# Building the Next Generation of U.S. Agricultural Export Markets

## The Role of Agricultural Development Investments Abroad in Strengthening U.S. Trade

**Shawn Arita | September 2026**

FARMJOURNAL FOUNDATION

# TABLE OF CONTENTS


**Key Terms** ..... 3

**Executive Summary** ..... 4

**Introduction** ..... 6

**Part I:** The Trade Opportunity ..... 7

**Part II:** How Strategic Agricultural Investment Builds Trade ..... 12

**Part III:** Case Studies ..... 20

**Part IV:** Building Forward: The Role of the U.S. Government ..... 32

**Key Recommendations** ..... 34

**Conclusion** ..... 36

**References** ..... 38


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The views expressed are those of the author and do not necessarily reflect the views of North Dakota State University.

## Key Terms and Programs

- **Cooperators:** Farmer- and industry-funded agricultural trade organizations, such as the U.S. Soybean Export Council (USSEC), U.S. Grains and BioProducts Council, U.S. Wheat Associates, USA Rice, and the World Initiative for Soy in Human Health (WISHH) that develop overseas export markets for U.S. commodities, typically in cost-share partnerships with U.S. Department of Agriculture (USDA).
- **Development partners / NGOs:** Non-governmental and development organizations (for example, CARE) that implement U.S. agricultural development and food-security programming, including under Feed the Future.
- **Feed the Future (FTF):** The U.S. government's global food-security initiative (launched in 2010), funding agricultural development, research, and capacity building. The Feed the Future Innovation Labs at U.S. universities are one component within FTF, not a separate program.
- **Food aid:** Humanitarian in-kind or cash assistance provided to prevent hunger in crisis conditions, principally under Food for Peace Title II emergency programs. This is not a development or market-building program and is not treated as development anywhere in this paper. Non-emergency Title II programming addresses chronic food insecurity and its underlying causes through multi-year development activities. These categories are distinguished from the two USDA programs defined below, which serve different purposes: Food for Progress supports agricultural development and market-system capacity, while McGovern-Dole supports school feeding, child nutrition, education, and literacy. Only the non-emergency categories are treated here as development, and only Food for Progress is treated as market-building.
- **Food for Peace (PL-480):** The principal U.S. food-assistance authority, comprising both emergency and non-emergency programs. The two are treated separately throughout this paper, as defined above. It is funded through USDA and was previously managed by the U.S. Agency for International Development.
- **Food for Progress:** A USDA program that funds agricultural development and trade-capacity building in developing and emerging economies.
- **McGovern-Dole:** The McGovern-Dole International Food for Education and Child Nutrition Program is a USDA program supporting school feeding, child nutrition, education, and literacy in low-income countries. It is not an agricultural-productivity or market-development program and is not treated as one in this paper.
- **MAP / FMD:** USDA's Market Access Program and Foreign Market Development program are market-promotion programs that cost-share export development with cooperators.
- **RAPP:** USDA's Regional Agricultural Promotion Program is a newer market-development program focused on enhancing U.S. exports to new markets in parts of the world, including South and Southeast Asia, Latin America, the Middle East, and Africa.
- **FAS:** USDA's Foreign Agricultural Service, which administers U.S. agricultural trade promotion and represents U.S. agriculture overseas. Examples of FAS programs referenced in this report include the Cochran Fellowship: a USDA program that provides short-term training opportunities to agricultural professionals from middle-income countries, emerging markets, and emerging democracies; and the Borlaug Fellowship: a USDA program that promotes food security and economic growth with a focus on long term collaboration by providing training and collaborative research opportunities to fellows from developing and middle-income countries.

# EXECUTIVE SUMMARY

American farmers and agribusiness are facing increasing pressure on multiple fronts. Rising input costs, stagnating crop prices, weather issues, trade disruptions, and emerging biosecurity threats like New World screwworm and avian influenza – all of these issues have compounded over the past several years to strain the farm economy. Although market conditions can change quickly, recent projections have pointed to continued pressure on margins for major row crops through 2027, leaving many farm businesses on uncertain footing.

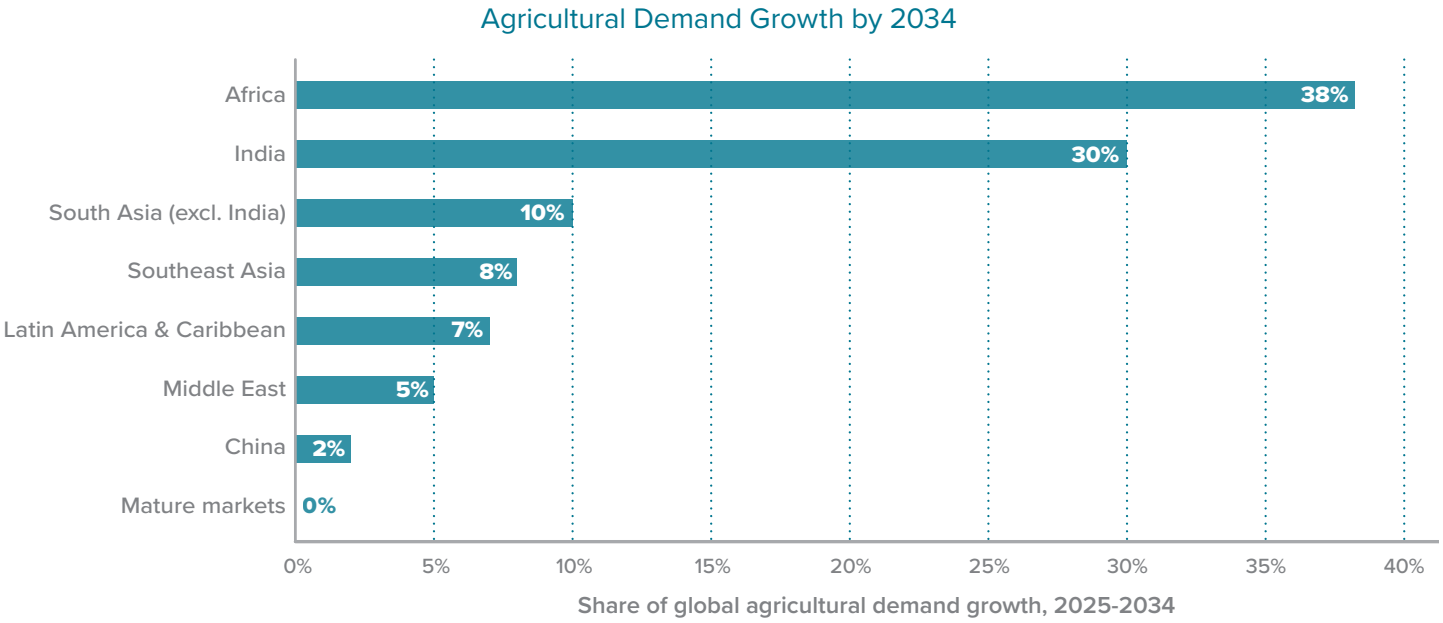
For decades, U.S. agricultural exports have been dominated by just a handful of large customers, including Canada, Mexico, China, South Korea, and Japan, that have historically purchased a fairly narrow range of commodities. In coming years, these markets will remain important, but the outlook for their further growth is limited. In short, the U.S. will need to rely on new, potentially rapidly growing markets to build its demand base and protect American farm livelihoods against ongoing risks and future shocks.

Emerging markets, largely in Africa and South Asia, represent the biggest growth opportunities for American agricultural trade; however, many countries in these regions face a variety of challenges that currently prevent them from becoming mature, commercial markets. This paper outlines how the U.S. can use foreign policy mechanisms – including global agricultural development, trade and market promotion programs, regulatory standards, agricultural research, and cross-sector collaboration – to help countries increase their market readiness and build a stable, reliable environment for U.S. private sector, simultaneously supporting international development outcomes and long-term U.S. trade.

By strategically refining and coordinating U.S. foreign policy and agricultural development programs, the U.S. can precondition emerging markets for private sector actors such as cooperators, traders, and U.S. businesses to support future trade. Notably, nine out of ten of the largest U.S. agricultural export destinations in 2024 had previously received U.S. assistance. The U.S. can support market readiness in several ways:

- **Building the consumer demand base:** Rising incomes through agricultural growth can, over time, create demand for higher-value goods, including U.S. products.
- **Supporting value chains:** Helping countries improve storage, processing, cold chains, and other logistics can increase capacity for imports.
- **Strengthening institutions:** Supporting the development of regulatory, customs, contract enforcement, and other systems can smooth pathways for trade.
- **Nurturing commercial relationships:** Collaboration with commodity-focused cooperator organizations and private-sector companies can establish relationships between buyers and sellers, creating a record of trust.
- **Addressing trade barriers:** The adoption of U.S. standards for sanitary and phytosanitary measures and biotechnology, consistent with international norms, can support increased trade.
- **Creating familiarity and trust of U.S. products:** Sustained U.S. presence in partner countries, such as through agricultural research programs, cooperator engagement, and ongoing technical assistance, can create strong relationships, familiarity, and preference for U.S. agricultural products.

Commercial markets usually develop through a long sequence, rather than a single intervention. Over time, purchasing power expands, products and institutions become familiar, sectors and regulations develop, commercial relationships form, and trade becomes self-sustaining. The U.S. has seen this pattern play out many times – Mexico and South Korea are two notable examples where early food assistance was followed over decades by substantial agricultural trade. Today, there are a number of emerging market countries that could potentially follow a similar trajectory; this paper examines five case studies of countries where sustained U.S. support has contributed to market readiness or has the potential to do so in the future.




Source: OECD-FAO Agricultural Outlook 2025-2034

## Key Recommendations

Looking ahead, agricultural development efforts could be better aligned to support both global food and nutrition security and U.S. trade. The report makes a series of recommendations to this end, including:

### COORDINATING EXISTING CAPABILITIES

- Syncing trade-promotion and development efforts to advance aligned priorities
- Updating the Global Food Security Strategy and Research Strategy to work across all U.S. departments and agencies, to help avoid work duplication and allow programs to build on each other
- Increasing communications and coordination with cooperators, market-access organizations, and the private sector
- Regularly assessing market growth indicators to gauge program success

### INSTITUTIONAL KNOWLEDGE AND CONTINUITY

- Supporting local capacity building and ongoing maintenance at every step

### EMERGING MARKET ENGAGEMENT

- Sustaining presence in key markets to support continuity and future growth
- Tailoring and adjusting in-country engagement based on levels of market establishment

### REGULATORY AND MARKET ACCESS

- Supporting the adoption of U.S. regulatory and biosafety standards to counter influence from competing countries

# INTRODUCTION

America's next generation of agricultural export markets will not emerge on their own. The emerging countries that will be the key drivers of food demand growth often lack the market preconditions needed for commercial engagement. The appropriate infrastructures for feed, food safety, and biotechnology, along with financing and relationships with potential buyers, need to be in place before trade develops. Because of the broader, more long-term nature of benefits from such investments, market readiness has been largely a collaborative effort of many public institutions, universities, and development and industry organizations.

This paper outlines how food security and agricultural development programs can precondition markets that will support exports in the future. Institutional and regulatory capacity, as well as local firms and networks, are all conditions that, when created, can enable commercial demand to emerge and be met. Trade promotion, led by cooperators, and other activities by the private sector can then connect that market readiness to U.S. suppliers. In several important markets, those capabilities later supported commercial relationships with U.S. suppliers.

For decades, American farmers and agribusinesses have relied on a group of large buyers purchasing a fairly narrow range of commodities. Although these markets will remain important, they will not meet the growing demand for food in the next few decades. The demand for food is expected to grow the most in South and Southeast Asia, and in Sub-Saharan Africa. According to the OECD-FAO (2025), more than 90 percent of the expected growth in food demand between now and 2034, measured in calories, will be in developing countries. This means much of the new opportunity for U.S. agricultural exports in the future will be in places that currently contend with food insecurity and undernutrition.

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Diversification matters more as that shift proceeds. China showed how rapidly changes in economic policy, the supply of competitors, geopolitical tensions, the imposition of tariffs, or new regulations can eliminate billions of dollars in trade. Growing numbers of medium-sized customers will not eliminate market risk, but will lower the risk that American agriculture will be disrupted by one country. The aim of diversification is to create a network of trade markets throughout the world that is balanced in both region and commodity.

The U.S. has assisted market development in the past. Many of the largest current buyers of American agricultural products have historically received U.S. food aid, agricultural research support, extension services, fellowships, or development assistance during earlier stages of their development. Their growth was driven primarily by their own policies, institutions, and rising incomes, but U.S. engagement contributed to the regulatory systems, technical capacity, and commercial relationships through which trade later expanded.

This form of engagement also adds to the strategic and economic value of U.S. international programs. Pursued as part of a long-term market development strategy, agricultural programs can improve food and nutritional security, raise rural incomes, and strengthen partner-country institutions, while also expanding opportunities for American farmers and agribusinesses. It is worth assessing regularly whether these programs are focused and well connected to one another.

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Agricultural development and trade promotion serve different but complementary functions. Non-emergency food-security assistance, agricultural development, research, and capacity building support productivity, economic growth, and modern food and feed systems. Trade promotion, facilitated by farmer- and industry-supported cooperators like the U.S. Soybean Export Council (USSEC), the U.S. Grains and BioProducts Council, U.S. Wheat Associates, USA Rice,

and the World Initiative for Soy in Human Health (WISHH), links this foundation to U.S. suppliers. Cooperators help build buyer networks, create technical, regulatory, and commercial familiarity and understanding, and sustain a commercial presence. This work is primarily funded by USDA's Foreign Agricultural Service, notably the Market Access Program and the Foreign Market Development program.

The case studies found later in this report show the approach at different stages. Bangladesh became a $1.2 billion market for U.S. agricultural exports in 2025, built over decades of layered engagement. Guatemala pairs development engagement with a free-trade agreement that supports trade in both directions. Pakistan shows the durability of value chains and trading relationships through a biotechnology disruption. Cambodia is earlier along, where feed and aquaculture work is still building the local firms and the demand that larger imports would need. Zambia has the development base but not yet the commercial pipeline. Brazil is the cautionary example, where U.S. research supported a competitor rather than a customer.

