictions are as follows:

- The Jordanian population will double according to the high-basic scenario to 13.1 million in 2050. The medium scenario envisages an increase of 4.4 million to 10.9 million by 2050; the low scenario envisages a 4 million increase to 10.5 million.
- The growth rate in the 15–64 age group – people of working age – is expected to grow faster than the under-15 and over-64 dependent population. The ratio of the working-age population will be 66 percent in 2030 under the low scenario.
- The dependency ratio – the number of dependents divided by the working age population – is expected to decline to 52 dependents per 100 working-age people in 2030 according to the low scenario.
- The high-basic scenario envisages that the number of non-Jordanians during 2015-2050 will rise from 2.9 million in mid-2015 to 3.9 million in mid-2030 and to 5.9 million in the middle in 2050, an increase of 3 million compared with 2015. These numbers decrease by 390,000 under the medium scenario and by 483,000 according to the low scenario.

- Various projections indicate that the expected demographic transition will reach its peak in the early 2030s, when the percentage of people of working age will significantly exceed that of the dependent population: is expected that 66 percent of the population will be of working age and that the age dependency ratio will be 52 people for every hundred individuals in 2030.

17. Jordan is a young society: 63 percent of the population is under 30 – men and boys account for 62.5 percent and women and girls for 63.3 percent; urban residents account for 90.3 percent. Increased urbanization and migration from rural to urban areas reduces the availability of labour and land for agricultural activities; it also increases unemployment in urban areas as the economic slowdown impedes the absorption of new labour.[7] The main drivers of internal migration are high poverty rates in some governorates, lack of public services and infrastructure and unemployment (Arab Centre for Strategic Studies, 2014). Many immigrants end up living in pockets of poverty in major cities, which in turn leads to social, economic, and political challenges.
18. The Syrian refugee crisis has increased the burden on Jordan's scarce resources and affected many social and economic sectors. Unlike migrants, refugees are accompanied by their families and do not pay taxes. The return of refugees is a challenge given the uncertain developments in Syria; this means that refugees could stay in Jordan for a long time. The impact of the refugee crisis is considered in later sections.

1.3 High cost of living

19. The National Society for Consumer Protection estimates that the cost of living in Jordan has increased by 30 percent over the past five years, while wages and salaries have remained static. Inflation has averaged 4.2 percent annually for the last 11 years, but prices decreased in 2015–2016 as a result of lower international food and oil prices.

Table 3: Consumer price index for selected years (2010 = 100)

	2015	2016	2017
All items	116.40	115.49	119.33
Food	115.24	111.24	110.78
Clothing and footwear	131.30	133.31	130.17
Housing	120.87	122.27	125.69
Other goods and services	117.56	120.17	127.70
Inflation rate	-0.88	-0.78	3.32

Source: DOS, 2017.

20. The cost of living in Jordan is higher than in some neighbouring countries. According to the 2018 Mercer cost of living ranking, Amman was the sixth most expensive city in the Middle East;[8] the Economist Intelligence Unit ranked Amman as the most expensive Arab city in 2018 and the 27th in the world. Three major factors drive up the prices of commodities and services: increasing demand, high production and import costs and the high purchasing power of Gulf Cooperation Council visitors and Jordanians receiving remittances.

7 The 2016 DOS Internal and International Immigration in Jordan stated that the Amman governorate received 42,6 percent of Jordanian internal immigrants; Zarqa received 13.6 percent, Balqa 11.9 percent and Irbid 10.8 percent; 13 percent of internal immigration went to the south, particularly Aqaba, and 82 percent of all migrants moved from one urban area to another while 8.5 percent moved from rural to urban areas.

8 See: https://mobilityexchange.mercer.com/Portals/0/Content/Rankings/rankings/col2018h147963/index.html

21. Consumer prices in Jordan are vulnerable to regional instability and fluctuations in international markets, particularly for oil and energy. Conflict in neighbouring countries has had a significant impact on energy prices in the past decade: the closure of the Arab gas pipeline in 2011, for example, cut Jordan's gas supply and drove up energy prices.

2. Overview of SDG 2 targets

22. The 2009 World Summit on Food Security reaffirmed that "food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". This definition establishes four dimensions of food security: availability, access, utilization and stability. SDG 2 – Zero Hunger – is dedicated to these inter-related dimensions.

Table 4: SDG 2 targets

Targets	Indicators	Primary dimension
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	**2.1.1** Prevalence of undernourishment **2.1.2** Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	Access
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	**2.2.1** Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age **2.2.2** Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)	Utilization
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	**2.3.1** Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size **2.3.2** Average income of small-scale food producers, by sex and indigenous status	Access Availability
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	**2.4.1** Proportion of agricultural area under productive and sustainable agriculture	Availability Stability

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	**2.5.1** Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities **2.5.2** Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction	Stability
2.A Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	**2.A.1** The agriculture orientation index for government expenditures **2.A.2** Total official flows (official development assistance plus other official flows) to the agriculture sector	Availability
2.B Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	**2.B.1** Agricultural export subsidies	Availability
2.C Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	**2.C.1** Indicator of food price anomalies	Availability Stability

23. The food-security dimensions and SDG 2 targets are interrelated and correlated to other non-food factors and SDG targets such as expenditure on other basic needs, the environment, health, education and income opportunities.

3. Access to food (SDG 2.1)

24. Jordan has significantly reduced food insecurity in the last two decades. Undernourishment was halved from 8.1 percent in 2000 to 4.2 percent in 2015, though progress since 2004 has been slow and uncertain; there have been some measurable increases since 2007.

Table 5: Prevalence of undernourishment as a percentage of population (%)

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
3.6	3.4	3.4	3.6	3.7	3.7	3.7	3.6	3.7	3.9	4.2	4.2

Source: FAOSTAT.

25. The latest government comprehensive food security assessment is part of the 2017/18 nationwide household income and expenditure survey. Release of the data is expected at the end of 2018, supplementing the data from the 2013/14 survey. The 2014 food security report primarily reflected the food security status of Jordanian households, assessed at the district level. It noted a slight increase in the proportion of food-insecure households from 0.3 percent in 2010, of which 29 percent received food assistance, to 0.5 percent in 2014, of which only 17 percent received food assistance[9]. It is essential to note that these figures reference only food consumption, which measures households' access to food[10].

26. The factors affecting food insecurity in Jordan include limited purchasing power, lack of dietary diversity and constrained physical and economic access to markets. The underlying factors that inhibit economic access to food include large family size, low education levels of household heads, sex of household heads and poverty, which exaggerates economic shocks. The food security of poor people is sensitive to changes in market prices and incomes. Prices have risen by 3.7 percent year-on-year and are projected to hamper food security among the poorest Jordanians (DOS, 2018c).

27. Another factor is the regional geo-political landscape. Research shows that countries affected by conflict have higher levels of food insecurity in the form of acute and chronic food insecurity and undernourishment[11]. The State of Food Security and Nutrition in the World in Brief reports highlighted that in 2016 in countries affected by conflict undernourishment was 8 percentage points higher than in countries not affected by conflict.

28. The 2018 WFP/REACH comprehensive food security and vulnerability assessment in Jordan captured food security data among vulnerable Jordanians who were National Aid Fund beneficiaries and found that of 70 percent of households 11 percent were food-insecure and 59 percent were vulnerable to food insecurity[12]. It also collected data among the Syrian refugee population, of whom 88 percent had acceptable food consumption and 12 percent had either poor or borderline consumption[13]. When disaggregated by locality, 95 percent of the refugees residing in camps had higher acceptable food consumption compared with 85 percent among refugees living in communities[14]. Among all Syrian refugees, 29 percent had medium or low dietary diversity, which meant that these households consumed fewer than 4.5 food groups per week[15]. Among Syrian refugees in communities 31 percent were more likely to have medium or low dietary diversity; the figure for those living in camps was 20 percent[16].

9 DOS. 2011 and 2014. The Status of Food Security in Jordan. Amman.

10 The frequency at which eight food groups are consumed in a week multiplied by their nutritional weights. The sum classified households as having acceptable, borderline or poor food consumption.

11 See: https://data.unicef.org/wp-content/uploads/2017/12/web_I7787EN_SOFI2017_InBrief.pdf

12 Ibid.

13 WFP/REACH. 2018. Comprehensive Food Security and Vulnerability Assessment. Amman.

14 Ibid.

15 Ibid.

16 Ibid.

3.1 Expenditure patterns

29. Jordanians rely on markets for food. The 2013/14 household income and expenditure survey reported that Jordanians spend 34.1 percent of their income on food items[17] – 38.2 percent in rural areas and 33.4 percent in urban areas. Expenditure on food among food-insecure households and those vulnerable to food insecurity exceeds 60 percent of their incomes, making them ever more vulnerable to price increases[18] . According to the results of the Household Expenditure and Income Survey for 2017/2018, the average annual expenditure of Jordanian households on food items was 32.6 percent, compared to 34.1 percent of the expenditure on food in the Household Expenditure and Income Survey for 2013/2014.

30. The average expenditure on food in food-insecure households increased by 65 percent between 2010 and 2014, compared with the 47 percent increase in average total expenditure during the same period, reaching 39 percent of total average expenditure (JOD 1,606) compared with 35 percent in 2010 (JOD 974)[19]. Jordanians purchase cereals, meat and poultry, fruit, vegetables, dairy products, oils and fats, sugar and honey: expenditure on these items accounts for 68 percent of their total expenditure on food. Cereals, fats, oils, sugar and meat are mostly imported and are subject to international price volatility.

31. The 2018 WFP/REACH study showed that the average share of expenditure on food among vulnerable households accounts for 49 percent of total outgoings[20] .The figure is the same for households headed by men and those headed by women, and is stable across the country except for Amman, where high living costs mean that 43 percent of income is spent on food[21].

32. The 2017 DOS Statistical Yearbook reported that daily per capita energy consumption decreased by approximately 20 percent between 2014 and 2016. A 2017 study by the Economic and Social Council[22], noted that the increase in sales tax in 2017 had a direct effect on Jordanians' consumption patterns, with the poorest segments of society affected most, and that 49 percent of poor people in Jordan have stopped purchasing certain food items or changed their diets.

3.2 Coping strategies

33. The 2014 Food Security Report (2014) observed that a third of Jordanian households used food-based coping mechanisms, which demonstrates that a limited reduction in household income can rapidly erode coping capacity and push vulnerable households into food insecurity. The DOS 2013/14 poverty report showed that among vulnerable households 26.2 percent used food-based coping mechanisms, 7.3 percent used a combination of food-based and non-food coping mechanisms and 0.2 percent used non-food mechanisms. In rural areas 40 percent of households used food-based coping mechanisms; the figure for urban areas was 30 percent. Of the Jordanian households adopting non-food coping mechanisms, almost 50 percent were the poorest households with incomes below JOD 5,000 per year. There is a direct relation between food-based coping mechanisms and household size: 25.8 percent of households with one or two members used such mechanisms compared with 69 percent of households with 13 or more members.

17 The survey showed that of total expenditure on food, Jordanians consumed household-grown foods valued at a minimum of JOD 12.9 million.

18 DOS Household Income and Expenditure Survey, 2013/14.

19 DOS HIES, 2013/14.

20 WFP/REACH, 2018 CFSVA.

21 Ibid.

22 Economic and Social Council. 2017. The impact of tax increases on the consumption patterns of Jordanians. Amman.

34. Food-based coping mechanisms involve finding cheaper foods, regardless of nutritional value. Half of food-insecure households used very severe mechanisms compared with 33.3 percent of vulnerable households. These percentages did not exceed 10 percent among households with acceptable food consumption. As prices rise poor households start to reduce the quality of their food and concentrate on staples, which limits their intake of vitamins and protein. Some poor households also reduce the number of meals per day from three to two and reduce spending on non-food expenditures such as health and education.

35. Among the vulnerable Jordanians assessed by World Food Program, 77 percent relied on less preferred/ less expensive food on four days a week to mitigate lack of access to food;23 54 percent also reduced the number of meals per day, 51 percent limited portion sizes and 45 percent relied on family or friends to meet food needs.24 About 25 percent reduced adult food consumption to meet the needs of children[25].

36. Three-quarters of vulnerable Jordanian households used coping mechanisms that negatively affected the household's ability to earn income and maintain long-term food security: this involved, for example, taking on hazardous or degrading work or selling productive assets. The most common strategies are to buy food on credit and to reduce expenditure on non-food items such as medication or transport.

37. With regard to long-term coping strategies[26], those most common among Syrian refugees are to purchase food on credit and reduce non-food expenditures on education and health, much as observed amongst vulnerable Jordanians[27] .

3.3 Markets

38. Jordan was for many years recognized as a country with functioning markets. Access to markets is feasible in most of the country, but economic access is becoming more of a challenge in view of recent changes to economic policies and the closure of trade routes with neighbouring countries. Jordan's trade balances, its import-to-export ratio, its inflation rate and rising consumer prices increase vulnerability to shocks.

39. The inflation rate increased to 5.7 percent in July 2018 from 5.1 percent in the previous month,[28] the highest since November 2016.[29] The increase in inflation is associated with the increase in food prices, housing, transport, alcoholic beverages and tobacco. It is projected that the inflation rate will remain at about 5.5 percent until the end of 2019.[30]

40. For the past four decades the value of Jordan's imports has averaged JOD 403.9 million per month; in the first six months 2018 imports reached a high of JOD 1.5 billion per month. The overall value of imports, however, decreased by 2.5 percent in the first half in 2018 from the 2017 level.[31] The main countries exporting to Jordan are China, Germany, Italy, Saudi Arabia and the United States of America. The major imports are food, machinery, transport equipment, fuel, manufactured chemicals and electronic devices. Jordan is a net food-importing country, with 95 percent of consumables coming

23 WFP/REACH, 2018 CFSVA.

24 Ibid.

25 Ibid.

26 Livelihood coping strategies used to meet food needs more effectively; recall period of 30 days [??].

27 WFP/REACH, 2018 CFSVA.

28 See: https://tradingeconomics.com/jordan/inflation-cpi

29 Ibid.

30 See: https://tradingeconomics.com/jordan/forecast

31 See: http://dosweb.dos.gov.jo/extrd-201808/

from abroad: this includes all of its sugar, rice, powdered milk, tea, coffee, corn and vegetable oil[32] . Jordan also imports most of its fish, cheese, chickpeas, pasta, lentils, poultry, beef, wheat and barley[33] .

41. The 2017 State of Food Security and Nutrition in the World document indicated that for a net food-importing country such as Jordan, any import disruptions can reduce food availability in markets and the availability or affordability of non-food items such as fuel for cooking.[34] This makes Jordan vulnerable to international market shocks.

42. Jordan has suffered a steady increase in trade deficit, from JOD 5.5 billion in 2007 to J0D 8.9 billion in 2017[35].

43. Jordan's ability to export has been affected by regional dynamics such as the conflicts in Iraq and Syria, which were Jordan's main export partners along with India, Saudi Arabia and the United States of America.[36] Prior to the crises in Syria and Iraq, Jordan was able to export items such as fruit and vegetables, but the recent loss of these export markets has affected agriculture considerably.[37] Jordan's market for exporting agricultural goods faces challenges such as high post-harvest losses, inefficient markets, and quality and food-safety issues[38].

3.4 Food prices

44. The amount and quality of food consumed depend on food prices and the cost of items such as rent, electricity, transport and education. In Jordan food supply and demand are inelastic and do not adapt to price changes in the short term; small shocks in supply or demand lead to large price changes. The recent fiscal reforms, which include tax revisions and the removal of subsidies, are among the factors leading to the increase in the consumer price index to 125.35 at the end of second quarter of 2018 – an all-time high [39]. Jordan's consumer price index is estimated to reach 128.00 in the fourth quarter of 2018 and to reach about 139.00 in 2020. Core consumer prices increased by an average 2.4 percent in July 2018 compared with the same month the previous year[40]. The core inflation rate has averaged 2.47 percent from 2016 to 2018[41].

45. Food prices have increased steadily since 2010. Expenditure on food is followed by transport costs, education and health care. The cost of food increased by 5.4 percent in July 2018 compared with 2017[42]. Food price increases have a significant impact on countries that are net importers of cereals and staple foods because they exert additional pressure on trade balances and vulnerable populations, especially in a region with a population growth rate of 2.49 percent[43] .

46. Research suggests that international prices of staples such as maize and cereals could rise by as much as 180 percent by 2030, with half of the rise due to the effects of climate change. The

32 See: https://gain.fas.usda.gov/Recent percent20GAIN percent20Publications/Exporter percent20Guide_Amman_Jodan_12-29-2015.pdf

33 Ibid.

34 SOFI, 2017 p. 23.

35 DOS, 2017.

36 See: https://tradingeconomics.com/jordan/exports

37 See: https://sustainabledevelopment.un.org/content/documents/16289Jordan.pdf p.41

38 Ibid.

39 See: https://tradingeconomics.com/jordan/core-inflation-rate

40 Ibid.

41 See: https://tradingeconomics.com/jordan/food-inflation

42 Caracciolo, L. 2012. Food and Migration Understanding the Geopolitical Nexus in the Euro-Mediterranean, p. 21. Milan, Italy, Barilla Centre for Food and Nutrition.

43

2017 FAO Regional Overview of Food Insecurity in the Near East and North Africa observed that water scarcity and climate change were the fundamental challenges in terms of ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture by 2030.

3.5 Poverty

47. Absolute poverty has been declining since the 1990s, particularly between 2002 and 2010. The most recent official count in Jordan in 2010 estimated that 14.4 percent of the population lived in poverty[44]. A 2014 World Bank study stated that a third of the population lived below the poverty line during at least one quarter of the year,45 known as transient poverty. Household vulnerability is embodied in the risk of transient and seasonal poverty, to which most of the poorest 40 percent of the population is exposed. The 2107 Jordan Economic Growth Plan published by the Ministry of Planning and International Cooperation stated that the poverty rate reached 20 percent in 2016. The Department of Statistics announced that new poverty figures will be published by November 2018. The new poverty figures are calculated based on actual consumption per household and not on expenditure as was done in previous studies conducted by DoS. While the results cannot be compared with previous poverty figures, they provide more details regarding food consumption patterns around the country.

48. Poverty and vulnerability are associated with factors such as family size, the educational level of heads of household, gender, marital status, employment and area of residence. Poor households have an average of 7.2 members compared with 3.9 members in non-poor households. The DOS 2010 Poverty Report stated that of Jordan's poor, 57.7 percent were illiterate. A recent statement by the Minister of Planning and International Cooperation noted that there were at least 35 districts with poverty rates exceeding 25 percent. These pockets of poverty are largely in rural areas with disadvantages such as poor infrastructure, limited access to education and limited social support services.

49. The 2010 Poverty Report issued by the Department of Statistics showed that 75 percent of Jordan's poor had minimal education, and that 27.7 percent were unemployed. It indicated that 64 percent of food-insecure households were poor households – and that poverty was hence a major cause of food insecurity – and that Amman was home to 60 percent of the poor, followed by Irbid and Zarqa; Ma'an, Ajloun and Mafraq had the highest percentage of poor households.

50. In the 2017 *Jordan's Way to Sustainable Development*, the first national voluntary review of the implementation of the 2030 Agenda, urban poverty was highlighted as a growing challenge in that while poverty exists in rural areas, the proportion of economically underprivileged rural households accounts for 33.5 percent of Jordan's poor. Urban poverty exists at a significant level, and if not addressed it will become increasingly alarming.

51. Poverty is linked to income and expenditure levels. When expenditures exceed a household's income, debt becomes the only option for obtaining basic needs. Among Syrian refugees, a third are in debt[46]. The average amount of debt is JOD 700 (approximately USD 986)[47]. Debts are taken on in 29 percent of cases to pay for food, in 22 percent to pay rent and in 20 percent to pay medical expenses[48]. Among the reasons for debt are that per capita household expenditures of

44 DOS, 2010 Poverty Report.

45 World Bank. 2014. Jordan Economic Monitor: Resilience and Turmoil. Washington DC.

46 WFP/REACH, 2018 CFSVA.

47 Ibid.

48 Ibid.

JOD 67 are higher than per capita income levels of JOD 61[49]. Among Syrian refugees the lenders are mainly family members, friends and shop owners[50] .

52. According to *Child Poverty in the Arab States* published by the United Nations Children's Fund (UNICEF) in 2017, acute poverty among children in Jordan is at a level below the weighted average for the eleven countries studied. Approximately 38,000 children in Jordan suffer from acute poverty; moderate poverty affects 20.3 percent of children. These alarming figures indicate major food-security and health threats among children[51.]

3.6 Labour and unemployment

53. In 2017, Jordan's labour force was composed of 1.85 million Jordanians and 1.5 million non-Jordanians. The Government employs 42 percent of the labour force, the services sector 37.4 percent, industry 20 percent and agriculture 2.6 percent. Households receiving the minimum wage of JOD 220 in 2018 and who do not have other sources of income are unable to purchase food providing the minimum recommended 2,900 calories per individual per day in an average household of 5.4 members[52]. Data from the Social Security Corporation shows that the average monthly income of JOD 493 in 2016 – JOD 510 for men and JOD 447 for women – is close to the poverty line.

54. Unemployment among Jordanians increased from 12 percent in 2010 to 18.3 percent in 2017, and is higher in rural areas than in urban areas. Although women have equal opportunities for education – 52 percent of university students are women – their participation in the labour force remains 14.5 percent[53]. One major issue is the 35.6 percent unemployment rate among young people. Even when young Jordanian men and women are educated they face obstacles in finding suitable jobs when they complete their studies, and have to accept jobs outside their speciality or below their skill level[54]. Half of working-age Jordanians are employed in the informal economy[55]. Low GDP growth during the last few years has reduced the number of jobs created annually from 70,000 during 2007–2010 to 47,000 during the period 2013–2016. The number of new jobs has declined sharply, whereas entrants into the labour market have increased to about 100,000 per year in 2017 and 2018. The elasticity of employment is 0.4 percent, which means that a real GDP growth rate of 10 percent could reduce unemployment by 4 percent.

Table 6. Percentage of unemployment in Jordan, 1990–2017 (%)

1990	1995	2000	2007	2010	2015	2017
16.8	15.4	13.7	10.8	12.5	13.6	18.3

Source: DoS 2018

55. Ma'an, Ajloun, Irbid and Mafraq have the highest unemployment rates, and unemployment is increasing faster in the highly populated economic hubs – Amman, Irbid and Zarqa – than in other governorates. The increase in unemployment is caused by inefficiencies in the economy, slow industrialization, the mismatch between education and employment, limited technology and innovation, low wages and the presence of large numbers of migrants and refugees.

49 Ibid.

50 Ibid.

51 UNICEF. 2017. Child Poverty in the Arab States. New York.

52 DOS, 2010. Food Security Report.

53 Compared with 21 percent in Egypt, 28.2 percent in Turkey and 40.8 percent in Japan.

54 DOS, 2017, p.52.

55 Jordan's Way to Sustainable Development First National Voluntary review on the implementation of the 2030 Agenda, p.52.

56. The working poor in Jordan are becoming particularly prone to extreme poverty. The DOS noted in 2013/14 that 33.4 percent of Jordanian workers and 47.4 percent people aged 15–24 earned less than JOD 300 per month, equivalent to USD 424. In 2016, 11.3 percent of workers earned more than JOD 500 per month, equivalent to USD 706. Among vulnerable Jordanian households, 80 percent of those headed by women and 66 percent of those headed by men reported that they included no workers[56]. In households with employees, the latter are most often employed by the Government; in general, regular work is more common than seasonal or temporary jobs[57] . Non-working household members are generally either sick or occupied with childcare, but one in five also reported a lack of job opportunities. Members of such households rarely have experience or skills that match the available jobs.

57. Analyses of unemployment in Jordan have revealed the following trends:

- Overall, unemployment among women is higher than among men in urban areas; unemployment among men has, however, declined slightly; there is no such consistent trend among women.
- Overall, unemployment in urban areas is lower than in rural areas.
- Unemployment among men in urban areas is lower than in rural areas, but both have gradually declined over time.
- Unemployment among women in urban areas is still higher than among men, but it is significantly higher than in rural areas.

4. Nutrition (SDG 2.2)

58. Achieving SDG 2.2 requires the elimination of malnutrition by accelerating the reduction of stunting, wasting, overweight and micronutrient deficiencies. Malnutrition occurs when the intake of nutrients and energy does not meet or exceeds an individual's requirements to maintain growth, immunity and organ function. It is a general term that covers undernutrition and over-nutrition, which results in overweight and obesity.

4.1 Stunting/chronic malnutrition

59. Chronic malnutrition is also referred to as stunting. It develops as a result of inadequate nutrition or repeated infections or both, typically during the first 1,000 days from conception to age 2. It is measured by the height-for-age nutritional index and is manifest when a child is too short for his or her age. Unlike wasting, the development of stunting is a cumulative process that may not be evident immediately. Chronic malnutrition cannot generally be reversed, only prevented.

Table 7: Prevalence of stunting in Jordan, 1990–2012

	1990	1997	2002	2009	2012
% of children under 5	20.5	11.1	12.0	8.3	7.8

Source: https://data.worldbank.org/indicator/SH.STA.STNT.ZS?locations=JO

60. Between 1990 and 1997 Jordan reduced stunting by half. More modest improvements were achieved between 2002 and 2009, but the latest available data – from 2012 – shows no improvement since 2009. The 2012 rate of 7.8 percent is, nonetheless, relatively low and places Jordan ahead of most of its regional peers: in Iraq the rate was 22.6 percent in 2011, 14.9 percent in Morocco in 2011, 11.7 percent in Algeria in 2012, 10.1 percent in Tunisia in 2012 and 9.8 percent in Oman in 2009. Of the countries with recent data, only Kuwait has a lower rate – 4.3 percent in 2012.

