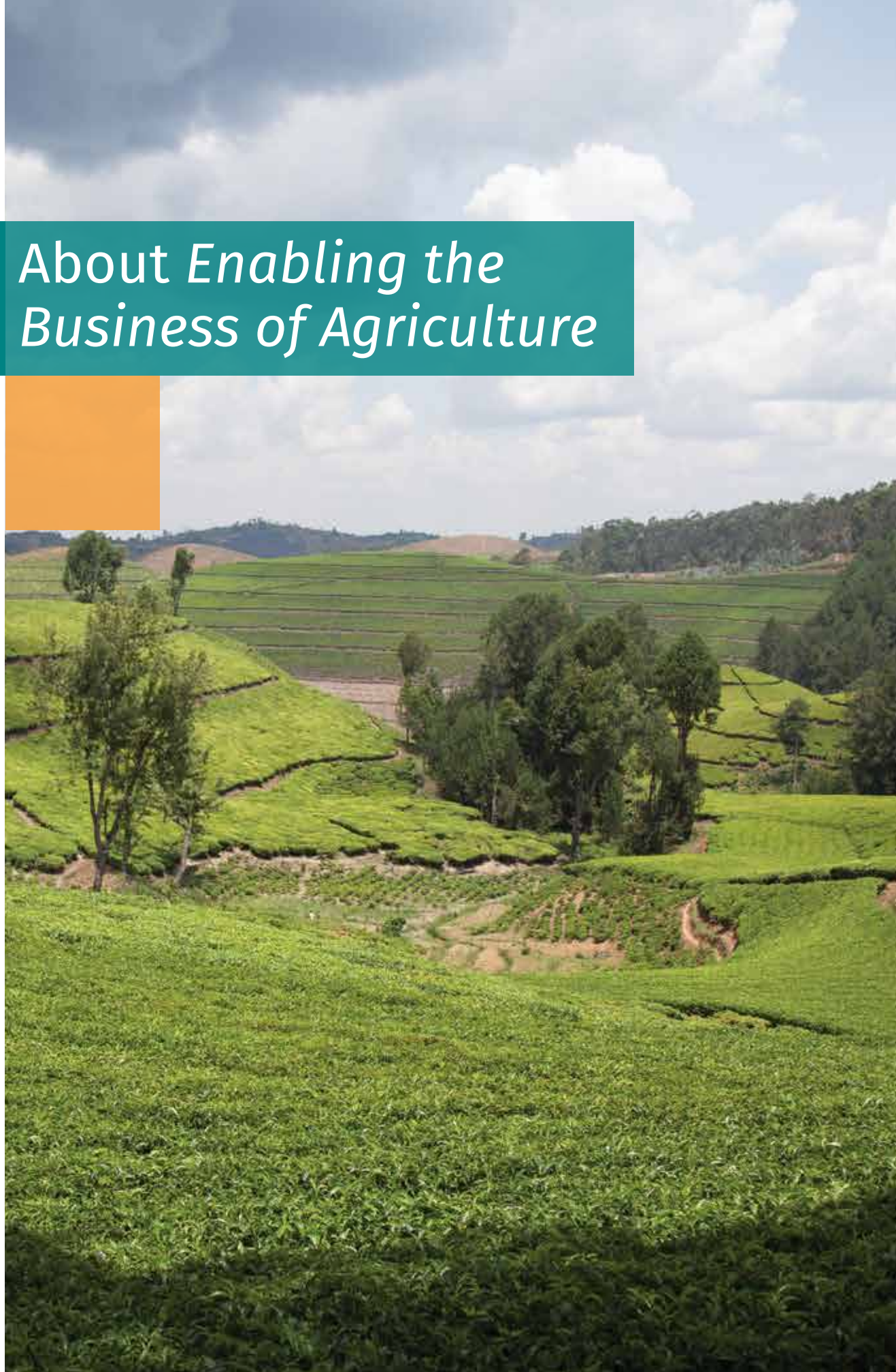
About *Enabling the Business of Agriculture*



Since 2013, *Enabling the Business of Agriculture* (EBA) has collected data on laws and regulations that impact the business environment for agriculture. The analysis has yielded some important results, such as: EBA country data have been used to open dialogues on regulatory reform with governments across several countries in Sub-Saharan Africa and East Asia; indications of interest from other development agencies in joining forces with the World Bank; engagement with a range of vital stakeholders from the private sector to civil society to academia; and continued enhancement of the methodology.

Enabling the Business of Agriculture 2017 is the third report in the series. The data can be used by governments, investors, analysts, researchers and others interested in this component of the enabling agribusiness environment to assess countries' performance on the topics measured, as well as to identify regulatory good practices that can be found around the world.

Enabling the Business of Agriculture builds on the *Doing Business* methodology and quantifies regulatory practices and legal barriers that affect the business of agriculture. *Doing Business* has pioneered a unique approach for comparing countries' performances on the regulatory environment; the results are noteworthy—more than 2,900 regulatory reforms have been documented since 2004 in 190 countries around the world. But the *Doing Business* focus has been on small and medium enterprises located in the largest business cities.[1] Businesses that operate in and around agriculture face additional constraints to enter and operate in the market and often deal with stricter regulatory controls related to registration and quality control of their service and/or goods. Recent shifts in population and food demand have made it all the more paramount that a country's regulatory frameworks and institutions enable farmers to produce and deliver more and safer food.

How does regulation impact the agriculture sector?

What can governments do to improve the access of farmers to essential inputs and services that increase their productivity in an environmentally sustainable manner? How can smallholders be helped to raise their socio-economic well-being while facilitating their integration with value chains? What can governments do to facilitate entrepreneurs and agribusinesses to thrive in a socially and environmentally responsible way?

Kitabi Tea Processing Facility, Rwanda.
Photo: A'Melody Lee / World Bank.

Governments can help by establishing appropriate regulatory systems that ensure the safety and quality of agricultural goods and services without being costly or burdensome overall so as to discourage firms from entering the market. Excessive regulation makes firms move to the informal economy[2] and generates high unemployment.[3] Poorly-designed regulations impose high transaction costs on firms thus reducing trade volumes,[4] productivity[5] and access to finance. Creating an enabling environment for agriculture is a prerequisite to unleash the sector's potential to boost growth, reduce poverty and inequality, provide food security and deliver environmental services.[6] Among other factors, government policies and regulations play a key role in shaping the business environment through their impacts on costs, risks and barriers to competition for various players in the value chains.[7] By setting the right institutional and regulatory framework, governments can help increase the competitiveness of farmers and agricultural entrepreneurs, enabling them to integrate into regional and global markets.

Over the past decade a branch of economic literature has highlighted the significant impact of business regulations on economic performance.[8] It is crucial to have regulations that can lower risk by enabling farmers to operate in a context where the outcomes of their decisions are more predictable. Governments need to strike the right balance between correcting market failures through regulations and minimizing the costs that those regulations impose on economic agents. This balance is essential for agriculture, but it is also particularly challenging. It is not unusual for governments to implement too-stringent agricultural regulations,[9] which impose excessive compliance costs for agricultural firms and make them more prone to remaining (or becoming) informal.[10] The agriculture sector's dependence on land, which is a finite resource and binds its growth to productivity gains, underscores the impact of regulations on areas such as land tenure and price volatility. Farmers face considerable risk due to their susceptibility to exogenous elements and from extreme or erratic weather, insects, rodents and other pests, and diseases. What's more, this uncertainty is exacerbated by the inherent volatility of agricultural markets.[11]

Reducing transaction costs imposed by regulations is imperative in agriculture. Transport costs can make up one-third of the farm gate price in some Sub-Saharan African countries and can prevent farmers from specializing in the goods where they have a competitive advantage.[12] In addition to transport, improving access to reliable and affordable information and communication technology (ICT) services is vital to a global food and agriculture system that is able to achieve its potential.

Regulations that can lower risk by enabling farmers to operate in a context where the outcomes of their decisions are more predictable are crucial. In fact, successful regulatory reform has contributed to increased supply and lower prices in the seed and mechanization markets in Bangladesh and Turkey, in the fertilizer sector in Bangladesh, Kenya and Ethiopia, and in the maize industry in Eastern and Southern Africa, among others. A series of legal, institutional and administrative reforms in the 1990s led to a wide range of improvements in Mexico's water resource management. Vietnam introduced Land Use Rights Certificates in 1993, which increased the security of land tenure for farmers and gave rise to more land area devoted to long-term crops.

Agricultural production has unique and evolving dimensions through which it interacts with relevant laws and regulations. These dimensions include, for example, regulations of agricultural input markets such as seed and fertilizer, and regulations that enable small-scale and remote farmers to access finance as well as quality, sanitary and phytosanitary standards and trucking licenses.[13]

What does *Enabling the Business of Agriculture* measure?

Enabling the Business of Agriculture 2017 presents data that measure legal barriers for businesses operating in agriculture in 62 economies and across 12 topic areas. It provides quantitative indicators on regulation for seed, fertilizer, machinery, finance, markets, transport, water, and ICT (table 1). Two overarching themes—gender and environmental sustainability—continue to be included in the report analysis to ensure that the messages developed by EBA encourage inclusive and sustainable practices. This year scoring was piloted for the land topic for 38 countries in which data were collected. The data for the remaining 24 countries will be collected next year and the team will refine the methodology further. EBA also collected data on the livestock topic, focusing on veterinary medicinal products (VMPs). The report explains the methodology and provides some insight from data collection for VMPs, but future editions will expand the topical coverage to include the areas of animal feed and genetic resources.

Two types of indicators emerge: *legal indicators* and *efficiency indicators*. *Legal indicators* are derived from a reading of the laws and regulations. In a few instances, the data also include some elements which are not in the text of the law but relate to implementing a good regulatory practice—for example, online availability of a fertilizer catalogue. *Efficiency indicators* reflect the time and cost imposed by the regulatory system—for example, the number of procedures and the time and cost to complete a process such as certifying seed for sale in the domestic market. Data of this type are built on legal requirements and cost measures are backed by official fee schedules when available.

Table 1 | What *Enabling the Business of Agriculture* measures—12 areas of regulation studied

TOPIC	WHAT IS MEASURED
SEED	> Time, cost and requirements to register a new seed variety > Protection and licensing of plant breeder rights > Quality control of seed in the market
FERTILIZER	> Time, cost and regulation for fertilizer registration > Quality control of fertilizer in the market > Requirements for importing fertilizer
MACHINERY	> Time, cost and requirements for tractor registration, inspection and maintenance > Time, cost and requirements for tractor testing and standards > Requirements for importing tractors
FINANCE	> Requirements for establishing and operating deposit-taking microfinance institutions and financial cooperatives > Requirements for third-party agents to provide financial services and provision of e-money by nonfinancial institutions > Use of agriculture relevant assets as movable collateral and availability of credit information on small loans and from non-bank institutions
MARKETS	> Establishment and operation of producer organizations > Phytosanitary requirements on management and control of pests and diseases > Documents, time, cost and requirements for domestic trade and export of agricultural goods
TRANSPORT	> Time, cost and requirements to operate commercial trucks > Time, cost and requirements for cross-border transport
WATER	> Water use permits > Water resource management
ICT	> Licensing of mobile operators
LAND	*(pilot scoring for 38 countries)* > Coverage and relevance of land records > Public land management > Gender disaggregation of land records > Leasing of land between private parties > Procedural safeguards in case of expropriation
LIVESTOCK	*(not scored)* > Requirements to register veterinary medicinal products > Requirements for importing veterinary medicinal products > Requirements for labeling of veterinary medicinal products
ENVIRONMENTAL SUSTAINABILITY	*(not scored)* > Conservation of plant genetic resources > Access and sustainable use of plant genetic resources > Water quality management > Soil health management
GENDER	*(not scored)* > Availability of gender-disaggregated data > Restrictions on women's employment and activity > Women's participation and leadership in collective institutions > Non-discrimination provisions

Sources: EBA database; *Doing Business* database.

How are EBA indicators selected?

The choice of the indicators developed for the eight scored topics was guided by a review of academic literature. The scoring choices of each indicator were informed by extensive consultations with key stakeholders, including civil society organizations, partner institutions, practitioners, public and private sector representatives, researchers and technical experts. The team is working on developing background papers for each topic to establish the importance of the regulations that EBA measures in each topic area for important outcomes such as agricultural output.

The *Enabling the Business of Agriculture* methodology provides a quantitative assessment of the regulations in each of the selected topics. The methodology, however, considers more than the number of regulations and does not promote deregulation. For example, higher scores are given for stricter labeling and penalty rules related to fertilizer or seed quality control since the laws and regulations need to set appropriate standards in these areas to ensure health and food safety. Higher scores are also given for the efficient application of regulations, such as affordable and timely tractor registration requirements. Countries that perform well on the EBA topics are those that balance proper enforcement of safety and quality control while avoiding burdensome and costly requirements that could discourage private sector development.

Going forward, it is envisaged that the selection of topics and related indicators will build on the current indicators and include the following additional measures: expansion of the livestock topic to include areas of animal feed and genetic resources; expansion of the gender cross-cutting area; refinement of the land scoring methodology; and development of an "Implementation Efficiency Index" to complement and provide additional policy insights alongside the current regulatory indicators. The refinement and selection of indicators will undergo a thorough internal review and collect feedback from various stakeholders from within the World Bank Group as well as from external participants. Already in place is a broad-based technical advisory committee with specialists from the private sector, academia, governments and the World Bank Group.

How are countries selected?

Enabling the Business of Agriculture 2017 covers 62 countries in seven regions (map 1). Selection criteria have been used to determine the countries included in the study, ensuring adequate representation of all regions and different levels of agricultural development. To select a sample of countries where an assessment of regulatory framework for agribusiness would be meaningful, the team did an analysis of the agriculture sector's importance by looking at two contributions—to GDP and to employment. Countries with small agricultural sectors (defined as less than US$1 billion) were excluded unless the population employed in agriculture is more than 100,000 people. The countries were then grouped by geographic regions (using World

Map 1 | Geographical coverage of *Enabling the Business of Agriculture 2017*

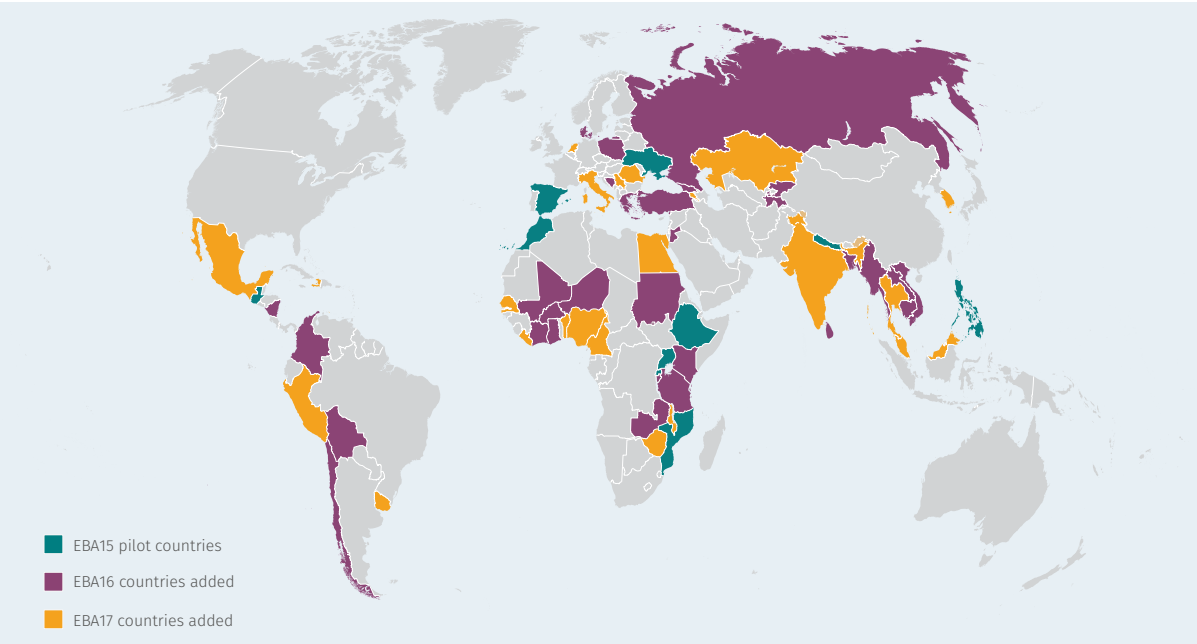


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Table 2 | Example of calculating Colombia's distance-to-frontier (DTF) score for fertilizer

TOPIC/INDICATOR	DATA	DTF SCORE		FRONTIER
Fertilizer		81.58		
Fertilizer registration index (0-7)	6	85.71		7
Time to register fertilizer a new fertilizer product (days)	45	96.39	97.73	11
Cost to register a new fertilizer product (% GNI pc)	7.83	99.07		0
Fertilizer quality control index (0-7)	6	85.71		7
Fertilizer imports (0-7)	4	57.14		7

Source: EBA database.

Bank country classifications) and agricultural transformation (grouping inspired by the *World Development Report 2008*). This process produced the following geographic groups: Eastern Europe and Central Asia; East Asia and Pacific; Latin America and the Caribbean; Middle East and North Africa; South Asia; Sub-Saharan Africa; and Organisation for Economic Co-operation and Development (OECD) high-income countries. The agricultural transformation groups developed are defined as either: *agriculture-based countries* (where agriculture employs more than 25% of the workforce and agriculture value added contributes more than 25% to the GDP); *transforming countries* (where agriculture employs more than 25% of the workforce and agriculture value added contributes less than 25% to the GDP); or *urbanized countries* (where agriculture employs below 25% of the workforce and agriculture value added contributes less than 25% to the GDP).

In selecting the first 10 pilot countries, and for subsequent expansion of the dataset to 40 and to 62 countries this year, the team aimed to include as many agriculture-based, pre-transition and transition countries, with a few important urbanizing and high-income countries from diverse geographical regions to allow EBA to measure and showcase good regulatory practices for each of the topic areas.

How is the distance-to-frontier score calculated?

A significant development in this year's report is the refinement of the scoring methodology. For the first time, *Enabling the Business of Agriculture 2017* presents both topic scores, using the distance-to-frontier (DTF) method pioneered by *Doing Business* and topic rankings. The DTF score benchmarks countries with respect to regulatory best practice, showing the absolute distance to the best performance on each *Enabling the Business of Agriculture* indicator, and can help in tracking the countries' absolute level of performance and how it improves over time. The DTF score measures the distance of each country to the frontier, which represents the best performance observed in each indicator for eight *Enabling the Business of Agriculture* topics (seed, fertilizer, machinery, finance, transport, markets, water and ICT). For legal indicators, the frontier is set at the highest possible value, even if no country currently obtains that score. For efficiency indicators, the frontier is set by the highest performing country.

Enabling the Business of Agriculture uses a simple averaging approach for topic indicator scores to arrive at the topic score. Each topic measures different elements of the enabling agribusiness environment and the DTF scores and rankings for each topic vary considerably. Colombia, for example, has a DTF score of 92.10 for finance, 88.89 for ICT, 85.52 for water and 81.58 for fertilizer—indicating it is very near the frontier in these topics (see table 2). At the same time, it has a DTF score of 73.92 for transport, 70.08 for markets, 63.19 for seed and 38.16 for machinery—showing areas where better regulatory practices can be adopted.

The topic DTF scores are sorted from highest to lowest and assigned a ranking from 1 to 62. The ranking complements the distance to frontier by providing information on the country's performance on EBA topics relative to the other countries' performance on the indicators in this particular year. It should be noted, given the composition of the indicators, that the scores and rankings are measurements of a particular set of regulations and do not necessarily assess the sum of all elements that shape the regulatory framework studied.

How are the data collected?

Enabling the Business of Agriculture indicators are based on primary data collection through standardized questionnaires completed by expert respondents in each country as well as the team's own analysis of the relevant laws and regulations. Once the data are collected and analyzed, several follow-up rounds address and clear up any discrepancies in the answers the respondents provide, including conference calls, written correspondence and country visits. Each year the team travels to the countries where it is hardest to collect data remotely. For the last two years, the

team has traveled to about 20% of the sample countries. During the *EBA2017* data collection period, the team visited these 13 countries: Armenia, Côte d'Ivoire, India, Jordan, Republic of Korea, Kyrgyz Republic, Liberia, Malawi, Morocco, Nepal, Russian Federation, Sri Lanka and Tajikistan. The data are then reviewed using desk research and follow-up with respondents. The preliminary data are validated through World Bank focal points in each country office. The data are then aggregated into indicators which allow for further analysis and comparisons, and contribute to the report writing phase. The report undergoes peer review with internal and external reviewers, as well as all relevant global practices and regions before it is released to the public (figure 1).

Chosen from the private sector, the public sector and civil society, respondents include firms, academia, financial institutions, professional associations, farmer organizations and government ministries and agencies. These individuals and organizations are chosen because of their knowledge of their countries' laws and regulations. Involving various experts increases the data accuracy by balancing the possible biases of different stakeholders. Reaching out to both the private and public sectors helps compare the perspectives of all parties. Those wishing to be recognized are acknowledged in the *Local Experts* section at the end of the report.

Enabling the Business of Agriculture data are collected in a standardized way to ensure comparability across countries and over time. Following the methodological foundations of *Doing Business,* questionnaires use a standard business case with assumptions about the legal form of the business, its size, its location and the nature of its operations for each topic applied for all countries (table 3). Assumptions guiding respondents through their completion of the survey questionnaires vary by topic (see appendix B). In addition, in the interest of comparability, the values in the assumptions are not fixed values but proportional to the country's gross national income (GNI) per capita. The data in this report are current as of June 30, 2016, and do not reflect any changes to the laws or administrative procedures after that date.

What does *Enabling the Business of Agriculture* not measure?

Many elements affect a country's enabling environment for agribusinesses. The political situation in a country, for example, can greatly influence its attractiveness to business and investors. Social aspects, such as literacy and overall education levels and life expectancy, are also important indicators. A country's economic performance, measured by factors such as inflation, unemployment, income growth, government revenues and expenditures, is also very influential when determining a country's overall enabling environment. In many countries around the world, foreign exchange restrictions can be a major impediment to doing business. These factors are not captured by the *Enabling the Business of Agriculture* indicators but are well covered by other data initiatives that should be used together with the data presented to present a fuller picture of the enabling environment.

In many developing countries, many aspects of agricultural activity, from employment to the production and sale of goods, occur through informal channels. Burdensome regulations and lack of transparency, could be one reason for this, as could the quality of institutions, extension services and physical infrastructure. For example, regardless of the quality of transport regulations, lack of road infrastructure is a major barrier to transporting agricultural goods from the farm to markets. However, these elements are also not measured by the *Enabling the Business of Agriculture* indicators.

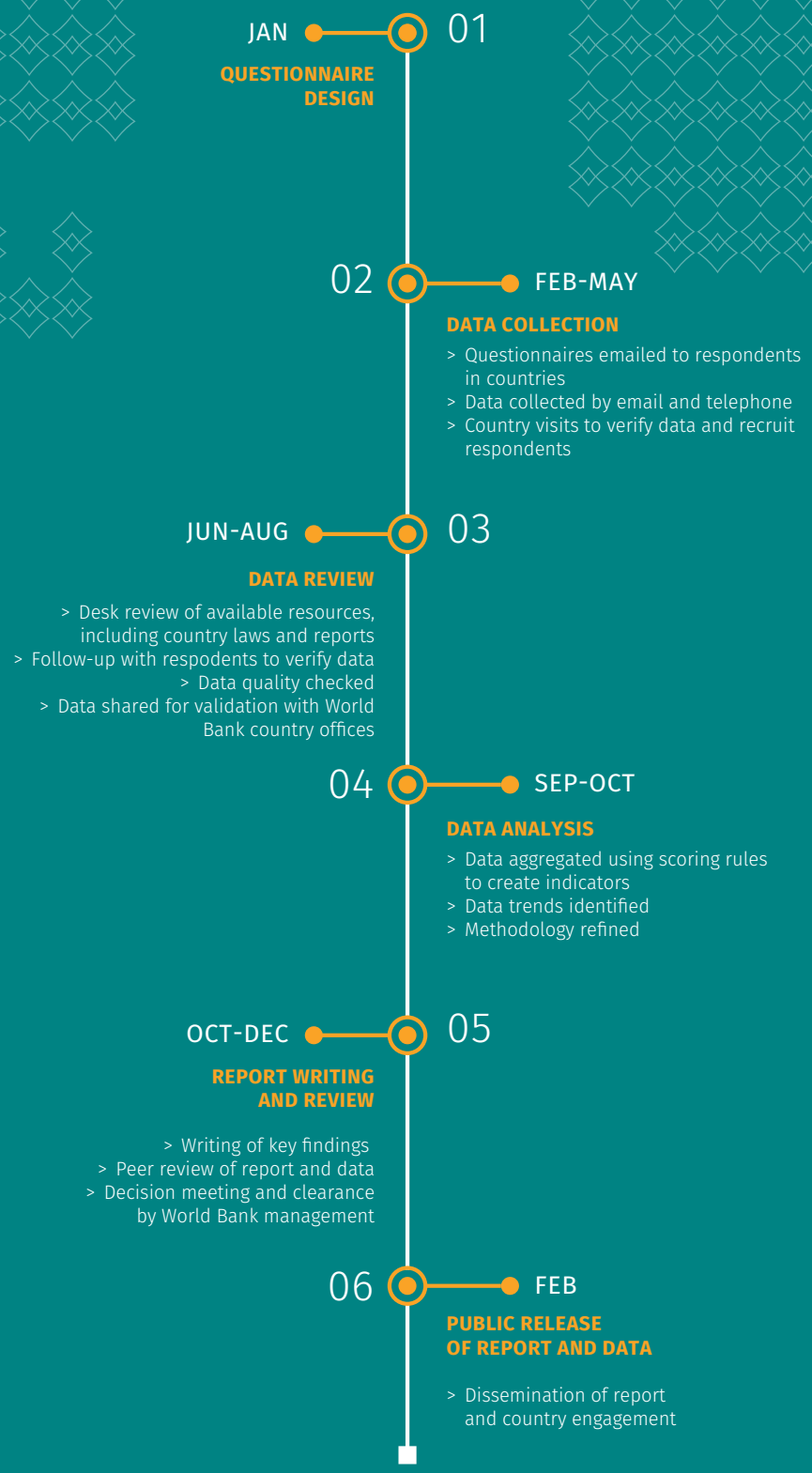
Enabling the Business of Agriculture has deliberately chosen to focus the indicators presented in this report on measuring laws and regulations that affect agribusiness firms that provide agricultural inputs, goods and services. The indicators constructed reflect elements that are under the direct influence of the government and can be compared across countries.

The chosen methodological approach has its benefits and limitations. The data presented are comparable and based on standardized assumptions. This methodology has proven to be successful in stimulating reform activity and allows countries to compare their performance on specific areas to other countries but also to monitor progress over time. Using standardized scenarios, however, can generalize and exclude some important context-specific information. To address some of these limitations, the data presented in this report and any recommendations that stem from it must be interpreted together with other important datasets as well as country relevant information.

What's next?

Enabling the Business of Agriculture 2017 presents scored indicators for eight topics in 62 countries around the world and introduces initial data collected for livestock, land, gender and environmental sustainability. The team will use the 2017 year to disseminate the data and findings, refine and synthesize indicators, expand topic and country coverage, and hold discussions with various stakeholders on the best ways going forward. The main areas for development identified relate to strengthening the processes for obtaining relevant feedback on: indicator

Figure 1 | Data collection, review and analysis



development and refinement; country selection and criteria used for future scale up; identifying countries where subnational analysis would be relevant and developing a subnational methodology.

Future reports will allow the team to monitor progress of countries in each of the topic areas by tracking regulatory reforms that affect the indicators measured. Country coverage is also expected to expand and eventually cover between 80 and 100 countries.

Feedback is welcome on the data, methodology and overall project design to make future *Enabling the Business of Agriculture* reports even more useful. Feedback can be provided on the project website: http://eba.worldbank.org.

Table 3 | *EBA* questionnaires use a standard business case with assumptions

	ASSUMPTIONS USED TO STANDARDIZE THE BUSINESS CASE
SEED	*The seed variety:* > Is a maize variety developed by the private sector. > Is being registered for the first time in the country. > Has not been registered in any other country.[a]
FERTILIZER	*The business:* > Is a private sector company. > Is domestically registered in the country. > Imports fertilizer to sell in the country. > Has registered at least one new fertilizer product in the country. *The fertilizer product:* > Is a new chemical fertilizer product. > Is produced in a foreign country. > Is being registered for marketing purposes.
MACHINERY	*The business:* > Is a private sector company (manufacturer, dealer or distributor of agricultural machinery). > Is registered as a business in the country. > Imports agricultural tractors into the country. *The machinery:* > Is a two-axle/four-wheel drive agricultural tractor designed to furnish the power to pull, carry, propel or drive implements.
FINANCE	*Microfinance institutions (MFIs):* > Can take deposits, lend and provide other financial services to the public. > Are licensed to operate and supervised by a public authority. > Countries identified as having a high level of financial inclusion are not measured under the MFI indicator.[b] *Financial cooperatives:* > Are member-owned, not-for-profit cooperatives that provide savings, credit and other financial services to their members. *Agent banking:* > Is defined as the delivery of financial services through a partnership with a retail agent (or correspondent) to extend financial services to locations where bank branches would be uneconomical. > Countries identified as having a high level of financial inclusion are not measured under the agent banking indicator.[b] *Electronic money:* > Is stored and exchanged through an electronic device and not associated with a deposit account at any financial institution.

MARKETS

The business:

> Performs general agricultural trading activities.
> Does not directly engage in agricultural production, processing or retail activities.
> Does not operate in a special export processing zone.

The export product and trading partner:

> Is a combination of a plant-based agricultural product group and a partner country which represents the highest five-year average export value, based on UN Comtrade 2009–13 data.

The shipment:

> Is transported via a 20-foot full container-load.
> Weighs 10 metric tons or US $10,000, whichever is most appropriate.
> All packing material that requires fumigation (such as wood pallets) is assumed to be treated and marked with an approved international mark certifying that treatment.

TRANSPORT

The business:

> Is a private business entity or natural person whose core business is transporting goods by road for commercial purposes.
> Has met all formal requirements to start a business and perform general industrial or commercial activities.
> Has a maximum of five trucks; each truck has two axles and a maximum loading capacity of 15MT (metric tons). Trucks comprise a traction unit and a trailer.
> Transports agricultural products within the country, including perishable products. It does not transport fertilizers, pesticides, hazardous products or passengers.
> Carries out cross-border transport services with its largest agricultural border-adjacent trading partner.
> The company's main office is located in the country's largest business city.
> The trucks were first registered in the largest business city less than six months ago.
> All employed drivers have the domestically required driver's license to drive a 15MT vehicle.

The transported product:

> Is based on UN Comtrade's 2009–13 five-year average export value of major plant product groups.

The cross border trading partner:

> Is based on UN Comtrade's 2009–13 five-year average trade value of major plant product groups, as well as on a border-adjacent criterion.

WATER

The water user:

> Is a farm growing crops.
> Is a medium-size[c] farm for the country, with land area that falls between 2 and 10 hectares.
> Uses mechanical means to individually abstract water for irrigation.
> Is not located in a broader irrigation scheme.

The water source[d]:

> Is a river located 300 meters away from the farm; or
> Is a groundwater well located on the farm.

ICT

The mobile operator:

> Is a private company.
> Provides telecommunications services such as voice, SMS (Short Message Service) and data.

Note:

a. If maize varieties are not being developed by the private sector in the country, an imported maize variety is considered, which may have been previously registered elsewhere.
b. High level of financial inclusion is defined are those countries that score 0.8 or higher, as measured by the average of the normalized value of the FINDEX variables "account at a financial institution (% of rural adult population)" and "account at financial institution (% of adult population)." Countries under this classification are as follows: Denmark, Greece, Italy, Korea, the Netherlands and Spain.
c. If medium-size farms in the country, as prescribed in any official farm-size classification system, deviate significantly from this given range, any exemption from permit requirements that may otherwise apply to small farms (for example, exemptions for smallholders or subsistence farmers) are not considered.
d. The choice between surface water and groundwater as a source for irrigation water is made based on the predominant irrigation water source for the country, based on the most recent available data from FAO Aquastat for the percentage of area equipped for irrigation by surface water and groundwater.

NOTES

1 Djankov 2016.

2 Bruhn 2011; Branstetter et al. 2014.

3 Amin 2009.

4 Djankov, Freund and Pham 2010; Hoekman and Nicita 2011.

5 Barseghyan 2008.

6 Byerlee, de Janvry and Sadoulet 2009.

7 Cullinan 1999; Diaz-Bonilla, Orden and Kwieciński 2014; Hafeez 2003; Christy, Mabaya, Wilson, Mutambatsere and Mhlanga 2009.

8 Djankov, McLiesh and Ramalho 2006; Jalilian, Kirkpatrick and Parker 2007; Loayza and Servén 2010.

9 Diaz-Bonilla, Orden and Kwieciński 2014; USAID 2015; Divanbeigi and Saliola 2016.

10 Loayza, Servén and Sugawara, 2009.

11 Aimin 2010.

12 World Bank 2007; Gollin and Rogerson, 2014.

13 Divanbeigi and Saliola 2016.

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Abbreviations

AML/CFT	Anti-Money Laundering and Combatting Financing of Terrorism
ANTAM	Asian and Pacific Network for Testing of Agricultural Machinery
CAR	capital adequacy ratio
CDD	customer due diligence
CEMA	Comité Européen des groupements de constructeurs du machinisme agricole
CGAP	Consultative Group to Assist the Poor
CSAM	Centre for Sustainable Agricultural Mechanization
DTF	distance-to-frontier
DUS	distinctiveness, uniformity and stability
EAC	East African Community
EBA	Enabling the Business of Agriculture
ECA	Europe and Central Asia
ENTAM	European Network for Testing of Agricultural Machines
ePhyto	electronic phytosanitary certificate
FAO	Food and Agriculture Organization (of the UN)
FOPS	falling object protection structures
GHz	gigahertz
GNI	gross national income
ICID	International Commission on Irrigation and Drainage
ICT	information and communication technology
ICTA	Instituto de Ciencia y Tecnología
ICWE	International Conference on Water and the Environment
IFAD	International Fund for Agricultural Development
IFFCO	Indian Farmers Fertilizer Cooperative Limited
IFPRI	International Food Policy Research Institute
INERA	Institute for Environment and National Research (Burkina Faso)
IPPC	International Plant Protection Convention
IRU	International Road Transport Union
ISF	International Seed Federation
ISTA	International Seed Testing Association
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture

IWMI	International Water Management Institute
IWRM	integrated water resources management
KYC	know your customer
LPI	Logistics Performance Index
MENA	Middle East and North Africa
MFI	microfinance institution
NASFAM	National Smallholder Farmers' Alliance of Malawi
NGO	nongovernmental organization
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
PBR	plant breeders' rights
PCGS	partial credit guarantee system
PRA	pest risk analysis
RML	Reuters Market Light
ROPS	roll-over protection structures
SACCO	savings and credit cooperatives
SDG	Sustainable Development Goal
SMEs	small and medium enterprises
SMS	Short Message Service
SSA	Sub-Saharan Africa
TFP	total factor productivity
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UPOV	International Union for the Protection of New Varieties of Plants
VCU	value for cultivation and use
VMP	veterinary medicinal products
VRC	variety release committee
WAMU	West African Monetary Union
WTO	World Trade Organization
WUOs	water user organizations

1 Overview

The global food system plays a central role in meeting the World Bank Group's twin goals of eliminating extreme poverty and boosting shared prosperity. Ending poverty will not be possible without raising the incomes of the rural poor, which account for 78% of poor people worldwide.[1] Schultz remarks that "most of the world's poor people earn their living from agriculture, so if we knew the economics of agriculture, we would know much of the economics of being poor."[2] Moreover, some 800 million people currently suffer from hunger across the globe[3] and the demand for greater variety and better quality food from a growing, urbanized population continues to increase. Agriculture has a strong record as an instrument for poverty reduction and can lead growth in agriculture-based countries.[4] In fact, growth originating from agriculture has been two-to-four times more effective at reducing poverty than that originating from other sectors.[5]

To meet the challenges ahead, food systems must not only be able to provide food security to the growing world population but they must also deliver diverse, nutritious diets that are affordable and accessible to all. Improved agricultural productivity must be coupled with increased resilience to climate change and reduced greenhouse gas emissions. In addition, for agriculture to deliver on its full potential, value chains must be strengthened, smallholder linkages to markets improved and agribusiness expanded.[6]

The agricultural sector is a significant source of employment, even as countries traverse different stages of agricultural structural transformation. Globally, 30% of all workers are employed in farming, while in low-income countries the share is 60%. As economies grow and develop, the importance of agribusiness relative to farming increases, leading to significant opportunities for employment growth and value added.[7] Central to achieving this will be the investments, performance and success of key players across agricultural value chains—from farmers, to input and service providers, to large and small agricultural businesses.

Enabling the Business of Agriculture 2017 (EBA17) aims to foster a more conducive environment for agribusiness. By providing key data on regulatory frameworks that are globally comparable and actionable, it strengthens the information base that can be used for policy dialogue and reform. Such efforts can stimulate private sector activity and lead to more efficient and effective agricultural value chains.

A produce farm in Chimaltenango, Guatemala.
Photo Maria Fleischmann / World Bank.

Table 1.1 | List of EBA indicators

	"LEGAL" INDICATORS	"EFFICIENCY" INDICATORS
SEED	> Plant breeding > Variety registration > Seed quality control	> Time and cost to register new varieties
FERTILIZER	> Fertilizer registration > Quality control of fertilizer > Importing and distributing fertilizer	> Time and cost to register a new fertilizer product
MACHINERY	> Tractor operation > Tractor testing and standards > Tractor import	> Time and cost to obtain type approval > Time and cost to register a tractor
FINANCE	> Branchless banking > Movable collateral > Non-bank lending institutions	
MARKETS	> Producer organizations > Plant protection > Agricultural trade	> Documents, time and cost to export agricultural goods
TRANSPORT	> Trucking licenses and operations > Cross-border transportation	> Time and cost to obtain trucking licenses > Time and cost to obtain cross-border licenses
WATER	> Integrated water resource management > Individual water use for irrigation	
ICT	> Information and communication technology	

EBA focuses on legal barriers for businesses that operate in agriculture in 62 countries and across 12 topics, including seed, fertilizer, machinery, finance, markets, transport, water, information and communication technology (ICT), environmental sustainability, gender, land and livestock. EBA's dataset features two types of indicators (table 1.1). Legal indicators primarily reflect the text of laws and regulations[8] and assess their conformity with a number of global regulatory good practices. Efficiency indicators measure the transaction costs that firms have to bear to comply with national regulations on the ground. Transaction costs are expressed in time or monetary units, such as the time and cost needed to comply with requirements on agricultural exports.

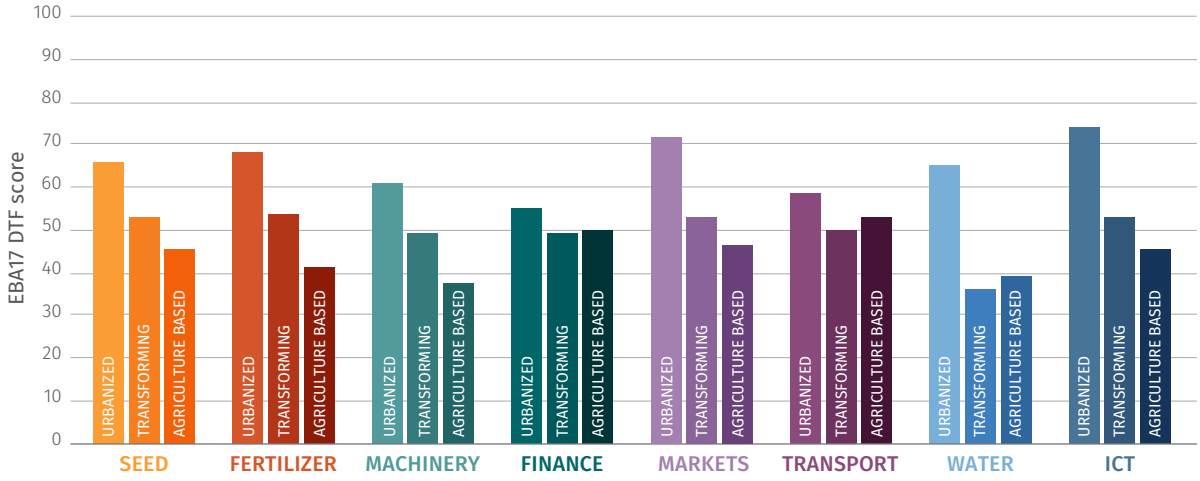
After a pilot exercise conducted in 2013–14 covering 10 countries,[9] *EBA16* included 40 countries and six scored topics: seed, fertilizer, machinery, finance, markets and transport. In *EBA17*, country coverage is expanded to 62 countries with two new topics added to the scoring: water and ICT. In addition, efficiency indicators measuring transaction costs are expanded and scored for the first time.

Countries with more agribusiness-friendly regulations

EBA scores countries based on both the quality and efficiency of their regulatory systems, through two aggregate measures per topic: (i) the distance-to-frontier (DTF) score or absolute distance of a country to the best performance on each topic (see appendix A); and (ii) the topic ranking that results from ordering DTF scores (see table 1.2).

Agriculture's relevance varies significantly across countries. Based on the *World Development Report 2008*[10] and combining data on agriculture's contribution to GDP and the share of active population dedicated to agriculture, EBA categorizes countries into three groups: agriculture-based, transforming and urbanized. Urbanized countries are on average at the frontier of good regulatory practices across all EBA topics (figure 1.1). They are followed by transforming countries. Agriculture-based countries have more room to improve the quality of their regulatory frameworks and decrease transaction costs. However, agriculture-based countries have shown on average a

Figure 1.1 | Urbanized countries show better agriculture regulations than transforming and agriculture-based countries



Source: EBA database.

Note: EBA countries are divided into three groups. Urbanized countries have a contribution of agriculture to GDP below 25% and a share of active population in agriculture below 25%; transforming countries have a contribution of agriculture to GDP below 25% and a share of active population in agriculture over 25%; agriculture-based countries have a contribution of agriculture to GDP over 25% and a share of active population in agriculture over 25%. The EBA17 distance-to-frontier (DTF) score is the average of the DTF scores of the following topics: seed, fertilizer, machinery, finance, markets, transport, water and information communication and technology (ICT). The correlation between EBA scores and agricultural transformation phase is 0.61.

better or similar performance compared to transforming countries in the finance, water and transport topics and are closing the gap on markets. Kenya, Malawi and Mozambique have comprehensive legislation regulating water use permits. Burkina Faso, Côte d'Ivoire and Ethiopia are among the top 10 countries in terms of the efficiency in obtaining a cross-border trucking license.

Countries' regulatory quality is associated with economic growth[11] and levels of development.[12] High-income countries have better agribusiness regulations as measured by EBA,[13] and this outcome is shown across all topics. However, there are exceptions; some countries perform better on EBA indicators than what their income level may suggest. That is the case of Vietnam for fertilizer, machinery and transport; Kenya for seed, finance, water and ICT; and Kyrgyz Republic for finance, markets and machinery. On the other hand, despite its very solid regulations on ICT operating licenses and plant protection, Chile does not have a framework for fertilizer registration or tractor type approval.

In terms of regions, OECD high-income countries have on average the most agribusiness-friendly regulation (figure 1.2). They all share regulation that promotes quality control, facilitates trade and enables entry and operations in agricultural markets. Spain ranks among the top six countries globally in all eight EBA-scored topics. However, OECD high-income countries also have room for improvement. Romania is among the top three performers globally in terms of regulations for transport, machinery and ICT, but it takes more than three years to register a new fertilizer product, while the global average is below one year. This performance is mainly due to field testing (not required in best practice countries) and the delays associated with the Gazette notification. Poland has the most comprehensive and efficient regulations on tractor operation, import, testing and standards, but lacks a regulatory framework for warehouse receipts to complement the existing collateral regime to obtain a loan for agricultural production, as well as legislation on deposit-taking microfinance institutions (MFIs).

Following OECD high-income countries, Europe and Central Asia as well as Latin America and the Caribbean regions show a number of good regulatory practices. For example, all countries in Europe and Central Asia have implemented good regulatory practices on tractor imports, not requiring import permits or importers to register in addition to their general business license. In addition, both Bosnia and Herzegovina and Serbia are among the top five countries globally in the fertilizer area, due to best practice regulation on registration and quality control. The fertilizer registration process takes about one month in both countries, and costs only 0.5% and 5.3% income per capita, respectively. The Kyrgyz Republic ranks in the top 15 for markets and machinery, showing efficient processes for exporting agricultural goods and tractor registration, but it is placed in the bottom 10 for seed and transport due to the lack of regulations on seed quality control and trucking licenses. The Russian Federation performs well in EBA's machinery, water, and ICT topics.

Countries from Latin America and the Caribbean have comprehensive regulation on financial inclusion and water management. In fact, Colombia and Mexico score

Table 1.2 | Country rankings on EBA topics by economies

	SEED	FERTILIZER	MACHINERY	FINANCE	MARKETS	TRANSPORT	WATER	ICT
ARMENIA	28	53	30	52	23	56	5	31
BANGLADESH	54	35	49	23	21	45	56	37
BENIN	55	61	53	41	34	50	38	31
BOLIVIA	25	45	52	13	22	15	43	30
BOSNIA AND HERZEGOVINA	56	1	34	60	11	32	6	31
BURKINA FASO	57	56	32	41	37	12	47	59
BURUNDI	40	42	50	59	55	30	33	52
CAMBODIA	38	26	44	48	46	34	37	43
CAMEROON	58	48	37	51	41	31	44	52
CHILE	29	54	28	46	9	46	28	15
COLOMBIA	27	8	45	1	17	10	3	9
CÔTE D'IVOIRE	30	45	35	18	60	19	49	22
DENMARK	3	3	8	37	6	3	24	6
EGYPT, ARAB REP.	37	33	26	56	49	61	55	57
ETHIOPIA	39	59	25	27	51	21	34	62
GEORGIA	13	21	42	39	19	38	48	6
GHANA	48	34	38	16	54	59	30	22
GREECE	14	9	5	4	5	14	12	1
GUATEMALA	26	10	57	24	14	58	58	21
HAITI	61	58	43	54	57	62	57	43
INDIA	21	18	21	15	43	49	53	18
ITALY	4	6	11	6	4	4	10	6
JORDAN	22	17	33	62	25	22	41	22
KAZAKHSTAN	35	15	9	50	16	55	18	22
KENYA	7	43	29	10	59	16	4	12
KOREA, REP.	8	14	19	12	10	39	9	11
KYRGYZ REPUBLIC	53	19	14	8	13	56	36	43
LAO PDR	59	27	59	47	35	26	40	59
LIBERIA	62	62	60	35	62	59	61	31
MALAWI	50	44	23	20	33	41	19	50
MALAYSIA	45	50	18	28	40	54	45	22

	SEED	FERTILIZER	MACHINERY	FINANCE	MARKETS	TRANSPORT	WATER	ICT
MALI	52	23	61	41	44	44	50	52
MEXICO	24	24	51	9	3	20	2	9
MOROCCO	20	51	17	57	24	8	8	18
MOZAMBIQUE	23	47	47	25	30	33	21	22
MYANMAR	34	30	62	61	53	51	62	37
NEPAL	46	41	36	34	28	52	52	43
NETHERLANDS	1	7	7	17	1	9	20	1
NICARAGUA	44	11	48	36	20	36	23	43
NIGER	49	55	55	45	39	17	39	43
NIGERIA	42	31	16	22	48	43	46	37
PERU	10	52	58	2	27	5	11	15
PHILIPPINES	11	22	13	33	38	37	17	37
POLAND	5	2	1	21	7	24	13	1
ROMANIA	6	28	3	11	12	2	7	1
RUSSIAN FEDERATION	18	20	12	38	18	40	15	15
RWANDA	60	38	41	7	47	27	32	50
SENEGAL	36	60	54	41	36	35	42	37
SERBIA	19	4	2	40	8	13	14	12
SPAIN	2	5	6	3	2	1	1	1
SRI LANKA	47	36	39	58	58	48	54	59
SUDAN	41	56	27	53	61	47	59	57
TAJIKISTAN	51	49	22	55	32	6	35	56
TANZANIA	17	37	40	5	56	25	22	18
THAILAND	32	16	24	29	52	53	60	31
TURKEY	12	13	4	32	29	28	51	31
UGANDA	31	40	31	31	45	18	26	22
UKRAINE	33	32	15	26	26	42	29	43
URUGUAY	9	25	56	19	15	11	25	37
VIETNAM	43	12	10	30	31	7	27	12
ZAMBIA	16	39	46	14	50	23	16	22
ZIMBABWE	15	29	20	49	42	29	31	52

Source: EBA database.

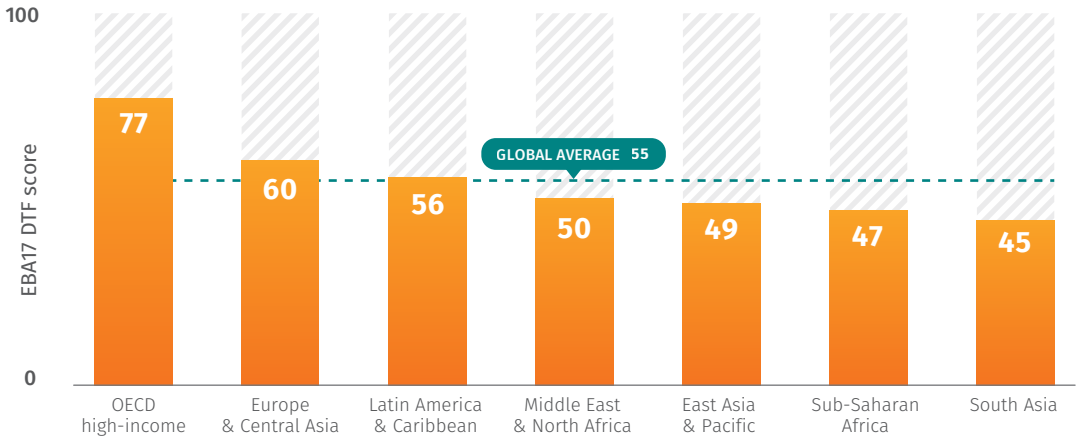
among the top 10 countries globally within these two topics. For example, Colombia has developed comprehensive rules enabling non-bank correspondents to provide financial services on behalf of a commercial bank; Mexico has developed a modern and comprehensive water regulatory framework anchored by the 1992 National Water Law, although some implementation challenges remain. Some countries in the region lag behind in several areas. Guatemala lacks a general framework for tractor type approval and registration, and trucking licenses, despite solid fertilizer quality control and plant protection regulations.

The regions lagging behind on EBA scores are: South Asia, Sub-Saharan Africa, and East Asia and Pacific. On average, countries from these regions have less than half of the regulatory good practices promoted by EBA. This situation mainly affects regulations related to quality control and operations in the different agricultural markets that EBA measures. It is most time-consuming to complete the process of exporting agricultural goods in Sub-Saharan African countries, taking 6.0 days on average, and the documents are most expensive in South Asia and Sub-Saharan Africa, costing 2.5% income per capita. The process for obtaining tractor type approval is the lengthiest and most expensive in South Asia (270 days and 604% income per capita, versus 21 days and 7% income per capita in East Asia and Pacific). This year EBA conducted a pilot study in India for all EBA topics to track subnational differences and will build on it for future data collection and analytical work (box 1.1).

In Sub-Saharan Africa, there is great variation across countries measured and topics. In the region, 7 of the 21 countries do not have a clearly designated government agency to conduct pest surveillance, and only Senegal and Tanzania have a publicly available database with information on plant pests and diseases. However, last year Sub-Saharan African countries adopted more regulatory reforms in plant protection than in other regions. Kenya is the best performer on EBA indicators in the region. It is among the 5 top performers in the water topic, thanks to a series of regulatory reforms on water resource management and a permit system that started in 2002 with the introduction of a new Water Act. On the other hand, the country still has great potential to improve its regulatory framework on fertilizer registration and plant protection, as well as to streamline the process related to exporting agricultural products. In East Asia and Pacific, Vietnam shares international best practices in the areas of fertilizer registration (from the legal and efficiency standpoint), efficiency of tractor registration and type approval, as well as trucking licenses both for domestic and cross-border transportation.

Benin, Arab Republic of Egypt, Haiti, Liberia, Myanmar, Sri Lanka and Sudan are the countries with the greatest room for improvement—on average—in all areas that EBA measures. For example, Haiti, Liberia and Myanmar (all conflict-affected countries) do not have any of the good regulatory practices on plant protection and very few in the areas of integrated water resource management, financial inclusion or trucking licenses.

Figure 1.2 | OECD high-income countries rank highest on EBA, followed by Europe and Central Asia, and Latin America and the Caribbean



Source: EBA database.

Note: The EBA17 distance-to-frontier (DTF) score is the average of the DTF scores of the following topics: seed, fertilizer, machinery, finance, markets, transport, water and information communication and technology.

EBA and regulatory quality

The EBA overall DTF score provides a synthetic measure of the quality and efficiency of countries' regulatory environment for agriculture. Its results are well correlated with other measurements of regulatory quality for the whole economy, such as the regulatory quality component of the *Worldwide Governance Indicators (WGI)* and *Doing Business*,[14] which measures regulatory quality and efficiency for businesses that perform general industrial or commercial activities.

One potential criticism relates to the fact that what is written in the books does not necessarily reflect what happens in practice. In this regard, the relationship between EBA and the WGI rule of law component[15] was analyzed and noted that where good regulatory measures are in place, laws also tend to be better enforced (figure 1.3).

Efficiency, quality control, operations and trade

Legal indicators in the eight EBA-scored topics can be distributed across three cross-cutting categories, namely: (i) **operations** indicators that measure the requirements for local companies to enter the market and develop agribusiness activities;[16] (ii) **quality control** indicators that assess regulations governing plant protection, water resource management, safety standards for agricultural machinery and quality control associated with seed, fertilizer and truck operators;[17] and (iii) **trade** indicators that measure

Box 1.1 | Subnational EBA study in India

For the first time, EBA conducted a subnational pilot study to assess how sensitive EBA indicators are to differences among different locations within a country. Four Indian states were selected: Bihar, Maharashtra, Odisha and Uttar Pradesh. For topics where EBA considers a case study that assumes that the company operates in the country's largest business city, the following cities were selected on the basis of population data: Patna (Bihar), Mumbai (Maharashtra), Bhubaneswar (Odisha) and Lucknow (Uttar Pradesh). When discrepancies were found across Indian states in specific topics, Maharashtra data were considered as the proxy for India for the cross-country results presented in this *EBA17* report.

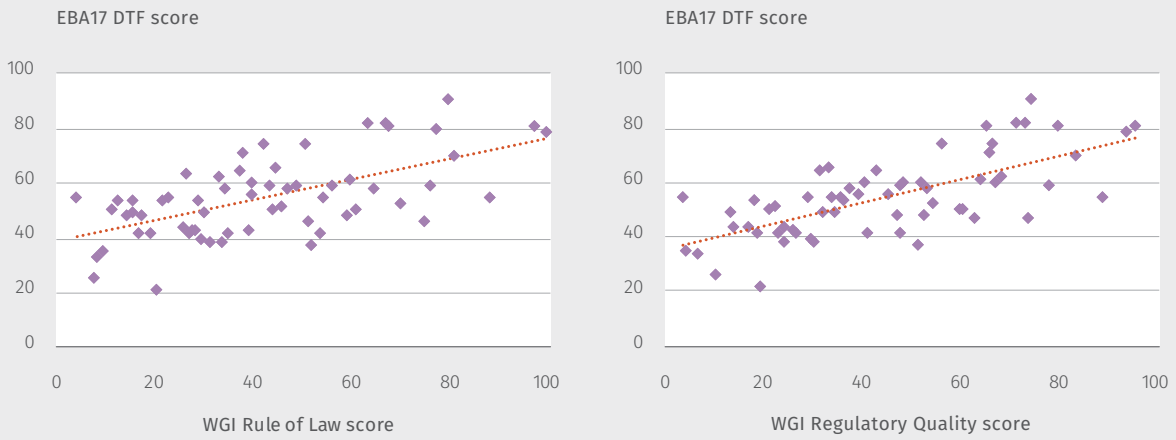
The main result of this pilot study is that while the legal and regulatory framework for agriculture and agribusiness is largely harmonized across the country, some differences emerge regarding the implementation of administrative procedures by state-level or local government agencies.

Laws governing entry and operations, quality control and trade for fertilizer, machinery, seed, transport and finance are either federal or state-level with very similar provisions across states. For example, in the finance area, the Federal Guidelines for Engaging of Business Correspondents 2010 and the Payment and Settlement Systems Act 2007 apply to all Indian states, providing global best practice for the branchless banking indicator. However, financial cooperatives are governed by state-level laws; they are similar across the four states analyzed, lacking a deposit insurance system and disclosure requirements.

Some differences exist in the area of water and environment. Under India's Constitution, water management is largely decentralized to the state level. Across the four states, only Odisha has established the legal foundation for a water use permit system that applies to farms that are medium-size or larger. In only two out of the four states (Maharashtra and Odisha) does the legal framework include mandates for the establishment of basin-level institutions, and only Maharashtra and Uttar Pradesh set a legal requirement for the preparation of basin plans and the creation and maintenance of a registry of water users. Within the environmental sustainability topic, plant genetic resources aspects are managed at the national level, but some differences persist in soil health management; namely, only Odisha and Maharashtra have a specific mandate for the development of land use plans. Other areas, such as producer organizations, are regulated by both central and state-level governments.

The time and costs to comply with government regulations vary across the four states in some EBA topics. For example, registering a tractor costs 500 Rupees and takes seven days in Bihar, while it costs only 200 Rupees and takes two days on average in Uttar Pradesh. Also the cost of tractor roadworthiness inspection is higher in Bihar (300 Rupees) than in the other three states (200 Rupees). The cost to obtain a truck-level state permit in Maharashtra is slightly lower (18,300 Rupees) than in Bihar, Uttar Pradesh (both at 20,000 Rupees) or Odisha (23,000 Rupees). While regulations related to plant protection and export documents remain national, phytosanitary certificates are issued by local government offices. There are other specific state-level licenses and permits, such as those related to domestic agricultural markets and inter-state transport.

Figure 1.3 | Higher EBA scores are associated with better performance in other measures of regulatory quality



Sources: EBA database; *Worldwide Governance Indicators.*

Note: The correlation between the EBA17 distance-to-frontier (DTF) score and the rule of law score is 0.61. The correlation is significant at a 5% level after controlling for income per capita. The correlation between the EBA17 DTF score and the regulatory quality score is 0.69. The correlation is significant at a 1% level after controlling for income per capita. The EBA17 DTF score is the average of the DTF scores of the following topics: seed, fertilizer, machinery, finance, markets, transport, water and information and communication technology.

trade restrictions related to the export of agricultural products, the import of fertilizer and tractors, and cross-border transport rights.[18] Efficiency indicators measure the time and cost needed to comply with the processes measured by EBA.[19]

EBA indicators advocate for regulations that promote efficient regulatory processes that support agribusinesses while at the same time ensuring safety and quality control. The importance of the three cross-cutting EBA legal categories plus efficiency indicators has been clearly stated,[20] however, it is not clear whether they are entirely compatible with one another or if success in one may come at the expense of another. Data show that rules that facilitate entry and operations in the market are compatible with regulations that promote safety and quality control (table 1.3). These rules are complements rather than substitutes. And countries with higher scores on operations and quality control tend also to have more effective trade requirements.

There is also a high correlation between the three legal dimensions combined (operations, quality control and trade) and the efficiency of the processes captured (figure 1.4), showing that solid regulatory frameworks tend to be present in countries that also have efficient processes. However, there are exceptions, for example: Malawi has laws related to seed and fertilizer registration containing some key elements on the books, but it is the country where it is most expensive to register both new seed varieties and fertilizer products. In Sri Lanka, on the other hand, while regulatory procedures such as tractor registration and trucking licensing are efficient and affordable, the country's laws and regulations are not robust enough in some areas covered by EBA, as shown by the lack of legislation on agent banking activities or operation of warehouse receipts. Both the quality and the efficiency dimensions of business regulations, as captured by the EBA indicators, show significant correlations with countries' agricultural productivity. On average, agricultural productivity is higher

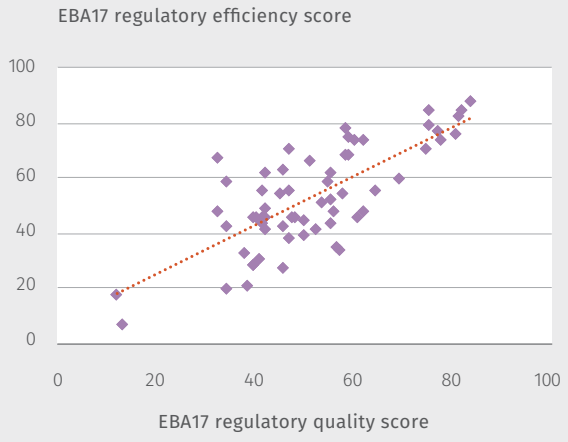
Table 1.3 | Correlation across EBA cross-cutting dimensions

	OPERATIONS	QUALITY CONTROL	TRADE
QUALITY CONTROL	0.86		
TRADE	0.63	0.67	
EFFICIENCY	0.68	0.70	0.46

Source: EBA database.

Note: All correlations are significant after controlling for income per capita.

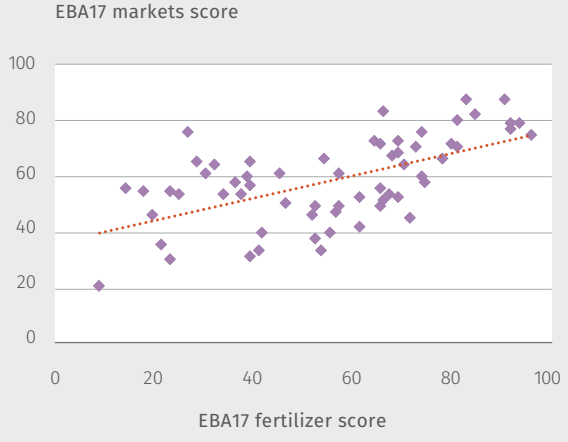
Figure 1.4 | EBA regulatory quality and efficiency go hand-in-hand



Source: EBA database.

Note: The correlation between EBA17 regulatory quality scores and EBA17 regulatory efficiency scores is 0.76. The correlation is significant at a 1% level after controlling for income per capita. The regulatory quality score captures the robustness of laws and regulations related to seed registration, fertilizer registration, tractor operation, testing and standards, and agricultural trade, as well as trucking licenses and cross-border transportation. The regulatory efficiency score measures the time and costs to complete the regulatory processes that correspond to the areas covered by the aforementioned regulatory quality score, including registering a new seed variety, registering a new chemical fertilizer product, registering a tractor, obtaining a tractor type approval, acquiring per-shipment agricultural export documents and obtaining domestic and cross-border trucking licenses.

Figure 1.5 | Countries with better regulations on markets also perform better in fertilizer



Source: EBA database.

Note: The correlation between the EBA17 markets score and the EBA17 fertilizer score is 0.60. The correlation is significant at a 1% level after controlling for income per capita.

when transaction costs are lower and countries adhere to a higher number of regulatory good practices.[21]

Each EBA indicator measures a different aspect of the agricultural regulatory environment. The DTF scores and associated rankings of a country can vary, sometimes significantly, across indicator sets. However, the correlation among any pair of EBA indicators is positive and ranges between 0.13 and 0.68. For example, solid and efficient rules on plant protection and trade in agricultural products are associated with better rules for importing and controlling the quality of essential agricultural inputs, such as fertilizer (figure 1.5). Reforms in different areas that EBA measures are complementary.

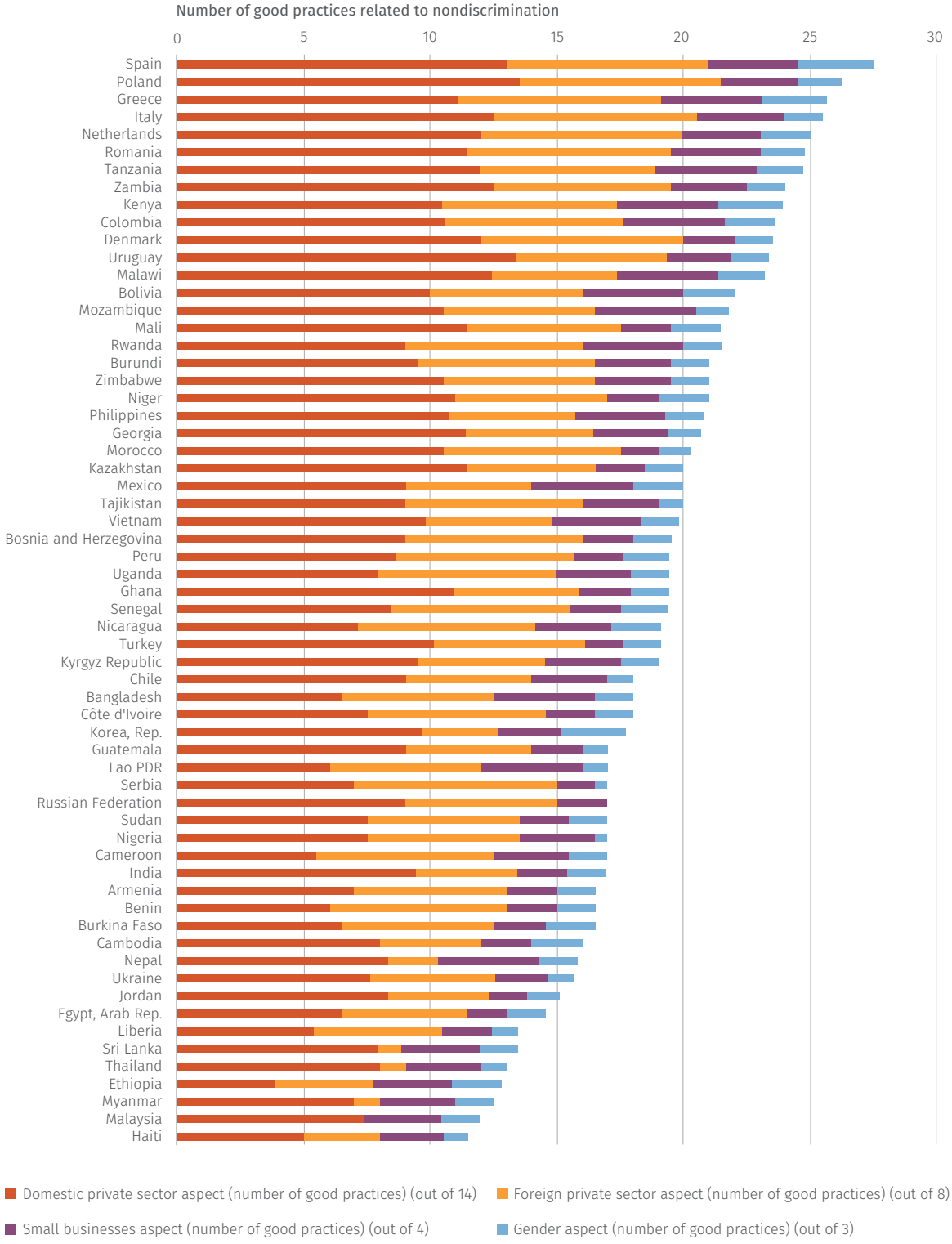
Nondiscriminatory measures

The design and implementation of nondiscriminatory and inclusive laws and regulations are key to encouraging competition, boosting investor confidence and facilitating agricultural investments in the long run.[22]

EBA data assess the existence of nondiscriminatory measures in agricultural laws and regulations that can assist domestic, foreign or small-scale private sector operators in doing business, as well as the ones that can promote women's participation in certain agricultural activities. Such measures include allowing the private sector to register fertilizer, granting plant breeders' rights or transport licenses based on the same rules for domestic and foreign applicants, establishing an affordable capital requirement to create a financial cooperative or creating a quota or mechanism to promote women's participation in leadership roles in producer organizations (see appendix C).

Spain has in place the highest number of the nondiscriminatory measures in agriculture (figure 1.6). Out of the 29 good practices that EBA covered, more than 27 are included in its agricultural laws and regulations, with only a few legal obstacles that prevent domestic or small-sized companies from engaging in operations in the agriculture sector. Sub-Saharan African countries including Tanzania and Zambia are also among the top performers in this area. For example, there is no minimum capital requirement to establish a producer organization in Tanzania, and Zambia grants transport, backhauling, triangular and transit rights to foreign transport companies. On the other hand, countries such as Haiti, Malaysia and Myanmar have greater potential for improvement. For example, in Malaysia, foreign companies are not yet allowed to obtain a trucking license, and in Haiti, non-bank businesses cannot issue e-money.

Figure 1.6 | Spain has the most nondiscriminatory agricultural laws and regulations, while Haiti has the greatest potential for improvement



Source: EBA database.

Access to information

Research suggests that easier access to regulatory information is associated with greater quality of business regulation and less corruption.[23] Farmers and agribusinesses, many of them located in remote rural areas, could potentially save significant time and cost if they had the possibility to comply with administrative processes electronically or access information such as registries and official fees online.

EBA measures good practices related to the accessibility of information in the agriculture sector. These practices range from the availability of catalogues, databases and fee schedules that can inform the private sector of regulatory processes and help them make business decisions, to the provision of e-services including online issuance of the phytosanitary certificate or electronic application for the renewal of transport licenses, as well as legal obligations to disclose information including the effective interest rate of loans issued by financial cooperatives (see appendix C).

OECD high-income countries on average have the highest number of good practices related to access to regulatory information (figure 1.7). In all eight countries, there is publicly available information such as water resource monitoring results, regulated quarantine pest lists and official fee schedules for seed certification. In other regions, however, greater effort is needed to make regulatory information more accessible to the public. For example, in Sub-Saharan Africa and the Middle East and North Africa, where 24 countries were studied, half of the countries' laws do not specify a method for calculating the water abstraction charge, and only Kenya and Mozambique currently have an online fertilizer catalogue.

Putting EBA data in context

EBA data are collected and analyzed following standardized case studies, and the same EBA indicators are presented for all 62 countries, aiming at ensuring comparability across countries and time. However, it is essential for policymakers to interpret EBA scores in conjunction with more detailed contextual information to better prioritize the policy areas in need of reform.

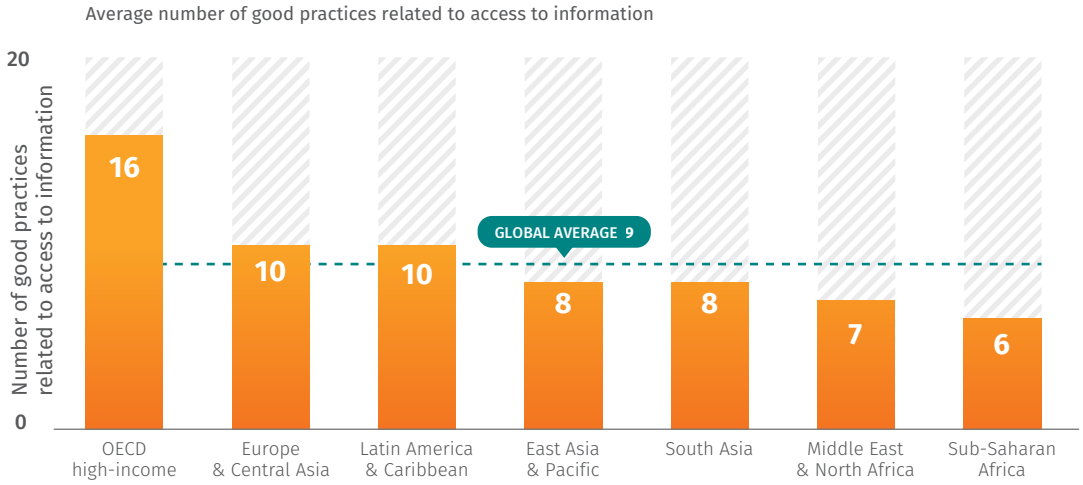
For example, among the potential contextual data available for water, the level of inter-annual water variability or the level of water stress could be important factors to consider when defining regulatory priorities on water resources management and permitting systems for irrigation water use, as measured by EBA. In certain cases, reform towards a more comprehensive legal framework could take on higher importance in countries with low EBA water scores and high inter-annual variability, such as Haiti, India and Jordan (upper-left quadrant of figure 1.8, in red), while it may not be the primary focus for countries with an already robust legal framework combined with smaller challenges related to inter-annual water resources variability, such as in Bosnia and Herzegovina, the Netherlands or Vietnam (lower-right quadrant of figure 1.8, in green).

EBA data also relate to the international context through the Sustainable Development Goals (SDGs), adopted by United Nations Member States to guide policies and regulations on the development agenda for the next 15 years. Agriculture connects all 17 SDGs and is at the core of SDG1 and SDG2, which call for ending extreme poverty and hunger. The link between EBA and the SDGs is twofold: on the one hand, the SDG targets were considered in the refinement of EBA's indicators; on the other hand, specific data points from EBA may serve as metrics for tracking countries' progress on SDG objectives (box 1.2).

Conclusion

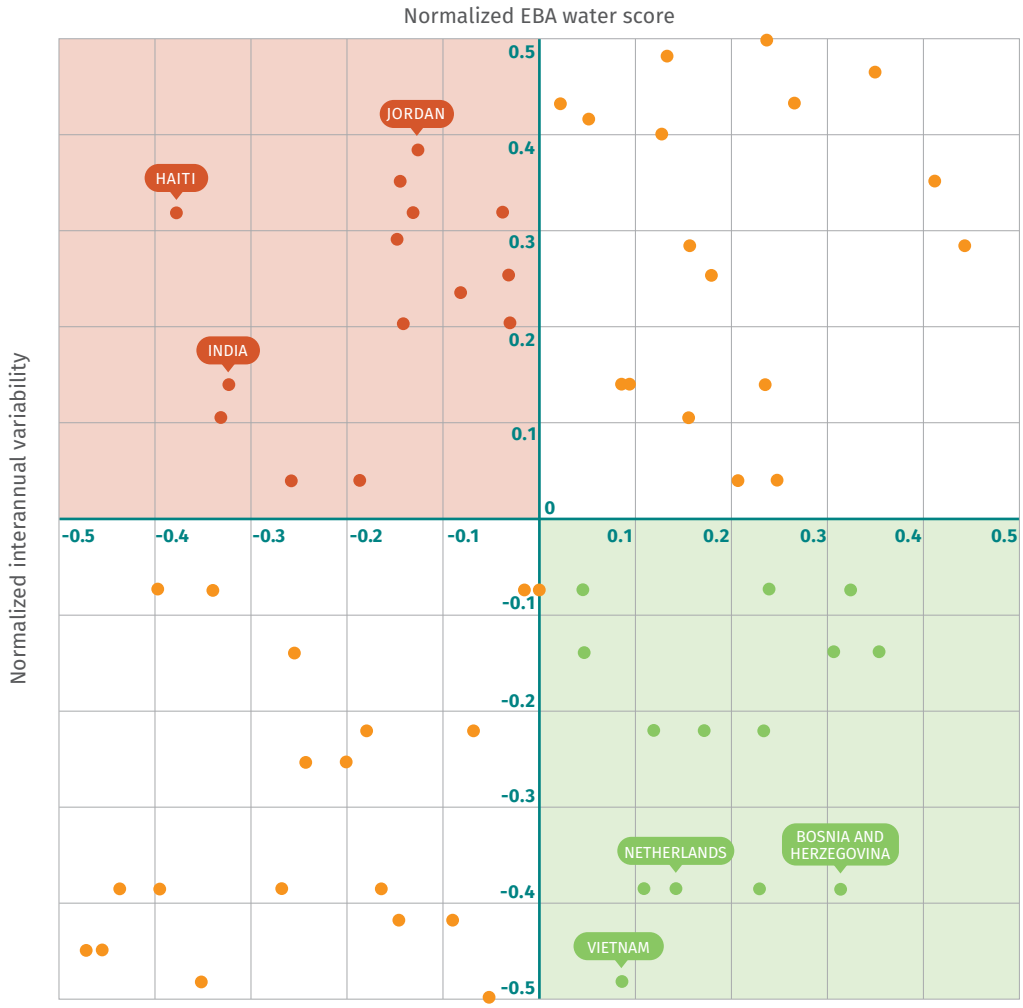
EBA's main objective is to measure and benchmark regulations that impact agribusiness globally. It can serve as a tool for countries to take stock of their current regulatory environment and promote change. Higher income and urbanized countries tend to have more agribusiness-friendly regulations, although there are numerous exceptions. Most countries have some good practices but EBA indicators also highlight areas that could be improved. A good way to start is through the introduction of regulations that promote quality control and nondiscrimination, efficient administrative procedures and access to information. EBA data demonstrate that all these objectives are compatible. The next chapters show how they can be achieved.

Figure 1.7 | OECD high-income countries on average have the most good practices related to access to regulatory information



Source: EBA database.

Figure 1.8 | Use of water variability data to inform regulatory priorities



Sources: EBA database; FAO *Aquastat/WRI 2016.*

Note: Interannual variability is an indicator of the variation in water supply between years, created by the World Resources Institute (WRI). It ranges from 0–5, where 0 is lowest and 5 is highest (most variable). For plotting, both interannual variability values and EBA water scores have been normalized to a scale between -0.5 and 0.5.

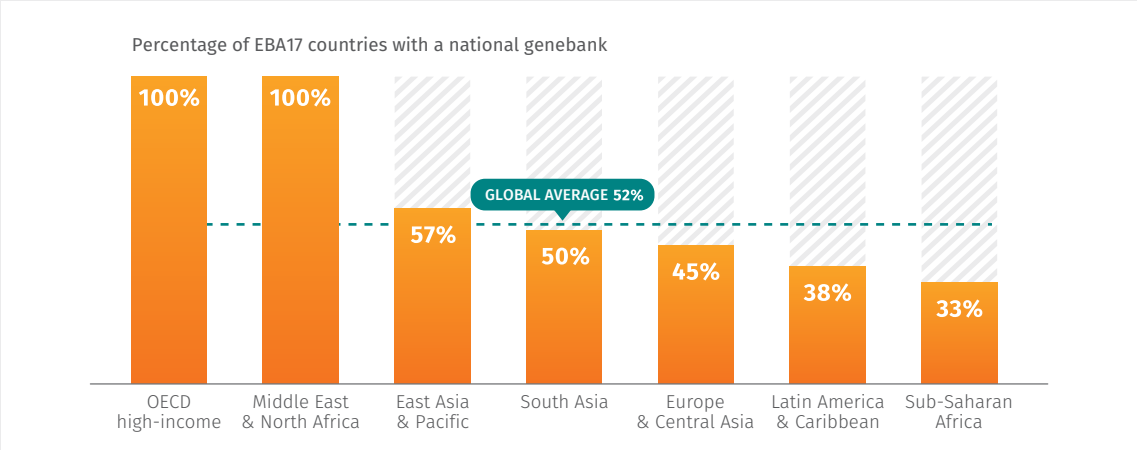
Box 1.2 | Sustainable Development Goals on EBA topics

EBA has links to a number of Sustainable Development Goals (SDGs), including Target 1.4 (Access to Basic Services), Target 2.5 (Genetic Diversity of Cultivated Plants), Target 6.3 (Improving Water Quality), Target 6.4 (Efficient and Sustainable Water Withdrawals), Target 6.5 (Integrated Water Resource Management), Target 9.3 (Enterprise Access to Financial Services) and Target 9c (Access to Information and Communications Technology), among others.

For example, SDG Target 2.5 calls to "maintain the genetic diversity of seeds, cultivated plants...and their related wild species, including through soundly managed and diversified seed and plant banks... and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources." EBA measures the existence of a national genebank or collection system for plant genetic resources, their data's availability online as well as the access by private companies to the germplasm preserved in the gene banks (figure 1.2.1).

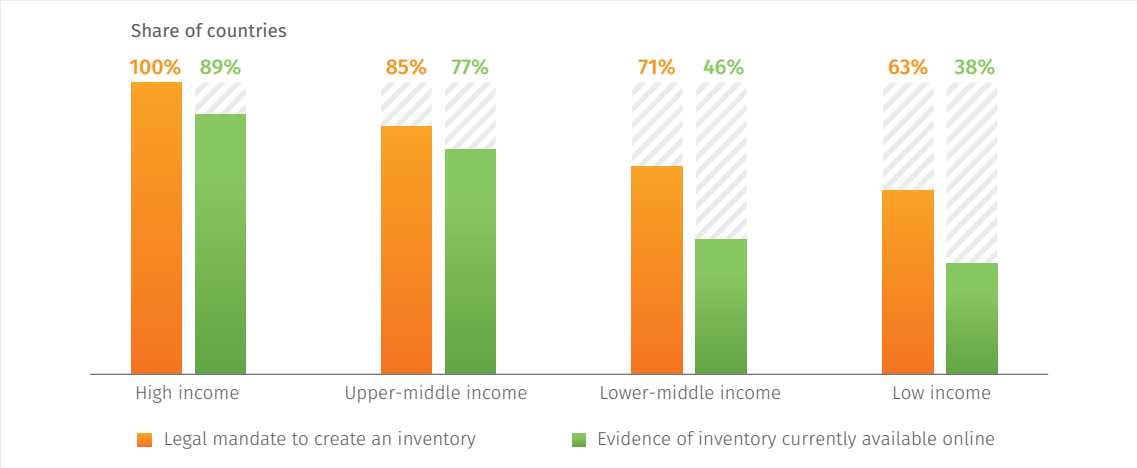
SDG Targets 6.4 and 6.5 call for efforts to "substantially increase water-use efficiency...and ensure sustainable withdrawals and supply of freshwater" as well as the implementation of "water resources management at all levels." EBA measures the regulation of water use permits, the legal requirements and establishment in practice of basin institutions, basin plans, water resource inventories and water user registries. However, a big gap remains between the legal mandate and the implementation in practice in many countries (figure 1.2.2).

Figure 1.2.1 | Wide regional variations observed in the establishment of national genebanks



Source: EBA database.

Figure 1.2.2 | Implementation gap in water information is higher in lower-income countries



Source: EBA database.

NOTES

1 World Bank 2015.

2 Schultz 1980.

3 FAO, IFAD and WFP 2015.

4 World Bank 2007.

5 World Bank 2015.

6 *Ibid.*

7 *Ibid.*

8 Some data points under these indicators refer to good practices related to the accessibility of information in the agriculture sector (see section on "access to information" in this overview).

9 Ethiopia, Guatemala, Morocco, Mozambique, Nepal, the Philippines, Rwanda, Spain, Uganda and Ukraine.

10 World Bank 2007.

11 Eifert 2009; Divanbeigi and Ramalho 2015.

12 Acemoglu, Johnson and Robinson 2005; Aghion and Durlauf 2009.

13 The correlation between the *EBA17* overall DTF score and income per capita is 0.65.

14 The correlation between *EBA17* DTF score and the *Doing Business*17 DTF score is 0.75. The correlation is significant at a 1% level after controlling for income per capita.

15 The rule of law indicator captures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence (http://info.worldbank.org/governance/wgi/index.aspx#doc).

16 The full list of EBA indicators under the operations category is as follows: plant breeding, variety registration, fertilizer registration, tractor operation, branchless banking, movable collateral, non-bank lending institutions, producer organizations, trucking licenses and operations, individual water use for irrigation and ICT.

17 The full list of EBA indicators under the quality control category is as follows: seed quality control, quality control of fertilizer, tractor testing and standards, plant protection and integrated water resource management.

18 The full list of EBA indicators under the trade category is as follows: importing and distributing fertilizer, tractor import, agricultural trade and cross-border transportation.

19 The full list of EBA indicators under the efficiency category is as follows: time and cost to register new seed varieties; time and cost to register a new fertilizer product; time and cost to obtain type approval; time and cost to register a tractor; documents, time and cost to export agricultural goods; time and cost to obtain trucking licenses; and time and cost to obtain cross-border licenses.

20 Ciccone and Papaioannou 2007; Klapper, Laeven and Raghuram 2006; Fisman and Sarria-Allende 2010.

21 Divanbeigi and Saliola 2016.

22 OECD 2014; United Nations 2013.

23 Geginat and Saltane 2016.

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