The next generation of agricultural markets is on the horizon. None of these countries is assured of becoming a major U.S. market. History and the case studies show that the foundation of a market, such as trained regulators, capable local agribusinesses, working approval systems, and established buyer relationships, can take years to form and will require consistency. The commercial value of previous U.S. investment hinges on whether those relationships are maintained and connected to sustained commercial involvement.

# PART I: THE TRADE OPPORTUNITY

## 1.1 U.S. Exports Are Concentrated in Mature Markets and Exposed to Volatility in China

U.S. agricultural exports remain heavily concentrated in a small number of large markets. Mexico, Canada, China, Japan, European Union (EU), and South Korea have delivered enormous value to American farmers and agribusinesses; tracked as a consistent group, these core markets accounted for roughly two-thirds of total U.S. agricultural exports at their 2022 peak. Their combined purchases rose from about $37 billion in 2000 to approximately $132 billion in 2022 (USDA FAS GATS). Their combined share has since receded to about three-fifths as sales to China fell sharply. By 2025, China had slipped to sixth place among U.S. agricultural destinations, behind the EU. Export market concentration has supported farm income, commodity demand, transportation, processing, and investment across the agricultural economy,[1] but it also leaves the sector heavily exposed to developments in a small number of countries.

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Looking ahead, the growth outlook across these markets is likely to be restrained. Japan and South Korea have aging populations and already high levels of per capita food consumption. Canada and Mexico remain deeply integrated with U.S. agriculture, although American suppliers already hold strong positions in both. China continues to offer exceptional scale, but successive rounds of tariffs and retaliation have left the trading relationship contentious and volatile. Future gains in the mature core are likely to depend more on maintaining access, defending market share, and expanding higher-value sales than on rapid growth in underlying food demand.

This creates a portfolio problem for U.S. agriculture. A policy dispute, regulatory action, or sourcing shift in one major destination can move billions of dollars in exports within a single year and quickly affect commodity prices, basis levels, transportation demand, and farm revenue. The 2018 trade conflict and the renewed decline in sales to China in 2025 illustrate the scale of that exposure. Similar disruptions have affected other exporters, including Canadian and Australian

1.) Such concentration is not necessarily unique to the United States. Brazil's agricultural exports are more concentrated still, with roughly one-third going to China alone (Colussi et al., 2025).

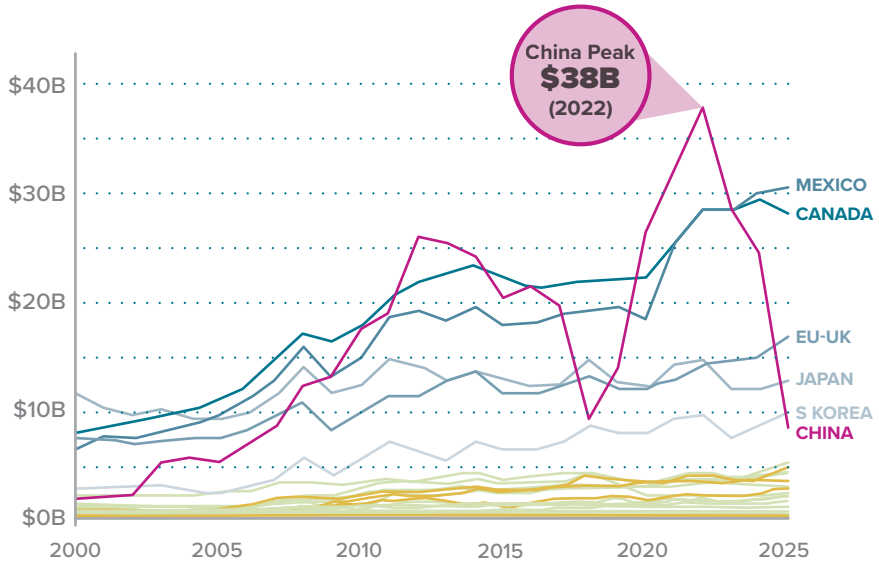
shipments to China, underscoring that the risk is structural rather than specific to the United States. In the calendar-year series shown in Figure 1, U.S. agricultural exports to China reached roughly $38 billion in 2022 before plunging over the next three years to about $8.4 billion in 2025, while Brazil strengthened its position in the Chinese market, particularly as a soybean supplier. Relationships, logistics, and procurement systems built around competing origins can remain in place even after formal barriers are reduced, negatively impacting markets in the longer term.

Figure 1 brings these trends together. The mature core remains the largest part of the export base, but its growth has slowed. China has produced sharp swings linked to policy and sourcing changes. Developing markets remain smaller in total value, yet they have expanded much more rapidly from their earlier base. The combination of concentration at the top and faster growth outside the traditional core makes diversification increasingly important to the long-term stability of U.S. agricultural trade. Viewed over a longer horizon, U.S. export destinations are considerably more diverse than in earlier decades; the exposure that remains is nonetheless concentrated in a handful of large markets.

Domestic and value-added demand will remain an important part of the same growth strategy. Livestock feeding, biofuels, food manufacturing, and bioproducts can provide meaningful outlets for U.S. production. Even with continued growth in those areas, domestic food demand is comparatively mature and agricultural productivity continues to rise in many major sectors. A broader export base will therefore remain necessary to support long-run growth.

## Figure 1. Export Concentration and the Case for Diversification

Annual U.S. agricultural exports by market group, 2000-2025 ($ billions).




**CHINA 5%**

**Large but volatile:** China's share fell from nearly 20% of U.S. agricultural exports in 2022 to about 5% in 2025.

**LARGE, ESTABLISHED MARKETS 57%**

**The stable core:** Mexico, Canada, the EU-UK, Japan, and South Korea – the largest, wealthiest, and most mature markets.

**OTHER COMMERCIAL MARKETS 25%**

**A broad commercial base:** Other developed and upper-middle-income importers, such as Taiwan, the Gulf states, Colombia, and Indonesia.

**FRONTIER MARKETS 13%**

**Smaller today, faster-growing:** Low- and lower-middle-income developing economies, including the 22 U.S. development-partner countries.

**Annual U.S. agricultural exports by market group, 2000 to 2025. Data: USDA Foreign Agricultural Service, Global Agricultural Trade System, current dollars; shares are for 2025.**

Figure 1: Six established markets – Mexico, Canada, China, Japan, the EU-UK, and South Korea – account for most U.S. agricultural export value, while dozens of developing markets sit in a low band far below (each faint line is one country; the largest, Colombia, reached about $6 billion in 2025). China is the volatile exception, spiking to a $38 billion record in 2022 before collapsing to about $8.4 billion (roughly 5% of exports) in 2025. The gap between the labeled markets and the faint band is the diversification opportunity. Data: USDA Foreign Agricultural Service, Global Agricultural Trade System (calendar years, current U.S. dollars: EU-UK is the sum of EU-27 members and the United Kingdom); 2025 preliminary.

## 1.2 The Geography of Future Demand

The case for diversification is reinforced by the changing geography of global food demand. Between 2025 and 2034, nearly all projected growth in agricultural- and fish-commodity consumption is expected to occur in low- and middle-income countries. Africa accounts for approximately 38 percent of the projected increase in total food availability and India for approximately 30 percent, with additional growth spread across Southeast Asia, the rest of South Asia, Latin America and the Caribbean, the Middle East, and China.

***Between 2025 and 2034, nearly all projected growth in agricultural- and fish-commodity consumption is expected to occur in low- and middle-income countries.***

Population growth, urbanization, and rising incomes are reshaping food demand across these regions. As household incomes rise, diets typically expand beyond staple grains toward meat, dairy products, vegetable oils, wheat-based foods, fruits, processed foods, and other higher-value products. Growth in poultry, livestock, dairy, and aquaculture also increases demand for feed grains and protein meals. These shifts can create significant import demand where domestic production, processing capacity, or natural-resource constraints prevent local supplies from keeping pace.

The size of the commercial opportunity will vary widely across countries. Some governments will continue to emphasize self-sufficiency, protect domestic producers, or restrict imports through tariffs, licensing, and foreign-exchange controls. Freight costs, port capacity, exchange rates, infrastructure, and competition from nearby suppliers will also shape sourcing decisions. Large population growth alone does not establish an attractive market for U.S. agriculture. The relevant question is where rising consumption is likely to translate into import demand and where U.S. products can compete effectively.

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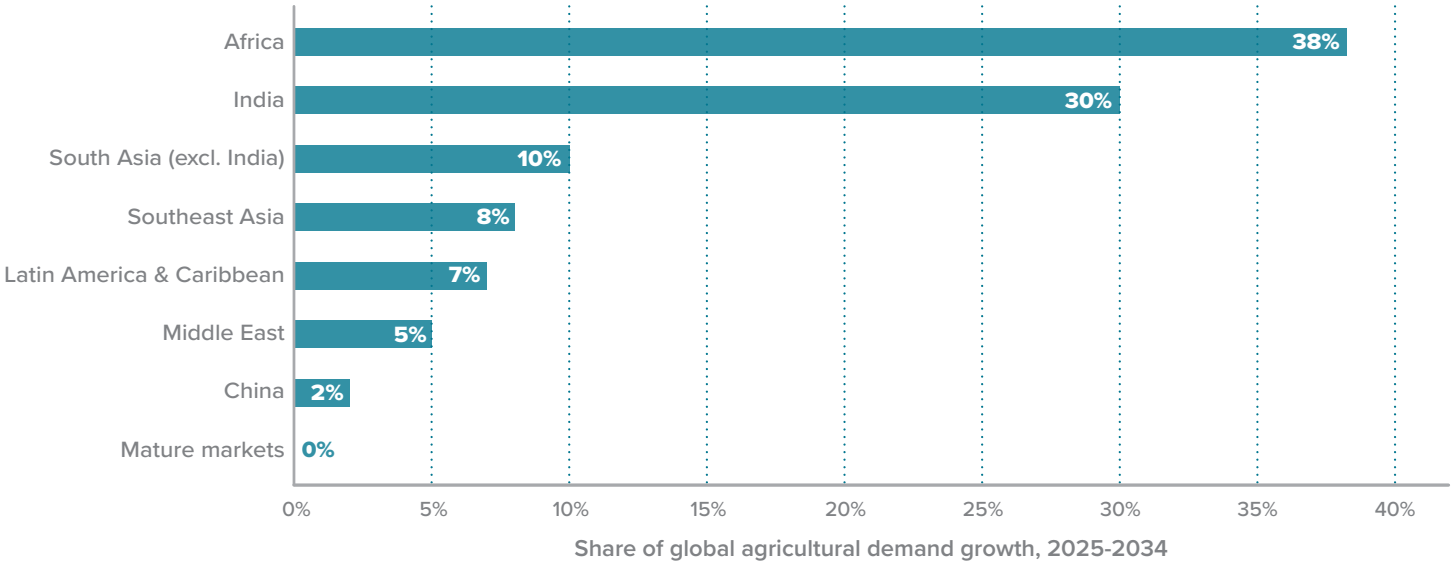
Figure 2 compares the projected distribution of additional food demand with the current U.S. commercial footprint. Panel A shows where growth in consumption is expected to occur. Panel B compares each country's share of global calorie demand with its share of U.S. agricultural exports. The largest gaps appear across parts of South Asia, Southeast Asia, and Africa, where current or prospective demand is substantial while U.S. participation remains comparatively limited.

These gaps do not automatically translate into available sales; they should be treated as indicators for further analysis. A large difference between food demand and U.S. export share may reflect strong domestic production, lower-cost regional suppliers, restrictive trade policies, or products that do not align well with U.S. comparative advantage. The comparison is still useful because it identifies markets where import dependence (the share of consumption met by imports), price competitiveness, freight, regulatory access, and local buyer capacity merit closer examination. Product composition is also difficult to forecast: China's import boom ultimately arrived in soybeans to feed domestic livestock production rather than in the grains many early projections anticipated.



## Figure 2. Projected Agricultural Demand Growth and the Current U.S. Commercial Footprint

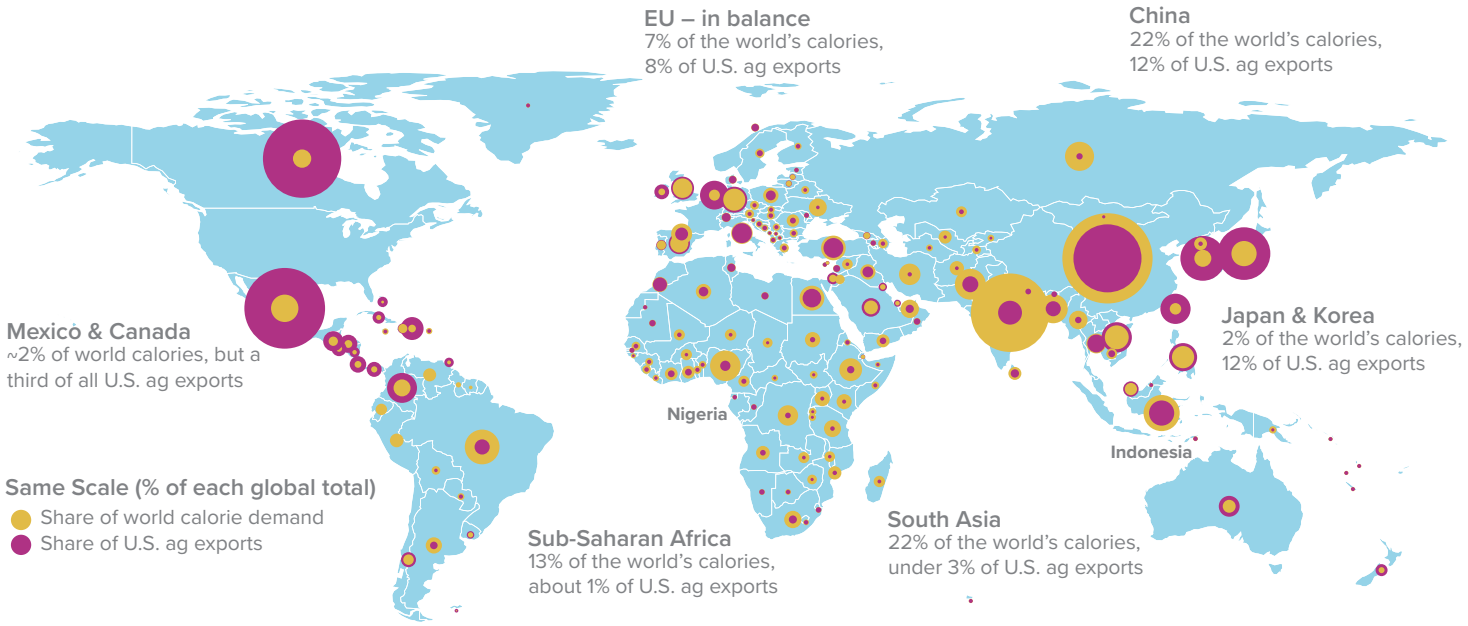
### a.) Agriculture Demand Growth by Region, 2025-2034




Panel A shows projected shares of global agricultural-demand growth by region from 2025 to 2034. Panel B compares each country's share of global calorie demand with its share of U.S. agricultural exports, using the 2023 to 2025 average. A larger share of demand than U.S. exports indicates a relatively thin U.S. commercial presence and does not constitute a forecast of attainable sales.

