

# APPENDIX A

## METHODOLOGY

*Enabling the Business of Agriculture* measures regulations that can improve market access for producers, providing data and analysis that allow policymakers to compare their country's policies, regulations and market conditions with those of others. Data covers 40 countries in the following 11 areas: seed, fertilizer, machinery, finance, markets, transport, land, information and communication technology (ICT), water, livestock and environmental sustainability. Six of the topics were chosen for scoring and are presented below. The other 5 will go through further refinement and be scored next year.

The data for all sets of indicators presented are current as of March 31, 2015.

The report team welcomes feedback on the methodology. All the data and sources are publicly available at <http://eba.worldbank.org>.

### Legal indicators

Legal indicators emerge from a reading of the laws and regulations. In this case, the team identified good regulatory practices for each topic area. The individual questions are assigned numerical scores ranging from 0 to 1 (see topic notes below for details). For each indicator developed, the scores of individual questions are averaged and multiplied by 100, resulting in a final score ranging from 0 to 100. The scores of the different indicators within one topic are also averaged into a topic score (0-100).

Most of the *EBA* topics constitute an individual *per se* market; the key actors in those markets are governed by a set of rules that facilitate or hinder their business activities as they affect their market entry and operations both locally and internationally. At the same time, those key actors need to respect the necessary safety standards and quality control in a sector as sensitive as agriculture

established by the relevant laws and regulations. Topics cover the following cross-cutting categories.

- **Operations** measures the requirements for local companies to enter the market (such as the registration of seeds and fertilizer products, licensing of trucking companies or requirements to start a MFI) and develop their respective agribusiness activities (such as the rules governing operations of producers and farmers organizations, activities allowed for agent banking or freight allocation for transportation of agricultural products);
- **Quality control** focuses on regulations governing plant protection, safety standards for users of machinery or quality control for seeds and fertilizer products.
- **Trade** looks into the trade restrictions for exporting agricultural

products, as well as importing fertilizer and tractors (given the lack of production in many countries) and cross-border transport rights;

Similar to the topic scores, each country has also a score for each cross-cutting category, averaging their scores in the specific indicators belonging to that category (table A.1).

### Time and motion indicators

Time and motion data refer to the efficiency of 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. Time estimates often involve an element of judgment by respondents who routinely administer the relevant regulations or

### Country assumptions and characteristics

#### Region and income group

*Enabling the Business of Agriculture* uses the World Bank regional and income group classifications, available at <http://data.worldbank.org/about/country-and-lending-groups>. While the World Bank does not assign regional classifications to high-income countries, regional averages presented in figures and tables in the report include countries from all income groups. For the report, high-income OECD countries are assigned the "regional" classification as OECD high income.

#### Gross national income (GNI) per capita

*Enabling the Business of Agriculture 2016* uses 2014 income per capita as published in the World Bank's *World Development Indicators 2015*. Income is calculated using the *Atlas* method (current U.S. dollars). For cost indicators expressed as percentage of income per capita, 2014 gross national income (GNI) in U.S. dollars is used as the denominator.

**TABLE A.1 Legal indicators per topic and cross-cutting category**

	OPERATIONS	QUALITY CONTROL	TRADE	
<b>SEED</b>	Seed registration (0-100) Seed development and certification (0-100)			<b>SEED SCORE (0-100)</b>
<b>FERTILIZER</b>	Fertilizer registration (0-100)	Fertilizer quality control (0-100)	Fertilizer Import requirements (0-100)	<b>FERTILIZER SCORE (0-100)</b>
<b>MACHINERY</b>	Tractor dealer requirements (0-100)	Tractor standards and safety (0-100)	Tractor import requirements (0-100)	<b>MACHINERY SCORE (0-100)</b>
<b>FINANCE</b>	Microfinance institutions (0-100) Credit unions (0-100) Agent banking (0-100) E-money (0-100) Warehouse receipts (0-100)			<b>FINANCE SCORE (0-100)</b>
<b>MARKETS</b>	Production and sales (0-100)	Plant protection (0-100)		<b>MARKETS SCORE (0-100)</b>
<b>TRANSPORT</b>	Truck licenses (0-100)		Cross-border transportation (0-100)	<b>TRANSPORT SCORE (0-100)</b>
	<b>OPERATIONS SCORE (0-100)</b>	<b>QUALITY CONTROL SCORE (0-100)</b>	<b>TRADE SCORE (0-100)</b>	

undertake the relevant transactions. To construct the time estimates for a particular regulatory process, such as completing the requirements to import fertilizer, the process is broken down into clearly defined steps and procedures.

The time to complete these steps is verified with expert respondents—through conference calls, written correspondence and visits by the team—until there is convergence on a final answer. The specific rules followed by each topic

on defining procedures, time and cost estimates is described in the following pages. Time and motion indicators are presented and analyzed in the report, but are not assigned a particular score (table A.2). The reason is that some

**TABLE A.2 Time and motion indicators per topic and cross-cutting category**

	OPERATIONS	QUALITY CONTROL	TRADE
<b>SEED</b>	Seed registration: procedures, time and cost		
<b>FERTILIZER</b>	Fertilizer registration: procedures, time and cost		Fertilizer import requirements: cost of import permit and importer registration for importers of fertilizer
<b>MACHINERY</b>			Tractor import requirements: cost of import permit and importer registration for importers of tractors
<b>FINANCE</b>			
<b>MARKETS</b>	Agricultural exports: documents, time and cost (per shipment)		
<b>TRANSPORT</b>	Truck licenses: time, cost and validity of company licenses, truck permits and vehicle inspections		

processes follow good practices, such as the tests for evaluating and registering new seed varieties and the technical review by a variety release committee, while others may be redundant, such as an additional formal approval by a minister after the technical review. The

individual good practices have been singled out and scored under the legal indicators. Since the time for taking the tests depends not only on regulations but also on the country's cropping seasons, it would be unfair to penalize countries for their specific geographical conditions.

The methodology on time and motion indicators will be further developed next year.

The following assumptions and definitions were used to make the data comparable across countries.

# APPENDIX B

## TOPIC DATA NOTES

### Seed

EBA seed indicators seek to identify the obstacles affecting the timely introduction and production of high-quality seed from formal sources, by examining availability of initial seed classes, requirements for the evaluation and registration of new varieties and seed quality control requirements.

Two sets of indicators have been developed:

- Seed registration.
- Seed development and certification.

Seed indicators have four main types of respondents: (i) seed producers and companies, (ii) seed associations, (iii) relevant government authorities (such as a ministry of agriculture seed authority) and (iv) academia. In addition, local and international technical experts from donor-funded seed programs and non-governmental organizations were also consulted. Data were collected through interviews conducted during country visits directly with respondents as well as by email and teleconference calls from Washington, DC.

Responses from respondents were cross-checked by reading the applicable laws and regulations to the extent that these were available. Secondary research was also performed when necessary, such as the verification of information via recently published literature and online searches. In addition to the initial consultations with seed experts, the team received technical contributions on the methodology, data selection and the interpretation of the regulations from Joseph Cortes and Adelaida Harries. Lloyd Le Page also provided technical expertise on the indicator methodology.

To make the data comparable across countries, several assumptions about the

evaluation and registration process are made.

#### *Assumptions for evaluation and registration of new maize varieties*

The variety:

- Is a maize variety that has been developed by the private sector.
- Is being registered for the first time in the entire country.
- Has not been registered in any other country.
- In exceptional cases when maize varieties are not being developed by the private sector in the country, is an imported maize variety, which may have been previously registered elsewhere.

#### *Procedures*

A procedure is defined as any interaction of the seed company's owner, manager, or employees with external parties, including any relevant government agencies, lawyers, committees, public and private inspectors and technical experts. All procedures that are legally or in practice required for the seed company to register a new seed variety are counted. Procedures are consecutive but can be simultaneous, such as the tests that need to be performed to evaluate the new variety.

#### *Time*

Time is recorded in calendar days and captures the median duration necessary to complete each procedure. It is assumed that the minimum time required for each procedure is one day. Although procedures such as testing may take place simultaneously, they cannot start on the same day (that is, simultaneous procedures start on consecutive

days). A registration process is considered completed once the new variety has been released and commercial production can start. Any tests performed by the company prior to filling an application are not counted. It is assumed that the company's owners, managers or employees have had no prior contact with any of the officials.