56 CFSVA, 2018.

57 Ibid.

61. To overcome this stagnation, Jordan must focus on internal geographic differences and address the underlying drivers of chronic malnutrition. The 2012 Jordan Population and Family Health Survey showed that the prevalence of stunting reached 19 percent in areas such as Ma'an; it was also higher than average at 12 percent in southern areas and in Badiah lands (areas in which Bedouin reside). Stunting affected 9 percent of boys and 6 percent of girls. The survey showed that the major factors underlying stunting included: i) mothers' education status – 11.7 percent of children whose mothers had no education were stunted compared with 4.7 percent of children whose mothers had studied beyond secondary education; and ii) poverty – 13.8 percent of children in the lowest wealth quintile were stunted compared with 1.8 percent of children in the highest quintile. Households in the second, third and fourth wealth quintiles had rates between 6.2 percent and 7.0 percent, which showed that behavioural issues contribute to stunting regardless of wealth status. The report did not reveal any correlation between stunting and mothers' nutritional status.

62. The survey also revealed worrying trends in infant and young child feeding practices. The World Health Organization (WHO) recommends exclusive breastfeeding of infants for the first six months of life, and complementary feeding from 6 months to 18–24 months; this should be timely – all infants should receive food in addition to breast milk from 6 months onwards – and adequate in terms of amount, frequency, consistency and diversity. Only 26 percent of children under 5 months were exclusively breastfed in Jordan in 2017/18, a significant divergence from WHO recommendations. The 2017/2018 survey estimated that only 28 percent of children aged 6–23 months received a minimum acceptable diet, which means that the remaining 72 percent did not receive adequate breastfeeding or substitutes in terms of diversity and frequency[58].

63. It was observed that 32 percent of children were anaemic. Among all children, 21 percent are affected by mild anaemia and 11 percent suffer from moderate anaemia; less than 1 percent have severe anaemia. The prevalence of anaemia among children in the northern region averaged 38 percent compared with 29 percent in the central and southern regions. Of children born to Syrian mothers, 43 percent suffered from anaemia, compared with 32 percent among those of other nationalities. The results indicated that the percentage of women suffering from anaemia was 43 percent – mild anaemia 36 percent, moderate anaemia 6 percent and severe anaemia less than 1 percent. The lowest prevalence of anaemia among women was the 35 percent in Madaba governorate; the highest prevalence was 49 percent in Ma'an governorate. The prevalence of anaemia was 45 percent among Syrian women and 43 percent among women of other nationalities[59].

4.2 Wasting/acute malnutrition

64. Acute malnutrition, also known as wasting, develops as a result of rapid weight loss or failure to gain weight; its severity classified as moderate acute malnutrition or severe acute malnutrition according to specific reference standards. Wasting results from episodes of illness, incorrect feeding practices or acute food shortages. The most recent data – from the 2012 Jordan Population and Family Health Survey – showed that moderate and severe wasting affected 3 percent of children under 5, which is within WHO's 5 percent "acceptable" threshold. The survey did not reveal any significant patterns in relation to wasting and place of residence, education and wealth quintile, but it noted that mothers who are "thin" – with body-mass index under 18.5 were more likely to have wasted children than mothers who were overweight/obese with body mass index above 25.

58 Jordan Population and Family Health Survey, 2017/18.

59 Ibid .

65. The global wasting rate was unchanged between 1997 and 2012, with the exception of a significant increase between 2002 and 2012 when severe wasting increased from 0.2 percent to 0.6 percent and moderate wasting increased from 1.6 percent to 2.4 percent. This change was visible in many indicators, and although the reasons have not been identified it highlights the fragility of progress and the need for sustained work to consolidate gains in the long term.

4.3 Overweight, obesity and non-communicable diseases

66. Economic growth, rapid urbanization and significant development gains have been accompanied by a nutritional transition, in line with global trends. The transition is characterized by an increase in the consumption of processed, calorie-dense, high-fat foods and the adoption of more sedentary lifestyles, which are associated with increased overweight and obesity, especially among adults. These increase the risk of non-communicable diseases such as cardio-vascular diseases and diabetes. There has as yet been no comprehensive survey of overweight and obesity, but data from various sources confirm that they are now Jordan's most pressing malnutrition problem.

4.3.1 Overweight among children under 5

67. According to consecutive Jordan population and family health surveys, overweight among children under 5 fluctuated from 4.7 percent in 2002 to 6.6 percent in 2009 and back to 4.7 percent in 2012. The 2012 survey showed that 8 percent of children from southern areas were affected compared with 4 percent among those in northern areas. Among children under 5 overweight rates are relatively low for the region – 11.9 percent in Lebanon in 2012, 14.3 percent in Tunisia in 2012, 15.7 percent in Egypt in 2014 and 6 percent in Kuwait in 2015[60].

4.3.2 Overweight and obesity among adolescents and adults

68. In 2013 the Lancet61 estimated that 24 percent of boys and 25.4 percent of girls under 20 were overweight or obese and that 8.0 percent were obese. A 2016 study of girls aged 10–17 in greater Amman found that 36.2 percent overweight and that 9.9 percent were obese.62

69. The WHO Global Health Observatory[63] has estimated that overweight among children and adolescents aged 5–19 increased from 9.3 percent in 1975 to 30.7 percent in 2016 among girls and from 5.9 percent to 31.4 percent among boys; obesity increased from 1.1 percent to 12.9 percent during the same period –13.1 percent for boys and 12.7 percent for girls. Environmental factors such as nutrition, diet, wealth and physical activity have an important role in the expression of obesity.

70. The 2012 Jordan Population and Family Health Survey showed that 55 percent of adult women were overweight or obese – BMI of 25 and over; the figure was 62 percent in Aqaba. The GHO estimated that 69.6 percent of adults Jordanians could be overweight in 2016 – 67 percent of men and 72.2 percent of women – and that 35.5 percent could be obese. The WHO data also showed that 13.1 percent of Jordanian adults had diabetes in 2014 – 12.9 percent of men and 13.5 percent of women.

60 See: https://data.worldbank.org/indicator/SH.STA.OWGH.ZS?contextual=region&locations=JO-TN-KW

61 Ng, M., Fleming, T., Robinson, M., Thomson, B., Graets, N. and Margono, C. 2013. Global, regional and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study. The Lancet vol. 384.

62 Hamad, H., Abu-Hassouneh, D., Ibrahim, M. and Faris, A.I. 2016. Prevalence of obesity among Jordanian school-aged adolescents in greater Amman. Journal of Health, Medicine and Nursing vol. 33.

63 See: http://www.who.int/gho/ncd/risk_factors/overweight/en/

4.4 Micronutrient deficiencies

71. Despite the alarming prevalence of overweight and obesity, micronutrient deficiencies including deficiencies of vitamins A, D, B9, B12, calcium, iron and zinc are widespread[64]. To tackle these deficiencies, the Ministry of Health initiated a flour-fortification programme in 2002. This involved adding iron and folic acid to the *muwahhad* white flour, which is consumed as white bread by the majority of the population. In 2006, the ministry enlarged the programme to include nine micronutrients by adding vitamins B1, B2, B3, B6 and B12, folic acid and zinc in addition to iron and folic acid. In 2010 vitamin D was added to these micronutrients to make a total of 10 micronutrients. Table salt was fortified with iodine to tackle the iodine deficiency and goitre problem that was reported in 1993 to be a health problem in Jordan, when 37.8 percent of schoolchildren were found to have goitre. The salt fortification solved the problem, but the fortification of flour with micronutrients was found to have little impact, particularly in cases of anaemia. Anaemia reflects a nutritional deficiency in iron, folate, vitamin B12 and other nutrients.

72. Anaemia reflects a nutritional deficiency in iron, folate, vitamin B12 and other nutrients. The 2017/18 Jordan Population and Family Health Survey showed that 31.7 percent of children aged 6–59 months – 31.3 percent of boys and 32.1 percent of girls – and 42.7 percent of women aged 15–49 had anaemia. These results have not improved since 2002 for children, of whom 34 percent had anaemia in 2002 and 2009 and 32 percent in 2012. There has also been a significant deterioration among women, of whom 26 percent were anaemic in 2002, 25 percent in 2009 and 34 percent in 2012.

73. Studies of children aged 62 to 65 months in Karak and Salt cities showed that the mean intake of vitamin A, thiamine, riboflavin, folate, vitamin B, calcium, iron and iodine were approximately 36 percent lower than the respective recommended daily amounts; mean intakes of vitamin C and zinc were lower by 40 percent. Other studies targeting this age group have reported that mean intake of calcium was 56–59 percent of the recommended daily amount and that intake of vitamin D was 26–35 percent[65]. Few studies have examined micronutrient intake among school-aged children in the region. Studies of Bedouin and children from underprivileged areas showed that the mean intake of iron was 50 percent of the recommended daily amount, calcium 70 percent and vitamin A 65–80 percent[66].

4.5 Nutrition transition

74. The data confirm the WHO classification of Jordan as a country in the early stages of nutrition transition. This is characterized by increasing overweight and obesity, persistent micronutrient deficiencies and residual under nutrition among vulnerable groups. The transition reflects the substitution of the traditional high-fibre, low-fat and low-sugar diet with high-fat fast foods and energy-dense snacks.[67] These trends are confirmed at the macro-level, whereas data on food availability confirm the increase in dietary energy supply by 960 kcal/day between 1969 and 1971 and 2011. The consumption of fat, for example, increased from 51.8 g/day in 1969 to 77.7 g/day in 2011[68].

64 Jordan Ministry of Health. 2011. National Micronutrient Survey Jordan 2010. Amman

65 Nasreddine, L.L., Kassis, A.N., Ayoub J.A., Naja, F. A. and Hwalla, N.C. 2018. Nutritional status and dietary intakes of children amid the nutrition transition: the case of the eastern Mediterranean region. Available at: https://www.nestle.com/asset-library/documents/r_and_d/publications/nutritional-status-and-dietary-intakes-of-children-amidst-the-nutrition-transition.pdf

66 Ibid.

67 Ibid.

68 Nasreddine, L.L., Ayoub, J.J. and al Jawaldeh, A. 2018. Review of the nutrition situation in the Eastern Mediterranean Region. Eastern Mediterranean Health Journal 24(1).

75. Various surveys since 199269 have demonstrated that the energy intake of Jordanians increased between 1992 and 2010. Consumption of foods of animal origin has increased, while consumption of fruit and vegetables has decreased.

4.6 Health services

76. Many health indicators have improved: the rude birth mortality rate, for example, and the infant mortality rate has decreased while life expectancy increased to 73.5 years (DOS, 2016) thanks to improvements in health services (IFPRI, 2015; DOS, 2016). Expenditure on health decreased from 9.6 percent of GDP in 2000 to 6.3 percent in 2015[70]. Although the indicators seem to be satisfactory in general, the 2018 Jordan Economic Plan Council advised that the sustainability, quality and safety of healthcare services should be improved. An important intervention is gradually to expand health insurance coverage, particularly in poor areas.

77. A fundamental principle of the SDGs is that healthy citizens form the basis for socio-economic development, and Jordan accordingly subscribes to the principle of offering universal healthcare to all its inhabitants. To achieve this goal it is essential to strengthen and extend the reach of the primary healthcare system.

78. Equitable utilization of Jordan's health system can be increased by improving access to and the quality of primary healthcare services. National coverage of mother-and-child interventions such as ante-natal care and immunization is high, but more needs to be done to improve coverage of primary care networks. Early detection and management of non-communicable diseases is essential to manage the epidemiological transition of Jordan's population. In many mother-and-child services, the poor appear to be consuming a disproportionately large share of the benefits at public facilities. A full biological immunity analysis is required to ascertain whether government subsidies for healthcare provision are adequate.[71]

79. In the Za'atri and Azraq refugee camps income is mainly derived from WFP's food vouchers. Among Syrian refugees living in host communities the main source of income is unskilled labour, followed by monthly financial assistance from the Office of the United Nations High Commissioner for Refugees (UNHCR). This indicates that most refugees in the camps rely on food vouchers and financial assistance because they have few livelihood options. The WFP food vouchers constitute the main source of food for the refugees in camps and in host communities: they are distributed for one month, but the average number of days on which food purchases are made was 16.7 in Za'atri camp, 19.7 days in host communities and 19.7 days in Azraq camp. Nevertheless the reduced coping strategies index was lower than in 2014: this shows that Syrian refugees are less likely to adopt severe coping strategies in order to maintain an adequate level of food consumption and suggests that food security remained stable between 2014 and 2016, even if the value of the food vouchers decreased.

80. According to the WHO classification and the inter-agency nutrition surveys of Syrian refugees in Jordan, there is no severe acute malnutrition in Azraq camp or host communities. In Za'atri camp severe acute malnutrition of 0.3 percent was found, which is a very low prevalence. The survey showed "acceptable" levels of chronic malnutrition below the 20 percent threshold of the three surveys. In Azraq camp, however, the prevalence of stunting could be above 20 percent given the 22.9 percent upper limit of the confidence interval. The prevalence of stunting in Azraq camp was 19.2 percent –16.0–22.9 percent – is significantly higher than the 11.3 percent – 8.51–15.2 percent – in Za'atri camp with $p<0.05$.

69 Al-Kurd, R.,Takruri, H. and Amr, A. 2018. Trends of Energy and Macronutrients Intakes in Jordan as Obtained by Household Expenditure and Income Surveys. Journal of Agricultural Science. DOI:10.5539/jas.v11n1

See: https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=JO

71 UNICEF. 2016. Analysing equity in health utilization and expenditure in Jordan. New York.

5. Agricultural productivity (SDG 2.3)

5.1 Food supply

Food consumption and energy intake

81. The main Jordanian food basket includes cereals, legumes, meat, poultry, oil, fats, dairy products, vegetables and fruit. Except for dairy products, poultry, meat, table eggs, olive oil and some vegetables, the country relies on imports to satisfy a large share of energy requirements.

82. Cereals and vegetables are the primary non-animal foods, followed by fruit and vegetable oil. It is clear that that consumption of such foods has been declining since 2010; the trend seems to be steeper for vegetables than fruit and vegetable oil. Among the main animal food sources, consumption of meat increased to a peak in 2012 but has declined since; consumption of milk products has been declining since 2011, whereas consumption of milk, eggs and fats has been constant.

83. Food consumption declined from 588.9 kg per capita per year in 2008 to 525 kg per capita per year in 2015, mainly after 2014. This is true of plant and animal foods. Food sourced from plants accounted for 80 percent of the supply in 2008; this increased to 84 percent in 2015. Cereals and cereal products contributed 25 percent of food consumed and 30 percent of the total food supply in 2015; vegetables accounted for 20 percent of the total food supply. Fruit, meat, milk products and vegetable oil ranked third in their contribution to energy intake. The high consumption of cereals, and hence increased imports, placed a heavy burden on the Government as Jordanian production was constrained by increasing drought, land fragmentation, and land degradation.

84. The proportion of protein from animal sources was lower than that of plant sources, following a declining trend since 2011. Meat is currently the main sources of protein, followed by dairy products. Vegetables and legumes provide the highest proportion of energy from plant sources, followed by fruit. In general, however, these foods are relatively low in protein.

85. The share of protein from animal sources in daily diets has followed a declining trend since 2010, whereas protein from plant sources varies from one year to another but shows no overall trend. This can be explained by the increasing prices of beef, mutton and poultry as a result of increased consumption, and the Government's continued wheat subsidy.

86. Meats followed by milk products constitute the highest share of food from animal sources, but this has been in decline since 2011. The daily share from eggs, fresh milk and animal fat has not changed since 2009.

87. Vegetable oil is the main source of fats for Jordanian families. It is three times greater than fats sourced from animals. Consumption of fats from all sources has declined since 2012.

88. Energy intake level (see Annex 4). Food production in Jordan has increased since 2008, and substantially so since 2013. This was associated with increasing exports, which varied from year to year, and a steady increase in imports.

89. Total energy intake increased between 2008 and 2011, after which it declined sharply. This decline can be linked to the sudden increase in population exacerbated by the Syrian crisis.

90. The daily share of energy from protein and fats varies year by year, but it has declined slightly since 2012: it was 2.9 kcal per capita per day in 2015. The figure varied from one year to another but followed a declining trend after 2012:

    - The daily share of energy from animal sources was lowest at 13 percent, and followed a declining trend after 2012.

- The share of vegetable oil was the highest of all food items at 17 percent of total energy intake.
- The share of meat was 6 percent of total energy intake.
- Available energy per capita per day from meat was the highest among animal sources; this was followed by milk products.

91. Available energy from dairy products declined after 2012. Available daily energy from other sources such as animal fat, fresh milk, and eggs although very low, it followed a steady declining trend since 2009. Available energy contribution from plant sources was highest from plant oil, although the available gm/capita/d was very low**.** Available daily energy from plant oil took an ascending trend until 2012, but the trend was reversed towards a rather steep declining trend

92. Food sourced from plants provides 87 percent of daily energy intake, of which 51 percent is contributed by cereals and 19 percent by plant oil. Food sourced from animals provided 13 percent of energy in 2012, and the trend is declining.

93. Sugar and sugar derivatives are an important source of energy for families in Jordan. Almost all sugar is imported, however, and production of its derivatives depends on the imports. The amount of sugar imported increased by about 15 percent from 321,514 mt in 2008 to 360,305 mt in 2014.

94. Jordan is a net food importer even though it is self-sufficient in olives, olive oil, tomatoes, goat meat, fresh milk and eggs. The largest gap between production and consumption is cereals: Jordan produces only 3.0 percent of its wheat and 3.6 percent of its barley and hence relies on imports.

Table 8: Food self-sufficiency ratio: selected commodities 2013–2016 (%)

	2013	2014	2015	2016
Wheat	3.3	2.1	1.7	3.0
Barley	4.2	3.8	5.8	3.6
Potatoes	62.1	82.7	81.6	86.1
Olives	106.8	101.4	102.2	103.0
Olive oil	109.8	103.4	102.1	104.0
Tomatoes	337.4	327.4	193.0	175.9
Oranges	58.4	49.7	65.5	65.8
Apples	49.9	48.4	53.2	50.7
Beef	11.8	13.5	14.2	16.0
Mutton	32.4	37.0	32.9	39.3
Goat meat	54.1	81.4	100.0	100.0
Chicken meat	77.7	76.4	74.9	81.5
Fresh milk	100.0	100.0	100.0	100.0
Eggs	96.3	99.7	100.4	99.1
Fish	6.4	4.0	3.6	4.1

Source: DOS Statistical Yearbook 2017.

5.2 Domestic food production, by crop

5.2.1 Cultivated area

95. The total cultivated area shrank by 30.8 percent between 1975 and 2007 as recorded in the censuses of 1975 and 2007. This mainly affected food production and was most evident in Amman, Balqa and Irbid governorates. Areas under vegetables increased by 10.5 percent during the same period, primarily as a result of increased irrigation. The areas under vegetables will increasingly rely on the use of treated waste water, and irrigated vegetable cultivation in the Upland region will suffer as groundwater is increasingly reallocated for domestic use and as the energy costs of pumping groundwater increase. The areas cultivated with fruit trees decreased by 2.2 percent between 1997 and 2007. The reduction in rainfed fruit production occurred mainly in highly populated governorates, which also suffer from high rates of land fragmentation. Mafraq and Zarqa governorates are exceptions. In view of the projected availability of groundwater and increasing energy costs the already uncertain sustainability of irrigated fruit trees will be threatened.

5.2.2: Vegetables

96. The total area planted with vegetables increased by 37.9 percent (DOS, 2016), largely as a result of a 61.5 percent increase in irrigated areas. This is especially the case in the Upland region, which depends on groundwater, but the increase is not sustainable because the amount available water is declining and the use of low-quality water in the Jordan Valley is increasing. Rain-fed vegetables are produced on small farms and do not enter the regular market. The most common vegetables are tomatoes, of which 837,440 mt were produced, followed by 74,813 mt of eggplants, 273,906 mt of potatoes, 103,138 mt of watermelons and 280,158 mt of cucumbers; these are mainly grown under plastic (DOS, 2016).

Trends

97. The main trends are as follows:

- Production has been extended from the Jordan Valley to the Upland region, and vegetables are hence produced all year round. Improved farming practices have resulted in increased productivity and more exports.
- Exported vegetables are classified into three groups in descending order of volume: i) tomatoes; ii) cucumbers, potatoes, squash and eggplants; and iii) cabbages, onions and melons.
- The production of tomatoes fell significantly after 2013.
- Production of all vegetables except onions faces severe challenges because they are produced under irrigation. Hence any additional water shortage will negatively affect the level of production, and the quality of the irrigation water will affect productivity and export quality.

98. The future sustainability of vegetable production will be governed by the availability of good-quality water and improved productivity, safety, and marketing.

5.2.3 Fruit trees

99. The area cultivated with fruit trees increased by 87.6 percent in the Upland region between 1997 and 2007; the opposite trend was evident in the Jordan Valley (DOS, 1997, 2007). The increase was associated with; i) substantial changes in labour costs, the availability of water, management costs, land fragmentation and migration from rural areas; and ii) the steady increase in areas of olive orchards, which accounted for 74.0 percent of Jordan's fruit trees. Most of the increase occurred in dry areas that are not the optimum environment for olive orchards: these areas face the risk of soil salinization, and they depend heavily on irrigation and the availability of water resources in the Upland region. These crops are hence not competitive as water and energy costs increase and the use of modern water-saving technologies remains limited. Other fruit crops produced in small quantities include bananas, apples, stoned fruits, citrus and date palms; investment in these is increasing.

Trends

100. The main trends are:

- The area cultivated with fruit trees has gradually declined, especially in rainfed areas; the cultivation of fruit trees in irrigated areas will suffer from increasing energy and input costs.
- The fruit sector faces major changes and challenges. Land fragmentation, increasing cost of inputs, urbanization and changing climatic conditions will play a crucial role in reducing self-sufficiency and areas used for fruit production in rain-fed areas. Fruit crops in irrigated land occupy small areas, and although citrus production has increased slightly in recent years, self-sufficiency is declining.
- Self-sufficiency in fruit varies from 40 percent for bananas to 70 percent for lemons. Self-sufficiency in grapes varies from 90 percent to 100 percent; grapes are produced under rain-fed and irrigation conditions.
- Apple production is very low, and self-sufficiency is gradually declining. This is attributed to a negligible increase in cultivated areas, deterioration of apple orchards and water shortages, largely in the Shoubak area.
- Palm trees are a new crop in the Jordan Valley and Azraq, where the climate is suitable. Currently planted area is 22,219 *donum*.

5.2.4 Field crops

101. The areas cultivated with field crops, the most fertile in Jordan, decreased by 63.1 percent between 1975 and 2007. This level of reduction, which was not constant over time, is linked to annual climate variations in that it occurred mainly in regions with high rainfall. Similar reductions are evident for wheat, barley and legumes.

Trends: grain groups

102. Grains are a vital source of carbohydrates and plant protein for humans and animals. Their availability is crucial for achieving food security. The main trends are:

- Self-sufficiency various grains is extremely low. Production of wheat and barley is constantly declining as cultivated areas decrease for various reasons. Jordan is not a rice-producing country. Most alarming is the decline in production of legumes.
- The level of self-sufficiency for wheat could be tripled if proper management were applied and annual rainfall remained favorable. This opportunity is constrained, however, by the rapid withdrawal of land suitable for field crops for other uses and by land fragmentation
- Low self-sufficiency will place pressure on the Government to increase imports, enlarge storage facilities and maintain strategic stocks to avoid price fluctuations and sudden changes in world markets.
- Low maize production is a major concern because imported maize is processed for human consumption and for animal feed. The opportunity for increasing production is constrained by water availability.

Trends: oil and fats

103. Olive oil is an important food source in Jordan, and the significance of olive plantations increases day by day. The main trends are:

- Several factors were responsible for the major changes in crop composition in Jordan that led to the expansion of the areas cultivated with olive trees in rain-fed and irrigated areas. Self-sufficiency varies according to seasonal climate variations.
- Olive farms in irrigated areas face possible water shortages in the near future and increased costs for energy and inputs; those in rainfed areas face possible drought and soil problems.
- Other types of vegetable oil are imported. The availability of butter and other fats is good but self-sufficiency is declining over time.

5.2.5 Livestock production

104. Livestock production involves poultry, sheep, goats and cattle, with sub-sectors for bees, camels and fisheries. The production of livestock was valued at JOD 1.09 billion in 2015, of which JOD 553 million was poultry (DOS, 2015). Livestock accounts for 60 percent of agriculture's contribution to GDP and is a major source of income for about 250,000 people. The poultry subsector accounts for the highest contribution, followed by cattle, sheep and goats. The sheep and goat sub-sectors are important in rural areas and the dry region, where 48 percent of the populations living in the dry region depend on raising sheep for their livelihoods. Livestock production has increased in recent years and shifted to larger farms, with improved productivity and quality and intensification, especially for poultry and cows' milk. Further intensification is required for sheep and goats because the production of animal feed from degraded rangeland will fall significantly. Increasing demand for poultry meat, which resulted from insufficient production of other meats, resulted in development of the poultry industry involving substitution of local breeds with international hybrids and reduced home production. There were similar trends in dairy cattle farms, which changed from low-input farms to medium-input raising of sheep and goats and high-input dairy and poultry farms.

105. The Government's policy of providing feed subsidies for sheep and goats doubled the number of animals and flocks and increased exports until the end of the last century. The number of imported milk cows increased and provided a substantial share of demand. The numbers of broiler and layer chickens also increased, and production of poultry meat and table eggs exceeded demand. Of these products, only table eggs have been exported in limited amounts. Beekeeping is an emerging activity in Jordan. The number of beehives has reached 33,000, producing 110-120 mt of honey covering 20-25 percent of consumption and competing with cheaper imports. Fisheries are a small industry covering about 15 percent of consumption. They are constrained by shortages of water, high production costs and lack of expertise. The cooperative system in Jordan is weak, especially in the poultry and small ruminant sub-sectors. There is one farmers' union, but with limited activities in livestock.

106. The total number of sheep in Jordan was 2.8 million in 2015. Sheep and goats contributed to 26.8 percent of meat consumption in 2012, and 74.6 percent of meat production. Beef production provided 24 percent of meat in 2012, which, with goats and sheep, helped to meet 32.5 percent of demand (Ministry of Agriculture, 2012). Export levels are low and competition with live goats imported from Syria is high.

107. The total production costs of sheep, goats and unorganized cattle increased by 138.7 percent (Ministry of Agriculture, 2012). This was mainly driven by rising costs of concentrated feed and veterinary services. Water, fuel and electricity costs are constraints, and are likely to increase in future with consequently higher production costs. Improving production efficiency is essential to the sustainability of the sector and its positioning in relation to imported meats.

