Bringing the Private Sector to Achieve Food Security and Nutrition

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Key messages

1. Agribusiness (Agri) links farms to food, including agriculture production and its inputs all the way to consumer products. It is a priority given its broad impact in poverty reduction, food security, climate and mitigation. Agri is core to 8 of the 17 SDGs.

2. As the demand for Agri products grows rapidly (+50% by 2030), the sector is up against major challenges: resource scarcity and climate change, complex value chains, and dependence on competitive infrastructure, trade and broad access to finance and inputs. Agri presents tremendous opportunities to produce more food, more sustainably and inclusively.

3. The Public sector can’t do it alone, there is a need to bring the private sector by working together on identifying clear opportunities and complementing the government role with the private sector role through blended finance solutions, advisory services tailored to the needs of large and small players, and clear rules of the game.

4. Strategic objectives of this joint effort should: 1) enhance food security, 2) drive economic development and inclusiveness, and 3) make sustainability a business driver.
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Why is Agribusiness a critical sector?

What are the challenges and opportunities for Agribusiness?

Why we bring in the private sector?

What are we prioritizing?
DEMAND-SIDE PRESSURES

Demand for food will grow by 50% by 2030 due to population growth and dietary shifts, exacerbating food insecurity for some countries.

Global population is expected to increase by 34% by 2030, most rapidly in Africa...

... yet those high population growth spots are also areas of high food security risk today.

1 Maplecroft's Food Security Risk Index (FSRI) is based on the key elements of food security as laid out by FAO. It is calculated using 12 indicators, measuring the availability, access and stability of food supplies across all countries, as well as the nutritional and health status of population.
**SUPPLY-SIDE PRESSURES**

With food demand growing by 50%, and available arable land by only ~25%, productivity improvements must play a major role.

<table>
<thead>
<tr>
<th>Arable land(^1) per capita</th>
<th>Total Factor Productivity(^2) - Avg output 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hectares in use</td>
<td>Improved productivity since 1961</td>
</tr>
</tbody>
</table>

Developed countries

Developing countries

1. Does not include designated conservation area for biodiversity

2. Presents agricultural TFP indexes (based year 1961=100) over 1961-2013 using for primarily FAO data, supplemented in some cases by national statistics. Output is FAO gross agricultural output (GAO) smoothed using the Hodrick-Prescot Filter (Lambda = 6.25). Input growth is the weighted-average growth in quality-adjusted land, labor, machinery power, livestock capital, synthetic NPK fertilizers, and animal feed, where weights are input (factor) cost shares.
SUPPLY-SIDE PRESSURES

The location of additional food production will be driven by land and water availability, climate change and biodiversity conservation.

Water and weather conditions are deteriorating…

Water scarcity

Climate change

40% water deficit expected by 2030

25% of GHG emissions

Agribusiness and forestry account for

…while land access and availability is becoming more challenging

Forest conservation

Soil degradation

80% of new tropical agricultural land in last decade came from clearing forests

~33% of land has already been eroded, primarily through erosion, compacting, and pollution

SOURCE: FAO World Food and Agriculture 2030/2050; FAO Expert Meeting on How to Feed the World in 2050; Sage; PEAT; USDA; UNEP; World Bank; Resource Revolution, IMF Confidential
Agriculture is the primary source of livelihood in emerging countries, particularly for smallholder farmers.

Holdings and agricultural land data
(for illustration - based on recent credible data, by country)

~84% of agricultural holdings are smallholder\(^1\) based

~40% of the agricultural labor force is female

<table>
<thead>
<tr>
<th>Country</th>
<th>~# smallholder farms(^1)</th>
<th>% of labor force(^2) employed by smallholdings</th>
<th>% land under smallholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>~1mn</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>Senegal</td>
<td>~0.16mn</td>
<td>2</td>
<td>75</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>~9.3mn</td>
<td>60</td>
<td>38</td>
</tr>
<tr>
<td>India</td>
<td>~263 mn</td>
<td>39</td>
<td>52</td>
</tr>
<tr>
<td>Myanmar</td>
<td>~1.9 mn</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>China</td>
<td>+300 mn</td>
<td>15</td>
<td>47</td>
</tr>
</tbody>
</table>

1 smallholder farm defined as <2 ha
2 assumption that each smallholding employs 2 farmers

Source: FAO, “The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide”
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<td>What are we prioritizing?</td>
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</tbody>
</table>
To achieve food security and agriculture SDGs by 2030, the pace of investment must more than double in developing countries

The agribusiness sector directly impacts 8 of the 17 SDGs¹

Investment needed² to achieve food security and agriculture SDGs from 2015-2030 is $480B p.a.

