Renewed Hope for Agriculture
New Possibilities for Economic Growth
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After years of neglect, agriculture has reemerged as a sector to watch in developed and developing countries. The recent surge in food demand and the associated rise in international food prices have revitalized agriculture: Countries that have maintained a strong sector have benefited in terms of greater opportunities in agricultural and processed food exports. They are also able to ensure that their own people have available and affordable food. Countries with underachieving or limited agriculture sectors, by contrast, may face an upward spiral of shortages and increasing food subsidies.

These emerging trends and deep-seated shifts are repositioning the sector for increased investment and innovation, and placing it at the forefront of government policy. As a result, countries in the Middle East and North Africa (MENA) region are redirecting their attention toward reforming and strengthening the agriculture sector. Their aim is to transform it into an engine for economic growth, job creation, and international trade.

To realize this goal, MENA policymakers must first evaluate the availability and quality of their basic resources: arable land, water, seeds, fertilizers, pesticides, farm labor, and capital. Those countries that conclude their basic resources do offer a strong basis for reform should consider three critical steps to transform the agriculture sector: assess the sector’s strengths and weaknesses, develop a comprehensive transformation plan to better position the sector for growth, and evaluate the plan’s impact on the national economy. A Booz & Company analysis of Egypt’s agriculture sector provides a case study that illustrates how these steps were applied in a real-world setting.
KEY HIGHLIGHTS

- Surging populations, biofuels production, and land constraints are putting upward pressure on prices, increasing farm profitability and reversing agriculture’s recent cycle of sluggish growth.

- Developing countries that have successfully transformed their agriculture sector have done so by adjusting their crop mix or improving sector fundamentals—governance, policy, infrastructure, technology, research and development, and agriculture services—to increase farming productivity or competitiveness.

- Improving these sector fundamentals supports each link in the production value chain and creates a foundation for developing countries to hone their agriculture strategy to focus on specific strategic objectives, such as maximizing exports or attaining self-sufficiency.

- The most effective transformation strategies ease the burden on public coffers by stimulating private-sector investments through the reform of sector legislation, institutions, infrastructure, and research and development.

A FUNDAMENTAL SHIFT IN AGRICULTURE

The agriculture sector worldwide is in the midst of a transformation. After decades of half-hearted returns and limited investment, it is becoming a vehicle for increasing gross domestic product (GDP) and alleviating poverty in developing countries.

To understand agriculture’s rise, it’s important to note the factors that led to its decline. Interest in agriculture began to wane as early as the 1960s: The world had achieved significant gains in crop yields and had reached an apparent state of food security. Crop prices began to drop as supply exceeded demand and countries had to resort to artificial measures, such as overstocking, in order to inflate prices. Low crop prices in turn meant low margins for farmers worldwide. For instance, agriculture’s returns on equity in the United States averaged between 2 and 3 percent from 1960 to 2000—lower than central bank deposit rates.

In addition, the agriculture sector has an inherently high risk profile, given its reliance on unpredictable weather conditions and historically volatile crop prices (see Exhibit 1).

As the agriculture sector became less attractive, countries worldwide had to resort to farmer-support policies. To protect farmers from falling crop prices, many countries introduced farmer subsidies or set minimum crop prices. Furthermore, the sector’s low rates of return and correspondingly low wages reduced its ability to attract a qualified workforce.

As a result of these historical conditions, the contribution of agriculture to GDP and employment has shrunk consistently over the last several decades (see Exhibit 2).
Exhibit 1
Crop Prices Exhibited Extreme Volatility from 1960 to 2000

OVERVIEW OF INTERNATIONAL CROP PRICES, 1960–2000
(IN CONSTANT 1990 US$/TON)

US$


Source: U.S. Department of Agriculture; Booz & Company analysis

Exhibit 2
Agriculture Has Contributed Less and Less to Global GDP

CONTRIBUTION OF AGRICULTURE TO WORLD GDP
(PERCENTAGE OF TOTAL GDP)

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>8%</td>
<td>37%</td>
<td>55%</td>
</tr>
<tr>
<td>1986</td>
<td>6%</td>
<td>34%</td>
<td>60%</td>
</tr>
<tr>
<td>1996</td>
<td>5%</td>
<td>35%</td>
<td>60%</td>
</tr>
<tr>
<td>2006</td>
<td>3%</td>
<td>28%</td>
<td>69%</td>
</tr>
</tbody>
</table>

Source: World Bank, World Development Indicators; Booz & Company analysis
In recent years, however, agriculture has made a significant comeback. A fundamental shift in agriculture is under way that promises to make the sector attractive once again as a viable investment vehicle and as a strong driver of national economic growth. Since the beginning of 2002, crop prices have followed an upward trend that is projected to be long-term in nature. This trend is attributable to structural changes taking over the agriculture sector, including growing demand from emerging economies (see Exhibit 3).