108. The commercial milk cattle sector provides 48.7 percent of consumption. There were 25 fully automated milk plants in 2012, with 832 semi-mechanized plants (Ministry of Agriculture, 2012). There were 569 milk-production farms, of which 425 were licensed and 171 unlicensed. Raising cattle for milk production is the second largest investment business after poultry. There is a small number of large farms with hundreds of head of cattle, but most farms are small and family-managed. Supporting investments in cattle farming would hence have positive effects on livelihoods. The sector suffers from the high cost of animal feed, which accounted for 72 percent of production costs (Ministry of Agriculture, 2012). The total value of dairy products increased by 83.5 percent from JOD 9.7 million in 2005 to JOD 17.8 million in 2015.

109. The total value of the production of commercial cattle increased to JOD 153 million in 2015, mainly as a result of increased milk production. The sector experienced rapid expansion as demand for dairy products increased, but production costs increased by 157 percent as a result of increased costs of concentrates and physical inputs.

110. Poultry: The number of broiler farms was 1,722 in 2012 (Ministry of Agriculture, 2012) producing 195,234 mt per year. Mortality was 15 percent, and about 10,000 mt was lost from slaughtering layer hens. Total production costs increased by 132 percent, mainly because of the rising costs of feed concentrates, broilers and hatcheries. It is essential to make feed concentrates affordable to maintain the competitiveness of this sector in future.

111. Feed resources: Most of the animal feed used for livestock production is imported, because the production of maize and sorghum and other cereals in Jordan is negligible. Only sheep and goat owners receive subsidized barley, whereas the cattle and poultry subsectors are considered industries and are hence excluded from subsidies. As a result of global increases in feed prices, subsidy reforms and continuous drought the price of sheep meat has increased by 200 percent

in recent years. Containing the cost of animal feed, for example by increasing local production, is essential to the profitability and productivity of the livestock sector.

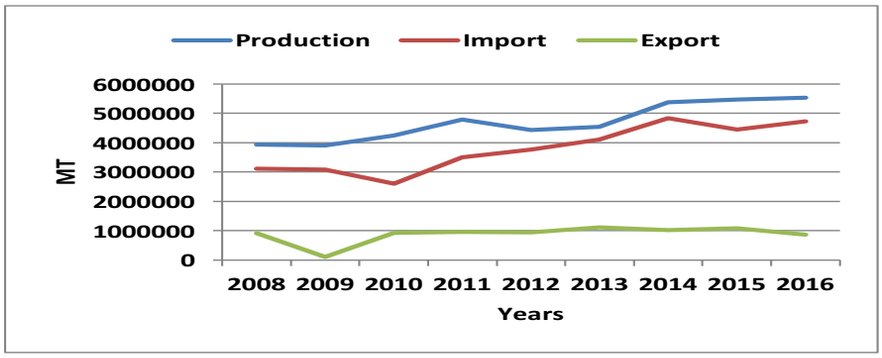
112. Rangeland resources. These are an important potential source of animal feed. Open rangeland covers about 90 percent of Jordan, though land suitable for grazing is substantially less. It is estimated that under favourable conditions Jordan's rangelands could supply 50 percent of feeding requirements. Recent studies have estimated that the amount of available forage from different sources could be higher, and that if certain development projects were implemented annual forage production could reach 14,650 mt[72].

5.3 Food balances

113. The value of exports of food and live animals decreased by 18 percent from JOD 893 million in 2013 to JOD 727 million in 2017; imports remained stable at approximately 2.4 billion during the same period. The gap between imports and exports increased from JOD 1.5 billion in 2013 to JOD 1.7 billion in 2017[73].

114. Figure 3 shows the increasing gap between food exports and imports. The year 2010 marked the sudden increase in population in Jordan. It should be noticed that exports included national products and processed foods. Production is increasing steadily but exports appear to be declining, probably because some export routes are being blocked.

Figure 3 Total food production, exports* and imports **(mt)**



* Including re-exported goods.

115. The value of domestic exports has increased by 22 percent since 2009. Vegetables and fruit are the main exported items, followed by live animals. The value of exported vegetables appears to have declined since 2014 and exports of live animals fell by 30 percent in 2016. Exports of dairy products and eggs are small but increasing. The closure of land routes to surrounding countries has affected exports, especially those to Europe, the Gulf States, Iraq, Lebanon, Syria and Russia.

116. In recent years there have been increases in the production and export of vegetables, dairy products, table and hatch eggs and olive oil. This is a result of improved farming practices, increased productivity and wider cultivation. Nonetheless, significant challenges remain as described in the next chapter.

72 Al-Shamil Engineering. 2000. Vulnerability and Adaptation to Climate Change. The General Corporation for Environment Protection. New York, United Nations Development Programme Project no. JOR/95/G31/1G/99.

73 DOS Statistical Yearbook of Jordan, 2017.

5.4 Employment in agriculture

117. About 3.7 percent of employed people in Jordan work in agriculture;74 this figure has been steady since 2005. Employment in agriculture is generally associated with low levels of pay, social security and health insurance. The sector has nonetheless experienced significant growth in the form of a 12 percent compound annual growth rate from 2010 to 2015, second only to construction, and a 16 percent growth rate in 2015[75]. Agriculture contributed 3.4 percent of GDP in 2016 and 3.5 percent in 2017.

118. Data on employment in agriculture are unreliable because they are based on labour permits and hence do not necessarily reflect actual employment. Most labour is casual, which makes it hard to assess actual worker numbers in different seasons. The available data indicate a gradual reduction in the employment rate. The total number of workers in agriculture decreased significantly from 85,092 in 2005 to 26,100 in 2007, its lowest level. Although the number of permanent and casual workers actually employed was 17,611 in 2014 and 26,000 in 2015, the number of licensed workers was 108,900. It is interesting to note that most of the labour in agriculture is casual work hence workers constantly change jobs and accurate assessment of the number employed is not possible. Most workers are men, but the number permanently working in agriculture is very small because pay and social security are poor, and insurance is not always available. As a result the number of Jordanian and non-Jordanian agricultural workers is declining.

Table 9: Employment and Unemployment in Agriculture (%)

	Average		Employment		Unemployment	
	Employment	Unemployment	Men	Women	Men	Women
2009	35.0	12.9	58.1	11.3	10.3	24.1
2010	34.5	12.5	56.9	11.5	10.4	21.7
1011	34.0	11.5	55.9	11.6	11.0	21.2
2012	33.4	12.2	54.9	11.3	10.4	19.9
2013	32.4	12.6	54.0	10.3	10.6	22.2
2014	32.1	11.9	53.7	10.0	10.1	20.7
2015	31.9	12.6	53.4	10.3	11.0	22.5

DOS: Analytical Report, 2015.

5.5 The future of agriculture in Jordan

119. Agriculture in Jordan faces numerous and complex challenges. Some are local, others are regional and international. Jordan has to overcome them to maintain the current contribution of agriculture to GDP and make it competitive enough to compete with international imports. Despite its limited contribution to GDP, the aggregate economic value of the agriculture sector continues to increase. Its social and environmental value has yet to be assessed. In social terms agricultural development is a reliable means for addressing poverty by providing employment opportunities in rural areas. Agriculture is also essential for absorbing the increasing amount of treated waste water According to the Ministry of Water and Irrigation, increasing the use of treated wastewater has two objectives – to provide a substitute for fresh water and to protect the environment.

74 See: https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=JO

75 DOS, 2018.

120. Overall challenges include: i) limited natural resources exacerbated by a reduction in cultivated areas as a result of land use conversion, fragmentation and urbanization that have mainly affected areas of productive soil; ii) limited water resources; iii) degradation of rangeland; iv) high energy costs; v) high costs of inputs such as veterinary services and feed; vi) low productivity driven by inadequate farming practices such as mismatched crops and soil types, poor production practices, lack of modern technology, limited research and extension support, food losses and supply chain inefficiencies; and vii) limited access to finance,[76] with high collateral for credits in agriculture and low financial literacy among farmers.

121. These challenges limit the potential of the agriculture sector for domestic production and exports. Domestic products have to overcome high production costs and quality issues to become attractive on international markets. Jordan must find a balance between domestic production and imports to ensure stable food availability with limited resources of land and labour and changing climate. To achieve this, Jordan needs to improve land use allocation, integrate the development of rain-fed farming, offer incentives to slow down land fragmentation, invest in research and extension services to support farmers, and invest in water management. Domestic production should focus on high-value-added products and drought-resistant crops for domestic and export markets.

76 In 2016 the Agricultural Credit Corporation provided loans to the value of only JOD 42 million for 7,500 farmers.

6. Sustainable food systems (SDG 2.4)

6.1 The sustainability of food systems

6.1.1 The agriculture sector

122. The agriculture sector has always been important in terms of supplying food for the nation and for providing job opportunities for 15 percent of the population. It is governed by many socio-economic drivers and faces numerous and complex local and international challenges. To maintain its contribution to GDP it needs sustained work to improve productivity and produce more food and to increase efficiency to compete with imported products and international markets.

123. The sector has lost large areas of productive rain-fed land because of poor land use allocations that benefit other sectors but that were not controlled by guidelines to protect them from competition. This resulted in increased urbanization at the expense of productive land. The area of Amman, for example, increased from 18km^2 in 1958 to 360km^2 in 1990 and to 630km^2 in 2000 following the annexation of several municipalities into the Greater Amman Municipality. Other cities, now rapidly growing, were built on prime agricultural land: Irbid city and surrounding towns and villages are an example. The total area included in the regulated borders of villages and cites in 1997 was 1.7 million *donum*, of which 95 percent was in rainfed areas[77] (Ababsa, 2013). Future expansion of these urban centres will be at the expense of arable land: it is estimated that 40 percent of agricultural land has been lost since 1965 as a result of urbanization. Poor planning of resource use and demographic change are the root problems.

124. The economic contribution of the agriculture sector, however, is not expected to retain its importance in the national economy because of higher growth in the 1970s in other sectors and ongoing negligence since then. The current contribution of agriculture to GDP is still low in spite of improvements in production, product quality and exports.

125. The contribution of the agriculture sector is undervalued by many who judge its contribution on the basis of economic indicators alone. But its social and environmental contributions have never been assessed and are certainly underestimated. The extent of its role is usually unrecognized because of the difficulty of evaluating its social and environmental contributions.

6.1.2 General factors affecting the contributions of the agriculture sector

126. Environmental drivers are expected to affect various agriculture sub-sectors in the near future. Appropriate measures to mitigate or minimize the effects of threats and impediments are, unfortunately, constrained by local economic conditions and expected future growth. Environmental threats are hardest to deal with because their specific nature is uncertain.

127. Population growth is significant because of its linkage with the agriculture sector. The concentration of people in a few densely populated centres produces large and increasing quantities of treated wastewater, which has to be used in agriculture to compensate for the withdrawal of fresh water for other uses. The amount of treated wastewater is expected to reach 220 million m3 in 2022 (Ministry of Water and Irrigation, 2009); one projection envisages 500 m3 being produced in the Amman-Zarqa area alone in 2050[78] (Baker and Harza, 1984)The cost of minimizing the environmental degradation caused by improper use of this huge quantity of treated wastewater is unimaginable.

77 Ababsa M., 2013. Atlas of Jordan History Territories and Society, IFPO, Jordan, page 275

78 Baker and Harza, 1984. Zarqa Lower Catchment Project. Amman, Ministry of Water and Irrigation.

128. The agriculture sector experienced high growth rates as a result of the expansion of irrigated agriculture in the Jordan Valley and the Upland region, the introduction of new production systems, and investments in the production of fruit trees in rain-fed and irrigated areas. Socially, agricultural development is regarded as a reliable means of addressing poverty in rural areas and providing employment opportunities.

129. The sector is under pressure to sustain the productivity of irrigated agriculture as the availability of fresh water declines, the use of treated wastewater increases and the productivity of rainfed agriculture is declining. Forest land covers approximately 1 million *donum* but the area is shrinking as a result of conversion of private forests to fruit orchards and despite continuous afforestation programmes since the establishment of Eastern Trans-Jordan.

130. The prospect of sustainability in the agriculture sector in Jordan and expected future challenges include:

- General issues
    - Lack of adequate enforcement of relevant legislation, absence of policies for resource protection or modern management practices; government interventions tend to deal with visible effects rather than root causes.
    - Lack of national preparedness to enhance resource resilience to meet current and expected threats, and lack of action to protect resources from such threats.
    - Lack of modern, scientific and holistic approaches for managing land resources, or proper land use planning and lack of protection against unfair competition.
    - Lack of sustained funding to implement long-term activities required by many proposed strategies.
    - Inadequate or poor integration between different sectors; integration is necessary for sustainability in various sectors.
    - Underestimation of the role of the private sector and communities in resource management, particularly for rural development.
- Specific issues affecting the sustainability of different farming systems:
    i. Water resources
        - Shortage of irrigation water in a country with 91 percent of its area dominated by dry climate.
        - Need to improve water-use efficiency and productivity to meet demand for more food.
        - Increasing use of poor-quality treated wastewater to compensate for the withdrawal of fresh water from agriculture for other uses.
        - Increasing allocation of ground water for domestic use, without the possibility of replacing fresh water for irrigation, and increasing the salinity of groundwater as a result of over-extraction and the associated costs of pumping.
    ii. Resource management
        - Continuous reduction of productive areas (Taimeh, 2001)[79]
        - Fragmented ownership of agricultural land.
        - Lack of clear national policies or plans to protect and optimize the use of agricultural land.

79 Taimeh. A.Y. 2001. Sustainable Development in Low Rainfall Areas. A workshop organized by IFAD, Rome, Italy.

- High seasonal variation and climate change[80] (Taimeh, 2010a, 2010b), that prevents farmers from adopting improved management practices for rain-fed agriculture.
- Different farming systems suffer from different types of land degradation; protection measures to prevent degradation are weak or non-existent.

iii. Resource productivity

- The productivity of irrigated and rain-fed farming systems is low because of poor farm management practices, high seasonal rainfall variations and increasing frequency of drought).
- Deterioration of the quality of irrigation water.
- Increasing cost of inputs, and marketing problems.
- Low level of fertilizer use in irrigated agriculture as a result of low returns and climate variation, which discourage farmers from investing in fertilizers.
- Weakness of the national agricultural research system, extension services and the national agricultural information system; lack of sustained programmes to provide trained workers.
- Rainfed and irrigation farming systems suffer from poor crop diversification: crop composition is dominated by a few traditional crops.

iv. Policies and governance:

- Lack of adequate legislation and weak enforcement of existing laws. Legislation to halt land conversion to urban use have been proposed; in 2006 the Government adopted a byelaw that accelerated urbanization. Lack of clear policies is the main constraint. The 2009 Ministry of Agriculture document called for legislative amendments to protect land resources from misuse (Ministry of Agriculture, 2009).
- Lack of comprehensive policies or planning governing the use and protection of resources or to promote the participation of the private sector and other stakeholders.
- Lack of adequate coordination among government agencies and stakeholder institutions, exacerbated by unclear or contradictory ministerial and institutional mandates.
- Market liberalization promoted competition between local and imported products when Jordan joined the World Trade Organization, whose regulations opened new export opportunities; but competition between local and imported products is fierce, unfair and increasing.

131. Agriculture and food systems in Jordan are challenged by: i) a shortage of good quality irrigation water – 91 percent of Jordan is dry; ii) low efficiency in the use of water; iii) mismanagement and degradation of limited land resources; iv) poor farm management practices; v) high seasonal rainfall variations and increasing frequency of drought; vi) high production and marketing costs; vii) weak research and extension and information services; and viii) poor crop diversification.

132. The livestock sector is characterized by low efficiency, increasing production costs, low productivity and limited integration with farming. The participation of Badia residents in planning and management of range resources is limited. Production of local animal feed is constrained by

80 Taimeh. A.Y., 2010a. Rethinking Agricultural Development of Dry Land, Challenges of Climatic Changes. International Conference on Food Security and Climatic Change in Dry Areas. Amman, Ministry of Agriculture. To be published by ICARDA.
-Taimeh. A. Y., 2010b. The impact of Climatic Change on Land Resources in in Jordan. Workshop on vulnerability to climate change in the agricultural system. Amman, World Bank and Ministry of Agriculture.

water shortages, and inadequate veterinary, health and extension services affect the productivity of livestock and the quality of products.

133. Investment in the production of sheep and goats is low. Management of this sub-sector is still traditional and family-based; it is not seen as a modern business. There are no organizations for sheep owners such as unions, councils or cooperatives to organize producers and enable them to develop the sector. The extension services provided for flock owners particularly in animal health, veterinary medicine and nutrition are poor. There is a lack of modern slaughterhouses that can ensure adequate packaging for modern meat markets, and there is a shortage of trained personnel and financial resources allocated to animal health programmes; financial resources are generally allocated only during emergencies or epidemics.

134. The productivity of rangelands has declined since the 1950s, when they were declared government land with open access. The main factors affecting rangelands include land registration and ensuing fragmentation in the Steppe Region, land clearance, stone quarrying, increasing urbanization and the expansion of barley cultivation, which damaged natural plant cover and caused degradation by erosion.

*[**Note: Specific factors affecting the sustainability of different farming systems in Jordan are given in Annex 3**.]*

135. The main challenges to the sustainability of food systems in Jordan are being identified, as reflected in new strategies and action plans such as the National Strategy for Agricultural Development and the Strategy for Combating Desertification. These highlight the importance of agriculture in reducing rural poverty and the centrality of multi-stakeholder participation, with an emphasis on women's participation. But some important challenges persist:

- lack of adequate enforcement of relevant legislation; absence of policies for resource protection or modern management practices;
- lack of preparedness or actions to enhance the resilience of resources to threats;
- lack of modern, scientific and holistic approaches for managing land resources, and inadequate land use planning and protection against unfair competition;
- lack of sustained financial resources to implement long-term activities required by many proposed strategies;
- inadequate or poor integration among different sectors, which constrains sustainability; and
- underestimation of the role of the private sector and communities in resource management and rural development.

6.2 Energy costs

136. The food supply chain through agricultural production, local or international transport, processing, storage and distribution is sensitive to energy costs, which account for 15–22 percent of production costs. It is difficult to estimate the impact of energy costs on food security because Jordan depends mainly on imported food. It is nonetheless evident that energy costs directly affect productivity and affordability.

137. The aim should be to use renewable energy for farms of all sizes; this would substantially reduce production costs. Renewable energy would also reduce poor households' expenditure: in 2017 energy costs exceeded 10 percent of the average income of low and middle-income citizens. Potential systems include: i) solar energy for electricity generation, heating, ventilation and cooling; ii) modern systems for crops, poultry, sheep and cattle farms; iii) cooling systems for livestock and

farm buildings; iv) solar energy systems in remote and isolated areas; and v) wind farms in suitable locations. Combined systems would have the greatest impact because they include all forms and applications for renewable energy. Individual citizens and farmers cannot reach high targets in renewable energy use by themselves, however. Well organized, long-term technical and financial assistance is needed in a sustainable institutional system. The target should be to ensure by 2030 that each household and farm obtains its electricity, heating and ventilation from solar energy. This responds to SDG 7, which calls affordable and clean energy to be available to every citizen.

6.3 Natural resources

6.3.1 Land

138. Factors such as slope, climate, soil type and management determine the suitability of land for a particular use. The land available in different governorates has different potential for food production according to its suitability for farming (DOS annual and analytical reports, 1975, 1997, 2007). The total available land for agricultural production amounted to 3.9 million *donum* in 1975; the total cultivated area was reduced by 33 percent to 2.6 million *donum* in 2007: the area under field crops was reduced by 63.6 percent, but the areas under fruit trees increased by 154.2 percent and that under vegetables by 38.8 percent. The area of unused land was reduced from 264,154 *donum* to 190,553 *donum*, land under temporary use was reduced by 27.9 and unclassified land had shrunk from 146,140 *donum* to 27,776 *donum*. Fallow land occupied 771,630 *donum* in 1975, 19.8 percent of the total area; in 2007 it occupied 432,036 *donum*, 16.5% of the total area. These figures indicate that 396,283 *donum* are unused each year in a country that is short of land resources. These areas of unused land are potentially cultivable if new farming practices were introduced (DOS censuses 1975, 1998 and 2007).

6.3.2 Water

139. Water is a crucial resource in the food system. In Jordan 39.4 percent of abstracted groundwater and 51 percent of all water is used for agriculture. Growing pressure on limited water supplies for domestic, industrial and environmental uses is likely to lead to a decline in the availability of water for food production. Similarly, income growth and urbanization lead to dietary shifts that require more water resources per calorie consumed, which puts further pressure on Jordan's water supplies. Population growth, economic growth, water pollution and climate change are threatening the availability of water for food production.

140. These factors show the importance of designing innovative water-allocation methods that adapt to water supply fluctuations and respect cultural sensitivities. Jordan has an ancient history of water supply fluctuations that have contributed to periodic food shortages. Poorly designed and weakly enforced water-allocation methods, increasing water quality issues, increasing costs of water abstraction and treatment, the extension of irrigation seasons all contribute to the under-performance of the agriculture sector and periodic food shortages when water shortfalls occur. Improving the efficiency of water use in agriculture should help to enhance food and water security in Jordan.

141. The per capita share of water has fallen during the last 60 years from 3,600 m^3 to less than 100 m^3 in 2017 (Ministry of Water and Irrigation, 2016b: National Water Strategy of Jordan, 2016–2025) well below the global water-scarcity threshold of 1,000 m3 per person per year. The National Water Strategy of Jordan (2016–2025) states that future demand exceeds current supplies by more than 30 percent, and the trend is projected to worsen. It is worth noting that the demand for water resources increased by 20 percent as a result of the influx of Syrian refugees (Ministry of Water and Irrigation, 2015 annual report).

142. The current balance of supply and demand will be increasingly difficult to maintain. Surface water sources are unpredictable because of geopolitical issues, the variability of annual precipitation, and climate change. Renewable groundwater is over-exploited by 160 percent, and in the medium term it depends on erratic precipitation. Although deep fossil water sources may have quality-related risks in the medium term, they will be exploited within decades. Future food production in Jordan is increasingly dependent on the availability of water and its efficient use, because the development of more land to increase food production will only be possible under irrigation, which in turn requires additional and currently unavailable water resources.

143. Water security issues are being addressed by: i) improving efficiency in distribution to reduce non-revenue water; ii) increasing the treatment of waste-water; and iii) developing "new water" through rain harvesting, increased desalination of stored water, a share of the Jordan and Yarmouk river water, and utilization of alternative water sources such as recharged aquifers.

6.3.3 Desertification, climate change, and pollution

144. Climate change has increased the mean annual air temperature and temperature variations and reduced precipitation; these changes are expected to intensify in the future[81].

145. Climate change poses serious threats to Jordan's food security as a result of changes in water supply and demand caused by changes in the spatial and temporal distribution of rainfall, the availability of water, and other agricultural production factors. By the end of the 21st century surface temperatures in Jordan are predicted to increase by 2.5 °C to 5.5 °C (Third National Communication on Climate Change, 2014). This will lead to shorter winters and dryer, hotter summers and more extreme weather events. The increase will be coupled with a projected decrease in precipitation by up to 20 percent (Third National Communication on Climate Change, 2014. Ministry of the Environment). Temperatures will rise, rainfall will decrease, ground cover will be reduced and the availability of water will decline.

146. The water sector will be the most affected by climate change: i) water availability will fall; ii) the costs of abstraction and treatment will increase; iii) irrigation seasons will be longer; iv) weather patterns will be less reliable; v) drought will be more frequent, and water reservoirs will not be refilled nor groundwater recharged; vi) rain-fed agriculture will be negatively affected; and vii) floods will increase in intensity, with damage to water and other infrastructures. High rainfall will increase erosion, which causes loss of water storage in soils and the silting of reservoirs. Higher temperatures increase evaporation, and hence more irrigation water will be needed and the efficiency of wastewater treatment plants will be compromised (Ministry of Water and Irrigation, 2016c: Climate Change Policy for a Resilient Water Sector).

147. Desertification leads to the deterioration of ecosystems and land productivity. Jordan's ecosystems are fragile and prone to desertification, and different eco-regions suffer from different desertification processes. The economic losses resulting from such processes vary significantly and require different interventions. The leading causes of land degradation are different in different regions; they include overgrazing and wind and water erosion. The effect of desertification on food security is not quantified, but it can be extrapolated from the decline in productivity in various farming systems[82].

81_ Abdulla, 2015, 21st century projections for precipitation and temperature change in Jordan

82 Taimeh. A.Y. 2018. Desertification in Jordan. In preparation.

148. Water pollution from domestic and industrial wastes diminish the quantity and utilization of fresh water. Agro-chemical pollution of surface and groundwater constrains the availability of water for agriculture, and more importantly for human and animal consumption. Overuse and misuse of pesticides, insecticides, fungicides and fertilizers lead to the pollution of ground and surface water through irrigation drainage. Thousands of tons of poisonous chemicals such as pesticides have been used in agriculture in Jordan since the early 1960s, and unsupervised use of pesticides and chemical fertilizers is expected to result in the pollution of soil, water, aquatic fauna, vegetation, birds and mammals. Negative impacts on human health and the environment are expected eventually.[83]

149. Other surface waters affected by pollution are *wadis*, creeks, rivers and dams lying downstream from wastewater treatment plants and solid waste disposal sites. Industrial pollution has resulted in the over-exploitation of natural resources and Jordan's severe shortage of water has led to the draining and damaging of underground aquifers. Protecting water resources from pollution and salinity should be prioritized to ensure the sustainable development of agricultural systems and farmers' livelihoods.

6.3.4 Food safety

150. Food safety is compromised by: i) pollution of the water supply used in processing food; ii) increased pollution of soil and water with agricultural chemicals as a result of inappropriate soil management and extensive use of fertilizers and pesticides in irrigated areas; iii) accumulated pollutants on surface soil layers in agricultural areas close to industrial complexes; iv) accumulation of polluting materials in land and water resources as a result of hostilities in the region during the last five decades; and v) damage to stored food.

