**Key Messages**

Interest in agriculture and food security issues in North Africa increased after the food price rise and continued price volatility since late 2006. North African countries are highly dependent on world markets for their food security. This did not seem to be a problem as long as world food prices were low and stable during the 1980s and 1990s. However, when they started rising and becoming more volatile after 2006, alarm bells rang all across the region.

The social unrest that started in late 2010 in Tunisia and then spread to other countries also drew attention to the importance of agriculture. Youth called for economic inclusiveness and greater social justice. Achieving those objectives requires paying particular attention to backwards regions that mainly depend on agriculture (directly or indirectly) for livelihood. Rural poverty is much higher than urban poverty in North Africa, and rural youth unemployment is particularly high.

This paper argues that the problem of food security and rural poverty in North Africa are interlinked. It proposes a strategy to enhance food security while also reducing rural poverty and rural-urban inequality by increasing farmers’ share of value added. The proposed strategy has four prongs:

1. making better use of world markets and maintaining a security food reserve,
2. greater support to domestic food producers (especially small family farmers) to link them better with national and international markets,
3. introducing new social safety net programs based on cash transfers, and
4. building new inclusive economic institutions that represent small farmers and ensure that they have a voice in the policy making process.
This paper argues that the problems of food security and rural poverty in North Africa are interlinked. It proposes a strategy to enhance food security while also reducing rural poverty and rural-urban inequality by increasing farmers’ share of value added. The proposed strategy has four prongs: (1) making better use of world markets and maintaining a security food reserve, (2) greater support to domestic food producers (especially small family farmers) to link them better with national and international markets, (3) introducing new social safety net programs based on cash transfers, and (4) building new inclusive economic institutions that represent small farmers and ensure that they have a voice in the policy making process.

Overview

North African countries depend on food imports for about 50 percent of their caloric consumption, and, given land and water scarcities, this import dependence is likely to continue in the foreseeable future. Nevertheless, a sustainable food security strategy should include increases in domestic food production to gradually decrease import dependence. Higher domestic production would require a policy package that increases incentives to local producers, the vast majority of whom are smallholder and family farmers.

Small family farmers in North Africa can increase food production and raise their contribution to national food security if they are better connected to national and international markets and value chains; and if they have improved access to credit, land, inputs and technology. Moreover, women and youth farmers need special programs to raise their productivity. Support to smallholders and incentives to increase their productivity and share in value added will obviously enhance national food security, because more food will be available domestically. At the same time they would reduce rural poverty and rural-urban inequality because they would lead to an increase in farmer income.

The approach to food security and rural poverty reduction proposed in this paper would also require a change in social safety net programs. Social policies in North Africa have been too dependent on maintaining low prices through a mix of price controls and subsidies. This may not always be consistent with the goals of food security and rural poverty reduction. Social policies that rely less on price controls and subsidies and more on direct cash transfers to poor households would be more appropriate.

Recent Developments

Interest in agriculture and food security issues in North Africa increased after the food price rise and continued price volatility since late 2006. North African countries are highly dependent on world markets for their food security. This did not seem to be a problem as long as world food prices were low and stable during the 1980s and 1990s. However, when they started rising and becoming more volatile after 2006, alarm bells rang all across the region.

The social unrest that started in late 2010 in Tunisia and then spread to other countries also drew attention to the importance of agriculture. Youth called for economic inclusiveness and greater social justice. Achieving those objectives requires paying particular attention to backwards regions that mainly depend on agriculture (directly or indirectly) for livelihood. Rural poverty is much higher than urban poverty in North Africa, and rural youth unemployment is particularly high. Hence, it is no coincidence that the Arab Spring started in Sidi Bouzid, a poor region in rural Tunisia.

In fact, some observers argue that food price increases were among the factors that caused the revolutions in Egypt, Morocco and Tunisia. North African households (particularly poorer ones) spend a high proportion of their incomes on food. AfDB (2012) reports that the average share of food in household budgets is 43.8 percent in Algeria, 40.8 percent in Morocco, 38.3 percent in Egypt and 35.8 percent in Tunisia. Therefore, the food price hikes of 2007-8 led to a huge decline in households’ real incomes and standards of living. A simple calculation would show that with an average weight of food in households’ consumption basket of about 40 percent, a doubling of food prices as happened in 2007-8 would lead to an almost 30 percent decline of real incomes in North Africa.

1 For example, see AfDB (2012).
North African governments put in place short term measures to cushion the impact of food price increases on their citizens. Those measures included: increasing public sector wages, raising food subsidies, reducing tariffs on imported food, and increasing cash transfers to the poor. Those measures help reduce the immediate impact of food price hikes. However, they are not sustainable over the long term as they increase pressure on government budgets that are in most cases (Egypt, Tunisia, Morocco, and Mauritania) already quite fragile.

Structure of the Paper

This paper looks at long-term solutions to the problems of food insecurity and rural poverty in North Africa. It considers agricultural policies in the region with the objective of enhancing food security and reducing regional disparities and income inequality. It focusses on six North African countries: Algeria, Egypt, Libya, Mauritania, Morocco and Tunisia. The six countries face similar challenges for achieving food security (since they are highly dependent on food imports), as well as for reducing rural-urban inequality. But there are also important differences among them. Algeria and Libya are natural resource rich countries while the other four are not. All six countries suffer from water scarcity. But while nearly all of agriculture in Egypt is irrigated, the other five countries depend mainly on rain-fed agriculture and face challenges of low and variable rainfall. Therefore, the broad overview of food security and agriculture issues in the region presented in this paper needs to be complemented by in-depth country studies.

The remainder of the paper is divided into four sections. After this introductory section, section II describes the important role played by North African agriculture in food security, poverty reduction and economic inclusion. Section III describes the main characteristics of North African agriculture focussing on water scarcity and vulnerability to climate change, the preponderance of small family farmers, and the important role of women in agriculture. Section IV presents a possible strategy to enhance food security, develop agriculture, increase value added and improve rural standards of living. Section V concludes.
II. The Importance of North African Agriculture

Why is agriculture so important in North Africa? There are two reasons: (1) agricultural production is critical for ensuring food and nutrition security especially at a time when world food prices are high and volatile; and (2) agriculture is the main source of income for most of the poor in the region, and increasing rural incomes is necessary for achieving inclusive growth.

Food and Nutrition Security in North Africa

High and volatile world food prices. Figure 1 shows that after a long period of low and relatively stable food prices things began to change from about the beginning of the 21st century as global prices rose and became more volatile. This change reflected a shift in market fundamentals. World food markets became tighter because the rate of increase in agricultural yields slowed down as a result of lower investments. The annual rate of growth of global capital stock in primary agriculture fell from 1.1 percent in the period 1975-90 to 0.5 percent during 1991-2007. As a result, productivity growth declined. For example, the rate of growth of cereal yields dropped from 3.2 percent per year in the 1960s and 1970s to 1.5 percent in 2000. At the same time the demand for food increased due to the increase in population as well as rising incomes which led to a shift toward consuming more meat and hence an increase in the demand for animal feed and the derived demand for cereals.

The low level of food stocks being held around the world also contributed to higher price volatility. Many public as well as private market participants reduced the amount of inventories that they hold as a security stock in order to lower costs. This meant that nearly all of the adjustment to production shocks had to be through cuts in consumption, via higher prices, rather than via reductions in stocks as was often the case in the past.