In addition, governments are taking the proactive stance of encouraging the production and use of biofuels, prompted by global efforts to reduce carbon emissions, as well as by concerns over oil prices and energy security. This development has led to increased demand for biofuel raw materials, such as wheat, soy, maize, and palm oil, and increased competition for cropland and other agriculture inputs. The surge in the demand for ethanol as an alternative fuel source for passenger and commercial vehicles contributed to dramatic price movements in a number of crops in recent years (see Exhibit 4).

Buoyed by these long-term drivers, world prices of wheat, coarse grains, rice, and oilseed crops all nearly doubled between 2006 and 2007 and continued rising in early 2008, driving up the cost of food. Although food prices have since fallen from their 2008 peaks, this pullback was largely the result of the global financial crisis. As such, prices are not expected to fall back to their historical levels and in fact will likely keep rising in the years ahead as the trends discussed above persist. The Organisation for Economic Co-operation and Development (OECD) and the United Nation’s Food and Agriculture Organization (FAO) estimate that over the next 10 years real prices of cereals, rice, and oilseed will be 10 percent to 35 percent higher than in the past decade. The rising prices of agricultural commodities represent a heavier fiscal burden on emerging countries that have historically subsidized agriculture produce and essential food items.

These emerging trends and deep-seated shifts are repositioning the agriculture sector for increased investment and innovation, and placing it at the forefront of government policy. As a result, MENA countries are redirecting their attention toward reforming and strengthening the agriculture sector. Their aim is to transform it into an engine for economic growth, job creation, and international trade. In addition, countries now recognize the agriculture sector’s unique ability to reduce rural poverty.

In countries such as China, India, and Vietnam, poverty has plummeted as agriculture production went through major surges, because agricultural activities in emerging markets are performed by small farmers who own their own land and thus keep the proceeds of their labor. Recent estimates have indicated that GDP originating from agriculture is at least twice as effective in reducing poverty as GDP originating from other sectors.

MENA countries are encouraged by the example of other countries that have recently and successfully transformed their agriculture sectors. For instance, Brazil adjusted its crop mix to better respond to local and international demand, and as a result tripled its agriculture trade surplus over a period of 10 years. In another example, Indonesia drove sector growth by strengthening the sector’s fundamentals, including legislation, infrastructure, technology, and services. It succeeded in realizing significant productivity gains; it also increased agriculture’s contribution to national GDP while reducing the percentage of the government’s budget spent on it, as the sector became more attractive to private investors.
Exhibit 3
There Will Be More Mouths to Feed

WORLD POPULATION GROWTH

Source: United Nations

Exhibit 4
Biofuel Production Is Highly Correlated with Rising Crop Prices

Source: International Food Policy Research Institute; International Monetary Fund; Booz & Company analysis
THREE STEPS TO AGRICULTURE TRANSFORMATION

To replicate such agriculture transformation in the MENA region, policymakers must first evaluate the availability and quality of their basic resources: arable land, water, seeds, fertilizers, pesticides, farm labor, and capital. For many MENA countries, particularly in the Gulf, issues such as water shortages make it unlikely that agriculture will be a viable sector for reform.

For those countries that conclude their basic resources do offer a strong basis for reform, policymakers should consider three critical steps to capitalize on agriculture’s turnaround: assess the sector’s strengths and weaknesses, develop a comprehensive transformation plan, and evaluate the plan’s impact on the national economy. A country-specific case study follows this section to show how these steps work together in practice.

Assess Sector Strengths and Weaknesses

Seizing the sector’s potential goes beyond assessing the adequacy of basic resources. Another dimension is just as critical: how those resources are supported and promoted by essential sector enablers. These include:

- **Policy and regulations**: These are the laws and regulations that govern agriculture development and commerce, including issues like land ownership, water utilization, wages, and trade.
- **Organization and sector governance**: Government or private-sector agencies must be designated to craft policy, enforce regulations, and represent the needs of farmers and buyers.
- **Infrastructure**: Transportation and logistics are critical to the effective distribution of agriculture resources and produce.
- **Research and technology**: Activities such as developing disease-resistant crops and adapting machinery to local terrain help promote advances in productivity and reduce crop losses.
- **Agricultural services**: Soil and water testing, land improvement, and machinery rental are among the ancillary services smaller farmers need to compete effectively.

