

Food Price Inflation and Food Security: A Morocco case study

L'inflation des prix des aliments et la sécurité alimentaire : une étude de cas du Maroc

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Executive Summary

This report comes in the context of rising food prices and United Nations predictions of a looming global food crisis in 2013. Written at the request of Pulse Canada, it provides insight into food price inflation and food security in low-income countries, and the implications for international agricultural trade. The assessment in this report is based on a literature review and semi-structured interviews. The paper examines Morocco's food security strategy and trade policy to assess the socioeconomic implications of reducing import tariffs on Canadian lentils. This report provides important detailed analysis of the relationship between pulses and Morocco's efforts to open up its economy in the context of the current global economic situation.

Since 2008 Morocco has pursued the Green Morocco Plan, which puts agriculture at the forefront of its strategies on economic growth, poverty reduction and trade liberalization. It aims to double the value added of agricultural production within a decade through a comprehensive overhauling of the sector's structure in terms of cropping patterns, land tenure and agricultural taxation. In doing so, it aspires to increase productivity and improve food security by providing a roadmap for investment programs in the agri-foods sector and implementing a series of systemic public sector reforms. The two pillars of the plan will transform the under-performing agricultural sector into a source of growth for the country by developing high-value and high-performing agriculture and combating rural poverty by supporting small farmers cultivating marginal lands.

Morocco has a range of options available to move towards addressing the food security and trade policy nexus in the framework of sustainable development strategies, particularly in the agricultural sector. Moreover, these different options are not mutually exclusive, and are relevant in the shorter to medium and longer term.

In the short to medium term, meeting domestic demand for staple foods would involve easing import tariffs and other restrictions on imports in conjunction with targeted complementary measures to ensure that any negative impacts of liberalization are addressed.

In the longer term, meeting domestic demand would call for the encouragement of productivity gains through investment in sustainable farming methods that increase farmers' incomes and improve yields using the same resources (scarce land and water), including through research and development and cooperation to improve irrigation techniques, seed quality and cropping methods. This would involve investing in infrastructure to encourage value addition, as well as enhancing the technology that underlies more efficient and ecological farming methods (for example through more efficient irrigation technologies) to improve the state of food security along the lines recommended by the Food and Agriculture Organization and the United Nations (UN) Special Rapporteur on the right to food, among others.

Agriculture plays a central role in food security. Those who would most benefit from liberalization are the net consumers of food, but agricultural operations could also benefit in the long run. For example, the distorting effect of trade protection in the past has encouraged activities that are non-competitive and maladapted to ecological conditions, to the detriment of operations that were better adapted and of value in both domestic and international markets.

That is why there is a need to meet domestic demand for food staples by easing restrictions on imports and continuing to reduce the gap between most-favoured nation tariffs and preferential tariffs, while keeping in mind the need to mitigate potential unintended negative consequences. Moreover, since food prices have become highly inflated in recent years, with projected food prices on the rise, the tariffs applied to food imports are putting significant strain on the ability of the population to afford these products.

Reducing poverty is an important priority of the government and is a necessary condition to improve the state of food security and sustainable development in Morocco. To reinforce the role of agriculture in national economic development, Morocco has positioned the two segments of its agricultural sector to increase what the Green Plan refers to as “aggregation capacity” that adds value to agricultural production and encourages win-win partnerships that enhance technological innovation and productivity through a coordinated sectoral strategy.

Whereas, in the long term, removing trade restrictions and lowering trade barriers may contribute to improving the efficiency of the sector, in the short term these actions can affect the employment of a large number of small operations. That is why Morocco has put targeted support measures in place. Prioritizing value-added production for export is fundamental to the goal of reducing poverty and food insecurity, while offering opportunities to use existing institutional systems, knowledge and skills in the rural sector. That is why it is important to have adequate short-term support measures in place targeted at those who are adversely affected during the transition. It is also imperative to give consideration to profitable, longer-term options for small-scale farmers to access markets and integrate into agricultural value chains.

Such an approach is outlined in Morocco’s plans to pursue a “guided liberalization” strategy in which “harmonious” development is possible by managing a progressive transition towards liberalization while encouraging a diversified rural economy and a pluralistic agriculture sector that is competitive and sustainable. The Green Morocco Plan was put in place to help ensure such an equitable transition. Given the duality of the agricultural sector in terms of Morocco’s two very different types of farming, the success of this plan will be measured by how well it has addressed large socioeconomic disparities between the country’s modern and more traditional agricultural operations. Since 40 per cent of farms are of a “social” character (albeit occupying only 8 per cent of the country’s total harvested area), if these farms were to disappear, there would be significant socioeconomic costs for the country. Pillar II of the Green Morocco Plan outlines an approach, which, although highly ambitious, is explicitly designed to help maintain the social character of farming in Morocco while also seeking to address the competitiveness challenges alongside the full ambit of social, food and environmental concerns associated with greater integration into the world economy. Notably, the Green Plan has yet to be fully implemented; therefore, the observations flowing from this study are necessarily tentative, depending on reaching the objectives set for 2020.

Summary for Policy-Makers

This report is written in the context of rising food prices and UN predictions of a looming global food crisis in 2013. At the request of Pulse Canada, this report provides insight into food price inflation and food security in low-income countries, and the implications for international agricultural trade. The assessment in this report is based on a literature review and semi-structured interviews. A framework for assessing national food security and trade was established by undertaking a comprehensive review of the drivers of food price inflation, projections of future food prices and the impact of these on food security. This analytical framework was then applied to Morocco's trade policy regarding Canadian lentils. The paper examines Morocco's food security strategy and trade policy to assess the socioeconomic implications of reducing import tariffs on Canadian lentils. It also surveys national policy responses that address food security concerns in the context of rising food prices. This report provides important detailed analysis of the relationship between pulses and Morocco's efforts to open up its economy in the context of the current global economic situation.

Since 2008, Morocco has pursued the Green Morocco Plan (the "Green Plan"), which puts agriculture at the forefront of its strategies on economic growth, poverty reduction and trade liberalization. It aims to double agriculture's value added¹ within a decade through a comprehensive overhauling of the sector's structure in terms of cropping patterns, land tenure, and agricultural taxation. In doing so, it hopes to increase productivity and improve food security by providing a roadmap for investment programs in the agri-foods sector and implementing a series of systemic public sector reforms. The two pillars of the plan will transform the under-performing agricultural sector into a source of growth for the country by developing high-value and high-performing agriculture (Pillar I), and combating rural poverty by supporting small farmers in marginal areas (Pillar II).

An important characteristic of the agricultural sector is the duality between two types of farming. One type of agriculture is modern, competitive and commercial, while the other is small and of social character. Pillar I of the Green Plan addresses the first type, while Pillar II addresses the latter. The first type will largely benefit from liberalization, while the latter will require significant innovations in organization to give small farmers the opportunity to aggregate with larger groups to reach the collective scale required for them to benefit from such measures. To make this possible, the Green Plan proposes an ambitious program to add value and to create "win-win partnerships between the upstream of production and the downstream of the commercial and/or industrial phase."²

The Agency for Agricultural Development was established to implement the Green Plan. According to the Agency:

- Modern agriculture that is localized in irrigated zones and favourable non-irrigated zones, covers 20 per cent of cultivated land and is highly productive due to its use of modern technology.
- Traditional and food crop agriculture, on the other hand, is localized in non-irrigated and unfavourable zones and in mountainous areas or oases. This type of agriculture occupies 80 per cent of the usable agricultural surface and remains narrowly dependent on precipitation.

¹ The term "aggregation" or value added as outlined in the Green Plan, refers to two types of projects: 1) projects that generally depend on private financing to develop highly productive or high value-added modern agriculture (milk, red and white meat, cereals in favourable, non-irrigated zones); and 2) conversion projects that aim to transform current production systems, which are essentially dominated by cereal production, into high value-added crops, such as olives, almonds and figs. The objective is to replant 400,000 hectares divided between 200,000 farms. For more information, see http://www.ada.gov.ma/en/Plan_Maroc_Vert/plan-maroc-vert.php.

² See http://www.ada.gov.ma/en/Plan_Maroc_Vert/plan-maroc-vert.php

Of the 105 countries included in the Economist Intelligence Unit's Global Food Security Index, Morocco is one of three countries that experienced the most volatility in agricultural production during the last 20 years. The two other countries are also North African: Tunisia and Algeria. This volatility is indicative of the country's vulnerability to environmental variability. With only 15 per cent of its agricultural land under irrigation, farmers are exposed to erratic precipitation and drought, with potentially devastating effects on yields. The annual fluctuation of rainfall accounts for 75 per cent of the year-to-year variability in Moroccan GDP (Sutter, 2010). Moreover, being on highly mountainous and arid terrain, only about 15 per cent of the country's land is capable of growing crops or pasture, and 70 per cent of farms are smaller than 5 hectares. Because of these conditions, agricultural productivity is low and highly variable.

As a consequence, Morocco relies on food imports to meet many of its consumption needs, while heavily protecting its agricultural sector. In 2009 *ad valorem* tariff rates were as high as 304 per cent, although the average had fallen from 40 per cent in 2003 to 29 per cent in 2009 (World Trade Organization [WTO], 2009c, p. 79). Notably, the Global Food Security Index puts Morocco among the four countries with the highest agricultural import tariffs in the world.³ A concern for protecting domestic production is justifiable given that 50 per cent of the total active population and 80 per cent of the active rural population is employed in the agricultural sector. However, since food prices have become highly inflated in recent years, with projected food prices on the rise, subjecting food imports to high tariffs may strain the ability of the population to afford these products. Of total household expenditure, 39 per cent was spent on food in 2005 (Economist Intelligence Unit, 2012). This proportion of spending has likely increased in recent years due to inflated prices.

The export price of Canadian small green (Eston) lentils, of which Morocco is a significant importer, has more than doubled over the last 10 years (STATPUB, 2012). Morocco applies a 49 per cent most-favoured nation (MFN) tariff to lentils imported from Canada, which account for 95–97 per cent of Moroccan lentil imports (Food and Agriculture Organization [FAO], 2011). Since domestic production of lentils is low (4 per cent of total cultivated area is used for producing pulses and 0.5 per cent is used for lentils) (Ministry of Agriculture and Sea Fishery [MAPM], 2010), Moroccan consumers are subjected to inflated prices for imported lentils due to high import tariffs, as well as the global trend toward higher food prices.

A second issue is considered to arise from irregular trade. According to interviews conducted as part of this research, 80 per cent of the Canadian lentils that enter the Moroccan market are introduced through third countries or other informal routes without paying import duties.⁴ Depending on the accuracy of the data, this implies that approximately two thirds of the Canadian lentils consumed in Morocco enter the country via irregular trade. In particular, Canadian lentils enter the Moroccan market through the two towns of Ceuta and Melilla, which are Spanish free trade zones on Moroccan territory. The combination of high prices and high import tariffs has created the incentive to encourage this commerce.

³ Measured as the average applied most-favoured nation (MFN) tariff on all agricultural imports. The three other countries are Norway, South Korea and Egypt.

⁴ Semi-structured interviews with three large Moroccan importers, a respected Moroccan Economist (Najib Akesbi), a representative from the WTO, a Moroccan diplomat and Moroccan legumes agronomist with the National Institute of Agronomical Research were used to examine the social and economic implications of Morocco's food security strategy and trade policies. The Moroccan importers and trade officer alleged that pulses are increasingly entering Morocco via third countries or other informal routes due to high tariffs and increasing world prices. Pulse products, which include lentils, are entering from countries that receive duty-free access into Morocco, such as Spain. The Moroccan importers alleged that 20,000 tonnes of lentils were imported in 2009–2010 and that only 4,000 tonnes were imported in 2010–2011.

A welfare analysis undertaken for this study reveals a consumer surplus associated with an elimination of the tariff on Canadian lentil imports estimated at CAD\$3.45 million according to FAO data for 2010. This includes the elimination of CAD\$135,000, representing the loss to consumers from the excess burden or allocative inefficiency (“deadweight loss”) created by the tariff, whereby the price of imported lentils impacts relative prices at the expense of the consumer.

In keeping with Morocco’s efforts to open up and modernize its economy while managing to constrain the impacts of the current global economic situation, the following salient points relevant to pulses emerged through the literature analysis and interviews conducted for this research.

The Food Security/Trade Policy Nexus

1. Morocco has a range of options available to move towards addressing the food security and trade policy nexus in the framework of sustainable development strategies, particularly in the agricultural sector. Moreover, these different options are not mutually exclusive, and are relevant in the shorter to medium and longer term.
 - a. In the short to medium term, meeting domestic demand for staple foods would involve easing import tariffs and other restrictions on imports in conjunction with targeted complementary measures to ensure that any negative impacts of liberalization are addressed.
 - b. In the longer term, it would call for the encouragement of productivity gains through investment in sustainable farming methods that increase farmers’ incomes and improve yields using the same resources (scarce land and water), including through research and development and cooperation to improve irrigation techniques, seed quality and cropping methods. This would involve investing in infrastructure to encourage value addition, as well as enhancing the technology that underlies more efficient and ecological farming methods (for example through more efficient irrigation technologies) to improve the state of food security along the lines recommended by the FAO and the UN Special Rapporteur on the right to food, among others.
2. To address the critical role of agriculture in food security, judicious public and private investment in agriculture is necessary to allow smallholder farmers to be part of the solution in the food-insecure 21st century, including through some specific measures identified in the study and in accordance with the Green Plan objectives towards 2020.

Economic Development in the Agricultural Sector

3. Strategies to enhance the state of food security in Morocco need to include measures to improve agricultural productivity, including through increasing investment in adding value to agriculture, equitably integrating small-scale farmers into value chains and taking advantage of the opportunities from trade liberalization
4. These should also include the exchange of knowledge and in-field expertise to secure sustainable agricultural development in a climate-constrained and competitive world, including continuously seeking knowledge to adapt agriculture to climate change—water, agricultural development and food security are inseparable.

Trade Policy Objectives and Social Safety Nets

5. To meet domestic demand for food staples by easing restrictions on imports and continuing to reduce the gap between MFN tariffs and preferential tariffs, while keeping in mind the need to address potential unintended negative consequences.
6. Ensure monitoring of the effectiveness of social safety nets put in place to facilitate Morocco's "modernization" transition, thereby linking trade reform, in turn, to the Green Plan measures to transform productivity and enable resilient local livelihoods in the agricultural sector, while supporting shifts to others areas of the economy.
7. It would be worthwhile to further establish the possibility of irregular trade, its extent and potential impact on food security in Morocco.

As noted in the analysis, this type of a strategy is inherently paradoxical based on the following rationale. Whereas, in the long term, removing trade restrictions and lowering trade barriers may contribute to improving the efficiency of the sector, in the short term these actions can affect the employment of a large number of small operations. That is why Morocco has put targeted support measures in place. Prioritizing value-added production for export can be compatible with the goal of reducing poverty and food insecurity, while offering opportunities to use existing institutional systems, knowledge and skills in the rural sector will be important. It is also imperative to give consideration to profitable, longer-term options for small-scale farmers to access markets and integrate into agricultural value chains.

Regarding lentils, and several other agricultural commodities whose price is projected to continue to increase in international markets and whose domestic production is significantly low,⁵ if accompanied by full implementation of the Green Plan measures, there is a case to be made for the potential benefits of tariff reduction. As long as there are no damageable substitution effects with other domestically produced goods, and as long as a decrease in the tariff on lentils leads to a decrease in the price paid by consumers, trade liberalization would tend to improve the availability and accessibility of imported lentils to Moroccan consumers, who demand foreign products in any case because national production is not sufficient to meet domestic demand. As long as these are offered to consumers at a price that is less than or equal to present prices, there is evidence to support the potential positive effect from lowering tariffs on lentils.

Our review has indicated that countries have undertaken a wide range of policy responses to food price inflation. An FAO survey of countries' policy responses to the recent crisis found that approximately half of the 77 countries surveyed reduced grain import taxes as a major response that is easy to use and politically expedient (FAO, 2008d). Removing trade barriers is another important tool for improving food security and lowering food prices. However, simply signing trade agreements is not sufficient, since effective cross-border trade requires "the removal of trade barriers, harmonized customs procedures, improved market infrastructure, sound market information, measures to ensure food quality and safety and good governance" (FAO, 2011a). Other measures undertaken by national governments include: export restrictions, price controls, drawing on food grain stocks, safety net measures, input market intervention, investment to improve productivity and improve distribution networks, strengthening supportive institutions, creating and improving national price or policy information systems, and increasing attention to land policy and water management systems.

Morocco plans to pursue a "guided liberalization" strategy in which "harmonious" development is possible by managing a progressive transition towards liberalization while encouraging a diversified rural economy and a pluralistic agriculture that is competitive and sustainable (Haut-Commissariat au Plan du Maroc, 2008, p. 6-7). Although export

⁵ Morocco is about 25 per cent self-sufficient in lentils, and 95-97 per cent of foreign lentils in Morocco are Canadian.

development strategies are used to permit Morocco to make the most out of trade agreements, Morocco has outlined an approach whereby agricultural policies are adaptive, the disparities caused by the international market are corrected in terms of the social and environmental implications, and measures are taken to limit the number of people who are made worse off (HCP, 2008). The Green Plan was put in place to help ensure such an equitable transition. Given the duality of the agricultural sector in terms of Morocco's two very different types of farming, the success of this plan will be measured by how well it has addressed large socioeconomic disparities between the country's modern and more traditional agricultural operations. Since 40 per cent of farms are of a "social" character (albeit occupying only 8 per cent of the country's total harvested area), if these farms were to disappear, there would be significant socioeconomic costs for the country. Pillar II of the Green Plan outlines an approach, which, although highly ambitious, is explicitly designed to help maintain this social character of farming as Morocco also seeks to address the competitiveness challenges alongside the full ambit of social, food and environmental concerns associated with greater integration into the world economy. Notably, the Green Plan has yet to be fully implemented; therefore, the observations flowing from this study necessarily are tentative, as they depend on reaching the objectives set for 2020.

Résumé directif

Ce rapport est publié en pleine hausse des prix des denrées alimentaires et à un moment où l'ONU nous met en garde contre la menace imminente d'une crise alimentaire mondiale, annoncée pour 2013. Rédigé à la demande de Pulse Canada, il donne une idée de l'augmentation des prix des denrées alimentaires et fait le point sur la sécurité alimentaire dans les pays à bas revenus ainsi que les répercussions de la situation actuelle sur les échanges agricoles internationaux. L'évaluation présentée dans ce rapport est fondée sur une analyse documentaire et des entretiens semi-structurés. Le document étudie la stratégie de sécurité alimentaire et la politique commerciale du Maroc afin d'évaluer les répercussions socio-économiques de la diminution des droits à l'importation sur les lentilles canadiennes. Il fournit une analyse détaillée importante de la relation existant entre les légumineuses et les efforts fournis par le Maroc pour ouvrir son économie dans le cadre de la situation économique mondiale actuelle.

Depuis 2008, le Maroc a mis en œuvre le « Plan Maroc vert », qui place l'agriculture au premier plan de ses stratégies en matière de croissance économique, de réduction de la pauvreté et de libéralisation des échanges commerciaux. Celui-ci vise à doubler la valeur ajoutée de l'agriculture en dix ans grâce à un profond remaniement de la structure du secteur en termes de modes de culture, de régimes de propriété foncière et de fiscalité agricole. Le Maroc espère ainsi accroître sa productivité et améliorer sa sécurité alimentaire grâce à la présentation d'une feuille de route pour les programmes d'investissement dans le secteur agro-alimentaire et à la mise en œuvre d'une série de réformes structurelles du secteur public. Les deux piliers de ce plan transformeront un secteur agricole insuffisamment performant en une source de croissance pour le pays, d'une part grâce au développement d'une agriculture à haute valeur et très performante, et d'autre part grâce à la lutte contre la pauvreté rurale menée par le soutien des petits producteurs des régions cultivant des terres marginales.

Le Maroc se trouve face à diverses options possibles pour s'attaquer aux liens entre la sécurité alimentaire et la politique commerciale dans le cadre de stratégies de développement durable, en particulier dans le secteur agricole. En outre, ces différentes options ne s'excluent pas mutuellement et sont pertinentes à court et à long terme.

À court ou moyen terme, la satisfaction de la demande intérieure des denrées alimentaires de base impliquerait l'allègement des droits à l'importation et des autres restrictions à l'importation et, en parallèle, des mesures complémentaires ciblées pour atténuer les éventuelles incidences négatives de la libéralisation.

À plus long terme, la satisfaction de la demande intérieure nécessiterait d'encourager l'accroissement de la productivité par l'investissement dans des pratiques agricoles durables qui augmentent les revenus des agriculteurs et améliorent le rendement tout en utilisant les mêmes ressources (rares en terres et en eau), notamment par la recherche et le développement et par la coopération visant à améliorer les techniques d'irrigation, la qualité des semences et les pratiques culturales. Cela impliquerait d'investir dans des infrastructures encourageant la valeur ajoutée et de renforcer la technologie qui est à la base de pratiques agricoles plus efficaces et écologiques (par exemple, par des technologies d'irrigation plus efficaces), en vue d'améliorer la situation en matière de sécurité alimentaire dans le sens des recommandations formulées par la FAO et le Rapporteur spécial des Nations Unies sur le droit à l'alimentation, entre autres.

L'agriculture joue un rôle primordial pour la sécurité alimentaire. Même si la libéralisation favorise nettement les consommateurs elle pourrait aussi favoriser à long termes les opérations agricoles. Par exemple, les effets de distorsion de la protection commerciale du passé ont encouragé des activités non-compétitives et mal adaptés aux conditions

écologiques au détriment des opérations agricoles mieux adaptées et prisées sur les marchés domestiques et internationaux.

La demande intérieure des denrées alimentaires de base serait satisfaite par l'allègement des restrictions à l'importation et la réduction continue de l'écart entre le tarif NPF et le tarif préférentiel, tout en conservant à l'esprit la nécessité d'atténuer les incidences négatives potentielles et involontaires. Comme le prix des aliments est devenu très élevé ces dernières années, et en guise d'une projection à la hausse des prix des aliments, les tarifs appliqués aux importations de produits alimentaires met une pression considérable sur la capacité de la population à acheter ces produits.

La lutte contre la pauvreté est une priorité du gouvernement et une condition nécessaire à l'amélioration de la situation en matière de sécurité alimentaire et de développement durable au Maroc. Pour renforcer le rôle de l'agriculture dans le développement économique du pays, le Maroc a positionné les deux segments de son secteur agricole en vue d'accroître ce que le plan vert appelle la « capacité de regroupement » qui augmente la valeur des productions agricoles et encourage les partenariats gagnant-gagnant, lesquels favorisent l'innovation technologique et la productivité par le biais d'une stratégie sectorielle coordonnée.

Alors qu'à long terme, l'élimination des restrictions des échanges et l'abaissement des barrières commerciales peuvent contribuer à accroître l'efficacité du secteur, à court terme ces actions peuvent porter préjudice à l'utilisation d'un grand nombre de petites opérations. Voilà pourquoi le Maroc a mis en place des mesures de soutien ciblées. Accorder la priorité à la production de denrées à valeur ajoutée destinées à l'exportation peut être compatible avec l'objectif de réduction de la pauvreté et de l'insécurité alimentaire, tout en offrant l'occasion d'utiliser les systèmes institutionnels, les connaissances et les compétences existants du secteur rural. C'est pourquoi il est important d'instaurer des mesures de soutien adéquates à court terme en faveur des personnes qui subiront un préjudice au cours de la transition. En outre, il est impératif d'accorder de la considération à des options profitables à plus long terme qui permettront aux petits agriculteurs d'accéder aux marchés et de s'intégrer dans les chaînes de valeur agricoles.

Cette approche est présentée dans les plans du Maroc visant à poursuivre une stratégie de « libéralisation guidée » rendant possible un développement « harmonieux » grâce à la gestion d'une transition progressive vers la libéralisation accompagnée de mesures encourageant une économie rurale diversifiée et un secteur agricole pluraliste qui soit à la fois compétitif et durable. Le « Plan Maroc vert » a été mis en place afin de contribuer à garantir cette transition équitable. En raison de la dualité du secteur agricole marocain qui comporte deux types d'agriculture très différents, la réussite de ce plan sera mesurée par sa capacité à combattre les grandes disparités socio-économiques entre les opérations agricoles modernes et celles plus traditionnelles du pays. Comme 40 pour cent des fermes ont un caractère « social » (bien qu'elles n'occupent que 8 pour cent de la superficie récoltée totale du pays), leur disparition éventuelle entraînerait d'importants coûts socio-économiques pour le pays. Le pilier n°2 du « Plan Maroc vert » décrit une approche qui, bien qu'elle soit très ambitieuse, a été conçue pour contribuer explicitement à la conservation de ce caractère social de l'agriculture marocaine, tout en s'efforçant également de relever les défis en matière de compétitivité et, en parallèle, de répondre à l'ensemble des préoccupations environnementales associées à l'intégration accrue dans l'économie mondiale. En tout état de cause, le plan vert doit encore être entièrement mis en œuvre ; c'est pourquoi les observations découlant de cette étude sont forcément provisoires, car elles dépendent de l'accomplissement des objectifs fixés pour 2020.