7. Women and food security

151. Gender equality and women's participation in the economy are linked to a reduction in extreme poverty and hunger. Women in Jordan are traditionally responsible for household food security and nutrition, food supplies, meal preparation and the nutrition of family members. The 2017 Jordanian population survey indicated that women constituted 47.1 percent of Jordan's population of 10 million. The average annual income of households disaggregated by source and by sex of household head in 2015 showed that women's incomes averaged JOD 7,193 compared with JOD 9,574 among men, a difference of JOD 2,381. The following should be borne in mind:

- Women are considered responsible for their families' health and for providing good nutrition.
- Vulnerable women engaged in home-based income-generating activities such as producing cheese, yoghurt, butter and handicrafts spend their earnings on food and, in many cases, healthcare, clothing and education for the family. Their products are endorsed by the new instructions issued by Ministry of Municipalities and the Greater Amman Municipality.
- Women in rural areas contribute to agriculture by sowing seeds by hand, weeding, thinning, harvesting, sorting, grading and bagging cereals, legumes, vegetables and fruit for household consumption.
- Urban and rural women seek employment outside the household in the private, public and informal sectors to obtain cash income, a large portion of which is spent on buying food for families.

83 Mohsen, M.S. 2007. Water strategies and potential for desalination in Jordan. Desalination 203:27–46

7.1 Women's participation in the agricultural labour force

152. Women's involvement in agricultural production is a function of their social and economic status, particularly in urban communities. Only 0.6 percent of Jordanian women work in agriculture, forestry and fishing – 0.9 percent in rural areas and 0.4 percent in urban areas (DOS, 2016). Factors such as landlessness, size of landholding, farming system, land management practices, labour market forces and the age and marital status of women influence the degree to which women participate in agriculture and food production (El-Fattal, 1996). With regard to the division of labour according to gender, men are more likely to work in land preparation tasks such as ploughing, levelling, transport and marketing; women are more likely to be engaged in sowing seeds by hand, weeding, thinning, harvesting, sorting, grading, bagging, animal care, dairy production and food processing (El-Fattal, 1996; Tully, 1990; FAO, 1990a). The percentage of women who own land is 15.8 percent, compared with 51 percent of men; 32.9 percent of lands are shared between men and women (DOS, 2015).

7.2 Women's employment and access to financial resources

153. Women's participation in the labour force is 15 percent, among the lowest in the region. The situation is particularly difficult for young women, whose unemployment rate is 36 percent compared with 19 percent for young men. Regional disparities persist because few Jordanian women are employed in non-agricultural sectors. The education system ensures equal access, and there is a highly educated population of women with the potential to advance Jordan's economic, social and political development. Most of Jordan's unemployed women are university graduates; the ratio of women to men at the bachelor degree level was 106.7 in 2016.

154. Unemployment among women accounted for most of the total unemployment rate of 18.4 percent in the first quarter of 2018 (DOS, 2018) compared to 18.2 in the first quarter of 2018. The DOS unemployment report showed that unemployment among women rose by 8.2 points to 33 percent between January and March 2018, compared with to a 0.1 point increase in unemployment among men, which reached 13.9 percent. In 2016 only 13.2 per cent of women were economically active and seeking work, whether employed or unemployed, compared with 58.7 percent of men. Unemployment is calculated as the percentage of unemployed out of the economically active population. It is evident that Jordan's labour market favours men: estimates indicate that the number of men workers is six times the number of women workers.

155. There are many explanations of unemployment among women in Jordan. They include: i) the new methods and questionnaire of the labour force survey, which excludes domestic work; ii) the large number of women in the informal economy; and iii) regional instability and the increase of refugees in Jordan as observed in the Jordan Strategy Forum statement in July 2017. The underlying challenges constraining women's employment relate to lack of family support, lack of affordable daycare and lack of adequate public transport; women with disabilities and divorced women may also face stigmatization.

7.3 Women's access to finance

156. Data from Jordan's Central Bank in 2015 showed that women's access to formal financing through commercial banks was low compared to men's access: men had four times greater access to credit than women. A 2017 study of financial inclusion in Jordan conducted by the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) and the Central Bank of Jordan revealed that account ownership among women was 27.2 percent, well below that of men at

37.6 percent, but that the figure had improved from 15.5 percent in 2014. Encouragingly, women had 12.1 percent borrowing rate compared with 8.2 percent for men, and were more likely to have insurance – 31.5 percent for women compared with 28.6 percent for men; women's deposits, however, constituted 33 percent of total deposits. The mean value of loans to men was 18.0 percent higher than those to women. The data showed that the monetary share of women's loans did not exceed 17.2 percent, whereas among men it was 82.8 percent. High unemployment among women constrains their ability to own assets and to obtain formal financing.

157. Men and women on low incomes who lack access to formal finance can access microfinance services through national institutions. The Micro-Fund for Women is the main institution offering micro-credits, and two of government institutions providing microcredits are the Agricultural Credit Corporation, whose borrowers were 34 percent women, and the Development and Employment Fund, whose borrowers were 71 percent women in 2015. The percentage of women accessing microfinance institutions grew from 64.2 percent in 2010 to 78 percent in 2015, in which year the percentage of men accessing microfinance institutions was 22 percent, and 1.4 percent of working-age women and 0.4 percent of working-age men had a microfinance loan.

8. Natural disasters

158. Jordan is located in a high-risk, earthquake-prone area. Amman, Aqaba, Petra and most other populated areas are vulnerable to flash floods and landslides. Climate change is likely to increase the frequency and intensity of floods and droughts. Jordan is already the fourth most water-scarce country in the world, but it suffers from devastating flash floods at regular intervals.

159. According to the United Nations International Strategy for Disaster Reduction disasters cause extensive asset loss in urban centres and damage livelihoods in rural areas. Most damage to housing, infrastructure and livelihoods occurs in high-frequency low-severity disasters, which are frequent in Jordan. Drought erodes already impoverished livelihoods, leaving households and communities more vulnerable to future hazards: for vulnerable rural households, even a minor drought can reduce yields and devastate precarious non-diversified livelihoods. Population growth and rapid urbanization have reduced the safety of living conditions and access to basic services (UNISDR, 2012).[84]

160. Plans for responses to these challenges need to be enhanced; Jordan established a crisis management centre in 2005 that is responsible for the planning and coordination of emergency responses. Agriculture law no. 13 of 2015 mandated the Ministry of Agriculture to be responsible, with national partners, for preparing suitable measures for protecting plants and livestock against disease and epidemics and protecting forest assets and biodiversity. To achieve these goals, a centre for disaster control has been established at the Ministry of Agriculture to coordinate national objectives in this field.

8.1: Ministry of Agriculture: a 2016–2025 strategy for agricultural disaster and emergencies

161. The Ministry of Agriculture prepared the strategy in 2016. The main objectives are to deal with events that could affect the various agriculture sectors – earthquake, social unrest, energy crises, marketing problems, forestry issues, climate changes, pollution, frost, decline in national food stocks and lack national capacity to deal with disasters. The strategy provides polices and action plans for 14 issues.

84 United Nations International Strategy for Disaster Reduction, 2012

8.2: Ministry of Agriculture, 2016–2019 strategy for risk management

162. The objectives of the strategy are to institutionalize risk management through clearly articulated action plans, to enhance capabilities to predict, assess the risks of and prepare for anticipated incidents, and to enhance and make available all necessary precautions and measures for dealing efficiently with expected risks.

9. Impact of the Syrian Crisis

163. This section summarizes the available evidence on the effects of the Syrian crisis on Jordan's SDG 2 targets and related sectors.

9.1 Agriculture products

164. According to the Food and Agriculture Organization of the United Nations (FAO), the negative effects on Jordan's agriculture sector have been particularly negative[85] (FAO, 2013c). Exports to Syria decreased by 43 percent during 2013 from the 2012 levels (UNDP, Ministry of Planning and International Cooperation, 2013)[86] Trade routes through Syria for agricultural products have been lost and expensive alternatives have had to be adopted; this has increased export prices and hurt Jordan's competitiveness (UNDP, 2013). Animal feed prices rose by 22 percent to 38 percent between 2009 and 2012, mostly because of increased transport costs incurred in the change in the trading route from Tartous in Syria to Aqaba and Haifa. The illegal cross-border trade in Syrian livestock has decreased the price of sheep and goats by 50 percent in some border areas.

165. Among the main challenges facing the sector is competition for agricultural jobs in the northern regions. There is no control over the age and weight of sheep at slaughter, which increases the opportunity cost of allowing the animals reach a minimum weight of 40 kg. Restrictions are needed to control the slaughter of ewes that should be kept for propagation.

9.2 Food demand

166. The demand for food and other commodities has increased significantly as the number of Syrian refugees in the country has increased. Jordan imported 87 percent of its food requirements in 2012 at a cost of USD 3.1 billion – 14 percent of GDP (Wazani, 2014)[87]. This led to considerable market price increases. The amount of food subsidies has also increased: it is estimated that the total food subsidy cost for Syrians, excluding those in camps, amounted to JOD 54.3 million in 2015 (Ministry of Planning and International Cooperation, 2014).[88] Between 2011 and 2012, food prices in Jordan increased by 5 percent (FAO, 2013c) and it is questionable whether the Government will be able to maintain its food subsidy programme, which costs the equivalent of 1 percent of GDP annually.

9.3 Livelihoods

167. The Syria crisis has exacerbated challenges related to livelihoods and food security such as persistent high unemployment and deficiencies related to the slow growth and development of

85 FAO. 2013. Agricultural Livelihoods and Food Security Impact Assessment and Response Plan for the Syria Crisis in the Neighboring Countries of Egypt, Iraq, Jordan, Lebanon and Turkey.

86) UNDP and the Ministry of Planning and International Cooperation. 2013. Needs Assessment Review of the Impact of the Syrian Crisis on Jordan. Amman.

87 Wazani, K.W. 2014. The Socio-Economic Implication of the Syrian Refugees on Jordan-A Case Benefit Framework. Amman.

88 Jordan Response Plan 2015. Prepared by the Ministry of Planning and International Cooperation in cooperation with United Nations agencies, NGOs and ministries through the Jordan Response Platform for the Syrian Crisis.

the private sector; one result is increased competition between vulnerable groups. The participation of Syrian refugees in the labour market has increased the size of the informal sector. The Syrian refugee crisis has exacerbated negative economic trends in three main ways: i) the extension of public and social services to Syrian refugees strains government funds; ii) increased demand inflates the prices of finite goods such as housing; and iii) competition for jobs in the informal sector leads to the depression of wages and worsens the economic situation of the poorest Jordanians.

168. The crisis has also increased competition for work, which can fuel tension among vulnerable groups. There are 105,404 (Ministry of Labour, 2018).Syrian refugees working with regular permits, and Jordanian workers are facing strong competition from Syrians for jobs because the latter accept wages lower than the Jordanian national minimum; this is a particular concern in that there was a rise in unemployment even before the crisis broke out, especially among women.

169. There are potentially several reasons for the inability to assess the impact of the refugee influx on Jordanians' labour-market outcomes: i) the number of working Syrians is small because most Syrian refugees hosted in Jordan are women and children; ii) working-age Syrians are in the informal sector and hence competing with non-Jordanian workers; iii) the increased number of refugees has created demand for goods and services, which has led to increased demand for labour; and iv) increased aid and trade concessions by the European Union has probably increased job opportunities for Jordanians.

170. Nonetheless, in some areas Jordanian workers have started to face competition from Syrians since the downward trend in the Jordanian labour market that began after the financial crisis in 2008 and before the inflow of Syrians; less educated Jordanians bore the brunt of the economic slowdown. After 2011, non-Jordanian workers competed with Syrian refugees in the informal labour market.

9.4 Waste, water and the environment

171. Solid waste management was cited by a 2014 United Nations Development Programme (UNDP) study as the service most affected in 33 of 36 surveyed towns (UNDP, 2014).The influx of refugees increased the volume of solid waste by 340 mt per day (Ministry of Planning and International Cooperation, 2015); in Mafraq alone refugees contributed an additional 60 mt of waste per day (UNDP, 2014). The United States Agency for International Development (USAID) estimated the total fiscal cost to municipal governments originating from the Syrian refugee crisis amounted to USD 25.4 million in 2013 and USD 33.0 million in 2014 (USAID, 2014)[89]. In Irbid municipality daily waste collection increased from 300 mt to 500 mt after the Syrian influx, and in Mafraq municipality it increased from 80-90 mt to 200-250 mt per day; these increases exceed collection capacities in both municipalities (Palo, T. 2014)[90] . The needs of the Syrian refugee population for health services also contributed to a sharp increase in the volume of medical and pharmaceutical waste: the average amount of medical waste has almost doubled since the onset of the crisis from 253,506 mt per year to 466,789 mt per year and the volume of pharmaceutical waste had increased from 7,50 m^3 per year to 18,770 m^3 per year in 2015 (Ministry of the Environment, 2015)[91]. The crisis has put more pressure on already limited sewage and waste systems, which serve only 62 percent of the Jordanian population.

89) USAID/Jordan Economic Growth Office, Amman.

90 Palo, T. 2014. Draft Environmental Impact Assessment of the Zaatari camp, Jordan: Towards a green response. Amman, UNHCR.

91 Ministry of the Environment database.

172. The environment was already suffering from significant stress on scarce resources and fragile ecosystems when the Syrian refugee crisis forced host communities to over-use natural resources by, for example, overgrazing livestock to compensate for high fodder costs and increasing illegal tree cutting to compensate for higher fuel prices. The development of the industrial and service sectors and an increase in the number of vehicles overall has degraded air quality (RSCN, 2015)[92] .

173. The drastic increase in Jordan's population attributed to the Syrian refugee influx has brought the prospect of water exhaustion much closer. The Ministry of Water and Irrigation has projected that demand for water rose by 16 percent in 2013, and that the water deficit increased by 50 percent, partly as a result of the influx of Syrian refugees (Namrouqa, 2013)[93]; in some areas, Syrian refugees have doubled demand for water[94]. Jordan has little choice other than to continue the extraction of water from underground aquifers and is hence rapidly exhausting its non-replenishable water sources. The water infrastructure and water accessibility and quality have also been negatively affected: the amount of water and frequency of water delivery for Jordanians living in some areas have declined as a result of increased demand, and households are forced to purchase some of their water. According to the Mercy Corps, the average daily supply of water in northern municipalities, where most of the Syrian refugees live, has fallen below 30 litres per person (Mercy Corps, 2014a)[95]. In Mafraq city the water deficit has increased fourfold as a result of pressures from the refugee influx.

174. The Ministry of Water and Irrigation estimated Jordan's demand for drinking water in 2018 at 4,700 m^3, of which 280 m^3 is required in the summer alone. Before the Syrian influx the per capita share of water was 147 m^3; after the influx the figure dropped to 90 m^3. In the past seven years, water demand has risen by 40 percent, mainly in northern areas – this in a country with annual average rainfall on 91 percent of the total area is less than 200 ml. Official figures show that only 8 Billion m^3 of total rainfall is distributed to surface and groundwater, whereas 85 percent evaporates.

175. A supply of 80 litres per day per person is necessary just to satisfy basic needs. UNICEF reports show that there were no water cut-offs in the camps and no decline in water levels, which are monitored every five minutes. Zaatari camp is being connected to an integrated water-supply network, part of which is completed; this has saved time and effort for refugees and suppliers and eliminated water losses.

176. Trade with Europe, Syria and Turkey was badly affected by the crisis, which disrupted traffic and trading routes, leading to a sharp increase in Jordan's trade deficit. More expensive alternative routes have to be considered, for example through Iraq and the port of Aqaba; this has, however, adverse implications on the competitiveness of Jordanian goods. Between 2011 and 2014 Jordan's trade deficit increased by 27 percent, largely because of disruptions to the main trade route through Syria (IMF, 2014)[96], and at the same time imports through Syria declined sharply. The increased size of the population brought about by the influx of Syrian refugees caused a rise in overall imports.

92 Royal Society for the Conservation of Nature database. Statistics for October 2015

93 Namrouqa, H. 2015. German Grant to Address Increasing Demand for Water in Northern Region. Amman.

94 Francis, A. 2015. Jordan's Refugee Crisis. http://carnegieendowment.org/2015/09/21/jordan-s-refugee-crisis-pub-61338.

95 Mercy Corps, 2014a. Tapped Out: Water Scarcity and Refugee Pressures in Jordan. Portland or http://www.mercycorps.org/research-resources/tapped-out-water-scarcity-and-refugee-pressures-jordan.

96 IMF. 2014. Jordan Fifth Review. Data on real GDP growth rates. Country report no. 14/324, p. 24.

10. Energy (SDG 7)

177. Impact of energy on food security has several dimensions ?a matter of fact every step in the food security chain is affected by energy costs. This includes agricultural production, transportation, local or international, processing, storage and distribution.It applies to vegetation farming as well as animal and birds breading. Every component that enters the fram, the factory, the machinery and the vehicles is affected by cost of energy. Of course the final costs of energy in food security depends on the source of the food, distance, transportation system, fertilizers, chemicals, and degree of mechanization in the farms of origin. Our estimation based on Randy Snap(5) study is that the costs are as follows:

- Direct Cost of energy 5%-7% of product costs
- Indirect cost of energy 8%-10%of product costs
- Transportation Storage 2%-5% of product costs

This gives a total cost of energy ranging from 15% up 22% of production costs.

178. For Jordan it is quite difficult to estimate exactly the impact of energy on food security in figures because Jordan depends mainly on imported food stuff from all over the world. It is quite clear that costs of energy directly affects the affordability capacity of consumer, hence affects the food security .«On the long run sustained rises in energy prices may have serious consequences on energy-intensive industries like agriculture by reducing profitability and driving resources away from the sector. »A matter that will complicate affordability and food security at large.

179. Finally the impact of energy costs on food production costs depends mainly on the degree of mechanization of agriculture. The higher Agriculture Mechanization Index. (AMI),the stronger the impact of energy costs on the final costs of the crop or product. Higher AMI does not necessarily lead to higher costs. On the contrary in most cases it leads to less costly products, since mechanization generally improve productivity, reduces the costs of labor force and increase the volume of production . In Jordan, high AMI prevails only in big modern farms, while medium and small forms have modest mechanization. Generally the AMI in Jordan may not exceed 25%.

180. On the long run and since there is a wide margin for mechanization to enhance crop production and productivity the cost of energy should be always within a reasonable range that will not upset the benefits of mechanization. Hence, renewable energy should be a clear target for energy supply to farms including small ones.

II. NATIONAL POLICY AND PROGRAMMATIC RESPONSE OF GOVERNMENT AND PARTNERS

1. Key government strategies

1.1 Jordan 2025 vision

181. Jordan 2025 represents a long-term national vision and strategy rather than a detailed government action plan. It includes more than 400 policies or procedures that should be implemented through a participatory approach between the government, business sector and civil society It is a long-term vision for integrated national development planning. It is to be implemented by means of Executive Development plans, of which Executive Development plan 2018–2022 (Ministry of Planning and International Cooperation, 2018) is the most recent: it sets out effective programming to guide the achievement of identified goals in relevant sectors.

182. Jordan 2025 vision recognizes fluctuations of international prices and increased levels of food consumption as the major challenges to food security. It highlights the need to develop a comprehensive approach to address the challenges to food security and to focus on the diversification of food sources and increasing of Jordan's strategic food storage capacity. Its priority areas and interventions to improve food security include:

- enhanced sustainability and development of agricultural resources;
- conservation of biodiversity;
- an improved investment environment;
- enhanced complementarity between plant and animal husbandry;
- enhanced complementarity with other economic sectors;
- development of agriculture and extension systems and use of modern technology;
- improved competitiveness of agricultural products;
- linkages between production and demand;
- development of exports and diversification of export destinations;
- enhanced links between production and export and the food requirements of intended market;
- protection of local markets from hazardous imports through subsidies and other means of market flooding;
- increased farmers' revenues;
- reduced migration from rural to urban areas;
- increasing levels of women's participation in development; and
- enhanced coverage and reach of social programms for poor and disadvantaged populations.

183. It is assumed that these goals will be translated into implementable programms by the Ministry of Agriculture. The general goals for improving food production, enhancing the sustainability of the agriculture sector and maximizing food availability cover a range of issues, but Jordan 2025 ignores important issues that threaten the productivity and sustainability of the agriculture sector: these include climate change and land degradation, losses of land attributed to urbanization, development of human resources, improvements to infrastructure and sectoral organization and coordination. The cost estimate for the proposed general policy does not include specific programms or measures to implement them.

184. Jordan 2025 identifies poverty reduction and social protection as strategic priorities, and a number of focus areas are defined; these include enhanced targeting systems, optimized benefits from the outputs of poverty reduction and social protection programms, more effective contributions by the Government and the private and voluntary sectors that encourage venture capital projects and promote investment in the poorest areas.

1.2 Economic Growth Plan 2018–2022

185. In 2016, the council of Economic Policies in the Royal court proposed a plan to boost economic growth in Jordan between 2018 and 2022. Its three chapters covered: i) administrative reform; ii) government projects; and iii) investment projects for investors. There were two subsequent revisions. The plan sought to ensure sustained economic growth of 5 percent or more, with varied growth rates in different sectors.

186. The Economic Growth Plan highlighted stable food security as a major pillar supporting economic growth. It identified the stability of food supply and free markets, with the required regulating mechanisms, as the two main drivers of stability of food security. The plan considered the following priorities to enhance the internal food trade and supply sector: i) utilization of monitoring mechanisms to maintain market stability; ii) promotion of free market competition, with regulations to prevent over-pricing; iii) protection of national production; iv) maintenance of a strategic reserve of essential foods to improve self-sufficiency; v) minimization of waste in the strategic reserve; vi) protection of consumers; and vii) strengthening of existing market infrastructures, and coordination of initiatives for achieving and maintaining food security.

187. Government projects covered sectors such as water, health, education, human resource development, energy and medium, small and micro projects; investment projects covered agriculture, industry, transport and tourism. The impact of the Economic Growth Plan is not yet evident, but success will help to: i) improve the balance between production and consumption in line with SDG 12; ii) double the economic growth rate and create job opportunities in line with SDG 8; iii) help industry and promote innovation under SDG 9; iv) improve energy security and affordability under SDG 7; and v) help to realize the objective of zero hunger under SDG 2 and the elimination of poverty in line with SDG 1.

1.3 Executive Developmental Plans (EDPs)

188. A number of EDPs were designed to implement Jordan 2025. The 2016 Ministry of Agriculture report reflecting on the 2016–2018 EDP indicated that the ministry had made progress in monitoring the quality of produce, animal health, the quality of imports and food exports, animal and plant diseases and local markets. It had provided data about agriculture sub-sectors, provided services and inputs such as pesticides and veterinary drugs, and provided training in various matters for farmers and agriculture engineers. It reported on the monitoring of exports and imports from various countries and its work on opening new markets (Ministry of Agriculture, 2016).97 All this focused on the sustainability of agricultural resources, the first goal of Jordan 2025. The Ministry of Agriculture has adopted the role of a monitoring agency as stipulated by law. Nevertheless, implementation plans have not yet been developed.

EDP 2018–2022

189. EDP 2018–2022 cited the following policies for agriculture (Ministry of Agriculture , 2016)98: i) promoting the use of technology and automating agricultural services; ii) guiding citizens as

97 Ministry of Agriculture, 2016 annual report.

98 Ministry of Planning and International Cooperation, EDP 2018–2022).

to available agricultural production opportunities and encouraging agricultural projects in rural areas; iii) stimulating private-sector participation; iv) developing marketing plans to increase exports of agricultural products via new markets; v) empowering and encouraging Jordanian labour; vi) increasing the efficiency of water use in irrigation; vii) encouraging the cultivation of high-yield crops; and viii) reviewing the law and its mechanisms for governing cooperatives.

190. The Plan highlighted stable food security as an important pillar to foster economic growth. It identified the stability of food supply and free markets, with the required regulating mechanisms, as the two main drivers to ensure stability of food security. The plan considered the following priority areas to enhance internal food trade and supply sector: (1) Utilizing mechanisms to maintain market stability through market monitoring; (2) Promoting free market competition and regulating overpricing; (3) Protecting national production; (4) Maintaining a strategic reserve of essential commodities and improving self-sufficiency rates; (5) Reducing waste in the strategic reserve; (6) Protecting consumers; and (7) Strengthening existing market infrastructure and coordinating efforts to achieve and maintain food security. But it did not address threats such as deteriorating water quality, land fragmentation, desertification, climate change or water harvesting. These issues require long-term implementation plans and programmes, and Jordan should have initiated them long ago. The availability of funding is a persistent challenge to actual implementation of such plans.

191. Government projects covered several sectors like water, health, education, human resources development, energy, medium, small and micro projects, while investment projects cover agriculture, industry, transport and tourism. The impact of the EGP is not yet evident, but the success of the plan will help to make better balance between production and consumption (SDG 12), doubles the economic growth rate, and create job opportunities (SDG 8), help industry and promote innovation (SDG9), improve energy security and affordability (SDG7), and help to realize the objective of zero hunger (SDG2), and no poverty (SDG1).

192. Several of the strategies prepared during the last two decades have been updated twice or more but none of the updated strategies have been implemented. It is worth noting that many of the planned activities were inter-related with clear overlaps, but that some were duplicated. The proposed national system for strategic planning and coordination of the objectives of individual strategies and their implementation has never been implemented.

2. Sector strategies and policies

193. The following policies were examined for the purpose of this strategic review.

2.1 **Food security policies**

194. Decision-makers in Jordan have not in the past considered food security as an issue as important as unemployment, poverty, energy and the deficit in water resources. The definition of food security was a national security issue intended to decrease Jordan's dependence on external food sources. The Ministry of Agriculture has for decades been responsible for maintaining agricultural production at given levels. Food shortages were remedied by means of imports and national food reserves managed by Ministry of Industry and Trade, which is in charge of strategic reserves of wheat covering six months with provision for preparing shipments to cover two additional months. In January 2018 the ministry adopted its internal trade and supplies policy 2018–2022, which is intended to enhance the management and efficient delivery of supplies of food and other strategic items to the Jordanian market. Detailed action plans are being developed.