As policymakers strike a balance between the efficient use of resources and the development of supporting enablers, they should systematically identify areas of strength and opportunity, as well as challenges, threats, and underlying causes of problems. For instance, regulations can directly affect the availability of land and the ease of developing agricultural operations. The quality of national research and development efforts and the prevalence of technology solutions that mechanize farm practices can directly influence crop quality and yields. An underdeveloped road infrastructure can cause significant crop losses during transport.

Develop a Comprehensive Transformation Plan

Based on the overview of the sector’s weaknesses, policymakers must develop a transformation strategy by determining their strategic objectives and designing initiatives to reach them. Examples of strategic objectives include farmers’ easy access
to physical and financial resources, productivity gains and increased scale, effective sector governance, private investment in value-adding opportunities, and greater access to markets. To achieve these objectives, policymakers will need to develop the appropriate initiatives: For instance, to realize productivity gains and increase scale, initiatives would include increasing investments in agriculture R&D, revamping farmers’ training programs, and incentivizing land consolidation and group farming.

Policymakers will need to take into account the country’s economic priorities, political imperatives, and comparative advantages in setting the appropriate strategy. These factors may prompt the country to target small farmer profitability, the development of agri-business, water conservation, self-sufficiency in certain crops, maximizing exports, or some other strategic objective.

Assess the Plan’s Economic Impact

The final step is to assess how the strategy will affect the critical macroeconomic and sector-specific indicators. Estimating and communicating the impact on indicators such as GDP, employment, trade balance, farmer profitability and productivity, and foreign direct investment is pivotal in securing buy-in and commitment from public and private entities.

These assessments can also prove vital in securing commitments from private stakeholders, whose participation will be critical to the success of transformation initiatives. In many developing nations, the government remains in charge in many aspects of the agriculture market, whether it’s supplying seeds or fertilizers, providing land improvement services, or renting machinery. Although government’s involvement sets a low ceiling for the prices of these services, their execution is inefficient and the quality of the services provided does not match what is readily available in the private sector.

Policymakers will need to take into account the country’s economic priorities, political imperatives, and comparative advantages in setting the appropriate strategy.
CASE STUDY: EGYPT

Booz & Company recently employed the approach identified above to assist Egypt’s efforts to unlock the potential within its agriculture sector.

Sector Strengths and Weaknesses

In analyzing Egypt’s agriculture sector, Booz & Company applied the same framework used to benchmark international best practices. Our analysis showed that Egypt exhibited several of the classic symptoms of a declining agriculture sector, including low and decreasing sectoral growth rates, low wages relative to other sectors in the country, very low labor productivity relative to other sectors and relative to international benchmarks, and an exceptionally high level of losses in fresh produce every year.

Agriculture also suffered from a declining share of national investments in recent years; the sector received just 5 percent of public spending in 2007, down from 10 percent in 2004 (see Exhibit 5). This decline was only partially bridged by an increase in private-sector investments.

Exhibit 5
Agriculture Has Received Less Investment from the Government in Recent Years

TOTAL INVESTMENT BY SECTOR IN EGYPT (IN CURRENT EGP1 MILLIONS)

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction</th>
<th>Restaurants and Hotels</th>
<th>Agriculture</th>
<th>Finance and Real Estate</th>
<th>Education and Health</th>
<th>Mining and Quarrying</th>
<th>Transport and Communication</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>4%</td>
<td>14%</td>
<td>11%</td>
<td>23%</td>
<td>27%</td>
<td>15%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>2004</td>
<td>3%</td>
<td>12%</td>
<td>18%</td>
<td>23%</td>
<td>27%</td>
<td>15%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>2005</td>
<td>3%</td>
<td>10%</td>
<td>15%</td>
<td>22%</td>
<td>27%</td>
<td>15%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>2006</td>
<td>1%</td>
<td>8%</td>
<td>13%</td>
<td>13%</td>
<td>22%</td>
<td>15%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>2007</td>
<td>1%</td>
<td>8%</td>
<td>13%</td>
<td>13%</td>
<td>22%</td>
<td>15%</td>
<td>9%</td>
<td>11%</td>
</tr>
</tbody>
</table>

CAGR

- Construction: 23%
- Restaurants and Hotels: 7%
- Agriculture: 22%
- Finance and Real Estate: 4%
- Education and Health: 13%
- Mining and Quarrying: 10%
- Transport and Communication: 55%
- Manufacturing: 7%

1 EGP = Egyptian pound

Source: Ministry of Economic Development; Booz & Company analysis
Although Egypt’s cultivated area increased in recent decades thanks to extensive land reclamation efforts, land area growth did not keep pace with population growth, leading to a decline in available arable land per capita. Land fragmentation is also a constraint as more than 90 percent of farm ownership in Egypt comprises farms with an area of less than 2 hectares. Government policies have discouraged investors from acquiring large tracts of land for for-profit farming operations.

Despite these challenges, the country had a strong potential for agriculture sector development that made the transformation process both essential and worthwhile. The country has a large area of high-quality arable land, suitable weather for year-round farming, benchmark yields per hectare, and an increasing global demand for national produce leading to an impressive improvement in trade balance (driven by both export volume and value).

**The Transformation Plan**

Booz & Company devised a set of initiatives to transform the agriculture sector and help realize its potential, including:

*Optimize farmers’ access to physical and financial resources:* We advised that Egypt can promote the sustainable management of physical resources by improving water allocation, enhancing the efficiency of water usage, increasing arable land area, and improving its water quality. It can also direct agriculture production towards the desired crop mix by distributing seeds at cheaper prices for first-time farmers of those crops and granting better access to credit.

*Realize productivity gains and increase the benefits of scale:* We concluded that the sector can be made more productive by investing in farmer education and training programs to raise their awareness about targeted high-value crops. Research and development practices can be reformed to improve crop yields. The creation of more cooperatives can enable smaller farms to strengthen their negotiating position and achieve better prices in input sourcing, increased demand through group marketing initiatives, and greater access to key services such as machinery rental and training.

*Restructure sector governance:* Implementing legislative reforms to place less emphasis on government service delivery and more on private-sector-led services can help Egypt achieve notable progress in achieving national priorities. Specific initiatives included forming a legal modernization team composed of Ministry of Agriculture legal advisors and private-sector stakeholders, reviewing international best practices in agriculture legislation, and drafting new legislation aimed at liberalizing the market.

*Attract private investments in value-added opportunities:* To further
encourage private-sector participation in agriculture activities, we advised Egypt to develop and market a portfolio of private investment opportunities, and to simplify related investment procedures. For instance, we recommended developing a streamlined process for owning land and establishing farming businesses, as buying and registering land was very difficult and time-consuming under the existing regime. Specific initiatives were proposed to encourage private-sector investments in activities that go beyond primary processing, including land improvement services, seed and fertilizer production, and other downstream industries.

*Facilitate access to markets to capture higher price premiums:* This initiative was proposed to improve the quality of agricultural produce on domestic shelves so that the sector captures the best possible financial and economic benefits. The specific steps proposed included: enforcing packaging, storage, and hygiene standards; establishing measures to upgrade land, railway, and waterway transport infrastructure; developing multiple produce markets; enhancing market integration of small farmers; and encouraging export growth.

**Economic Impact Assessment**

The final step was to determine how various sector transformation
strategies would affect a number of critical socioeconomic indicators: sector GDP, employment, labor productivity, sector investments, trade balance, food security, and small farmer profitability. We first determined what the sector’s development would look like if it continued on its current trajectory, based on growth rates from 2001 to 2006. Then, we evaluated the impact of six potential strategies on this base scenario: export maximization, GDP maximization, small farmer profit maximization, water conservation, food self-sufficiency, and agri-industry focus. Each of these strategies would involve different approaches to sector enablers and fundamentals, as well as alterations of the crop mix.

Each potential strategy is associated with various trade-offs (see Exhibit 6). For example, Egypt could choose to focus on export promotion, which would require production of farm crops for international buyers and improve its trade balance, albeit at the expense of small farmers, as most profit would go to exporters. Conversely, focusing on increasing self-sufficiency of key crops would enhance Egypt’s food security index while reducing its crop GDP.

Exhibit 6
Weighing the Trade-offs

Source: Booz & Company
CONCLUSION

Agriculture’s history of low profitability, stagnant productivity, and rising input costs has rendered the sector unattractive to investors, policymakers, and the workforce. As such, it is in need of deep structural reforms. Fortunately, recently emerging global trends, including rising prices for crops, have triggered a major shift in the sector’s economic potential.

There are new opportunities for governments and private investors to work collaboratively in transforming agriculture in the MENA region. With combined public and private support and investments, agriculture can shed its reputation as a burden on government resources and reclaim its role as one of the first and most important engines of economic growth.
Endnotes


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