Data: OECD-FAO Agricultural Outlook 2025-2034; United Nations World Population Prospects 2024; USDA Foreign Agricultural Service, Global Agricultural Trade System

### b.) The Market-Building Gap Today: Demand vs. U.S. Presence



## 1.3 The Diversification Opportunity

The diversification opportunity spans markets at very different stages of commercial development. Diversification here means growth in non-core markets in addition to, not in place of, the mature customers that anchor U.S. trade. Some already import large volumes of agricultural products but purchase only a limited share from the United States. Others are developing feed, livestock, aquaculture, processing, and retail sectors that could support larger imports over time. A third group has substantial long-run demand potential but remains difficult to serve because of regulations, logistics, financing, trade policy, or low purchasing power.

These differences call for different forms of engagement. In an established import market with a low U.S. share, the priority may be stronger cooperator representation, market-access work, technical service, export finance, or more sustained commercial presence. In a country with a growing feed or aquaculture sector, progress may depend on biotechnology approvals, feed formulation, processing capacity, stronger industry organizations, and firms able to finance imports. In lower-income countries, the commercial timeline may extend well beyond a normal project cycle.

Population growth, rising incomes, and dietary change create potential demand, but commercially reachable demand depends on purchasing power, capable firms, infrastructure, regulatory access, and financing. Trade becomes more feasible when local firms can finance purchases, infrastructure can move and store products, processors can use them, regulators provide a workable approval pathway, and buyers can complete transactions repeatedly. Those capabilities often develop unevenly and over long periods, which helps explain why some countries with strong demand growth remain small commercial markets.

Composition changes as well as scale. As incomes rise, demand concentrates first in staple calories and in the feed and fiber inputs that supply domestic processing, and shifts later toward animal protein, dairy, and higher-value consumer products. That shift need not come at the expense of bulk trade. The later, higher-value segment depends on cold chain, food-safety and inspection systems, distribution capacity, and household purchasing power, conditions that take longer to build than the demand itself.

The United States enters this process from a different position in each country. Some markets already have established importers, active cooperators, and familiar regulatory channels. Others have technical partnerships or professional networks created through earlier agricultural programs but little sustained commercial engagement. In some countries, competing suppliers already hold advantages in price, freight, financing, standards, or local presence. A credible diversification strategy must distinguish among these conditions rather than treating all emerging markets as equivalent.

A broader portfolio of commercially meaningful customers across regions and commodities is a strategic objective for the United States. That will require continued attention to the mature markets that remain essential, stronger competition in established import markets, and selective engagement in earlier-stage countries where demand growth, import potential, regulatory access, capable local partners, and U.S. competitiveness align. Part II of this paper examines how these markets become commercially reachable and why the transition from projected demand to recurring trade often takes years.



***Population growth, rising incomes, and dietary change create potential demand, but commercially reachable demand depends on purchasing power, capable firms, infrastructure, regulatory access, and financing.***

# PART II: HOW STRATEGIC AGRICULTURAL INVESTMENT BUILDS TRADE

## 2.1 Why Frontier Markets Are Difficult to Reach

Even where future demand appears substantial, the commercial systems needed for routine trade rarely emerge automatically. In some lower-income and emerging economies, value chains remain fragmented, sanitary and phytosanitary systems and biotechnology approvals are limited, and local firms lack the financing or experience required to buy at commercial scale. Buyers may have little familiarity with U.S. products, regulators may apply requirements inconsistently, and exporters may lack a trusted local counterpart.

These constraints compound one another. Low incomes limit demand for higher-value foods, while weak storage, processing, cold-chain, and transportation systems make it difficult to serve the demand that does exist. Customs procedures may be unpredictable, contract enforcement uncertain, and trade finance unavailable. A willing buyer and a competitive price may still be insufficient when a certificate is unclear, a permit is delayed, collateral cannot be verified, or a shipment cannot move through the port. Figure 3 groups these obstacles into six structural gaps: demand, value chains, institutions, commercial relationships, market access, and familiarity or risk. The main point of Figure 3 is that several gaps often have to narrow together before a market becomes commercially usable.

These barriers can also be understood as transaction costs. Regulatory frictions arise when sanitary, phytosanitary, food-safety, or biotechnology requirements are unclear or administered differently across agencies. Contractual frictions arise where dispute resolution, collateral systems, and enforcement are weak. Institutional frictions arise when customs, permits, finance, testing, and logistics fail to coordinate. Each friction may appear modest on its own, but together they can make a transaction too uncertain or too expensive to complete (Kline, 2026).

The investments needed to reduce these costs often create benefits that extend well beyond the business making the initial investment. A company that trains regulators, helps establish a food-safety system, develops industry standards, or introduces a new feed technology cannot prevent later competitors from benefiting from that work. The costs arrive early, the return may take years, and much of the benefit accrues to the wider market. Private firms therefore tend to enter after conditions have become more predictable, while many of the foundations of a functioning market are underprovided.

This helps explain the historical role of public institutions, universities, development programs, and agricultural cooperators in emerging markets. Their contribution has often been to build the systems that private trade later uses: laboratories, trained professionals, feed sectors, producer organizations, regulatory procedures, technical standards, and local firms capable of completing repeated transactions. Market access, in this sense, begins well before a tariff is negotiated or a trade mission is organized. It is built through the institutions and commercial capabilities that make ordinary trade possible.

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## Figure 3. Six Structural Gaps Keep Frontier Markets Out of Commercial Reach

| | |
|---|---|
| **1. Low demand base** | Incomes too low to sustain steady commercial demand for higher-value food |
| **2. Missing value chains** | No storage, processing, cold chain, logistics, or financing to move product |
| **3. Weak institutions** | Uneven regulation, unpredictable customs, and weak contract enforcement |
| **4. No commercial relationships** | No established buyers or importers, and no track record of trust |
| **5. Trade barriers and protectionism** | Tariffs, quotas, licensing, local-content rules, and non-tariff or SPS hurdles |
| **6. Risk and unfamiliarity** | Currency and political risk, buyers do not yet know the product |

**These constraints reinforce one another, and the fixes benefit every firm that follows.**







## 2.2 Sources of Market Readiness

Although market conditions vary widely, recurring commercial requirements include capable firms, workable regulatory systems, technical expertise, infrastructure, and buyer relationships. Food-security and agricultural-development programs have contributed to many of these capabilities, while sourcing ultimately depends on price, freight, quality, policy, and supplier competition.

Development and food assistance programs touch market readiness at several points, each addressing one of the structural gaps that keep frontier markets hard to reach (Figure 4):

- **A commercial demand base:** Food security and agricultural development raise incomes and productivity, turning subsistence demand into the consumer purchasing power that commercial trade requires.
- **Value chains and local firms:** Feed sectors, processing, storage, cold chain, logistics, and the importers, mills, and banks that transact, are built through value-chain work and programs such as Food for Progress and development financing programs.
- **Sanitary and phytosanitary systems (SPS):** Food-safety, animal-health, and plant-health capacity, built partly through assistance and development programs such as Feed the Future, that decides whether a shipment clears the border and whether trade continues without disruption.
- **Biotechnology approval systems:** Functioning biosafety and approval pathways, often established with support from foreign assistance, development, and institution-building programs, that keep a market legally open to the biotech commodities dominating U.S. production, and shape the contest over whose standards a market adopts.
- **Science-based standards:** Sustained engagement in the Codex Alimentarius, the World Trade Organization's SPS framework, and biotech rules that anchor a partner's standards to transparent, science-based norms rather than protectionist ones (FAO/WHO Codex Alimentarius Commission; World Trade Organization, 1995).
- **Research, fellowships, and human capital:** The Feed the Future Innovation Labs, their Title XII predecessors, U.S. support for the CGIAR research centers, and the Cochran and Borlaug fellowships train the scientists, regulators, and industry professionals who run these systems and leave behind networks tied to U.S. institutions.
- **Cooperators and commercial continuity:** Farmer- and industry-funded cooperators connect that readiness to U.S. suppliers through buyer networks, product familiarity, and sustained field presence.

These capabilities are separated here for clarity, but in practice they develop together: a feed sector depends on biotechnology approvals, a biotechnology system depends on trained regulators, and commercial buyers rely on local associations and cooperators to interpret changing standards. The quality of those connections often explains why similar levels of development engagement produce different commercial outcomes.



Photo Credit: Feed the Future

## Figure 4. What Food Security and Agricultural Development Build

Food security and agricultural development investment preconditions the market for trade by raising incomes, building familiarity, strengthening institutions, and de-risking entry. The graphic below combines the same six gaps from Figure 3 and outlines the readiness capability each one requires.

| FRONTIER MARKET GAP | | WHAT DEVELOPMENT BUILDS |
|---|---|---|
| 1. Low demand base | → | **Rising incomes and productivity** Development turns subsistence demand into commercial purchasing power |
| 2. Missing value chains | → | **Feed, processing, storage, and logistics** Value-chain and Food for Progress work build the sectors and finance that move product |
| 3. Weak institutions | → | **Regulatory and transaction systems** SPS, food-safety, and biotech capacity, plus unpredictable customs |
| 4. No commercial relationships | → | **Buyer networks and cooperator ties** Cooperators and fellowships build trusted counterparts and product familiarity |
| 5. Trade barriers and protectionism | → | **Science-based standards engagement** Codex, WTO SPS, and biotech engagement make requirements clearer and more predictable, but it does not remove deliberate protection |
| 6. Risk and unfamiliarity | → | **Demonstration and technical assistance** Research partnerships, demonstrations, and training de-risk first commercial entry |

**Development readies the market; cooperator-led trade promotion turns readiness into U.S. exports.**

The gaps reinforce one another and these capabilities develop together, not one at a time.

**Together, these capabilities decide whether growing demand becomes reachable.**

Agricultural development programs improve purchasing power; SPS and biotechnology systems determine access; research and fellowships build the technical capacity behind them; local firms organize demand; standards engagement keeps the rules workable; and cooperators maintain the commercial connection. Part III of this paper applies these elements to the country cases. Bangladesh, Pakistan, Cambodia, Guatemala, and Zambia each combine different mixes of SPS capacity, feed-sector development, cooperator engagement, and trade policy, with sharply different commercial outcomes.

## 2.3 A Long-Term Market-Development Sequence

A commercial market usually develops through a long sequence rather than a single intervention. The sequence varies across countries and several stages may overlap, but the same broad functions recur: purchasing power expands, products and institutions become familiar, sectors and regulations develop, commercial relationships form, and trade becomes self-sustaining. Figure 5 summarizes this progression and links each stage to the principal constraints, market effects, and U.S. programs involved.

Demand is often the first constraint. Households and firms may have substantial food needs but insufficient purchasing power to support regular commercial imports. Economic growth, higher agricultural productivity, urbanization, and rising incomes expand the future size of the market. Development programs, infrastructure investments, and broader economic engagement can contribute to that process, although national policy, domestic investment, and private enterprise remain central.

Familiarity with U.S. products can develop alongside it. Humanitarian food assistance exists to address hunger and crisis, and its mandate is not to promote commercial exports. In this paper, any trade-related effects of food aid are treated as incidental byproducts of familiarity, not as program goals. In some countries, however, food assistance also left behind experience with handling, milling, storing, and distributing U.S. commodities. Local institutions and firms became familiar with product specifications, quality, and logistics. These effects were incidental to the humanitarian mission, but they sometimes became commercially relevant as countries moved toward regular market-based procurement.

Demand must also become structured to support sustained trade. A country may have growing consumption needs and still lack the feed mills, processors, storage facilities, laboratories, regulators, importers, banks, and industry organizations needed to support trading relationships. Agricultural development and technical programs address these functions. Food for Progress, Feed the Future and its Innovation Labs, the U.S. Farmer-to-Farmer program, university partnerships, and the Cochran and Borlaug fellowships have supported feed and food systems, processing, storage, SPS capacity, food safety, biotechnology regulation, standards, research institutions, and the professionals who operate them.