195. The Government has no specific food-security policy or strategy in place. The food-security strategy developed by UNDP, WFP and the Ministry of Agriculture in 2017 has not been endorsed by the Cabinet yet. The Ministry of Agriculture chairs the Higher Committee for Food Security, which is responsible for all projects concerned with food security.

196. This situation changed dramatically as a result of regional political instability in the last 15 years and the Syrian crisis, which caused a sudden increase in the population, damaged traditional trade, increased pressure on prices in various sectors including food, and amplified poverty and unemployment, thereby threatening food security in Jordan.

2.2 **Agriculture policies**

197. In February 2016, the Government endorsed the national strategy for agricultural development, 2016–2025, which specifies:

- An efficient and effective Ministry of Agriculture responsible for:
  - agricultural policy formulation and implementation;
  - answering to Parliament and citizens;
  - promoting long-term sustainable management for producing food; and
  - advanced infrastructure to support agriculture development.
- An internationally competitive private sector:
  - a highly competitive regional agriculture centre;
  - a stable and effective agriculture business environment; and
  - a conducive and supportive environment for business activities.
- A safe and coherent agriculture community with:
  - demonstrated trust in laws and compliance with regulations;
  - organized and coherent agricultural communities; and
  - provision of easy access by poor households to income-generating projects.
- committed and participating farmers, with
  - highly efficient plant and livestock health measures;
  - farmers and public employees with the skills to ensure success;
  - effective participation in the economy by farmers; and
  - Proper job and lucrative opportunity for workers in agriculture sector

2.3 **Fiscal policies**

198. Jordan implemented a reform programme in 2005 to reduce its budget deficit by eliminating subsidies, enhancing tax collection and managing public expenditure. The first step was to reduce fuel subsidies between 2005 and 2008 and subsequently eliminate them in 2012. In January 2018 the Government lifted subsidies on bread by setting a new price cap; Jordan's consumption of bread is about 7 million loaves per day, and about 33 percent of the bread produced goes to non-Jordanians. As an alternative measure, the Government announced the allocation of JOD 171 million, equivalent to USD 240.9 million, in the 2018 social safety net budget to compensate vulnerable households.

2.4 **Social protection**

199. Jordan is the only country in the region where the social protection floor concept has been adopted by the Government; this occurred in 2012.99 Subsequently, an advisory board was established to provide minimum income security and access to essential healthcare for people in need, particularly the most vulnerable groups.

200. National strategies such as Jordan 2025 Vision and the economic growth plan have included references and targets to support social protection and poverty alleviation, including:

- creation of a national council for development and poverty alleviation;
- development of a comprehensive national social policy, with a focus on social development and the enhancement of productivity;
- strengthening of capacities to implement poverty alleviation programmes;
- development of a clear understanding of the root causes and characteristics of poverty;
- restructuring of the National Aid Fund;
- assistance for the unemployed poor in integrating into the workforce;
- upgrading of the work skills of welfare workers; and
- increasing access to micro-finance services in poor communities.

201. The government and UNICEF are developing a national social-protection and poverty-reduction strategy to be launched by the first quarter of 2019. Updated vulnerability and poverty measurements based on household income and expenditure and demographic and health surveys for 2018 will be provided.

202. These are essential issues, particularly the second one – development of a comprehensive national social policy with a focus on social development and productivity enhancement – which is crucial for the future of the country. The development of the national social protection and poverty reduction strategy is a work in progress led by the Ministry of Social Development and UNICEF. There are other Ministries and agencies that participate, but their roles are not clear.

203. The main agency for social insurance is the Social Security Corporation (SSC). The relevant legislation has been amended three times in recent years to increase the coverage and efficiency of the social insurance system: every working entity in Jordan must now include its staff in the social security scheme. The current applicable law, enacted in 2014, covers:

- work injuries and physical disability;
- elderly people and deaths;
- unemployment;
- maternity and childbirth; and
- health insurance

204. By 2016 the total number of beneficiaries insured with SSC had reached 1.2 million, 88 percent of whom were Jordanians. There are currently 194,000 retired employees receiving monthly benefits from SSC. Average retirement benefits reached JOD 511 per person in 2017.100 The SSC law states that benefits and pensions may increase in line with annual inflation or the annual increase in average wages. The 2018 increase averaged JOD 6.0 per person for all retired

99 See: http://www.ilo.org/beirut/events/WCMS_EVT_DOC_EN_6/lang--en/index.htm

100 SSC annual report, 2016.

beneficiaries. According to the Economic and Social Commission for Western Asia most poor people in Jordan are working (ESCWA, 2012). Households in this group remain poor because wages are low and dependency ratios are high. The working poor are largely unsupported by social protection.

205. The national school meals programme has provided meals for schoolchildren in poor areas since 1999. As a result of budget cuts, however, it has had to be significantly reduced in the last ten years; by 2018 the reductions had amounted to 80 percent.

2.5 **Demographic policies**

206. The demographic opportunity policy document issued by the Higher Population Council in 2009 set out policies for: i) accelerating the demographic transition and achieving the demographic opportunity through investments in health, education and the social and economic situation of women; ii) gaining benefits from the demographic opportunity through labour market reform; iii) increasing economic transparency; iv) improving the investment environment and competitiveness; and v) strengthening social protection.

2.6 **Employment policies**

207. The 2011–2020 National Employment Strategy aims to improve Jordanians' standards of living through increased employment, wages and benefits, and productivity. Its integrated approach covers investment policies, fiscal and monetary policies, education and higher education, vocational training and social welfare. The National Employment Council (NEC) chaired by the Minister of Labour and composed of representatives of relevant government agencies meets monthly to follow up on progress made in implementing the action plan. These bodies report directly to the Jordanian Council of Ministers. Implementation of the strategy has not been effective, however, because minimal resources were allocated for some components, and follow up on implementation is weak (European Training Foundation, 2014). The strategy highlighted the need to promote women's participation in the labour market by expanding their employment options by eliminating obstacles, providing flexible options and suitable working environments, and reducing the wage gap between men and women employees – but the strategy has failed to reduce this rate substantially, achieving a shrinkage from 15.0 percent to 13.2 percent over seven years.

2.7 **Water policies**

208. The Ministry of Water and Irrigation is responsible for policies and strategies in the water sector, including wastewater. Developing and managing water resources is governed by several legal and policy documents: i) the Water Authority of Jordan law 18 of 1988 and its amendments; ii) the Jordan Valley Authority law 30 of 2001; and iii) the Ministry of Water and Irrigation law 54 of 1992. There are also health and environmental laws that contain clauses addressing water-related matters. Public Health law 47 of 2008 states that the Ministry of Health "... shall in coordination with the relevant authorities control the potable water, regardless of its source, in order to ensure its fitness from the health point of view". The Environment Protection law 52 of 2006 covers protection of the environment and its components, including water. The Ministry of the Environment has the responsibility of protecting the environment and its elements such as water, air and land in a sustainable manner.

209. Jordan's water strategy and policies were developed with a clear objective of promoting sustainable utilization of its scarce natural water resources. Improvement in Jordanian's quality of life is the ultimate development goal. The 2016–2025 National Water Strategy governs the development and sustainability of water resources, with a focus on building a resilient sector

based on a unified approach to develop a comprehensive social, economic and environmentally viable water sector. It promotes an integrated approach to the sustainable management of water resources and sanitation services and covers national water sector goals and approaches based on analysis of water supplies, sewage and sanitation services, water usage for agriculture, energy, industry and tourism. It covers cross-cutting issues such as gender, institutional reform, capacity development, disaster risk management and climate change adaptation. It recognizes that Jordan has "... to balance between drinking water needs and industrial and irrigation water requirements. Drinking water remains the most essential and the highest priority."

210. The rapidly increasing Jordanian and refugee populations strain limited resources of water and other necessities. By 2025 water demand is expected to exceed the available water resources by 12 percent, which will turn strategic planning of the water sector into crisis-driven planning. As a result Jordan is focusing on: i) improving efficiency in sourcing, distribution and conservation of available resources; ii) increasing the treatment of wastewater; and iii) developing "new water" from rain harvesting, increased storage, desalination and sharing of the Jordan and Yarmouk river water. The Ministry of Water and Irrigation is developing action plans related to water policies ref: this includes the drought governance policy, which aims to anticipate future shortages that might affect food and nutrition.

2.8 **Agriculture policies under Jordan 2025 Vision**

211. The Ministry of Agriculture is responsible for the development of the agriculture sector and the protection of agricultural land as stipulated in Agriculture law no.13 of 2015. It has, however, no role in the Jordan valley, where agricultural development is mandated by law no.18 of 1988 to the Ministry of Water and Irrigation. Some articles of this law prohibit fragmentation of farm units for any reason. Implementation of this law enabled the preservation of agricultural land in the Jordan Valley. Law no.30 of 2001 enabled the consolidation of farm units to a maximum size of 250 donum per owner by restricting sales of farm units to eligible current land owners. The objectives were to encourage investment in agriculture and to improve production efficiency. Implementation of Land Use law no.79 of 1966 had contributed to converting land from agricultural to non-agricultural use and fragmented ownership; byelaw no. 6 of 1996 contributed further to downsizing land ownership, especially in areas with annual rainfall above 250 mm.

212. The Government adopted various national strategies for agricultural development in 2016–2025 and several minor initiatives to: i) create an appropriate environment for private-sector participation in agriculture; ii) enhance farm and livestock production; iii) increase agricultural incomes; iv) integrate agriculture supply chains; and v) provide more support for small farmers by means of income-generation projects in rural areas to encourage agriculture. The national strategies for biodiversity, agricultural development, climate change and addressing desertification included social objectives to reduce rural-urban migration, increase women's contribution to agricultural development, rehabilitate farmers and agricultural workers and improve the health, education, social and living conditions of the rural population.

2.9 **Other related policies**

2.9.1 **The Aligned National Action Plan to Combat Desertification in Jordan 2025 (Ministry of the Environment)**

213. This plan responds to a major challenge to food security in Jordan with direct effects on food production capacity and people's livelihoods, especially in rural areas. It considers women as an integral part of the solution, and suggests gender-sensitive investments in improving the condition of degraded lands with a view to alleviating poverty, promoting food security and sustainability and enhancing the living conditions of women living in affected areas.

2.9.2 **Climate change strategy**

214. The National Climate Change Policy and its sector guidance framework were prepared by the (Ministry of the Environment, 2013).101 It covered various sectors affected by climate change and provided a framework for related adaptation and mitigation in various sectors. Special sections covered objectives related to: i) climate change mitigation and adaptation related to land use; ii) land use changes; iii) forestry; and iv) biodiversity. Other sectors relevant to agriculture and climate change include poverty and food security and the status of resources in Jordan.

3. Programme implementation

3.1 **Food security, agriculture, and nutrition**

215. Jordan has adopted many programmes to reduce undernutrition in recent decades, including school feeding programmes for students in underprivileged areas (Ministry of Health, 1999; Ministry of Education, 2003), nutrient supplements (Ministry of Health, 2003), iodized salt and fortified flour.

216. The school feeding programme was initiated in 1999 to cover primary school pupils in the most vulnerable and food-insecure areas. It started with 10,000 students in seven Ministry of Education directorates and now covers 350,000 students in 32 directorates, with support from WFP, which also provides school feeding for Syrian refugees in camps. The Department of School Health and Nutrition distributed iron and vitamin A tablets until 2005 in areas where deficiencies were reported. The strategies of the Ministry of Education in coordination with Ministry of Health include: i) supplements of six vitamins for schoolchildren in the 2000/03 academic year; the programme was discontinued in 2004/05 and replaced by the national flour fortification programme; and ii) supervision of food quality and hygiene in school canteens.

217. The Ministry of Education has recently initiated the "healthy kitchen" scheme in cooperation with the Royal-Health Awareness Society and WFP (Ministry of Education, 2018). The objective is to provide healthy and nutritious food alternatives for schoolchildren by linking schools to the kitchens of community-based organizations that provide healthy meals to surrounding schools. The 11 kitchens involved serve meals to 55,000 students in poor areas, create job opportunities for poor women and support local economies.

218. In 1993, when 37.8 percent of children were reported to have goitre, table salt was fortified with iodine to tackle iodine deficiency. Evaluation studies were carried out by Masa'd and Barham in 2010 and by FAO in 2015: in the 2010 evaluation of iodine status, goitre and iodine deficiency were no longer considered a public health problem because of the universal salt iodization strategy. The recommendation was to reduce the amount of potassium iodate added to flour from 50 mg to 20-30 mg/kg.

219. In 2002 the Ministry of Health initiated a flour fortification programme which involved adding

101 Ministry of the Environment, 2013. National Climate Change Policy. Amman.

iron and folic acid to the white flour used for baking bread by most of the population. In 2006 the programme was enlarged to include nine micronutrients – vitamins B1, B2, B3, B6, folic acid, B12 and zinc in addition to iron and folic acid. In 2010 vitamin D was added to bring the number of micronutrients to ten. The programme is still operational. A national survey in 2010 evaluated its impact, focusing on non-pregnant women aged 15–49 and children aged 12–59 months (Ministry of Health, 2011). It was found that there had been little reduction in anaemia rates among the women – anaemia was prevalent in 32.3 percent of women in 2002, and in 31.4 percent of women in 2010. There had been some decrease in anaemia among pre-school children, however – 20.2 percent in 2002 compared with 17.9 percent in 2010.

220. The 2010 study showed that: i) 60.3 percent of the women and 19.8 percent of the children had vitamin D deficiency; ii) 10.8 percent of the women had vitamin B12 deficiency at <200 pg/ml and 32.0 percent at 200-300 pg/ml; and iii) 13.6 percent had folic acid deficiency at <151 ng/ml. It is not easy to explain the low level of benefit from flour fortified with ten vitamins and minerals, so repetition of the study is crucial. The Ministry of Health, UNICEF and WFP are preparing a new micronutrient deficiency survey that should provide updated information about micronutrient deficiencies in different age groups and schoolchildren.

The Agricultural Resources Management Programmes

221. This is a long-tern government program for rangelands run by the Ministry of Agriculture, supported by loans and technical support from the International Fund for Agricultural Development. It started in 1996 and covers various regions in Jordan with a view to integrating resource management as the main approach for rural development. The overall goal is to reduce environmental degradation by introducing sustainable management practices. Its specific objectives are: i) to provide information on the current status of rangelands; ii) develop a national pastoral resources monitoring system for rangelands; and iii) introduce innovative technologies. The latter are intended (a) to enhance community participation and community action plans for planning, prioritization and decision making with regard to watershed management, (b) promote an integrated agro-ecosystem approach for sustainable land management, (c) rejuvenate old olive orchards for the first time to improve their productivity, (d) provide supplementary irrigation for rainfed olive trees to improve productivity and soil quality and (e) promote the re-use of grey water in agriculture.

Table 10. Agricultural Resources Management Programmes

Plant sector	
A: Irrigated Agriculture in the Jordan valley	
Objectives	Protect and improve land utilization, expand production of high-value crops, introduce modern technologies, develop phytosanitary systems, improve quality of inputs and products, protect water resources from pollution, and organize foreign labour
Programms	1. Protection of agriculture production and improving the utilization of agricultural land and water resources: 8 projects, duration 1-10 years. 2. Increased production of high-value crops: 3 projects, duration 1-10 years 3. Quality control of products and inputs: 7 projects, avg. duration 7 years 4. Reduction of losses and waste: 2 projects, duration 1-3 years 5. Establishment of medium/large private marketing companies: 4 years 6. Administrative and legislative measures: 10 projects

B: Irrigated agriculture in the Upland region	
Objectives	Protect and improve land utilization, expand production of high-value crops, introduce modern technologies, develop phytosanitary systems, improve quality of inputs and products, protect water resources from pollution
Programms	1. Protection of agricultural land resources and enhancing utilization: 10 projects, duration 1-10 years 2. Protection of water resources from pollution and salinization: 10 projects, duration 1 year 3. Expanding the use of modern technologies: 3 projects, duration 7-10 years 4. Development of phytosanitary regulations: 8 projects, duration 3-7 years 5. Quality control of inputs and product quality: 7 projects, duration 1-10 years
C: Livestock sector	
Sheep and goats	
Objectives	Protection of sheep and goats , improved breeding methods and development of health measures to improve productivity
Programmes	1. Protection of sheep and goats and improved productivity: 4 projects, duration 10 years 2. Improved breeding methods and increased productivity: 3 projects, duration 3-10 years 3. Development of health measures: 3 projects, duration 3-10 years 4. Legislative and administrative measures: 5 projects
Cattle	
Objectives	Improve the quality of products and inputs
Programms	1. Improve quality of products and inputs: 3 projects, duration 1-3 years 2. Legislative and administrative measures: 3 projects
Bees	
Objectives	Improved production and increased productivity, improved health measures and quality control for inputs and products
Programms	1. Improve production and increase productivity: 1 project, duration 10 years 2. Improved health measures: 1 project 3. Quality control for inputs and products: 3 projects, duration 1-3 years)
Fisheries	
Objectives	Increase local fish production, develop fish breeding methods, enhance the skills of farmers and fish producers
Programms	1. Increase local fish production: 1 project, duration 10 years 2. Improve research methods, develop fish breeding methods. 1 project, duration 10 years 3. Enhance skills of farmers and fish producers: 1 project, duration 10 years 4. Legislative and administrative measures: 2 projects

Marketing of animal products	
Objectives	Develop traceability of livestock products, improve competitiveness of livestock products, improve decision-making skills among producers and exporters, enhance Jordan's capability to export sheep
Programms	1. Develop traceability of livestock products: 1 project, duration 3 years 2. Improve competitiveness of livestock products: 2 projects, duration 3-10 years 3. Improve decision-making skills for producers and exporters: 1 project, duration 3 years
D: Water harvesting	
Water Harvesting	
Objectives	To increase use of water in agriculture and to enhance national capacities to store floodwater behind dams for later use in irrigation or as drinking water for animals.
Programmes	1. Integration of water harvesting with resource development. i) watershed runoff – increasing water deficits and increasing needs focused attention on the Badiah region, where 85 percent of runoff is lost to evaporation. The Ministry of Agriculture captures as much as possible and has built dams to provide drinking water for animals. A national programme supported by the Jordanian armed forces built 40 small earth dams as a first phase. The water will be used for animals and to improve plant cover. Private dams with 1.0 million m^3 storage capacity have been used by communities for many years. 2. On-farm water harvesting. Water needs in the next two decades will require the development of additional land in the dry region, because current resources will be inadequate. Investment in on-farm water harvesting is the only way of improving production.

Note: Watershed runoff for irrigation: fresh water resources are increasingly diverted from agriculture to meet growing domestic demands. Jordan's annual average water receipt is 8 billion m^3. To benefit from the resource dams were built in the eastern Jordan valley with a capacity of 320 m^3 to create water-related benefits. Stored water is a primary source of irrigation water.

3.2 **Social protection**

222. Jordanian law does not designate a single entity to coordinate social protection services, which are organized as follows: i) social assistance, which includes cash and/or in-kind support for vulnerable individuals or households; ii) social insurance, which includes all actions to mitigate the risks associated with unemployment, illness, disability, work-related injury and old age; iii) the fiscal subsidy system; iv) labour market interventions, which includes policies to promote employment, enhancement of incomes and protection of workers' and v) food security enhancement and nutrition programmes.

Table 11. Social protection schemes and actors

Social assistance	Government, NGOs, private sector
Social insurance	Government
Labour market interventions	Government, labour unions
Fiscal subsidy system	Government
Food security and nutrition programmes	Government, NGOs

223. Social assistance programmes are led by the Ministry of Social Development and the National Aid Fund, with support from several NGOs. Direct social assistance programmes are led by the Ministry of Social Development and the National Aid Fund. The Ministry of Social Development provides services to: i) poor individuals and households; ii) homeless people; iii) vulnerable young people; iv) physically or mentally challenged people; v) orphans; vi) abused women and children vii) victims of human trafficking; and viii) elderly people.

224. Ministry of Social Development assistance is provided through care centres distributed round the country. Some are managed by the Ministry of Social Development but most are managed by private-sector agencies and NGOs. Direct social assistance includes: i) provision of shelter and food; ii) rehabilitation and training for social service beneficiaries; and iii) licensing social services provided by private-sector agencies and NGOs and monitoring their performance. Indirect services include housing for the poor, health insurance in cooperation with the Ministry of Health and income-generation projects for vulnerable people. The Ministry of Social Development finances 4,000 poor and vulnerable households with a view to establishing income-generating projects for women and men.

3.2.1 The National Aid Fund

225. This was established in 1986 as an autonomous institution under the auspices of the Ministry of Social Development. It assists vulnerable groups with: i) recurrent cash assistance; ii) temporary cash assistance; iii) instant cash assistance; and iv) physical rehabilitation assistance. These schemes supported 92,000 families in 2017, 5 percent of Jordan's population. The National Aid Fund has recently improved targeting of poverty by, for example, introducing an asset ownership test, verification of eligibility information and re-certification of beneficiaries, which have resulted in the removal of 33,000 families from the beneficiary list since 2014. The efficiency gains helped to cover 37,000 new families in the same period. According to the DOS only 14 percent of food-insecure people and households vulnerable to food insecurity receive cash or in-kind assistance through the fund.

226. A World Bank assessment in June 2018102concluded that the effect of the National Aid Fund on poverty reduction would be enhanced by expanding programme coverage to double the number of recipients, and that improvements were needed in: i) communications and outreach; ii) beneficiary eligibility; iv) graduation; v) benefit calculations and payment systems; vi) grievance and redress mechanisms; vii) management information systems; viii) monitoring and evaluation; and ix) human resource development. An expansion and improvement plan prepared jointly by the National Aid Fund and the World Bank set the conditions for a series of soft loans by the World Bank to the Government: this should enable the fund to add 85,000 new households between 2019 and 2021. The improved targeting mechanism will increase the effects of the fund, which is expected to cost JOD 100 million.103

227. Analysis by the World Bank has shown that the poverty-reduction gain from improved targeting is small with the current National Aid Fund budget, but large if the budget were to be increased. A budget of JOD 210 million and enhanced targeting could reduce poverty by 35 percent.

3.2.2 Food security stakeholders

228. Public, private, regional and international organizations and NGOs are involved, directly or indirectly, with food security issues in Jordan. Some are directly involved with food production, food assistance, disease control and prevention, diet and nutrition, and technical and policy

102 The World Bank. 2018. Jordan First Equitable Growth and Job Creation Programmatic Development Policy Financing (P166360). Amman.

103 Petra News Agency, 20 May 2018: briefing on Cabinet decisions.

support. Others provide assistance or have a regulatory role as stipulated in their mandates, or provide funding for food production or assistance during emergencies.

229. Over the past two decades the Jordanian civil society sector has grown significantly and has assumed roles in areas related to socio-economic challenges. In 2018 there were 5,995 NGOs, of which 147 were women's organizations and 15 were farmers' unions.17 Most NGOs are involved in socio-economic development activities for specific groups or in limited areas because they lack adequate financial and technical capabilities. A few major NGOs chaired by Royal Family members have been able to grow and operate at the national level. The stakeholders in Jordan can be classified as government agencies, NGOs, regional organizations and international organizations. Figure 17 shows the major NGOs in Jordan active in areas related to food security[104] .

Table 12. NGOs and other support organizations in Jordan

NGOs	Food security focus
Noor Al Hussein Foundation	Food utilization, health and nutritional status
Tkiyet Um Ali	Food access, utilization, health and nutritional status
Jordan River Foundation	Food availability and access
Alliance Against Hunger and Malnutrition	Food utilization, health and nutritional status
Ahli Microfinance Company, private sector	Food access
Micro Fund for Women	Food access
The Royal Society for the Conservation of Nature	Food availability
Jordan Badiah Research and Development Programme	Food availability
Zakat fund	Food access
Jordanian Hashemite Fund for Human Development	Food access
Jordan Hashemite Charity Organization	Food access
The Jordanian Society for the Desertification Control and Badiah Development	Food availability
Jordan Hashemite Charity Organization	Food access
Regional organizations	
Near East Foundation	Food access
Kuwait Fund for Arab Economic Development	Food access
Arab Forum for Environment and Development	,Food utilization
Arab Authority for Agricultural Investment and Development	Food availability, food sustainability
International Center for Agricultural Research in the Dry Area	Food availability, food sustainability
International organizations	
UNDP	Sustainability
FAO	Sustainability
WFP	Availability and sustainability
World Bank	Availability and sustainability, food access
UNICEF	Food availability and health

104 See the UNICEF mapping report of non-contributory social protection programmes in the region in 2017 for more information.

United States Department of Agriculture	Sustainability
CARE International	Food access
International Labour Organization	Food access
International Islamic Charity Foundation	Food access
International Islamic Relief Organization	Food access
The Japan International Cooperation Agency	Sustainability
GIZ	Sustainability
USAID	Sustainability

3.2.3 **Programmes to improve gender equality**

230. Most Jordanian women workers come from poor households, so many national and international organizations support women and marginalized groups to build their capacities in food production. NGOs such as the Noor Al-Hussein Foundation, the Queen Alia Fund for Social Development, the General Federation of Jordanian Women, the Business and Professional Women's Club, the National Assistance Fund and the National Employment Fund provide training and income-generating projects for and make loans to enhance their economic independence and participation. International NGOs such as GIZ and the USAID Jordan Local Enterprise Support Project provide capacity-building programmes and support women by providing credit, access to loan facilities and technical assistance to help women to establish paid food-processing projects.

231. Institutions such as the International Fund for Agricultural Development provide loans for upgrading production of livestock, poultry, milk and meat. The Agricultural Credit Corporation, a fully owned government institution, offers a rural families credit programme for rural women heads of household: this aims to improve living standards and motivate women to diversify the sources of family incomes. It provides average of JOD 1,821 in annual income per family. It collaborates with the International Fund for Agricultural Development in the income source diversification project, which operates in coordination with the Ministry of Agriculture to provide financing for small farmers on low incomes to improve their living standards and motivate women to diversify the sources of family income. The loans finance sheep fattening, garden construction, agricultural protected reserves, feed manufacture and agricultural manufacturing.

4. Financial and non-financial resources for SDG 2

232. It is important when scoping social protection sources to note that social protection budget allocations from the national budget have increased in the last three years from JOD 1.47 billion in 2016 to JOD 1.76 billion in 2018. There were, however, only minimal increases in capital expenditure from JOD 14.0 million to JOD 16.0 million in the same period. The increased social protection budget included a new item to support the poorest groups following the removal of bread subsidies and tax increase on some basic commodities.