Résumé à l'Intention des décideurs

Ce rapport a été rédigé en pleine hausse des prix des denrées alimentaires et à un moment où l'ONU nous mettait en garde contre la menace imminente d'une crise alimentaire mondiale, annoncée pour 2013. À la demande de Pulse Canada, ce rapport donne une idée de l'augmentation des prix des denrées alimentaires et fait le point sur la sécurité alimentaire dans les pays à bas revenus ainsi que sur les répercussions de la situation actuelle sur les échanges agricoles internationaux. L'évaluation présentée dans ce rapport est fondée sur une analyse documentaire et des entretiens semi-structurés. Un cadre analytique a été établi pour évaluer la sécurité alimentaire nationale et les échanges commerciaux par un examen complet des facteurs à l'origine de l'augmentation des prix des denrées alimentaires, des prévisions relatives aux prix futurs des denrées alimentaires, et de l'impact de ceux-ci sur la sécurité alimentaire. Ce cadre analytique a ensuite été appliqué à la politique commerciale du Maroc à l'égard des lentilles canadiennes. Le document étudie la stratégie de sécurité alimentaire et la politique commerciale du Maroc afin d'évaluer les répercussions socio-économiques qu'aurait une diminution des droits à l'importation sur les lentilles canadiennes. Il étudie également les réponses politiques nationales apportées à la problématique de la sécurité alimentaire dans le contexte de la hausse des prix des denrées alimentaires. Ce rapport fournit une importante analyse détaillée de la relation existant entre les légumineuses et les efforts fournis par le Maroc pour ouvrir son économie dans le cadre de la situation économique mondiale actuelle.

Depuis 2008, le Maroc a mis en œuvre le Plan Maroc Vert, qui place l'agriculture au premier plan de ses stratégies en matière de croissance économique, de réduction de la pauvreté et de libéralisation des échanges commerciaux. Celui-ci vise à doubler la valeur ajoutée de l'agriculture⁶ en dix ans grâce à un profond remaniement de la structure du secteur en termes de modes de culture, de régimes de propriété foncière et de fiscalité agricole. Le Maroc espère ainsi accroître sa productivité et améliorer sa sécurité alimentaire grâce à la présentation d'une feuille de route pour les programmes d'investissement dans le secteur agro-alimentaire et à la mise en œuvre d'une série de réformes structurelles du secteur public. Les deux piliers de ce plan transformeront un secteur agricole insuffisamment performant en une source de croissance pour le pays, d'une part grâce au développement d'une agriculture à haute valeur et très performante (pilier I), et d'autre part grâce à la lutte contre la pauvreté rurale menée par le soutien des petits producteurs des régions les plus reculées (pilier II).

Une caractéristique importante du secteur agricole est la dualité entre les deux types d'agriculture existants. L'un est moderne, compétitif et commercial, tandis que l'autre est petit et présente un caractère social. Le pilier I du Plan Maroc Vert (le « Plan Vert ») concerne le premier type d'agriculture, tandis que le pilier II concerne le second. Le premier type tirera un avantage certain de la libéralisation, tandis que le second nécessitera d'importantes innovations en matière d'organisation afin de donner aux petits agriculteurs la possibilité de se joindre à de plus grands groupes pour atteindre l'échelle collective nécessaire qui leur permettra de tirer parti de ces mesures. Afin de rendre ces changements possibles, le Plan Vert propose un programme ambitieux visant à créer de la valeur ajoutée et à créer « des partenariats gagnant-gagnant entre l'amont productif et l'aval commercial et/ou industriel ».⁷

⁶ Le terme « agrégation » tel que défini dans le Plan Vert fait référence à deux types de projets : 1) des projets qui dépendent généralement du financement privé pour le développement d'une agriculture moderne fortement productive ou à haute valeur ajoutée (le lait, les viandes rouge et blanche, les céréales dans des zones favorables non irriguées) ; et 2) des projets de conversion visant à transformer les systèmes de production actuels, qui sont essentiellement dominés par la production céréalière, en récoltes à haute valeur ajoutée telles que les olives, les amandes et les figues. L'objectif consiste à replanter 400 000 hectares répartis entre 200 000 exploitations agricoles. Pour de plus amples informations, consultez le site http://www.ada.gov.ma/Plan_Maroc_Vert/plan-maroc-vert.php.

⁷ Voir http://www.ada.gov.ma/Plan_Maroc_Vert/plan-maroc-vert.php

L'Agence pour le développement agricole a été instituée afin de mettre en œuvre le Plan Vert. D'après l'Agence :

- L'agriculture moderne, localisée au niveau des zones irriguées et des zones favorables non-irriguées favorable, occupe 20 % des superficies cultivées et se caractérise par une forte productivité grâce à l'utilisation de techniques modernes.
- L'agriculture traditionnelle et vivrière est localisée au niveau des zones défavorable et dans les zones de montagne et oasiennes. Cette agriculture occupe 80 % de la surface agricole utile et reste très dépendante des précipitations.

Des 105 pays inclus dans l'indice global de sécurité alimentaire de l'Economist Intelligence Unit (EIU), le Maroc est un des trois pays qui ont connu la plus grande volatilité de leur production agricole au cours des 20 dernières années. Les deux autres pays, la Tunisie et l'Algérie, sont également nord-africains. Cette volatilité est révélatrice de la vulnérabilité du pays face à la variabilité climatique. Quinze pour cent seulement des terres agricoles marocaines étant irriguées, les agriculteurs sont à la merci de précipitations imprévisibles et de la sécheresse, dont les effets sur les rendements agricoles sont potentiellement dévastateurs. La fluctuation annuelle des précipitations est responsable de 75 pour cent de la variabilité du PIB marocain d'année en année (Sutter, 2012). En outre, le terrain étant très montagneux et aride, seulement 15 pour cent environ de la superficie du pays sont adaptés à la culture ou au pâturage, et 70 pour cent des exploitations agricoles comptent moins de 5 hectares. Du fait de ces conditions, la productivité agricole est faible et très variable.

Par conséquent, le Maroc dépend des importations d'aliments pour répondre à nombre de ses besoins et protège aggressivement son secteur agricole. En 2009, les taux de droit *ad valorem* s'élevaient jusqu'à 304 pour cent, bien que le taux moyen était retombé de 40 pour cent en 2003 à 29 pour cent en 2009 (OMC, 2009 : 79). L'indice global de sécurité alimentaire place le Maroc parmi les quatre pays qui comptent les droits à l'importation de produits agricoles les plus élevés du monde⁸. Cette préoccupation de protection de la production nationale se justifie par le fait que 50 pour cent de la population active totale et 80 pour cent de la population active rurale sont employés par le secteur agricole. Néanmoins, étant donné que les prix des denrées alimentaires ont connu une importante hausse ces dernières années, et puisqu'il est prévu que les prix de ces denrées continuent à augmenter, le fait d'assujettir les importations de denrées alimentaires à des droits de douane élevés pourrait peser sur la capacité de la population à se payer ces produits. En 2005, 39 pour cent des dépenses totales des ménages étaient consacrés à l'alimentation (EIU, 2012). La proportion des dépenses consacrées à l'alimentation a fort probablement augmenté au cours de ces dernières années en raison de la hausse des prix.

Le prix à l'exportation des petites lentilles vertes canadiennes (de la variété Eston), dont le Maroc est un grand importateur, a plus que doublé au cours des dix dernières années (STATPUB, 2012). Le Maroc applique un droit de la nation la plus favorisée (NPF) de 49 pour cent aux lentilles importées du Canada, qui représentent 95 à 97 pour cent des importations marocaines de lentilles (FAO, 2011). Comme la production domestique de lentilles est faible (4 pour cent de la superficie cultivée totale servent à produire des légumineuses et 0.5 pour cent sert à la production de lentilles) (MAPM, 2010), les consommateurs marocains subissent l'augmentation des prix des lentilles importées en raison des droits à l'importation élevés, en plus de la tendance globale à la hausse des prix des denrées alimentaires.

⁸ Mesuré comme étant la moyenne des droits de douane de la nation la plus favorisée (NPF) sur toutes les importations agricoles. Les trois autres pays sont la Norvège, la Corée du Sud et l'Égypte.

On considère qu'un deuxième problème découle du commerce irrégulier. D'après les personnes interrogés lors de cette recherche, 80 pour cent des lentilles canadiennes qui arrivent sur le marché marocain ont été introduites via des pays tiers ou d'autres voies non officielles sans paiement des droits à l'importation.⁹ En fonction de la précision de ces données, ceci signifie qu'environ les deux tiers des lentilles canadiennes consommées au Maroc pénètrent dans le pays via un commerce irrégulier. Les lentilles canadiennes arrivent surtout sur le marché marocain via les deux villes de Ceuta et Melilla, qui sont des zones franches espagnoles situées sur le territoire du Maroc. La combinaison des prix élevés et des droits à l'importation élevés encourage ce commerce.

Une analyse relative au bien-être réalisée pour cette étude révèle que la rente du consommateur liée à l'élimination des droits à l'importation des lentilles canadiennes est estimée à 3,45 millions de dollars canadiens, selon les données de la FAO pour 2010. Ce chiffre comprend l'élimination de 135 000 dollars canadiens qui représentent la perte des consommateurs provoquée par la charge excessive ou l'inefficacité des répartitions (« perte pour l'économie») créée par les droits à l'importation, par laquelle le prix des lentilles importées a des répercussions sur les prix relatifs aux dépens des consommateurs.

Compte tenu des efforts réalisés par le Maroc pour ouvrir et moderniser son économie tout en arrivant à minimiser l'incidence de la situation économique mondiale actuelle, les points principaux suivants relatifs aux légumineuses se sont dégagés de l'analyse documentaire et des entretiens menés à l'occasion de ces recherches.

Le lien inextricable entre sécurité alimentaire et politique commerciale

1. Le Maroc à diverses options possibles pour s'attaquer aux liens entre la sécurité alimentaire et la politique commerciale dans le cadre de stratégies de développement durable, en particulier dans le secteur agricole. En outre, ces différentes options ne s'excluent pas mutuellement et sont pertinentes à court et à long terme.
 - a. À court ou moyen terme, la satisfaction de la demande intérieure des denrées alimentaires de base impliquerait l'allègement des droits à l'importation et des autres restrictions à l'importation et, en parallèle, des mesures complémentaires ciblées pour atténuer les éventuelles incidences négatives de la libéralisation.
 - b. À plus long terme, elle nécessiterait d'encourager l'accroissement de la productivité par l'investissement dans des pratiques agricoles durables qui augmentent les revenus des agriculteurs et améliorent le rendement tout en utilisant les mêmes ressources (rares en terres et en eau), notamment par la recherche et le développement et par la coopération visant à améliorer les techniques d'irrigation, la qualité des semences et les pratiques culturales. Cela impliquerait d'investir dans des infrastructures encourageant la valorisation et de renforcer la technologie qui est à la base de pratiques agricoles plus efficaces et écologiques (par exemple, par des technologies d'irrigation plus efficaces) afin d'améliorer la situation en matière de sécurité alimentaire dans le sens des recommandations formulées par la FAO et le Rapporteur spécial des Nations Unies sur le droit à l'alimentation, entre autres.

⁹ Des entretiens semi-structurés avec trois grands importateurs, un économiste respecté (Najib Akesbi), un diplomate marocain, un agronome marocain à l'Institut national de la recherche agronomique ainsi qu'un représentant de l'OMC ont permis d'évaluer les implications sociales et économiques de la stratégie de sécurité alimentaire et la politique commerciale du Maroc. Les importateurs et l'officier de commerce ont allégué que les légumineuses entrent de plus en plus au Maroc par l'intermédiaire de pays tiers ou d'autres voies non-officielles à cause des prix mondiaux et des taux de droits de douane élevés. Les légumineuses, comme les lentilles, proviennent de pays qui reçoivent un accès en franchise au Maroc, comme l'Espagne. Les importateurs affirment que 20 000 tonnes de lentilles ont été importées en 2009-2010, et que seulement 4 000 tonnes ont été importées en 2010-2011.

2. Pour tenir compte du rôle essentiel que joue l'agriculture dans la sécurité alimentaire, des investissements publics et privés judicieux dans la filière agricole sont nécessaires afin de permettre aux petits exploitants agricoles d'apporter leur contribution à la résolution des difficultés, dans un 21^{ème} siècle marqué par l'insécurité alimentaire, notamment par le biais de quelques mesures spécifiques identifiées par l'étude, dans le respect des objectifs du Plan Maroc Vert d'ici 2020.

Le développement économique du secteur agricole

3. Les stratégies visant à améliorer la situation en matière de sécurité alimentaire au Maroc doivent comprendre des mesures de relèvement de la productivité agricole, notamment par le biais d'investissements accrus dans l'apport d'une valeur ajoutée à l'agriculture, de l'intégration équitable des petits agriculteurs dans les chaînes de valeurs, et de l'exploitation des opportunités créées par la libéralisation des échanges commerciaux.
4. Ces stratégies devraient en outre inclure des échanges de connaissances et d'expertise de terrain afin d'assurer un développement agricole durable dans un monde de contraintes climatiques et de compétition, notamment par la recherche constante de connaissances permettant d'adapter l'agriculture aux changements climatiques : l'eau, le développement agricole et la sécurité alimentaire sont inséparables.

Les objectifs de la politique commerciale et les filets de sécurité sociale

5. La satisfaction de la demande intérieure des denrées alimentaires de base par l'allègement des restrictions à l'importation et la réduction continue de l'écart entre le tarif NPF et le tarif préférentiel, tout en conservant à l'esprit la nécessité de combattre les incidences négatives potentielles et involontaires.
6. Assurer un suivi de l'efficacité des filets de sécurité sociale mis en place pour faciliter la transition du Maroc vers la « modernisation », reliant ainsi la réforme commerciale aux mesures du Plan Maroc Vert pour transformer la productivité et favoriser la production de moyens de subsistance locaux fiables par la filière agricole.
7. Il serait bénéfique d'évaluer davantage la possibilité du commerce irrégulier, son ampleur et son impact potentiel sur la sécurité alimentaire.

Comme l'analyse l'a noté, ce type de stratégie est profondément paradoxal vu le raisonnement suivant. Alors qu'à long terme, l'élimination des restrictions des échanges et l'abaissement des barrières commerciales peuvent contribuer à accroître l'efficacité du secteur, à court terme ces actions peuvent porter préjudice à l'utilisation d'un grand nombre de petites opérations. Voilà pourquoi le Maroc a mis en place des mesures de soutien ciblées. Accorder la priorité à la production de denrées à valeur ajoutée destinées à l'exportation peut être compatible avec l'objectif de réduction de la pauvreté et de l'insécurité alimentaire, tout en offrant l'occasion d'utiliser les systèmes institutionnels, les connaissances et les compétences existants du secteur rural. En outre, il est impératif d'accorder de la considération à des options profitables à plus long terme qui permettront aux petits agriculteurs d'accéder aux marchés et de s'intégrer dans les chaînes de valeur agricoles.

En ce qui concerne les lentilles, tout comme d'autres produits agricoles dont il prévu que les prix continuent à augmenter sur les marchés internationaux et dont la production nationale est très faible¹⁰, il y a lieu de penser que la diminution

¹⁰ Le taux d'auto-suffisance du Maroc en ce qui concerne les lentilles est d'environ 25 pour cent, et 95 à 97 pour cent des lentilles étrangères consommées au Maroc sont canadiennes.

des droits à l'importation pourra leur être profitable si elle s'accompagne de la mise en œuvre des mesures du Plan Vert dans leur intégralité. Pour autant qu'il n'y ait pas d'effets substitutifs délétères relatifs à d'autres biens produits sur le territoire national, et pour autant que la diminution des droits à l'importation sur les lentilles entraîne une baisse du prix payé par les consommateurs, la libéralisation des échanges commerciaux tendrait à améliorer la disponibilité et l'accessibilité des lentilles importées pour les consommateurs marocains, qui demandent de toute façon des produits étrangers du fait que la production nationale ne suffit pas à satisfaire la demande domestique. Pour autant que ceux-ci soient proposés aux consommateurs à un prix inférieur ou égal au prix actuel, l'effet positif potentiel d'une diminution des droits à l'importation sur les lentilles est manifeste.

Les résultats de notre étude montrent que les différents pays ont élaboré une vaste gamme de réponses politiques à l'augmentation des prix des denrées alimentaires. D'après une enquête de la FAO concernant les réponses politiques des pays à la récente crise, environ la moitié des 77 pays étudiés ont diminué leurs taxes à l'importation de céréales à titre de réponse essentielle à la fois facile à mettre en œuvre et politiquement opportune (FAO, 2008d). La suppression des barrières commerciales est un autre outil important pour l'amélioration de la sécurité alimentaire et la diminution des prix des denrées alimentaires. Toutefois, la signature d'accords commerciaux ne suffit pas, car des échanges commerciaux transfrontaliers efficaces nécessitent « la levée des barrières commerciales, des procédures douanières harmonisées, l'amélioration de la structure du marché, des informations de marché solides, des mesures qui garantissent la qualité de l'alimentation et la sécurité, et une bonne gouvernance » (FAO, 2011a). Parmi les autres mesures prises par les gouvernements nationaux, citons : les restrictions à l'exportation, le contrôle des prix, les prélèvements sur les stocks de céréales alimentaires, les mesures du type « filet de sécurité », l'intervention sur le marché des intrants, les investissements visant à accroître la productivité et à améliorer les réseaux de distribution, le renforcement des institutions de soutien, la création et l'amélioration des systèmes nationaux d'information relatifs aux prix ou aux politiques, et une attention croissante sur les systèmes de politique foncière et de gestion de l'eau.

Le Maroc compte poursuivre une stratégie de « ouverture maîtrisée » rendant possible un développement « harmonieux » grâce à la gestion d'une transition progressive vers la libéralisation accompagnée de mesures encourageant une économie rurale diversifiée et un secteur agricole pluraliste qui soit à la fois compétitif et durable (Haut-Commissariat au Plan du Maroc, 2008 : p.6-7). Bien que les stratégies de renforcement des exportations soient utilisées pour permettre au Maroc de tirer le plus grand parti des accords commerciaux, le Maroc a présenté une approche selon laquelle les politiques agricoles sont adaptatives, les disparités causées par le marché international sont corrigées en termes d'implications sociales et environnementales, et des mesures sont prises pour limiter le nombre de personnes fortement défavorisées (Haut-Commissariat au Plan du Maroc, 2008). Le Plan Maroc Vert a été mis en place afin de contribuer à garantir cette transition équitable. En raison de la dualité du secteur agricole marocain qui comporte deux types d'agriculture très différents, la réussite de ce plan sera mesurée par sa capacité à combattre les grandes disparités socio-économiques entre les opérations agricoles modernes et celles plus traditionnelles du pays. Comme 40 pour cent des exploitations agricoles ont un caractère « social » (bien qu'elles n'occupent que 8 pour cent de la superficie récoltée totale du pays), leur disparition éventuelle entraînerait d'importants coûts socio-économiques pour le pays. Le pilier II du Plan Maroc Vert décrit une approche qui, bien qu'elle soit très ambitieuse, a été conçue pour contribuer explicitement à la conservation de ce caractère social de l'agriculture alors que le Maroc s'efforce également de relever les défis en matière de compétitivité et, en parallèle, de répondre à l'ensemble des préoccupations sociales, vivrières et environnementales associées à l'intégration accrue dans l'économie mondiale. Notamment, le Plan Vert doit encore être entièrement mis en œuvre ; c'est pourquoi les observations découlant de cette étude sont forcément provisoires, car elles dépendent de l'accomplissement des objectifs fixés pour 2020.

1.0 Introduction

This report was being written in the midst of an emerging 2012 food crisis. The prices of internationally traded maize and soybeans reached an all-time high in July following drought conditions in both the United States and Eastern Europe (World Bank, 2012). Wheat prices also soared to levels comparable to 2011 peaks but below all-time records.

Although the World Bank does not currently foresee a repeat of the 2007–2008 food crisis, negative factors such as governments pursuing panic policies, a severe El Niño, disappointing southern hemisphere crops, or strong increases in energy prices, could cause grain prices to rise even higher than four years ago (World Bank, 2012). According to a joint study by the Food and Agriculture Organization (FAO) and the Organisation for Economic Co-operation and Development (OECD), the price increases and spikes of recent years may be indicative of what is to be expected into the future (OECD & FAO, 2012). Research by Oxfam shows that extreme weather events in a single year could bring about price spikes of comparable magnitude to two decades of long-run price rises—in North America, for example, if a drought similar to the one in 1988 reoccurs in 2030, export prices might increase by 140 per cent and world wheat prices by 33 per cent (Oxfam, 2012a).

Meanwhile, national governments are working together to establish food security strategies. The G-8 meeting in May 2012 led to the Camp David Declaration, which includes four paragraphs on food security and nutrition. The declaration acknowledges that international aid alone is insufficient, and that it is necessary to “invest in Africa’s growth, its expanding role in the global economy, and its success.” To do this, the G-8 will launch an initiative called the New Alliance for Food Security and Nutrition, which will accelerate the flow of private capital to African agriculture, scale-up new technologies and innovation to increase agricultural productivity, and reduce the risks borne by vulnerable economies. A final concern of the G-8 is trade. The Camp David Declaration also refers to the benefits of international trade, investment and market integration, and argues for a “fair, strong, rules-based trading system” in line with the framework of the World Trade Organization (WTO). International aid, private investment and international trade are three powerful mechanisms in the fight against food insecurity. In light of large-scale shocks in the world agricultural markets and projected food price increases, the years ahead will require concerted policy efforts.

This report is written in the context of rising food prices and warnings from the UN of a looming global food crisis in 2013 (UN, 2012). At the request of Pulse Canada, we compiled a review of literature that would provide insight into food price inflation and food security in low-income countries, and the implications for international agricultural trade. The first component of this study consists of a comprehensive review of the drivers of food price inflation, the projection of future food prices and the impact of these on food security. The second component situates this problem in the context of Morocco’s trade policy with Canada. In Section 5 of this paper, we examine Morocco’s food security strategy and trade policy, and assess the socioeconomic desirability of reducing import tariffs on Canadian lentils. In Section 6, we review the national policy responses that have taken place globally to address food security concerns in the context of rising food prices, and, based on these observations, issue broad recommendations to be considered in the context of Morocco’s food security and trade policies for Canadian lentils, in light of ongoing negotiations for a Morocco–Canada Free Trade Agreement. This analysis found that a reduction in import duties on Canadian lentils can be compatible with improved food security in Morocco. However, more research is needed to sufficiently assess the potential injury to Moroccan lentil producers. Due to the limited scope of this study, the analysis provided in this report must be complemented by in-depth research into the potential effects of trade liberalization to this segment of the population. We conclude with a summary and final observations in Section 7. In terms of case study methodology, we used semi-structured interviews with various individuals, including three large Moroccan importers, a respected Moroccan Economist (Najib Akesbi), a representative from the WTO, a Moroccan diplomat and Moroccan legume agronomist with the National Institute of Agronomical Research.

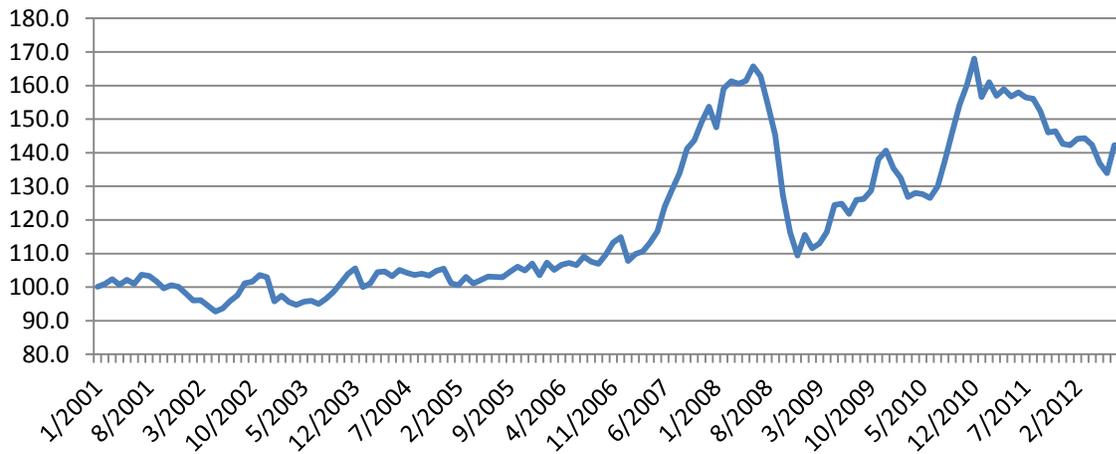


FIGURE 1: WORLD MONTHLY FOOD PRICE INDEX (2002-2004 = 100)

Source: FAO website. www.fao.org/fileadmin/templates/worldfood/Reports_and_docs/Food_price_indices_data_deflated.xls

This study is situated within a larger discussion regarding trade policy, which typically defines food security in terms of either food self-sufficiency or self-reliance. Countries pursuing a self-sufficiency strategy emphasize the production of food in quantities that are consumed domestically, whereas those pursuing self-reliance consider international trade as an essential component of a country's food security strategy. Countries pursuing self-reliance usually support market liberalization and export-oriented agriculture, and focus their economic activities on their comparative advantage in order to obtain sufficient foreign exchange earnings to import food necessary to meet demand over and above what they can efficiently produce (FAO, 2003). Countries pursuing self-sufficiency generally rule out imports as a source of food supply and rely heavily on domestic production. For countries whose agricultural production is constrained by environmental and other factors, a food self-reliance strategy that allows for imports as a source of food supply can help ensure greater food security. Critics of self-reliance contend that the ability of the strategy to improve the food security of all groups within a society is questionable, especially among small-scale and commercial farmers, rural non-farmers, rural farm producers and urban consumers, both within and across countries (FAO, 2003). In international circles, food self-sufficiency tends to be seen as benefiting the weak and the poor (Kent, 2002). However, opening up to trade can be compatible with the improvement of income, higher employment and accessibility to food. Trade liberalization is generally accepted to promote economic growth, which, in the longer term, may be the only way to obtain reductions in poverty. Lowering barriers to trade makes food more affordable to the poor. Importantly, however, to ensure an equitable transition, economic policy must be shaped around meeting short- and medium-term social and distributional priorities.