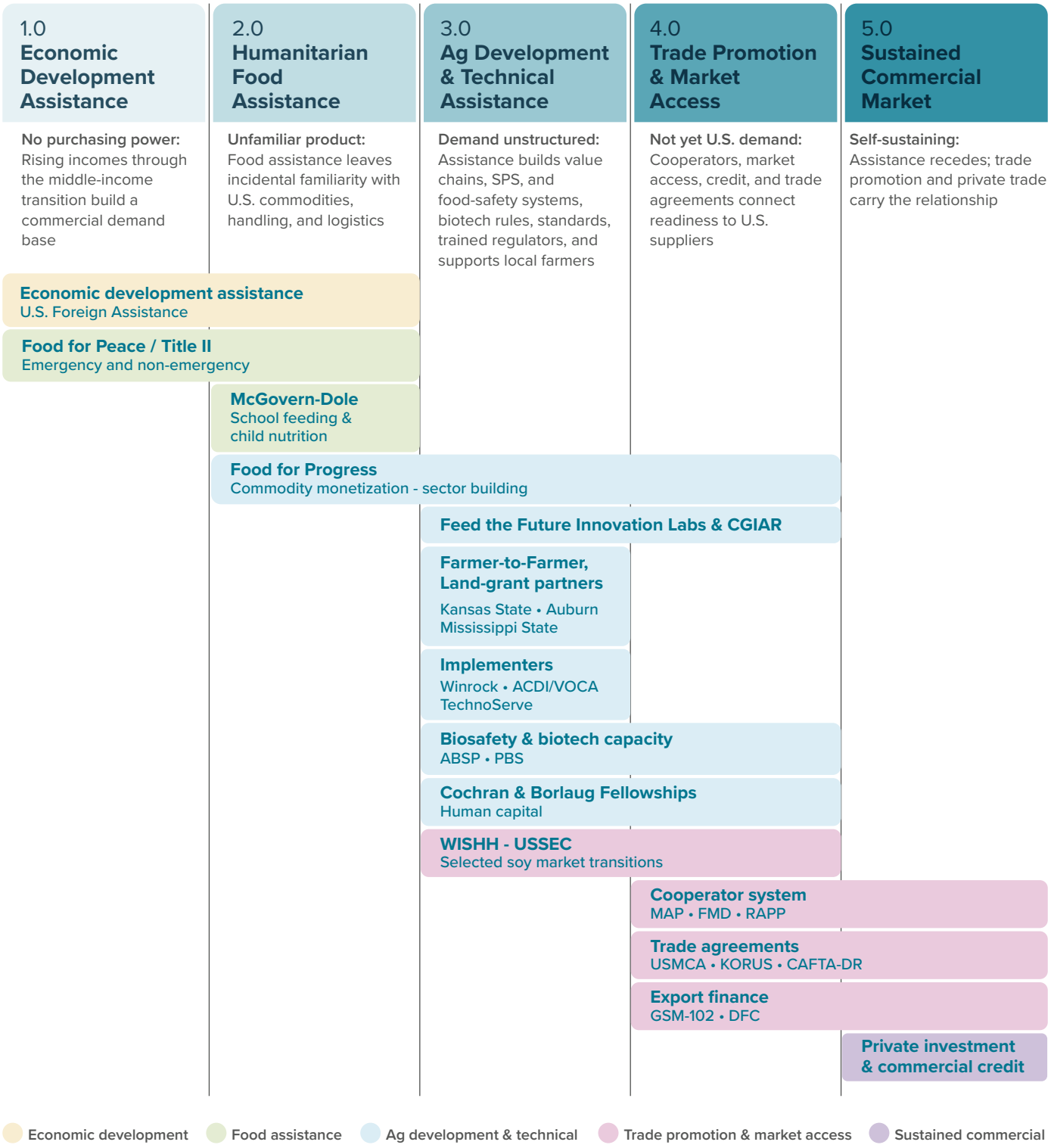
With those foundations in place, cooperators and commercial programs connect the market to U.S. suppliers. USDA's MAP, FMD, RAPP, trade missions, export credit, market-access work, technical service, and regulatory engagement help buyers evaluate U.S. products, establish supply relationships, and resolve the practical issues that arise in early transactions. Private firms then assume a larger role as volumes grow and risk declines.

In a sustained commercial market, development support recedes while buyers, suppliers, cooperators, regulators, and financial institutions maintain the relationship through normal commercial activity. The value of the sequence lies in the division of labor across it. Development investment expands market capacity and readiness, while trade promotion and private commercial engagement influence the U.S. share of that market. Figure 5 also highlights the programs that bridge stages, including Food for Progress, development finance, export credit, fellowships, and the transition from WISHH's development work to USSEC's trade relationship in the cooperator system.

***Development investment expands market capacity and readiness, while trade promotion and private commercial engagement influence the U.S. share of that market.***



## Figure 5. From Development Engagement to Sustained Commercial Trade




Programs shown include the Feed the Future Innovation Labs and CGIAR, Farmer-to-Farmer, land-grant partners such as Kansas State University, Auburn University, and Mississippi State University, implementers such as Winrock, ACDI/VOCA, and TechnoServe, the Cochran and Borlaug Fellowships, biosafety programs (ABSP and PBS), the cooperator system funded through MAP, FMD, and RAPP, and trade agreements including USMCA, KORUS, and CAFTA-DR.

## 2.4 The Historical Pattern

Many of today's major agricultural customers have a history of U.S. food assistance, technical cooperation, agricultural research, fellowships, or broader development engagement. In 2024, nine of the ten largest U.S. agricultural export destinations had received U.S. food assistance under Food For Peace PL-480 at an earlier stage of their development. That pattern is suggestive because agricultural markets depend on institutions and relationships that often take decades to mature: buyer networks, trained professionals, food and feed industries, regulatory familiarity, laboratories, universities, and firms able to finance and manage imports. For this classification, engagement is treated as significant where records show sustained agricultural or food-security assistance across multiple years or where the country has held a Feed the Future focus- or target-country designation.

***In 2024, nine of the ten largest U.S. agricultural export destinations had received U.S. food assistance at an earlier stage of their development.***

Figure 6 places current U.S. agricultural exports into broad groups according to whether a destination received qualifying U.S. food-security or agricultural engagement through FY2020, the last year for which complete country-level program obligations data are available. The classification combines Food for Peace PL-480, Food for Progress, McGovern-Dole, and Feed the Future. These serve materially different purposes, and only some are market-building: McGovern-Dole, for example, supports school feeding and education rather than agricultural productivity. The grouping therefore indicates historical engagement of any kind rather than current program status, comparable intensity, or a common commercial mechanism. The chart shows that a large share of U.S. export value now goes to countries with some history of U.S. engagement, while Canada and other peer markets account for the remainder. This overlap is not evidence of causation. The United States has provided assistance to many countries since the Second World War, and recipient status alone does not demonstrate that assistance produced later trade, but it does show how often major commercial partners also have long records of agricultural and food-security cooperation.

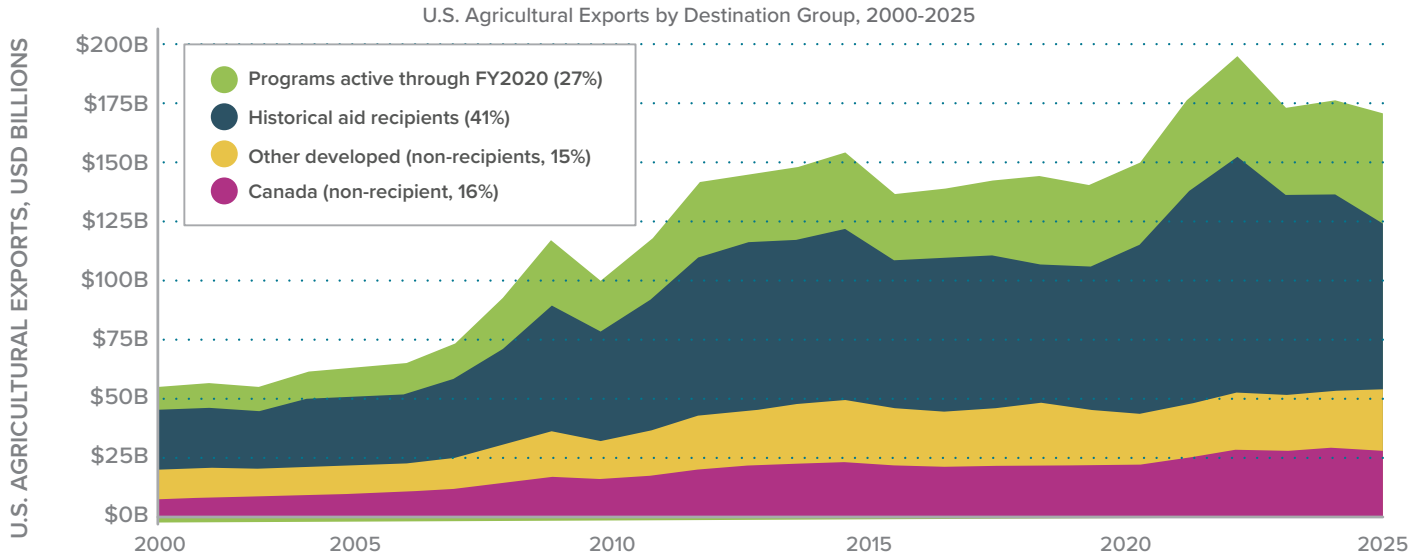
South Korea and Mexico are historical examples. Both countries traced the same broad arc. In the early decades, U.S. food assistance and agricultural support addressed immediate needs while incomes and domestic agriculture developed; technical exchange, fellowships, and research collaboration then built institutions, feed and livestock sectors, and professional networks; cooperator programs and trade agreements later connected that capacity to U.S. suppliers, with commercial exports expanding substantially after NAFTA and the U.S.-Korea Free Trade Agreement entered into force. As commercial demand matured, development support receded and trade relationships were carried forward by private buyers, importers, and industry organizations. South Korea and Mexico are today two of the largest and most reliable markets for U.S. agricultural products, an outcome that reflected their own growth and policy choices, with U.S. engagement through development investment helping facilitate market development.

Food for Progress, Feed the Future and its Innovation Labs, Food for Peace, the Title XII research programs, the Cochran and Borlaug fellowships, and cooperator programs worked in different combinations across different markets. Their commercial relevance arose when they contributed to identifiable capabilities that later supported trade. A feed industry began using imported protein meal, a regulator developed a functioning approval process, a processor met international standards, or a local firm became capable of purchasing at scale. Those mechanisms are more informative than recipient status by itself.

***South Korea and Mexico are today two of the largest and most reliable markets for U.S. agricultural products, an outcome that reflected their own growth and policy choices, with U.S. engagement through development investment helping facilitate market development.***



## Figure 6. Seven of Every Ten Dollars of U.S. Agricultural Exports in 2024 Came from Countries with a History of Receiving U.S. Aid




Source: USDA FAS GATS. Historical aid recipients = former PL-480 / Title II–XII graduates (including China); currently receiving aid = active PL-480, Food for Progress, McGovern-Dole, or Feed the Future through FY2020; other developed = high-income economies with no substantive U.S. agricultural-aid history.

**Seven of every ten U.S. agricultural export dollars come from countries with a history of U.S. food-security or agricultural engagement.** Destination groups reflect qualifying engagement received through FY2020 under Food for Peace, Food for Progress, McGovern-Dole, or Feed the Future; FY2020 is the last year of complete country-level program obligations data. Groups indicate historical engagement, not current program status.





## 2.5 From Market Readiness to U.S. Exports

Agricultural development and trade promotion address different stages of market formation. Development programs strengthen productivity, institutions, human capital, regulatory systems, local firms, and food and feed industries. Cooperator-led trade promotion connects those capabilities to U.S. suppliers and helps sustain commercial relationships. The commercial cases examined later in the paper are strongest where these functions overlapped long enough for technical capacity and market demand to mature together.

The sequence matters because promotion is more likely to produce sustained results where the underlying market can support repeated commercial transactions. A trade mission has limited value in the absence of a creditworthy importer, a functioning SPS system, a feed industry, or a regulatory pathway for the product being promoted. Addressing those constraints may make the market more commercially accessible, though U.S. suppliers must still compete on price, freight, quality, financing, and reliability. At that point, cooperators and private firms help buyers compare products, understand quality and specifications, establish financing, and build confidence in U.S. supply. Private investment marks the furthest point in this progression: once value chains are stable enough to support predictable volumes, direct investment, including by U.S. agribusinesses, tends to bring commercial credit, financing, and supply relationships that no longer depend on program support. The arrival of private capital is a practical indicator that market development is succeeding.

The cooperator system is especially important during this transition. Cooperators organize local demand among importers, processors, and feed mills; university and technical partners adapt U.S. products to local production systems; fellowship programs develop professionals who later work in government and industry; and FAS market-access work helps resolve regulatory barriers. Sustained field presence carries knowledge across individual projects and allows commercial relationships to deepen over time. Econometric assessments of USDA's export market development programs find substantial export returns to promotion spending (Williams et al., 2016; IHS Markit, 2022), although attribution at the level of individual cooperator activities remains imprecise.

# PART III: CASE STUDIES

No single case isolates the effect of development programs on trade, since each country's outcome also reflects economic growth, domestic policy, private investment, geography, commodity prices, infrastructure, and supplier competition. Taken together, though, the cases trace the mechanisms through which technical capacity, regulatory access, local firms, and sustained commercial relationships shape whether growing demand becomes reachable for U.S. agriculture.

## 3.1 Bangladesh: Layered Engagement and Commercial Scale

Bangladesh is a contemporary example in this paper because its agricultural market developed through several decades of overlapping engagement rather than through one identifiable project. U.S. activities have included food assistance, Feed the Future programs including FTF Innovation Lab-led projects, aquaculture and livestock research, university partnerships, fellowship programs, and the work of several agricultural cooperators. WISHH, the U.S. Soybean Export Council, U.S. Wheat Associates, Cotton Council International, and other organizations have worked in different parts of the food and agricultural economy.

During the same period, Bangladesh experienced rapid economic growth, urbanization, the rise of a large ready-made garment sector, and expansion in poultry, aquaculture, livestock production, oilseed processing, and commercial feed manufacturing. Those changes created demand for a range of U.S. products: cotton for the textile industry, soybeans, and soybean meal, and feed grains for the protein sector, and wheat for milling. U.S. programs did not solely create this demand, but they contributed to the technical and institutional capacity needed to use imported products at commercial scale, from cotton quality and mill servicing to grain handling, feed formulation, and procurement.