Figure 1: Food prices (1990 - 2013)

Source: FAO, Agriculture Census Data

2 See FAO (2012).
The FAO and the OECD expect that food prices will continue being high and volatile over the medium term. They provide three main reasons for this. First, the linkage between the food and fuel markets is getting stronger as a result of the development of biofuels. Since world fuel prices tend to be more volatile, this would mean that food prices would also be more volatile. Second, climate change and the greater frequency of extreme weather occurrences would imply more supply shocks and hence higher price volatility. Third, production is moving toward potentially more fragile regions, and world markets are becoming more dependent on supply from such regions (e.g., the Black Sea area). Yields in those regions are less stable and that is causing more world price volatility.

Many observers also argue that increased “financialization” of commodity markets and the rise in speculation have contributed to higher food price volatility. The returns on commodity futures seem to be negatively correlated to the returns on stocks and bonds. Thus, they are an attractive vehicle for portfolio diversification. Non-commercial actors (i.e., actors who are not involved with the physical product) have doubled their share of open positions in wheat, corn and soybean futures between 2006 and 2011. The tendency of those investors to behave as a “herd” buying or selling large quantities at the same time has been blamed for magnifying changes in food prices and thus contributing to greater volatility.

Moreover, policy measures put in place by a number of governments in times of crises (such as export restrictions or hoarding) increase international price volatility. For example, according to analysis carried out in FAO the sharp increase in rice prices in 2008 can be mainly attributed to government policies. Changes in market fundamentals cannot explain why rice prices doubled in 2008 and there are virtually no forward markets for rice so speculators cannot be blamed for this episode.

**High dependence on food imports.** High and volatile world prices pose a particular challenge to North African countries because of their high dependence on imported food. The first column of table 1 presents the cereal dependency ratio which is defined as the ratio of imported cereals to total national consumption. It shows that this ratio is particularly high for Libya (92%), Mauritania (75%), Algeria (71%), and Tunisia (60%). Even Morocco consumes more imported than domestically produced cereal, with a cereal dependency ratio of 54% which is more than three times higher than the world average of 16%.

In normal times, high dependence on imported food is not necessarily a problem if the country has sufficient export revenues to cover its food import bill. The second column in table 1 shows the ratio of food imports to export revenues. It indicates that, with the exception of Libya whose food import bill only represents 4% of export earnings, all countries in the region spend a larger share of their revenues on food imports than the world average of 5%. Egypt spends about one-third of its export earnings on food imports, while Mauritania and Morocco spend one-quarter to one-fifth of revenue on food. Even resource rich Algeria spends 10% of its export revenue (double the world average) on imported food.

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3 See OECD and FAO (2010).
4 For example, see Prakash (2011).
5 See Dawe (2010).
High import dependence implies particular challenges in periods of high volatility on world markets. Importing countries face two types of risks: the risk of price hikes; and the risk of a disruption in physical supply. North African countries’ demand for food imports (particularly cereals) is highly inelastic, which means that they are unable to reduce imports in response to a price increase; and therefore, have to bear the full impact of the high prices. Moreover, in times of shortages countries sometimes place export bans. Thus, countries in the region could be unable to have access to food imports at any price. Food supplies could also be disrupted by war, civil strife or natural disasters.

In terms of vulnerability to food price volatility North African countries could be divided into two groups. The first group is the most vulnerable to both price and supply shocks. This is a group of countries who are highly dependent on imports and at the same time face binding constraints on fiscal and foreign currency resources. This group would include Egypt, Mauritania, Tunisia, and to a lesser extent Morocco. The second group is less vulnerable to price shocks because it has sufficient fiscal resources and international reserves, but is vulnerable to supply shocks because it is highly dependent on imported food. This group would include Algeria and Libya.

**North Africa’s twin problems: child malnutrition and obesity.** Although vulnerable to changes on world markets, North African countries are not among the most food insecure in the world. Table 2 indicates that undernourishment, defined as inadequate caloric consumption, is not a major problem in the region. Mauritania has the highest proportion of undernourished people (7.8 percent), followed by Morocco (5.0 percent). But those proportions are still lower than the average for developing countries. The other four countries have undernourishment rates of less than 5 percent, and hence considered negligible by the FAO.

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Table 1: Two Measures of Import Dependency (percent)

<table>
<thead>
<tr>
<th>Cereal Dependency Ratio</th>
<th>Ratio of Value of Food Imports to total Export Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>71</td>
</tr>
<tr>
<td>Egypt</td>
<td>36</td>
</tr>
<tr>
<td>Libya</td>
<td>92</td>
</tr>
<tr>
<td>Mauritania</td>
<td>75</td>
</tr>
<tr>
<td>Morocco</td>
<td>54</td>
</tr>
<tr>
<td>Tunisia</td>
<td>60</td>
</tr>
<tr>
<td>World</td>
<td>16</td>
</tr>
</tbody>
</table>


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6 For a comparative perspective see FAO (2010).
In fact obesity appears to be a bigger problem than undernourishment in the region. It is disturbing that 34.6 percent of Egyptians are obese, a rate that is higher than the United States. The data for Mauritania is telling: about 8 percent of the population is undernourished (their health is threatened because they consume too little food) while 14 percent is obese (their health is threatened because they consume too much food). In all the countries of the region obesity rates are significantly higher than the world average of 11.7 percent.

While a large segment of the population is obese another segment (mainly children under 5) are not receiving the necessary nutrients to remain healthy and grow and develop into healthy and productive adults. The third and fourth columns of table 2 present the percentage of under 5 children who are stunted (their growth is below average for their age because of nutrient deficiency) or wasted (nutrient deficiency is causing a deterioration in their bodily functions). It is surprising that even in resource rich countries like Algeria and Libya 16 and 21 percent of children suffer from stunting while 4 and 6.5 percent suffer from wasting.

### Table 2: Malnutrition in North Africa (percent)

<table>
<thead>
<tr>
<th></th>
<th>Undernourished</th>
<th>Obese</th>
<th>Stunted Children</th>
<th>Wasted Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>&lt;5</td>
<td>17.5</td>
<td>16</td>
<td>4.0</td>
</tr>
<tr>
<td>Egypt</td>
<td>&lt;5</td>
<td>34.6</td>
<td>31</td>
<td>7.9</td>
</tr>
<tr>
<td>Libya</td>
<td>5</td>
<td>30.8</td>
<td>21</td>
<td>6.5</td>
</tr>
<tr>
<td>Mauritania</td>
<td>7.8</td>
<td>14.0</td>
<td>23</td>
<td>8.1</td>
</tr>
<tr>
<td>Morocco</td>
<td>5</td>
<td>17.3</td>
<td>15</td>
<td>2.3</td>
</tr>
<tr>
<td>Tunisia</td>
<td>&lt;5</td>
<td>23.8</td>
<td>9</td>
<td>3.4</td>
</tr>
</tbody>
</table>


Agriculture, Rural Development and Economic Inclusiveness

In addition to impacting food and nutrition security, weak support to small family farmers could explain, at least in part, why economic growth in North Africa has not been sufficiently inclusive and why rural poverty continues to be a major problem. Agriculture’s role in the region’s economy and society is much more important than is revealed by simply looking at its share in GDP. As shown in table 3 agriculture’s contribution to GDP varies from a low of 2 percent in Libya to 15 percent in Egypt and Morocco. But this masks agriculture’s important contribution to employment. As also shown in table 3, about 40 percent of Mauritania’s and Morocco’s labor force as well as 30 percent of Egyptian labor is employed in agriculture. Moreover, more than 40 percent of the region’s population (56 percent in Egypt and 47 percent in Mauritania) lives in rural areas and their livelihoods are therefore either directly or indirectly affected by agriculture.
Agriculture is particularly important because it provides livelihood for the majority of the poor. Table 4 presents the national, rural and urban headcount indices for four North African countries using national poverty lines. It shows that poverty in North Africa is largely a rural phenomenon. Rural poverty in Mauritania and Morocco is about three times higher than urban poverty, while in Egypt and Tunisia it is twice as high.