- Total annualized need to 2030: ~480
- Current annual actual investment: ~220
- Annual investment gap to 2030: -$260

>$200B gap likely left to be filled by private sector given public sector resource scarcity

1 Direct attribution of the Agriculture & Forestry sector according to UN-FAO; food security and agriculture-related SDGs in color
2 Investment number is for developing markets; includes fertilizers, includes investments by smallholders; does not include forestry
Agribusiness is a diverse and complex sector, and a successful value chain requires the entire system to perform

Outline of sector organization

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Primary production</th>
<th>Commodity processing</th>
<th>Secondary processing</th>
<th>Distribution/retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td>Staple crops</td>
<td>Crushing</td>
<td>Processed foods</td>
<td>Infrastructure and logistics</td>
</tr>
<tr>
<td>Fertilizers</td>
<td>Cash crops</td>
<td>Milling</td>
<td>and beverages</td>
<td>Food whole-salers</td>
</tr>
<tr>
<td>Irrigation</td>
<td>Horticulture</td>
<td>Cold storage</td>
<td>Meat &amp; dairy products</td>
<td>Groceries</td>
</tr>
<tr>
<td>Crop protection</td>
<td>Animal protein (and fisheries)</td>
<td>Commodity traders</td>
<td>Fruit products</td>
<td>Food retailers</td>
</tr>
<tr>
<td>Machinery</td>
<td></td>
<td>Packaging</td>
<td></td>
<td>Foodservice</td>
</tr>
<tr>
<td>Animal Health/Nutrition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policy and regulation

- Tariffs, import/export restrictions, taxes and subsidies
- Non-tariff trade barriers (e.g., Food Safety standards)
- 3rd Party (public and/or private) Support services (R&D, farmer extension, inspection, certification, etc.)
- Ease of doing agri-related business
- Environmental & Social standards
Across the value chain, challenges are abundant in emerging markets – but even more predominant in poorest and fragile countries

Diverse challenges exist, and may vary even within countries
Market differences are more pronounced by market maturity, with limited differentiation across geographic regions.

Findings from World Bank “Enabling the Business of Agriculture” rankings of Agri-related regulation

Urbanized countries show better agriculture regulations than transforming and agriculture-based countries.

Correlation of EBA scores with transformation phase = 0.61

(Countries are categorized as “Urbanized” “Transitioning” and “Agriculture-Based”)

Predictably, OECD high-income countries rank highest on EBA scores, followed by Europe & Central Asia, and Latin America & Caribbean. However, regional scores show relatively low variance.
Looking forward, several opportunities exist to drive sector transformation

| 1 | Inclusive supply chains that improve rural livelihoods for commercial smallholder farmers and SMEs |
| 2 | Food chain improvement to efficiently process, store, transport and deliver food, dramatically reduce waste and enhance nutrition outcomes |
| 3 | Climate-smart agriculture practices that ease the pressure on natural resources |
| 4 | Clear and established global E&S standards and strong project level E&S practices to ensure efficient usage of land and water resources, and labor practices |
| 5 | Technology improvements to increase yield, resource productivity, traceability and nutrition outcomes |
| 6 | Leveraging technology and financial/business model innovations to provide better products/services to farmers and other value chain actors |
Technology and innovation are the critical bridge to closing the productivity gaps of the industry and the private sector can play a crucial role!

- Business as usual conditions will not be able to meet the sector challenges and produce more with less
- Innovation is needed across the entire supply chain to manage these challenges
- Technology transfers and applications South-South and North-South are required

<table>
<thead>
<tr>
<th>Mobile Tools</th>
<th>Traceability and geo-spatial solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics &amp; genomics</td>
<td>Supply Chain Technologies</td>
</tr>
<tr>
<td>Farm Management Software, Sensing</td>
<td>Renewable energy</td>
</tr>
<tr>
<td>Robotics, Mechanization, &amp; Equipment</td>
<td>The Internet of Things (e.g., networks of low-cost sensors and actuators)</td>
</tr>
<tr>
<td>Novel Farming Systems</td>
<td>Innovative Food (and Feed)</td>
</tr>
<tr>
<td>Miscellaneous (e.g., equipment sharing software, non-food extraction &amp; processing)</td>
<td>Food Marketplace</td>
</tr>
</tbody>
</table>
Why is Agribusiness a critical sector?

What are the challenges and opportunities for Agribusiness?

Why we bring in the private sector?

What are we prioritizing?
Private sector role

- High market returns
- Non-commercial to late-stage enterprise maturity
- Public sector, private equity, venture capital, DFIs, IFC, impact investors, family offices, pension funds

Source: AUM is based on 2013 data collected by JP Morgan Social Finance and the Global Impact Investing Network (GIIN) based on a survey of 125 organizations; IFC is not represented in the 2013 GIIN survey.
Addressing these challenges requires alignment of the public and private actors to Maximize Finance for Development

<table>
<thead>
<tr>
<th>Cascade approach</th>
<th>Description</th>
<th>Sector actors</th>
</tr>
</thead>
</table>
| Private sector solutions                              | Commerciaiy viable investments                                               | ▪ Commercial banks  
▪ Corporates  
▪ Private sector arms of MDBs |
| Upstream reforms & market failures                    | Enabling environment, trade terms, supply chain connectivity, regulation of product/process specifications and resource use | ▪ Governments  
▪ MDBs  
  – Trade & Competitiveness  
▪ NGOs / CSOs |
| Public & concessional resources for risk instruments & credit enhancements | Pre-commercial investments, private players providing part-public goods     | ▪ Impact investors  
▪ Development partners  
▪ MDBs (Blended Finance)  
  – IDA Private Sector window  
  – GAFSP  
  – Others |
| Public and concessional financing, including sub-sovereign | Transport, water, infrastructure, education and skills, farm extension services where not yet linked with functioning supply chains | ▪ Development partners  
▪ MDBs  
▪ Governments |
Entry point for private sector: country diagnostic and client identification

Step 1
Identify value chains where the country has/ can have a competitive advantage

If market/sector fundamentals are weak, no further Engagement until this is resolved

Step 2:
Assess levels of market maturity for the focus sectors and the nature of main constraints to competitiveness.
Consider potential barriers that need to be targeted
- Policy
- Development impact
- E&S issues

Step 3a:
Engage global, regional or local companies through AS and/or IS product offering (subject to IDD and E&S screening)

Step 3b:
Explore complementarity with MDBs, Governments and other potential partners

Step 3c:
Deep involvement of Governments and MDBs to resolve issues of infrastructure and enabling environment
Cross cutting approach is required, especially to address SME challenges in the sector and unlock impact

Private sector DIRECT BUSINESS TOOLS
- Investment: Project or Corporate Finance
- Supply Chain Finance for partners using their buying power for suppliers
- Firm-Level Advisory Services
- Blended Finance in IDA-FCS

Private sector INTERMEDIARY TOOLS
- Agri-Credit Lines with FIs
- SME Credit Lines with FIs
- Risk-Sharing with Buyers
- Technical Assistance
- Blended Finance

Private sector TOOLS
- Farmer Organization Advisory Services

Financial Institutions & Agribusinesses
SMEs, Commercial Farms, Aggregators, Agri-Service Providers

Subsistence Farmers
400 million households of 550 million farmers globally

Food Consumers
Over 4 billion people (base of the pyramid)

TRADE & COMPETITIVENESS
Promoting competitiveness and market access for SMEs via a suite of solutions, including:
- Investment Climate reforms
- Investment Promotion for Agri
- Food Safety Systems - Phytosanitary Standards
- Warehouse Receipts Systems
- Innovation and Entrepreneurship Centers (Incubators)
- Spatial Solutions (Agri-Industrial Parks, Agri-economic zones, etc.)
- Competition Policy
- Trade & Logistics

Resulting in:
- Non-Farm Jobs (at agri-processors, logistics, packaging)
- Inclusion into value chains

PUBLIC SECTOR ACTORS + MDBs
- Agriculture Policy
- Land Tenure
- Principles of Responsible Agri Investment (pRAI)
- Community Development
- Infrastructure Support
- Support for extension services provision
- Aggregation/Collection (Productive Alliances with local offtakers)
- R&D support (incl. CGIAR)
- Wholesale markets
- Enabling the Business of Agriculture
- Nutrition-food outreach
- Innovation and technology application
- MIGA risk insurance
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### Agribusiness strategy is based on three pillars

**Vision:** Promote sustainable, inclusive, and efficient food systems through the private sector via investments, advisory services and partnerships to create development impact

<table>
<thead>
<tr>
<th>Strategic Objectives</th>
<th>Enhance food security</th>
<th>Enhance inclusive growth and shared prosperity</th>
<th>Make sustainability a business driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>What needs to happen?</td>
<td>Increase food supply, especially from most efficient, competitive regions</td>
<td>Enhance linkages of smallholder farmers and SMEs to agricultural value chains</td>
<td>Improve Environmental &amp; Social practices</td>
</tr>
<tr>
<td></td>
<td>Increase value addition and product diversification in supply chains</td>
<td>Build capacity of local producers</td>
<td>Promote climate-smart agriculture</td>
</tr>
<tr>
<td></td>
<td>Improve efficiency/ lower cost of food distribution/ logistics</td>
<td>Facilitate access to finance and risk mitigation mechanism to smallholder farmers</td>
<td>Improve food safety</td>
</tr>
<tr>
<td></td>
<td>Lower cost of food to consumers through efficient use of technology/innovation</td>
<td>Gender-smart approaches throughout value chain</td>
<td>Promote global standards</td>
</tr>
<tr>
<td></td>
<td>Promote access to safe, affordable, nutritious food</td>
<td>Support product availability to Base of Pyramid (BOP)</td>
<td>Increase resource efficiency, including water</td>
</tr>
<tr>
<td></td>
<td>Improve enabling infrastructure and policy and regulatory environment</td>
<td></td>
<td>Improve resilience of agriculture systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community engagement and investment as a business tool</td>
</tr>
</tbody>
</table>
The market segmentation model is a useful framework for identifying different types of interventions needed based on market maturity.

Breakdown of market segments:

- **Fully functioning**
  - Globally competitive production, especially for traded commodities
  - Little to no government distortions
  - Need for finance adapted to specific agribusiness-forestry requirements (e.g., long-term finance)

- **Globally competitive**
  - Existing policy distortions or macro-level challenges
  - Sector competitive on export parity basis
  - Players along the full value chain have integrated operations or strong interlinkages between them

- **Locally competitive**
  - Sector competitive on import parity basis
  - Functioning domestic value chain, reliable demand and supply infrastructure, with knowledgeable players along value chain working with quality inputs and facilities
  - Local processing to meet market conditions
  - Availability of adequate long term finance depends on macro conditions

- **Immature market**
  - Commercialization is constrained due to lack of enablers (e.g., limited infrastructure and limited access to credit)
  - Unreliable links to the AF value chain, (e.g., smallholder-led cash crops)
  - Significant challenges to accessing finance

- **Nascent/undeveloped market**
  - Challenging environment for value chains to develop (e.g., political uncertainty, broken infrastructure, limited access to credit)
Identification of segments to targeting of Interventions

This approach is based on a simple economic concept: the Production Possibility Frontier (PPF).
• All the possible production combinations are found within the PPF.
• Outside of the boundary are combinations which are not achievable under current conditions.
• The efficient use of resources is along the boundary.
Improve and Optimize Targeting of Interventions

**Approach**

An intuitive explanation of the methodology

**Efficiency gap**

Agricultural innovations to eliminate production inefficiencies and increase current productivity levels

**Current potential**

Agricultural innovations that bring technological changes that shift the agricultural frontier (potential)

**Future scenario**

Based on local agro-ecological and market conditions
**Advantages of a micro-region typology: classification**

<table>
<thead>
<tr>
<th>Micro-Regions</th>
<th>Poverty</th>
<th>Potential</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical, lacking agricultural potential</td>
<td>High</td>
<td>Low</td>
<td>High-Medium-Low</td>
</tr>
<tr>
<td>Medium priority, no agricultural opportunities</td>
<td>Medium</td>
<td>Low</td>
<td>High-Medium-Low</td>
</tr>
<tr>
<td>Low priority</td>
<td>Low</td>
<td>Low</td>
<td>High-Medium-Low</td>
</tr>
<tr>
<td>High priority</td>
<td>High</td>
<td>Medium-High</td>
<td>High-Medium-Low</td>
</tr>
<tr>
<td>Medium priority, with agricultural opportunities</td>
<td>Medium</td>
<td>Medium-High</td>
<td>Medium-Low</td>
</tr>
<tr>
<td>Low priority, with agricultural opportunities</td>
<td>Low</td>
<td>Medium-High</td>
<td>Medium-low</td>
</tr>
<tr>
<td>High performance</td>
<td>Low</td>
<td>Medium-High</td>
<td>High</td>
</tr>
</tbody>
</table>
Recall the initial objective

Bigger role for public sector

Low potential and low average efficiency

High potential and low average efficiency

Bigger role for private sector

Micro-Regions

Critical, lacking agricultural potential

Medium priority, no agricultural opportunities

Low priority

High priority

Medium priority, with agricultural opportunities

Low priority, with agricultural opportunities

High performance

Improve and Optimize Targeting of Interventions
## Improve and Optimize Targeting of Interventions: Typology

<table>
<thead>
<tr>
<th>Typology Class</th>
<th>Description</th>
<th>Examples of recommended innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>High poverty, moderate potential</td>
<td>Long-term investments in agriculture such as funding R&amp;D activities to generate technological changes and major investments in infrastructure. Short-term assistance programs such as conditional cash transfers that incentivize human capital investments are recommended.</td>
</tr>
<tr>
<td>High priority</td>
<td>High poverty, medium/high potential, medium/moderate efficiency</td>
<td>Reduction in market access costs through road improvements and price information systems (ICTs). Innovations that allow for improved access to inputs and extension services.</td>
</tr>
<tr>
<td>Medium priority with high agricultural opportunities</td>
<td>Medium poverty, medium/high potential, medium/moderate efficiency</td>
<td>Innovative inclusive financial instruments to allow for savings of harvest income towards investments in next season’s production, credit for working capital, and insurance to mitigate risk of adopting new technologies. Strengthening of horizontal and vertical integration institutions that provide better access to markets to smallholders such as farmer groups and contract farming arrangements.</td>
</tr>
<tr>
<td>Low priority with high agricultural opportunities</td>
<td>Moderate poverty, medium/high potential, medium/moderate efficiency</td>
<td>Medium and small-scale productive infrastructure investments such as mini-irrigation projects and land management projects.</td>
</tr>
<tr>
<td>High performance</td>
<td>Moderate poverty, medium/high potential, high efficiency</td>
<td>Orientation to high values and export markets. Certification and organic production to obtain higher premiums from agricultural production. Increased financial inclusion to allow for higher returns on profit savings, credit to purchase additional land and expand farm and non-farm businesses.</td>
</tr>
</tbody>
</table>
Example
Ghana case
Agricultural potential

Where are the best opportunities?

- Areas with higher agricultural potential are shown in darker red.
- There is a clear North / South divide, with the South concentrating more high potential areas. This can be partially explained by the bimodal rainy season in the South of Ghana.
- High soil cover of the forest areas in the Western region and irrigation opportunities around the Volta lake also explain high potential opportunities.
Agricultural efficiency

How far is each area from its potential

- Darker areas show areas with higher efficiency (closer to performing at their maximum potential).
- Agricultural efficiency is lower near the large urban centers, due to higher opportunity costs for labor and land.
- High efficiency levels in the North can be associated with intensive development efforts in the region, and the need to operate closer to the farm frontier given the high poverty rates and low agricultural potential.
- Maize producing areas of Brong Ahafo (near Techiman) and the cocoa producing areas of the Western region also operate at high efficiency levels.
Accessibility

How costly is it to get to markets?

- Regions in red are easily accessible, regions in blue are much harder to reach.
- Poor accessibility can reduce the cost effectiveness of a good innovation, and its sustainability in the long run.
- Good access to markets help transmit increases in productivity into higher income opportunities minimizing transaction costs.
Combining dimensions

Potential + Efficiency + Accessibility

- High heterogeneity within each type of area.
- Low potential areas (in red) from the North are different than those in the rest of the country.
  - In the North, they tend to be high efficiency and easily accessible.
  - In the rest of the country, they tend to have lower efficiency and accessibility levels.
- High potential areas (in green) in the Western region tend to have higher efficiency levels than other high potential areas, but suffer from low access.
Poverty

Where are the poor?

- So far, the analytical maps shown help to target interventions using a productivity-driven criteria.
- A standard poverty map helps us find where the poor are, and include a welfare criteria (if desired).
- Given agriculture is the main source of livelihood for the rural population in Ghana, it is not surprising that the poverty map tracks closely the agricultural potential (and efficiency) map.
Combining dimensions
Potential + Efficiency + Poverty

For illustration purposes, we define (arbitrarily) 7 classes:

- Low potential and high poverty
- Low potential and medium poverty
- Low potential and high poverty
- High potential and poverty, with medium/low efficiency
- High/medium potential with medium/low efficiency, and medium poverty
- High/medium potential with medium/low efficiency, and low poverty
- High potential and efficiency, low poverty
Thanks