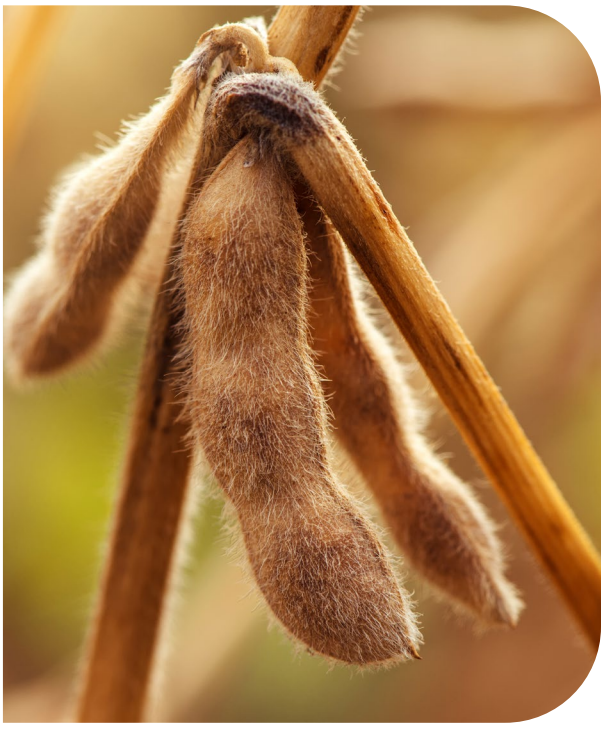
For example, Bangladesh was a Feed the Future focus country for the majority of the initiative's existence. Feed the Future programming in-country focused on expanding and supporting access to protein and micronutrients. Fish provides roughly 60 percent of animal-protein consumption in Bangladesh and is a key source of micronutrients. Under Feed the Future, USAID funded nearly a decade of aquaculture programming implemented by the CGIAR center WorldFish, the Aquaculture for Income and Nutrition project (through 2017), and the $24.5 million Bangladesh Aquaculture and Nutrition Activity (2018-2023), which built, expanded, and supported improved access to quality fish stock, private sector collaborations, better management practices, and a stronger business-enabling environment.

This programming contributed to conditions for expanding commercial demand for fish feed, which created opportunities for cooperators to engage. The cooperators worked in parallel across commodities, and in each the engagement shifted over time from building capacity to serving a functioning market. Cotton Council International promoted U.S. cotton to spinners and garment manufacturers; U.S. Wheat Associates and the U.S. Grains and BioProducts Council supported millers and feed producers; and on the protein side, WISHH's earlier emphasis on nutrition, feed use, and industry development gave way, as the commercial market matured, to a larger U.S. Soybean Export Council role in buyer education, product quality, and importer relationships. In each case, the handoff was possible because local firms, technical specialists, universities, and industry organizations had built enough capacity to sustain routine trade.

U.S. agricultural exports to Bangladesh reached roughly $1.2 billion in 2025. Soybeans were the largest single component at about $600 million, but cotton has consistently ranked among the top two, typically a fifth to a third of the total, with wheat, soybean meal, and distillers grains adding further volume (USDA FAS GATS). The annual value and product mix remain sensitive to relative prices, freight, exchange rates, domestic crop conditions, and competition from Brazil and other suppliers. Even so, Bangladesh shows how several markets at once (textiles, milling, and animal protein) can become more durable when buyer networks, technical expertise, processing capacity, regulatory familiarity, and cooperator engagement develop together over an extended period.

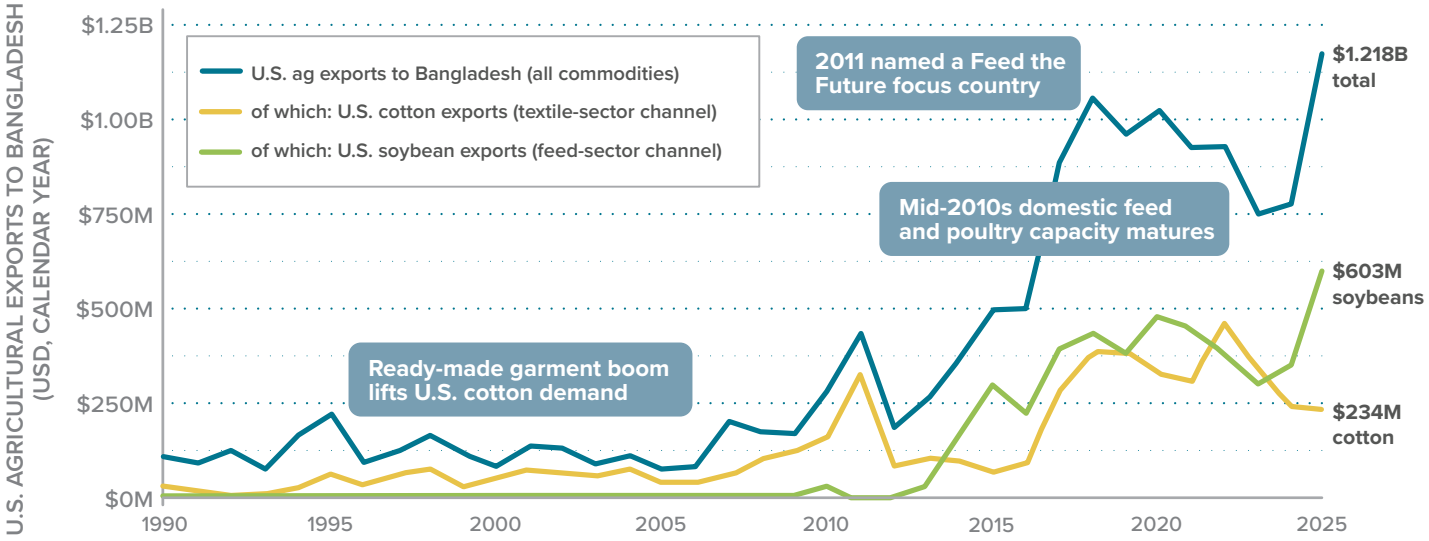
Figure 7 traces total U.S. agricultural exports to Bangladesh, alongside cotton and soybean exports, and major periods of U.S. food assistance, agricultural research, technical engagement, and cooperator activity. The chart's main contribution is to show the length and layering of the process: commercial exports did not rise immediately after any one program, but grew as Bangladesh's economy, textile sector, and feed industry expanded and as institutions became capable of supporting repeated trade.



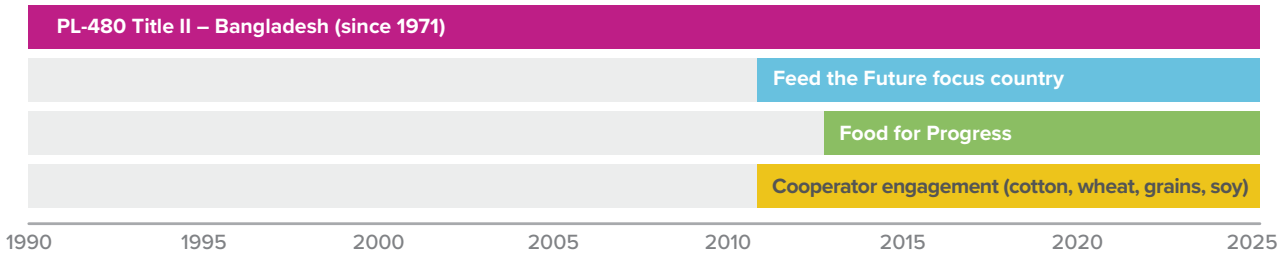


## Figure 7. Bangladesh: A Diversified Market
## Cotton and Soybeans Both Built Over Decades

Cotton for the ready-made garment sector and soybeans for the feed sector grew alongside decades of layered U.S. engagement




## U.S. Institutional Layers Operating in Parallel in Bangladesh




**Bangladesh: layered engagement and commercial scale.** Total U.S. agricultural exports to Bangladesh with U.S. cotton and soybean exports, 1990 to 2025, with selected program, research, and cooperator milestones. Source: USDA FAS GATS commodity-level data, U.S. exports to Bangladesh, CY1990-2025. Cotton and soybeans are the two leading component channels of total agricultural exports.



## 3.2 Pakistan: Feed-Market Development and Regulatory Disruption

Pakistan is a substantial and diversified U.S. agricultural market. Cotton has long been the largest single export, reflecting the country's textile industry; it provided roughly two-thirds of U.S. agricultural sales when soybean exports were disrupted in 2022-24 due to a temporary ban on U.S. genetically modified soybeans. Since this ban was lifted, soybean shipments have rebounded, nearly closing the gap with cotton. Planting seeds, tree nuts, and pulses also contribute to further trade (USDA FAS GATS).

Pakistan's poultry, livestock, and aquaculture industries have expanded through domestic investment layered with sustained U.S. engagement: food assistance and Title XII programming, U.S. agricultural-development and agribusiness projects, and Cochran and Borlaug fellowships that trained technicians and regulators. Within the soy sector specifically, WISHH's FEEDing Pakistan project (2011-2017), a USDA Foreign Agricultural Service-funded initiative, worked with U.S. land-grant partners such as Kansas State University, together with hatcheries, feed mills, and aquaculture producers, to introduce soybean-based feeds, improve feed formulation, and build the technical familiarity and buyer relationships a modern feed sector requires.

As the sector matured, the U.S. Soybean Export Council assumed the commercial role, carrying the relationships WISHH had built into routine trade. U.S. soybean exports rose from negligible levels a decade ago to several hundred million dollars a year at their pre-ban peak as Pakistan's feed mills and processors became reliable buyers of imported soybeans for domestic crushing. The growth of the market coincided with sustained investment in feed-sector capacity, technical knowledge, and buyer relationships by Pakistani firms and U.S. programs.

That foundation was tested when Pakistan halted imports of genetically engineered soybeans in late 2022 during a dispute over biosafety approvals. U.S. soybean exports fell sharply even though feed demand, processing capacity, and buyer interest remained. The interruption shows how biotechnology administration can become a binding market-access constraint: a substantial feed industry and established commercial relationships were not enough once uncertainty over approvals effectively closed the market, and development and cooperator programs could not resolve the regulatory problem by themselves.

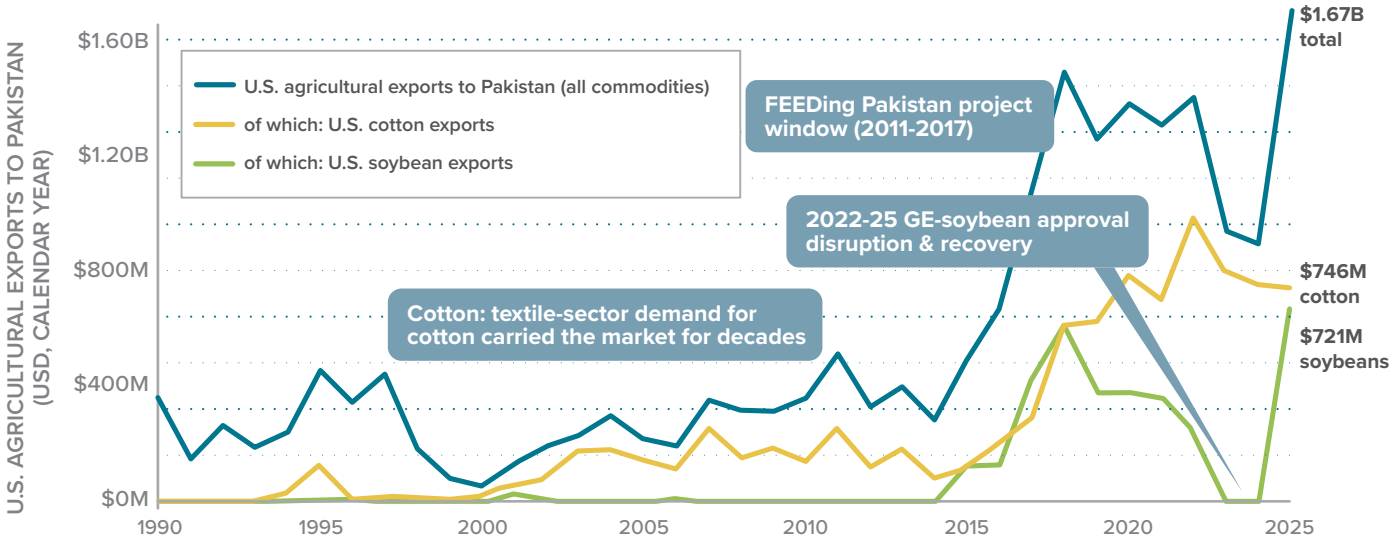
The mills, technicians, and buyer relationships developed during the earlier period remained in place through the disruption, and when Pakistan approved the relevant genetically engineered soybean in late 2024, allowing commercial imports to resume in February 2025, trade recovered relatively quickly. The timing does not prove the earlier programs caused the rebound, but it shows how retained commercial and technical capacity can shorten recovery after a regulatory shock. Pakistan illustrates both the cumulative development of commercial capacity and its continuing dependence on a functioning regulatory system.


Photo Credit: WISHH


Photo Credit: WISHH

## Figure 8. Pakistan: Commercial Growth and Regulatory Disruption

Cotton for the textile industry has long been the largest U.S. export; the feed/soybean channel was built and tested by a 2022-24 biotech-approval disruption.




## U.S. Institutional Layers Operating in Parallel in Pakistan




**Pakistan: Commercial growth and regulatory disruption.** Genetically engineered soybean imports were suspended from late 2022; the relevant varieties were approved in late 2024 and imports resumed in February 2025 (USDA FAS, PK2025-0013). Source: USDA FAS GATS commodity-level data, U.S. exports to Pakistan, CY1990-2025. Cotton and soybeans are the two leading component channels of total agricultural exports.

## Biotechnology Capacity and Market Readiness

Biotechnology regulation can determine whether an emerging market is able to import, produce, and use modern crop varieties. This has direct implications for U.S. agriculture because a large share of U.S. soybean, corn, cotton, and processed-product exports involves biotechnology traits. Many countries have adopted biosafety laws, yet the administrative systems needed to apply those laws remain uneven. Approval committees may meet irregularly, responsibilities may be divided across several ministries, and procedures for renewals, stacked traits, or low-level presence may be unclear. Under those conditions, one unresolved trait can delay a shipment or close the market to a much broader range of products.

Biotechnology initiatives in Africa have begun to build the scientific, regulatory, and institutional capacity that larger commercial opportunities require. U.S.-supported programs have trained regulators, researchers, plant breeders, and laboratory personnel; strengthened risk-assessment and approval procedures; and supported locally relevant crops such as insect-resistant cowpea (International Institute of Tropical Agriculture, 2019) and drought-tolerant or insect-resistant maize, improvements whose delayed regulatory approval can carry substantial economic costs for the region (Wesseler et al., 2017). These activities give national authorities practical experience with field trials, environmental review, food and feed safety assessment, stewardship, and post-approval oversight. This capacity also enables these countries to participate in international standard-setting bodies such as the joint FAO/WHO Codex Alimentarius Commission, which sets global food standards. They also create professional networks among regulators, universities, research institutes, and industry participants that can continue after individual projects end.

This work matters commercially even when the immediate objective is domestic agricultural development. Countries that have functioning approval systems and officials experienced in biotechnology review are better positioned to evaluate imported grain, feed ingredients, and processed products as demand grows. They are also less likely to face prolonged delays when new traits enter international commerce. In that sense, biotechnology engagement can reduce future market-access risk and help establish the regulatory foundation for more predictable trade.

The issue is also part of a broader contest over regulatory standards. The European Union, China, and other major partners influence how emerging economies design biotechnology laws, pesticide tolerances, food-safety standards, and approval procedures. Governments often draw from the regulatory models, training, and technical relationships available to them. Early engagement can influence whether a country develops a transparent and administratively workable system or a more restrictive one. Restrictive biotechnology frameworks can impose meaningful economic costs, both on a country's own agricultural productivity and on the trade that would otherwise flow through it (Giddings, Atkinson, and Wu, 2016). These choices can have long-lasting effects because firms, regulators, and laboratories build their procedures around the standards adopted at an early stage.

Pakistan's experience highlights development investment in regulatory capacity as part of market readiness. Demand, logistics, and commercial relationships can all be present, but trade still depends on an approval system that functions consistently. Those commercial foundations were insufficient once biotechnology approvals stalled in late 2022, but once the relevant events were approved in late 2024 and imports resumed in February 2025, trade recovered more quickly, consistent with the underlying firms, technical relationships, and buyer networks having survived the disruption. Africa's biotechnology initiatives are beginning to build that capacity earlier in the development process. By training regulators, establishing review procedures, and creating experience with locally relevant technologies, these programs may help determine whether future agricultural growth occurs within regulatory systems that are predictable, science-based, and compatible with international trade.

## 3.3 Cambodia: An Earlier-Stage Feed and Aquaculture Market

Cambodia is an example that represents an earlier stage of the process already visible in Bangladesh and Pakistan. U.S. agricultural exports to Cambodia have increased from a very small base in the mid-2000s to roughly $95 million by 2025 (USDA FAS GATS). That amount remains modest relative to larger Asian markets, but it has grown alongside investment in aquaculture, livestock production, feed processing, and agribusiness capacity.

The Commercialization of Aquaculture for Sustainable Trade project, known as CAST, was a USDA Food for Progress initiative implemented by WISHH between 2018 and 2025. The project worked with fish producers, feed companies, processors, financial institutions, service providers, and industry organizations to strengthen Cambodia's commercial aquaculture sector. Its relevance to future U.S. exports runs through the link between animal-protein growth and demand for imported feed ingredients, led by distillers grains, already Cambodia's largest single U.S. agricultural import, along with soybean meal and other inputs, which become commercially viable only when producers and feed mills can formulate, finance, and purchase feed at meaningful scale.

CAST operated within a broader set of U.S. agricultural activities, including Feed the Future programs, fisheries work, research partnerships, and fellowship participation. As the project ended, cooperators and private firms had a larger base of local relationships and technical knowledge from which to work. The transition remains incomplete, however, and Cambodia's future purchases will depend on feed demand, price competitiveness, freight, local financing, and the ability of firms to import at commercial scale.

Cambodia's import basket already reaches beyond feed. Distillers grains lead, but U.S. exports also include beef, dairy products, fresh fruit, and a widening range of consumer-oriented foods, an early sign that as incomes and cold-chain capacity rise, the market diversifies rather than concentrating on any single commodity. The comparison with Bangladesh and Pakistan is useful because it shows the same general mechanism at an earlier point. Bangladesh has a large and diversified feed market, while Pakistan has a mature market that was temporarily constrained by regulation. Cambodia is still developing the businesses, industry organizations, and commercial demand needed to sustain large imports. The case therefore provides evidence of emerging market readiness rather than a completed transition.

Figure 9 presents a timeline of sector development and trade emergence rather than a direct mapping from project spending to exports, comparing Food for Progress support for CAST with U.S. soybean and soybean-meal exports, the aquaculture-feed channel the project developed. It highlights how feed-sector capacity and buyer familiarity developed over several years before reaching commercial scale.



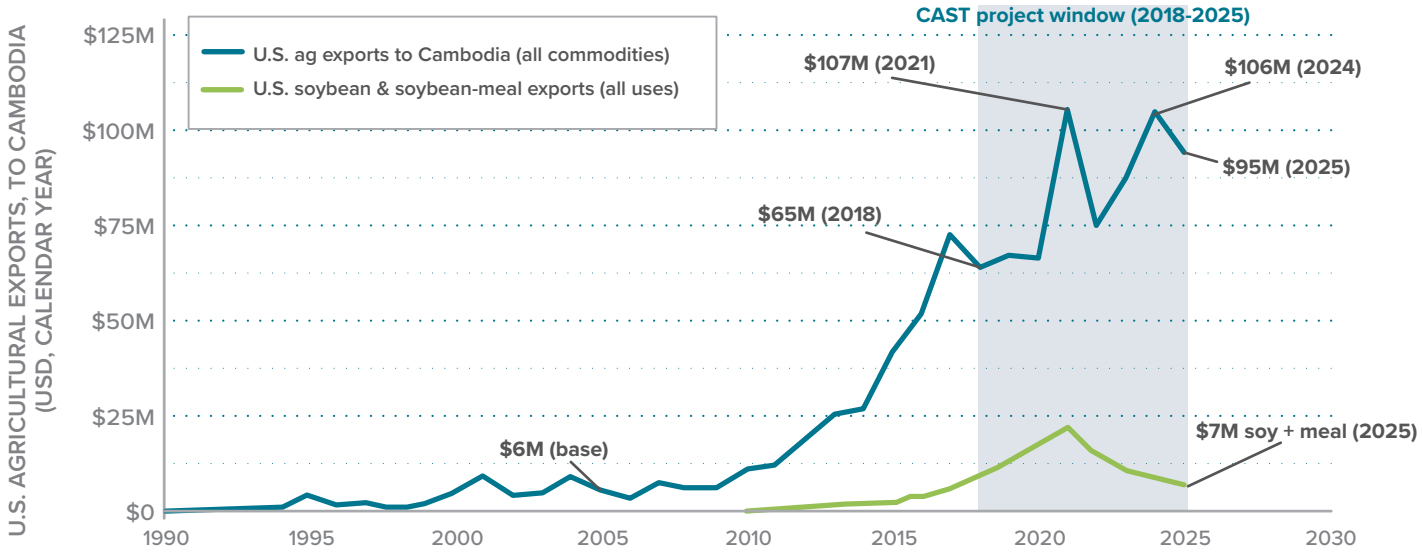
Photo Credit: United Soybean Board



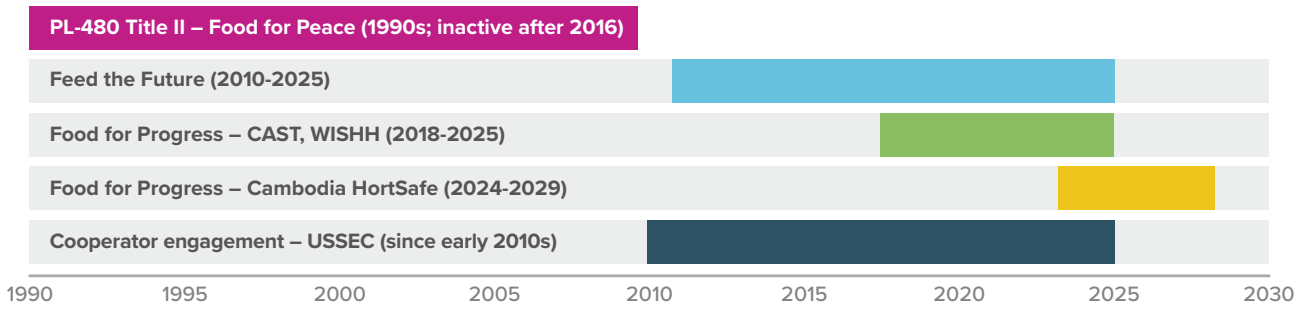
Photo Credit: United Soybean Board

## Figure 9. Cambodia: Market Development in Progress

CAST supported Cambodia's aquaculture value chain (2018-2025); U.S. soy trade is shown as a related, not attributable, channel




## U.S. Institutional Layers Operating in Parallel in Cambodia




Food for Peace investments were not continuously active. Active years are: 1992, 1995, 2000-2002, 2004, and 2008-2009. Source: USDA FAS GATS, Cambodia agricultural exports 1990-2025; CAST: USDA Food for Progress, WISHH-implemented, 2018-2025.



Photo Credit: WISHH

## 3.4 Guatemala: Trade Integration and Two-Way Agricultural Value

Guatemala broadens the analysis beyond soy and feed markets. Its agricultural relationship with the United States reflects a combination of proximity, economic growth, a formal trade agreement, private investment, cooperator engagement, and development programs. CAFTA-DR (the Dominican Republic-Central America-United States Free Trade Agreement), which entered into force for Guatemala in 2006, reduced tariffs and provided a more predictable framework for trade. Within that environment, U.S. exporters expanded sales of grains, meat, dairy products, processed foods, and other commodities, while agricultural-development programs continued to work on productivity, food security, producer organizations, and rural incomes.

U.S. agricultural exports to Guatemala reached approximately $2.1 billion in 2025, compared with about $1.9 billion in 2024 (USDA FAS GATS). The scale of this relationship cannot be attributed primarily to development assistance. Economic integration, geographic proximity, trade rules, commercial networks, and Guatemala's growing food economy are central explanations. Development and technical programs have nevertheless contributed to the capacity of local firms, institutions, and producers to participate in a more modern and integrated agricultural system.

Coffee adds an important two-way dimension, showing how U.S. development support can benefit American businesses and consumers in addition to recipient countries. The United States imports nearly all of the coffee it consumes, and Guatemala is an established supplier of green coffee beans to U.S. roasters. Roughly 44 percent of Guatemala's coffee production comes from smallholder farmers. Those imports support economic activity in American roasting, distribution, packaging, logistics, retail, and food service. Programs that improve coffee productivity, quality, disease resistance, and supply-chain resilience can therefore support business development in Guatemala while also benefiting U.S. industries that rely on imported raw agricultural products.

***Roughly 44 percent of Guatemala's coffee production comes from smallholder farmers.***

For example, under a Feed the Future award launched in 2024, Kansas State University works with World Coffee Research and the Coffee Quality Institute to strengthen coffee-seed and nursery capacity. World Coffee Research describes the coffee component as a 2025-2026 collaboration. Working through Guatemala's national coffee institute, these organizations train institute staff, small and medium enterprises, and a farmer organization to produce improved coffee seed and to manage nursery operations and post-harvest handling. The improved planting material is propagated at the institute's nursery and distributed to newly established seed producers, strengthening the quality, disease resistance, and reliability of the planting material available to smallholder growers.

By improving the quality, disease resistance, and reliability of planting material, these activities can strengthen a value chain that connects Guatemalan smallholder producers with U.S. and other international buyers. It can also increase productivity and income potential for smallholder producers. They do not guarantee that the resulting coffee will be exported to the United States, but they support the downstream U.S. coffee sector – roasting, distribution, packaging, logistics, retail, and food service – that depends on imported beans.

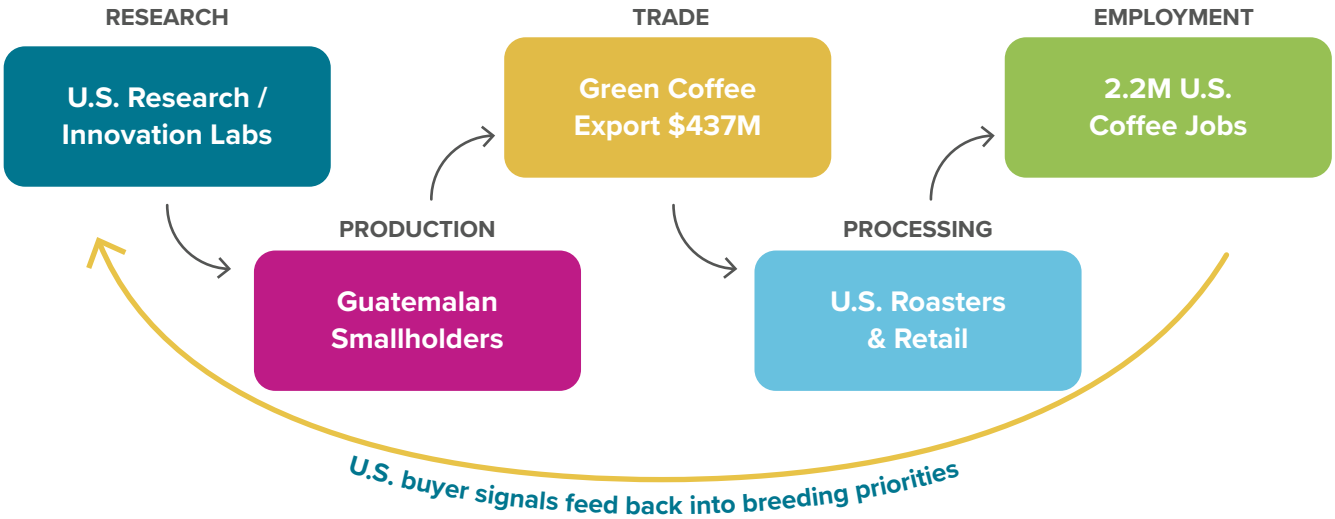
This case shows that the commercial value of agricultural engagement cannot be assessed only through U.S. export sales. Some bilateral relationships create value through reciprocal trade and through imported inputs that support higher-value activity in the United States. It also shows that technical and development programs are most commercially relevant when they operate within a broader structure of clear trade rules, capable firms, and sustained private demand.



Figure 10 illustrates this two-way value chain: U.S. research and innovation support Guatemalan smallholder production, which supplies green coffee to U.S. roasters, retail, and food service and sustains downstream U.S. coffee employment, while U.S. buyer and quality preferences can feed back into breeding and varietal priorities. The pattern reinforces the paper's point that agricultural trade relationships can generate gains in both directions rather than only in U.S. export volumes.

## Figure 10. From U.S. Research to U.S. Jobs – and Back

Each link adds value: a feedback loop keeps Guatemalan coffee breeding aligned to what U.S. buyers want




**Guatemala represents an illustrative two-way coffee value chain linking U.S. research, Guatemalan smallholder production, coffee imports, and downstream U.S. economic activity.** Arrows illustrate potential connections and do not imply that trade or employment is attributable to a single program. Figures: U.S. imports of green (unroasted) coffee from Guatemala, approximately $437 million, 2024 (USDA Foreign Agricultural Service, Global Agricultural Trade System); U.S. coffee-industry employment of approximately 2.2 million jobs across all origins (National Coffee Association, 2023).

## Building SPS Capacity: The Food Safety for Food Security Partnership

Sanitary and phytosanitary systems (SPS) determine whether agricultural products can enter a market and move without repeated disruption. Trade can stall even where demand and pricing are favorable if certification requirements are unclear, laboratories cannot complete required testing, or agencies apply the same rule differently. Stronger inspection procedures, laboratory capacity, risk assessment, regulatory transparency, and alignment with international standards make market access more predictable for both regulators and exporters.

The Food Safety for Food Security partnership provides a recent example. Launched in 2022 under Feed the Future, the five-year program brought together USDA's Foreign Agricultural Service, USAID, the Food and Drug Administration, and Texas A&M University's Borlaug Institute. Its work included an SPS Good Regulatory Practices Toolkit and assessments of food safety and SPS systems across countries in Africa and Asia (USDA Foreign Agricultural Service, Food Safety for Food Security Partnership). These efforts complemented USDA APHIS programs, the Cochran and Borlaug fellowships, and U.S. engagement through Codex and the WTO Standards and Trade Development Facility.

The commercial effects are indirect but important. Stronger SPS systems help governments identify genuine risks, apply requirements more consistently, and avoid unnecessary delays. They also give importers and exporters clearer expectations about documentation, testing, and approval. Because these improvements benefit many firms and future transactions, they are unlikely to be financed fully by any one private company. Development and technical programs can therefore help create the institutional foundation on which more reliable trade depends.

## 3.5 Zambia: Development Foundation with a Still-Building Commercial Pipeline

Zambia shows what the earliest stage of market-building looks like and where the opportunity lies. Decades of U.S. agricultural-development support have built a genuine foundation, even as Zambia remains a very small market for U.S. agricultural products today. That engagement has included food-security programs, agricultural research, value-chain development, smallholder support, university partnerships, and Feed the Future Innovation Lab activities. Zambia was among Feed the Future's original focus countries from 2011 until the initiative consolidated to 12 target countries in 2017, and it was re-added as a target country in the 2022 expansion.

The Feed the Future strategy in Zambia was based on private sector development, and continued to build on successful efforts to strengthen the role of the private sector in Zambian agriculture. Programs included improving the capacity of the Zambia Agriculture Marketing and Commodity Exchange (ZAMACE), expanding private input suppliers, and linking small-scale farmers to larger agribusiness organizations. In addition, the programs aimed to intensify smallholder market links by supporting leading processors in the areas of aggregation, warehousing, and sourcing oilseeds and legumes from smallholder suppliers (Feed the Future, 2011). In October 2024, the Millennium Challenge Corporation signed the $491 million Zambia Farm-to-Market Compact, aimed at agricultural infrastructure and market access (Millennium Challenge Corporation, 2024). In June 2026, the two governments signed an amendment realigning the compact's road investments so that key segments also support critical-minerals transport along the Lobito Corridor.

U.S. agricultural exports to Zambia were about $800,000 in 2025 (USDA FAS GATS). Limited purchasing power, high freight costs into this landlocked country, a small number of importers operating at scale, and constrained transaction financing continue to restrict commercial trade. Recent cooperator, SPS, and infrastructure engagement may improve some of these conditions, although the scale and timing of any resulting import demand remain uncertain.

The comparison with Cambodia is encouraging. Both countries have received U.S. agricultural support and are of broadly similar size, but Cambodia has built a visible aquaculture and feed-sector platform linked to WISHH and other commercial organizations. Zambia's development activities have supported food-security programming, smallholder value chains, research capacity, and agricultural institutions, the same kind of base from which Cambodia's commercial pipeline grew. What Zambia has not yet built is the set of commercial relationships that connect those gains to U.S. suppliers.

Commercial investment is nonetheless beginning to appear. In March 2025, Bayer opened a $35 million maize-seed production facility in Kabwe, tripling its seed-production capacity in Zambia, in what the company described as the second-largest private investment by a German firm in the country (Bayer, 2025). Investments of this kind do not create demand for U.S. products directly (seed production may even substitute for imports), but they signal the emergence of firms, financing, and infrastructure operating at the scale that commercial trade requires.





Photo Credit: Bayer

Recent engagement by WISHH, together with regional cooperator coverage by USSEC, U.S. Wheat Associates, and the U.S. Grains and BioProducts Council, and SPS capacity-building and infrastructure improvements, addresses some of these constraints. The remaining requirements are specific: creditworthy importers and processors operating at scale, continuous cooperator presence, finalized SPS pathways, trade financing for first transactions, and freight and logistics solutions suited to a landlocked market. Whether and when they translate into import demand remains uncertain.

Zambia also marks the conditions the broader argument depends on. Development engagement can produce valuable agricultural, institutional, and food-security outcomes on its own; converting them into U.S. exports depends on a narrower set of factors: purchasing power, logistics, creditworthy firms, financing, and a product mix in which the United States can compete. Zambia is early on that path.

> ***Development engagement can produce valuable agricultural, institutional, and food-security outcomes on its own; converting them into U.S. exports depends on a narrower set of factors: purchasing power, logistics, creditworthy firms, financing, and a product mix in which the United States can compete.***

## 3.6 Brazil: A Cautionary Example

Brazil differs from the preceding cases because it developed into one of the world's largest agricultural exporters and a major competitor to the United States, rather than becoming a major destination for U.S. bulk agricultural commodities. U.S. universities, researchers, and other institutions participated in decades of collaboration and scientific exchange with Brazilian counterparts, including work related to agricultural education, soybean breeding, soil fertility, agronomy, and tropical production systems. Those contributions formed one part of a much larger Brazilian-led transformation based on domestic research, public policy, private investment, expansion of cultivated area, infrastructure, and technological adaptation.

The growth of Brazil's soybean sector demonstrates that successful agricultural research abroad does not necessarily create a complementary market for U.S. exports. In a country with a large agricultural land base, strong research institutions, and substantial export potential, productivity gains may instead expand competition in third-country markets. Brazil is now the world's largest soybean producer and exporter, China's leading foreign supplier, and the principal competitor to the United States in global soybean trade.

The conclusion should remain carefully bounded. International collaboration did not create Brazilian agriculture, and Brazil's emergence as a competitor cannot be attributed to U.S. assistance or scientific exchange. Brazilian institutions, especially EMBRAPA, domestic universities, and Brazilian scientists and producers played the central role. International research collaboration was one input into a broad national effort. The case nevertheless raises an important program-design question. The commercial implications of agricultural research depend on a country's natural resources, production potential, domestic demand, institutions, infrastructure, policies, and likely role in global markets. Similar technical engagement may support import demand in a densely populated, land-constrained country but expand export capacity in a country with a large agricultural land base and access to international markets. Assessing those differences is part of protecting U.S. agricultural interests while pursuing legitimate food-security and research objectives.

The Bumpers Amendment, enacted in 1986, reflected congressional concern about using U.S. assistance to support the production of agricultural commodities for export in competition with American producers. The restriction contains important exceptions, including qualifying food-security activities and research intended primarily to benefit U.S. producers. The underlying safeguard remains relevant to program design, although assessments should also consider the development need, the likelihood and magnitude of competitive harm, and whether the research generates benefits for U.S. farmers and scientific institutions. Critics have argued, however, that the restriction's compliance requirements constrained some, at the time, USAID agricultural research and development activities in poorer countries, including activities unlikely to pose a material competitive threat to U.S. producers.

## 3.7 What the Cases Show

The country cases show that export growth is most likely where expanding demand is matched by capable firms, workable regulatory access, technical knowledge, and sustained cooperator engagement. Bangladesh and Pakistan display this combination in growing feed markets, while Cambodia is at an earlier point, with local industries and commercial demand still forming. In Guatemala, trade agreements, proximity, reciprocal supply chains, and development programs reinforced one another. Zambia pairs meaningful development outcomes with very limited U.S. exports, where purchasing power, logistics, importer capacity, and commercial relationships are still developing. Brazil is the counterexample: agricultural research there contributed to the strength of a competitor rather than creating an importer.

Several common features appear in the stronger commercial cases. Local firms are capable of financing and completing transactions. Regulatory systems provide a workable pathway for imported products. Technical specialists understand how to use the commodities being offered. Industry organizations and cooperators remain engaged after individual projects end. These conditions make trade more feasible, although they do not determine which supplier ultimately wins the sale. Market readiness and U.S. market share remain distinct: a commercially reachable market may still buy from Brazil, the European Union, or another origin, and U.S. suppliers must compete on price, freight, quality, and reliability. The same features that make trade feasible also attract capital; in the more mature cases, private investment increasingly finances the mills, processing, and logistics that development programs initially supported, while in earlier-stage markets that transition has yet to occur.

***Agricultural development, research investments, and technical programs can contribute to future trade when they leave behind identifiable capabilities, including functioning regulatory systems, technically competent firms, stronger value chains, and durable professional relationships.***

The contribution is real but conditional. Agricultural development, research investments, and technical programs can contribute to future trade when they leave behind identifiable capabilities, including functioning regulatory systems, technically competent firms, stronger value chains, and durable professional relationships. Their commercial value to the United States is greatest where those capabilities are connected to market access, sustained cooperator presence, and competitive U.S. supply.

# PART IV: BUILDING FORWARD: THE ROLE OF THE U.S. GOVERNMENT

The evidence raises a practical question about how U.S. agricultural market-development capabilities can work together more effectively. State Department foreign assistance and diplomacy, USDA trade programs, FAS, cooperators, universities, research and fellowship programs, development finance, and private firms each contribute different expertise and operate on different timelines. As markets develop, preserving knowledge and relationships across these efforts can strengthen continuity. A forward strategy could focus on better coordination, clearer handoffs, and consistent criteria for identifying markets where existing U.S. relationships and capabilities provide a strong foundation for future commercial growth. The evidence suggests that development investment and market promotion have functioned as complementary early steps in building commercial markets; sustaining those functions, through programming at the State Department, USDA, and other agencies, would preserve the pathway toward long-term market diversification for American agriculture.

The market-development framework is most relevant in countries where future demand growth overlaps with an existing base of U.S. relationships. Figure 11 maps projected increases in food consumption from 2025 through 2034 alongside recent U.S. food-security and agricultural-development engagement. Marker size represents the projected increase in total calorie availability, while country shading identifies the principal program or category of engagement.

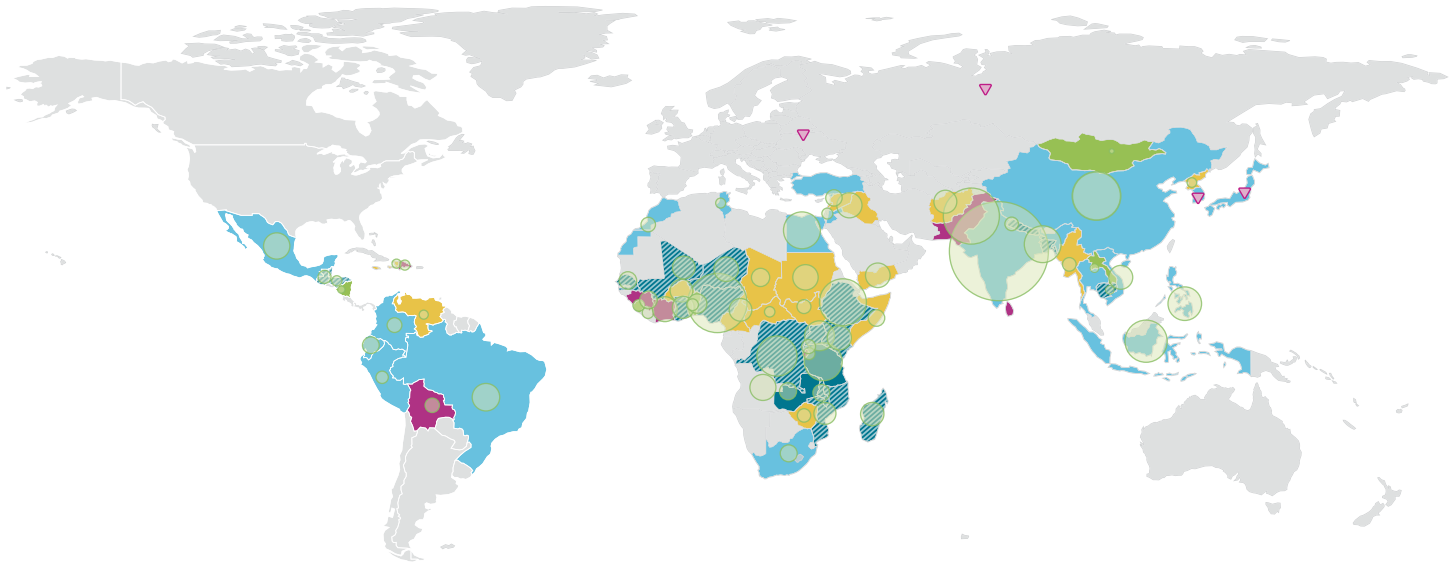
It showcases the geographic areas where there is potential for the simultaneous growth of domestic smallholder farmers while at the same time filling the growing food demand with increased exports from the U.S. These areas highlight the key markets ripe for a dual success of U.S. foreign policy – supporting domestic farmers and growing import demand from the U.S.

The overlap is especially visible across South Asia, Southeast Asia, and Sub-Saharan Africa, which combine significant projected consumption growth with some history of U.S. research, food-security, school-feeding, or agricultural-development activity. In some of these countries, cooperators and U.S. firms also maintain an active commercial presence. In others, the institutional relationships created through earlier programs may be fragmented or no longer connected to market development.

The map does not measure import demand or predict U.S. exports. Much of the projected consumption growth will be met by domestic production, and the remaining import demand will be contested by suppliers with different advantages in price, freight, financing, standards, and political relationships. The figure is useful because it identifies countries where the United States may already possess technical knowledge, trained partners, regulatory familiarity, or institutional relationships that could reduce the cost of future engagement.

## Figure 11. U.S. Food-Security and Development Programs Map onto Where Projected Food Consumption Growth Concentrates

Country fill = dominant current U.S. food-security or development program.
Marker = projected change in total daily food availability (calories), 2025-2034.



**Dominant U.S. Food-Security / Development-Engagement Program**

- Multiple programs active
- Emergency food aid (PL-480 Title II / BHA)
- Feed the Future only
- Food for Progress
- McGovern-Dole (school feeding)
- Mature cooperator market (no active food-security program)
- Not classified / no dominant program

**Projected Change in Total Daily Food Availability (Calories), 2025-2034**

- +25B kcal/day
- +100B kcal/day
- +300B kcal/day
- Projected decline

**Projected food-consumption growth and the U.S. food-security and development footprint.** Marker size represents the projected absolute increase in total caloric availability between 2025 and 2034. Country shading identifies the dominant current or recent U.S. food-security or agricultural-development program. The figure shows the geographic overlap between prospective demand growth and prior U.S. engagement; it does not measure import demand or predict U.S. export sales. Data: OECD-FAO Agricultural Outlook 2025-2034; United Nations World Population Prospects 2024; U.S. food-security and development-program records.

## 4.1 Key Recommendations

Within the context outlined in this report, there are numerous ways that actors could coordinate and streamline agricultural development efforts to ensure that programs remain targeted and best positioned to simultaneously advance development goals and U.S. trade outcomes. The key recommendations described below fall under four main categories: coordinating existing capabilities to build a pipeline for growth, supporting institutional knowledge and continuity, sustaining engagement in emerging growth markets, and working to shape regulatory standards.

### BUILDING A PIPELINE FOR GROWTH BY COORDINATING EXISTING CAPABILITIES

- **Syncing trade-promotion and development efforts to advance aligned priorities.** The U.S. government's market-development instruments were built for different purposes and largely operate on separate tracks. On the trade-promotion side, USDA's Market Access Program, the Foreign Market Development program, the Regional Agricultural Promotion Program, and the farmer- and industry-funded cooperators work to expand commercial sales of U.S. products. On the development side, the State Department's food security and agricultural development funding, USDA's Food for Peace non-emergency, Food for Progress and food-security and technical-assistance programs build the feed sectors, regulatory systems, and capable local firms that support growth for domestic farmers while fostering a market with appropriate demand for trade. These are complementary stages of the same market-development arc, yet the two sides rarely program together. Recent program guidance has begun to narrow that gap and could continue in that direction: the FY 2025 Food for Progress solicitation aligns projects with USDA priorities including "advancing American agricultural interests," directs applicants to maximize "return on investment," and, in its commodity monetization analysis, calls for consideration of "the impact on commercial sales" alongside development objectives (USDA Foreign Agricultural Service, 2025).

- **Updating the Global Food Security Strategy and Research Strategy to work across all U.S. departments and agencies could avoid work duplication and allow programs to build on each other.** The State Department administers food-security programming to support capacity and productivity of farmers, the Office of the U.S. Trade Representative negotiates trade agreements that shape market access, the Millennium Challenge Corporation funds infrastructure and institutional compacts, and the U.S. International Development Finance Corporation provides development finance. Where several of these instruments operate in the same country, a shared view of objectives and sequencing could reduce duplication and allow each to build on the others. A strategic Global Food Security Strategy and Research Strategy, alongside regular, structured consultation among USDA program managers, cooperators, and interested firms on market priorities and the technical constraints that most limit trade, would offer a low-cost way to keep publicly funded capacity building aligned with private commercial needs. Transaction scale is one practical dimension of that alignment: early commercial transactions in frontier markets are often smaller than the sizes at which development-finance instruments typically engage, and tools suited to smaller first transactions (e.g. export credit guarantees, principally USDA's GSM-102 program, and cooperator-facilitated trade financing) may matter more at this stage of market development.

***A strategic Global Food Security Strategy and Research Strategy, alongside regular, structured consultation among USDA program managers, cooperators, and interested firms on market priorities and the technical constraints that most limit trade, would offer a low-cost way to keep publicly funded capacity building aligned with private commercial needs.***

- **Increasing communications and coordination with cooperators, market-access organizations, and the private sector.** Closer coordination between cooperator and market-access activities and the countries where the State Department's food security and agricultural development funding, USDA's Food for Peace non-emergency, and Food for Progress are building local producer capacity could also strengthen the transition to commercial engagement. Sharing market intelligence, aligning technical work being done with in-country producers with buyer needs, and involving U.S. agribusiness earlier, including direct participation in the design and delivery of technical assistance to local farmers, would help preserve knowledge and relationships as individual projects end. This includes connections to agricultural research done by domestic and in-

ternational partners to deliver innovations to the field. Because these programs are authorized through the Global Food Security Act and the farm bill, and administered across multiple agencies, now including the State Department, stronger coordination could be achieved through clearer handoffs, shared market-readiness indicators, and a common understanding of where development and commercial efforts overlap.

- **Regularly assessing market growth indicators to gauge program success.** Measures of progress should reflect the market's stage and the capacity of the domestic producers. Export sales and market share are useful in established markets, while earlier-stage progress may appear through capable local producers and buyers, functioning SPS and biotechnology systems, access to finance, stronger industry organizations, growing commercial engagement, and early private-investment activity. Regular assessment by USTR and FAS to measure market growth can improve how these capabilities connect and how their contributions are measured.

## INSTITUTIONAL KNOWLEDGE AND CONTINUITY

- **Supporting local capacity building and ongoing maintenance at every step of engagement.** Development projects often build valuable knowledge, relationships, and the productivity of local farmers and producers. Capacity building at the front of projects shapes whether it remains after project closeout. Then, preserving these assets (i.e. farmers, producers, policymakers, local agribusiness, etc.) at project closeout can also help the State Department, USDA, cooperators, universities, and private firms maintain continuity as markets develop. Because local capabilities are costly to build and tend to depreciate when engagement lapses and ongoing support wanes, the commercial value of investment already made depends as much on continuity as on the size of the initial commitment; interruptions can forfeit relationships with local producers and expertise in-country, which is expensive to rebuild. A brief market-readiness summary during the initial phases of a project could help identify capable firms, active institutions, trained personnel, remaining regulatory issues, areas where additional agriculture research is needed, and emerging sources of demand. This would allow firms to identify where and how to build programs that support local producer and agribusiness longevity. Where appropriate, this information could also support a smooth transition to a cooperator, FAS post, university partner, or commercial organization and extend the value of earlier investments.

## U.S. ENGAGEMENT IN EMERGING GROWTH MARKETS

- **Sustaining presence in key markets to support continuity and future growth.** Commercial and regulatory relationships develop over time and can be difficult to reestablish once local buyers, standards, or supply chains shift. A sustained U.S. presence can therefore support continuity, market intelligence, and future commercial access, including during periods when sales remain limited. In practice, much of that presence is delivered through FAS's overseas posts, whose market intelligence, regulatory engagement, and local producer and agribusiness relationships are concentrated in established markets; maintaining or extending coverage in earlier-stage growth markets is one concrete way to keep the option of future commercial engagement open. There is also a role for the State Department and embassies as USAID missions have closed. Programs administered from Washington depend on in-country staff and partners to identify regulatory openings and commercial opportunities with critical local policymakers as they arise, and management close to on-the-ground conditions shapes whether programs adapt and build successful local partnerships with producers.

***Because local capabilities are costly to build and tend to depreciate when engagement lapses and ongoing support wanes, the commercial value of investment already made depends as much on continuity as on the size of the initial commitment.***

- **Tailoring and adjusting in-country engagement based on levels of market establishment.** The appropriate form of engagement will vary by market. Established markets may benefit from cooperator presence and regulatory work, while earlier-stage markets may rely more heavily on university partnerships, fellowships, research collaboration, and periodic technical engagement. These activities can also strengthen broader U.S. relationships in strategically important countries while advancing clearly defined agricultural and development objectives. These capabilities also shape what a market is able to buy. As agricultural sectors modernize, demand extends beyond commodities to improved genetics,

biological inputs, equipment, and agronomic services, categories that depend on trained agronomists, functioning registration pathways, and dealer and service networks, and that fall largely outside the trade measures used in this paper. The scale of that opportunity is not examined here.

### U.S. REGULATORY ENGAGEMENT AND MARKET ACCESS

- **Support the adoption of U.S. regulatory and biosafety standards overseas to counter influence from competing countries and create smoother pathways to build and expand U.S. trade.** Market access depends partly on the regulatory systems countries adopt, including biosafety rules, pesticide tolerances, and approval procedures. These choices affect which products can enter and how quickly approvals are granted. Alignment and fostering connections between agriculture research innovations conducted by domestic and international institutions and policies promoted abroad can ensure adoption and acceptance of the most advanced innovations in the field. The EU has been especially influential in extending its regulatory model abroad, often through method-based biotechnology rules and lengthy approval processes (Bradford, 2012). Its 2018 treatment of gene-edited crops as GMOs (Court of Justice of the European Union, 2018) reinforced that approach, while differences in approval timing between the EU and the United States continue to create trade disruptions. China is also playing a larger role in shaping regulatory practice in emerging markets.

  Continued U.S. support for technical capacity building, training, and knowledge sharing on regulatory and biosafety systems in strategic emerging economies is among the lower-cost instruments available. Where that capacity is absent, the commercial consequences can be significant. Pakistan's soybean trade fell sharply when biotechnology approvals stalled in late 2022, and did not recover until imports resumed in February 2025. Addey (2021) similarly finds that greater biotechnology restrictiveness is associated with lower U.S. corn and soybean export revenues.

# CONCLUSION

The geography of agricultural demand is changing. Mexico, Canada, China, Japan, and South Korea will remain central to U.S. agricultural trade, but a growing share of future food and feed demand is expected to emerge in developing and middle-income economies. For American agriculture, the opportunity is to build a broader group of commercially meaningful markets across regions and commodities, reducing exposure to disruptions in any one country while positioning U.S. suppliers to compete where consumption is expanding.

Sustained U.S. agricultural engagement can improve the commercial position of U.S. suppliers as developing markets expand. For example, in South Korea and Mexico, domestic growth, investment, and policy reform created the underlying increase in food and feed demand. U.S. research, technical assistance, regulatory engagement, and industry relationships helped shape how that demand was served by strengthening local capacity and connecting emerging industries to U.S. products and firms. Earlier U.S. assistance created useful capabilities and relationships with local farmers, agribusiness, and policymakers in some cases, but those assets did not always translate into lasting U.S. export growth. The commercial value of engagement therefore depends on whether local farmer capacity and productivity, market growth, increases in purchasing power, regulatory access, capable local firms, and U.S. competitiveness develop together.

The United States already has many of the capabilities needed to pursue such an approach. The State Department's global agricultural development funding, USDA's FAS, USDA market-development programs, cooperators, agricultural universities, fellowship programs, research partnerships, trade finance, and private input, technology, and commodity suppliers each perform distinct functions. It is worth assessing which of those functions produce measurable value for U.S. farmers and agribusinesses, and how commercially relevant knowledge and relationships can be preserved when individual programs end. Better continuity does not require maintaining every activity indefinitely. It requires identifying where demand growth, import potential, capable local counterparts, regulatory access, and U.S. competitiveness create a credible opportunity.

A broader agricultural export base will not emerge from promotion alone, and earlier technical engagement with producers will not translate automatically into U.S. exports. The most promising opportunities are likely to be found where growing demand reflects domestic farmer capability, functioning institutions, knowledgeable firms, competitive U.S. products, and sustained commercial relationships come together. Focusing U.S. engagement on those conditions can support food security and economic development while advancing the long-term interests of American agriculture.

The argument should be read as one of contribution rather than determinism. South Korea and Mexico developed through their own policies, institutions, investment, and economic growth. Rising incomes would have increased food-import demand in both countries. U.S. assistance, research, and technical engagement helped shape how that demand was served by strengthening institutions, building commercial relationships, and improving the position of U.S. suppliers. Those contributions mattered, but they did not guarantee the outcome. Brazil shows that technical capacity can also benefit competitors, while promotion has little effect where incomes, demand, or commercial conditions remain weak.

The country cases also make clear that assistance did not consistently lead to U.S. export growth. India, for example, received extensive U.S. food aid but pursued self-sufficiency and import protection, and it remains a relatively modest market for U.S. agriculture. Price, freight, policy, and sustained competitor engagement can outweigh earlier relationships. These cases help define the conditions under which the framework is most likely to apply.

Foreign aid recipient status alone therefore provides limited evidence. U.S. assistance has reached most countries at some point since 1945, and many of those countries would have grown regardless. Not all of them have grown to have strong economic ties to the U.S. Where strong economic ties did develop, they generally reflected deliberate, market-specific engagement rather than assistance alone. There is also a selection problem: U.S. programs and commercial engagement may have been directed toward countries that already showed stronger growth prospects. The more persuasive evidence lies in the mechanisms traced in the case studies, where Feed the Future and USDA food security programming supported productivity alongside alignment with regulatory systems, trained professionals, industry associations, and commercial relationships that can be connected to later transactions.

Within those limits, the findings offer practical guidance. U.S. engagement has been most commercially relevant where growing demand coincided with strategic technical investments by U.S. development agencies and was coupled with capable firms, workable regulation, technical capacity, competitive U.S. products, and sustained relationships. A forward strategy should focus on preserving and strengthening those conditions where they are already beginning to emerge.





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