### Table 3: Relative importance of agriculture (percent)

<table>
<thead>
<tr>
<th></th>
<th>Rural Population/Population</th>
<th>Employment in Agriculture/Employment</th>
<th>Agriculture GDP/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>27</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Egypt</td>
<td>56</td>
<td>29</td>
<td>15</td>
</tr>
<tr>
<td>Mauritania</td>
<td>47</td>
<td>38</td>
<td>14</td>
</tr>
<tr>
<td>Morocco</td>
<td>43</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>Libya</td>
<td>22</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Tunisia</td>
<td>34</td>
<td>16</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Arab Organization for Agricultural Development, Statistical Yearbook, 2012

Sidi Bouzid, the birthplace of the Arab Spring, provides a clear example of the problems that plague rural development efforts in North Africa. Agriculture is the main pillar of Sidi Bouzid’s economy. Until the 1970s most of this agriculture was based on extensive cereal production and semi-nomadic sheep herding. There were only few small sedentary communities that mastered vegetable growing. Within decades, a state-initiated process led to a deep transformation that turned the area’s semi-nomadic people into peasants and farmers. The government adopted a three-pronged approach. First, tribal land was divided into private lots in order to provide the new private owners with an incentive to invest in agriculture. Second, the government also built the first water systems based on ground water and deep aquifers and facilitated farmers’ access to financial resources and to subsidized agricultural inputs, including seeds and

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7 See Boughzala and Hamdi (2014).
fertilizers. Third, important public projects in infrastructure, roads and electrical and safe water networks were also completed to the benefit of the poor agricultural community.

Farmers responded quickly to the state’s intervention. They invested in irrigation facilities even after the state, starting in the early 1990s, slowed down its interventions and stopped or reduced the subsidization of most of the inputs. Thus, almost 90 percent of the irrigation investments—48,000 hectares of irrigated land—was the outcome of private investment. The total area more than doubled since 1995; it increased from 22.3 thousand hectares in 1995 to 48.8 thousand hectares in 2012. This growth was mainly a private sector achievement. Thus, by 2005, Sidi Bouzid had become a major producer of olive oil (9.5 percent of national production), almonds (23.8 percent), melons, tomatoes (8.8 percent) and grenades (10 percent).

Incomes rose and living conditions improved in Sidi Bouzid, but many people, especially youth, did not benefit from this growth. Investors from outside the region, mainly from Sfax, developed large-size modern farms concentrated in the most fertile part of Sidi Bouzid. Small local farmers felt excluded.

Young people in Sidi Bouzid benefitted from secondary and tertiary education. They expected this would be the key to better employment, but for a large number of them this did not happen. Few employment opportunities were available. In 2010, the average unemployment rate for university graduates in Sidi Bouzid was around 40 percent. It was even higher for young women, many of whom simply exited the labor market. The only jobs available were for seasonal, low-paid farm laborers. Jobs that do not interest educated youth. Young people were also unable to start a farming business because they lacked the financial resources and had no access to land. Sidi Bouzid’s youth were forced to join a long waiting list for a government job. Consequently, because the likelihood of suitable employment was slim, the educated youth of Sidi Bouzid were frustrated and ready to express their anger by all available means. In December 2010 the sparks of a rebellion in Sidi Bouzid quickly ignited a massive uprising in Tunisia and in the rest of the Arab world.
Main Characteristics of North African Agriculture

North African agriculture has three important characteristics. First, it faces a serious water constraint and has low productivity. Second, the vast majority of agricultural producers in the region are smallholder family farmers. Third, women represent about a third of all family farmers and their share appears to be increasing.

Water Constraint, Low Yields and More Risks from Climate Change

Efforts to develop North African agriculture to enhance food security and reduce rural poverty are hindered by the lack of sufficient fresh water. FAO considers that a level of annual renewable water resources per capita of 1,500 cubic meters is adequate. Applying this yardstick to North Africa leads to the conclusion that only Mauritania, with renewable water resources of 3,147 cubic meters per capita, has adequate water resources. But even that level is only about half the world average of 6,000 cubic meters. As shown in table 5, annual renewable water per capita in other North Africa countries ranges from 108.2 cubic meters in Libya to 889.6 cubic meters in Morocco. That is, all North African countries, except Mauritania, are water stressed.

Table 5: Annual Renewable Water Resources per capita (cubic meters)

<table>
<thead>
<tr>
<th>Country</th>
<th>Annual Renewable Water Resources per capita (cubic meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>682.5</td>
</tr>
<tr>
<td>Algeria</td>
<td>319.8</td>
</tr>
<tr>
<td>Libya</td>
<td>108.2</td>
</tr>
<tr>
<td>Mauritania</td>
<td>3147</td>
</tr>
<tr>
<td>Morocco</td>
<td>889.2</td>
</tr>
<tr>
<td>Tunisia</td>
<td>429.2</td>
</tr>
</tbody>
</table>

Source: 2014 report of the Arab Forum for Environment and Development

Agriculture is the largest consumer of water in North Africa. It is estimated that roughly 80 percent of water withdrawals in the region are utilized by agriculture. At the same time irrigation efficiency is very low, about 50 percent. Hence, increasing the efficiency of irrigation systems would be an important contribution to raising agriculture production, farmers’ income and enhancing food security.

Raising yields per hectare and per unit of water used would be another way of improving of increasing incomes and food security. Table 6 shows yields per hectare for major groups of food products in the six North African countries as well as the world average. It indicates that, with the exception of Egypt, yields in North Africa are much lower than world averages. For example cereal yields in Algeria and Mauritania are around 14hg/ha while the world average is about 36 hg/ha. This yield gap could be considered “good news” as it means that there is room for higher production. On the other hand, those low yields also reflect water scarcity and difficult climatic conditions that may be difficult to resolve.
Investments to increase irrigation efficiency and improve yields are needed urgently, because climate change is making the situation in North Africa even more difficult. Average temperatures in North Africa have already increased by 1-2 degrees Celsius between 1970 and 2004 (IPCC 2007), and they could increase by an additional 0.9 to 4.1 degrees by the end of the century (IPCC 2014). According to the same IPCC reports rainfall could decline by 25 percent. The higher temperatures could lead to an increase in evaporation also by 25 percent. This means that rain water availability could fall by 50 percent making a very difficult water shortage situation more dramatic. Thus, unless urgent action is taken, climate change could result in a further 15 to 25 percent decline in cereal yields in North Africa.

**Importance of Small Family Farmers**

Increasing irrigation efficiency, raising yields and adapting to climate change would require actions in support of small family farmers. The vast majority of agriculture in the region is under family farming, which is defined as a type of agricultural production system managed by one or more members of a family and primarily reliant on non-wage family labor. Family farming includes agricultural, forestry, fisheries, pastoral, and aquaculture activities. It is often characterized by multiple activities as the family tries to increase its income and diversify its sources to protect itself from exogenous shocks.

### Table 6: Yields of major crops hectogram (hg)/hectare (ha)

<table>
<thead>
<tr>
<th></th>
<th>Cereals</th>
<th>Oil Crops</th>
<th>Vegetables</th>
<th>Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>14.4</td>
<td>4.6</td>
<td>181</td>
<td>74</td>
</tr>
<tr>
<td>Egypt</td>
<td>72.5</td>
<td>5.9</td>
<td>244</td>
<td>202.1</td>
</tr>
<tr>
<td>Libya</td>
<td>7.5</td>
<td>1.6</td>
<td>149</td>
<td>62</td>
</tr>
<tr>
<td>Mauritania</td>
<td>13.9</td>
<td>1.9</td>
<td>31</td>
<td>26</td>
</tr>
<tr>
<td>Morocco</td>
<td>16.1</td>
<td>3.6</td>
<td>292</td>
<td>99.5</td>
</tr>
<tr>
<td>Tunisia</td>
<td>17.1</td>
<td>0.7</td>
<td>206</td>
<td>56.3</td>
</tr>
<tr>
<td>World</td>
<td>36.6</td>
<td>6.4</td>
<td>192</td>
<td>112.6</td>
</tr>
</tbody>
</table>

*Source: FAOSTAT, 2014*

### Table 7: Relative Importance of Holdings of less than 5 Hectares

<table>
<thead>
<tr>
<th></th>
<th>Share in Total Holdings</th>
<th>Share in Land Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algérie</td>
<td>55.4</td>
<td>11.3</td>
</tr>
<tr>
<td>Égypte</td>
<td>98.2</td>
<td>70.7</td>
</tr>
<tr>
<td>Maroc</td>
<td>69.8</td>
<td>23.9</td>
</tr>
<tr>
<td>Tunisie</td>
<td>53.5</td>
<td>10.9</td>
</tr>
</tbody>
</table>

*Source: FAO, Agriculture Census Data, 2014*

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8 See Abaab et al. (2000).
Family farmers are often, but not necessarily always, small-holders. However, nearly all small-holders tend to be family farmers. That is why most empirical work on the subject has used the size of land-holding as a proxy measure for family farming. Table 7 shows the relative importance of small family farms (less than 5 hectares) in four North African countries. On average about 84 percent of all holdings are under family farming. The importance of family farming appears to be quite uniform across countries. About 55 percent of agricultural land holdings in Algeria and Tunisia are under family farming as are nearly 70 percent of holdings in Morocco and 98 percent of holdings in Egypt. This underlines the importance of family farming for poverty reduction.

**Figure 2: Average Size of Family Farms**

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Size of Family Farm (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>1.8</td>
</tr>
<tr>
<td>Egypt</td>
<td>0.7</td>
</tr>
<tr>
<td>Morocco</td>
<td>2.1</td>
</tr>
<tr>
<td>Tunisia</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Source: FAO Agriculture Census Data, 2014

Family farms in North Africa tend to be very small. As shown in figure 2, the average size of a family farm ranges from 0.7 hectares in Egypt to 2.2 hectares in Tunisia. Naturally, it is difficult to make comparisons on the basis of land area alone. For example, 0.7 hectares in the fertile Nile Delta may be more productive, and hence worth more, than 2.2 hectares that depend on uncertain rain-fed irrigation in the Tunisian South West region.

The second column of table 7 shows that while the majority of holdings are under family farms, they only control a small proportion of total agricultural land. About 90 percent of agricultural land in Algeria and Tunisia is under relatively large corporate-type farming. This figure declines to 75 percent in Morocco and 30 percent in Egypt. This reflects the dualistic nature of agriculture in North Africa, where large numbers of family farms operate alongside big and more modern entities. While family farmers tend to produce for their own consumption (subsistence farming) and to sell to local markets, the large modern farms produce for national and international markets. They tend to have higher productivity and to be more profitable than small family farms. In Morocco the average large modern farm earns about 9 times more than the average family farm.
Table 8 presents the number of people (family members) working on family farms in four North African countries and compares that with the population. It shows that a large number of people are working on family farms across North Africa, making family farming a major source of household income and probably the most important source in some countries. About 15 percent of Egypt’s population is engaged in family farming. In Morocco and Algeria nearly 10 percent of the population is engaged in family farming. Even the lower estimate of 4-5 percent of the population in Tunisia is still highly significant.

It is often argued that governments in the region have neglected family farming and focused on the development of large-scale modern agriculture. For example, in Egypt the Government invested huge sums in the New Valley (or Toshka) project which aims at irrigating about a quarter of a million hectares of desert land by building a 150 km long canal from Lake Nasser south of Aswan. Those large projects often have dubious economic, social and environmental impacts. On the other hand, it could be argued that developing modern agriculture is a legitimate national objective; as long as it does not come at the expense of family farming.

Morocco’s agriculture development program, Plan Maroc Vert, is an example of a strategy that tries to balance the desire to develop modern agriculture with the need to support family farmers. The strategy is built on two pillars: the first pillar aims at developing modern, high productivity agriculture through large projects built upon the concept of public-private partnership; and the second pillar aims at developing family farming through projects that are mainly government financed. This second pillar consists of 545 projects that will cost about 20 billion dirhams (or USD 2.5 billion) over a 10 year period and which target about 950 thousand farmers operating in remote and difficult areas. The projects are divided into three types: projects that replace existing crops and products with new ones that provide higher value added to the farmers; projects that enhance productivity of existing products; and projects that introduce new activities to increase family income and diversify its sources. The projects are designed jointly with the professional associations representing the beneficiaries who are also expected to participate in the project costs (about 30 percent) to ensure ownership and sustainability.

The Importance of Female Farmers

Women play an important role in family farming. Table 9 presents the distribution of family farm workers by sex in three countries. It shows that between 23-35 percent of the labor on family farms is provided by women. Moreover, the role of women in family farming is increasing, because more and more male family members are migrating to oil-rich countries and to cities in order to earn a better living and send remittances to their families who remain on the farm. Women are left to look after the family farm. As a result a process of the feminization of family farming in North Africa seems to have started.
It is common to observe a division of labor between men and women on the family farm. Women tend to be responsible for food production and for animal husbandry. They plant food crops for auto-consumption, and they look after small and large ruminants and specialize in the production of eggs and milk and dairy products. They also participate with all family members in harvesting activities. They are usually helped by their children who take small ruminants to water and pasture and work alongside their parents at harvest time.

Women farmers suffer from lack of access to land, credit and technology. Women landholders generally represent less than 5 percent of landholders in the region. Moreover, the small size of farms and land fragmentation pose a special problem for women who are hampered by social norms from moving among plots that may be far from one another. Women have great difficulties in obtaining rural credit. There is often a requirement of husbands’ agreement, which may not always be forthcoming. There is also the requirement of literacy to sign legally binding documents. Older women who participate most in commercial activities and can benefit readily from micro-credit are the least likely to be literate. Women often have to form associations to obtain micro-credit. These organizational requirements can be time consuming and often require the presence of an agent in the community.

Rural women have little access to extension services. Most extension programs lack qualified personnel and have limited capacity to mainstream gender in policies, programs and implementation strategies. The design of many extension programs has not taken women’s cultural and time constraints into account. Consequently, women’s opportunities to express their needs and to have them met are more limited than those of men. Finally, research and extension work tend to focus on cash crops rather than subsistence food crops that women grow and own. Although women play a preponderant role in all forms of animal husbandry, including raising small ruminants, caring for cows and the preparation of all milk products, extension services for women rarely focus on those activities.

### Table 9: Family Workers on Family Farms by Sex

<table>
<thead>
<tr>
<th></th>
<th>Men Workers (thousands)</th>
<th>Women Workers (thousands)</th>
<th>Total (thousands)</th>
<th>Share of Women (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>2.580</td>
<td>769</td>
<td>3.349</td>
<td>23.0</td>
</tr>
<tr>
<td>Egypt</td>
<td>8.227</td>
<td>4.420</td>
<td>12.647</td>
<td>34.9</td>
</tr>
<tr>
<td>Tunisia</td>
<td>334</td>
<td>155</td>
<td>489</td>
<td>31.7</td>
</tr>
</tbody>
</table>

Source: FAO, Agriculture Census Data, 2014
IV. A Strategy for Food and Nutrition Security and Rural Development

North African countries can improve their food and nutrition security while at the same time reducing rural poverty and making growth more inclusive by: increasing food reserves and using financial markets for risk reduction, supporting smallholders and family farmers to link them to markets and thus increase domestic food production while raising their incomes, supporting the development of independent producer organizations that provide voice for smallholders and also help them gain better access to input and output markets, and introducing social protection systems that target the rural poor through conditional or unconditional cash transfers.

Increasing Food Reserves and Using Financial Markets for Risk Reduction

North African countries will continue to be highly dependent on food imports for the foreseeable future. They need to develop import strategies to protect their food security in a world of high and volatile prices. Holding larger physical food reserves is a possible option. Countries need to maintain food security emergency reserves to assist the most vulnerable without disrupting normal private sector market development which is needed for long term food security. The size of such emergency reserves depends upon countries’ specific circumstances. Holding food stocks can be expensive. FAO and the World Bank estimate that storage of one metric ton of wheat costs $2.15 per month. Therefore, there is a need to weigh the costs and benefits of holding larger emergency reserves.

Pooling reserves is one way of trying to control costs and making use of economies of scale. Thus one policy option would be to create a regional emergency reserve. This would require agreement among the countries on the size of the reserve, its location, rules for releasing food stocks, and the allocation of costs. That is, the initial costs for setting up a regional facility may be high because of the complicated negotiation that would be required. However, the benefits over the medium and long term may outweigh those costs.

Another area that deserves special attention by North African food importers is the use of financial markets for risk reduction. Countries around the world are increasingly using financial risk hedging instruments to insure against volatility—e.g. Mexico has used those instruments to fix the price of its corn imports and avoid another “tortilla crisis”. Future contracts are one way of managing commodity price risk. They require the buyer to purchase a fixed quantity at a fixed price at a predetermined future date. Buyers need to obtain credit or guarantees to cover the value of this contract.

Another alternative, which is particularly attractive to countries with less easy access to credit, is to use option contracts. These contracts give the buyer the right, but not the obligation, to purchase a fixed quantity of a commodity at a fixed price at some future date. They act like an insurance against high prices because if prices fall, the buyer can decide not to use the option and thus only lose the premium which is paid up front in cash. A famous example of the use of options comes from Malawi which bought options to purchase maize in 2005. The price of maize increased and Malawi exercised the option, saving about USD 5 million.

Increasing Domestic Production by Supporting Smallholders and Family Farmers and Linking them to National and International Markets

Vulnerability to international market volatility could also be lowered by reducing dependence on those markets through higher domestic production. Since a large proportion of food in North Africa is produced by smallholders and family farmers increasing food production would imply helping those small producers increase their productivity. This is particularly true since yields on small farms are often lower than those on large modern farms. By supporting small family farmers, and helping them fill the yield gap, governments would be fighting rural poverty and making economic growth more inclusive while reducing import dependence and enhancing food security.

There are six areas where governments could intervene to support small family farmers and help increase their yields: (1) linking small farmers to domestic and international markets and help increase their share in value added; (2) adapting financial and investment services to the needs of small family farmers; (3) improving access to land and securing titles; (4) increasing investment in research and extension and adapting them to the needs of smallholders; (5) helping farmers adapt to climate change; and (6) launch special programs for women farmers and youth.
Linking small farmers to national and international markets.

Linking farmers to markets is essential to raising their productivity and standards of living. Raising their share in value added is an important way to improve family farmers’ income. Family farmers tend to retain a very small share of value added from their products. For example, a study by the Egyptian Ministry of Agriculture shows that in the case of many vegetables the farmer’s share of the market price is only about 20 percent. Marketing whether domestically or for exports is a serious constraint to agriculture development and for increasing farmers’ incomes. The majority of family farmers in Egypt continue to use the traditional marketing system known as kerala. Under this system the crop is sold in the field at a price per hectare. The buyer takes control of the product in the field and handles the harvesting, selection, grading and transportation. An obvious problem with this system is that it does not allow for much price differentiation to reflect quality. This also means that the farmer gets a lower share of the market value of the product as the buyer needs to be compensated for harvesting and grading.

New marketing techniques need to be introduced to reduce the role of intermediaries in the marketing process through a better organization of family farmers. For example, governments can help promote the products of family farms through special labels and information campaigns about the benefits of consuming local products. Moreover, family farmers’ incomes can be raised by establishing linkages between family farmers and small and medium enterprises to process the farmers’ products, or with traders to link farmers with national and international markets. Such linkages could be through contract farming or out-grower schemes.

The West Noubaria rural development project in Egypt is an example of a project that helped link small family farmers to the international market. The project helped establish contract farming arrangements between family farmers producing organic potatoes and an Italian trading company. Thus the farmers were directly linked to the international market and started receiving better prices for their products.

This experience indicates that, in order to fully benefit from market linkages, smallholders need to become more competitive, which in turn requires better access to financing, to land and to technology. It also requires special measures to adapt to climate change and to support youth and women farmers.

Improving financial and investment services. Access to financing and investment resources is perhaps the most important constraint facing family farmers. Table 10 presents credit to agriculture as a percent of agricultural GDP in five countries and compares that with the ratio of credit to the private sector as a percent of total GDP. It shows that agriculture’s share of financing is extremely low compared to agriculture’s contribution to the economy. In Egypt and Morocco, two large agricultural countries, agriculture’s share of credit (adjusted for its contribution to GDP) is less than one-fifth of the average for the whole economy. In Algeria and Tunisia it is about one-half. In Mauritania agricultural credit is only 2 percent of agricultural GDP.

<table>
<thead>
<tr>
<th></th>
<th>Credit to Agriculture/Ag. GDP</th>
<th>Credit to the Economy/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>14.2</td>
<td>30.4</td>
</tr>
<tr>
<td>Egypt</td>
<td>7.9</td>
<td>36.8</td>
</tr>
<tr>
<td>Mauritania</td>
<td>2.0</td>
<td>29.2</td>
</tr>
<tr>
<td>Morocco</td>
<td>7.4</td>
<td>64.9</td>
</tr>
<tr>
<td>Tunisia</td>
<td>27.5</td>
<td>54.2</td>
</tr>
</tbody>
</table>

Source: Credit to agriculture and agricultural GDP are from Arab Organization for Agricultural Development, Statistical Yearbook, 2012; and Credit to the private sector and total GDP is from the Arab Monetary Fund, Economic Statistics Bulletin, 2011

See Ghanem 2014.
The data in table 10 probably underestimates the magnitude of the problem facing family farmers because a large proportion of agricultural credit goes to big modern farms. Nevertheless, the data confirms that access to financing is a major constraint facing family farmers. Even if one assumes that all the credit to agriculture is going to family farmers, one would still conclude that they are grossly underserved by the financial system compared to other sectors of the economy.

Existing financial institutions, credit instruments and bank procedures are ill-adapted to the needs of family farmers. Farmers are not able to provide the kind of guarantees that banks require to lend, since many family farmers do not have notarized land titles. The amounts of credit required by individual family farmers are usually small and are not of interest to banks. Moreover, many banks consider agriculture to be too risky and prefer not to lend to it.

To deal with this situation governments may consider creating new institutions or reinforcing existing ones with simplified lending procedures that are adapted to the realities of family farmers; putting in place government lines of credit to encourage banks to lend to family farmers; developing insurance and guarantee facilities to reduce the risk of lending to agriculture; and encouraging the development and expansion of rural micro-credit facilities as well as farmer centered financial institutions (where farmers have a stake in these institutions). There is also a need to increase public investment in agriculture and in rural areas to build the social and physical infrastructure necessary for the development of family farming.

There are several examples from Arab countries of initiatives to enhance financing for smallholders and family farmers. Sudan created a Micro Finance Development Facility. The Facility is owned by the Central Bank and the Ministry of Finance and is mainly funded from donor resources. It has supported the creation of 16 new micro finance institutions and has reached nearly half a million beneficiaries. About 80 percent of funding under this program is directed to agriculture activities. It funds small investments by family farmers and gives special preference to women and young graduates from agriculture and veterinary colleges.

Lebanon’s ‘Disaster Fund for Agriculture’ is an example of an initiative in the area of providing guarantees and reducing the riskiness of family farming. Half of the resources for this Fund are provided by the government and the other half by the farmers themselves. The idea is to provide financial compensation to farmers suffering from bad weather conditions or other types of natural disasters. By reducing farmers’ risks the creation of this Fund also helps them obtain credit.

Algeria’s Plan for Agriculture and Rural Renewal contains special provisions to facilitate access to credit. It provides farmers with interest free crop financing, and it reinforces the system of leasing in order to facilitate purchase of farm machinery and equipment. The plan also introduces an insurance scheme to protect farmers from the impact of natural shocks that affect output.

Enhancing access to land. Access to land is another important issue for small family farmers. As was shown in figure 2 the average size of a family farm in North Africa is less than 2 hectares. Moreover, this average size is decreasing steadily as a result of population increase. The application of inheritance laws that divide land among surviving children and the absence of well-functioning land markets that allow consolidation compound the problem. The small size of family farms complicates their access to technology, inputs and markets.

Many family farmers in North Africa do not have a title to their very small holdings. In some countries land continues to be legally owned by the state and farmers are considered as tenants, although they often lack a legal document proving this relationship. In addition to making it difficult for family farmers to obtain credit, uncertainty about their ownership of land discourages them from investing. Therefore, governments could help boost investment in agriculture by facilitating land titling for farmers, and in some cases distributing public and collective land to small family farmers. It is also recommended that laws and regulations be amended to protect the rights of small tenants.

Adapting research and extension services to the needs of small farmers. Research and extension services should adapt to the needs of family farmers. Productivity of North African family farmers is lagging partly because of lack of access to appropriate modern technology. Regional institutions need to carry out their own agricultural research in order to adapt existing knowledge and techniques to local ecological, social and economic realities. Many studies show that the return to investment in agricultural research is typically very high and it is estimated at 36 percent for Arab countries. However, as is shown in Figure 3, North Africa’s investment in research ranges between 0.4-0.9 percent of agricultural GDP which is far below the rate of about 2.4 percent observed in OECD countries and the 1.5 percent observed in successful Latin American countries.
Perhaps more important, many extension services in North Africa are poorly funded and therefore ineffective. Moreover, extension workers are often not trained to communicate with family farmers and end up delivering information in a manner that is not convincing or helpful to the farmers. This appears to be a problem across the Arab world. For example, a recent study in Jordan compared productivity of olive farmers who received support from extension services with those who received no support. It concluded that receiving support from extension services had no impact on productivity. This implies that even when research is carried out successfully, its results are not adequately transmitted to small family farmers.

It appears that there is a need to consider innovative types of research and extension institutions as well as new instruments for delivering information to family farmers. Innovative extension systems put family farmers at the center and do not consider them as mere end receivers. New institutions could be based on government partnerships with the private sector, family farmer producer organizations and with civil society. Many civil society organizations have earned the trust of family farmers, because they have deep knowledge of the sector and long experience working with family farmers. They increasingly use modern technologies and ICT such as mobile phones and the internet to deliver information to family farmers. The use of dedicated television programs to provide information to farmers in Egypt is an interesting example in this area.

Adapting to climate change. Better research and extension services are particularly needed to help family farmers adapt to the impact of climate change. Higher temperatures, less rainfall and increased land salinity in a region that is already very hot and arid and where per capita water availability is among the lowest in the world do not augur well for the future of agriculture in the region, unless urgent action is taken now. Family farmers should be at the center of action to adapt to climate change. They are the largest food producers and creators of rural employment, and at the same time their small size and lack of investment resources make them particularly vulnerable to climate change and other types of shocks.

Some farmers are already adapting to higher temperatures by adjusting planting times. Research and extension can be helpful here by introducing new varieties that are more heat-resistant and by informing farmers about new cropping patterns to reflect changes in climatic conditions. North Africa’s biggest challenge will continue to be dealing with water shortages. Here again research and extension can play an important role introducing more drought resistant varieties. This needs to be accompanied by

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10 See Al-Sharafat et al. (2012).
new investments in better irrigation systems to avoid water wastage and ensure the most efficient use of limited water resources.

**Supporting women farmers.** Given their important role in agriculture and food and nutrition security, particular attention needs to be paid to the needs of women farmers. Governments could consider a three-pronged approach to support women farmers. First, existing laws on access to land and to credit need to be reviewed and whenever appropriate revised to remove biases against women farmers. Moreover, many existing procedures, particularly those regulating titling land as well as obtaining micro-finance need to be revised and simplified to reflect the realities of rural women.

Second, governments could put in place special programs to provide financial services for rural women, such as an Agricultural Women’s Bank that would specialize in working with women farmers and catering to their banking needs. Third, extension services and programs need to be revised in order to better reflect the increased feminization of family farming. For example, Sudan has developed Women Farmer Schools. This is a program that caters to the needs of rural women and includes sharing information on health and nutrition issues as well as on agricultural production and animal husbandry.

**Implementing special programs for rural youth.** Youth employment is a major challenge facing all North African countries, with youth unemployment rates of around 25 percent. Youth are increasingly losing interest in agriculture and are looking for jobs in urban areas. This is putting pressure on urban infrastructure, and is depriving rural areas and family farms from important labor resources that are generally more educated and dynamic than their parents. The availability of adequate goods and services and job opportunities would convince more youth to stay closer to the family farm.

There are two types of action that can be used to encourage youth to remain in rural areas and in agriculture. First, governments need to invest more in rural infrastructure to attract new businesses and create more opportunities for off-farm employment. Youth would benefit from the opportunity of an off-farm job that allows them to also continue supporting the family farm. Second, there is a need to develop programs and projects that target specifically young farmers and provide them with privileged access to land, credit and technical knowledge.

**Supporting Inclusive Producer Organizations**

In addition to better policies and programs, promoting agriculture and food security in North Africa and supporting small family farmers requires building new and more inclusive institutions. Producer organizations and cooperatives can play an important role in strengthening the governance system of the agriculture sector, and particularly in developing and supporting family farmers and therefore, in increasing the productivity of this sector. Problems caused by the large number of very small dispersed family farms in North Africa can be tackled through the development of strong producer organizations that group farmers together to ensure that their voice is heard in policy discussions, and also help enhance access to technology, input and output markets, information, communication and natural resources. Compared to other regions with similar per capita income (e.g. Latin America, or East Asia) producer organizations, as well as other civil society organizations that operate in rural areas, are still quite weak in the North Africa and do not yet fully play their roles in support of family farming.

North Africa is characterized by a multiplicity of weak producer organizations that are highly dependent on governments. In several countries the statutes place producer, and other civil society organizations, under the administrative supervision and authority of the government. Thus their autonomy and ability to operate in support of family farmers is restricted. Moreover, producer organizations are usually heavily dependent on government budgets for financial support, which further erodes their independence and limits their areas of action. In fact, producer organizations sometimes act more as government agencies, informing farmers of policy decisions that are taken at the central level and helping implement them, rather than as bodies that represent farmers and advocate for policies that protect their interests.

Many producer organizations suffer from inadequate human, financial and material resources which severely limit their ability to participate in agricultural and rural development. Lack of training and knowledge among grassroots actors limits the organizations’ ability to identify issues and mobilize appropriate expertise at different levels to deal with them. Moreover, lack of members with experience and training negatively affects the way collective and individual responsibilities are being exercised in various producer organizations.

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11 See FAO (2011).
Family farmers need effective producer organizations and cooperatives. Those organizations should play an important political role. Family farmers do not feel that their voices are being heard in policy circles. The lack of strong organizations representing family farmers, together with their low level of political participation, may explain why development strategies and policies tend to be biased in favor of urban activities and large modern agriculture. Independent and strong producer organizations could play an effective advocacy role and could help lobby politicians to promote the interests of family farmers.

Producer organizations and cooperatives should also play an important economic role, grouping family farmers together to enhance their access to technology and inputs, and to improve market access and help them retain a larger share of value added. Producer organizations could encourage the exchange of experience and know-how between farmers. They could also propose and encourage programs for applied agricultural research that support family farmers, and help improve extension services and adapt them to the needs of family farmers. In fact, civil society organizations including producer organizations and cooperatives are often much better placed than government agencies to deliver extension and technical support to family farmers.

When provided with adequate support, family farmers are able to meet quality standards and sell for exports, thus considerably increasing their incomes. Some civil society organizations have been active in this area with good results. The SUN NGO which was created in 2002 and operates in Upper Egypt is a good example. This NGO works with family farmers in one of the poorest regions in Egypt. It supports the creation of associations and provides them with technical, managerial and marketing support. It helps link family farmers to large producers and exporters through different contractual arrangements and out-grower schemes. It signed nearly 900 different contracts with exporters and agro-processors. It also prioritizes women participation in the program. By 2007 more than 12,500 family farmers had joined SUN associations. They exported non-traditional products worth 85 million Egyptian pounds (about USD 12 million) and estimate that participants’ income rose by 60 million pounds (about USD 8 million).12

Producer organizations and cooperatives can also work across national borders and therefore help in regional integration, in addition to supporting family farmers. The Union of Sheep and Goat Growers Associations in the Maghreb (UMOAC) is a good example in this area. UMOAC was created in 2011 by growers associations in Morocco, Algeria, Tunisia and Mauritania. Its over-arching objective is to set up a regional professional framework for sheep and goat growers’ organizations so as to contribute to the development of the subsector in the countries of the Maghreb. It facilitates knowledge sharing across the sub-region, and works to elaborate joint strategies and programs as well as joint coordination mechanisms among its member organizations. UMOAC also operates as an advocacy group to defend the interests of its membership. As a union of several national producer organizations it has more political weight than any of its individual members and hence can be a more effective interlocutor with governments.

Governments need to support producer organizations, cooperatives and other civil society organizations working with family farmers, and to ensure their political and financial independence. This may require an enabling environment that would entail legal and policy changes that provide more autonomy to civil society organizations, moves them out of governments’ control, and provides them with greater financial and operational freedom. It will also require a change in the current bureaucratic and political culture away from centralized control and towards a much more decentralized and participatory system of governance. Governments should regularly invite producer organizations and cooperatives’ representatives to participate as equal partners in the formulation and implementation of policies and development programs.

Algeria’s plan for agriculture and rural renewal takes some steps in this direction. The plan includes measures to support small rural associations as well as farmers’ professional organizations and cooperatives. It stresses the important role that those organizations and cooperatives play in the system of input distribution as well as in marketing farmers’ outputs.

North African countries can benefit from Latin America’s experience in this area. Brazil provides an example of public-civil society partnership for food security.13 When Luis Ignacio Lula da Silva was elected president of Brazil, fighting hunger was one of his top priorities for achieving social justice. Therefore, he created a National Food and Nutritional Security Council (Consea), which is a good example of an inclusive economic institution. It had 59 members, 17 government representatives and 42 members from civil society representing small farmers as well as the poor and food insecure, and was chaired by a civil-society representative. The council met on the premises of the presidency and made their recommendations directly to President Lula. Because the problem of

12 See Ministry of Agriculture and Rural Development (2009).
13 See Da Silva et al. (2011).
hunger is inter-sectoral in nature the council had a broad membership so that all sectors of the economy were represented. Consea was also conceived as a tool to provide voice for those suffering from hunger and to improve cooperation between government and civil society. Under Consea and President Lula, Brazil was extremely successful in eliminating hunger.

Social Protection and Safety Nets for Food and Nutrition Security

Improving rural livelihoods and making growth more inclusive through rural development also requires a review of existing social protection systems. The relatively large numbers of extremely poor people in North Africa, mostly concentrated in rural areas, are not being reached by the existing social safety net systems (SSN). The region’s SSNs account for a substantial share of public spending, but do not have a commensurate impact on poverty and human development. Much of the spending goes to universal food (about 1.5-2.0 percent of GDP) and fuel (about 7 percent of GDP) subsidies. Fuel subsidies benefit mostly the rich who are big consumers of fuel. According to a study financed by the World Bank and ESMAP in 2009, about 57 percent of the fuel subsidy in Egypt goes to the top two quintiles of the income distribution.

Food subsidies are better targeted to the poor, but they are not very efficient. A study carried out by the African Development Bank in Tunisia concluded that the universal nature of Tunisia’s food subsidies undermines their effectiveness as a poverty control mechanism. The study analyzed data from Tunisia’s 2011 National Budget and Consumption Survey. It found that Tunisian households received TND 888 million worth of food subsidies of which only TND 107 million went to poor households. Tunisian data shows that only 9.2 percent of subsidies go to the poorest households, 60.5 percent go to the middle class, 7.5 percent go to rich households and 22.8 percent are diverted outside the households sector.

Moreover, food subsidies do not promote good nutrition. Subsidies go mainly for bread, sugar, oil and tea. That is, they encourage consumption of carbohydrates, sugars and fats, instead of healthy fruits and vegetables. It would make more sense to provide poor people with cash transfers that they can use to buy any food they want, instead of providing price incentives for consuming the wrong types of food.

Cash transfers to the poor and vulnerable are very small. They represent only 0.1 percent of GDP in Egypt. Those non-subsidy SSN programs are largely fragmented, poorly targeted and limited in scope. Currently, there is no cohesive SSN system that can adequately protect the growing number of the poor, provide mitigation against some of the adverse impacts of economic reform program and be scaled up in times of crisis. North African governments need to consider replacing untargeted subsidies with efficient and well-targeted social safety net systems, and providing immediate protection to the poor and the vulnerable hard-hit by the deteriorating economic conditions.

The objective should not be to eliminate universal subsidies to reduce overall spending, but rather to replace them with more effective mechanisms that target the extremely poor. The net effect on the budget deficit could be zero. Governments around the region are reducing fuel subsidies carefully as they worry about the impact of the reductions on the poor and middle class. The fact that in Egypt 57 percent of the fuel subsidy goes to the top two-fifths of the income distribution can be misinterpreted; the vast majority of this group lives on just $4 to $10 per day. Thus, the vast majority of those two top quintiles should be classified as either middle class or even poor, but certainly not rich. Moreover, the 57 percent figure implies that 43 percent of the subsidy benefits people who live on less than $4 a day. Therefore, notwithstanding the regressive nature of the subsidy, it would seem that the government’s gradual approach to subsidy elimination is warranted.

This is not a new problem. When President Anwar Sadat tried reducing subsidies in Egypt in 1977, there were massive street riots and he was forced to reverse the decision. President Habib Bourghiba in Tunisia faced the same problem. In 2011, Nigeria tried eliminating fuel subsidies; but, faced with massive protests, the government was compelled to restore them in part. Jordan too faced street riots in 2012 when it lowered fuel subsidies.

A change in the social protection system from untargeted subsidies to targeted social protection requires a broad national dialogue and consensus building. The objective needs to be clearly stated as using the huge resources that are currently channeled to untargeted subsidies in a more efficient way to help the poor, especially the extremely poor who live in rural areas.

There are developing countries (including Ghana and Indonesia) that have succeeded in reducing untargeted price subsidies and replacing them with better targeted mechanisms. Vagliasidi (2012) studied 20 developing countries and found that they managed to reduce the average cost of energy subsidies in their budgets from 1.8 percent of GDP in 2004 to 1.3 percent in 2010—and that this, in turn, led to both a reduction in energy intensity and increased energy efficiency.

Programs that succeeded in reducing energy subsidies have usually included two features: compensatory measures to help the most vulnerable and a strong communications strategy to convince the public of the benefits. In Indonesia, President Megawati Sukarnoputri tried to implement energy price reforms in 2003, but was faced with stiff opposition and had to roll back the program. Three years later President Susilo Bambang Yudhoyono tried again, starting with a public information campaign that clearly identified the benefits of the reform and the new safety net programs for the poor. The people were apparently convinced by the need for the reform and the government’s commitment to protect the most vulnerable. He was able to reduce subsidies with little opposition.

In 2004, the government of Ghana launched a study on the impact of fuel subsidies. The study’s steering committee included a variety of stakeholders (government officials, academics, company representatives, etc.). By 2005, the government was able to use the committee’s report to launch an information effort that subsequently reduced fuel subsidies by 50 percent. The study had detailed social mitigation measures and how to minimize backlash in order to achieve its end goal. As a result, the government knew how best to avoid public opposition on the issue and how to communicate its policies to the public. In particular, the government clearly outlined how it plans to use the savings from the reduced fuel subsidies to provide targeted assistance to the poor.

North African countries may consider expanding the use of targeted cash transfer mechanisms. Those could be region specific, e.g. with different programs for Upper Egypt and Lower Egypt or different programs for coastal Tunisia and the interior, but initially they need to focus on rural areas where nearly all the extremely poor live\(^\text{15}\). Such programs could be conditional or unconditional depending on the region’s context. For example, they could be conditional on receiving education on proper child nutrition. Alternatively, they could be unconditional, only based on a means-testing system.

The idea is to move away from fragmented project-based social protection to a systemized approach. This means using common administrative mechanisms, unique beneficiary identification, common targeting techniques, common monitoring and evaluation systems, and integrated transfer modalities. Naturally, such a system needs to be put in place gradually as administrative capacity is being built. A mechanism to avoid leakages and corruption, perhaps through a partnership with civil society, needs to be built in the design of the new system.

North Africa can benefit from the experience of Brazil’s *Bolsa Familia* and Mexico’s *Progresa-Oportunidades*. *Bolsa Familia* is the largest program in the world of its kind. It covers 26 million families, about 25 percent of the population. The program gives poor families (defined as living on less than $55 a month) a transfer of $13 per month per vaccinated child attending school up to a maximum of five children. It also provides a transfer of $15 per month for each youth (16 to 17 years old) attending school up to a maximum of two per family. In addition extremely poor families (defined as living on less than $28 per month) receive a basic unconditional benefit. The money is transferred, preferably to the female head of household, through special debit cards issued by a publicly-owned bank.

Mexico’s *Progresa-Oportunidades* was created with the express objective of replacing price subsidies with a cash transfer program. Today it covers about 5 million families, representing 24 percent of Mexico’s population and nearly all of the country’s extremely poor. It operates in all of the country’s 31 states with a budget of $2.8 billion. Cash transfers are conditioned on changes in the recipient’s behavior. Beneficiaries need to invest in their own nutrition, health and education. Progress is periodically measured through comprehensive evaluations of programs, operations and results.

The experience of Latin America shows that direct cash transfers can be used to achieve improvements in nutrition as well as development objectives. By providing cash to poor families those programs help raise their consumption and get them out of poverty. It is a much more direct method than generalized price subsidies for products that can be consumed by the poor as well as the non-poor. By making part of the transfer conditional on school attendance or immunization the programs also encourage investment in human capital and thus help achieve long-term development objectives. There is also some evidence that recipients of cash transfers in rural areas tend to save part of it and use it for investments in productive physical capital.

\(^{15}\) See Ghanem (2014).
Many of the cash transfer programs are also used to enhance women’s social and economic empowerment. Many studies have shown that transferring money to women instead of men lead to an increase in family welfare, particularly improving children’s education, nutrition and health. By putting cash in the hands of women programs like Bolsa Familia and Progresa-Oportunidades have improved women’s status within the household and enhanced their self-esteem and socio-economic empowerment.
V. Concluding Remarks

North Africa is facing huge economic and social challenges. Achieving food and nutrition security at times of increasing world food price volatility is perhaps the most important economic challenge. And, achieving inclusive growth and social justice is a key social and political objective. This paper argued that the objectives of food security and inclusive growth are closely linked. Economic inclusion and poverty reduction require support to smallholder and family farmers who represent the bulk of the poor in North Africa. At the same time, supporting those farmers and enhancing their productivity and their linkage to markets implies increased food production and improved food and nutrition security.

The paper proposed an approach to achieving those two objectives that includes: (1) increasing food reserves and using financial markets for risk reduction, (2) improve the linkage of smallholders and family farmers to markets and help them increase domestic food production while raising their incomes, (3) supporting the development of independent producer organizations that provide voice for smallholders and also help them gain better access to input and output markets, and (4) introducing social protection systems that target the rural poor through conditional or unconditional cash transfers.

The paper also raised two special issues: (1) the role of women in family farming and (2) the risks related to climate change. Women play an important role in family farming and governments should consider their special needs particularly in the areas of access to land, credit and technology. North Africa is especially vulnerable to climate change, and small family farmers will be the first to suffer. Therefore, it is important that special programs be developed to help family farmers adapt to climate change.

Independent producer organizations and cooperatives ensure that family farmers’ voice is heard in policy discussions. And governments alone cannot provide all the necessary services to family farmers. That is why governments should support the development of independent producer organizations and cooperatives, and work in partnership with them, as well as other civil society organizations, to deliver the services that family farmers need.
VII. Bibliography


FAO (2010), the State of Food Insecurity in the World: Addressing Food Insecurity in Protracted Crises. FAO: Rome.

FAO (2011), the State of Food and Agriculture: Women in Agriculture, Closing the Gender Gap. FAO: Rome.