233. According to a voluntary report on sustainable development, the main challenge faced by public institutions and NGOs was the effect of the Syria crisis on achieving the SDGs. Every effort has been made to address this challenge, but it remains a major threat to development gains and future achievements. The report considered financing for development as a major challenge to achieving the Millennium Development Goals in view of the decrease in national revenues, increasing budget requirements, increased external and internal public debt and a decline in capital expenditures. All these factors threaten the attainment of the SDGs.

234. The European Union provided Euro 20 million in June 2018 to support social protection reform and improve the quality of services delivered to the most disadvantaged citizens. Financial assistance and capacity-building will be provided for several civil-society organizations and charities with a focus on the empowerment of women, young people and people with disabilities.

5. Institutional Arrangements and Governance

5.1 Food security stakeholders

5.1.1 Governance, coordination mechanisms and institutional arrangements for food security in Jordan

235. Strategic planning in Jordan incorporates a range of sectors and domains, but poor coordination constrains implementation of the plans. Governance of food security is one of the more complex issues: establishing and maintaining a sustainable food-security system is a multi-dimensional challenge in that the current distribution of tasks and responsibilities is dispersed among public actors, civil society organizations and private sector entities.

236. Despite the increasing food security challenge, national strategies and policies still do not focus adequately on food security, which is limited to its agricultural dimensions with limited cross-sector coordination and limited reliance on evidence and data.

237. With regard to food safety, the ministries of health, agriculture, industry and trade and the Jordan Institute for Standards and Metrology (JISM) are responsible for supervising and preparing food-quality laboratories and accrediting them in compliance with international standards. The Ministry of Agriculture analyses pesticide residues in food, controls imported agricultural and animal products, implements animal health and sanitary measures and applies quarantine and veterinary regulations. The JISM sets standards for commodities and food products and applies the relevant quality assurance

238. The Ministry of Health is responsible for the implementation of technical rules and health measures related to locally produced and imported food and for food conformity assessment procedures to meet technical standards. The General Establishment for Food and Drugs, an independent legal personality with financial and administrative powers, ensures food safety, quality and suitability for human consumption at all stages of circulation and ensures the safety, effectiveness and quality of drugs and other medical products.

239. With regard to food availability and food imports, Jordan has a free-trade policy: there are no non-tariff restrictions on foods other than those provided for human and animal health measures and legislation related to food control and quality. The import and export of foods is hence subject to demand and supply dynamics.

240. The Directorate of Market Surveillance and Supply is responsible for ensuring adherence to industry and trade law, specifically the control of the basic and essential goods market. The policy of the ministry is to incentivize the private sector in the administration of local markets in line with the organizational and controlling roles for the ministry to guarantee the availability of strategic stocks of basic goods sufficient for consumption in all of Jordan’s governorates.

241. In spite of its strategic importance, food processing in Jordan is regarded as part of the manufacturing sector and is organized by the laws and articles governing other industrial and manufacturing sectors. In 2018 there were 2,258 establishments working in food processing and manufacturing, compared with 1,700 in 2011.

242. The Ministry of Planning and International Cooperation and the Ministry of Social Development work on access to food and affordability. The Ministry of Planning and International Cooperation seeks to enhance economic growth in specific locations to reduce poverty and unemployment. The mandate of the Ministry of Social Development is to provide comprehensive social security, enhance productivity among vulnerable groups and coordinate social services for all citizens at all stages of life. The Ministry of Labour is responsible for organizing the labour market with a view to providing employment and employment opportunities for Jordanians in and outside the country in cooperation with the relevant competent authorities. In line with policies for providing food for the most vulnerable areas and population groups, the Government identifies pockets of poverty for priority development efforts.

5.1.2 **NGOs**

243. NGOs implement activities related to rural development, income generation, food production and livelihood support, targeting poor rural households. There are several well established NGOs that are involved in environmental management, nature conservation and combating desertification. They are recognized as effective organizations, and their activities are appreciated at the government and public levels. They collaborate with governmental institutions in implementing programmes, participate in various committees and have a major role in educating communities and conducting awareness-raising campaigns. Some well established NGOs are mandated with specific issues such as combating degradation, controlling environmental pollution and conserving the natural environment.

244. Community participation in resource management under the Jordan Cooperative Corporation involves 238 agricultural cooperatives, of which 20 are rangeland cooperatives with grazing reserves. The agricultural cooperatives are involved in conservation and development of their land resources.

5.1.3 **The Role of Private-Sector Entities**

245. The role of the private sector in food security is related to resource management in various agriculture sub-sectors. Private-sector investment in rainfed agriculture is low and is restricted to building and operating olive oil presses. Its investments are more evident in irrigated and rain-based agriculture: they cover inputs such as imported fruit tree seedlings, fertilizers, insecticides, new vegetable varieties, plastic houses and tunnels for the production of vegetables and carnations, and modern irrigation systems. An important example of recent private-sector investment is support for date palm orchards in the Jordan valley. With regard to exports, private-sector involvement is restricted to the export of vegetables, and recently fruit from newly established orchards. The bulk of vegetable exports is to regional markets.

246. The role of the private sector in irrigated areas and the Upland region includes the establishment of orchards producing export-quality fruit, imports of modern olive oil presses and packing olive oil for export to many countries including the United States of America. The production of carnations for export is supported by private-sector investments. There is no private-sector contribution to the development and management of rangelands.

247. The vital question in a situation of declining public funds and a challenging future is to identify the areas of the agriculture sector that could attract private-sector funding. Examples include: i) poultry production; ii) post-harvest management; iii) food processing; iv) the production of hybrid vegetable seeds; v) the production of virus-free seedlings using tissue culture; vi) modernization of technologies for irrigation; vii) the testing of new crops for protected agriculture; and viii) research into biotechnology. The private sector must be incentivized and accorded top priority by the Government.

5.1.4 **Research institutions**

248. Jordan has no coordinated national research system with a clear mandate and objectives supporting national developmental goals. Most research is carried out in individual facilities, staffing is fragmented and there are no coordinated long-term objectives or programme outputs. Research rarely reaches the development stage as a result of funding challenges. There is little coordination among research institutions, which means that experience is not shared and the available national expertise is not fully utilized. Some development authorities have shown little interest in the benefits that research offers: this has caused a divide between research and development agencies.

249. Research funding from external sources tends to focus on short-term activities, and hence the continuity of research to the final stages cannot be assured. There is, however, a national institution for research and extension that operates according to the objectives of the National Strategy for Agricultural Research and Transfer of Technology, which prioritizes the balance between improving productivity and protecting the environment. Its research programmes focus on: i) the introduction of new crop varieties suitable for high-salinity and drought-resistant crops; ii) improvements in the efficiency of water use; iii) the utilization of marginal water sources; and iv) the improvement of resource productivity.

III. GAPS IN THE FOOD SECURITY AND NUTRITION RESPONSE

1. Challenges and threats to SDG 2

250. This section summarizes the inter-related challenges to the achievement of SDG 2 targets by 2030.

1.1 Limited natural resources and environmental vulnerability

251. Jordan suffers from severe water shortages that limit the potential of irrigated agriculture. Urgent improvements are needed in water use and extraction for agriculture, industry and domestic use. Water availability is likely to worsen because of climate change, which is likely to involve reduced rainfall, more heat waves, higher air temperatures and fewer frosty days (Department of Meteorology, 2013). Climate variability and drought are likely to further degrade vegetation cover. Excessive water pumping, which is often illegal, reduces water and causes the salinization of ground water, accelerated degradation of soils and desertification of cultivated land. Treated wastewater provides significant opportunities to fill the water availability gap, but it raises quality concerns and exposes cultivated land to additional risks. Jordan's 2025 water strategy provides an action plan to tackle water shortages.

1.2 Water utilization

252. Future food production in Jordan is becoming increasingly dependent on the availability and efficient use of water resources. Development of new land resources depends to a great extent on the availability of additional water resources. Food production may be compromised as a result of the shrinking amount of rain-fed farming land.

253. The priority is domestic needs. The increase in population and industrial activities increases the withdrawal of fresh water from agriculture production. In the 1970s, 78 percent of Jordan's water resources were used for irrigation; the share was reduced to 64 percent in 2000, (El-Nasser, 2002) and to 56 percent in 2015 (Ministry of Water and Irrigation, 2016);of this, 11 percent was treated wastewater. The issue of water security is being addressed by: i) improving efficiency in the sourcing, distribution and conservation of available resources; ii) increasing wastewater treatment; and iii) developing "new water" through rain harvesting, increased storage, desalination and sharing of the Jordan and Yarmouk river water.

1.3 Rainfall variability

254. Analyses of rainfall records in different climatic regions indicated large variations in annual rainfall (Haddidi and Taimeh, 1996) and indicated five-year cycles of dry years followed by a wet year.

255. Reduced precipitation is evident in the high-rainfall regions of the upland region (Taimeh, 1999) over the last 30 years there has been a 20-25 percent reduction in average annual rainfall and an increase in the number of days of low rainfall (Department of Meteorology, 2013). The Inter-Governmental Panel on Climate Change expects a further 25 percent reduction in rainfall in the next 50 years with increased variability in crop yields.

1.4 Land degradation

256. Land degradation in Jordan has several triggers, which vary according to land use such as rain-fed farming and irrigated or rangeland systems. It has direct effects on the productivity of land resources and consequently on food security. In Jordan irrigated farming provides more food than other farming sectors. The future impact on the farming sector will be a great concern if land degradation is not halted or reduced.

1.5 Drought

257. Drought causes degradation by affecting the vegetation cover, and climate change governs land utilization. Significant environmental risks are incurred as a result of incorrect planning of land use, poor legislation, improper cultivation practices, overgrazing, deforestation, land-clearances, cultivation of marginal lands and poor soils, inefficient irrigation and the use of poor quality water in irrigation. Lack of sustainable policies, resource mismanagement and improper land allocations exacerbate the effects of drought.

1.6 Land use

258. Land resources in Jordan suffer from problems such as the environmental impacts of water shortages, climate change, rapid fragmentation and degradation. The system of fragmented land parcels has significant implications for the economic output of farms. The increasing number of land parcels may lead to severe land degradation and inflate the land market, especially near cities surrounded by highly productive land.

1.7 Urbanization

259. Urbanization in Jordan is attributed to social, economic and environmental pressure. Migration from rural to urban areas is caused by accelerated loss of agricultural land, low farm incomes and better living conditions in cities. In many cases cities and towns lie in areas with the best agricultural land, and migration from rural areas leads to neglect of already cultivated land. The anticipated intrusion of urban areas into agricultural land and the deterioration of productivity in rural areas have clear implications on food production. As a matter of fact, it should be considered among the most important driver directly affecting food security in Jordan, not only now, but also in the future, because, in many cases, it creates irreversible situation, if it is left unchallenged..

260. An obvious effect of urbanization is the creation of a large number of urban centres with consequent inflation of land prices. This has motivated people to sell land and indirectly encouraged many to leave the agriculture sector to seek other work. Failure to integrate regional land-use planning has contributed to the random expansion of urban centers on agricultural land. Lack of suitable soil mapping has impeded planners to establish a multi-functional database to support analyses and decision-making and support regional land-use planning.

261. Poor enforcement and deficient legislation have contributed to increased urbanization and also resulted in the loss of 33 percent of productive land to other sectors. Housing regulations have, for many years, encouraged horizontal expansion of housing by prohibiting the building of residential buildings of more than three floors. Such legislation does not support the wise use of land resources and is directly responsible for the continuous random encroachment of urban centres on productive land, which will aggravate environmental pressures.

1.8 Population distribution

262. Population growth and urbanization significantly affect food security, environmental pressures and socio-economic conditions for a fast-growing population, of whom 30 percent are not Jordanian. Most of the population is concentrated in the governorates of Amman, Irbid and Zarqa, with the highest density in Irbid; these are followed by Jarash, Ajlune and Balqa governorates. This distribution has had major effects on food production because these governorates are the main agricultural production governorates. The Higher Population Council projection suggested that the population will increase disproportionately, with zero or very slight increase in the rural population: this could be attributed to sustained migration from rural to urban areas.

263. The overall forecast is that the population will vary from a low scenario of 11.6 million to a high scenario of 15.0 million by 2030. Amman governorate is expected to account for 38.7 percent of the population in 2030, Irbid for 17.8 percent and Mafraq for 4.7 percent; Balqa and Mafraq governorates will show relatively little growth (DOS, 2015).

264. According to the overall population forecast, the population will vary from 11.6million in the low scenario to 14.97 million in the high scenario. Most populated governorates in 2050 will be Amman, Zarqa, and Irbid governorates, while Balqa and Mafraq governorates will show relatively little growth. The projection, according to low scenario, Amman, and Irbid, will harbour the highest urban population, in 2030. The population of Amman governorate will account about 36.3 percent of the total population, Irbid 18.78 percent and Mafraq 5.8 percent).

1.9 Agricultural Land

265. Agricultural land in Jordan is limited and continues to shrink as a result of urban expansion into the most productive land. The land available for agriculture suffers from fragmentation, degradation, inappropriate land use planning, unsuitable cultivation, overgrazing, deforestation, land-clearances and unsound irrigation practices. The framework for managing Jordan's land resources is limited and ineffective.

266. The total area of arable land decreased by 32.5 percent between 1975 and 2007, with a significant reduction in the areas occupied by field and vegetable crops and a significant increase in areas cultivated with fruit trees. Rainfed areas declined by 40 percent, whereas irrigated areas increased by 129 percent.

1.10 Land fragmentation

267. Holdings of land with an area of less than 10 donum accounted for 47 percent of total land holdings in the high rainfall region, which receives more than 500 mm annually. This reflects the extent of land fragmentation in the most productive areas in Jordan. A major concern is the reduction of agricultural land in Irbid governorate, which has the largest cultivated area

2. Conclusions

2.1 Population growth and urbanization

268. The rural population has been decreasing for many years. Under current conditions migration to urban centres is expected to continue but at a lower rate, which might be attributed to government efforts to increase parity between major centres and remote areas.

269. The number of cities and municipalities and the areas within their borders are growing without constraint. The random location of urban centres will pose the greatest threat to future availability of agricultural land in the rainfed areas. Environmental threats will intensify as a result of climate change and the economic effects of higher rates of land fragmentation.

270. The concentration of population in three governorates raises serious concerns about job availability and equitable future development in other governorates. The effects on land resources, increasing environmental pressure and human health should be of great concern.

271. Livelihoods could be improved and migration to urban areas halted if rural populations, particularly women, were empowered and invigorated to develop agriculture and other income-generating activities as a priority in a holistic development approach.

2.2 **Implications of population growth and urbanization**

272. Increasing population and the growing number of cities are major drivers of the ongoing loss of productive land and increasing demand for food. The effects on food availability and the sustainability of food supplies translated into increased food imports. The gap between exports and imports is widening in spite of the increase in exported foods resulting from increasing production of vegetables, dairy products and live animals.

273. Increasing population and urbanization are coupled with the recent increase in the number of cities and municipalities. Regulated areas for these centres will pose the greatest threats to the future availability of land, which is the main productive base in the rainfed areas. Losses of land resources will add a new environmental threat in the near future, because a substantial amount of treated wastewater will be used to compensate for water deficits in the agriculture sector. Land losses or fragmentation associated with increasing demand for housing near urban centres will make it harder to use treated wastewater for irrigation.

274. The concentration of population centres in three governorates raises serious concerns about job availability, impartiality of future developmental programmes, the availability of land and increasing environmental pressures.

2.3 **Refugee and migrant movements**

275. The major growth in the number of people residing in Jordan poses significant challenges to the achievement of SDG 2. It increases demand for food and related services at a time when national capacities and resources are stretched and programmes and systems continue to cater for a smaller population. Population growth, partly driven by refugees from Iraq, Syria and Palestine and migrant workers from Egypt, exerts pressure on the environment, the economy and national systems. It is accompanied by migration from rural to urban areas and random settlement in cities, often in pockets of poverty, to the detriment of arable land. The concentration of population in three governorates raises concerns about job availability and development in other governorates.

2.4 Stagnating poverty reduction, high unemployment and cost of living

276. Official data on the prevalence of poverty have not been updated in eight years, but a 2018 survey is likely to be released soon. The available data show that poverty reduction has stagnated and that transient poverty is a real threat to the well-being of many Jordanians. The high cost of living, with Amman among the most expensive cities in the region, coupled with high unemployment among women and young people, raise questions about the ability of Jordanians to access sufficient nutritious food. Jordan has adopted measures to include young people and women in its economic development, but challenges persist. Development needs to focus on the entire territory to relieve pressure on the large cities. There have been substantive programmes to strengthen the social-protection system and social assistance in particular, but their sustainability is questionable, especially in the light of limited financial resources and increasing population.

2.5 **Increasing overweight, obesity and micronutrient deficiencies**

277. Jordan's nutrition transition is characterized by increasing overweight and obesity coupled with high levels of micronutrient deficiencies. Similar patterns have been observed in other countries undergoing economic development. Urgent measures are required to analyse, con-

tain and reduce this trend and its health and economic costs. Schoolchildren and teenagers are particularly vulnerable: schools are an appropriate platform for influencing behaviour and increasing knowledge about sound nutrition. Wasting and stunting are at low levels, but there is evidence that progress can be rapidly reversed. Additional investments are needed, especially with regard to infant and young child feeding practices.

278. To address these challenges a micronutrient deficiency survey is needed to target children from birth to age 5, children aged 6–12 and women aged 15–49 and collect evidence as to their specific needs and support the planning of response actions and programmes. A systematic infant and child feeding programme is a critical need to respond to family needs and reduce knowledge gaps at the community level.

2.6 **Balancing domestic food production, exports and imports**

279. Jordan relies on imports for its food requirements, but the gap between exports and imports is increasing. Self-sufficiency in all foods is not a goal in itself and is in any case unrealistic and probably undesirable in view of Jordan's resource constraints. It is nonetheless important to establish a balance between exports and imports and to introduce measures to reduce vulnerability to international price fluctuations. Domestic food production has great potential and could support other socio-economic and poverty-reduction programmes. There is a need to enhance domestic food production by cultivating water-efficient, drought-resistant high-value-added crops, which could also help to increase exports and foreign currency reserves.

3. Gaps in legal, policy and programme frameworks

280. This section summarizes response gaps that have to be addressed to achieve SDG 2 and the 2030 targets.

3.1 **Demographic policies**

281. To mitigate the effects of rapid population growth, demographic policies should focus on the engagement of disadvantaged people, young people, women and the poor to ensure that economic benefits access to social services are equitably shared. Unemployment policies and economic planning should be based on population issues. The current level of coordination and cooperation is limited.

282. Unplanned population growth has increasing effects on the Government's ability to guarantee equitable distribution of land, economic activities, employment, education and health services. Increased immigration to urban areas is still unaddressed by population strategies, several of which seek to mitigate the effects of unplanned growth but with little effect. The drafting and implementation of development plans should be based on reliable statistical data. Recent demographic change includes a decline in reproduction rates and consequently a significant decline in the proportion of young people and an increase in the proportion of people of reproductive age: this and decreasing dependency rates are indicators of the demographic opportunity. Appropriate policies must be developed to maximize the positive effects of the increase in population and to utilize productive human resources to increasing the rate of economic growth

3.2 **Data availability**

283. This is an issue across the board. Population projections, censuses and household surveys are the main sources of statistical data that constitute the basis for planning and policy-making in the economic, social, health and educational fields. Such surveys are not regularly carried out and hence constitute missed opportunities to enhance evidence-based policies and programmes.

3.3 **Agriculture**

284. A number of gaps are evident in this sector

- Even where legislation is in place it is often not enforced, and lack of legislation and clear policies is a constraint. Reforms to halt land conversion to urban areas have been proposed but not effectively implemented, and in 2006 the Government adopted a byelaw that accelerated urbanization. The 2009 document prepared by the Ministry of Agriculture called for amendments to legislation to protect land resources from misuse.
- There is a lack of comprehensive policies and strategic planning governing the use and protection of resources, and insufficient private-sector participation.
- Interventions do not focus adequately on root causes.
- Institutional coordination among government agencies and other stakeholders is lacking; this is exacerbated by unclear or even contradictory ministerial mandates.
- There is little support for improving the quality and competitiveness national products as imports increase.
- When Jordan joined the World Trade Organization, market liberalization introduced strong competition between local and imported products; but although the new regulations opened new export opportunities the increasing competition between local and imported products remains fierce and unfair.
- Development projects are clearly failing to reach established goals: lack of sound planning and execution at the sector level and lack of funding are among reasons for this.
- The absence of a sound food-security policy with clear objectives and components integrated with other development goals hinders the development of a comprehensive and systematic approach to achieving SDG 2 by 2030. Such a policy should include specific indicators and strong monitoring and reporting systems.
- Jordan has a strong social-protection system, but several gaps exist such as: lack of concurrence between social protection and fiscal reform; implementation is poor because it is divided among different stakeholders who are insufficiently coordinated; NGOs are hampered by lack of capacity and financial resources; and financial resources for various programmes are irregular or unavailable.

IV. RECOMMENDATIONS TO IMPROVE FOOD SECURITY AND NUTRITION

1. General recommendations

A set of recommendations based on previous analyses was designed to accelerate progress towards SDG 2. Clear government commitment is needed to implement the proposed recommendations. An integrated multi-disciplinary and participatory approach should be adopted to devise and implement specific action plans.

1.1 Recommendation 1: Strengthen the institutional set-up and the management of food-security and development plans.

- Establish clear legislative and regulatory procedures and maximize institutional coordination and programming for achieving SDG 2 by 2030.
- Identify, institutionalize and integrate the role of the private sector and public-private partnerships in all activities.
- Plan sound EDPs and food-security programmes and follow them up during implementation; enhance inter-governmental coordination to ensure successful implementation.
- Establish institutional arrangements to ensure that all stakeholders participate in the design and implementation of programmes with a view to optimizing synergies to reduce costs and time.
- Provide financial resources for timely, sustainable and effective implementation of programmes in coordination with regional and international organizations; increase collaboration with South-South and triangular partners to share knowledge and technology.
- Strengthen the institutional set-up and promote awareness workshops for public servants and the public on issues of food security, nutrition and social protection.

1.2 Recommendation 2: Strengthen poverty-reduction measures.

- Raise incomes and reduce poverty horizontally and vertically as an essential basis for achieving SDG 1 and SDG 2. This could be achieved by:
    - developing a long-term plan to industrialize the economy, enhance growth and provide employment for all under SDG 8; provide appropriate infrastructures, inspection mechanisms and facilities to ensure high food quality, and organize export markets for the export of high-value products;
    - updating the *Poverty Pockets Atlas* and develop poverty-reduction projects adapted to industry, agriculture and services in every pocket, working jointly with NGOs, cooperatives, the private sector and the Government;
    - developing a plan to promote local products that could compete with imported goods, especially for goods that can be easily produced in small communities; each USD 30,000 worth of imported goods can create one local job opportunity; and
    - promote urban and domestic farming using simple modern technologies; given the large number of houses in Jordan domestic and urban farming could support micronutrient consumption, increase nutrition knowledge and increase the incomes of poor households.

1.3 Recommendation 3: Develop a comprehensive, action-oriented food security plan.

- Develop a holistic, inclusive national food-security action plan for implementation by all stakeholders to achieve SDG 2. It should focus on food source diversification to mitigate supply disruptions, increased local production to provide food stocks for times of disruption, and price and supply stabilization to prevent temporary shortages.
- Revise the standards of food-safety, research and development to boost productivity and improve packaging and post-harvest management facilities to prolong shelf life, product quality and export potential; reduce food losses, especially post-harvest losses, encourage coordination among agencies in policy formulation and the implementation of food-security measures.
- Plan for food security risks, improve communication on risks related to food safety, enhance coordination among food-assistance programmes, monitor global markets for price and supply changes, and integrate climate, water and energy challenges.

1.4 Recommendation 4: Enhance the evidence base.

- National research systems should support food security and development objectives.
- Research should focus on issues relevant to food quality and safety, micronutrient deficiencies, land degradation, climate change, post-harvest management and conservation of biodiversity,
- Adopt innovative food-production technologies, use biotechnology to introduce new products and intensify production, and increase public awareness of issues related to hunger and food security in Jordan.

1.5 Recommendation 5: Strengthen social inclusion policies and assistance programmes.

- In social inclusion policies, maximize the potential of population growth and reduce its risks, and utilize productive human resources to drive economic growth and increase savings and investments.
- Enhance access to finance, particularly micro-finance, for vulnerable individuals and households, strengthen the participation of NGOs in the delivery of social services and social-protection programmes to minimize costs.
- Strengthen monitoring and evaluation and targeting systems to ensure full delivery of social programmes, enhance targeting and eligibility criteria for the National Assistance Fund, the Zakat fund and national community-support programmes to increase their coverage.

1.6 Recommendation 6: Gender

- Implement strategies to encourage home-based employment among women.
- Establish measures to remove barriers that impede women's access to formal employment, reconsider gender gaps in pay levels and provide cost-effective public transport and nurseries in workplaces.
- Launch a national programme to promote women's engagement in the agriculture sector, particularly in rural areas: this should include training and facilitated access to land and credit services.

1.7 Recommendation 7: Develop a mid-term strategy to manage the Syrian refugee crisis.

- The crisis affects many sectors from food security to daily services. The solution to the crisis is not clear yet and the return of Syrian refugees is uncertain. Establish a clear strategy for short-term and mid-term activities targeting Syrian refugees in Jordan: this should include regulation of informal activities, allocation of labour permits, integration of skilled individuals into sectors where labour is needed such as development programmes, encouraging settlement away from cities and investing in local economies.

2. Sector-level recommendations

The following sector-specific recommendations are designed to enhance progress toward SDG 2 targets by 2030.