2.0 Food Price Inflation

According to the FAO's Food Price Index, the cost of a typical food basket is about 110 per cent higher than it was in 2002–2004.¹¹ While the impact of spiralling food prices varies across countries as well as social groups, some common outcomes can easily be delineated, more so amongst vulnerable groups which face universal problems arising from poverty and social systems, especially in the developing world (Mathur, 2010).

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Of several variables, food price is one of the most significant in determining the state of food security in the world. While the availability and adequacy of food worsens with food price inflation due to fallouts such as export curbs and hoarding, food accessibility is the most important consequence because inflation increases the amount of resources necessary to obtain appropriate food for a nutritionally balanced diet, especially among vulnerable groups such as the urban and rural poor, and women and children in developing countries. According to the FAO, the number of undernourished people increased from 848 million to 1,020 million between 2003–2005 and 2009 due primarily to the food and financial crisis (Von Grebmer et al., 2009). Robert Zoellick, president of the World Bank until June 2012, said that the crisis of surging food prices of 2007–2008 could mean “seven lost years” in the fight against worldwide poverty (World Bank, 2012). Food prices have increased 142 per cent in developing countries and 38 per cent in the OECD in the last decade.

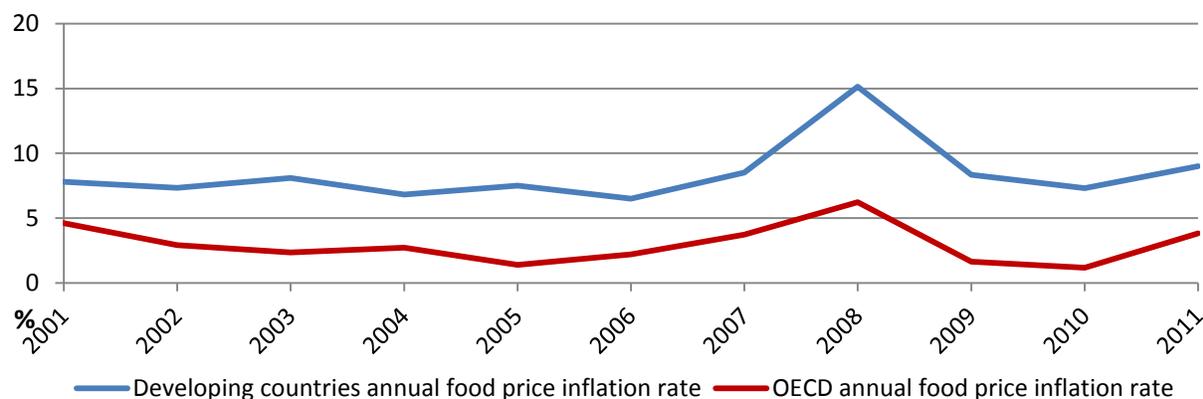


FIGURE 2: FOOD PRICE INFLATION 2001-2011

Source: OECD & FAO, 2012. Retrieved from <http://dx.doi.org/10.1787/888932638773>

As this paper is being written, we are in the midst of an emerging 2012 food crisis, mainly due to drought conditions in the United States. Food prices into the future are expected to remain high through the next decade compared to pre-2007 levels.

¹¹ <http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/>

2.1 Factors That Cause Food Price Inflation

An FAO study (2008d) reports that a confluence of different forces created the unique conditions that contributed to the world food price crisis of 2007-2008. On the supply side, the study describes several factors, including weather-related production shortfalls, the gradual reduction in stock levels and increasing fuel costs. On the demand side, the study notes significance of the biofuels market and the changing structure of demand. Other relevant factors that they discuss include the operations of financial markets, which exacerbated short-term policy actions and exchange rate swings. Our comprehensive review of literature has identified the following drivers of food price inflation. We present them in detail below.

- Growing demand from developing countries
- Changing structure of demand
- Energy prices
- Biofuels
- Weather-related production shortfalls
- Stock levels
- Operations on the financial market
- Short-term trade policy choices
- Exchange rate swings
- Growing scarcity of viable agricultural land
- Under-investment

2.1.1 Growing Demand From Developing Countries

Demand from consumers in developing countries is considered in much of the literature to be an important and major driver of food price inflation (FAO, 2011e; OECD, 2008a; von Braun, 2008; Johnson, 2008; Oppedahl, 2009; UNCTAD, 2008; Capehart & Richardson, 2008; ALNAD, 2008). This demand growth is being driven by both increasing populations in these countries as well as growth in GDP (Abbott & Borot de Battisti, 2009). Countries are becoming both bigger and richer, and are consequently demanding more food than ever before.

The OECD identifies growing demand from developing countries as one of the primary drivers of the 2007-2008 food crisis, noting that “food and feed demand growth came primarily from countries outside the OECD area and accounted for the remaining nearly 50% of the total increase in demand” (OECD, 2008a, p. 4). Abbott and Borot de Battisti (2009) support this finding, noting that developing country demands put particular pressure on food and feed supply and quickly depleted stocks before and during the crisis.

Demand from developing countries is expected to continue growing in the future due to substantial population growth and economic development (FAO, 2011e). As the OECD states, “*macroeconomic conditions* that favour economic growth, increases in purchasing power, and stronger demand for agricultural commodities are expected to continue” (OECD, 2008a, p. 4). While these trends are expected to continue, Johnson (2008) notes two factors that will eventually dampen this growth in demand. First, the proportion of household income that is spent on food tends to fall as standards of living become sufficiently elevated. Second, when economic development has continued long enough, developing

countries will exhaust their potential to grow rapidly by adopting new technologies to improve labour productivity, for example, and their growth will slow. However, these factors are not likely to be evident for some time.

2.1.2 *Changing Structure of Demand*

Economic development and income growth in developing countries, coupled with population growth and urbanization, is changing not only the quantity of food demanded, but the structure of demand for food commodities (FAO, 2008d; OECD, 2008; von Braun, 2008; Johnson, 2008; ALNAP, 2008; Rye, 2011). As diet patterns move away from starchy foods and towards meat and dairy products, there is an intensifying demand for feed grain (von Braun, 2007, 2008).

Johnson (2008) outlines the Chinese example, as well as how the changing demand structure is raising prices:

According to the U.S. Department of Agriculture data, Chinese per capita urban consumption of milk nearly quadrupled between 1990 and 2006 and its per capita rural consumption of pork, beef, and mutton rose 50 per cent. At the same time, per capita rural consumption of rice fell slightly. No doubt similar changes in diet are occurring in other countries where economic growth is raising incomes. It takes about seven pounds of grain to produce a pound of beef. The mix of food being consumed is thus changing in a way that adds to the global demand for grain. (Johnson, 2008, p. 10)

Coupled with the intensifying demand for feed grain, Oppedahl (2009) observes that the growing world demand for livestock products also added to the competition for scarce farmland, “pushing the opportunity costs of land even higher.” The evolution toward more meat-based diets in many part of the developing world will be an important driver of future food prices as cereals are increasingly diverted to feed domestic animals, lowering the total supply of food (Granberg, 2008). Because food demand becomes less responsive to price changes as incomes rise and the commodity share in the food bill falls, such changes are permanent factors that may lead to greater volatility in future world prices (OECD, 2008a).

2.1.3 *Energy Prices*

Energy prices are a major driver of food price inflation (FAO, 2008d; OECD, 2008a; IFRPI, 2010; Johnson, 2008; Ortiz, Chai, & Cummins, 2011; Mitchell, 2008; ALNAP, 2008), since, as von Braun (2008) notes, energy and agricultural prices have become increasingly intertwined as stronger linkages between energy and agricultural markets have developed. Johnson (2008) adds that elevated prices for crude oil and natural gas, in particular, have pronounced negative impacts on the supply of world food crops. Oil is an energy source that is tightly integrated with levels of food production, processing and transportation systems.

Leading to the 2007–2008 food crisis, rising energy prices “led to large jumps in production costs for farmers, especially for corn production” (Oppedahl, 2009). Johnson (2008) notes that energy prices also affect fertilizer prices, many of which are made from hydrocarbons. The increase in fuel prices raised the costs of producing many agricultural commodities with, for example, the U.S. dollar price of some fertilizers (e.g., muriate of potash) increasing by more than 160 per cent in the first quarter of 2008 compared to the same period in 2007. The Reuters–CRB energy price index had more than tripled over the previous five years.¹² In early 2007, freight rates had doubled from their levels 12 months

¹² <http://crbtrader.com/crbindex/>

earlier, so the costs of transporting foods to importing countries was also affected (FAO, 2007). The price of energy is another key driver in the present rise in the cost of food. Although not at historically high levels, its general rise in recent years has certainly contributed to the rising food production costs that we are witnessing today (Rye, 2011).

As stated by the OECD, there is a “widely held belief that oil price increases are permanent, lifting future prices to higher average levels” (OECD, 2008a). High oil and energy prices that continue to fluctuate around a rising trend—along with increased uncertainty—are expected to be an important contributor to food price inflation going forward (OECD & FAO, 2012), but the degree to which they will drive prices will depend upon how high energy prices climb and how volatile they are.

2.1.4 Biofuels

The biofuels market is a significant source of demand for agricultural commodities like sugar, maize, cassava, oilseeds and palm oil. This leading source of demand for these commodities is an important factor behind the rise in prices in world markets, resulting in higher food prices (FAO, 2008d; FAO, 2011e; OECD, 2008a; Johnson, 2008; Ortiz et al., 2011; Capehart & Richardson, 2008; ALNAP, 2008; Mitchell, 2008). Because of the increase in the price of crude oil, these commodities are now being grown as raw material for producing biofuels (feedstock) rather than food or feed. Public policies that support the biofuels sector such as U.S. Energy Independence and Security Act and biofuel subsidies in various OECD countries further encourage the demand for these feedstocks.

Among all major food and feed commodities, the additional demand for maize (to produce ethanol) and rapeseed (to produce biodiesel) has the potential for the strongest impacts on prices (FAO, 2008b). Out of the nearly 40 million tonne increase in global maize utilization in 2007, almost 30 million tonnes were absorbed by ethanol plants alone, mostly in the U.S., which is the world’s largest producer and exporter of maize. In the EU, the biodiesel sector is estimated to have absorbed about 60 per cent of member states’ 2007 rapeseed oil output, which amounts to about 25 per cent of global production and 70 per cent of the 2007 global trade in the commodity (FAO, 2008c).

Another issue is the amount of planting area that could be diverted from producing other crops for those used for biofuel production. For example, high maize prices in 2006 encouraged U.S. farmers to increase maize planting by 18 per cent in 2007 at the expense of reductions in soybean and wheat areas. This decrease in the production of soybean and wheat led to a sharp rise in their prices. Empirical observations suggest a strong level of interdependence between the price of gasoline, ethanol, maize and sugar, and between crude oil and important vegetable oils such as palm, soybean and rapeseed (European Commission, 2008).

Diversion of agricultural land to biofuel production was a key factor in the 2007–2008 food crisis. As Abbott and Borot de Battisti (2009) note, many studies on the subject attribute a large part of the responsibility for the 2007–08 commodity spike to crude oil price trends, notably for corn, for which ethanol production was an important driver. Mitchell (2008, p. 1) identifies biofuels as the most important driver of the food crisis, stating that “the contribution of biofuels to the rise in food prices raises an important policy issue, since much of the increase was due to EU and U.S. government policies that provided incentives to biofuels production” and that “biofuels policies which subsidize production need to be reconsidered in light of their impact on food prices.” In this context, OECD biofuel subsidies and the U.S Energy Independence and Security Act (2007) has contributed significantly to food price inflation.

The New England Complex Systems Institute has isolated biofuels as one of the central causes of the food price increases currently being experienced (in addition to speculation, discussed below). They state that “misguided food-to-ethanol conversion [biofuel] programmes . . . have created a food price bubble, leading to an inevitable spike in prices by 2013,” which has come online earlier than anticipated due to drought (Horton, 2012). The importance of biofuels as a driver of current food price increases has led to calls for a suspension of U.S. ethanol quotas, which stipulate that 40 per cent of the corn crop must be converted into ethanol (Abbott, 2012).

The degree of influence of biofuels on future prices will depend on policy choices and innovation. As Johnson (2008, p. 14) states: “further increases in diversion of resources to ethanol production seem likely, though the pace at which they are occurring may moderate.” Feedstock demand under current policy settings is set to grow, but if different policy choices were made this could affect food prices significantly. As the OECD (2008a, p. 7) stated, “if biofuel production is assumed to remain at 2007 levels, rather than doubling over the next 10 years as expected, the projected prices for coarse grains would be 12% lower and vegetable oil 15% lower in 2017 than currently expected.”

Innovations such as second-generation feedstocks (e.g., lignocellulosics) that do not compete with agricultural products for land resources may help offset the effect biofuels are currently having on food prices, but the timing of their development and commercialization and the extent to which they replace first-generation feedstocks are uncertain.

2.1.5 *Weather-Related Production Shortfalls*

Unsurprisingly, weather is another important factor in agricultural production and food prices (FAO, 2008d; OECD, 2008a; von Braun, 2008; Oppedahl, 2009; Ortiz et al., 2011; Capehart and Richardson, 2008; ALNAP, 2008, Horton, 2012). And Oppedahl (2009) and the OECD (2008) both note the importance of weather as a driver in the 2007–2008 food crisis. Extreme weather events will remain a key factor in food production and food prices.¹³ Recent weather events such the severe drought conditions experienced in the United States, continuous rains in Europe, poor monsoon conditions in India, drought in the Horn of Africa, Eastern Europe and Argentina, wildfires in Russia, and floods in Pakistan (Rye, 2011; UNICEF, 2011), have all contributed to the falling production and rising costs that are currently being experienced. Extreme weather events are to be expected, but the confluence of these particularly numerous extreme weather events has drastically affected production. Climate change will affect agricultural productivity and the suitability of particular regions to agriculture (OECD, 2008a; Granberg, 2008). Weather is projected to become even more erratic with time (IPCC, 2007; Oxfam 2012a).

2.1.6 *Stock Levels*

Since the previous high-price event in 1995, global stock levels declined by an average of 3.4 per cent per year as demand growth outstripped supply. Production shocks at such low stock levels helped set the stage for the rapid price increases. This reduction in stock levels was enabled by a number of changes in the policy environment since the Uruguay Round Agreements, namely: the size of reserves held by public institutions; the high costs of storing perishable products; the development of other, less costly risk management methods; an increase in the number of countries that are able to export, and; improvements in information and transportation technologies (FAO, 2008d). Therefore international markets tended to become tighter, magnifying price volatility and the magnitude of price changes that

¹³ Prior to the 2007/08 food crisis there was a significant decline in the production of cereals in major exporting countries where yields declined by 4 per cent in 2005 and 7 per cent in 2006. In Australia and Canada, yields fell by about one fifth in aggregate. The quick supply response in 2007 came at the expense of reducing productive resources allocated to oilseeds in some countries, leading to an important decrease in oilseeds production. The unfolding 2012 crisis is due in large part to drought conditions in the United States.

result from unexpected events. Absent buffer stock supplies, prices may rise sharply under either a demand or supply shock. According to Abbott and Borot de Battisti (2009, p. 9), it is not only the stock levels themselves that matter, but the expectations around them. They note that “expectations of low stocks to use ratios surely contributed to the high grain prices in mid 2008.” Low stock levels played an important part in the 2007–2008 food crisis (FAO, 2008d; OECD, 2008a; Abbott and Borot de Battisti, 2009; ALNAP, 2008).

Stock levels of wheat, coarse grains and vegetable oil have fallen to low levels in recent years, reducing the cushion against shocks in supply and demand. Stocks are not expected to be fully replenished over the coming 10 years. Therefore, tight markets may be a permanent factor in the coming decade. This development provides a backdrop for more price volatility in the future since both stock levels and expectations of stock levels can have an important impact of food prices (OECD, 2008a).

2.1.7 Operations on the Financial Market

In 2006 and 2007, particularly before the credit crunch, there was an abundance of liquidity in certain parts of the world. Together with low interest rates and high petroleum prices, the derivatives market based on agricultural commodities became increasingly attractive to speculators who sought to spread their risk and pursue more lucrative returns. Speculation on agricultural prices influenced the underlying spot markets sufficiently to disrupt the decisions of farmers, traders and processors of agricultural commodities (OECD, 2008a). Johnson (2008) explains the increased interest in speculating in agricultural markets:

[T]hose in the food production and processing industries [have for a long time] hedge[d] against price change, ensure[d] supply for their processing activities, and moderate[d] the consequences of short-term volatility in demand, supply, and price of particular products. Recently, investors who previously largely avoided trading these contracts have developed an interest in them, using them as another source of possible profit, i.e., an asset class from which returns can be earned by buying and selling. In addition, commodity-focused mutual funds and exchange-traded funds have added another opportunity for investors to profit from fluctuations in commodity prices without becoming exposed to the risks of investing in individual commodities. (Johnson, 2008, p. 11)

This increased speculation in agricultural markets is widely perceived in the literature to be a key driver of the 2007–2008 food crisis and to food prices in general (FAO, 2008d; OECD, 2008a; Johnson, 2008; Abbott and Borot de Battisti, 2009; ALNAP, 2008; Ortiz et al., 2011; Heady, 2010; Horton, 2012). But the issue is not without controversy, as some literature asserts that the speculation exacerbated the crisis and was a response to it, rather than a primary driver (Mitchell, 2008). And Abbott and Borot de Battisti note that its role is the most prominent unresolved debate around the causes of high international grain prices.

Financial markets were a key factor in the recent price rise (Ortiz et al., 2011; Horton, 2012). The New England Complex Systems Institute identifies rampant commodity speculation as a key driver of what they believe to be a food price bubble, and recommend reining in speculators before prices are driven even higher by speculation (Horton, 2012). As Ortiz et al. (2011) state, when “Russia announced a ban on the country’s grain exports . . . European wheat futures prices [went] up by more than 12 per cent in a single day” and “coupled with news of bad weather in several key exporting countries, the price of wheat soared nearly 90 per cent between June and December 2010” (p. 3). By June of last year markets in food derivatives were awash with US\$89 billion in speculative cash. Barclays, the United Kingdom’s top food speculator, this year highlighted speculation as a “key driver” of rising prices (Horton, 2012).

It is likely that speculative investments in futures commodity markets will continue to have short-term price effects. As the OECD states, “relative to the ten year outlook period these may prove temporary, given adjustment in markets and participants’ behaviour: funds can move rapidly in and out of commodity markets as profit opportunities dictate. Given their size, this may well be a new and permanent element in future price volatility” (OECD, 2008a, p. 5). However, the degree to which speculation drives food prices will also be a function of the amount of regulation the commodity speculation is placed under (or not) in the coming years.

2.1.8 Short-Term Trade Policy Choices

Domestic trade policies such as high import tariffs and export bans can protect domestic prices from world market volatility, but they can also result in increased volatility as a result of domestic supply shocks and can worsen the effects of world price changes. In many cases, it is “unpredictable government policies [that] are a more important cause of domestic price volatility than world market price fluctuations” (FAO, 2011, p. 22). The importance of this as an exacerbating factor in food price inflation is widely cited in the literature (FAO, 2011e; Abbott & Borot de Battisti, 2009; Oppedahl, 2009).

The FAO (2008c) finds that during the 2007–2008 food crisis, some of the measures to reduce the impact of higher prices on vulnerable consumers, such as export bans and increased export taxes, exacerbated the short-run volatility of international prices. And Abbott and Borot de Battisti (2009) cite aggressive ad hoc policy responses to high food prices as an aggravating factor in the 2007–2008 food crisis, where because both “exporters and importers used policy to isolate domestic markets, [they] export[ed] instability rather than adjusting to it.” Trade insulation resulted in “increased prices and volatility in international markets, making domestic price increases in small import-dependent countries larger than they otherwise would have been” (FAO, 2011e, p. 21).

Countries such as India, Pakistan, Vietnam and Russia responded to the crisis by imposing export restrictions on grains such as rice. According to a World Bank working paper by Donald Mitchell (2008) which cites the United States Department of Agriculture (USDA), there was a noticeable and distinct increase in rice prices following the Indian and Vietnamese bans. Such bans led to less supply worldwide. There was also panic buying by countries such as Hong Kong and Vietnam. The Philippines imported 1.3 million tons of rice in January–April 2008, which was more than they had imported in the whole of 2007. Hoarding of food grains only added to the problem.

2.1.9 Exchange Rate Swings

Fluctuations in exchange rates, especially due a falling U.S. dollar, are frequently cited in the literature as an important driver in the 2007–2008 food crisis (Abbott & Borot de Battisti, 2009; Mitchell, 2008; Ortiz et al., 2011; Capehart & Richardson, 2008; IFRPI, 2010). However, Abbott and Borot de Battisti note that in addition to the role of financial markets, bilateral exchange rates are a factor over which there has been both confusion and disagreement on the presence or extent of its role as a factor in the crisis.

Since internationally traded food commodities are often quoted in U.S. dollars, the weakening currency in the latter half of 2010 led to higher commodity prices. As Ortiz, Chai and Cummins report, the recent increases are less dramatic, albeit still substantial, when adjusted by a basket of currencies. This implies that when the U.S. dollar weakens, consumers in a dollar-pegged economy pay even higher domestic prices for imported food items compared to consumers in a flexible exchange rate economy, all else being equal (Ortiz et al., 2011).

The exchange rate is difficult to predict, but a depreciated US dollar going forward seems likely and is expected to have an important influence of food prices (OECD & FAO, 2012) because “when the US dollar weakens, consumers in a dollar-pegged economy pay even higher domestic prices for imported food items compared to consumers in a flexible exchange rate economy, all else being equal” (Ortiz et al., 2011, p. 3).

2.1.10 Growing Scarcity of Viable Agricultural Land

Viable agricultural land is becoming increasingly scarce as the availability of arable land dwindles and more and more farmers work on ecologically fragile land (UNCTAD, 2008). This is a deep-seated driver of food price inflation (FAO, 2011e; ALNAP, 2008; Rye, 2011; UNCTAD, 2008). Topsoil erosion is also a major problem as modern ploughing, overgrazing and pesticide use have driven a steady depletion of worldwide topsoil. An estimated 25 billion tons of topsoil are lost to erosion each year. The UN estimates that erosion has now seriously degraded about 40 per cent of the world’s agricultural land (ALNAP, 2008). This is making viable land increasingly scarce and pushing up the price of food (Rye, 2011).

The effects of climate change on the suitability of particular regions to agriculture will be an important determinant of the relative scarcity of agricultural land. But equally important will be water constraints, as shrinking water tables and climate patterns may make rain-fed agriculture unfeasible in some regions, and even irrigation unfeasible in others (OECD, 2008a; Henderson, 2008).

2.1.11 Under-Investment

An additional driving factor in food price inflation is under-investment in the agricultural sector (OECD & FAO, 2012; ALNAP, 2008; UNCTAD, 2008; Oppedahl, 2009). The reasons for underinvestment are diverse. Oppedahl (2009) emphasizes how global trade distortions such as agricultural subsidies in OECD countries act to suppress the development of agricultural markets that could benefit from technological innovation and mechanization. Additionally, high feed costs and weaker economic conditions can combine to reduce producer returns in the livestock sector, encouraging them to reduce animal inventories and slow total meat production, leaving little left over for investment (OECD & FAO, 2012). Investment in agriculture and the supporting transportation and logistical infrastructure can also be squeezed by a discouraged domestic or foreign investment climate, or the inadequacy of international aid to developing country agriculture (UNCTAD, 2008).

Investment levels in the agricultural sector affect the pace of yield growth globally, and thus will be a key determinant of the supply side of the global food market. As Johnson (2008) states, “the potential for world production to rise through improved yields in non-OECD countries as a result of upgrading techniques, fertilizers, and seeds (is) substantial.” He believes that “further improvement in yields among the OECD member countries as a result of new research and increased productivity will likely continue at its long-term pace,” but what will occur in developing countries will largely be a product of the degree of private and public investment in developing country agriculture. The OECD notes (2008a, p. 7) that “if it is also assumed that cereals and oilseeds yields are 5% higher than expected, projected wheat and maize prices would be a further 6 and 8% lower, respectively,” underscoring the importance of increased investment and continued yield growth.

2.1.12 Interlinkages

Many of these factors are interlinked. Consider that crude oil prices, which are a reasonable proxy for energy markets, have been found to “determine the long-run equilibria of both sugar and ethanol prices in Brazil,” as well as to constitute an “important driver in EU vegetable oil markets,” leading to a ripple effect with soybean oil prices also influencing palm and rapeseed oil markets (FAO, 2008d, p. 10–11). Also consider the extent to which biofuels policy in the United States and the European Union may affect feedstock prices, or the tightening relationship between biofuel and fossil fuel markets as production capacity grows and substitutability increases. However, many studies have shown that an increase (decrease) in crude oil prices will decrease (increase) the value of the U.S. dollar relative to most high- and low-income countries’ currencies (Abbott, Hurt, & Tyner, 2008; Harri, Nalley, & Hudson, 2009; Schnepf, 2008; Trostle, 2008). Two other factors, namely the growing demand from developing countries and the changing structure of demand, which are discussed above, also have a bearing on these dynamics, mostly by driving the demand for these agricultural commodities and the demand for energy.

These developments may have an effect on the current account of a country as imports become less or more attractive, possibly influencing short-term trade policy choices and stock levels. The price of oil will also increase the cost of agricultural inputs and the costs of transportation. Agricultural inputs like phosphorous, nitrogen and potash, aside from being increasingly expensive, are also causing environmental damages (Smil, 2000).

2.2 Projections and Determinants

Overall, there is a growing consensus in the literature that high food prices are likely to persist into the future, at a minimum throughout the next decade (Ortiz et al., 2011; OECD & FAO, 2012). The FAO notes that food prices are generally expected to rise because continued population and economic growth will put upward pressure on demand, as will the anticipated increased use of biofuels (depending on biofuel policies and the price of oil) (FAO, 2011a). On the supply side, if oil prices continue to rise, agricultural production costs will increase, contributing to higher food prices. Natural resource constraints, especially climate change and the limited availability of productive land and water in some regions, pose substantial challenges to producing food at affordable prices. In addition to being higher, food commodity prices may be more volatile in the future due to extreme weather and new linkages with the price of oil.

The recent OECD-FAO report *Agricultural Outlook 2012–2021* states that agricultural commodity prices are expected to trend upwards over the next 10 years, with prices 10–30 per cent above those of the previous decade (OECD- & FAO, 2012). Their outlook assumes that higher oil prices—which are a fundamental factor behind the higher agricultural commodity price projections—will be high and thus affect not only oil-related costs of production but also increase demand for the agricultural feedstock that is used for the production of biofuels. Moreover, growing resource constraints, environmental pressures and higher input costs are anticipated to reduce the agricultural production growth rate to 1.7 per cent compared to the 2 per cent annual growth that was seen in the previous decade. As 680 million people are added to the world’s population by 2021, rising incomes and urbanization are expected to lead to changes in diets that shift consumption to more processed foods, fats and animal protein, which will drive the indirect demand for coarse grains and oilseeds for livestock feed. OECD-FAO reports that agricultural production needs to increase by 60 per cent over the next 40 years to meet the rising demand for food and to provide feedstock for expanding biofuel production. Their *Outlook* maintains the perspective of recent years that “agricultural commodity prices will remain on a high plateau throughout the next decade, underpinned by the assumption that oil prices will continue to rise in both nominal and real terms” (p. 27). Higher input costs (fertilizer, chemicals) will “slow yields and productivity

growth, and together with resource pressures on water and land availability for agricultural expansion will cut the pace of production increases and lead to less accumulation of stocks” (p. 28). In the nearer term, the USDA Food Price Outlook is forecasting that U.S. consumers may pay 3 per cent to 4 per cent more for food in 2013 (USDA, 2012). Its forecast was updated and has remained unchanged following recent developments. According to the UN, global food production will need to rise by 50 per cent by 2030 to meet demand. The Secretary General of the UN, Ban Ki Moon, has said that we will need 50 per cent more food, 45 per cent more energy and 30 per cent more water by 2030.¹⁴

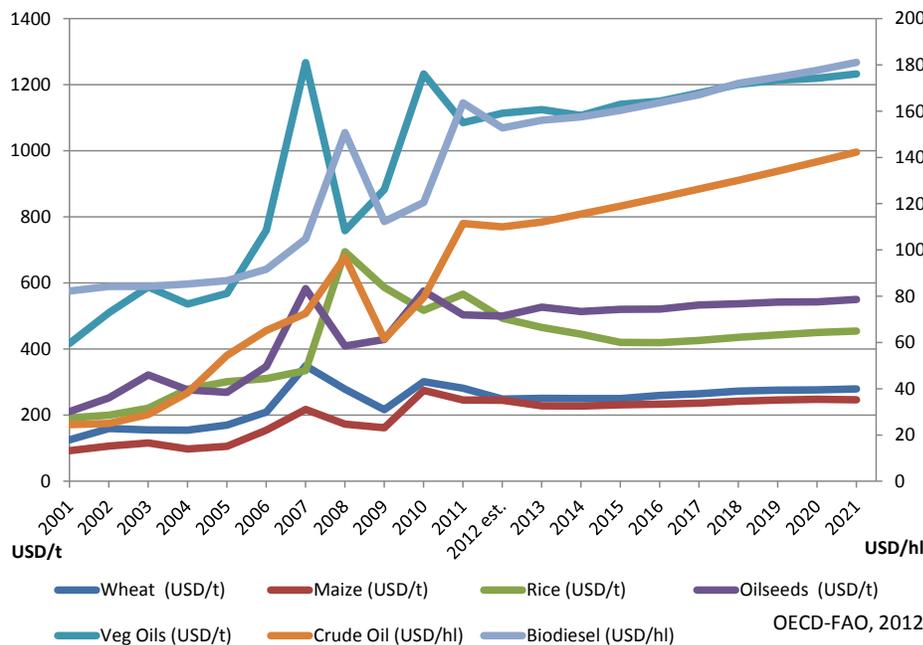


FIGURE 3: PRICE TRENDS IN NOMINAL TERMS OF SELECT AGRICULTURAL COMMODITIES TO 2021

Source: Data derived from <http://dx.doi.org/10.1787/888932638887>

In the future, prices will continue to increase, and they will also be more volatile. A study by Oxfam predicts that international price rises of key staples in the region of 120 to 180 per cent by 2030 (Oxfam, 2012b). Moreover, the international agricultural market will become even more vulnerable to climate conditions, leading to high volatility. According to Oxfam (2012b, p. 5), “extreme weather events in a single year could bring about price spikes of comparable magnitude to two decades of projected long-run price rises.” For instance, a drought in North America in 2030 similar to the one in 1988 may increase export prices for corn by about 140 per cent and world wheat prices by about 33 per cent (Oxfam, 2012a).

2.3 Impacts of Food Price Inflation

In low-income countries, price increases have mixed effects on poverty and hunger (Swinnen & Squicciarini, 2012; Timmer, 1986). They increase the cost of food for consumers but increase the incomes of farmers, which represent the bulk of the world’s poor. The net effect depends on whether poor households buy or sell food, or, at the national level, whether the country is a net importer or exporter (Bureau, Jean, & Matthews, 2006).

¹⁴ <http://www.un.org/en/sustainablefuture/pdf/Secretary-General-Remarks.pdf>

Prior to the 2007–2008 world food crisis, there was a widespread notion, even at the FAO, that “the long-term downward trend in agricultural commodity prices threatens the food security of hundreds of millions of people” (FAO, 2005). However, the high commodity prices that ensued sparked a major reversal in opinion among non-governmental organizations (NGOs) and international organizations that high food prices worsen the food deprivation suffered by 1 billion people and push hundreds of millions into poverty (FAO, 2008c, 2009b; Oxfam, 2011). The average impacts on poverty of an increase in food prices depends upon the balance between the two effects: the increase in the real income of those selling food, many of whom are relatively poor, and the injury to net consumers, many of whom are also relatively poor. It should be noted that many farmers are also net consumers.

Several studies have found that, although the impacts of higher prices differ considerably by commodity and by country, “poverty increases are more frequent and larger than poverty reductions” (Ivanic & Martin, 2008; see also Wodon et al., 2008). Literature suggests that factors such as the increase in wages that may occur in the medium to long term for those workers who contribute to the production of food crops, for example, compensates in only a limited way for the initial increase in food prices (FAO, 2011a). Since the poorest people spend around three-quarters of their incomes on staple foods, it is a general finding of these studies that a large share of the increase in poverty will consist of deeper levels of poverty among households that are already poor. Although higher prices could reduce poverty by increasing the incomes of farm households, which are frequently poor, this effect is, in most cases, offset by adverse impacts on poor households that are net buyers of food.

A study by the Overseas Development Institute (ODI) reports that most poor households were left to cope on their own with high price rises in 2007–2008 as community support declined due to the number of people being affected, and external assistance was slow to arrive (Compton, Wiggins, & Keats, 2011). Poor households may be forced to cope by depleting their asset base, reducing the number or variety of meals they consume, or reducing spending on essential non-food expenditures, such as health and education. Therefore, the erosion of real income in poor households not only harms their ability to cover basic needs but has the potential to do so for some time to come, thus diminishing their prospects of escaping poverty (Zezza et al., 2008, p. 12). Wodon et al. (2008) found that a 50 per cent increase in prices for selected food items led to an average increase of between 2.5 and 4.4 per cent in the share of the population in poverty. Taking sub-Saharan Africa as an example, which has a population of 800 million, a 3.5 per cent increase in poverty could lead to 30 million additional people falling into poverty. However, they show that a large proportion of the increase in the poverty is due to an increase in how much poorer those who are already poor are becoming as a result of high prices. Households chose to protect their productive assets and human capital by taking on extra work, tapping into savings and credit options. Some households pawned valuables to buy food.

2.3.1 Rural and Urban Populations

Low-income households, which spend a large proportion of their income on tradable staple products, are likely to be the ones whose overall welfare is worst affected by a rise in food prices, while households that derive a large proportion of their income from the production and sale of those goods will be positively affected. Middle-income rural households have the highest share of production of tradable goods, while the poorest rural households spend the highest proportion of their income on these products (Zezza et al., 2008). The vast number of rural households are net food buyers rather than net sellers. However, a substantial share of the poor are net sellers (about 25 per cent according to Zezza et al. (2008)) and would benefit from higher prices. The effect for households that are both producers and consumers is ambiguous and depends on their net position in the particular market. In both rural and urban areas, the poorest of the poor (the bottom 20 per cent) face the largest relative welfare loss (around 3 per cent) with the second poorest quintile losing over 2 per cent.

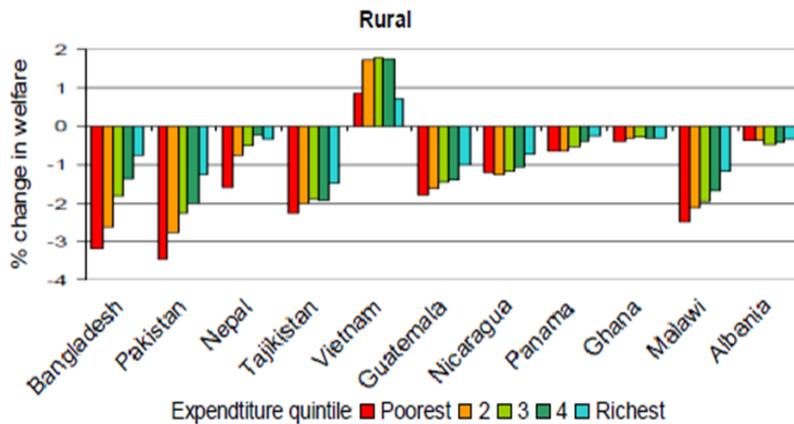


FIGURE 4: EFFECT ON RURAL HOUSEHOLD WELFARE OF A 10 PERCENT RISE IN THE PRICE OF THE MAIN THREE TRADABLE STAPLES FOR EACH COUNTRY.

Source: Zezza et al., 2008.

This graph emphasizes a point made earlier in this section. Since the majority of households in developing countries are net consumers, especially among the poorest segments, rising prices rarely benefit the rural communities as a whole. In an analysis of Kenya’s smallholder maize farmers, for example, Jayne et al. (2001) found that most rural smallholders, even in the major agricultural areas of the country, are net buyers of maize throughout the year and are directly hurt by higher maize prices. In the 22 agricultural districts that they examined, 52 per cent of farmers were net maize buyers, about 16 per cent of farm households neither purchased nor sold maize, and the other 32 per cent were net sellers. Moreover, low-income farm households in Kenya were more likely than high-income households to be net maize buyers, and therefore, they conclude that the maize import tariff that was being used by the Kenyan government to support high maize prices was acting as a tax on the rural poor. Diaz-Bonilla and Ron, (2010, p. vi) corroborate this effect: “border protection acts as a regressive and mostly privately-collected tax on food: it has a larger negative incidence on poor consumers, who spend a greater percentage of their incomes on food In developing countries, it is the rural poor that are most affected by price increases (Zezza et al., 2008). Since net consumers constitute the majority of the rural population (Zezza et al., 2008), the current increasing trend in food prices will tend to outstrip the income generation capacity of rural net consumers, with long-term negative consequences for both subsistence production and rural development.¹⁵ That is, unless these households are able to react to food price increases through increased income generation or other coping strategies.

Welfare effects also vary by the gender of the household head. In urban areas, female-headed households suffer a larger proportional drop in welfare as a result of a price increase than male-headed households (Zezza et al., 2008). This is because female-headed households tend to consume proportionally more food than male-headed households. Moreover, females face a number of gender-specific obstacles that limit their ability to produce food, particularly with regards to accessing inputs, services, land and credits. Households with less land and lower levels of education, and larger households are also associated with larger welfare losses from rising food prices. The poor households that have access to key resources needed to turn farming into a profitable activity—such as land in sufficient quantity and modern inputs such as fertilizers and pesticides—may be able to gain from an increase in prices.

¹⁵ We acknowledge George Gray, who reviewed this paper, for emphasizing this point.

These findings from Zezza et al. (2008) are corroborated by the literature (Compton et al., 2011). They imply a need for governments to put in place safety nets to help poorer households manage the short- and longer-term implications of food price increases on their ability to recover from the shock and their prospects to exit poverty. Another implication is the need to invest in agriculture to improve the ability of the poor to access key resources and inputs in order to turn agriculture into a viable enterprise for smallholders.

2.3.2 Influence on Diets

Nearly all households surveyed by ODI in 2008 reported cutting back on a wide range of expenditure items and eating cheaper, less nutritious food. With a rapid food price increase, the poor have no choice but to increase their spending on food, and reduce their purchasing for other basic needs. Some strategies used by the poor to cope with food increases include (Ruel, Garrett, Hawkes, & Cohen, 2010):

- *Switching to cheaper, less preferred or lower-quality staples to keep up energy intake*
- *Buying less food, skipping meals or reducing overall food intake. Such strategies result in declines in household food security and related reductions in energy, protein, and micronutrients, increasing the risk of undernutrition and micronutrient deficiencies, especially among women and children, who are the most vulnerable.*
- *Decreasing the intake of non-staple foods, which include animal source foods such as meat, eggs and dairy, as these are more expensive, increases the risk of micronutrient deficiencies among all family members, but especially among those with higher requirements like women and young infants/ children.*
- *Increasing the consumption of street foods, which can be a cheap source of energy and time savers but are often prepared in poor sanitary conditions and can result in food-borne diseases. These foods also contain unhealthy levels of energy, saturated fats, salt and refined sugars.*
- *Using different ingredients and cooking methods. Such strategies usually involve substituting animal source foods or vegetables with non-nutritious spices and artificial flavours. An extreme example is the consumption of cakes made from salt, oil and mud in Haiti.*
- *Modifying the intra-household allocation of resources. Mothers may act as buffers and eat less in order to keep the high-quality foods for their husband and children. This can be particularly detrimental if the woman is pregnant.*

It is reported that the effects of rising food prices on nutrition are normally visible within a few months in the poorest populations where nutritional status is already precarious, and the impact is most severe among mothers and young children due to a combination of macronutrient and micronutrient deficiencies (Devereux, 2009). In some cases, the effects of maternal undernutrition will lead to “irreversible damage to the foetus that will persist across the course of life” (UN Standing Committee on Nutrition, 2008, p. 2). Bhutta et al. (2009) predicted for East Asia and the Pacific that “if unaddressed the recent crisis could increase rates of maternal anaemia by 10–20% and prevalence of low birth weight by 5–10%. In addition rates of childhood stunting could increase by 3–7% and wasting by 8–16%. . . . overall under 5 child mortality in severely affected countries . . . could increase by 3–11%.”

There is evidence that both urban and rural households quickly adopted several of the food-based coping strategies above, such as purchasing cheaper, less preferred, and a smaller variety of food and consuming smaller portions and skipping meals, despite spending increasingly large proportions of their income on food during the 2007–2008 crisis (IFAD, 2008). Due to the crisis, households reported having to borrow money (80 per cent), rely on less expensive

food (80 per cent), spend savings on food (60 per cent) and reduce the portions or number of meals (40 per cent) (Ruel et al., 2010). A study of four urban centres in West Africa found that households spent a greater proportion of their income on staple foods and decreased their consumption of micronutrient-rich foods such as animal source products and vegetables due to food price increases as a result of the devaluation of the African Financial Community Franc in 1994 (Diagana et al., 1999). Similarly, during the Asian crisis of 1997–98, the per capita energy availability in Indonesia declined 9.6 per cent among the poorest and 4.2 per cent among the wealthier households (Hartini et al., 2003). Moreover, households reduced their purchase of nutritious foods in order to afford buying rice that was more expensive, resulting in a measurable decline in blood haemoglobin levels in young children and their mother, and increasing the probability of developmental damage (Block et al., 2004). Children will take several months of intensive feeding to recover from malnutrition (Webb, 2002). In Indonesia, three years after the economic crisis, “early childhood weight for age had not yet returned to its [pre-crisis] level” (West & Mehra, 2010, quoted in Compton et al., 2011). Stunting may also be a permanent consequence of a food crisis.

It should be noted that the composition of diets can have implications for the impact of rising food prices. In countries where the diet is largely composed of non-tradable foods are less affected because these will usually be less sensitive to the price of tradable goods.

2.3.3 Stress and Potential Social Unrest

The ODI review states that a rise in food prices increases stress and conflict within and between households (Compton et al., 2011). Focus groups in Yemen, Liberia and Burkina Faso reported stress and family tension, including increased divorce, the early marriage of daughters and “wives returning to their parents’ homes because the husbands cannot afford to feed them” (Compton et al., 2011, p. 39). Many countries have reported worries and stress about insufficient food quantity and quality, and concerns about social unacceptability (Coates et al., 2006). A study by Hadley and Patil (2008) has found that “food insecurity is a strong predictor of symptoms of anxiety and depression, that changes in food insecurity across the seasons predict changes in symptoms of anxiety and depression, and that this [relationship] is robust to the inclusion of covariates for material assets and household production” (quoted in Compton et al., 2011, p. 39). It was also found that child underfeeding can result in poor self-esteem, disempowerment, social exclusion and loss of aspirations (Dercon, 2008).

Research by the International Monetary Fund (IMF) has shown that, in low-income countries, increases in international food prices lead to a significant deterioration of democratic institutions and a significant increase in the incidence of anti-government demonstrations, riots and civil conflict (Arzeki & Brückner, 2011). During the food crisis of 2007–2008, food riots erupted in 48 countries (Brinkman & Hendrix, 2010). Such unrest can have lasting political consequences like the resignation of Haitian Prime Minister Jacques-Édouard Alexis, or the 2009 coup against President Marc Ravalomanana of Madagascar, where popular opposition was partially due to negotiations for the leasing of a portion of Madagascar’s arable land to a South Korean firm, a situation which was spurred by concerns over food price volatility (Brinkman & Hendrix, 2011). Food prices may increase as a result of social unrest, as was the case of Darfur, where the prices of main food staples increased rapidly after widespread violence started in late 2003, thus further exacerbating conflict.

Empirical evidence suggests that when the ability of the political system to provide security for the population breaks down, popular support disappears. The conditions of widespread threat to security are particularly present when food is inaccessible to the population at large (Lagi, Bertrand & Bar-Yam, 2011). In this case, the reasons to support the

political system are eliminated and any incident may trigger protests and other actions that disrupt the existing order, and extreme actions that jeopardize the leadership of the political system may take place. Lagi et al. (2011) illustrate the relationship between the increase in food prices and the occurrence of social unrest in the chart below. The black line depicts FAO Food Price Index from January 2004 to May 2011. The red dashed vertical lines correspond to beginning dates of food riots and protests associated with the major recent unrest in North Africa and the Middle East. The overall death toll is reported in parentheses.

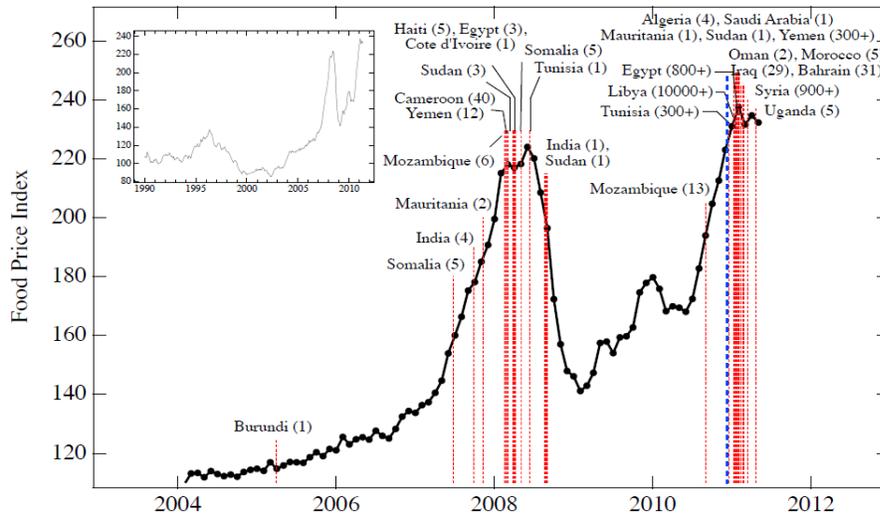


FIGURE 5: THE RELATIONSHIP BETWEEN THE INCREASE IN FOOD PRICES AND THE OCCURRENCE OF SOCIAL UNREST.

Source: Lagi et al., 2011.

2.3.4 Other—Macroeconomic

The widening of a country's current account deficit due to an increase in the price of food import bills can impact other microeconomic variables such as the exchange rate, central bank reserves or increased indebtedness. Macroeconomic impacts are important because they affect the level of per capita income, which ultimately is a key determinant of living standards for individuals and families (FAO, 2011a). High international food prices benefit countries that export those products, while low prices benefit importing countries. The effects on the balance of payments and the exchange rate will be strongest for countries for which food trade is a substantial share of exports or imports.

Countries that had high current account deficits prior to a food price increase and that are predicted to have higher relative increases in their food import bills are more vulnerable from a macroeconomic perspective. Macroeconomic vulnerability is correlated with food insecurity. A study by the FAO shows that, in 2008, of the 19 countries with large deficits and predicted import bill growth greater than 1 per cent, 11 had undernourishment rates greater than 20 per cent (one out of five people does not consume the minimum caloric requirements) (FAO, 2008d).

3.0 Food Security

Food security is generally defined by the FAO as a condition where 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 (FAO, 2002). A food-secure household is one in which all household members are well-nourished. This definition of food security is founded on three fundamental elements: adequate food availability, adequate access to food and appropriate food utilization. As emphasized by Amartya Sen (1981), food security is determined not by whether there is a sufficient amount of food available, but by whether individuals have access to it. In the context of this paper, domestic and global trade may increase the availability of food, but how does it affect the access that poor people have to food? To have access to food, and thus gain their “entitlement,” as Sen pointed out, the poor need to have sufficient income to purchase this food. In other words, the market must be accessible to them. Sen’s work has motivated much development in Ethiopia, Bangladesh and elsewhere as people have recognized that most famines occur in the midst of sufficient food availability due to issues of access.¹⁶ In Bangladesh, for example, a famine occurred in 1974 in the midst of peak food production because millions of people, agricultural labourers in particular, lost wages because of flooding and could not afford to buy food. This empirical perspective was reinforced by more recent analyses of poverty in rural areas that, using the Household Economy Approach has shown that the poorest in rural communities are the most market dependent and therefore most likely to be affected by issues of food access, especially rising food prices (Misselhorn, 2005).

Sustainable and responsible trade is primarily concerned with the ability of a country to provide adequate food supply through sufficient production capacity, imports and exports that generate income and foreign exchange in order to ensure food security (Diaz-Bonilla & Ron, 2010).

The critical linkages between food security outcomes, program outcomes and potential risks interact within a hierarchical framework where food security is a result of adequate food availability and access, as well as proper food utilization—food availability is necessary but not sufficient for access, and access is necessary but not sufficient for utilization (as depicted by Webb and Rogers (2003) in Figure 6). These are the four main dimensions of food security that may be used to assess the sustainability and responsibility of trade and trade policies:

Physical availability of food: “Food availability addresses the ‘supply side’ of food security and is determined by the level of food production, stock levels and net trade” (FAO, 2008a, p. 1). It derives from domestic agricultural output (cash crops, livestock and food crops), ideally through sustainable use of natural resources (water, land, vegetation) and is enhanced at the national level by net food imports (commercial or concessionary) (Webb & Rogers, 2003). For example, a severe drought can reduce harvests or kill livestock; war or conflict can prevent food import to certain regions; shortage of seeds or fertilizers can reduce yields; an infestation can diminish food stocks or ruin harvests (IFRC, 2006, p. 8).

Economic and physical access to food: “An adequate supply of food at the national or international level does not in itself guarantee household level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives” (FAO, 2008a, p. 1). Food access depends on the household’s purchasing power, which varies in relation to market integration, price policies and temporal market conditions (Webb & Rogers, 2003). In the context of trade, liberalization may improve economic

¹⁶ We thank reviewer George Gray for making this observation.

growth, but care is needed to ensure that these benefits reach the poor in order for it to promote food security. For example, high market prices of certain food will reduce market access to these foods; a broken bridge can hamper access to food or trade markets; low livestock prices can reduce cash availability to purchase food; lack of education and skills reduces job opportunities and income (IFRC, 2006, p. 8). Market access can be affected by changing global terms of trade, market disruption during crises, or non-farm employment insecurity, and it can be negatively influenced by physical insecurity (conflict), loss of coping options (such as border closure preventing seasonal job migration), or the collapse of safety net institutions that once protected people with low incomes (IFRC, 2006).

Food utilization: “Utilization is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals” (FAO, 2008a, p. 1). For example, chronic diseases such as HIV/AIDS and tuberculosis cause increased nutritional needs; some cultural beliefs prevent people from eating certain healthy foods; lack of nutritional knowledge causes people to have an inadequate diet (IFRC, 2006, p. 8).

Stability of the other three dimensions over time: “Even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on your food security status” (FAO, 2008a, p. 1). To be food secure, an individual or household must have access to adequate food all the time, and should not risk losing access to food as a consequence of a sudden shock like an economic or climate crisis, or of a cyclical event like seasonal food availability. Without viable expectations of availability, access and utilization at all times, a household is subject to deep-seated uncertainty that affects all of its investment and disinvestment decisions.

The three factors of food availability, access and utilization interact over time, resulting in conditions ranging from acute insecurity (a famine), to seasonal discontinuities (lean seasons), to guaranteed access and utilization for all individuals. It is important to distinguish between chronic and transitory food insecurity. Chronic food insecurity is a long-term or persistent inability to meet minimum food consumption requirements, while transitory food insecurity is a short-term or temporary food deficit (FAO, 2008a). The concept of seasonal food insecurity falls between chronic and transitory food insecurity. It is similar to chronic food insecurity as it is usually predictable and follows a sequence of known events, and it occurs when there is a cyclical pattern of inadequate availability and access to food that is usually associated with seasonal fluctuations in the climate, cropping patterns, work opportunities (labour demand) and disease (FAO, 2008a). According to the World Bank, in 1986 “the major sources of transitory food insecurity are year-to-year variations in international food prices, foreign exchange earnings, domestic food production and household incomes. These are often related. Temporary sharp reductions in a population’s ability to produce or purchase food and other essentials undermine long term development and cause loss of human capital from which it takes years to recover.” While chronic food insecurity is associated with problems of continuing or structural poverty and low incomes, transitory food insecurity involves periods of intensified pressure caused by natural disasters, economic collapse or conflict.

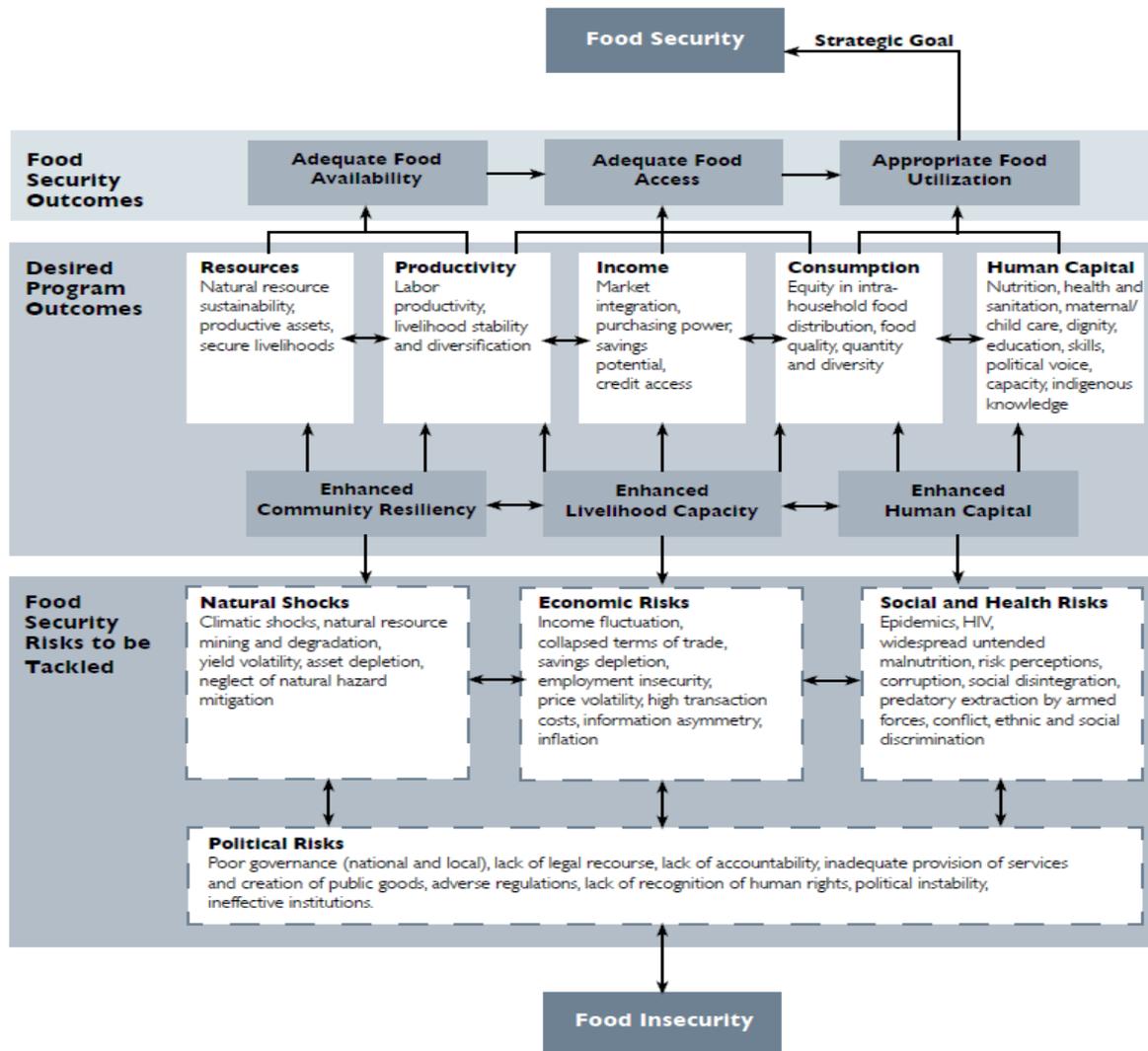


FIGURE 6: CRITICAL LINKAGES BETWEEN FOOD SECURITY OUTCOMES, PROGRAM OUTCOMES AND POTENTIAL RISKS.

Source: Webb & Rogers, 2003.

4.0 The Trade and Food Security Nexus

In relation to trade and trade policies, food security is usually defined in terms of either food self-sufficiency or food self-reliance (FAO, 2003). Whereas food self-sufficiency emphasizes the production of food in quantities consumed domestically, food self-reliance focuses more on the availability of various food products for domestic consumption. Based on this distinction, self-sufficiency rules out imports as a source of supply while self-reliance admits them. Countries pursuing a self-sufficiency strategy generally favour not only small-scale enterprises for local food production, but also advocate diets that are simple and natural, and rely heavily on home production rather than the international marketplace (Chandra & Lontoh, 2010, p. 2).

The principle of self-reliance generally considers international trade as an essential component of a country's food security strategy. Countries pursuing such a strategy usually support market liberalization and export-oriented agriculture founded on a strong local market through improvements in physical infrastructure and credit facilities. Based on their individual comparative advantage, such countries focus on their ability to generate foreign exchange earnings to import the food they wish to consume over and above what they can efficiently produce (FAO, 2003). Given the much larger worldwide capacity to produce rather than consume food, the minimum of restrictions imposed on food items in countries that possess excess capacity and the availability of the international transportation system, food self-sufficiency, according to its critics (e.g., Panagariya, 2002), makes little economic sense.

On the other hand, critics of self-reliance (e.g., Khor, 2008; Vivas, 2009; Prachason, 2009) contend that the potential gains from trade liberalization cannot be guaranteed, and its ability to improve the food security of all groups within a society is questionable, especially among small-scale and commercial farmers, rural non-farmers, rural farm producers and urban consumers, both within and across countries (FAO, 2003). As Chandra & Lontoh (2010) explain, neither food self-sufficiency nor food self-reliance is capable of generating equal benefits for everyone. In international circles, food self-sufficiency tends to be seen as benefiting the weak and the poor (Kent, 2002). However, world markets are becoming an important source of food for many developing countries, especially where food production is constrained by natural and other factors, as in the case of Morocco. As Konandreas (2006) emphasizes, the act of importing a commodity generally implies that it can be procured from abroad more cheaply than it can be produced domestically.

In order to pursue successfully a strategy of food self-reliance, a few important qualifications should be taken into account (Konandreas, 2006, pp. 4-6). The first concerns **import capacity**, which is the ability of developing countries to produce other goods and services and secure, through trade, the foreign exchange they need to import food. The second concerns the **reliability** of the world market as a source of affordable food supply. It is also important to consider how these may be affected by trade liberalization. In terms of import capacity, there is evidence to suggest that developing countries are increasingly able to either maintain or improve their ability to finance food imports—in Southeast Asia there has been a significant shift in the economic production of the region from the agriculture sector to manufacturing and, increasingly, the services sector (Chandra, 2009, p. 499). Although such shifts undermine the sustainability of the domestic agricultural sector, and thus food production, incomes generated from the manufacturing and services sectors allow these countries to manage their food imports accordingly.

The supply **stability** of food may be enhanced through trade as it allows consumption fluctuations to be reduced and relieves countries of part of the burden from stock-holding interventions, but full reliance on trade does not necessarily yield domestic price stability (Konandreas, 2006). A key consideration is whether current domestic price variability is

greater or less than future price instability in the international market.¹⁷ A country relying on food imports may face an additional supply uncertainty for reasons outside its control that may affect the reliability of world markets as a source of affordable food supplies. The inflation of international food prices in 2007–2008 shows the extent to which pro-self-reliance countries are vulnerable vis-à-vis the global food market (Christiaensen, 2009).

The FAO (2003, p.3) has stated that “the strategy employed by individual countries to improve their food security status is one of the key factors in understanding the relationship between trade liberalization and food security.” As discussed earlier, two broad options have generally been followed by countries attempting to achieve adequate levels of food security: food self-sufficiency and food self-reliance. According to the FAO (2003), the success of these two options depend on the ability of producers to react to price incentives, or on the ability of countries to use income gains for improved efficiency of resource allocation in order to produce food on the international market. The authors summarize the arguments succinctly as follows:

- A more open trade regime reduces the variability of food supplies: This is likely in the context of stable and predictable international markets where reliance on domestic stocks to stabilize domestic consumer and producer prices may be an expensive alternative. However, if the open trade context is less stable and predictable than under protection, then supply variability will increase.
- Advantages from the possibility of lower domestic prices: This is likely to occur. Any effect will depend partly on the transmission elasticities between international and domestic prices. However, lower prices would not necessarily be an advantage, depending on the location and employment of those that are food insecure. If many of the poorest households are dependent directly or indirectly on agricultural production for their main income, the overall effect on food security may be negative.
- Tax revenue from additional imports can be used to finance the adjustment of those who are disadvantaged by liberalization: Additional tax revenue will only accrue if the increase in imports more than compensates for the lower tariff leading to the rise in imports. This is a reflection of the elasticity of import demand.
- Small-scale farmers who are using more labour-intensive techniques are more able to adapt to changing demand patterns: It is important to know the location of the poorest households, what their income-earning possibilities are, and the constraints they may face in adjusting to changing economic opportunities. If there are short-run difficulties with regards to responding to the changing context, governments may need to introduce liberalization in a gradual and sequential fashion.
- In itself, economic growth does not ensure greater food security: It is important to investigate who will be made worse off by liberalization. However, the provision of a social and economic safety net as a short-term ameliorative measure in the context of growth oriented strategies has often been proven intractable, with persistent high-levels of under-employment and food insecurity in many high growth economies. Economic policy should be shaped around meeting short- and medium-term social and distributional priorities, with trade strategies moulded around these primary objectives. In the long-run, however, economic growth may be the only way to obtain large reductions in poverty.

¹⁷ There are two factors that determine whether the domestic market is more or less unstable following the removal of quantitative restrictions and/or the reduction of tariffs. First, is whether the extent to which domestic “shocks” to production and consumption are offset by changes in the volume of trade, and second, the extent to which original policy measures acted to isolate the domestic market or not (Konandreas, 2006).

It is generally accepted that trade liberalization promotes economic growth domestically, and may thus improve incomes, employment and accessibility to food. Sumner (2003, pp. 10–13) found that policies that increase the incomes of the poor are likely to raise the Index of National Food Security, which measures the “probability that some given share of the population will be able to achieve adequate food intake in the future.” There is evidence to suggest that export industries in many developing countries are more labour intensive than import substituting industries and that employment thus tends to grow in outward-orientated economies (Chandra, 2009). Moreover, there are a number of examples where developing export cash crops resulted in an increase in food production and spillover benefits to other farmers, such as the improvement of inputs and service delivery (Govere & Jayne, 2003). Border protection that increases the costs of food may lead to higher salaries, affecting competitiveness, production and employment in export industries (Díaz-Bonilla & Ron, 2010). Díaz-Bonilla and Ron (2010) suggest that a way out of trade protection is to invest in the agricultural sector, whose expansion would trigger dynamic linkages and support production and employment in other sectors, while higher productivity in agriculture will help reduce food prices for consumers.¹⁸

It should be emphasized, however, that food security is achieved through a set of government policies that integrate the food economy into a development strategy that seeks rapid economic growth with improved income distribution (Timmer et al., 1983). Trade liberalization can play an important role in improving access to food, but governments must effectively address distributional issues and ensure that the gains from trade reach the poor.

¹⁸ According to Díaz-Bonilla and Ron (2010, p. viii), adequate policies for food security go beyond trade regulations. The interventions needed may include: increased investments in physical and human capital, land tenure, water access, technology, infrastructure and general services (such as health and education), especially focusing on women and the poor; support to non-agricultural rural enterprises; ensuring that product and factor markets operate adequately; implementing well designed safety nets (including conditional cash transfers, school lunches, women and infant nutrition, food-for-work); strengthening organizations of small farmers and empowering women; eliminating institutional, political and social biases that discriminate against vulnerable groups and supporting the expansion of social capital and political participation for the poor and vulnerable, strengthening democracy and good governance; promoting macroeconomic stability; and implementing effective measures of adaptation and mitigation to climate change.

5.0 Morocco Case Study

Morocco is a lower-middle-income North African country with a population of 32 million people, a per capita GDP of US\$3,054 in 2011 and a GINI index of 40.9 in 2007 (World Bank – World Development Indicators). Being close to Europe, it occupies a privileged position and enjoys close diplomatic and economic relationships with many European countries such as France, Spain and Italy. Its standard of living is twice as high as the continental average. Two thirds of the rural population are poor: 80 per cent of the 14 million rural inhabitants depend on revenues from the agricultural sector for their livelihoods. That is why reducing poverty is an important priority of the government and is a necessary qualification to improve the state of food security and sustainable development in the country. To this end, Morocco has put in place social safety nets and strategies to diversify the economy to support the country's transition to "modernization."

Agriculture is the country's primary economic engine, contributing 14.4 per cent to GDP in 2010 (World Bank). Approximately 50 per cent of the total active population and 80 per cent of the active rural population is employed by the sector. Of the total number of agricultural operations in Morocco, about 70 per cent are 5 hectares or less, meaning that smallholders and small-scale farms account for a significant proportion of farming activity. This is due in large part to the fact that the agricultural lands are fragmented by mountainous terrain, which makes it difficult to modernize agriculture because investing and utilizing modern technology in such an environment is often unprofitable. The agricultural sector is therefore characterized by its dual nature. One type of agriculture is modern, competitive and commercial, while the other is small and of a social character. Although the small- and medium-sized farms outnumber the larger ones, the majority of all arable land is occupied by larger operations.

Despite the economic importance of agriculture, only about 15 per cent of the country's terrain is actually capable of growing crops or pasture, and drought is a serious threat throughout the country due to insufficient and irregular precipitation. Since 85 per cent of agricultural land is without irrigation, farmers are exposed to erratic precipitation and drought, with consequent effects on yields, and the annual fluctuation in rainfall explains 75 per cent of the year-to-year variability in Moroccan GDP (Sutter, 2010). Moreover, it is reported that precipitation levels have decreased about 35 per cent in the last 30 years (HCP, 2008). The drought in 2005 cut national cereal production by half. Climate change, which will increase the probability of low harvests or crop failure in rainfed areas where irrigation is not available to buffer adverse climate conditions, will impact production unevenly across the country.

The agricultural sector does not meet domestic demand for agricultural products, and the spatial expansion of agriculture has reached its limits. Therefore strategies to improve the state of food security must include measures to improve agricultural productivity and enhance other forms of income generation, but also take advantage of the opportunities from the liberalization of trade in these products. This type of a strategy presents another duality for the agricultural sector based on the following rationale. Whereas, in the long-term, removing trade restrictions/lowering trade barriers will improve the efficiency of the sector, in the short-term it will affect the employment of a large number of small operations. However, an orientation towards cash crops and value-added production for exportation can be compatible with the goal of reducing poverty and food insecurity by increasing access to food, while offering opportunities to use the existing institutional system and the knowledge and skills of the rural culture. That is why it is important to have adequate short-term support measures in place targeted to those that are made worse off/who are adversely affected during the transition. It is also imperative to give consideration to alternative, profitable, longer-term options for the rural poor.¹⁹

¹⁹ According to the latest data, the poverty rate is three times higher in rural areas than it is in urban areas (RdM, 2010). About two-thirds of the poor live in rural areas, with a particular concentration where cultivable areas and economic development are limited. Pillar II of Morocco's Green Plan aims to provide support to this segment of the rural population.

In this context, the socioeconomic implications of agriculture are important given that (Saoud, 2011):

- It is a significant driver of economic growth: the sector represents 20 per cent of GDP
- It impacts macroeconomic stability, notably the current account balance: €1.5 billion in exports versus €4 billion in imports.
- It impacts the employment and stability in rural areas, where agricultural producers are vulnerable: 49 per cent of Moroccan households are rural.
- The economic weight of the agriculture industry: €450 million in exports and 60,000 jobs.
- The food accessibility implications (price versus quality) for 32 million consumers.

As a net-food importing country, demand for agricultural goods in Morocco is not met by domestic production. For example, in 2005–2007, national cereals production covered only 50 percent of demand (FAO, FAOSTAT). Cereal imports increased from 38.5 million quintals in 2003 to 67.0 million quintals in 2007.

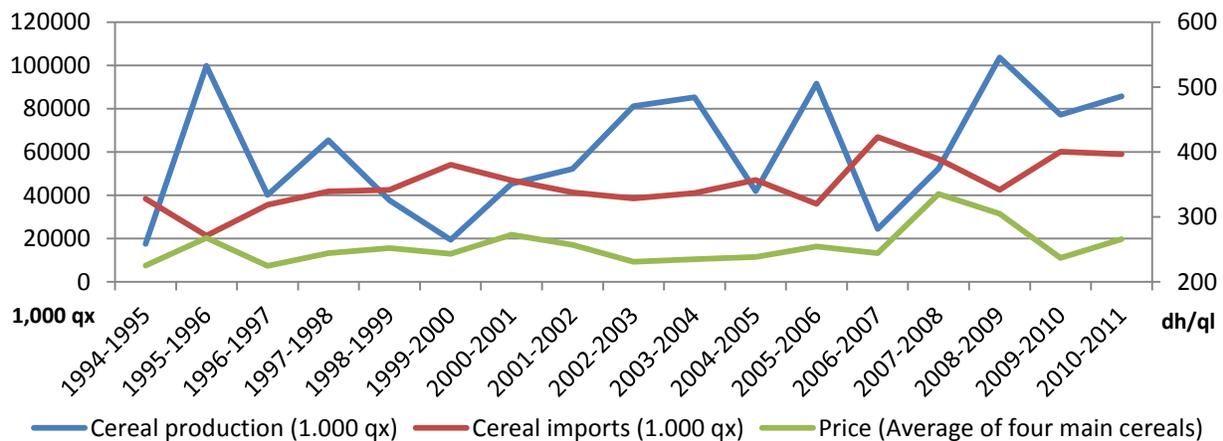


FIGURE 7: CEREAL PRODUCTION/IMPORTS 1994–2011

Source: ONICL

Of all the Arabic countries, Morocco is one of the most vulnerable to external shocks due to its high dependence on imports and its limited capacity to finance them (BM, FAO, & FIDA., 2009). To improve the productivity of cereals operations and reduce its exposure to the international market, the Green Morocco Plan has the aim to increase production by 20 per cent and efficiency by 50 per cent, and to reduce imports by 15 to 20 per cent by 2020 (MAPM, 2009). However, most of the financing for the implementation of this plan is destined for high-value-added production, with only a small proportion dedicated to small farming operations (MAPM, 2008).

Cereal production represents 65 per cent of the total cultivated area in Morocco. The expansion of cereals throughout the years has sometimes been made on marginal lands, making production even more vulnerable to changes in the climate and precipitation. As a result, the productivity of cereal agriculture is highly unstable from year to year. Moreover, the dominance of cereals makes Moroccan agriculture very poorly diversified and non-conducive to the growth of the agricultural sector. Therefore, the Morocco Green Plan includes an ambitious reconversion program that seeks to convert these agricultural lands such as fruit plantations and pastoral land to produce higher value-added goods.

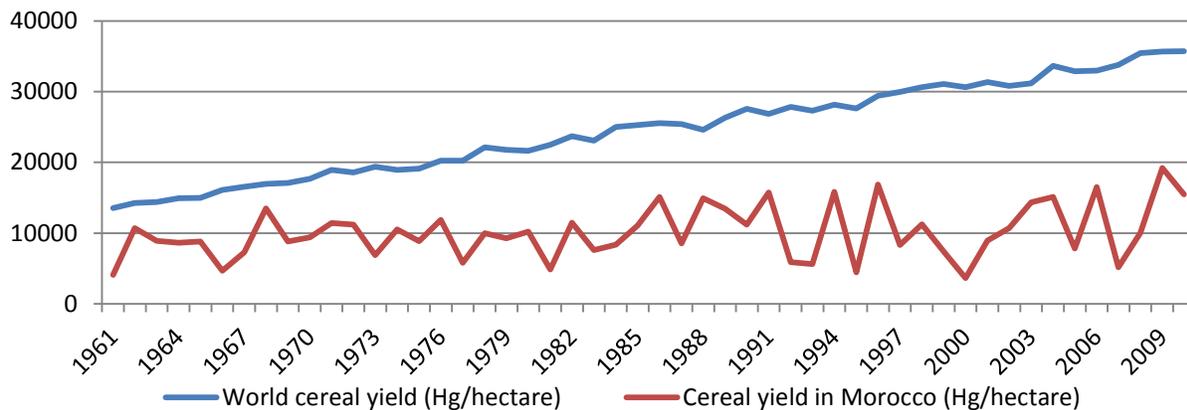


FIGURE 8: COMPARISON OF MOROCCAN AND WORLD CEREAL YIELDS

Source: FAOSTAT, n.d.

Market access of households to agricultural products is modest and varies significantly by region, especially in rural areas where volatile prices in international markets translate to higher prices for consumers. Moreover, physical access to foods is limited by the difficulty of transporting food in certain local markets, notably in rural and mountainous areas. To improve the food accessibility of the population, the Moroccan government has largely relied on food subsidies. Food policies and subsidies to date have primarily concerned wheat, sugar and oilseed (Ait El Mekki, 2008). The Morocco Compensation Board, which is mainly financed by import tariffs on agricultural goods, has so far funded these subsidies to consumers. Morocco also operates numerous programs to fight malnutrition and the problems that arise from it, and other programs to strengthen nutritional habits and food security, such as promoting food diversification and the production and consumption of animal source foods.

According to *The State of Food Insecurity*, a report by the FAO, the prevalence of undernutrition decreased marginally relative to the 1990s and is now below the 5 per cent levels of the period 2003–2005 (FAO, 2009). In 2003–2004, almost 25 per cent of children of less than 5 years of age were subject to slow developmental growth (FAO, 2011d). However, the prevalence of malnutrition is increasing at an alarming rate. These trends are due to the inadequate nutrition of young children, drought in certain rural areas (notably the regions of Maakech-Tensift-Al Haouz and Souss-Massa-Draa) and high levels of poverty in certain regions. Almost one woman out of ten suffers from a chronic deficit in energy intake, while almost 40 per cent are overweight or obese (FAO, 2011d). Although it is more prevalent in urban areas, being overweight or obese is a phenomenon that is also present in rural areas. In 2000, anemia was a public health problem with one third of young children and one third of non-pregnant woman being affected by the disorder.

Since the revision of its commercial policies in 1996, Morocco has sought to put in place a development strategy based on the pursuit of privatization programs, the improvement of investment conditions and other measures and incentives to modernize the fabric of its economy. At the Doha Ministerial Conference of the World Trade Organization (WTO) in 2001, Morocco reaffirmed its commitment to the objectives of the multilateral trading system and trade liberalization, while recognizing the importance of sustainable development that allows developing countries to take advantage of the opening of the global economy. This commitment led to the creation, in 2000, of *Strategy 2020* on rural development, based on a vision that confirmed the role of agriculture as an important pillar for development, as supported by a number of participative projects with various local stakeholders. Currently, Morocco is in the final stages of implementing its commitments under the WTO and bilateral agreements (WTO, 2009c).

In 2005, Morocco launched the *National Human Development Initiative* to reinforce programs for rural development and poverty reduction by encouraging revenue-generating activities, job promotion, value-added production and natural resource conservation. In 2005, the Emergence Program also was put in place in order to encourage the promotion of new industries (ICT, electronics, aeronautics, etc.) and labour-intensive sectors.

In 2008, Morocco launched a new agricultural strategy called the Green Morocco Plan (the “Green Plan”). This plan rests on two pillars: Pillar I is the promotion of a modern and high value-added and high-performing agriculture; Pillar II is the promotion of a viable agriculture in mountainous, oasis and semi-arid areas by supporting small farmers and combating rural poverty in marginal areas. Pillar I is commercial in nature, while Pillar II has a strong social component. The areas of focus of Pillar II represent 80 per cent of the agricultural population (about 7 million people) and about 70 per cent of Morocco’s agricultural operations. The plan complements the strategy to diversify into new industries by developing commercial agriculture, while providing a social safety net for the less favourable areas. To improve the revenue of these 500,000 to 600,000 operations in the 10 years covered by the plan supposes that hundreds of thousands of operations will gain access to commercial opportunities by producing high-value-added goods, while maintaining a sustainable approach to natural resource management. It is these small-scale farmers who are the key to the reduction of poverty and inequality.

These economic development strategies are complemented by a *National Charter for the Environment and Sustainable Development*, adopted in 2010. The 2010–2030 Action Plan aims to develop water infrastructure and reforestation to combat soil erosion and desertification. The impacts of climate change are expected to be concentrated in the driest part of the country and affect the rural poor, in particular, as they depend on rainfed agriculture as their primary source of income and employment. The expansion of irrigated areas is not a sustainable solution as water is already being exploited beyond renewable limits in many basins, and agriculture, which currently accounts for 87 percent of fresh water use, suffers from increasing competition from urban and industrial demand. Therefore, agriculture in Morocco is both the major cause and the victim of environmental degradation. The sector is also responsible for erosion and the loss of soil fertility, of the salinization of irrigated land, wasting water, the depletion of tables, the overexploitation of green areas, the loss of diversity, and the pollution of various water streams (HCP, 2008). Although not exclusively caused by agriculture, the annual cost of environmental depletion in Morocco is estimated at 3.7 percent of GDP (HCP, 2008).

5.1 The Green Morocco Plan

The Green Plan aims to make agriculture an engine of economic growth and a powerful tool in the fight against poverty. Its objective is to double agricultural value added within a decade through a comprehensive overhauling of the sector’s structure in terms of cropping patterns, irrigation efficiency, land tenure and agricultural taxation. It is part of a national strategy to increase productivity and improve food security by providing a roadmap for investment programs in the agri-food sector and implementing a series of systematic public sector reforms. The plan seeks to (Saoud, 2011):

- Reinforce the share of agriculture in GDP: attaining DH100 billion,²⁰ which is double the actual agricultural GDP.
- Promote employment in rural areas: creating 1.5 million additional jobs.
- Increase the value of exports: realizing foreign exchange earnings equivalent to DH44 million (roughly CAD\$5 million).

²⁰ DH = Moroccan *dirham*. DH100 billion is equivalent to roughly CAD\$115.7 million (Oct. 2012 exchange rate).

- Contribute to the fight against poverty in rural areas: improving agricultural revenue from 2 to 3 times its current levels to the benefit of 4 million rural farmers.
- Improve food security based on national production.

Pillar I of the plan concerns modern actors and the development of high-performing agriculture that is well adapted to the rules of the international market and attracts private investments. This pillar largely concerns irrigated areas and areas that receive a favourable amount of rainfall. It seeks to implement 1,000 highly integrated projects and expects investments of around DH75 billion (approx. CAD\$868 million) in 10 years, with 70–80 per cent coming from private investors (Saoud, 2011).

Pillar II is dedicated to small farmers and oriented to the fight against poverty by seeking to increase the revenue of the most vulnerable operations. Focusing on marginal lands in mountainous, oasis and semi-arid areas, it constitutes a plan to undertake 500 projects to reconvert, intensify, diversify and specialize agricultural production (Saoud, 2011). It aims to reach a critical mass of production through the spatial integration of agricultural lands.

The two pillars of the plan address the previously mentioned duality of the agricultural sector. The main paradox behind the Green Plan is underlined by the fact the agricultural sector in Morocco has not developed along a similar trajectory to that of industrialized countries over the past 50 years. The efficiency gap between Morocco and the developed countries that are producing the bulk of agricultural exports traded on international markets is significant, thus making equitable agricultural liberalization all the more challenging to address. The sheer number or proportion of people working in the agricultural sector speaks to the degree of the current socioeconomic inequalities. On the one hand, the plan aims to improve GDP by improving commercial agricultural production. On the other hand, it has a social function providing a basis for some Pillar II producers to transition into Pillar I, for some to remain in subsidized production, albeit at a low level of income, and for the bulk of small producers to eventually transition out of agriculture and into other activities. The success of the Green Plan, thus, will be measured in terms of how well it has addressed large socioeconomic disparities between the country's modern and more traditional agricultural operations (Akesbi, 2011, 2012).

As Najib Akesbi discussed in our interview, there are at least three major challenges facing Moroccan agriculture. The first is in terms of natural resources: "Morocco is a country that has a limited agricultural area, and this area itself is subject to soil erosion, degradation, salinization, etc. We have a problem a space, ground and soil" (N. Akesbi, personal communication, 2012). The other problem is water: "It is a country that is already experiencing water stress, and projections to 2020–2025 predict that water will fall below 500 cubic meters per head, and this means a serious situation of water scarcity" (N. Akesbi, personal communication, 2012). The third problem described by Akesbi is that "there is the problem of ownership structures, which are out of date, and, above all, agricultural operations, which are too spread out. The last census showed that 71 per cent of the farms are less than 5 hectares" (N. Akesbi, personal communication, 2012). There are several other factors, as Akesbi states: "there is not just one challenge, there are 10 . . . but they all converge to one element, productivity. Productivity is extremely low" (N. Akesbi, personal communication, 2012).

Moreover, Morocco is confronted with profound demographic changes. There is a risk of massive rural exodus, which would lead to an increase in the unemployment rate in urban areas and an increase in migratory pressures towards European countries. Currently, the average age of farmers is over 55 years (This is according to the last census from

1996–1997, so the average age is higher today). There is a risk that the heads of current operations will not be adequately replaced or that these operations will be abandoned by those who inherit them.

The success of the Green Plan will thus be measured in terms of how well it has addressed large socioeconomic disparities between the country's modern and more traditional agricultural operations (Akesbi, 2011, 2012). Moreover, this modernization transition will need to be mindful of the serious and deteriorating environmental challenges facing the country. The plan laid the groundwork for a dual approach to the agricultural sector that does not seek to simply provide blanket support for increased production, but nuanced support to address inherent limitations in the less favourable areas as well through more socially oriented programs and the provision of alternative income generating activities.

5.2 Food Security and Trade in Morocco

The World Trade Organisation's last *Trade Policy Review* for Morocco was conducted in 2009. It states that "the main objectives of Morocco's agricultural policy are food security, the improvement of farmers' incomes and the conservation of natural resources. A new plan to stimulate the sector, the Plan Maroc Vert [Green Morocco Plan], was adopted in 2008. Its objective is to make agriculture the engine of economic growth in 10–15 years" (WTO, 2008, p. 81). In 2009, and still today, agriculture remains one of the most heavily protected sectors with "ad valorem tariff rates as high as 304 per cent, although the average has fallen from 40 per cent in 2003 to 29 per cent in 2009; variable duties apply to cereals and sugar" (WTO, 2009c, 79). According to the WTO, "on average, the irrigated areas account for 45 per cent of agricultural value added (and more than 70 per cent during drought years), as well as 75 per cent of exports. Consequently, it is the traditional sectors that are more severely affected by drought, the export sectors (nursery and market garden sectors) being for the most part located in irrigated areas" (WTO, 2009c, p. 80).

The last few *Trade Policy Reviews* of the WTO indicate that, in the last 10–15 years, Morocco has evolved towards an increase in trade protection and towards a regime that is more complex due to its close relationship to the European Union as it has sought to align itself with its common agricultural policies. This change, which started progressively in the mid-1990s and which culminated with the agreement between Morocco and the European Union, means that, today, the agricultural policies of Morocco have borrowed heavily from the common agricultural policy of the European Union.

Morocco has signed a number of Free Trade Agreements, notably with a group of Arab League Member Countries (including Egypt, Jordan, Saudi Arabia, Tunisia), EFTA, the European Union, Turkey and the United-States.²¹

In order to accomplish its stated objectives of liberalization, inserting itself into international value chains, and sustainable human development, Morocco has committed to a scenario that it calls "ouverture maîtrisée," which can best be translated as "guided liberalization" (HCP, 2008, p. 4). Morocco describes this approach as striking a balance between "accelerated liberalization" and "subjected liberalization." In the "subjected liberalization" scenario, trade

²¹ Morocco has an association agreement with the European Union that took effect in March 2000, providing for the complete dismantling of tariffs by 2012. In 2008, Morocco was also granted "advanced status" by the European Union, further lowering tariffs. This status was widened to include agri-food products as of December 2009, with immediate dismantling of tariffs for Moroccan products, and complete dismantling of tariffs for EU Products by 2020 (with the notable exception of wheat and durum wheat). In February 2012, consent was given to liberalize EU-Morocco trade in agricultural and fisheries products. The agreement immediately reduced or removed "55 per cent of tariffs on Morocco agricultural and fisheries products (up from 33%) and 70% of tariffs on EU agricultural and fisheries products within 10 years (rising from 1%)." In March 2004, Morocco signed an FTA with the United States that came into effect on January 1, 2006, which provides for the elimination of tariffs by 2030. From June 18–22, 2012, Morocco and Canada concluded a third round of negotiations towards a free trade agreement.

liberalization occurs according to the pace that was set by the trade agreements that had already been signed and the progress in international negotiations and politics remain mostly reactive (HCP, 2008, p. 5). Liberalization is thus being “subjected” despite being partial, and the institutions that are in place do not adequately address the distortions that result and are poorly equipped to foster sustainable, human development.

The “accelerated liberalization” scenario sees Morocco adopting ultraliberal policies that are corrected in part by social safety nets, in a fashion that is similar to Mexico’s experience after signing NAFTA (HCP, 2008, pp. 5–6). Several trade protection policies are eliminated and reforms favour the disappearance of agricultural practices that are non-profitable. A capitalistic approach is adopted, and agricultural growth may occur at the expense of natural resources. The proportion of the population that is made worse off is considerable. In the third scenario, “guided liberalization,” development is more harmonious and the emphasis is on managing a progressive transition towards liberalization while encouraging a diversified rural economy and a pluralistic agriculture that is competitive and sustainable (HCP, 2008, pp. 6–7). In this scenario, agricultural policies are adaptive and the disparities caused by the international market are corrected in terms of the social, environmental and local implications, and measures are taken to limit the number of people that are made worse off, in particular with regards to small- and medium-sized operations. Offensive exportation strategies are used to permit Morocco to make the most of trade agreements and create the conditions for its insertion into international value chains. Various programs would be undertaken to aggressively reduce rural poverty. Since 2008, Morocco has striven to achieve this delicate balance, which it calls “guided liberalization.”

Agriculture plays a central role in food security, especially because about 40 per cent of operations are considered to be “social” in character. This category of small operations occupies only 8 per cent of Morocco’s total harvested area, but if it were to disappear due to liberalization the social costs could be considerable. An important focus of the liberalization strategy of Morocco consists in recognizing the social agents in these micro-operations and the supporting role of their activity in rural society (HCP, 2008). Pillar II of the Green Plan seeks to support these small and medium operations. However, this social role may not be sustainably maintained without some form of progress and transition in rural areas.

5.3 Lentils

Lentils (*Lens culinaris*) are the seeds of a type of plant that belongs to the pulse family. They are known for being rich in protein and make up a significant part of diets and dishes in many countries of Africa, including Morocco. Morocco is a net importer of lentils, being about 25 per cent self-sufficient. Of the total harvested area in Morocco, about 0.5 per cent is utilized to plant lentils. The pulse family represents 4 per cent (MAPM, 2010). One interviewee noted the national importance of lentils as follows:

“Morocco was a net exporter of lentils until the 1970s. It is an old tradition. It is a basic product and a very popular one. As a result of agricultural policies [of the 1980s and onwards], the production of pulses such as lentils decreased progressively and it is importation that has been meeting the larger part of demand for this commodity. Therefore the production of pulses has lost its national importance. Even in the habits of consumers, Moroccans have started to expect to see pulse products like lentils to come from the outside of Morocco.” (N. Akesbi, private communication, 2012)

Over the last 10–15 years, the production of lentils in Morocco has been highly variable. The volume of imports has also been highly variable. Since domestic lentils are not a perfect substitute for foreign lentils,²² import levels vary inversely with changes in domestic production, as do domestic prices, which are highest when domestic production is lowest.

²² Domestic lentil production is typically designated for local collectivities, the army, prisons and various commissions (Interviews).

Since Morocco is a net importer, the price of lentils is also closely related to world prices, which have almost doubled in the last 10 years. However, given that the bulk of lentil imports are from Canada and thus subject to a high tariff rate, the consumer price is significantly inflated beyond world price levels. While increases in world prices can benefit Moroccan lentil producers, consumers are made worse off, especially when domestic productivity is low.

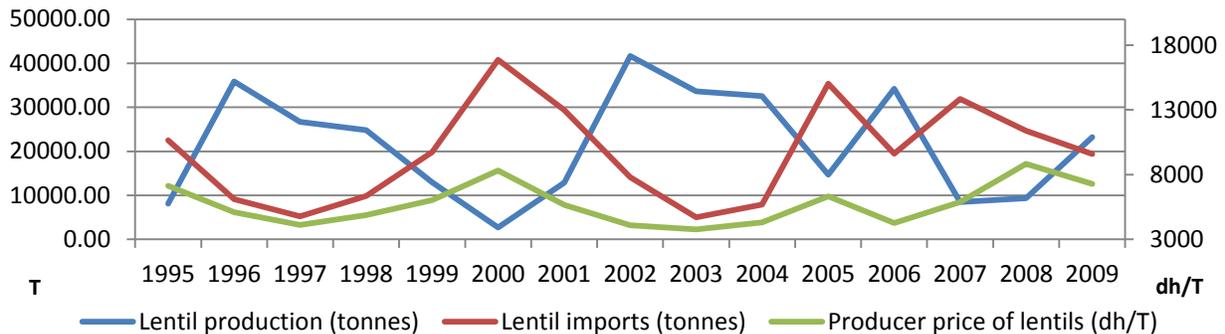


FIGURE 9: LENTIL PRODUCTION, IMPORTS, AND PRICE, 1995-2009

Source: FAOSTAT, n.d.

Morocco grants MFN treatment to all its trading partners and has bound all its tariff lines. As noted by several WTO Members during the last trade policy review (WTO, 2009c), Morocco continues to apply rates that are higher than the bound rate. While this situation has improved (applying to 1,373 of its tariff lines in 2009 compared with 5,887 in 2002), it continues to be a concern for countries such as Canada.

Morocco’s trade policy applies a 49 per cent MFN tariff on Canadian pulses. Canada is the largest producer of lentils in the world and the source of 95 to 97 per cent of the lentils imported by Morocco. As a result, whereas domestic lentil producers benefit from these import-restricting measures, Moroccan consumers are subject to high market prices that are increasing in step with global lentil markets. The tariffs imposed on lentil imports from Canada reduce the accessibility of Canadian lentils to Moroccan consumers. Lentils produced in Morocco are generally designated for local collectives, the army, prisons and various commissions, and not the national market. One interviewee estimated that the domestic lentil production sold on the national market can supply Moroccan demand for only 2-3 months out of the year. Therefore most of the lentils on the traditional or modern market in Morocco are Canadian.

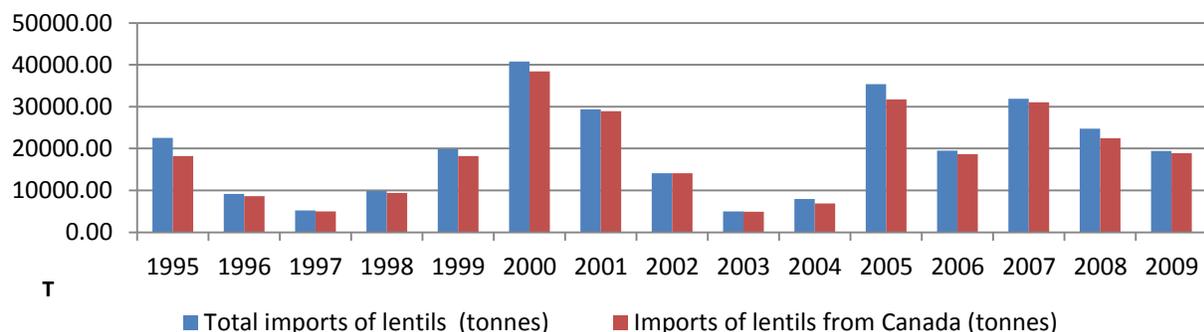


FIGURE 10: IMPORT SHARE OF CANADIAN LENTILS

Source: FAOSTAT, n.d.

TABLE 1: IMPORT FLOWS OF LENTILS INTO MOROCCO (LATEST DATA, 2009)

	IMPORTS (TONNES)	VALUE (US\$)	TARIFFS BY ORIGIN
Canada	18,873 (97%)	16,813 (93%)	17.5-49%
United States	399 (2%)	1,192 (%)	0-49%
Egypt	110 (1%)	80 (<1%)	0%
Netherlands (EU)	2 (<1%)	11 (<1%)	17.5-49%

Source: FAOSTAT, n.d.

Interviewees have alleged that, due to a combination of high world prices and high tariff rates for pulse products such as lentils, pulses are increasingly entering Morocco via third countries or other informal routes.²³ According to these interviews, whereas Canadian exporters and Moroccan importers have worked hard to establish and maintain direct business relationships over many years, these relationships are now being compromised by growing informal and irregular trade in pulse products, such as lentils, which are entering from countries that receive duty-free access into Morocco. Notably, in 2011, Canada’s official export of lentils to Morocco was only 22.5 per cent of the previous 5-year average. With the current price of small green lentils delivered to Morocco valued at approximately US\$1000 per tonne, an additional US\$500 in tariffs is added to the price (Pulse Canada, 2012). As alleged by the interviewees, the informal trade that passes through Spanish Free Trade zones could account for most of this decline. Appendix 1 shows a marked increase in the volume of Canadian lentils exported to Spain in 2011 relative to domestic production.

This alleged commercial activity, which bypasses Moroccan import duties, is becoming increasingly profitable due to the rise in the global price of pulse products and the high tariffs levied on Canadian imports.²⁴ According to the interviewees, about 75–80 per cent of Canadian lentil imports into Morocco have been channelled into contraband. Whereas 20,000 tonnes were being imported in 2009–2010, the amount imported in 2010–2011 decreased dramatically to about 4,000 tonnes. As one interviewee stated:

“I used to import between 2,000 and 3,000 tonnes of lentils per year, but in the last two years, I have imported nothing [due to irregular trade]. There is a lot of contraband. If you look at 2010–2011, there were 17,000 tonnes that were imported by the two cities, Ceuta and Melilla, that were colonized by Spain in the North of Morocco. These are free trade zones where there are no import duties. These products are then introduced illegally by an organized network into Morocco without paying import duties. A volume of 17,000 tonnes for a country like Spain is abnormal and the volume of these imports into Spain is what had been missing in Moroccan imports.” (Importer-3, personal communication, 2012).

In addition to adding costs that are ultimately paid by Moroccan consumers, this type of irregular trade may also impact the traceability and identity of shipments and may add other costs related to transparency and accountability. As one interviewee stated:

“In Morocco we [importers] are strict about the quality of lentil products, packaging and labelling, but the irregular traders are not because they are beginners and do not worry about quality or labelling. In a way this is advantageous to Canadians because they may get rid of the merchandise of second or third tier that they are not able to sell to markets in Italy, Greece or South-America.” (Importer-3, personal communication, 2012)

²³ We used semi-structured case interview methodology to shed light on Morocco’s food security strategy and trade policy. Interviewees included a respected Moroccan economist (Najib Akesbi), a representative from the WTO, a Moroccan official and three Moroccan importers.

²⁴ As the price per unit of pulse product increases, the overall profits per unit of lentils sold through irregular trade increases since a price point under the global market price plus the tariff rate can be competitive within the Moroccan market.

Most interviewees noted that the MFN applied to Canadian lentils also demonstrates a limited ability to provide price protection in the domestic markets:

“If high import duties are maintained, the merchandise still arrives by contraband. In addition this merchandise does not pay import duties [which also means less revenue for the government].” (Importer-1, personal communication, 2012)

In our interviews with Moroccan importers the interviewees proposed that import duties on lentils be reduced in order to eliminate the profitability of irregular trade. Two methods were proposed. First, tariffs could be reduced to about 20 or 25 per cent, while maintaining the Value Added Tax (VAT) at current levels of 0 per cent for lentils. Lentils are one of three agricultural products that are exempt from VAT. The other two are chickpeas and beans. The other method proposed was to increase the VAT on lentils to 20 per cent but eliminate the tariff. This latter option would give government the access to tax revenues on lentils that are channelled irregularly through third countries as well. The majority of agricultural products in Morocco are subject to 20 per cent VAT. Presently, these importers are unable to compete with the lentils that arrive from Spain. As an interviewee stated simply, “we are unable to work with [exporters from] Canada if there are no changes” (Importer-2, personal communication, 2012).

5.4 Impact of Reducing Import Tariffs on Lentils

Having signed free trade agreements with the United States and the European Union, Morocco is now in the process of revising its trade policy with Canada. Lowering the tariffs on lentil imports would have a number of potential negative and positive socioeconomic impacts. However, assuming that the Moroccan government will execute its plans to further liberalize trade in lentils with significant care for those who will be negatively affected during, or as a result of, the transition, the gains from a reduction in trade protection are likely to outweigh the costs of current measures. The Green Plan clearly enunciates the need to monitor the liberalization transition, with its emphasis on anticipating negative consequences on smallholder farmers, for example, by putting in place measures to diversify production, enhance productivity and bolster competitiveness.

Classic concerns that opening up to global lentil imports will decrease prices and compete with domestic production were allayed during the interviews based on two main reasons. First, the price of lentils is already subject to volatility given the quantity of irregular and unregulated trade that infuses unpredictable volumes of lentils into the market, effectively lowering prices and control of quality and origin. Second, the legitimate concerns about small-scale production in remote and poor regions of the country are addressed directly by a solid set of continuous policies in the Green Moroccan Plan. Moreover, the implementation and monitoring of the effectiveness and reach of these policies is being undertaken by agricultural cooperative associations, as well as by the international community (e.g., FAO, G8 representatives). However, the Green Plan is highly ambitious, and remains, on the attainment of many of its stated objectives, at the level of abstraction (Akesbi, 2011, 2012). One of the interviewees commented that “the Morocco Green Plan makes a lot of projections, notably to the year 2020. In Morocco, we still need to integrate all of the new data on the question of food security at the national level” (N. Akesbi, personal communication, 2012).

Canadian export prices of lentils (Canadian Eston, small green) have risen over 110 per cent in the last decade (see Figure 11). Although prices were relatively low from 2002 to 2006, they began to rise dramatically in the fourth quarter of 2007 and have yet to return to previous levels, maintaining a volatile range between US\$29 and US\$46 per centum weight bags, with an average price that hovers around US\$36 per centum weight bags. Morocco mainly imports small green lentils (Estons) from Canada. Other lentil varieties like Canadian Richlea, U.S. Regular No. 1, Turkey 5 mm Whole Green and Turkey 6 mm Whole Green have seen similar, dramatic increases in export price.



FIGURE 11: CLOSING PRICES FOR CANADIAN LENTILS, 2002-2012

Source: Statpub, n.d.

Lentil prices in Morocco have risen substantially during the same time period, as can be seen from the chart below.

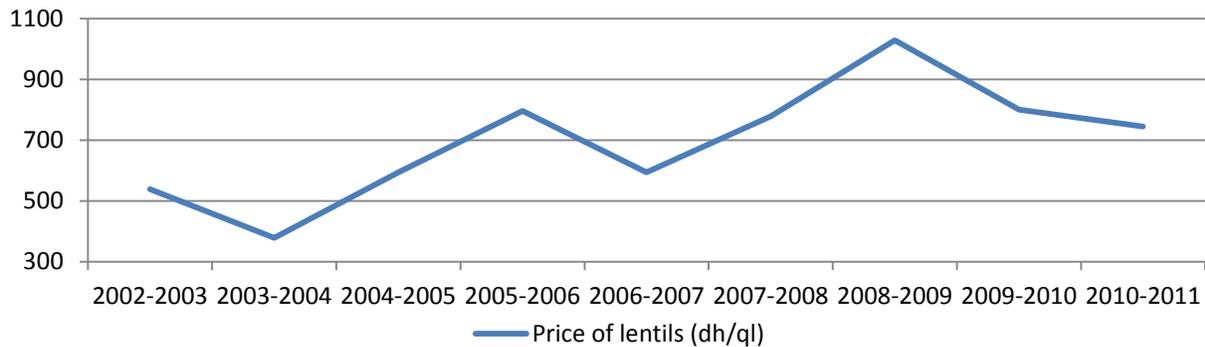


FIGURE 12: MOROCCAN LENTIL PRICES, 2002-2011

Source: ONICL, n.d.

Lentil prices are relatively high and are expected to remain so throughout the next decade. In this context, the viability of Moroccan production is not impacted by a decrease in import duties to the same extent as it would have been five or ten years ago when Canadian and world lentil prices were much lower. In our interviews, Najib Akesbi, who is openly critical of liberalization, stated that:

“...it is mostly at the level of exportation where there could be gains [to greater liberalization]. Small farmers could benefit if innovative agricultural organizing systems are put in place, and experience shows that small farmers can aggregate with a larger group and may have access to some gains, but these gains remain limited, let’s be honest. However, if the elimination of import duties on Canadian products results in a real reduction in food prices in Morocco, and as long as there are no damageable substitution effects with other domestically

produced goods, then, if these conditions are met, I think that it should not cause a problem. It would be a new product that is made available and accessible to Moroccan consumers, which demand foreign products one way or another because national production is not sufficient. If these products are of good quality and are offered at a price that is less or equal to present prices, then I think we can talk about a positive effect.” (N. Akesbi, personal communication, 2012)

On the four dimensions of food security the impact of a reduction in import duties is likely to be mixed, but positive. The **availability** of lentils will be improved as larger quantities are being imported from Canada. The quantity of lentils consumed will increase as the supply curve is shifted down by the amount of the tariff reduction. At the new equilibrium of supply and demand, more lentils are consumed at a lower price. However, the availability of lentils in rural areas will depend upon the presence of adequate infrastructure and transportation.

The rural and urban poor will benefit from better access to affordable products from Canada. Only 4 per cent of the total cultivated area is used for producing pulses and only 0.5 per cent is used for lentils. We do not have data on the proportion of the population that are net producers of lentils, but it seems that the proportion would be relatively small given the current logic of importation. However, for these net producers, the economic access to food may be negatively affected, at least in the short term, due to the income or employment effects that result from a decrease in the price of their products. These producers should experience transitory food insecurity if they shift their economic activities towards sectors and crops that are more profitable. However, if they are net producers, access is less of a problem since they already have availability of lentils, at least. Moreover, it may still be profitable for them to grow lentils since world prices are increasing. Social policies by the Moroccan government should be used to support an equitable transition. Social safety nets should be in place for these individuals. Economic and physical accessibility to lentils will improve for the net consumers given that adequate infrastructure exists to make economical the transportation of lentil imports.

For the rural poor that are net producers, **utilization** may be adversely affected during their transition to other economic activity when income and employment have not recovered to adequate levels or are not appropriately compensated by social policies. Special programs may be needed to ensure that this food insecurity does not have adverse long-term effects on the poor and food insecure.

Price **stability** could improve if the reduction in tariffs reduces illicit trade volumes into Morocco as price volatility caused by variances in the supply of lentils traded illegally is reduced significantly. The importers that we interviewed noted that the irregularity of these trade flows affect their ability to plan lentil imports effectively, so that domestic supply becomes even more volatile. One interviewee noted that:

“We do not buy as much [lentils] as before out of fear that unregulated trade continues, and that each time we buy imports, we may lose money because we cannot compete with illegal merchandise.” (Importer-1, personal communication, 2012)

Therefore, if unregulated trade does increase price volatility, decreasing import duties on lentils could help stabilize the prices for consumers and producers as lower tariffs will discourage the activity.

A **welfare analysis** was conducted, using the assumption that Morocco was a small enough market that it did not significantly influence the global price for lentils and was therefore a price taker. This analysis required a price elasticity of demand (the sensitivity of level of demand to changes in price) for lentils in Morocco, a figure that was not available anywhere in the literature on the subject. A substitute figure was found from an analysis of demand for pulse products

in India (Savadatti, 2007), which found that the average price elasticity of demand in India for the two types of pulse products considered was 0.16.

In 2010 (the most recent year for which data was available) Morocco imported 16,000 tonnes of lentils from Canada, on which it applied a tariff of 49 per cent, according to the WTO's Tariff Analysis Online database. In 2010, lentils were, according to an Agriculture and Agri-Food Canada *Market Outlook Report* on lentils, selling at approximately CAD\$440 per tonne. Assuming that this price is a fair estimate of the price paid by Moroccan importers, the tariff applied by Morocco means that the price they effectively paid by Moroccan importers and consumers was approximately CAD\$655.60 per tonne plus a transport cost incurred in the domestic market chain.

The welfare analysis conducted for these figures found that, were the government of Morocco to remove the tariff on imports of lentils from Canada, consumers would benefit from a consumer surplus of CAD\$3.45 million, since these funds would no longer be transferred to the Moroccan government.²⁵ An additional consumer surplus of CAD\$135,000 would be created by eliminating the excess burden or "deadweight loss" associated with the Moroccan government's intervention in the lentil market.

The assumption that Morocco is a price taker means that the price elasticity of supply for Morocco is zero, and remains zero in the case of there being or not being a tax on lentils, and that therefore the supply function is flat. The price elasticity of demand describes the slope of what is assumed to be a linear demand function. Therefore, a movement in quantity will be, proportionally, 16 per cent of the size of a movement in price. Thus a removal of the tariff on lentils would decrease the price paid by 49 per cent (the size of the tariff), and would increase demand by 7.84 per cent, from 16,000 tonnes to 17,254.4 tonnes.

Moreover, eliminating or reducing import duties for Canadian lentils would tend to stabilize lentil prices in Morocco, mainly because it would remove the price incentive for irregular trade. Although the price effect would dwarf the stability effect, if farmers in Morocco are risk averse, the resulting stabilization in prices partly would act to offset the negative effects of a price decrease due to a reduction in import duties.²⁶

²⁵ Although the welfare analysis was conducted in 2010 when there was relatively little irregular trade, we specify that, given the increase in irregular trade of recent years, these funds are not fully transferred to the Moroccan government since a larger proportion of Canadian lentils are entering Morocco without paying import duties.

²⁶ For more information on the risk aversion of farmers, see Hardaker and Lien (2010) and Chavas and Holt (1996).

6.0 *Policy Responses to the Food Price Inflation, Food Security and Trade Nexus*

6.1 Global

Broadly speaking, the focus of national governments' policies regarding agriculture, food security and trade in the wake of the 2007–2008 crisis was "guaranteeing an adequate and affordable food supply for the majority of consumers, providing safety nets for the most food insecure and vulnerable and, to a much lesser degree, fostering agricultural supply response" (FAO, 2008d, p. 41).

As the crisis became less acute, however, the focus shifted to a medium-term policy orientation around increased production and export facilitation. It is unclear at this time whether the current rise in food prices will provoke similar reactions to the 2007–2008 crisis, or whether lessons learned will prevent repeating some of the policy choices made at that time that exacerbated the problem.

On a global level, we observed a range of responses to the recent food crisis and to food security and trade issues. Some measures are direct responses to the recent food crisis, while others are the product of policies that had already been in place prior to recent developments. There is no particular policy or set of policies that was found to be universally effective; rather, experience has shown that favourable policy outcomes in the 2007–2008 crisis stemmed from a combination of aligned policies addressing:

- i. Very short-term food distribution
- ii. Short-/medium-term social policy
- iii. Investment in agriculture
- iv. Reduction of trade barriers

We have outlined various policies that have been observed internationally, and provide examples from different countries. This section is not an endorsement of specific policies, but rather an inventory of the responses that have occurred to date.

6.1.1 *Reduce or Eliminate Food Import Duties*

In an effort to replenish domestic food stocks in the wake of the recent food crisis, some countries moved to reduce or eliminate import duties in order to help bring down prices for domestic consumers. This measure was largely, but not exclusively, seen in countries that rely heavily on imports for their food security, countries found mainly in Africa and Central America (FAO, 2011b). An FAO survey of countries' policy responses to the recent crisis found that approximately half of the 77 countries surveyed reduced grain import duties, and speculated that this was a major response because of the ease of use and political expediency of this policy tool (FAO, 2008b). Although their impact on the fiscal balance is negative, such measures are largely supported by the international community because they helped remove what are in many cases long-standing trade barriers.

Some examples of countries employing this measure include Russia, which cut import duties on milk and dairy products from 15 per cent to 5 per cent, the EU, which suspended import duties on some cereals, and India, which eliminated duties on wheat and wheat flour (EBRD & FAO, 2011). A related measure was the reduction or elimination of consumption taxes on food products, such as in Brazil, Kenya and Ethiopia. These measures softened price shocks, but, as with the removal of import taxes, had a notable effect on fiscal balances; Brazil, for example, is estimated to have lost US\$300 million in revenue by eliminating consumption taxes on wheat products (Ortiz et al., 2011).

6.1.2 *Export Restrictions*

One-quarter of the countries in the FAO policy response survey reported using export restrictions to help bring down domestic food prices. Like the reduction of import taxes, this option is seen as an easy, expedient tool for bringing down food prices, but unlike import taxes it raises trade barriers (Konandreas, 2012; Valdes & Foster, 2012). Although export restrictions may bring down food prices in the near term, they make domestic agricultural production less competitive in the long term, decrease investments by lowering producer prices and cause food prices to rise overall. They also affect traders who might be looking to export, and, if applied without warning, can result in a loss of trader confidence and reduced investment in trading—to the long-term detriment of the producer. The export bans of Tanzania are a classic example.

Some examples of this policy in practice are found in Russia, which applied export duties on grain products in 2007; Ukraine, which placed export quotas and required export licensing for particular categories of grain in 2006; and China, which introduced export levies of 10 per cent on buckwheat, barley and oats, and increased existing levies on a range of other products (EBRD & FAO, 2011). Countries that also pursued such policies include Argentina, Bolivia, Cambodia, Egypt, Ethiopia, India, Indonesia, Kazakhstan, Mexico, Morocco, Thailand, Venezuela and Vietnam (von Braun, 2008).

6.1.3 *Price Controls*

The FAO policy survey found that 55 per cent of countries surveyed opted to use price controls in the wake of the food crisis in order to protect consumers from high food prices (FAO, 2008b). This measure “fixes a price level for selected food products, monitors if the fixed prices are respected and punishes or taxes those who transgress the rule” (FAO, 2011c, p. 18). While such policies can remediate the immediate effects of food price inflation, their distortionary impact is significant, and they come at a very steep cost. Such measures are popular, however, because they have immediate effects and the only direct cost to the government is the cost of monitoring prices.²⁷

Zimbabwe serves as an example of a government’s attempt to control prices, and images of the resulting empty shelves in the country’s supermarkets have been shown frequently in the international media (FAO, 2011c). Other countries that have adopted this approach include Benin, Cameroon, China, Ecuador, Haiti, Mexico, Russia and Senegal, Argentina, Bolivia, Cambodia, Egypt, Ethiopia, India, Indonesia, Kazakhstan, Morocco, Thailand, Ukraine, Venezuela, and Vietnam (von Braun, 2008; FAO, 2011c).

²⁷ A related policy is price controls for agricultural inputs. In March 2009, for example “Ecuador signed a decree setting maximum prices for fertilizers and chemicals that are sold inside the country in order to minimise the impacts of high prices” (FAO, 2011b). Such input price controls, however, can have the same distortionary effect as food price controls, and as a result neither are recommended by the FAO as effective measures to deal with food price inflation (FAO, 2011c). Price controls also result in the creation of black markets with all that these imply (especially revenue loss).

6.1.4 *Drawing on and Building Food Grain Stocks*

One-quarter of countries in FAO's policy survey elected to use food grain stocks as a response to the food crisis. Although worldwide stocks are at their lowest level in decades, there are still sufficient amounts for them to act as a buffer against falling supplies and rising prices.²⁸ The progressive release of food kept in public food reserves as a means to reduce price hikes and/or provide assistance to the most vulnerable was a common response because of its immediate impact. Burkina Faso, for example, chose to use this measure in 2008. Stocks can be added to the overall supply or distributed to target those most vulnerable to food price inflation (FAO, 2011c). Building modest stocks has been a common response to market instability but often an expensive undertaking, and offers some degree of protection against domestic and external shocks (Konandreas, 2012).

6.1.5 *Safety Net Measures*

In some cases, safety net measures to protect vulnerable populations were instituted as an immediate response to rising food prices, but because of the institutional building required, they are not as effective in terms of immediacy as other measures. Many of the countries that use safety nets as a means of protecting their populations against rising food prices have existing institutional arrangements in place, or are choosing to build them with an eye to the longer term than many of the policies presented above did. There are a multitude of different ways of establishing a safety net for consumers, but some of the most common include cash transfers or food vouchers, in-kind food distribution, universal food subsidies, food for work programs or general social assistance payments (FAO, 2011a; FAO, 2011c; Ortiz et al., 2011; Valdes & Foster, 2012).

Such measures were widely adopted or scaled-up during the 2008 crisis in countries where food security and vulnerable populations are a major concern, such as in Brazil, China, Egypt, Ethiopia, Indonesia, Mexico, South Africa, Tunisia, Mozambique and Sri Lanka (FAO, 2011c).

6.1.6 *Input Market Intervention*

Many governments have chosen to intervene in input markets to assist producers in coping with rising input costs. This can be motivated both by a desire to make food exports more competitive and/or a desire to reduce production costs in the hopes that savings will be passed on to domestic consumers.²⁹ Input market intervention can take a wide array of forms, including subsidized loans and fuel for farmers, trying to produce more organic fertilizer to lessen the need for imports, subsidies on production assets or machinery, agricultural input vouchers, insurance schemes, seed distribution programs, community seed production, as well as many others (FAO, 2011a, 2011b, 2011c; Konandreas, 2012).

A large number of countries have opted to intervene in input markets in one form or another, including Afghanistan, Bangladesh, Benin, Bolivia, Burkina Faso, Cameroon, Costa Rica, Ecuador, Egypt, Ethiopia, India, Lesotho, Nepal, the Philippines, Rwanda, Sudan, Syria, Togo and Yemen (FAO, 2011a, 2011b, 2011c).

²⁸ See <http://www.fao.org/worldfoodsituation/wfs-home/csdb/en/> for a comparison of world stocks and total volumes traded each year.

²⁹ It is difficult to generalize about the success of such interventions, but the literature indicated greater success with programs that encouraged input substitution (by, for example, encouraging domestic seed banks and seed distribution), than measures that sought to intervene in the market to attempt to control input prices.

6.1.7 Investment to Increase Productivity and Improve Distribution Networks

Investment in agricultural production to raise productivity and increase the efficiency of distribution networks was a less common policy because of its more long-term focus. For many countries, raising productivity is an ongoing effort, and therefore it is likely not emerging as strongly in the literature as a response to food price inflation because it is already an entrenched policy goal (Diaz-Bonilla & Ron, 2010). Efforts to increase productivity are very diverse, and can involve attempts to shift to lower-input agricultural production methods or to reduce the need for mechanization, research on seed varieties, improved post-production value-addition, or regional efforts to cooperate and collaborate on raising productivity.³⁰ Infrastructure and distribution networks are also often targeted for improvement, be it roads, irrigation or storage facilities.

An example of a collaborative effort to raise investment and productivity in the agricultural sector is the Comprehensive Africa Agriculture Development Programme (CAADP), an “African-owned programme designed to spark economic growth in Africa through agricultural development, with the aim of increasing public expenditure in agriculture to a minimum of ten per cent of national budgets.” Many countries in Africa “have developed national agricultural investment plans in the framework of CAADP, which in turn have served as the basis for their applications to funding mechanisms, such as the Global Agriculture and Food Security Program” (FAO, 2011a).

6.1.8 Strengthening Supportive Institutions

Another softer, more long-term focused intervention is the strengthening of supportive institutions (Diaz-Bonilla & Ron, 2012), such as extension services or farmer organizations, since “one of the most severe constraints met by production systems of developing countries is the weak institutional set-up” (FAO, 2011b, p. 17).

Ghana, for example, “approved the distribution of US\$653 000 to eight farmers’ organizations and associations in the Northern and Upper West regions through the Export Development and Investment Fund (EDIF) in order to increase mango plantation and other annual crops.” Afghanistan, Nepal, India, Indonesia and the Philippines all also promote the development of farmers’ organizations (FAO 2011b, p. 17). Argentina, Bolivia, Brazil, Chile, Dominican Republic, El Salvador, Guatemala, Nicaragua, Paraguay, Puerto Rico and Venezuela have all endeavoured to create a new institutional framework for the agriculture sector and agri-business to help manage emergencies, implement programs or alleviate agricultural risks (FAO, 2011b).

6.1.9 Creating/Improving National Price or Policy Information Collection Systems

A related but distinct policy option being employed throughout the world is increasing the capacity of countries to monitor prices and the effects of policies. The FAO has found that “there is a serious lack of reliable information on market conditions and on the real impact government policies have on mitigating high food prices, [and that] early warning systems [weather and crop forecasts] and emergency preparedness at country and regional levels” could help mitigate this (FAO, 2011a, p. 15).

³⁰ Subsistence agriculture has a capital output ratio of about 3.0, which is very efficient in investment terms but not adequate from a food security perspective. Commercial agriculture tends to be 4.5 and irrigated agriculture can be well over 5.0. This is equivalent to manufacturing and other industrial sectors. In other words, you might as well invest in non-agricultural production as in irrigated food production as the returns to investment are similar.

Chad, Nigeria, Rwanda, Argentina, Chile, Ecuador, Madagascar and Paraguay have all started monitoring or improving the monitoring of domestic prices of agricultural commodities, and numerous regional price and data collection bodies have been created or strengthened such as Latin America's MERCOSUR (FAO, 2011b).

6.1.10 Increasing Attention to Land Policies and Water Management Systems

Another long-term focused intervention that has been prevalent is increased attention to land and water issues and how they are addressed in government policy-making (Diaz-Bonilla & Ron, 2012). Water and land scarcity is a major issue in many parts of the world, particularly in arid or semi-arid areas. Algeria, Egypt, Tunisia and Syria have all announced new land policies; Egypt for example, in August 2009 created the "Desert Research Centre to explore the potential to expand total national cultivation areas, minimising the encroachment of buildings on cultivable land, and allocating land for reclamation, investment, and cultivation" (FAO, 2011b, p. 18). Sri Lanka is extending cultivation to previously abandoned lands, and many Latin American countries are focused on facilitating access to land through the concessions of title deeds to smallholder farmers (FAO, 2011b).

In the Near East region, the greatest focus is water because of its relative scarcity. Egypt has placed a cap on the total area available for rice cultivation in an effort to protect water resources, and is working on "recycling of agricultural drainage water towards the irrigation of certain crops; the implementation of modern methods of irrigation; and modifications to protect and conserve the Nile and its extended water canals." Bangladesh, Cambodia, China, Nepal, the Philippines and Sri Lanka are also focusing on improved irrigation (FAO, 2011b, p. 19).

Additionally, in Morocco:

Subsidies to irrigation infrastructure were introduced in 2009, following the revision of investment policy. The irrigation equipment with a new dripping technology was 80 per cent subsidised and this subsidy was increased by up to 100 per cent for small holder farmers who possess less than 5 ha. (FAO, 2011b, p. 19)

6.1.11 Trade Agreements and Removal of Trade Barriers

Beyond the removal of import restrictions and tariffs as an immediate policy response to rising food prices, there is also an effort to remove trade barriers in general due to the recognition that doing so can lower costs for all trading partners (Diaz-Bonilla & Ron, 2010; Konandreas, 2012; Valdes & Foster, 2012). Establishing trade agreements is a key part of this effort.

In some parts of the world, as a consequence of countries trying to lower trade barriers and encourage trade, food trade has been increasing. This is contributing to increased economic integration via trade and the proliferation of trade agreements. As the FAO (2011b, p. 19) states:

The shifting from "beggar thy neighbour" policies to cooperation and solidarity among countries is clearly visible, especially in Latin America where the strongest efforts in that direction can be noted. New free-trade agreements and cooperation agreements in the food and agriculture sector have been established in the region (Free Trade Agreement Chile-Peru, Nicaragua-Panama, Chile-Guatemala, trade cooperation agreements between Colombia and Chile, Venezuela and Ecuador, México and Ecuador) as well as bilateral or multilateral systems of payments.

While this phenomenon is most prominent in Latin America, there is similar activity elsewhere. In East Africa, for example, countries in the region have been calling for the removal of export bans, taxes, duties and other impediments to cross-border trade (FAO, 2011b).

Removing trade barriers is an important tool for improving food security and lowering food prices, however it is not as simple as signing trade agreements, since effective cross-border trade requires “the removal of trade barriers, harmonized customs procedures, improved market infrastructure, sound market information, measures to ensure food quality and safety and good governance” (FAO, 2011a, p. 14).

There is general recognition by many governments after the experience of the 2007–2008 crisis that protectionism is not the answer and that greater trade integration and everything that this process involves is the path forward. However, Zambia, Zimbabwe, Ethiopia, Tanzania and Mali, for example, have either imposed export bans or threatened to within the last 18 months.

6.2 Lessons Learned in the Context of the Morocco Case Study

Context

It is worthwhile recalling a few contextual points concerning Morocco’s negotiation of trade agreements as revealed in a survey of the literature.

First, since the revision of its commercial policies in 1996, Morocco has sought to put in place a development strategy based on pursuing privatization programs, stimulating investment and providing other incentives to modernize the fabric of its economy. At the Doha Ministerial Conference of the World Trade Organization (WTO) in 2001, Morocco reaffirmed its commitment to the objectives of the multilateral trading system, while recognizing the importance of sustainable development that allows developing countries to take advantage of the opening of the global economy. This commitment led to the creation of *Strategy 2020* on rural development, based on a vision that prioritized the fundamental role of agriculture as a pillar for development. In 2005, Morocco launched a *National Human Development Initiative* to underpin rural development and poverty reduction by encouraging revenue generating activities, job promotion, value-added production and sustainable natural resource management.

In 2008, Morocco launched a new agricultural strategy called the Green Morocco Plan. This plan rests on promoting the country’s two agricultural pillars: modern, value-added and high-performing commercial agriculture; and small-scale agriculture in mountainous, oasis and semi-arid areas by supporting small farmers and combating rural poverty in marginal areas. The second pillar includes addressing the needs of approximately 80 per cent of the agricultural population (about 7 million people) and about 70 per cent of Morocco’s agricultural operations. To improve the revenue of these 500,000 to 600,000 operations over the 10 years covered by the plan entails providing hundreds of thousands of operations with access to commercial opportunities to make the transition to greater value-added production, while ensuring more efficient and sustainable use of water and land resources.

Second, Morocco has an important and growing list of FTAs—in addition to the U.S. and the EU, Morocco has signed FTAs with the European Free Trade Association (EFTA), Mercosur (Argentina, Brazil, Paraguay and Uruguay), the West African Monetary Union (WAMU), Turkey and the United Arab Emirates (UAE). Morocco has plans to negotiate deals with Singapore, Mauritania and Vietnam. The agriculture section of the free trade agreement with the EU has

been opposed by small farmers in Europe and human rights organizations who contend that the deal promotes the exploitation of the disputed territory of Western Sahara.

During the WTO's last trade policy review, the Government of Morocco clearly outlined the importance of trade policy to the country's economic policy and to the development process as a whole (WTO, 2009b). The literature also emphasizes Morocco's focus over nearly two decades on "an irreversible process of liberalization and opening up to the rest of the world," including through:

- Continuing to reduce tariff protection and eliminate non-tariff measures.
- Streamlining foreign trade procedures.
- Creating an environment conducive to the development of business and investment.
- Broadening and diversifying its trade and economic relations by concluding free trade agreements with its main bilateral or regional trading partners.

As part of a broader objective to stimulate economic diversification and development, the interviews support the conclusion that a driving force for Morocco to expand its preferential agreements is to attract foreign direct investment and focus investment on adding value to the agri-industrial sector. This strategy also endeavours to secure the agricultural sector as a driving force in the economy. In this respect, since 2000, Morocco has been one of the three countries in Africa to attract the most foreign direct investment.

It is generally recognized that Morocco's FTAs with the U.S. and the EU were significantly inspired by broader **political considerations**. By way of illustration, the EU agreement aspires to "boost EU-Morocco ties and support the transition to democracy following the Arab Spring" (Europa, 2012). The agreement was supported by a majority of European Members of Parliament as a way to "help alleviate economic, migratory and security problems" (Europa, 2012).

Third, at the time of the initiation of both negotiations (between 2003 and 2005), the option of pursuing multilateral trade negotiations was still in play in the context of the **WTO Doha Round**. Today, it is clear that the Doha Round is indefinitely stalled—if not moribund, thus forcing alternative bilateral options to be contemplated. While Morocco has been a WTO member since 1995, the latest WTO Trade Policy Review (WTO, 2009a) reveals the need for the country to accelerate the integration of various aspects of the WTO Agreements. FTAs with the U.S. and the EU have heightened the need for Morocco to address a range of issues, such as public procurement, dispute settlement, harmonization of standards, protection of intellectual property rights, conditions for investment, and the liberalization of services.

Fourth, FTAs with Morocco have not been conceived, negotiated and signed without some concerns being raised. The U.S.-Morocco FTA was controversial for several reasons. At the time of negotiations, there were concerns that the **potential social and economic implications** of the agreement for Morocco were "downright dim" (GRAIN, 2007, p. 60). In the case of the FTA with the U.S., several sensitive issues were on the negotiating table, including opening Morocco's market to subsidized U.S. wheat, U.S. rules of origin on Morocco's textile exports, and concerning the impacts on local pharmaceutical prices following the implementation of the WTO Trade-Related Aspects of Intellectual Property Rights (TRIPs) Agreement. These areas lie outside the ambit of this analysis. It should also be noted that the government of Morocco is hoping to address these concerns through measures described in its Green Plan, such as intensified investment in economic diversification, with an emphasis on poverty alleviation and smallholder farmers.

Lessons Learned in the Agricultural Sector Relevant to Pulses

In keeping with Morocco's efforts to open up its economy while managing to constrain the impacts of the current global economic situation, the following salient points emerged relevant to pulses from the analysis based on the survey of the literature and the interviews:

The Food Security–Trade Nexus

1. **Agriculture plays a central role in food security. Moreover, given that Morocco is a net food-importing country, which does not have sufficient domestic production of staple foods to meet domestic demand, there is a role for imports to ensure access to basic food staples. Imports are also key because Morocco has reached its spatial limits for expanding agriculture—and will only be able to increase sustainable agricultural production through investment in enhancing productivity (in those areas that have a clear comparative advantage, i.e., a capacity to render that investment most cost effective).**

Morocco has a range of options available to move toward addressing the food security and trade policy nexus, with specific reference to the agriculture sector. Moreover, these different options are not mutually exclusive, and are relevant in the short to medium term as well as the longer term.

- a. In the short to medium term, meeting domestic demand for staple foods would involve easing import tariffs and other restrictions on imports in conjunction with targeted complementary measures to ensure that potential negative impacts of liberalization are addressed.
 - The interviewees considered tariff reduction or elimination in order to address the growing unregulated trade in lentils that makes pulse trade difficult to control and drives price volatility³¹ for lentils in Morocco.
 - Allowing quality pulses to enter the country is considered to offer quality protein products to a growing population, thereby broadening consumer choice and, especially in times of duress, contributing to food security.
- b. The government has identified that modernizing the economy also involves supporting small-scale farmers, who make up the majority of the rural population. For example this includes supporting farmer cooperatives, quality control and marketing, as well as enabling a supportive infrastructure to get the products out of the ground and to the market.

As the study notes, Morocco is already implementing this phased-in “guided” approach to liberalization to address the dual nature of the agricultural sector through measures to promote investment, with the Green Plan that focuses on adding value and increasing productivity in the agricultural sector and supporting smallholder farmers, while boosting value-added agricultural exports.

³¹ Price volatility is increased due to the unreliability of irregular trade volumes and the uncertainty relating to its impact on the market price of the traded product.

2. Reducing poverty through agricultural development is considered to be an important priority of the government and is a necessary qualification to improve the state of food security and sustainable development in Morocco. Therefore, trade policies must take into consideration the maintenance of a viable agricultural sector in Morocco that is crucial for reducing poverty within the country.
- According to the latest data of the Government of Morocco, Morocco's poverty rate is three times higher in rural areas than it is in urban areas (RdM, 2010). About two thirds of the poor live in rural areas, with a particular concentration where cultivable areas and economic development are limited. That is why Pillar II of the Green Plan aims to provide support to this segment of the rural population.
 - According to the Green Plan, and encouraged by recent reports by the FAO, OECD, UNEP and the G8 (Delgado et al., 2011) and the Rome Food Summit in 2009 (and subsequent reiterations and declarations), judicious public goods investment in agriculture will allow smallholder farmers to be part of the solution and not just part of the problem in the food-insecure 21st century, including through some specific measures identified in the study.

Economic Development and the Agricultural Sector

3. While important, the agricultural sector, where most rural constituents are employed, does not meet domestic demands for agricultural products. Moreover, as emphasized in the interviews, the spatial expansion of agriculture has reached its limits in Morocco. That is why the interviewees noted that strategies to improve the state of food security in Morocco need to include measures to improve agricultural productivity, including through increasing investment in adding value to agriculture and taking advantage of the opportunities from import tariff reduction.
- As noted in the analysis, this type of a strategy is inherently paradoxical based on the following rationale. Whereas, in the long-term, removing trade restrictions and lowering trade barriers may contribute to improving the efficiency of the sector, in the short-term it can affect the employment of a large number of small operations. However, an orientation towards cash crops and value-added production for export is fundamental to the goal of reducing poverty and food insecurity, while offering opportunities to use the existing institutional system and the knowledge and skills in the rural sector. That is why it is important to have adequate short-term support measures in place targeted at those who are adversely affected during the transition. It is also imperative to give consideration to profitable, longer-term options for the rural poor.
 - As noted in the trade policy review (WTO, 2009c), the Moroccan Government has put in place a series of plans to develop economic sectors, including, the "Plan Émergence" (Emergence Plan) which is a public private partnership in the **National Pact for Industrial Development**. The Plan aims to improve Morocco's technological infrastructure in support of the industrial sector, which, for the purposes of this analysis, includes traditional sectors such agri-food.
 - The paper notes the importance of the **duality of agriculture** in Morocco, a vital economic sector composed of 70 per cent of smallholders with 5 hectares or less alongside competitive and commercial agriculture. With smallholders accounting for a significant proportion of operations, a key aim of the Green Plan is to support small-scale farming, while boosting productivity and value added.

- As outlined in the Green Plan, the intention of the current development policy of Morocco is to prioritize economic diversification and to use trade liberalization as a tool to stimulate investment to develop new sectors of the economy (industry, tourism, telecommunications). There is also a drive to add value to the agri-food industry and encourage research and development into alternative crops (WTO, 2009a, 2009b).
- As the process of diversification proceeds, farmers will diversify into new crops and would benefit from more information about production methods (seed varieties, irrigation techniques) and marketing opportunities. Expertise on disease and pest control will remain vital. Moreover, grading and inspection services will be essential, with supply targeted at quality-sensitive consumers in urban areas and in foreign markets.
- As set out in the Green Plan, policy-makers plan to facilitate this process by promoting agricultural development institutions to enhance public services, particularly in the case of small and vulnerable farmers. Stimulating new partnerships between farmers and the public and private sectors, including between partner countries and farmer associations, can reduce the cost of agricultural research and extension services, while increasing the range of available techniques, technology and seed quality.
- Of all the Arabic countries, Morocco is one of the most vulnerable to external shocks due to its high dependence on imports and its limited capacity to finance them (BM et al., 2009). To improve the productivity of cereals operations and reduce its exposure to the international market, the Green Plan aims to increase production by 20 per cent and efficiency by 50 per cent, and to reduce the imports by 15 to 20 per cent by 2020 (MAPM, 2009). However, as noted in the literature, most of the financing for the implementation of this plan is destined to high value-added production, with only a small proportion dedicated to small farming operations.

4. The exchange of knowledge and in-field expertise to secure sustainable agricultural development in a climate-constrained and competitive world can facilitate the adaptation of agriculture to climate change.

- The interviews point to evidence that climate change is likely to increase the probability of low harvests or crop failure in rainfed areas where irrigation is not available. The impact will be concentrated in the driest part of the country and affect the rural poor, in particular, as they depend on rainfed agriculture as their primary source of income and employment.
- The expansion of irrigated areas is not a sustainable solution, as water is already being exploited beyond renewable limits in many basins, and agriculture, which currently accounts for 87 per cent of fresh water use, suffers from increasing competition from urban and industrial demand. The second issue is water: Morocco is already experiencing water stress, and projections to 2020–2025 predict that water will fall below 500 cubic metres per head, which indicates serious water scarcity. Therefore, agriculture in Morocco is both the major cause and the victim of environmental degradation. The sector is also responsible for erosion and loss of soil fertility, of the salinization of irrigated land, water wastage, the depletion of water tables, the overexploitation of green areas, the loss of diversity, and the pollution of various water streams (HCP, 2008). This need not necessarily be the case and can be effectively mitigated if proper controls and sustainable management systems are put in place.
- The literature stresses that climate change has increased the variability of agricultural production and decreased the availability of arable land in Morocco. Since 85 per cent of agricultural land is without irrigation, farmers are exposed to erratic precipitation and drought, with consequent effects on yields (Sutter, 2010).

The annual fluctuation in rainfall explains 75 per cent of the year-to-year variability in Moroccan GDP. It is reported that precipitation levels have decreased about 35 per cent in the last 30 years (HCP, 2008).

- Thus, it is considered highly likely that climate change will change agricultural and trade patterns, heightening concerns for a net food-importing and water-scarce developing country such as Morocco. As noted by the FAO *Action Framework for Agriculture and Food Security* (FAO, 2012), if appropriate policies are implemented, trade can contribute to mitigating the negative impacts of climate change, particularly for small-scale farmers (for the reasons outlined above related to improving techniques, technologies and seed quality).
- Exchange of research and knowledge on sustainable practices will improve the resilience of the agricultural sector through capacity building and appropriate technologies, such as value addition on agricultural and food products, direct seed distribution, increased domestic production of organic fertilizer, sustainable intensification of crop production systems (variety of possible techniques), and increased extension and advisory services on agricultural production (FAO, 2011a, 2011b; 2011c)..

Trade Policy Objectives and Social Safety Nets

5. To meet domestic demand for food staples by easing restrictions on imports and continuing to reduce the gap between MFN tariff and preferential tariffs, while keeping in mind the need to address potential unintended negative consequences

- Morocco has reduced the level of its average tariff protection by 13.2 percentage points to 20.2 per cent (WTO, 2009a). The MFN bound rate that is applied to Canadian lentils is higher than preferential, tariff-free access granted to other trading partners, particularly the U.S. and the EU.
- As noted by Canada’s delegation to the WTO during the Trade Policy Review for Morocco (WTO, 2009c), the country should consider reducing or eliminating import tariffs for its key pulse supplies. To this end, some interviewees support the negotiation of an FTA between Morocco and Canada.

6. The effectiveness of social safety nets to facilitate Morocco’s “modernization” transition must be monitored to ensure that trade reforms and Green Plan measures result in increased productivity and enable resilient livelihoods in the agricultural sector.

- While trade reform is considered to be an important means of achieving improved economic performance, there is also a recognized need for reforms to continue to be coupled with domestic institutional reforms, including implementation of social security nets, particularly in the transition period and in the context of the global economic situation. This is an aspect that is well recognized by the Government of Morocco in its report during the WTO Trade Policy Review (WTO, 2009b).
- As suggested by the interviews, Morocco should aim to collect relevant agricultural data to assist with addressing food security at the national level in order to devise socioeconomic safety nets and strengthen the implementation of the objectives of the Green Plan. As has been noted, this comprehensive strategy envisages agriculture to continue as a key engine of economic growth and a powerful tool in the fight against poverty.

- The Green Plan (the “Green Plan”) reforms and strategies envisage measures to mitigate (*ex ante*) or address (*ex post*) potential negative impacts of the trade liberalization and economic diversification strategies. The Green Plan policies and programs are designed to complement liberalization and the economic reform process in such a way as to create opportunities and diversify markets, including in areas of the economy other than agriculture.
 - Morocco can also take advantage of the full range of WTO-compatible **complementary policies** to support agriculture: while opening to trade may lead to productivity gains, there is a proven need to monitor the secondary impacts (on food security and employment opportunities, particularly for the poorest segments of society) and put in place and implement accompanying legislation and programs to address any negative consequences.
- 7. It would be worthwhile to assess the extent of irregular trade and its potential impact on food security in Morocco.**
- More research is needed to establish the impact of irregular trade on food security in Morocco and the measures to help mitigate its effects.

The above points that emerged from the analysis in this study include agricultural development and trade policies in the overall context of economic development in Morocco, with attention to the need to implement complementary socioeconomic measures as part of Morocco’s broader strategy to address poverty and sustainable development. In order to address potential socioeconomic impacts, poverty alleviation and food security, Morocco has development strategies that are in the process of being implemented through to 2020. While it is clear that Morocco has designed a suite of complementary policies to address the various facets of the food security and trade policy nexus, there is a need to continuously monitor the socioeconomic impacts, and, where necessary, adjust the strategies and plans accordingly.

7.0 Conclusion

This study reviewed food price inflation and its effects on food security. We found that food prices are driven by multiple interrelated factors, such as the growing demand from developing countries, energy prices, biofuel policies, weather-related production shortfall, the growing scarcity of viable agricultural land and under-investment. Drought conditions in the U.S. and Eastern Europe and other weather-related production shortfalls drove food prices to drastic levels in the summer of 2012. Other factors that were identified in this recent crisis include biofuels policies, such as U.S. ethanol quotas, speculation on agricultural markets and food derivatives, rising food production costs due to high energy prices, and exchange rate swings such as a weakening U.S. dollar. A study by Oxfam has shown that, not only are food prices projected to continue increasing, but they will also be more volatile into the future, especially due to climate change. According to the UN, global food production will need to rise by 50 per cent by 2030 to meet demand as continued population and economic growth will put upward pressure on demand. Prices are expected to be 10–30 per cent higher in the next decade (OECD & FAO, 2012).

High prices have a mixed effect on poverty and hunger, but the balance of the evidence points to a negative net effect from the recent and projected increases. The poorest are those who cannot produce enough and have to work for others or do other income-generating activities. On the national level, the impact on poverty of an increase in food prices depends upon the balance between two effects: the increase in the real income of those selling food, many of whom are much poorer—net producers are rarely if ever the poorest in the communities—and the injury to net consumers, many of whom are also relatively poor.

High commodity prices in 2007–2008 worsened the food deprivation of 1 billion people and pushed hundreds of millions into poverty (FAO, 2008c, 2009b; Oxfam, 2011). Because the poor population generally spends about 75 per cent of their household income on staple foods, it is generally accepted that high prices lead to an increase in poverty among those who are already poor. This effect, which erodes their real income, can affect their ability to meet basic needs such as health and education, and diminish their prospects of escaping poverty. Most poor households will eat cheaper, less nutritious food. The effects of under- or malnutrition are most severe in child-bearing mothers, fetuses and young children. In some cases, the consequences can be irreversible, as in the case of stunting. Other impacts of high food prices include potential social unrest, as we have seen more recently in North Africa and the Middle East.

Trade is one of the strategies employed by individual countries to improve their food security. Where food production is constrained by natural and other factors, as in the case of Morocco, world markets have become an important source of food. By opening up to trade, these countries import the food which they wish to consume over and above what they can produce domestically. To be successful, these countries need to focus on their comparative advantages in order to acquire the foreign exchange earnings required to purchase food on the international market. This qualification is known as import capacity. There is evidence to suggest that export industries in many developing countries are more labour intensive than import-substituting industries and that employment thus tends to grow in outward-orientated economies (Chandra, 2009). In Southeast Asia, for example, there has been a significant shift in the economic production of the region from the agriculture sector to manufacturing and, increasingly, the services sector of liberation (Chandra, 2009, p. 499). Another qualification concerns the reliability and stability of the world market as a source of affordable supply. Trade allows consumption fluctuations to be reduced and relieves countries of part of the stock holding constraints but does not necessarily yield domestic price stability. Price stability will depend on whether current domestic price variability is greater or less than variability in the world market.

Affected by adverse and arid environmental conditions, Morocco is one of three countries that experienced the most volatility in agricultural production during the last 20 years, according to the Economist Intelligence Unit's Global Food Security Index. Being situated on highly mountainous terrain and subject to highly variable precipitation, with only 15 per cent of agricultural land being irrigated, the country's agricultural productivity is low and highly variable. Therefore, the country relies on food imports to meet many of its consumption needs. For example, it is approximately 25 per cent self-sufficient in lentils. Morocco is pursuing what it describes as "ouverture maîtrisée," a term which can best be translated as "guided liberalization." In this approach, "harmonious" development is made possible by an emphasis on managing a progressive "transition towards liberalization," while encouraging a more resilient, diversified rural economy and a pluralistic agriculture that is competitive and sustainable (HCP, 2008, pp. 6-7). The goal is to increase both value addition and export competitiveness in the agricultural sector, while undertaking ambitious programs to reduce poverty and make the Moroccan economy more resilient and better equipped to face the ongoing economic downturn in some of its major European markets.

In our review, we described a number of measures that have been taken by national governments in response to food price inflation. These include the reduction or elimination of food taxes, export restrictions, price controls, drawing on food grain stocks, safety net measures, input market intervention, investments to increase productivity and improve distribution networks, strengthening supportive institutions, land policies and water management systems, trade agreements and the removal of trade barriers. We also established a framework for assessing national food security and trade based on a review of the drivers of food price inflation, the projection of future food prices and the impact of these on food security. This framework was then applied to a case study on Morocco's agricultural trade policy, with special reference to Canadian lentils.

Due to a combination of high prices and a 49 per cent MFN tariff on Canadian lentils, which represent between 95 and 97 per cent of total foreign lentils on the national market in Morocco, these lentils are increasingly being introduced through third countries or other informal routes without paying import duties. According to our interviews, about 80 per cent of Canadian lentils on the national market today were introduced through irregular means. This commerce is compromising the quality, traceability and identity of shipments. There is evidence that a reduction in import duties could potentially eliminate the incentive for this commercial activity. As long as there are no substitution effects with other domestically produced goods, and as long as a decrease in tariff on lentils leads to a decrease in the price paid by consumers, then it would improve the availability and accessibility of a new product to Moroccan consumers, which demand foreign products since national production is insufficient (Morocco is about 25 per cent self-sufficient in lentils). Therefore, as long as these are offered to consumers at a price that is less than or equal to present prices, then there should be a positive effect on food security. Although a reduction in import duties would not have the social impact that it would have had 5 or 10 years ago when prices were lower, the potential impacts on producers must be assessed and addressed by progressive socioeconomic policies. It must be acknowledged that the analysis presented requires further assessment on the extent of injury to this segment of the population. The scope of this study limited the analysis into this important aspect, which is of critical relevance to the trade and food security nexus.

Based on a survey of literature and interviews, and in keeping with Morocco's efforts to open up its economy while managing to constrain the impacts of the current global economic situation, various salient points emerged from our analysis. Due to the adverse conditions that affect Morocco's food production, the country's food security strategy is best described as self-reliance, rather than self-sufficiency as we described in this report. There is a recognized need for trade reform to be coupled both with investment and domestic institutional reforms, including implementation

of social security nets, particularly in the transition period. This is an aspect that Morocco has fully recognized in the Green Plan for modernization of the agricultural sector.

In the context of economic development, there is also a well-recognized need to continuously monitor whether the complementary socioeconomic measures that are being put in place are reaching the poor and isolated portions of Moroccan society. In effect, thus, trade policy is most effective when it is considered as part of Morocco's broader strategy to address poverty and sustainable development. Morocco is well placed to continue to take advantage of the full range of WTO-compatible complementary policies to support agriculture and monitor the secondary impacts (on food security and employment opportunities, particularly for the poorest segments of society). It has already moved to put in place and implement accompanying legislation and programs to address any negative consequences from the economic development process. These measures should also include a diverse set of social safety net programs and investment in rural and peri-urban non-agricultural income generating activities.

As stressed in the interviews and literature review, there is a need for Moroccan authorities to update data on the question of food security at the national level in order to continue to ensure that the food security needs of the country are met. Strengthening implementation of the Green Plan is also considered to be vital to continue to position agriculture as a main engine of economic growth and a powerful tool in the fight against poverty. While evidence supports the efforts by Morocco to outline an inclusive and encompassing strategy for development that has the potential to be sustainable and socially equitable, more research is required in order to bring the needed specificity to implementation of the ambitious objectives of the Green Plan, which are mostly set to be implemented by 2020.

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Appendix: Canadian Lentil Imports and Production in Spain and Morocco

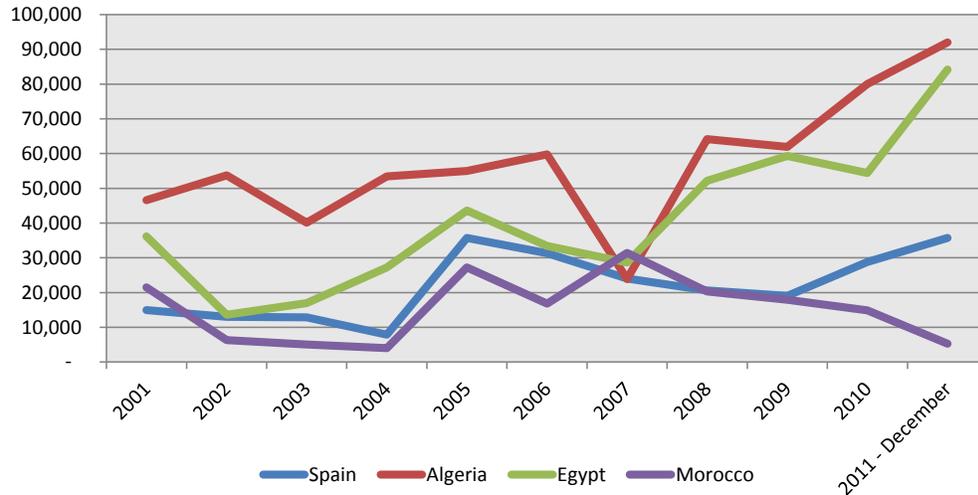
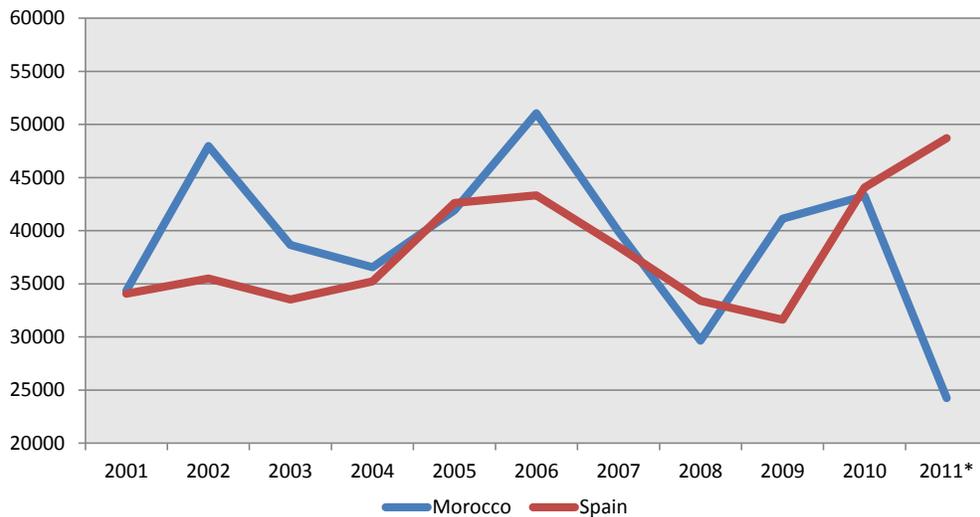


FIGURE A1: TOTAL CANADIAN LENTIL EXPORTS BY DESTINATION

Source: Based on data from StatsCan.



* 2011 estimated production data for Morocco (19,000 tonnes) and Spain (13,000 tonnes) was obtained from STATPUB.

FIGURE A2: MOROCCO VERSUS SPAIN: DOMESTIC LENTIL PRODUCTION PLUS IMPORTS FROM CANADA

Source: Based on data from FAOSTAT, StatsCan and other sources.

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