In most countries, a new variety must pass standard tests in order to be released. Those tests are needed to evaluate the variety's distinctiveness, uniformity and stability (DUS tests) and its value for cultivation and use (VCU tests). The time required by law to perform these tests is often based on the number of cropping seasons required to test different aspects fully. This presents a methodological challenge in how the time is accounted and compared because countries can have one or two cropping seasons per calendar year depending on their geography. In addition, a cropping season in a country with one season per calendar year tends to last longer than one in a country with two seasons per year (estimated to 135 days in countries with one season and 182 days in countries with two seasons). So the time needed for the tests differs by climate.

The time for tests requiring a specified number of cropping seasons is measured in the following way:

Countries with two cropping seasons per calendar year (two testing seasons per year):

- If one season is required by law to perform the tests, 135 days are counted for the testing procedure.<sup>1</sup>
- If two seasons are required by law to perform the tests, 275 days are counted. This accounts for the 2 seasons of 135 days each and 5 days to account for the time needed

to plow and prepare the land before the next cropping season (135 + 5 + 135 days)

- If three seasons are required by law to perform the test, 500 days are counted. This accounts for a full calendar year including two seasons (365 days) and an additional testing season (135 days).

Countries with one cropping season per calendar year (one testing season per year):

- If one season is required by law to perform the tests, 182 days are counted for the testing procedure.<sup>2</sup>
- If two seasons are required by law by law to perform the tests, 547 days are counted. This accounts for the full calendar year including one season (365 days) and an additional testing season (182 days).
- If three seasons are required by law to perform the test, 912 days are counted. This accounts for two full calendar years including one season (365 + 365 days) and an additional testing season (182 days).

#### Costs

Only official costs are recorded, including fees and taxes. In the absence of fee schedules, a government officer's estimate is taken as an official source. In the absence of a government officer's estimate, estimates by seed companies are used. If several seed companies provide different estimates, the median reported value is applied. Professional fees (notaries, lawyers or accountants) are only included if the company is required to use such services. All costs are indicated in U.S. dollars and as a percentage of the country's income per capita.

#### Specific terms

*Basic/foundation seed* has been produced under the responsibility of the maintainer according to the generally accepted practices for the maintenance of the variety and is intended for the production of

certified seed. Basic or foundation seed must conform to the appropriate conditions in the regulations and the fulfillment of these conditions must be confirmed by an official examination.

*Breeder/pre-basic seed* is directly controlled by the originating or sponsor plant breeding institution, firm or individual, and is the source for the production of seed of certified classes.

*Distinctiveness, Uniformity and Stability (DUS) testing* is a test performed to compare candidate varieties for registration with varieties already listed in seed register on these qualities:

- *Distinctness* (UPOV definition): A variety shall be deemed distinct if it is clearly distinguishable in at least one character from any other variety whose existence is a matter of common knowledge at the time of filing the application for registration.
- *Uniformity* (UPOV definition): A variety shall be deemed to be uniform if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics.
- *Stability* (UPOV definition): A variety shall be deemed stable if its relevant characteristics remain unchanged after repeated propagation by the method that is normally used for the particular variety.

*Seed certification (OECD definition)* is the quality assurance process during which seed intended for domestic or international markets is controlled and inspected by official sources to guarantee consistent high quality for consumers. This process involves: (i) controlling the seed in previous generations, (ii) conducting field inspections during the multiplication process to ensure there is little contamination and that the variety is true to type, (iii) growing samples of the known seed in control plots to ensure that the progeny is conform to the characteristics of the variety and (iv) testing the seed quality in laboratories.

*UPOV* is the International Union for the Protection of New Varieties of Plants, an intergovernmental organization based in Geneva, Switzerland. Its mission is to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants for the benefit of society. To be a member, the law of a country must conform to the standards of the 1991 Act of the UPOV Convention. The country can also have an observer status after having officially expressed an interest in becoming a member of UPOV and participating in the sessions of the Council. To date, 71 countries have a member status and 57 countries, an observer status.

*Value for Cultivation and Use (VCU)* is a test performed to assess whether a variety has characteristics and properties that affect improvement in cultivation or in the utilization of the harvest or its products in comparison to the existing listed varieties.

*Variety (UPOV definition)* is a plant grouping within a single botanical taxon of the lowest known rank, which, irrespective of whether the conditions for the grant of a breeder's right are fully met, can be:

- Defined by the expression of the characteristics resulting from a given genotype or combination of genotypes.
- Distinguished from any other plant grouping by the expression of at least one of the said characteristics.
- Considered as a unit with regard to its suitability for being propagated unchanged.

*Variety catalog* is a list of varieties that have been registered and released by a national authority and can be produced and marketed in a country or region as certified seed.

*Variety release committee* is the committee that decides whether a new variety can be registered and introduced on the domestic market.

**TABLE B.1 Scoring methodology for seed**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
Seed registration (operations)	This indicator looks at the legally mandated processes and practices required to introduce a locally developed new maize variety into the domestic market	1. The law establishes a variety release committee (VRC) in the country	<b>A score of 1</b> if yes
		2. The composition of the legally mandated variety release committee includes the private sector	<b>A score of 1</b> if private and public sectors are equally represented (or if majority of private sector members)  <b>A score of 0.75</b> if private sector representation between $\frac{1}{2}$ and $\frac{3}{4}$  <b>A score of 0.5</b> if private sector representation between $\frac{1}{4}$ and $\frac{1}{8}$  <b>A score of 0.25</b> if private sector representation between $\frac{1}{8}$ and 0  <b>A score of 0</b> if no private sector representation or no variety release committee
		3. The variety release committee (VRC) meets regularly in practice	<b>A score of 1</b> if the VRC meets on demand, or at least twice a year in a country with 2 crop seasons or at least once a year in a country with 1 crop season  <b>A score of 0</b> if the VRC meets once a year in a country with 2 crop seasons or less than once a year in a country with 1 crop season, or if the VRC does not exist or meet at all
		4. A variety can be commercialized immediately after the recommendation of the VRC	<b>A score of 1</b> if yes.  <i>This question has double weight (<math>\frac{2}{8}</math>) with regard to the other questions of this indicator (<math>\frac{1}{8}</math>)</i>
		5. The country has a variety catalog listing new varieties and if it is available online	<b>A score of 1</b> if yes.  <b>A score of <math>\frac{1}{2}</math></b> if a variety catalog exists but it is not available online
		6. The catalog specifies agro-ecological zones suitable for plantation of each listed variety	<b>A score of 1</b> if yes
		7. The variety catalog is updated frequently	<b>A score of 1</b> if the catalog is updated twice or more a year if the country has 2 crop seasons, or if the catalog is updated once a year if there is one crop season  <b>A score of <math>\frac{1}{2}</math></b> if the catalog is updated once a year if the country has 2 crop seasons.  <b>A score of 0</b> if the catalog is updated less than once a year irrespective of the number of crop seasons
		8. Total procedures to evaluate and register a new variety	<b>Not scored</b>
		9. Total time to evaluate and register a new variety	
		10. Total cost to evaluate and register a new variety	

(continued)

**TABLE B.1 Scoring methodology for seed (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Seed development and certification (operations)</i>	This indicator measures the legal requirements for the production of initial seed classes and the certification of new varieties	1. The country currently implements regulation governing plant breeders' rights	<b>A score of 1</b> if yes
		2. Private enterprises are eligible to produce breeder/pre-basic seed of local public varieties for use in the domestic market	
		3. Private enterprises are eligible to produce foundation/basic seed of local public varieties for use in the domestic market	
		4. Private sector can access germplasm from the national gene bank	
		5. Materials for research and development of new varieties can be imported without further government field testing	
		6. There is an established system for licensing public varieties to private seed enterprises for production and sale in the domestic market	
		7. The regulations allow for a private institution or seed companies to be accredited to carry out the certification process	<b>A score of 1</b> if yes. For countries that do not allow this practice, this question is not counted when aggregating the indicator scores (bonus point)
		8. There is an official fee schedule established for seed certification activities carried out by the public sector	<b>A score of 1</b> if yes

## Fertilizer

EBA fertilizer indicators measure laws and regulations on the registration, import and quality assurance of fertilizer products. The indicators focus on areas that are important for companies who want to import and sell fertilizer in a country.

Three sets of indicators have been developed:

- Fertilizer registration.
- Fertilizer quality control.
- Fertilizer import requirements.

Fertilizer indicators have three main types of respondents: (i) fertilizer companies, (ii) relevant government authorities (for example, the ministry of agriculture) and (iii) agricultural input dealer associations. The questionnaire targets all three groups of respondents, whereby the time and motion component is typically answered by the private sector. Data were collected through interviews conducted during country visits directly with respondents and also by email and teleconference calls from Washington, DC.

To make the data comparable across countries, several assumptions about the fertilizer company and the fertilizer product are used, as detailed below:

### *Assumptions about the business and registered fertilizer*

The business:

- Is a fertilizer importer.
- Imports fertilizer to sell in the country.
- Has registered at least one new fertilizer product in the country.
- Does not operate in an export processing zone or an industrial

estate with special import or export privileges.

The destination port for importation of fertilizers is the most used port in the country. If the country is landlocked, it is assumed that the most used border posts are employed.

The fertilizer:

- Is a new chemical fertilizer product that has not previously been registered in the country.

### *Procedures*

A procedure is defined as any interaction of the company's owners, managers or employees with external parties, for example, government agencies, lawyers, auditors, notaries and customs or border authorities. It includes all procedures that are officially required for the business to legally perform its described activities, such as registering and importing fertilizer. Interactions among owners, managers and employees are not counted as procedures.

### *Time*

Time is recorded in calendar days and captures the median duration of each procedure. The time span for each procedure starts with the first filing of the application or demand and ends once the company has received the final document, such as the fertilizer registration certificate. It is assumed that the company's owners, managers or employees have had no prior contact with any of the officials.

### *Costs*

Only official costs required by law are recorded, including fees and taxes. If possible, the relevant fee schedule or calculation formula should be indicated (for example, as a percentage of the company's capital). Professional fees (notaries, lawyers or accountants) are

only included if the company is required to use such services. All costs are indicated in U.S. dollars and as a percentage of the country's income per capita.

### *Specific terms*

*Blend* is any combination or mixture of fertilizer products.

*Fertilizer form* is the form in which the fertilizer is presented, for example, liquid, granules, powder, spikes, tablets or pellets.

*Fertilizer product* is any product containing nitrogen, phosphorus, potassium, or any recognized plant nutrient element or compound that is used for its plant nutrient content.

*Fertilizer types* are as follows:

- NPK is composed of three main elements: Nitrogen (N), Phosphorus (P) and Potassium (K), each of these being essential in plant nutrition.
- Urea is a form of nitrogen fertilizer with an NPK (nitrogen-phosphorus-potassium) ratio of 46-0-0.
- DAP, diammonium phosphate, is the world's most widely used phosphorus (P) fertilizer.
- MAP (Monoammonium phosphate).
- MOP, Muriate of Potash, is the most common form of potash.
- Potash or fertilizer potassium (K), sometimes called "potash."
- Ammonium Nitrate is a salt of ammonia and nitric acid that is widely used in fertilizers. The substance can be used in explosive compounds, which is why many countries have imposed specific regulations for its transport, storage and handling.

**TABLE B.2 Scoring methodology for fertilizer**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Fertilizer registration (operations)</i>	As many countries require fertilizer to be registered before they can be sold commercially, this indicator measures required procedures for fertilizer registration	1. The private sector is required to register fertilizer	<b>A score of 1</b> if yes
		1a. The registration is not limited to a specific time period or re-application is not needed	<b>A score of 1</b> if yes
		1b. If registration is limited to a specific time period, the following scores are assigned	<b>A score of 0.75</b> if equal to or greater than 10 years <b>A score of 0.5</b> if greater than or equal to 5 years, and less than 10 years <b>A score of 0.25</b> if greater than or equal to 2 years and less than 5 years <b>A score of 0</b> if less than 2 years
		1c. The renovation of application is automatic	<b>A score of 1</b> if yes, or if the renovation is not required
		2. There is an official fertilizer catalogue listing all registered fertilizer	<b>A score of 1</b> if yes
		3. The catalogue is accessible online	<b>A score of 1</b> if yes
		4. Total number of procedures legally required to register a new fertilizer product	<b>Not scored</b>
		5. Total time to register a new fertilizer product	<b>Not scored</b>
6. Total cost to register a new fertilizer product	<b>Not scored</b>		

(continued)

**TABLE B.2 Scoring methodology for fertilizer (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Fertilizer quality control (quality control)</i>	This indicator focuses on labeling requirements, legislation on the sale of mislabeled and open fertilizer containers, and practices in monitoring fertilizer quality	1. The fertilizer law requires labeling of fertilizer containers (bags, bottles)	<b>A score of 1</b> if yes
		1a. The following scores are assigned with regard to the label content	<b>A score of 1/3</b> is assigned to each of the following elements: <ul style="list-style-type: none"> <li>▪ Brand name</li> <li>▪ Net weight or volume</li> <li>▪ Content description</li> </ul>
		2. The fertilizer law prohibits the sale of mislabeled fertilizer bags	<b>A score of 1</b> if yes
		2a. The fertilizer law establishes a penalty for the sale of mislabeled fertilizer	<b>A score of 1</b> if yes
		3. The fertilizer law prohibits the sale of opened fertilizer containers/bags	<b>A score of 1</b> if yes
		3a. The fertilizer law establishes a penalty for the sale of opened fertilizer containers/bags	<b>A score of 1</b> if yes

*(continued)*

TABLE B.2 Scoring methodology for fertilizer (continued)

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Fertilizer import requirements (trade)</i>	As fertilizer production is concentrated in only a few countries, requiring most others to rely on imports, this indicator focuses on the private sector's role and the requirements for importing fertilizer	1. A fertilizer product that has previously been registered in another country does not need to be re-registered in the country	<b>A score of 1</b> if yes
		2. The private sector is allowed to import fertilizer in the country for its own use	<b>A score of 1</b> if yes
		3. The private sector is allowed to import fertilizer in the country in order to sell it	<b>A score of 1</b> if yes
		4. Foreign firms are allowed to import fertilizer in order to sell it	<b>A score of 1</b> if yes
		5. The private sector is required to register as an importer of fertilizer in order to sell it. The registration is not limited to a specific time period	<b>A score of 1</b> if yes
		5a. If registration is limited to a specific time period, the following scores are assigned.	<b>A score of 0.75</b> if equal to or greater than 10 years <b>A score of 0.5</b> if greater than or equal to 5 years and less than 10 years <b>A score of 0.25</b> if greater than or equal to 2 years and less than 5 years <b>A score of 0</b> if less than 2 years or the importer registration is not required
		5b. Cost of the registration	<b>Not scored</b>
		6. The private sector is required to obtain an import permit to import fertilizer	<b>A score of 1</b> if no
		6a. If import permit is required, the following scores are assigned	<b>A score of 0.8</b> if permit is not limited to a specific time period <b>A score of 0.6</b> if valid for 12 months or longer <b>A score of 0.4</b> if valid for 6 months or longer and less than 12 months <b>A score of 0.2</b> if valid for longer than 1 month and less than 6 months <b>A score of 0</b> if valid for 1 month or less
		6b. Cost of the import permit	<b>Not scored</b>

## Machinery

EBA machinery indicators measure obstacles facing tractor dealers wishing to import tractors for sale. Besides meeting the requirements for import and registration, the indicators also measure the regulations for standards and safety.

Three sets of indicators have been developed:

- Tractor dealer requirements.
- Tractor standards and safety.
- Tractor import requirements.

Machinery indicators have four main types of respondents: (i) agricultural machinery manufacturers, (ii) importers, (iii) machinery dealers and (iv) relevant government authorities (such as the ministry of agriculture). Data were collected through interviews conducted during country visits directly with respondents and also by email and teleconference calls from Washington, DC.

To make the data comparable across countries, several assumptions about the

machinery company and the machinery product are used, as detailed below:

### *Assumptions about the business and the agricultural tractor*

The business:

- Is an importer or dealer of agricultural tractors.
- Does not operate in an export processing zone or an industrial estate with special import or export privileges.

The destination port for importation of tractors is the most used port in the country. If the country is landlocked, it is assumed that the most used border posts are employed.

The tractor:

- Is a new or second-hand two-axle/ four-wheel drive (4WD) tractor.

Costs

Only official costs required by law are recorded, including fees and taxes. If

possible, the relevant fee schedule or calculation formula should be indicated (for example, as a percentage of the company's capital). In cases where no official costs are in place, the median of the responses from respondents is computed. Professional fees (notaries, lawyers or accountants) are only included if the company is required to use such services. All costs are indicated in U.S. dollars and as a percentage of the country's income per capita.

### *Specific terms*

*Agricultural tractor* means a two- or four-wheel drive type vehicle or track vehicle of more than 20 engine horsepower, designed to furnish the power to pull, carry, propel or drive implements that are designed for agriculture. All self-propelled implements are excluded.

*Roll-over protection structures (ROPS)* are attached to the tractor frame and come as either two post fixed or foldable, four post, or as an integral part of a ROPS cab. They generally will limit a side overturn to ninety degrees (90°) and will provide an important safety zone for the operator provided the operator is wearing the seat belt.

TABLE B.3 Scoring methodology for machinery

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Tractor dealer requirements (operations)</i>	This indicator measures legal requirements with regard to suitability testing of agricultural tractors, specific licensing required to operate a tractor, as well as warranties and post-sale services that must be provided at the retail level	102. Requirement to obtain proof of suitability for the import of new agricultural tractors and associated cost.	<p><b>A score of 1</b> if proof of suitability is required and the cost is below 10% of GNI per capita</p> <p><b>A score of 0.75</b> if proof of suitability is required and the cost is equal to or greater than 10% and less than 25% of GNI per capita</p> <p><b>A score of 0.5</b> if proof of suitability is required and the cost is equal to or greater than 25% of GNI per capita and less than 50% of GNI per capita</p> <p><b>A score of 0.25</b> if equal to or greater than 50% of GNI per capita</p> <p><b>A score of 0</b> if proof of suitability is not required</p>
		103. Requirement to register the tractor once the machine is imported and associated cost	<p><b>A score of 1</b> if registration is required and has no cost, or the cost is lower than 2% of GNI per capita</p> <p><b>A score of 0.75</b> if registration is required and the cost is equal to or greater than 2% of GNI per capita and lower than 5% of GNI per capita</p> <p><b>A score of 0.5</b> if registration is required and the cost is equal to or greater than 5% of GNI per capita and lower than 10% of GNI per capita</p> <p><b>A score of 0.25</b> if registration is required and the cost is equal to or greater than 10% of GNI per capita</p> <p><b>A score of 0</b> if registration is not required</p>
		104. Requirement of a special operator's license in order to operate an agricultural tractor	<b>A score of 1</b> if yes
		105. Requirement that producers and sellers of agricultural tractors are responsible for providing post-sale services. The following scores are assigned with regard to the provision of post-sale services	<p><b>A score of 0.2</b> is assigned to each of the following post-sale services</p> <ul style="list-style-type: none"> <li>▪ Repair of tractors</li> <li>▪ Replace or return poor quality tractors</li> <li>▪ Supply of spare parts</li> <li>▪ Train users on the use of tractors</li> <li>▪ Train users on maintenance of tractors</li> </ul>

(continued)

**TABLE B.3 Scoring methodology for machinery (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Tractor standards and safety (quality control)</i>	These indicators look at legal requirements with regard to operational safety and performance standards of tractors. A score of 1 is assigned for each of the following 6 data points	106. Requirement that tractors must be equipped with a fixed roll-over protective structure (ROPS)	<b>A score of 1</b> if yes
		107. Exemption from this requirement if the owner provides proof by the tractor manufacturer that the tractor was not designed to be fitted with a ROPS	<b>A score of 1</b> if yes
		108. Requirement that tractors must be equipped with a seatbelt. The following scores are assigned	<b>A score of 1</b> if ROPS and seatbelts are required <b>A score of 2/3</b> if ROPS are required and seatbelts are not required <b>A score of 1/3</b> if neither ROPS nor seatbelts are required <b>A score of 0</b> if ROPS are not required and seatbelts are required
		109. Establishment of sanctions for owners of agricultural tractors that fail to comply with safety standards	<b>A score of 1/3</b> is assigned to each of the following <ul style="list-style-type: none"> <li>▪ Establishment of sanctions for lack of seatbelts</li> <li>▪ Establishment of sanctions for lack of ROPS</li> <li>▪ Establishment of sanctions for not being in possession of an operator's license</li> </ul>
		110. Requirement that manufacturers and sellers of agricultural tractors comply with national quality and performance standards	<b>A score of 1</b> if yes
		111. Requirement that tractor standards must be in accordance with international standards (e.g. International Organization for Standardization, ISO)	<b>A bonus point is assigned to those countries that have this requirement</b>

*(continued)*

TABLE B.3 Scoring methodology for machinery (continued)

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Tractor import requirements (trade)</i>	These indicators look at aspects of importing agricultural tractors and harvesters, including the private machinery sector's role and the required procedures to import	112. The private sector is allowed to import new agricultural tractors	<b>A score of 1</b> if yes
		113. The private sector is allowed to import second-hand agricultural tractors	<b>A score of 1</b> if yes
		114. The private sector is allowed to import spare parts for agricultural tractors	<b>A score of 1</b> if yes
		115. Requirement for pre-shipment inspections of new agricultural tractor	<b>A score of 1</b> if yes
		116. The private sector is required to register as an importer of agricultural tractors. The registration is not limited to a specific time period	<b>A score of 1</b> if yes
		117. If registration is limited to a specific time period, the following scores are assigned	<b>A score of 0.75</b> if equal to or greater than 10 years <b>A score of 0.5</b> if equal to or greater than 5 years and less than 10 years <b>A score of 0.25</b> if equal to or greater than 2 years and less than 5 years <b>A score of 0</b> if less than 2 years, or registration is not required
		118. Cost of the registration	<b>Not scored</b>
		119. The private sector is not required to obtain an import permit to import agricultural tractors	<b>A score of 1</b> if yes
		120. If import permit is required, the following scores are assigned	<b>A score of 0.8</b> if permit is not limited to a specific time period <b>A score of 0.6</b> if permit is valid for 12 months or longer <b>A score of 0.4</b> if permit is valid for 6 months or longer and less than 12 months <b>A score of 0.2</b> if permit is valid longer than 1 month and less than 6 months <b>A score of 0</b> if permit is valid for 1 month or less
		121. Cost of the import permit	<b>Not scored</b>

## Finance

EBA finance indicators measure laws and regulations that promote access to a range of financial services, with focus on areas that are relevant for potential customers that are partially or fully excluded from traditional financial services due to factors such as their geographical location or available type of collateral.

Five sets of indicators have been developed:

- Microfinance institutions (MFIs).
- Credit unions.
- Agent banking.
- Electronic money (e-money).
- Warehouse receipts.

Finance indicators have three main types of respondents: financial sector supervisory authorities, financial lawyers and legal officers of financial institutions. Data collection includes interviews conducted during country visits directly with respondents, followed by rounds of follow-up communication via email and conference calls with respondents as well as with third parties. Data are also verified through analyses of laws and regulations, including review of public sources of information on banking law, warehouse receipt law, financial institutions law and others.

### *Assumptions about the financial institutions*

**Microfinance institutions (MFIs):** MFIs are financial institutions that specialize in the provision of small-volume financial services (such as credit, deposits and loans) to low-income clients. MFIs can take deposits, lend and provide other financial services to the public and are licensed to operate and supervised by a public authority.

**Credit unions:** Credit unions are member-owned, not-for-profit financial cooperatives that provide savings, credit and other financial services to their members. There are typically two types of financial cooperatives: (i) small financial cooperatives that provide services only to their members and are typically supervised by either the central bank, the department of cooperatives, or the ministry of finance—they are referred to as savings and credit cooperatives (SACCOs) in some countries, and (ii) cooperative banks that take deposits from and lend to the public and are regulated under the main financial institution laws and supervised by the central bank. The credit union indicator measures small financial cooperatives to be consistent with the topic's emphasis on small-scale lending and financial inclusion.

### *Specific terms*

*Agent banking* is the delivery of financial services through partnership with a retail agent (or correspondent) in order to extend financial services to locations where bank branches would be uneconomical.

*Capital adequacy ratio* is a measure of a bank's total capital expressed as a percentage of its risk-weighted assets.

*Credit unions* are member-owned, not-for-profit financial cooperatives that provide savings, credit and other financial services to their members.

*Effective interest rate* is the annual interest rate plus all fees associated with the administration of the loan to the client. It is a symbol of the total cost of the loan to the client. Proxies for the effective interest rate are the annual percentage rate or the amortization table/schedule for the loan.

*E-money* refers to money that is stored and exchanged through an electronic device and not associated with a deposit account at any financial institution.

Examples include electronic funds transfers and payments processed through mobile phones or prepaid cards.

*Microfinance institutions (MFIs)* are financial institutions specializing in the provision of small-volume financial services (credit, deposits, loans) to low-income clients, which can take deposits, lend and provide other financial services to the public and are licensed to operate and supervised by a public authority.

*Negotiable receipts* allow a transfer of ownership without having to physically deliver the commodity.

*Non-bank businesses* are those that do not hold a banking license, including telecoms, post offices or other businesses licensed by the central bank or financial supervisory authority to issue e-money.

*Provisioning rules* determine how much money banks must set aside as an allowance for bad loans in their portfolios. The share of a loan that must be covered by provisioning can either be the full loan amount or the part that is not secured by collateral (unsecured share).

*Ratios to ensure financial stability* can include liquidity ratio, capital adequacy ratio, solvency ratio, credit to deposit ratio, assets to liabilities ratio, stable funding ratio, net loan receivables to total assets and others. Countries address the issue of stability of credit unions using different criteria, therefore all the ratios above can be included in this measure.

*Warehouse receipts* are documents issued by warehouse operators as evidence that specified commodities are of stated quantity and quality, deposited or stored at particular locations by named depositors and owned by the beneficiary of the receipt issued. Where supported by an appropriate legal framework, warehouse receipts can serve as a form of collateral to obtain a loan from financial institutions and facilitate future sales.

TABLE B.4 Scoring methodology for finance

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Microfinance institutions (operations)</i> <sup>3</sup>	This indicator measures the regulations for deposit-taking MFIs	<ol style="list-style-type: none"> <li>1. The economy allows and regulates deposit-taking MFIs</li> <li>2. The regulated minimum capital adequacy ratio for MFIs is at least equal to, or no more than 2 percentage points higher, than the capital adequacy ratio for commercial banks</li> <li>3. Loan sizes of MFIs are not limited to a specific amount or are greater than 10 times the GNI per capita if there is a specific amount<sup>4</sup></li> <li>4. The law requires MFIs to disclose the effective interest rate or a proxy to loan applicants</li> <li>5. MFIs are required to fully provision a delinquent unsecured loan after the same number of days required for commercial banks, or within half the number of days required for commercial banks</li> <li>6. The law requires MFIs to subscribe to a deposit insurance system</li> </ol>	<b>A score of 1</b> if yes
		<ol style="list-style-type: none"> <li>7. Minimum capital required to establish an MFI. Scores are divided into four groups (1, <math>\frac{2}{3}</math>, <math>\frac{1}{3}</math> and 0) based on each country's minimum mandatory capital requirement as a multiple of GNI per capita. Threshold values are determined based on distribution</li> </ol>	<p><b>A score of 1</b> if the mandatory capital requirement is greater than 0 but less than 201 times the GNI per capita of the country</p> <p><b>A score of <math>\frac{2}{3}</math></b> (0.66) if the mandatory capital requirement is equal to or greater than 201 times, but less than 501 times the GNI per capita</p> <p><b>A score is <math>\frac{1}{3}</math></b> (0.33) if the minimum mandatory capital requirement is equal to or greater than 501 times the GNI per capita, but less than 1001 times the GNI per capita</p> <p><b>A score of 0</b> if the minimum mandatory capital requirement is equal to or greater than 1001 times the GNI per capita of the country or if there is no provisions on minimum capital requirement</p>

(continued)

**TABLE B.4 Scoring methodology for finance (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Credit unions (operations)</i>	This indicator measures the regulations for credit unions	<ol style="list-style-type: none"> <li>1. The economy has a law regulating credit unions, or there is a specific section of a general cooperatives law that regulates the governance and operation of credit unions</li> <li>2. 30 or fewer members are required to establish a credit union</li> <li>3. The law defines ratios to ensure financial stability of credit unions</li> <li>4. The law requires credit unions to disclose the effective interest rate or a proxy to loan applicants</li> </ol>	<b>A score of 1</b> if yes for each question
		<ol style="list-style-type: none"> <li>5. Minimum capital required to establish a credit union. The scores are divided into four groups (1, <math>\frac{2}{3}</math>, <math>\frac{1}{3}</math> and 0) based on each country's minimum mandatory capital requirement as a multiple of GNI per capita. Threshold values are determined based on distribution</li> </ol>	<p><b>A score of 1</b> if the mandatory capital requirement is greater than 0 but less than 11 times the GNI per capita of the country</p> <p><b>A score of <math>\frac{2}{3}</math></b> if the mandatory capital requirement is equal to or greater than 11 times, but less than 51 times the GNI per capita</p> <p><b>A score of <math>\frac{1}{3}</math></b> if the minimum mandatory capital requirement is equal to or greater than 51 times the GNI per capita, but less than 101 times the GNI per capita</p> <p><b>A score is 0</b> if the minimum mandatory capital requirement is equal to or greater than 101 times the GNI per capita of the country or if there is no provisions on minimum capital requirement</p>

*(continued)*

**TABLE B.4 Scoring methodology for finance (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Agent banking (operations)</i> <sup>5</sup>	This indicator measures the entry and operational requirements for agent banking	1. There exists a legal framework to regulate agent banking activities	<b>A score of 1</b> if yes
		2. Whether there are minimum standards in order to qualify and operate as an agent in the following areas: 1) has to be an operating/ established business, 2) has to have positive financial records, 3) has to have real-time connectivity to a commercial bank. Each standard is weighted equally with a score of $\frac{1}{3}$	<b>A score of <math>\frac{1}{3}</math></b> for each standard <b>For example: A score of 1</b> if the law states all three of the minimum standards as requirements to qualify and operate as an agent. If the law states only two out of three of the minimum standards, the score is $\frac{2}{3}$
		3. Type of contracts that agents can enter with financial institutions	<b>A score of 1</b> is assigned if agents are allowed to enter both exclusive and nonexclusive contracts <b>A score of <math>\frac{1}{2}</math></b> is assigned if only nonexclusive contracts are allowed <b>A score of 0</b> is assigned if only exclusive contracts are allowed
		4. The types of services agents can offer on behalf of a bank. This data point looks at 7 services: cash deposits, cash withdrawals, transfer of funds to other customers' accounts, bill payments, balance inquiry, opening a deposit account and collection/processing of loan application documents. Each of the above services is equally weighted and worth $\frac{1}{7}$ of a point	<b>A score of <math>\frac{1}{7}</math></b> for each service
		5. Whether commercial banks are liable for the acts of commission and omission of agents providing financial services on their behalf	<b>A score of 1</b> if the legislation states that commercial banks are liable <b>A score of 0</b> if they are not liable

(continued)

**TABLE B.4 Scoring methodology for finance (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Electronic money (e-money) (operations)</i>	This indicator measures the legal framework for e-money, in particular the entry and operational requirements for non-bank e-money issuers	1. E-money is allowed	<b>A score of 1</b> if yes for each question
		2. Non-bank businesses are allowed to issue e-money	
		3. Non-bank e-money issuers are required to keep a minimum of liquid assets to safeguard customer funds	
		4. The requirements for non-bank businesses to receive a license to issue e-money. The four requirements are: <ul style="list-style-type: none"> <li>an initial capital requirement; for the initial capital requirement, countries are divided into four groups (1, <math>\frac{2}{3}</math>, <math>\frac{1}{3}</math>, 0) based on the country's capital requirement as a multiple of its GNI per capita</li> </ul>	<b>A score of "1 + <math>\frac{1}{4}</math>"</b> if the capital requirement is less than 101 times the GNI per capita but greater than 0 <b>A score of "<math>\frac{2}{3}</math> + <math>\frac{1}{4}</math>"</b> if the minimum capital is equal to or greater than 101 times the GNI per capita but less than 501 <b>A score of "<math>\frac{1}{3}</math> + <math>\frac{1}{4}</math>"</b> if the minimum capital is equal to or greater than 501 times the GNI per capita but less than 901 <b>A score of 0</b> if the minimum capital requirement is equal to or greater than 901 times the GNI per capita or if there is no provisions on minimum capital requirement
	<ul style="list-style-type: none"> <li>interoperability with other existing electronic money payment/transfer systems</li> <li>existence of internal control mechanisms to comply with Anti-Money Laundering and Combatting Financing of Terrorism (AML/CFT) laws, standards and measures</li> <li>consumer protection measures such as consumer recourse mechanisms, consumer awareness programs, etc.</li> </ul> <p>Each of the above services is equally weighted with a score of <math>\frac{1}{4}</math>.</p>	<b>A score of <math>\frac{1}{4}</math> if the law states the requirement and 0</b> if it does not	

(continued)

**TABLE B.4 Scoring methodology for finance (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Warehouse receipts (operations)</i>	This indicator measures the regulations facilitating the use of agricultural commodities as collateral	<ol style="list-style-type: none"> <li>1. The economy has a law regulating the operation of warehouse receipts, or the regulation of warehouse receipts is included in other general legislation</li> <li>2. Warehouse operators are required to file a bond with the regulator or pay into an indemnity fund to secure performance by him of his obligations as a warehouse operator</li> <li>3. Warehouse operators are required to insure the warehouse or the stored goods against fire, earthquakes, theft, burglary or other damage</li> <li>4. Warehouse receipts are negotiable</li> </ol>	<b>A score of 1</b> if yes for each question
		<ol style="list-style-type: none"> <li>5. Types of warehouse receipts that are legally valid: paper-based, electronic or both</li> </ol>	<p><b>A score of 1</b> is assigned if the law allows both paper-based and electronic warehouse receipts and if electronic warehouse receipts are explicitly mentioned in the regulation</p> <p><b>A score of ½</b> is assigned if the law allows only paper-based receipts</p> <p><b>A score of 0</b> is assigned if warehouse receipt is not recognized or used</p>
		<ol style="list-style-type: none"> <li>6. Information that must be listed on a warehouse receipt for it to be valid. There are 4 details measured: location of storage, amount in storage, description of goods (type, quality and harvest) and information on security interest over the goods (certificate of pledge)</li> </ol>	<p><b>Each piece of information counts for ¼ of a point</b></p> <p><b>For example, a score of 1</b> is assigned if all 4 pieces of information are required to be listed on the receipt for it to be legally valid</p> <p><b>A score of ¾</b> is assigned if only 3 above the pieces of information are required to be listed on the receipt, and so on</p>

## Markets

EBA markets indicators measure obstacles faced by agribusinesses in the production and marketing of agricultural products and when accessing foreign markets. Phytosanitary regulations that favor agricultural trade through the promotion of plant and crop health are also assessed.

Three sets of indicators have been developed:

- Plant protection.
- Production and sales.
- Agricultural exports.

Markets indicators have six main types of respondents: (i) government agencies (responsible for trade, customs, plant protection and cash crops), (ii) private producers, processors and exporters of agricultural products (both domestic and multinational companies) and related trade/export associations, (iii) farmers' organizations, including unions, federations, cooperatives and other similar entities, (iv) chambers of commerce, (v) lawyers and (vi) freight forwarders and customs brokers. Data were collected from these respondents using four different surveys: two for the public sector and two for the private sector. Data were collected through interviews conducted during country visits directly with respondents and also by email and teleconference calls from Washington, DC.

To render data on production and sales as well as agricultural export more comparable across countries, several assumptions about the business, the agricultural products and the trading partner are used, as detailed below:

### *Assumptions about the contracted product*

The contracted product is defined as the most produced non-processed non-cereal product in terms of gross production value (current million U.S. dollars). All data are sourced from FAOSTAT, using the production data of 2012 (the latest available year). Cereal crops are excluded from the analysis because they are less suitable for agricultural production contracts due to high risks of side-selling in well-developed local or export markets,

the reduced need for technical assistance to meet market specifications and reduced price differentials at each point in the supply chain.

### *Assumptions about the business*

The business:

- Performs general agricultural trading activities.
- Does not operate in a special export processing zone.

### *Assumptions about the export product and trading partner*

The export products are defined and grouped as cash crops, cereals, fruits and vegetables according to the Harmonized Commodity Description and Coding System 1996 version (HS 96). All data are sourced from the UN Comtrade Database, using the export data from 2009–13. For each country, the combination of the product and the partner country that represents the highest five-year average export value (in U.S. dollars) is selected. For example, cereal export to Zimbabwe is selected for Zambia. In addition, for countries where cash crops are selected as the export product, the HS 4-digit product within the category that is exported the most to the partner country is used for studying the legal and regulatory requirements. For example, coffee export to the United States is selected for Colombia since coffee is the top product in the cash crop category and the United States is Colombia's main trading partner.

### *Assumptions about the shipment*

- Is transported via a 20-foot full container-load.
- Weighs 10 metric tons.
- 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.

### *Requirements to export*

A "requirement" for purposes of the study is any legally required qualification

or document that must be obtained by the exporter (Company A) in order to export the selected product to the trading partner. These requirements may apply to the trader (annual export license or mandatory memberships) or to the consignment on a per shipment basis (phytosanitary certificate or fumigation certificate). These requirements involve interactions with external parties, including government agencies, inspectors, laboratories and other relevant institutions. All requirements mandated in the law in order to complete the export transaction outlined by the case study are taken into account, even if they may be avoided in certain cases. Buyer-driven requirements or documents are not considered for purposes of the study. The following principles apply to the requirements recorded:

- Only requirements specific to the export product group (or the top exported subproduct within that group) and agricultural products more generally are captured. Customs procedures or documentary requirements that are not specific in this way are not measured (certificate of origin, generalized system of preferences (GSP) certificate, export declaration, commercial, shipping or transport documents, letter of credit and so on).
- Mandatory membership of a public or private entity is included if it is required to obtain and exercise the right to export the selected product or agricultural products more generally.
- Trader-level export licenses include any document or action that is required to obtain and exercise the right to export, including registration or accreditation requirements, or traditional licenses.
- Documents are collected on a per shipment basis and one document includes both application and completion of the process (phytosanitary certificate, quality certificate from a private laboratory).
- Where multiple documents are obtained simultaneously, they are recorded as separate documents

but time is adjusted to reflect their simultaneity.

- The mandatory documents required by both the country studied and the selected trading partner are included.
- Both public and private fumigation certificates are excluded if they are not required by the laws of either the country studied or the selected trading partner. Only fumigation that is required for the product itself is captured and separate fumigation for packaging prior to its purchase and use is not included.

#### Time

Time is recorded in calendar days and captures the median duration to obtain each mandatory document to export on a per shipment basis. Time to complete membership requirements or to obtain trader-level licenses is not captured. The time span for each document starts with the first filing of the application or demand and ends once the company has received the final document, such as the phytosanitary certificate. It is assumed that the company's owners, managers or employees have had no prior contact with any of the officials and that the company completes each procedure to obtain the document without delay on its side. The following principles apply to the documents coded:

- It is assumed that the minimum time required for each document is 1 day, except for documents that can be fully obtained online, for which the time required is recorded as half a day.
- Although multiple documents may be obtained (and related processes completed) simultaneously, the process to obtain each document cannot start on the same day (that is, simultaneous processes start on consecutive days).
- If the process to obtain a document can be accelerated for an additional cost and is available to all types of companies, the fastest legal process is chosen and the related costs are recorded. Fast-track options

applying only to firms located in an export processing zone or to certain accredited firms under authorized economic operator programs are not taken into account.

#### Costs

The costs include all official fees and fees for legal or professional services if such services are required by law to complete the qualification requirement or obtain a document. Service fees (charged by fumigation companies or private laboratories) are only included if the company is required by law to use such services. Traditional (scheduled) border taxes and tariffs are not captured. Other special charges or taxes that apply to the export product or subproduct, or the export of agricultural products generally, are included only where they result in the issuance of a stand-alone mandatory document to export or are needed to obtain another mandatory document to export.

Where possible, laws, regulations and fee schedules are used as sources for calculating costs. In the absence of fee schedules, estimates by public and private sector respondents are used. If several respondents provide different estimates, the median reported value is applied. In all cases the cost excludes bribes. All costs are indicated in U.S. dollars and as a percentage of the country's income per capita.

#### Specific terms

*Alternative Dispute Resolution* (ADR) is any litigation process or procedure, other than adjudication by a presiding judge in court, in which a neutral third party assists in or decides on the resolution of the issues in dispute.

*Farmers' cooperatives* are also known as agricultural cooperatives, farmers' organizations, or producers' associations. A farmers' cooperative is defined as a voluntary, jointly-owned and democratically controlled association of farmers created to support and promote the economic interests of its members through joint economic activity, including, but not limited to, production, processing and marketing of agricultural products. If different types of farmers' organizations

exist in a country's laws, that which most closely adheres to this definition is selected for study.

*Inspections on a risk-management basis* involve an import monitoring programme where the monitoring (the number of consignments inspected) is established on the basis of predicted risk through pest risk analysis (PRA).

*Mediation* is an ADR process in which a neutral mediator helps the parties discuss and find a mutually acceptable solution. The mediator's role is strictly facilitative; he or she does not decide in favor of one party or another, but guides the parties toward a consensual resolution.

*Pest risk analysis* (PRA) is defined as "[t]he process of evaluating biological or other scientific and economic evidence to determine whether a pest should be regulated and the strength of any phytosanitary measures to be taken against it."<sup>6</sup> It consists of three stages: initiating the process for analyzing risk, assessing pest risk and managing pest risk.

*Phytosanitary measures* include "[a]ny legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests."<sup>7</sup>

*Plant protection* encompasses regulations, policies and institutional frameworks that affect plant health in a country, including domestic pest management measures as well as phytosanitary controls at the border.

*Production and sales* encompasses regulations, policies and institutional frameworks that impact the production, processing, marketing and sales of agricultural products in a country.

*Regulated quarantine pest* refers to "[a] pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled."<sup>8</sup>

*Settlement agreement* is a mutually acceptable solution found by the parties upon conciliation or mediation.

**TABLE B.5 Scoring methodology for markets**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Plant protection (quality control)</i>	This indicator looks at the strength of the domestic plant protection framework by considering the legal obligations applicable to domestic pest management	<ol style="list-style-type: none"> <li>1. There is an obligation on the national plant protection agency or another government agency to carry out pest surveillance activities on plants in your country</li> <li>2. There is an obligation on producers/land owners to monitor and report outbreaks of pests to the government</li> <li>3. The government or national plant protection agency maintains a list of regulated quarantine pests that is accessible to the public</li> <li>4. The list of regulated quarantine pests is uploaded to the IPPC website</li> <li>5. A pest database that contains details on the pests present in your country, such as their current status, geographical distribution and/or treatment, is available on a government website</li> <li>6. Pest risk analysis (PRA) is provided for in the law OR there is a designated unit in the government to carry out PRA</li> <li>7. Phytosanitary inspections on imports of plant products may be carried out on a risk basis</li> <li>8. Phytosanitary legislation covers both domestic containment and import/export quarantine procedures at the border</li> </ol>	<b>A score of 1</b> if yes

*(continued)*

TABLE B.5 Scoring methodology for markets (continued)

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Production and sales (operations)</i>	This indicator measures legal requirements with regard to the establishment and activities of farmers' cooperatives, the ease of engaging in contract farming arrangements and resolving related disputes	Please note that questions 1 and 2 on licenses are based on the selected contracted product: 1. The producer or seller requires a license to sell the contracted product or to engage in an agricultural production contract 2. The contractor needs a license to purchase the contracted product or engage in an agricultural production contract	<b>A score of 1</b> if no
		3. Farmers' cooperatives can seek loans or lines of credits provided by non-members 4. Farmers' cooperatives can merge	<b>A score of 1</b> if yes
		5. Minimum capital requirement to establish a farmers' cooperative	<b>A score of 1</b> if there is no minimum capital requirement <b>A score of 0.25</b> if the minimum capital requirements is equal to or less than 1 times the income per capita <b>A score of 0</b> if the minimum capital requirement is greater than 1 times the income per capita
		6. Mediation/conciliation can be attempted after the start of judicial proceedings upon either court-referral or application of the parties	<b>A score of 1</b> if yes
		7. Enforceability of a settlement agreement reached through an extra-judicial and/or extra-arbitral negotiation, conciliation or mediation	<b>A score of 1</b> if the settlement agreement has the same enforceability as a court decision <b>A score of 0.5</b> if the settlement agreement can acquire the same enforceability as a court decision upon submission to a judicial body or upon notarization <b>A score of 0</b> if the settlement agreement is enforceable only under the laws of contract

(continued)

**TABLE B.5 Scoring methodology for markets (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Agricultural export (trade)</i>	This indicator looks at the mandatory requirements to export the selected product to the selected trading partner at the trader level and per shipment	<ol style="list-style-type: none"> <li>1. Exporters do or do not have to be a member of a specific association or organization in order to obtain the right to export the selected product or agricultural products more generally</li> <li>2. Exporters do or do not have to obtain a trader-level export license in order to export the selected product or agricultural products more generally to the selected trading partner</li> <li>3. Total number of mandatory documents required to export</li> <li>4. Total time to obtain mandatory documents required to export</li> <li>5. Total cost to obtain mandatory documents required to export</li> </ol>	<b>Not scored</b>

## Transport

EBA transport indicators measure regulatory and administrative constraints affecting the market access and operations of reliable and sustainable commercial road transport services and the regulatory requirements for cross-border transportation.

Two sets of indicators have been developed:

- Truck licenses.
- Cross-border transportation.

Transport indicators used two different questionnaire versions targeting: (i) private sector respondents—mainly trucking associations, trucking companies, freight forwarders, lawyers; and (ii) public sector respondents—mainly ministries of transport, road transport regulatory authorities and ministries of infrastructure. Data were collected through interviews conducted during country visits directly with respondents, by email and teleconference calls from Washington, DC and by local staff in the different target countries.

To make the data comparable across countries, several assumptions about the trucking company and its environment were made, as detailed below:

### Assumptions about the business

The business:

- Is a limited liability company.
- Is 100% domestically owned.
- Has between five and 10 employees.
- Owns a maximum of five trucks; each truck has two axles and a loading capacity of 20 metric tons.<sup>9</sup>
- Rents a garage.
- Transports agricultural products within the country, including perishable goods.

- Does not transport fertilizers, pesticides or any hazardous products.

The information on transport licenses and permits refers exclusively to domestic operations. The section on cross-border transportation assumes trade is undertaken with the largest neighboring agricultural trading partner.

### Time

Time is recorded in calendar days and captures the median duration of obtaining the required company or truck license. The timespan starts once all required documents have been submitted to the relevant authority and ends once the company has received the final document. The minimum time to obtain a company or truck license is one day. It is assumed that the company's owners, managers or employees have had no prior contact with any of the officials.

### Cost

Costs capture only official costs required by law, including fees and taxes. Transport laws and regulations have been used as legal basis when available, and an estimation from respondents have been used when not. In such cases where no official costs are in place, the median of responses is computed. This section assumes all documents have been submitted correctly. All costs are indicated in U.S. dollars and as a percentage of the country's income per capita.

### Validity

Validity is measured for company and truck licenses and for technical inspections. Validity is expressed in years.

### Specific terms

Freight allocation:

- *Deregulated market*: Market actors can freely interact with each other.
- Freight allocation occurs through direct contracting

between a producer or trader and a trucking company.

- Direct contracting is facilitated by a "freight exchange" (platform in which freight supply and demand are made public to all actors).
- *Regulated market*: Freight allocation is influenced or organized by a third party.
- *Queuing system ("tour de rôle")*: freight allocation practice by which freight is sequentially allocated by trucking associations, unions or the government.

Cross-border transportation:

- *Transport rights*: A truck registered in Country A is able to transport agricultural goods produced in its country into Country B for sale.
- *Backhauling rights*: A truck registered in Country A is able to transport agricultural goods into Country B for sale, load other goods in Country B and carry them back to Country A.
- *Transit rights*: A truck registered in Country A is able to travel through Country B to deliver agricultural goods into Country C.
- *Triangular rights*: A truck registered in Country A is able to pick up agricultural goods in Country B and transport them to be delivered into Country C.
- *Cabotage rights*: A truck registered in Country A is able to pick up agricultural goods in Country B and deliver them to a different point in Country B.

**TABLE B.6 Scoring methodology for transport**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Truck licenses (operations)</i>	This indicator categorizes the different licensing regimes to provide commercial road transport services in the domestic market. It also measures the extent to which license requirements and application submissions are available online, additional legal requirements to obtain a license/permit and price and freight allocation regulations affecting road transport services in the domestic market	1. Type of licensing regime required for a company to legally transport agricultural products in the domestic market	<b>A score of 1</b> if only company license required <b>A score of 0.5</b> if both company and truck licenses are required <b>A score of 0.25</b> if only registry, franchise/ public concession or truck license is required <b>A score of 0</b> if no license is required <i>This question has double weight (2/7) with regard to the other questions of this indicator (1/7)</i>
		2. Online availability of license or permit requirements	<b>A score of 1</b> if yes <i>This question is not scored for countries without a license or permit</i>
		3. Availability of an electronic submission platform for license or permit application or renewal	<b>A score of 1</b> if yes <i>This question is not scored for countries without a license or permit</i>
		4. Additional requirements for obtaining the relevant licenses, permits, inspections and certificates with regard to nationality, membership with a trucking association or operational size	<b>A score of 1</b> if none of the following is a requirement to obtain a license / permit: (a) membership to an association, (b) being of a specific nationality and (c) certain operational size (number of trucks) <b>A score of 2/3</b> if one is required <b>A score of 1/3</b> if two are required <b>A score of 0</b> if all three are required to obtain a license or permit
		5. Government regulation of prices for agricultural road transport service	<b>A score of 1</b> if no
		6. Presence of a queuing system (also known as a "tour de rôle") binding for all trucking companies and used to access or allocate freight in the country	<b>A score of 1</b> if no
	Licenses and permits	<ol style="list-style-type: none"> <li>Total time to obtain a license at company level to transport agricultural products by truck</li> <li>Total cost to obtain a license at company level</li> <li>Validity of the license at company level</li> <li>Total time to obtain a permit or license at truck level</li> <li>Total cost to obtain a license or permit at truck level</li> <li>Validity of the permit or license at truck level</li> <li>Total cost of a vehicle technical inspection</li> <li>Validity of vehicle technical inspection</li> </ol>	<b>Not scored</b>

*(continued)*

**TABLE B.6 Scoring methodology for transport (continued)**

INDICATOR (CATEGORY)	DESCRIPTION	WHAT IS MEASURED?	HOW IT IS SCORED?
<i>Cross-border transportation (trade)</i>	This indicator measures the restrictions to cross-border transport including the regulation of carrier's liabilities	1. Requirement of a written contract acknowledging carrier's liabilities in cross-border transportation transactions	<b>A score of 1</b> if yes
		2. The right of foreign trucking companies registered in the largest agricultural trading partner to transport goods into the country	<b>A score of 1</b> if yes
		3. Existence of quotas on the number of transport right permits granted	<b>A score of 1</b> if no <b>A score of 0</b> if yes or if no transport rights granted
		4. The right of foreign trucking companies registered in the largest agricultural trading partner to transport goods back from the country (backhauling)	<b>A score of 1</b> if yes
		5. The right of foreign trucking companies registered in the largest agricultural trading partner to transport goods from the country into a third country (triangular rights)	<b>A score of 1</b> if yes
		6. The right of foreign trucking companies registered in the largest agricultural trading partner to transit through the country	<b>A score of 1</b> if yes
		7. The right of foreign trucking companies registered in the largest agricultural trading partner to transport goods between two points within the country (cabotage)	<b>A score of 1</b> if yes

**Notes**

1. Based on the average growing time for medium-maturing varieties of maize.
2. Seasons in countries with one season per calendar year tend to last longer.
3. High-income and upper-middle-income countries are not measured under the MFI indicator.
4. In some countries, the maximum loan an MFI can extend is limited to a percentage of deposits or a percentage of core capital. This language is included in regulations for risk management, intended to limit the exposure of the institution to a single borrower. For countries with this type of loan limitation, *EBA* considers it “no limit” because the currency value corresponding to that percentage is so high as to present no effective limit to borrowers.
5. High-income and upper-middle-income countries are not measured under the agent banking indicator.
6. International Plant Protection Convention 2005. p.16.
7. International Plant Protection Convention 2005. p. 17.
8. International Plant Protection Convention 2005. p. 18.
9. A truck is defined as one tractor unit, excluding the trailer.

**Reference**

2005. “Glossary of Phytosanitary Terms.” International Standard for Phytosanitary Measures No. 5. Rome: FAO.

# APPENDIX C

## ALTERNATIVE WAYS OF PRESENTING THE DATA

The following are two alternative ways of presenting *EBA* data. The questions used to build the accessibility of agribusiness regulatory information and discrimination of agribusiness regulations scores are questions also used to build the topics and cross-cutting categories scores. For example, a seed variety catalogue (within accessibility of agribusiness regulatory information) also belongs to the seed registration (operations) indicator, so it is part of the seed score and the operations score. Similarly, the eligibility

of the foreign firms to import fertilizer (within discrimination of agribusiness regulations) belongs to the fertilizer import requirements (trade) indicator, so it is part of the fertilizer score and the trade score.

### Discrimination of agribusiness regulations

The data on discrimination of agribusiness regulations were collected across

six *EBA* topics (table C.1). For each question, countries where the nondiscriminatory feature under study is in place are assigned a score of 1; those without such features are assigned a score of 0. The total score of the 18 questions reflects the number of good practices related to nondiscrimination. These questions are also part the corresponding topic and score.

**TABLE C.1 Discrimination of agribusiness regulations data by topic**

GOOD PRACTICES BY TOPICS	
SEED	1. The mandatory participation of private sector representatives in seed variety release committee
	2. The eligibility of private enterprises to produce breeder/pre-basic seed of local public varieties for use in the domestic market
	3. The eligibility of private enterprises to produce foundation/basic seed of local public varieties for use in the domestic market
	4. The accessibility of germplasm from the national gene bank for the private sector
	5. The existence of a system for licensing public varieties to private seed enterprises for production and sale in the domestic market
	6. The eligibility of the private sector to be accredited to carry out the certification process
FERTILIZER	7. The eligibility of the private sector to register fertilizer
	8. The eligibility of the domestic firms to import fertilizer in order to sell it
	9. The eligibility of the foreign firms to import fertilizer in order to sell it
MACHINERY	10. The eligibility of the private sector to import new agricultural tractors and harvesters
	11. The eligibility of the private sector to import second-hand agricultural tractors and harvesters
	12. The eligibility of the private sector to import spare parts for agricultural tractors and harvesters
FINANCE	13. The eligibility of non-bank businesses (businesses that do not hold any financial institution license) to issue e-money
MARKETS	14. The absence of minimum capital requirements to establish a farmers' cooperative
TRANSPORT	15. In addition to company and/or truck level licenses as well as technical inspections, the absence of other requirements regarding nationality, membership with a trucking association or operational size for a transport operator to offer commercial road transport services in the domestic market
	16. The eligibility of foreign trucking companies registered in the country's largest agricultural trading partner to transport goods into the country
	17. The eligibility of foreign trucking companies registered in the country's largest agricultural trading partner to transport goods back from the country (backhauling)
	18. The eligibility of foreign trucking companies registered in the country's largest agricultural trading partner to transport goods between two points within the country (cabotage)

### Accessibility of agribusiness regulatory information

The data on accessibility of agribusiness regulatory information were collected

across five *EBA* topics (table C.2). For each question, countries where the information accessibility feature under study is in place are assigned a score of 1; those without such features are assigned a

score of 0. The total score of the 10 questions reflects the number of good practices related to access to information. These questions are also part the corresponding topic and score.

**TABLE C.2 Accessibility of agribusiness regulatory information data by topic**

GOOD PRACTICES BY TOPICS	
SEED	<ol style="list-style-type: none"> <li>1. The existence of a seed variety catalog listing new varieties</li> <li>2. The online availability of the seed variety catalog</li> <li>3. The existence of an official fee schedule for seed certification activities carried out by the public sector</li> </ol>
FERTILIZER	<ol style="list-style-type: none"> <li>4. The existence of an official catalog listing all registered fertilizer</li> <li>5. The online availability of the fertilizer catalog</li> </ol>
FINANCE	<ol style="list-style-type: none"> <li>6. The legal requirement for credit unions to disclose their effective interest rate or the annual percentage rate to loan applicants</li> </ol>
MARKETS	<ol style="list-style-type: none"> <li>7. The existence of a list of regulated pests</li> <li>8. The availability of a database on a government website that lists pests present in the country, their current distribution and/or status</li> </ol>
TRANSPORT	<ol style="list-style-type: none"> <li>9. The online availability of the transport license/permit requirements</li> <li>10. The existence of an electronic procedure to apply and/or renew the transport license/permit</li> </ol>