2.1 Agricultural productivity, sustainable agriculture and food supply

- Develop a new approach to rural development that focuses on farm and non-farm activities, improves community resilience to natural disasters and climate change, enhances women's economic participation and strengthens agro-processing to create jobs and support livelihoods.
- Provide financial support, social-protection measures, community health and sanitation services in rural communities on the basis of precise targeting.
- Provide incentives to encourage crop diversification and integrate water-saving technologies with a focus on high-value products to improve agricultural productivity and enhance export potential.
- Establish a national monitoring system to assess the livelihoods of vulnerable groups during emergencies, food price fluctuations, food quality and safety, environmental disasters and environmental threats.
- Develop integrated land-use plans to guide development according to local needs with a view to ensuring equitable distribution of development benefits and minimize competition for resources.

2.2. Improved farming practices and management

- Modernization of agriculture. Invest in the modernization of the agricultural sector to maximize food and water security: invest in research and innovative technology, climate-smart agriculture and improved food value chains to reduce food losses and waste.
- Farming of small land ownerships. Assess and introduce innovative farming practices using modern practices designed to produce high-value crops with pharmaceutical value as a means to enhance rural development.
- Productivity of rain-fed areas. Implement modern management practices to double or even triple production under favorable conditions; this will have profound effects on of wheat production for local consumption and of barley as animal feed.
- Management of olive orchards. Initiate a national programme for the management of olive orchards; their productivity is still low and disproportionate to the large areas planted; the aim is to increase the productivity of the sector with a view to creating new industry if the orchards can be designated as producing organic products.
- Modern and innovative and climate-smart farming practices. Introduce modern, climate-smart farming practices that use modern technology and water harvesting for small land owners and produce high-value crops.

- Management of the sheep and goats sub-sector. Improve the management of the sheep and goat sector to improve rural livelihood opportunities; subsidize animal feed, improve the productivity of range land, provide vaccination services, and support small businesses in enhanced product processing to improve the output of this sector.
- Management of range areas. Improve the management of rangelands, which could provide 50 percent of animal feed; this should be based on sound site selection, the cultivation of adaptable plant species, integration with water harvesting and adaptation to climate change.
- Investment in rural areas. Invest in rural areas to enhance rural communities' access to funds and other tools to improve their resilience to climate change, drought and desertification.
- Support for agro-industry. Support agro-industry by promoting small and medium food-processing enterprises to increase the value-added of food products and increase their availability in markets and for export.
- Conservation of agro-biodiversity. Jordan has about 500 herbal or medicinal plants with industrial or pharmaceutical value, but many are threatened or on the brink of extinction. The protection of plant diversity should therefore be enhanced and medicinal plants should be integrated into industrial and agronomic processes.
- Management of drought. Adopt a comprehensive strategy to manage drought in view of the increasing risks for agriculture and water resources, and increase the resilience of agriculture and communities during dry seasons.
- Monitoring of the environment and food quality. Monitor the environment and food quality under a national system that assesses the livelihood situation of vulnerable groups during emergencies, food price fluctuations and environmental disasters; the parameters should cover various environmental threats including human health.
- Land reclamation. Reclaim land resources, especially those with surfaces partially covered with rocks on slight slopes and with high rainfall to contribute to improving rural livelihoods; integrate this approach with water harvesting with a view to producing plants with pharmaceutical value.
- Optimizing synergies. Optimize synergies among strategies and action plans to reduce costs and save time, and activate inter-governmental cooperation and coordination among stakeholders.
- Coordination and management of SDG activities. Coordinate and manage activities for the climate, water, energy and food nexus (see Appendix 2) to achieve SDG 2. Coordinate stakeholders to optimize the implementation of activities.

3. Food security and nutrition

- Promote education and counselling on nutrition and food safety among children, adults and public administrations through the media, schools and other channels to curb the negative effects of the nutrition transition. Nutrition education and awareness could be integrated with social-protection programmes, and Jordan could establish guidelines to guide citizens in the selection and consumption of healthy food: these should focus on the use, benefits and planting of traditional foods, especially wild edible plants.
- Analyse food security and the nutritional status of individuals and communities regularly every 2–4 years; the data should be used to inform programme design and implementation.
- Use social-protection programmes to encourage healthy eating, nutrition education and adequate infant and young child feeding practices to curb the scale of overweight and obesity;

measures could include the extension of school feeding programmes to all directorates and the inclusion of all primary school children.

- Monitor children's growth and provide health education and health promotion messages at facilities and through outreach to engage communities directly; the primary healthcare system can serve as a platform for nutrition assessment with a view to providing children and mothers with micronutrients.
- Promote food safety and hygiene to support food security; two important issues to address are pesticides and antibiotic residues in reclaimed wastewater.
- Increase expenditure on preventive health, because 70 percent of expenditure is allocated to curative treatments.
- Re-evaluate the flour-fortification and school feeding programmes and activate a nutrition policy to address spread of fast foods among young people.
- Evaluation the strategies for promoting breast feeding and counselling services among mothers.
- Upgrade food and water safety measures.

4. Water management

- Improve the availability of water to support sustainable agriculture. Promote the use of modern irrigation practices and provide incentives for farmers to adopt such practices.
- Promote innovative technologies to improve crop yields and increase sustainable food production; prepare a comprehensive strategy targeting the safe and economic use of treated wastewater while safeguarding the environment. Improve water-related governance through cross-sector coordination to help to achieve the SDGs.
- Support data and information systems for the use of stakeholders as a means of enhancing water management.
- Promote public awareness and participation in environmental protection programmes, and communicate scarcity conditions to farmers whenever necessary.

5. Energy

- Improve the mechanization of agriculture through a national plan implemented through collaboration among the Ministry of Agriculture, the Ministry of Energy and the Ministry of Industry with a view to reaching an agricultural mechanization index of 75 percent by 2030. Create a commission to supervise implementation of the mechanization programmes.
- Encourage the use of renewable energy, especially on farms; set up a specialized energy technology centre to develop customized systems for agriculture and food production. Examples of renewable energy include solar array systems for pumping water, greenhouse technologies, electrically-powered multi-functional vehicles, solar dryers for post-harvest processing, solar water heaters and windmills for electricity generation.
- Arrange special subsidy regimes for the above; fertilizers, insecticides, herbicides and fungicides consume a good deal of energy during manufacture, which is reflected in food production costs. Encourage the development of renewable energy sources, for example through special financing programmes.

ANNEXES

Annex 1. SDG localization in Jordan

The National Higher Committee for Sustainable Development

This committee was established in 2002 following the announcement of the Millennium Development Goals to act as a reference for all national endeavours related to sustainable development. It is chaired by the Minister of Planning and International Cooperation; the members represent ministries, the private sector, civil society organizations, women, young people, the Senate, the House of Representatives and communities. Membership was extended in March 2017 to include more government and civil society participation with a view to more accurate alignment with the 2030 Agenda, to emphasize the importance of civil society participation in policy making and bring policymakers closer to the needs of the most vulnerable people. The committee provides guidance and follows up on all decisions, priorities and recommendations related to the 2030 Agenda.

The Coordination Committee

This committee provides direct supervision and management during the preparation of EDPs and ensures mainstreaming of the SDGs and their targets and indicators in national plans, and interaction among the working groups. The committee is headed by the Secretary General of the Ministry of Planning and International Cooperation; members are drawn from the Government, ministries and other stakeholders. Its terms of reference include: i) managing the development of national executive plans; ii) mainstreaming of 2030 Agenda goals, targets and indicators in national plans and strategies; iii) nurturing harmonization between the 2030 Agenda and other development sectors; iv) reviewing and endorsing the deliverables from sector working groups; v) ensuring coordination among different development sectors; and vi) reviewing monitoring reports and indicators before submission to the National Higher Committee for Sustainable Development.

The Working Groups

These define objectives and actions based on the EDPs and in alignment with the SDG targets and indicators. Their terms of reference include: i) analysis of opportunities and threats related to the achievement of the Sustainable Development Agenda; ii) identification of medium-term and long-term sector priorities and goals, policies, programmes and procedures needed to reach those goals; and iii) the mainstreaming gender into national plans.

Annex 2. Coordination and Management of SDG activities by 2030

The following coordination platform is proposed after analysis of the drivers affecting the implementation of the SDGs, particularly SDG2. The primary aim is to optimize, align and coordinate SDG-related work to enable Jordan to achieve the national goal by 2030. The proposed approach could also be used to facilitate exchanges of roles among agencies to maximize impacts. It assumes:

i. linkages and coordination among national institutions; the direct and indirect effects should be reviewed and institutionalized;

ii. the proposed national coordination committee (see Figure A1) is empowered under specific legislation and is responsible for strategic planning, preparation of polices, action plans, coordination of implementation, allocation of funding for activities, infrastructures, personnel training and the participation of stakeholders.

iii. the national committees should review programmes and activities carried out by various organizations relevant to SGD 2 with a view to formulating integrated policy packages to guide the use of national resources in future programming, identify requirements and gaps and make recommendations to put Jordan on a sustainable path to the achievement of SDG 2 by 2030.

1. Coordination and management: the structure of the coordination platform

The proposed scheme in Figure A1 is designed to optimize coordination in the implementation of government activities related to the SDGs and SDG 2 in particular. It provides clear roles for stakeholders at the policy, planning and implementation levels. Each level is mandated with a specific responsibility. At the policy level, the overall responsibility is to formulate long-term and short–term policies; at the planning level the mandate is to translate polices into action plans to be implemented by stakeholder.

The committees responsible for undertaking designated mandates at each level are composed of stakeholders' representatives to ensure wide participation and effective implementation of activities.

Figure A1. Coordination Scheme for Management of SGD2

Proposed composition and mandates of national committees at different levels

1. Policy level

Level of representation: Ministers

Members

- The Prime Minister – Chair
- Minister of Planning and International Cooperation
- Minister of Finance
- Minister of Industry
- Minister of Agriculture
- Minister of Water and Irrigation
- Minster of Social Affairs
- Ministry of Health
- Secretary-General of the Higher Council for Science and Technology

Main responsibilities

i. Formulate national food-security policies at various levels.
ii. Ensure that policies are implemented in a coherent and integrated manner.
iii. Ensure that funding is provided for of all required national activities.
iv. Consider other related issues suggested by the Cabinet.
v. Commission plans to translate policies into integrated plans.
vi. Approve action plans prepared at the planning level.
vii. Ensure that clear and robust coordination is implemented at the planning level.
viii. Coordinate with relevant regional and international organizations.
ix. Adopt appropriate regulations such as laws and bylaws to ensure that policies are translated into action to the lowest level of implementation.

2. Planning Level

Level of representation: General Secretary, selected stakeholders, international organizations

- Ministry of planning and International Cooperation – Chair
- Ministry of Industry
- Ministry of Agriculture
- Ministry of Water and Irrigation

- Ministry of Health
- Ministry of Social Affairs
- Director of Department of Statistics
- House of Commerce
- House of Industry
- Jordanian Armed Forces
- Selected NGOs as required by specific activities
- Two selected planning experts

Main responsibilities

i. Translate polices adopted at the policy level into an integrated action plan.
ii. Propose new initiatives at the policy level for adaptation as national policies.
iii. Prepare reports as required by the policy level about the implementation of action plans.
iv. Secure the approval of the policy level regarding the coordination among participants to ensure coordinated implementation of activities.
v. Adopt progress reports prepared at the implementation level.
vi. Coordinate with local and international donors and NGOs.
vii. Supervise an integrated multifunctional database at the Department of Statistics to serve activities at various levels and as the centre for national publication of documents and reports.
viii. Prepare clear guidelines for phasing out the implementation of plans and the responsibilities of participants as required.
ix. Prepare clear job descriptions and publish the skills required to take charge of the implementation of major programmes.
x. Ensure that communities and farmers associations participate in planning related to their locations or interests.
xi. Prepare national capacity-building programmes to ensure the effective implementation of proposed plans.

3. Implementation Level

Level of representation: Project directors at ministries, private sector, NGO, and international donors

- Ministry of Planning and International Cooperation – Chair
- Ministry of Industry
- Ministry of Agriculture
- Ministry of Water and Irrigation
- Ministry of Health
- Ministry of Social Affairs
- Director of Department of Statistics
- Jordanian Armed Forces
- Selected NGOs
- Two planning experts

- The World Food Programme
- The Food and Agriculture Organization of the United Nations
- The World Health Organization.

Main responsibilities

i. Prepare programme implementation plans to be carried by ministries or other participants.
ii. Prepare periodic progress reports according to the nature of the programmes.
iii. Ensure coordinated implementation of programmes at the field level and optimize synergies.
iv. Prepare financial plans for the implementation of activities for approval at the planning level.
v. Prepare monitoring and evaluation systems to gather information for evaluations and impact assessments, and secure the approval of reports at the planning level.
vi. Initiate new programmes as action plans evolve.
vii. Allocate specific activities to NGOs on the basis of proven expertise, and report their achievements along with progress and financial reports.
viii. Prepare final assessment, financial and close-down reports on programmes for approval at the planning level.
ix. Propose the ideal curriculum vitae for programme managers.
x. Commission specialists or groups of specialists to review advances in management, technology and innovative practices that could help to improve food security.

4. Criteria for prioritizing activities

Rationale

The proposed programmes and measures include financial, policy and legislative matters. Timely implementation of a range of measures is essential to ensure effectiveness and to achieving Zero Hunger by 2030.

The aim of prioritization is to ensure that implementation is timely, economic, efficient and coordinated. Hence the need is to select activities with immediate and significant benefits in improving the livelihoods of various population groups and providing the basis for sustaining for future generations.

Criteria for prioritizing the implementation of programmes

General criteria

i. Urgency of the threats.
ii. Contribution to poverty alleviation and improvement of livelihoods.
iii. Conservation of production resources.
iv. Size of threatened population or community groups.
v. Synergies between food security and issues such as climates change, desertification and environmental threats.

Specific criteria

i. Geographic extent of the threats.
ii. Expected short-term and long-term social, economic and environmental benefits.
iii. Scale of participation by stakeholders.
iv. Future trends of resource status and availability.

v. Effects on urbanization.

vi. Effects on health

vii. Cost of proposed programme(s).

viii. Time needed to implement specific recommendations.

5. Management: The nexus approach

Figure A2 shows the relationships between inputs and outputs of proposed activities using the climate-energy-food-water nexus approach, and the drivers affecting the implementation of activities and the enabling environments needed to implement proposed national activities effectively. Figure A2 also integrates the main drivers with possible impacts on implementation. This approach requires consideration of the following principles:

Core principles

ix. Integration: integration of policies for adaption to climate change, desertification and biodiversity.

x. Efficiency: create more with less, end waste and minimize losses.

xi. Social equity: participation and accelerated water, energy and food security for all; access to finance and other services.

xii. Environmental sustainability: invest for sustainable ecosystem services and development of technologies.

xiii. Enabling Environments: ensure that enabling environments are in place.

xiv. Governance: develop legislation, management approaches and coordination among stakeholders.

xv. Finance: ensure that activities are funded.

xvi. Innovation: introduce new technologies, infrastructures, building capacities, training and participation for stakeholders.

Interventions

xvii. Social: gender equity, social protection, social policy, employment, dialogue with stakeholders.

xviii. Economic: production efficiency, finance, access, diversification, agricultural transformation and industrial development.

xix. Environmental: ecosystem services, biodiversity, desertification, pollution, climate change

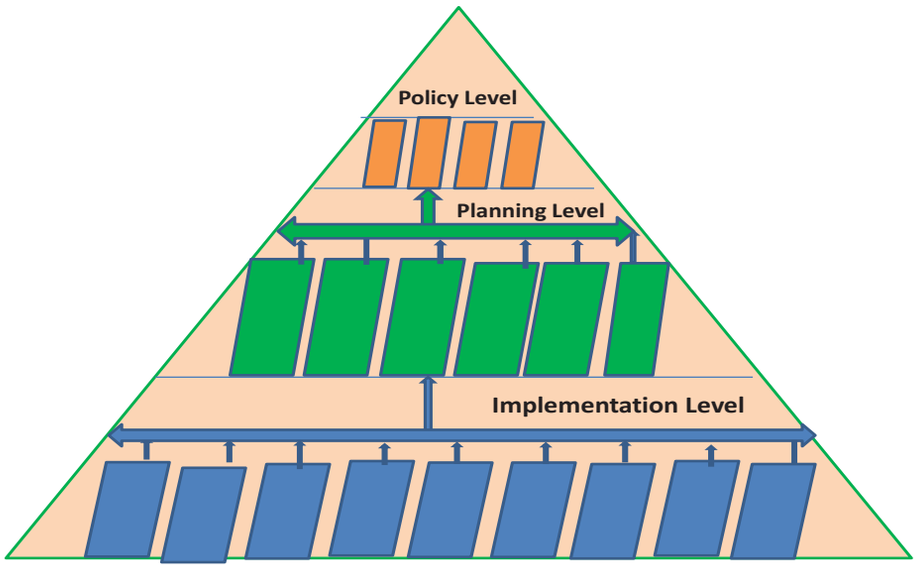


Figure A1. Coordination Scheme for Management of SDG2

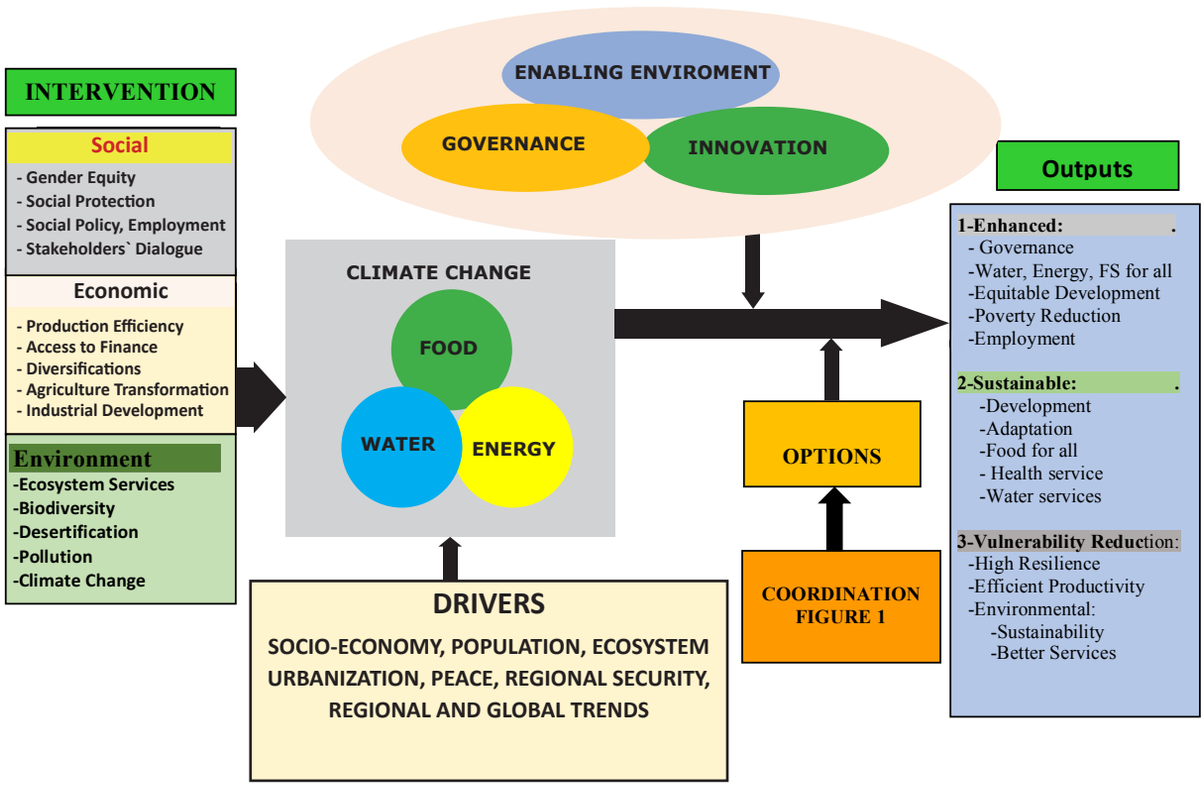


Figure A2. The Nexus Approach: A Path to the Achievement of SDG 2 by 2030

Annex 3. Sustainability of Agricultural Sector

1. Irrigated farming:

Common issues effecting sustainability

This sector faces several challenges that need immediate attention.

- There is a need to increase the efficiency of water use as a potentially promising opportunity for irrigated agriculture, along with efficient use of treated wastewater.
- Increased use of low-quality treated wastewater in irrigation to compensate for reallocation of fresh water for other uses or deterioration in the quality of groundwater might affect the production of safe foods and increase the salinity of irrigation water.
- The future sustainability of irrigated farming will depend on improving its productivity, improving the efficiency of water, adopting modern technologies, protecting resources from environmental threats, reducing land degradation, adopting advanced management practices, and increasing the competitiveness of produce.
- Availability of a suitable ratio of runoff and treated wastewater stored in the King Talal Reservoir; a ratio based on scientific principles is required that does damage soil or crops or affect their quality.
- Jordanian standards used for assessing the quality of irrigation water mixed with treated wastewater must be upgraded on the basis of experimental data reflecting local conditions.
- Land-use planning must include the selection of crops that match soil and water quality to optimize water use and protect land from degradation.
- Systematic monitoring of the farming system should be established to assess negative changes that affect future sustainability and to help in formulating interventions.
- Environmental law related to soil is neither adequate nor fully enforced.
- Treated wastewater for irrigation can contain heavy elements: if the organic load of treated wastewater is not maintained at an appropriate level, the buffering capacity of the soil is reduced and plants absorb the elements and hence the quality of products for human consumption is compromised.
- More efficient water use is needed to increase water availability and to reduce water and energy costs.
- Production and post-harvest technologies: irrigated areas suffer from poor post-harvest technologies and infrastructures, which limit export capability.
- Production quality: products of export quality are produced by a few pioneering farmers; mass production is not yet sufficient to sustain exports, especially in markets that demand high-quality products.
- Farmer's inexperience and lack of management capabilities: most farmers using irrigation lack the experience and finances to introduce modern production and water-saving measures to increase exports of high-quality products.
- Lack of sustained allocation of funding to help farmers to introduce modern technology, improve productivity, improve water use efficiency and post-harvest and market chain activities are major issues.
- Cost of production inputs: irrigated agriculture suffers from increasing costs of inputs and exports, variations in global prices and trade; poor production practices limit efficiency.

- Resource management: poor farming practices, incorrect selection of crops for particular land types, lack of modern technology and poor production practices characterize farm management.
- Research and extension: research systems are weak and agricultural extension services are weak and there is a lack of personnel specialized in modern production technologies.
- Projected climate change and seasonal rainfall variations will affect the availability and quality of water for irrigation in the Jordan valley because substantial amounts of water are mixed with treated wastewater and ground water recharge could be affected by climate change.
- There is a lack of incentives to encourage farmers to invest in modern irrigation and production technologies.
- Gradual increases in soil salinity from irrigation water as a result of over-pumping, the expected reduction of available irrigation water and increasing use of treated waste water in irrigation are significant threats.

2. Irrigated Farming in the Upland Region:

Issues threatening sustainability

- Groundwater extraction for agriculture, domestic and industrial uses is twice the estimated safe yield: this has resulted in reduced water levels in some basins and increased salinity in others. Over-pumping of ground water exceeded the safe yield by 200 percent in 2010 (Ministry of Water and Irrigation, 2010).
- Irrigated agriculture in this region depends partly on surface water in areas dominated by small land parcels and traditional farming practices.
- Enforcement of regulations: the Government is reluctant to enforce water pumping regulations in this region. Irrigated agriculture has expanded in the last three decades, thereby encouraging farmers to exceed the pumping limit; this has in turn expanded irrigated agriculture to unsustainable levels.
- Continuous decline of the quantity and quality of water resources for irrigation, depletion of ground water, allocation for domestic use and pollution of surface water are major issues.
- Irrational and excessive use of fertilizers and pesticides has resulted in increased production costs and deterioration of product quality.
- Gradual deterioration of some soil properties and an increase in soil salinity from irrigation water are the result of over-pumping and pollution of surface water mixed with treated wastewater.

3. Rainfed farming:

Issues threatening the system

- The areas under rain-fed farming have been affected by rapid urbanization on and between productive lands because legislation has failed to protect such land.
- High seasonal rainfall variations, climate change and increasingly frequent droughts discourage farmers from investing in fertilizer in rain-fed areas, thereby limiting productivity.
- Continuous reduction of productive areas is attributed to fragmentation of agricultural land ownership and the absence of clear legislation to protect or optimize agricultural land.
- Several strategies and action plans have been finalized to protect land resources, but few have been implemented.
- Lack of regulations for land allocation among different users results in risks of degradation,

unfair competition among different uses and loss of land to urbanization; it also inhibits the selection of crops to match soil type.

- Studies indicate a reduction of 25 percent in rainfall in the last three decades; the greatest reduction has been in high-rainfall areas. Projections by the Inter-Governmental Panel on Climate Change suggest a further 25 percent reduction, increased temperatures and drought frequency, and higher rainfall variability.
- Irrigated agriculture has never been attractive to investors because of the high risk of climatic variation and lack of government incentives.
- Integration between plant and animal husbandry should be improved because the products of both sectors may complement each other and increase value-added.
- Land market: the public are starting to see land as a valuable heritage and an economic commodity, but land prices have increased steeply as land fragmentation feeds the market with increasing small ownerships under byelaw no. 6/1996.
- The productivity of land is still low as a result of high seasonal rainfall variations, poor farm management, selection of crops that do not match land suitability, soil erosion and lack of investment in modern farming techniques.
- Holistic approaches have never been implemented to improve the productivity of rainfed farming through integrated development.
- Other sectors offer better job opportunities, and the absence of government support forces many farmers to desert their land to seek other livelihoods.
- Small land ownerships and continuous fragmentation are not suitable for mechanized farming.
- Farmers still use outdated agricultural machinery, plough down slopes and fail to match crops with suitable soils.
- There are no land use guidelines to control land allocations according to suitability for cultivation, which has resulted in continuous losses of fertile soils to other uses and urbanization; land is also being converted from production to a marketable commodity.
- National research systems have been unable to provide innovative solutions to problems such as the cultivation of smallholdings, production of high-value crops, the need for drought-resistant plant varieties, soil management and conservation, the need for effective water-harvesting techniques and technology transfer.

4. Livestock sector:

Issues threatening the sector

- Increasing competition from imported goods and illegal competition as a result of trade liberalization after Jordan's accession to the World Trade Organization.
- Lack of integration between the plant and livestock sectors to improve the added-value for both sectors
- Production in different subsectors is marked by low efficiency: this makes products less competitive in markets, especially with the removal of constraints on trade across regional or international borders.
- Increasing production costs as a result of rising energy costs could threaten the future of sub-sectors that rely on intensive farming.
- Intensive and semi-intensive livestock farming relies to a great extent on imported animal

feed, which increases the cost of production and hinders development; production efficiencies and competitiveness need to be improved.

- Changes in crop composition and reduction in the production of legumes deprived animal of a valuable feed source.
- The participation of Badiah residents in planning, managing and developing rangeland resources has been neglected for many years and resulted in failure to improve these resources.

Production of red meat from sheep and calves

- Production of animal feed is constrained by water shortages; plant residues – mainly barley and wheat stubble – is used to produce hay as a filling feed, but the production of green forage is very limited.
- Veterinary, health and extension services are highly inadequate: this affects livestock productivity and product quality.
- Investment in the sheep and goat sub-sector for fattening is very low; management of this sub-sector is still traditional and carried out as a family occupation rather than a modern business.
- Meat production is negatively affected during dry season by low production of hay and barley and by poor-quality rangelands.
- There are no organizational structures for sheep owners such as unions, councils and cooperatives that could organize producers and enable them to participate in the development of this sector.
- Poor extension services for flock owners in areas such as animal health, especially veterinary medicine or nutrition.
- Local products suffer from competition from imported meat: low local productivity skews competition in favour of imported products.
- Lack of modern slaughterhouses with sufficient capacity to ensure proper packing needed for modern meat market.
- High mortality rates among newborn calves and lambs.

Milk production

- Limited production of animal feed and high prices of concentrated animal feed.
- Lack of experienced farmers specializing in animal nutrition, especially with milk-producing animals.
- Poor extension and veterinary services.
- Absence of modern infrastructures to organize the marketing of milk; a few large companies have established a sound milk marketing system based on dairy farms, but it is not available for sheep and goats, which are not usually raised on farms.

Poultry production

- Local products have suffered from increasing competition from imported products since Jordan acceded to the World Trade Organization.
- Lack of technical expertise in various aspects of farm management and animal health adversely affects the productivity of small farms, which constitute large proportion of this sector; this is also reflected in mortality rates, which are higher than international rates.
- Lack of veterinary services, special nutrition programmes and trained extension agents.

- High production costs as a result of reliance on imported feed, increasing energy costs and the low productivity of small farms.

Animal health

- Shortage of trained personnel and insufficient financial resources allocated for animal health programmes; financial resources are generally allocated only during emergency or epidemic incidents and are not adequate.
- Surveillance of infectious diseases or epidemics is not carried out under a sustained programme; this is reflected in poor veterinary services, lack of trained personnel and poor research and extension services
- Policies and programmes related to animal health are inadequate.
- Lack of properly equipped veterinary quarantine facilities with adequate capacity and proper services: the continuous mobility of local herds hinders the provision of proper veterinary services.
- Land registration in the steppe region increased the fragmentation of land, which became an economic commodity instead of being reserved for grazing; this also resulted in reduced opportunities for implementing water harvesting to improve local vegetation.
- A growing population and associated land clearing, more stone quarries in the dry region and increasing urbanization has resulted in the destruction of vegetation cover, reduced the productive capacity of land and accelerated soil erosion.
- Expansion of barley cultivation into the steppe region by 200,000 *donum* annually damaged natural plant cover and increased the rate of erosion; ploughing in this region contributed to the loss of agro-biodiversity needed for future rangeland development.
- Increasing use of vehicles for moving flocks quickly has resulted in destruction of vegetation cover, largely because roads are unpaved; the rapid movement of flocks also contributed to overgrazing of large areas.
- The increasing number of animals exceeds the carrying capacity of available rangeland.
- Absence of integrated long-term plans to protect rangeland resources, even though many projects have been implemented in various regions; current legislation fails to protect rangeland, and it is not adequately enforced.
- Lack of adequate expertise in rangeland management or development.
- Development of rangeland requires coordination among agencies: the lack of coordination among stakeholders has contributed to the failure to producing tangible developmental outcomes.
- Development projects implemented at many locations over several years have failed to produce tangible improvements to rangeland productivity.
- Rangeland ownership: most land is registered as state land with open access; lack of clear ownership hinders development.
- Land carrying capacity is low: sustained long-term programmes to improve land carrying capacities have not yielded any significant results.
- Rangeland use is not defined according to a classification of different areas on the basis of potential use in the formulation of sound development plans.
- Development programmes implemented over many years lacked an integrated holistic approach involving the participation of communities and the introduction of modern management approaches.

- Long-term programmes based on integrated development approaches involving modern technologies and local knowledge of adapted plant species have not been realized; previous experience of using *Al-Hema* (a traditional system for organizing rangelands) is an example of a possible path for development.
- Land degradation caused by overgrazing, increasing human activities and increasing drought and rainfall variations threaten the future provision of a share of animal feed.

Annex 4. (statistical data) Selected tables

Export, import, production and self-sufficiency for grains 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Wheat	Export	0.0	0.0	98	508	00	00	936	56.426	626.0
	Import	1 065 812	624 690	489 639	1 076 650	851 240	833 413	1 307 197	1 331 176	1 018 045
	Production	7835	12484	22125	19801	19205	28517	27452	21925	3115
	% Self-sufficiency	0.7	2.0	4.3	1.8	2.2	3.3		1.70	3.0
Rice	Export	3582	2232	1191	385	0.0	1273	633	490	1875
	Import	135217	166270	133127	140253	183082	150634	196163	208696	18091
	Production	0.0	0.0	0.0	0.0	00	00	00	0	00
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0		00.00	00
Barley	Export	0.0	3889	1121	0.0	0.0	198	.7260	549	300
	Import	661533	613865	231303	447332	745209	927168	989541	661041	104453
	Production	10328	17062	10659	29285	32050	40915	38873	40486	2988
	% Self-sufficiency	1.5	2.7	4.4	6.1	4.1	4.0	3.8	5.8	3.6

Source: DOS database.

Export, import, production and self-sufficiency for grains 2005-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Maize	Export	1 877	31 950	5 083	8 762	23 935	24 008	23 894	38 984	NA
	Import	477 072	525 211	525 238	844 109	583 849	564 405	672 870	636 565	
	Production	7 835	19 754	29 006	16 460	14 384	14 233	9 467	26 362	
	% Self-sufficiency	1.6	3.9	6.3	3.0	2.5	2.6	1.4	4.2	
Beans	Export	64	175	227	4	127	229	2	165	177
	Import	946 3	168 3	286 3	237 3	312 2	709 2	022 3	724 3	669 4
	Production	0.0	0.0	0.0	1.0	0.0	0.0	0	0.0	0.0
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Chick-peas	Export	1 346	1 170	1 279	2 930	2 457	978	505	404	896
	Import	26 577	29 225	27 962	31 701	33 220	36 774	34 290	33 258	29 876
	Production	676	.204 1	.935 3	157 2	729 3	719	887 1	708 1	023 2
	% Self-sufficiency	2.6	4.1	12.9	7.0	10.8	2.0		4.9	6.53
Lentils	Export	515	181	79	193	41	216	81	171	10.0
	Import	8 637	7 477	9 182	10 932	10 354	10 833	12 463	16 316	14 312
	Production	178	105	245	82	132	214	148	61	112
	% Self-sufficiency	2.1	1.4	2.6	1.5	1.3	2.0	2.0	0.4	0.83

Source: DOS database.

Export, import, production and self-sufficiency for selected vegetables 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Tomatoes	Export	393 983	431 688	371 258	434 806	418 516	611 519	517 207	419 287	361 439
	Import	0.0	0.0	459	172	0.0	0.0	0	0.0	12
	Production.	600 336	654 306	737 261	777 820	738 112	869 138	744 602	870 017	837 440
	% Self-sufficiency	290.9	293.9	201.2	226.6	231	337.4	336.5	193.0	176
Potatoes	Export	15 437	11 167	7 290	7 405	12 911	11 587	29 291	9 349	4 077
	Import	51 038	39 271	41 220	53 938	59 275	74 550	71 895	51 680	48 382
	Production	13 987	118 705	174 931	215 483	141 573	103 224	204 084	188 326	273 906
	% Self-sufficiency	79.7	80.9	83.8	82.3	75.3	62.0	61.5	81.6	86
Cucum-ber	Export	67 926	74 396	81 683	120 233	78 382	26 080	45 210	30 978	216
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0	0	363 5
	Production	925 125	681 137	179 176	151 227	938 155	284 172	017 279	982 231	158 280
	% Self-sufficiency	217.1	217.6	186.4	212.5	201.1	11 708	168.3	115.4	22
Squash	Export	2 0751	242 235	32 601	27 630	26 361	19 305	25 697	28 788	26 852
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	00
	Production	48 803	59 256	69 655	93 118	68 968	78 652	60 002	64 777	75 855
	% Self-sufficiency	174.0	169.2	188.0	142.2	161.9	132.5	122.5	180	154.0
Egg plant	Export	65 235	83 549	72 867	64 540	45 000	24 690	29 400	23 989	9 347
	Import	0.0	0.0	0.0	16.0	0.0	0.0	25.0	0.0	0.00
	Production	99 902	106 793	104 747	116 969	121 485	109 314	80 680	77 015	74 613
	% Self-sufficiency	288.2	459.4	328.6	223.0	159.0	129.1	126.5	145.2	119.2
Cauli-flower	Export	23 708	25 395	26 720	25 432	24 996	23 790	27 672	21 665	19 277
	Import	0.0	0.0	0.0	71	0.0	0.0	0.0	0.0	00
	Production	54 978	80 320	54 734	62 530	39 849	66 207	78 506	72 015	92 115
	% Self-sufficiency	175.8	146.2	195.4	168.2	268.3	156.1	154.4	142.8	126.5
Cabbage	Export	9 482	7 341	7 546	6 588	7 374	7 793	10 487	8 253	7 899
	Import	0.0	0.0	0.0	0.0	0.0	16	70.0	3.0	0.8
	Production	22 263	25 401	20 317	22 084	39 521	29 032	20 362	72 258	57 775
	% Self-sufficiency	174.2	140.6	159.1	142.5	122.9	136.6	133.4	145.9	115.7
Dried onion	Export	2 481	1 060	2 235	2 418	2 701	2 006	4 655	713	713
	Import	35 593	31 808	37 097	39 748	37 013	35 812	48 790	7 749	27 791
	Production	27 160	28 819	15 765	40 781	26 481	12 978	36 885	41 001	48 807
	% Self-sufficiency	45.1	48.4	31.1	52.2	43.6	27.7	27.6	85.4	66.96
Broad beans	Export	276	40	164	30	223	75	71	522	622
	Import	103	445	338	272	118	235	517	12	292
	Production	8 553	14 514	2 1150	20 404	13 622	23 172	10 274	11 647	54 551
	% Self-sufficiency	102.1	97.3	99.2	98.8	100.8	99.3	98.4	104.6	100.6

Water melon	Export	14 465	18 415	14 980	16 058	14 837	12 759	19 913	33 215	25 999
	Import	3 348	1 846	3186	4 096	2 287	856	174	78	0.00
	Production	97 599	106 515	153 118	121 805	108 731	87 734	127 910	11 649	103 138
	% Self-sufficiency	112.9	118.4	108.3	110.9	110.0	115.7	114.6	139.8	132.9
Sweet melon	Export	1 720	3 003	7 378	3 269	5 208	5 959	9 531	970 18	18 803
	Import	15	144	27	45	0.0	0.0	2	0	00
	Production	28 418	16 975	31 051	38 592	41 974	48 717	41 762	088 52	44 185
	% Self-sufficiency	106.4	120.3	131.0	109.1	114.2	113.9	111.5	157.3	174

Source: DOS database.

Export, import, production and self-sufficiency for selected fruits 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Oranges	Export	540	4 238	1 047	6 341	2 861	6 896	11 382	4 605	386
	Import	20 854	29 065	28 717	28 022	36 440	35 435	50 852	31 913	26 982
	Production	36 492	4 375	43 011	38 709	40 581	39 993	38 924	51 780	51 282
	% Self-sufficiency	64.2	63.7	60.9	64.1	54.7	58.4	56.4	65.5	65.8
Lemons	Export	1 430	2 217	1 952	1 822	8 981	2 984	2 390	1 941	1 516
	Import	7 249	8 770	8 090	12 616	10 097	14 306	10 447	15 076	14 204
	Production	18 105	20 800	28 739	26 286	26 476	26 791	26 050	33 074	31 656
	% Self-sufficiency	75.7	76.0	82.4	70.9	96.0	70.3.	70.4	71.6	71.4
Bananas	Export	739	177	1 296	441	477	0.0	124	132	755
	Import	32 969	39 510	40 206	64 167	51 423	43 462	47 761	353 50	39 254
	Production	41 540	43 834	43 753	48 304	38 852	42 008	37 489	45 825	996 40
	% Self-sufficiency	56.3	52.7	52.9	43.1	43.3	49.1	49.6	48.3	51.6
Apples	Export	1 006	1 925	1 648	1 636	1 851	1 301	1 669	1 183	573
	Import	20 990	29 697	27 174	31 441	35 119	42 150	44 208	50 978	54 199
	Production	34 913	31 111	28 770	39 653	36 377	40 635	39 902	56 570	55 197
	% Self-sufficiency	63.6	52.8	53.0	57.1	5 202	49.9	49.5	53.2	50.7
Grapes	Export	1 932	2 010	1 337	959	645	1 108	1 362	775	741
	Import	3 951	929 2	1 202	898	1 764	4 685	161 1	1 124	2 064
	Production	26 370	34 475	29 683	38 371	35 668	35 160	34 571	62 265	62 328
	% Self-sufficiency	92.9	97.4	100.5	100.2	97.0	90.8	90.0	99.4	97.9

Source: DOS database.

Export, import, production and self-sufficiency for oil, butter and fat, 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Olive oil	Export	1 639	1 723	1 378	799	1 371	1 701	752	4 380	7 440
	Import	1 680	5 359	15	6	22	110	6	0.0	00
	Production	11 292	16 760	21 412	19 447	21 548	19 077	23 022	200 896	20 000
	% Self-sufficiency	99.6	82.2	106.8	104.3	106.8	109.8	109.0	102.2	164
Maize oil	Export	937	277	173	0.0	3	687	810	192.00	
	Import	12 464	27 543	19 316	18 543	18 621	17 233	19 225	17 672	
	Production	0.0	0.0	0.0	0.0	0.0	0.0	830	843	
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.60	
Butter	Export	10	20	0.0	0.0	30	17	4.0	50	3
	Import	990	1 266	1 482	1 448	1 900	1 423	1 959	2 324	2 241
	Production	4 619	3 670	2 369	1 674	1 966	1 828	1 795	3 820	3 084
	% Self-sufficiency	82.5	74.7	61.5	53.6	51.3	56.5	47.9	62.7	58
Raw fat	Export	174	0.0	15	127	0.0	0.0	74	161	221
	Import	1 117	770	888	1 193	600	873	7 351	394	384
	Production	5 435	794 5	3 803	559 3	7 725	7 322	1 465	10 993	10 767
	% Self-sufficiency	85.2	88.3	81.3	77.0	92.8	89.3	88.4	97.9	99.0

Source: DOS database.

Export, import, production and self-sufficiency for honey and sugar, 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Sugar	Export	10 027	13 737	7 016	2 982	3 958	5 863	5 481	4 138	17 981
	Import	307 256	214 230	274 369	244 648	304 699	304 694	324 127	298 687	317 266
	Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4 138	0.0
Honey	Export	27	14	2	39	19	21	117	48	101
	Import	774	857	580	712	805	736	1 153	754	806
	Production	183	318	186	155	201	162	180.8	214	176
	% Self-sufficiency	19.7	27.4	24.3	18.7	20.4	18.5	20.2	0	20

Source: DOS database.

Export, import, production and self-sufficiency for livestock meat 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Beef	Export	3 189	7 449	15 158	5 179	7 355	12 101	3 601	7 900	3 872
	Import	33 974	39 131	47 167	39 379	37 996	62 793	38 757	42 966	38 894
	Production	8 995	5 990	3 112	5 489	5 235	6 786	19 497	58 069	6 686
	% Self-sufficiency	22.6	15.9	8.9	13.8	14.6	11.8	12.4	14.2	16.0
Mutton	Export	238	6 171	6 853	4 401	3 658	13 161	1 873	258	820
	Import	16 589	25 475	29 090	19 884	27 995	35 841	23 394	27 982	23 829
	Production	13 390	16 032	7 157	10 789	13 262	10 854	15 063	13 619	14 871
	% Self-sufficiency	45.0	45.4	24.3	41.1	35.3	32.4	37	32.9	39
Goat	Export	0.0	0.0	0.0	7	0.0	376	36	0	0.0
	Import	60	0.0	45	50	47	3 919	1 011	0	0.0
	Production	4 210	4 957	3 473	3 795	5 124	4 184	6 040	4 336	924 4
	% Self-sufficiency	98.6	100.0	98.7	98.9	99.1	54.1	81.4	100	100.0
Poultry	Export	20 437	23 647	21 081	17 451	19 352	22 942	16 687	18 543	12 919
	Import	43 661	40 667	48 239	48 481	56 460	75 274	76 102	79 363	61 981
	Production	140 459	152 814	187 472	190 483	190 262	182 264	192 130	181 831	216 069
	% Self-sufficiency	85.8	90.0	87.3	86.0	83.7	77.7	76.4	74.9	82
Fish	Export	1 927	3 810	1 653	2 667	4 519	7	705	1 308	
	Import	26 180	28 253	23 273	37 983	31 869	20 048	28 358	32 097	
	.Production	904	010 1	1 023	1 075	1 248	1 233	1 144	153 1	
	% Self-sufficiency	3.6	4.0	4.5	3.0	4.4	6.4	4.0	3.6	

Source: DOS database.

Export, import, production and self-sufficiency for milk, yogurt and cheese 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Cow's milk	Export	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0.
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0
	Production	313 960	24 4600	214 950	238 569	240 685	236 773	247 820	270 411	276 714
	% Self-sufficiency	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100	100
Sheep's milk	Export	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
	Production	75 263	56 030	118 574	57 886	59 806	59 904	82 225	83 930	90 637
	% Self-sufficiency	100.0	100.0	100.0	100.0	100	100.0	0.0	100	100
Goat's milk	Export	0.0	0.0	0.0	0.0	0.0	0.0	00	0.0	0.0
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Production	75 263	18 810	15 846	10 481	9 938	10 465	18 476	14 851	13 053
	% Self-sufficiency	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100	100
Yogurt	Export	5.0	0.0	160	18	345	45	20.47	10	0.0
	Import	725	1 650	2 133	704	2 145	2 110	2 745	3 390	4 618
	Production	166 555	134 498	163 294	145 989	142 770	143 574	164 537	125 015	14 281
	% Self-sufficiency	99.6	98.8	98.8	99.5	98.8	98.6	98.4	97.4	97

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Dry yogurt/ *labneh*	Export	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
	Import	0.0	0.0	0.0	0.0	0.0	0.0	.0	0	0.0
	Production	7 632	6 317	8 678	9 714	9 928	9 540	9 912	11 022	11 344
	% Self-sufficiency	100.0	100.0	100.0	100.0	100.0	100.0	100	100	100
Cheese	Export	5 637	5 869	6 695	4 288	715	3 299	6 595	5 471	5 765
	Import	17 844	21 672	21 062	20 655	23 039	23 254	25 469	25 892	24 455
	Production	6 732	374 4	7 275	6 368	7 304	6 505	7 324	6 371	8 631
	% Self-sufficiency	35.3	21.7	33.6	28.0	24.7	24.6	28	23.8	32
Skim milk	Export	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0
	Import	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0
	Production	52 367	40 980	33 335	28 602	31 482	40 169	30 626	52 350	86500
	% Self-sufficiency	100.0	100.0	100.0	100.0	100.0	100.0		100	100
Dried whole milk	Export	0.0	194	0.0	25	70	157	75	146	228
	Import	1 528	2 846	2 698	2 633	3 651	4 778	1 133	9 976	7 072
	Production	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0
Dried skim milk	Export	6 838	6 445	2 959	1 985	2 851	2 370	2 066	3 680	7 109
	Import	20 220	19 981	12 360	13 728	18 599	17 651	22 145	23 269	20 632
	Production	0.0	0.0	0.0	0.0	00	0.0	0	0	0.0
	% Self-sufficiency	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.0

Source: DOS database.

Export, import, production and self-sufficiency for table and hatch eggs 2008-2016 (mt)

		2008	2009	2010	2011	2012	2013	2014	2015	2016
Table eggs	Export	3 109	4 375	8 206	3 326	102	18	67.63	1 173	28
	Import	698	824	907	819	1 351	1 682	202	943	524
	Production	50 615	45 900	53 903	51 733	43 274	43 274	50 622	177 53	54 272
	% Self-sufficiency	105.0	108.4	115.7	105.1	97.2	96.3	99.7	100.4	99
Hatch eggs	Export	3 246	1 946	1 171	857	1 382	1 115	1 258	975	1 541
	Import	0.0	0.0	239	53	113	264	134	570	537
	Production	13 101	16 991	15 371	17 615	1 855	17 604	14 626	309 18	19 650
	% Self-sufficiency					107.7	105.1	108.3	102.3	105

Source: DOS database

Export and import for animals, plants and food products 2008-2015 (JOD 1000)

	2008	2009	2010	2011	2012	2013	2014	2015
Imports								
Live animals	365 991	370 920	426 340	496 094	599 022	677 685	708 580	730 672
Plants	935 750	700 379	742 464	986 170	1 025 012	1 087 909	1 213 505	1 030 995
Animal fat, plant oil	176 692	118 819	92 853	148 413	147 723	135 096	135 750	123 880
Food products	576 318	571 574	665 923	738 483	815 761	848 870	941 549	909 559
Domestic export								
Live animals	53 664	56 584	84 850	119 513	130 619	194 409	188 492	193 769
Plants	32 356	319 649	377 967	431 164	467 011	485 558	546 286	527 424
Animal fat, plant oil	18 077	5 936	7 799	12 404	15 509	11 440	8 001	5 029
Food products	210 539	199 689	222 512	232 202	251 247	289 190	317 549	283 805
Re-exported								
Live animals	52 595	82 028	67 370	49 260	61 495	62 709	48 981	36 426
Plants	14 524	20 065	13 058	24 226	30 160	27 809	26 263	34 526
Animal fat, plant oil	49 492	27 677	1 152	1 074	1 877	1 612	1 311	1 003
Food products	28 770	23 842	24 488	24 906	21 539	24 712	33 230	21 555
Total exports								
Live animals	106 260	138 612	152 220	186 772	192 113	275 117	237 473	230 195
Plants	334 880	339 715	391 025	455 391	497 171	513 366	572 548	561 950
Animal fat, plant oil	67 569	33 613	8 951	13 978	17 385	13 052	9 312	6 032
Food products	239 309	223 530	247 001	257 108	272 787	313 901	350 829	305 359

Source: DOS database; plants and animals.

Total food supply and energy per capita per year, protein, fat (mt)

	Population	Production	Import	Export	Food	Share per capita			
						Food kg/ yr	Energy cal/ day	Protein g/ day	Fat g/ day
2008	5 850 000	3 926 017	3 109 770	908 825	3 442 712	589	3 087	84	79
2009	5 980 000	3 909 511	3 077 042	105 734	3 452 731	577	2 919	78	93
2010	6 113 000	4 236 037	2 604 915	932 313	230 878 3	632	873 2	75	95
2011	6 249 000	4 783 817	3 495 433	955 258	4 253 781	681	3 713	98	112
2012	6 388 000	4 423 873	3 764 230	937 336	4 058 838	635	3 511	89	115
2013	6 530 000	4 537 898	4 097 817	1 114 622	4 145 201	562	3 049	78	101
2014	6 675 000	5 380 398	4 832 915	1 028 533	5 003 954	568	3 299	82	94
***2015**	9 523 000	5 462 405	4 439 824	1 080 478	5 006 082	525	2 907		

Source: DOS reports.

* Includes non-Jordanians, estimated at 2.9 million, according to 2015 census.

Average food from different sources (kg per capita per year)

	2008	2009	2010	2011	2012	2013	2014	2015
Total	588.7	577.38	632.83	680.7	635.4	562.1	568.37	525.19
Plant sources	472.13	470.52	518.18	567.5	520.7	461.6	477.16	439.48
Animal sources	116.62	106.86	114.66	113.2	114.7	100.5	91.21	85.71
***Cereals**	135.93	121.9	98.77	175.7	141.9	119.9	148.25	131.67

* Cereals and cereal products.

Average food from different sources (kg per capita per year)

	2008	2009	2010	2011	2012	2013	2014	2015
Vegetable oil	13.20	18.68	19.07	23.70	24.40	22.20	20.42	20.37
Vegetables	103.80	112.05	156.94	129.10	118.70	110.60	95.52	106.35
***Fruit**	52.76	61.17	60.97	66.50	62.60	61.80	49.14	51.42
Meat	41.20	41.88	46.50	49.70	51.90	46.20	40.31	39.37
Animal fat	2.16	2.21	1.62	2.70	3.60	3.40	2.55	2.70
Fresh milk	17.30	12.93	13.61	9.70	9.50	8.20	8.85	7.37
Milk products	42.02	36.77	40.49	35.00	35.00	31.20	28.25	24.44
Table eggs	8.23	7.25	7.56	7.90	7.00	6.10	5.77	5.55

* Fruit and fruit products.

List of Acronyms

DOS	Department of Statistics
EDP	Executive Development Programme
FAO	Food and Agriculture Organization of the United Nations
JISM	Jordan Institute for Standards and Metrology
GDP	Gross Domestic Product
MOA	Ministry of Agriculture
MOIT	Ministry of Industry and Trade
MOH	Ministry of Health
MOPIC	Ministry of Planning and International Cooperation
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
SSC	Social Security Corporation
UNDP	United Nations Development Programme
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization