

# FDI RESTRICTIONS IN THE INDONESIAN HORTICULTURE SECTOR: IMPLICATIONS OF HORTICULTURE LAW NO.13, 2010

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# PRESENTATION OUTLINE

1. Introduction
2. Research Objectives
3. Method
4. General lessons against Limiting FDI
5. International Experiences: India, Vietnam, The Philippines
6. Structure and Performance of Indonesia's Vegetable Seed Industry
7. Potential Implications of FDI Restrictions
8. Path Forward

# 1. INTRODUCTION

- Increasing demand for horticultural products in Indonesia vs instability and inefficiency in horticulture markets.
- The government introduced the Horticulture Law No. 13 in 2010, with a motivation: to protect the emerging domestic industry from the large multi-national companies.
- Debate around the impact of the FDI restriction on the horticulture sector:
  - Divestment by foreign seed companies: pave the way for domestic firms to rise.
  - But the divestment might provide significant disruption in the horticulture sector that could impede growth for years to come: the reduction in R&D driven by foreign equity, limiting access to proprietary genetic resources, and reduced private sector extension and marketing services.

## 2. RESEARCH OBJECTIVES

- The main objective of the study: to analyze how the FDI restriction will impact the horticulture sector in Indonesia'
- The specific objectives:
  - to contextualize the findings from other countries, identify the likely consequences of FDI restriction on production technology and trade in Indonesia, and to provide a set of simple salient points that can be used to inform the ongoing debate in Indonesia.

# 3. THE METHOD

- The method used consists of both analytical and qualitative work using secondary data and Focus Group Discussion.
  - A Review of existing knowledge relates to:
    - International experience in the development of horticulture seed and planting material industry
    - International experience in regulating FDI in the horticulture sector, specifically the seed industry
  - Analysis of Indonesia's seed industry and the impact of FDI restriction
    - Market concentration in the seed industry
    - The role of FDI in the seed industry
    - The potential implications of FDI restrictions
    - Considerations for policy and program support

## 4. GENERAL LESSONS AGAINST LIMITING FDI

### ■ Restricting FDI

- deprives domestic vegetable producers access to better quality seeds with higher sprouting ratios, shorter harvest times, higher outputs and higher profits;
  - limit domestic seed companies access to innovative practices in plant propagation, plant breeding and biochemistry;
  - may deprive the public and private research community access to key intellectual property, innovative technologies, scientific knowledge and training in new research capabilities for Indonesian scientists, public research centres, universities and companies;
  - can result in a less competitive domestic seed industry and lower overall quality and variety of crops, leading to higher horticulture imports and higher prices for Indonesian consumers;
- foreign seed companies will transfer their capital, research and knowledge to other ASEAN countries that are encouraging foreign investment, public-private partnerships and providing incentives to transfer research and biotechnology knowledge locally (eg, Viet Nam, India.

# ASEAN SEED TRADE

COUNTRY	WORLD	ASIA	NAFTA*	OTHER AMERICA	EU	OCEANIA	OTHER AFRICA	MIDDLE EAST AND NORTH AFRICA	OTHER EUROPE
VIETNAM	71,924	59,852.20	4,766	710	3,448	2,982	164	2	
THAILAND	34,164	18,918.90	4,409	1,539	5,353	3,490	441	13	0
PHILIPPINES	33,077	6,868.20	2,923	14,418	557	539	7,371	400	2
INDONESIA	18,615	13,186.00	2,652		1,632	1,145			
MYANMAR	15,291	14,878.80			294	118			
MALAYSIA	14,204	8,341.00	2,656	8	2,385	723	42	49	
SINGAPORE	8,128	7,090.70	257	51	561	157	2	8	2
CAMBODIA	2,402	2,162.40		221		5	14		
LAOS	2,084	2,071.90			9	3			
BRUNEI	267	166.6	62		6	33			
<b>TOTAL</b>	<b>200,156</b>	<b>133,537</b>	<b>17,724</b>	<b>16,946</b>	<b>14,245</b>	<b>9,194</b>	<b>8,035</b>	<b>472</b>	<b>3</b>

In Thousands of US dollars

## 5. INTERNATIONAL EXPERIENCES - INDIA

- After China, India is the second largest vegetable producer with production more than doubling over the past two decades.
- Allows 100% FDI in its seed sector.
- Vegetable seed production is dominated by the private sector (more than 40%), which largely produces proprietary hybrids (including some imported seed) but also some public hybrids and OPVs.
- The number of private companies engaged in seed production or seed trade ranges from 400 to 500.
- The main focus of private seed companies is high value low volume seeds.
- In 2012, India become the third ranked seed exporter in Asia, ahead of Japan as seed exports tripled to \$152 million between 2010 and 2014 (Debrabant, 2016).



## 5. INTERNATIONAL EXPERIENCES - VIETNAM

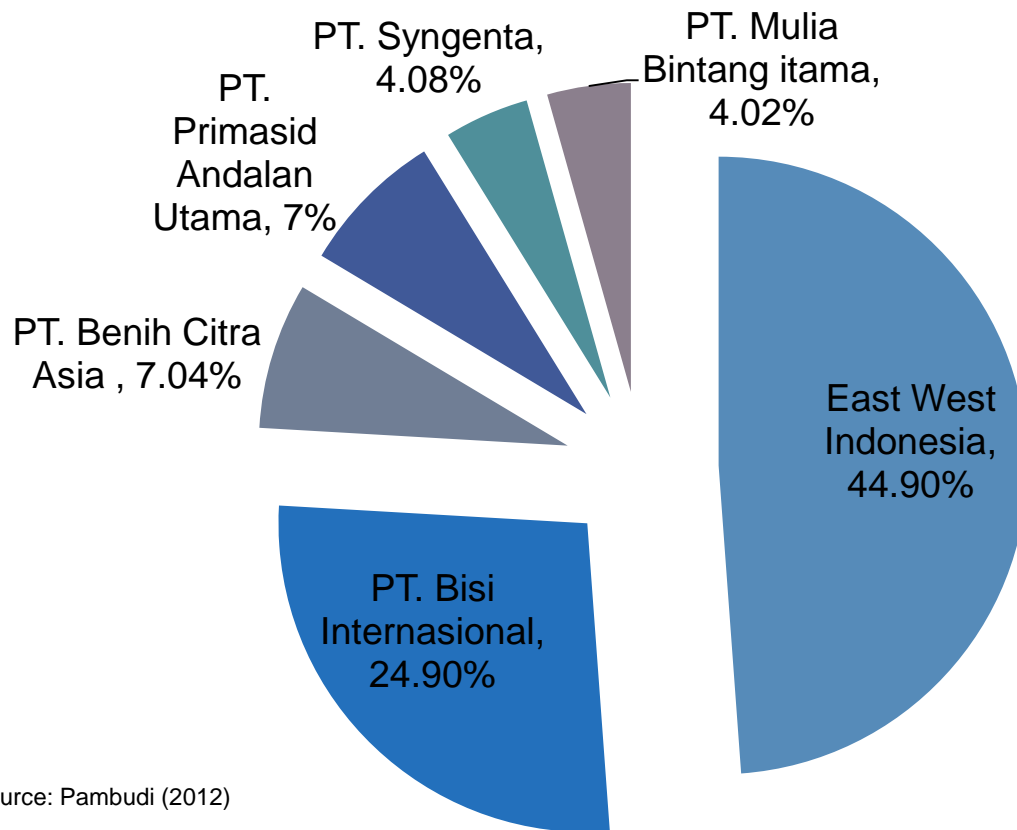
- Vietnam: third largest vegetable producer after China and India.
- Allows FDI, with approvals and equity restriction caps for some industries.
- At present, more than 600 companies produce and trade in seeds.
- The foreign companies have around an 80% market share of purchased seeds with around half the vegetable production is from saved seed.
- Chinese Taipei, Japan, China, and Thailand are top investors with capital registered accounting for about 60% of FDI in agriculture.
- Seed imports are significant, especially of hybrid seeds, including 70-80% of hybrid seeds for rice, vegetables, and maize (Nguyen Mau Dung, 2013).
- Viet Nam is today's largest ASEAN seed importer. Vietnam sources most of its seeds in Asia (83%), with 60% coming from ASEAN countries.
- Vietnamese imports have been growing steadily for many years. Imports increased from \$44.5 million to \$85 million between 2009 and 2014.

## 5. INTERNATIONAL EXPERIENCES – THE PHILIPPINES

- Limits FDI to 40%.
- ECD's recent Investment Policy review of the Philippines considers that the country is lagging in both foreign and domestic investment compared with its neighbors, Cambodia, Lao, Myanmar, and Vietnam, trending towards liberalizing.
- Removing barriers to foreign investment in the Philippines could help to address issues of underinvestment by domestic firms through the impact that foreign investors might have in improving overall investment climate.
- The Philippines as one of the top performing countries for seed registration procedures and for seed development and certification systems (World Bank 2016)
- The Philippines does have good seed laws in place, including best practice for variety release and transparency and efficiency of seed registration and seed certification activities (World Bank 2016).
- The Philippines supports private sector initiatives in the seed systems.

## 6. STRUCTURE AND PERFORMANCE OF INDONESIA'S VEGETABLE SEED INDUSTRY

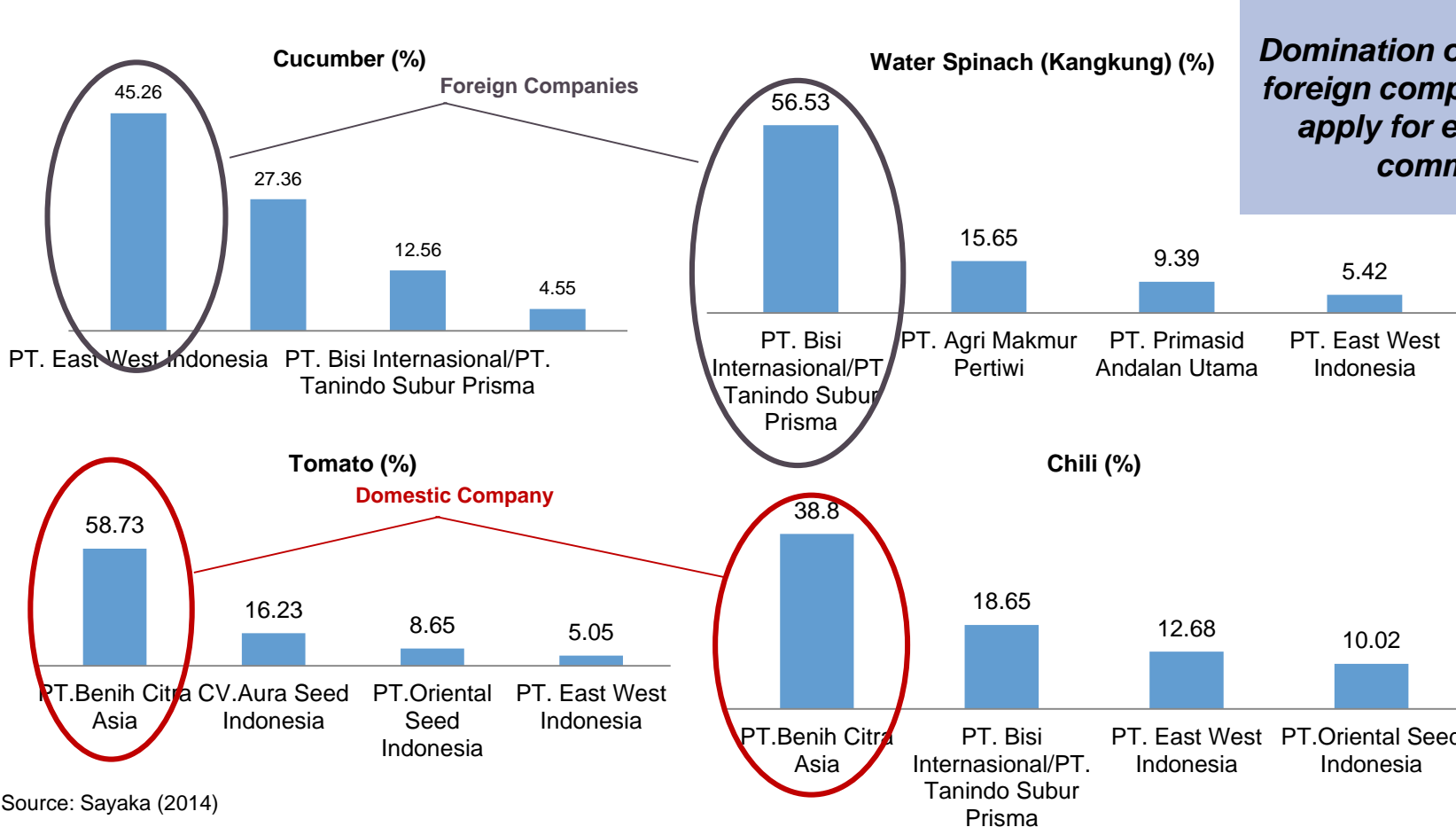
# MARKET CONCENTRATION IN SEED INDUSTRY



**70%** of seed sales market share in Indonesia is dominated by foreign multinational companies PT. East West Indonesia, PT. Bisi Internasional and PT. Syngenta

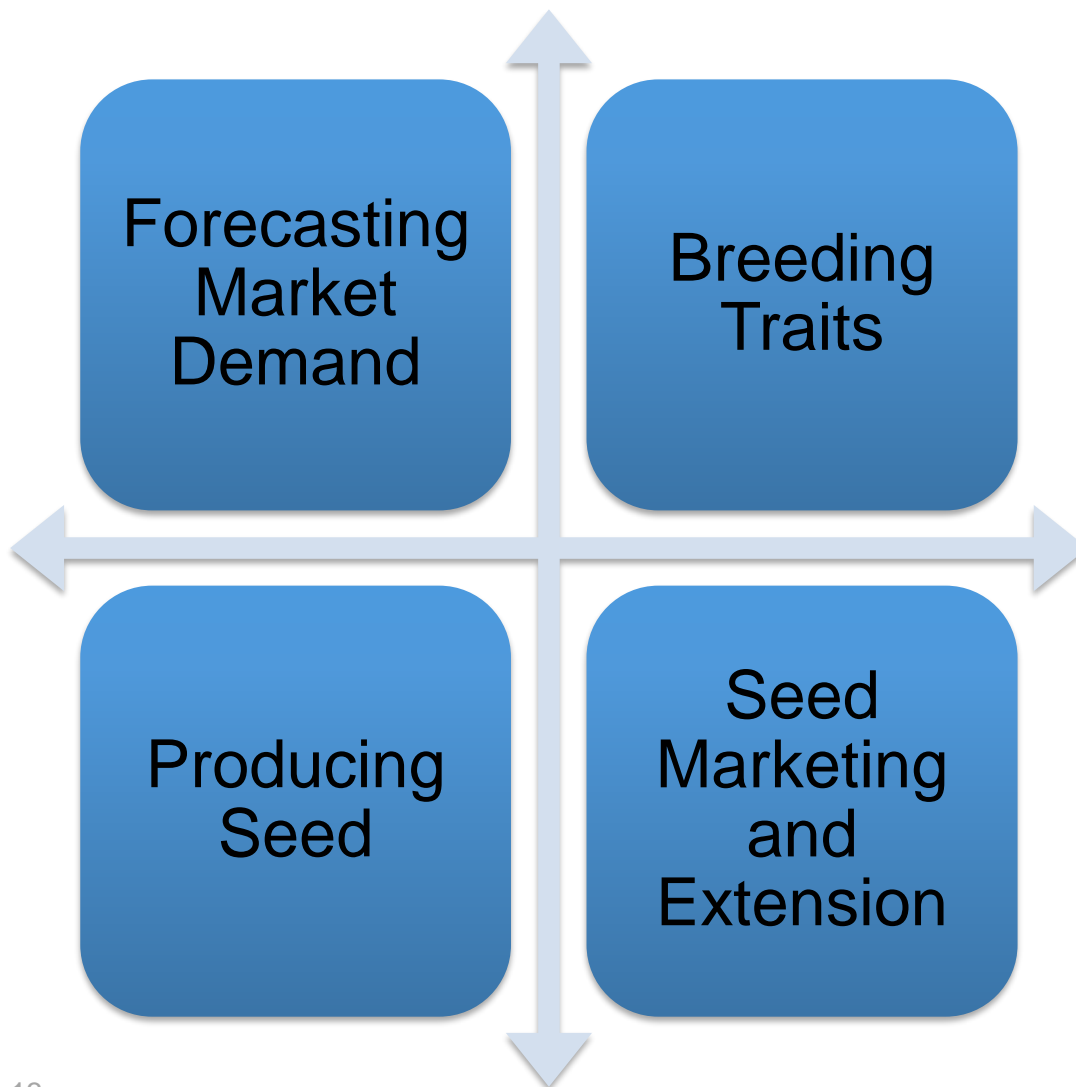
Source: Pambudi (2012)

# MARKET CONCENTRATION IN SEED INDUSTRY



Source: Sayaka (2014)

# ROLES OF FDI



*Domestic and foreign companies **might differ** in how they deal with these aspects*

# ROLES OF FDI

Roles of FDI	Foreign and Domestic Big Companies	Domestic Small Companies
<b>Forecasting Demand</b>	Utilized value chain approaches to recognize the expected values of consumers and use them as the guidance in seed productions.	<ul style="list-style-type: none"> <li>• Only a few of the companies consider consumer expectation</li> <li>• Capital constraint</li> <li>• Tend to utilize information from local farmers with respect to the preferred seed</li> </ul>
<b>Breeding Traits</b>	<ul style="list-style-type: none"> <li>• R&amp;D can be conducted continuously in order to produce new varieties of seed horticulture</li> <li>• Have more access on germplasm in genebanks from other countries</li> </ul>	<ul style="list-style-type: none"> <li>• Breeding traits can only be conducted by using few parent materials with more simple process and longer time period.</li> <li>• Only produce limited varieties of horticulture seeds.</li> </ul>

# ROLES OF FDI

Roles of FDI	Foreign and Domestic Big Companies	Domestic Small Companies
<b>Production Seed</b>	<ul style="list-style-type: none"> <li>• Contract farming programs in which the companies give the foundation seed to the contracted farmers and provide them with training, support and technical supervision</li> <li>• Large quantity of seed</li> <li>• Improving packaging techniques that are hygienically packed to maintain quality with attracted label and information on how to use seed</li> </ul>	<p>Limited volume Use more simple packaged seeds.</p>
<b>Seed Marketing and Extension</b>	<ul style="list-style-type: none"> <li>• Implementing various marketing strategies.</li> <li>• Providing extension to farmers particularly in providing information about production methods for farmers</li> </ul>	<p>Only fulfilling local markets around their production areas</p>



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## 7. POTENTIAL IMPLICATIONS OF FDI RESTRICTIONS

# POTENTIAL IMPACTS OF FDI RESTRICTIONS

- Implementation of the Horticulture Law may slow down technological innovation occurs during the transition stage.
- To compensate, **more land is needed for horticulture areas.**
  - However, it might conflict with government program to expand strategic staple food in Indonesia (paddy, maize and soybeans)
- Another alternative **is to increase import.**
  - However, more import leads to trade deficit for horticulture products and against with government program on food sovereignty.

# POTENTIAL IMPACTS OF FDI RESTRICTIONS (cont.)

- Two alternatives to expand domestic production
  - extensive expansion – bringing more land into production
  - intensive expansion – improving the productivity (output/ha).
- **Extensive expansion** path will require a massive investment in bringing additional land into production and potentially displacing other land-uses.
- **Intensive expansion** path will depend heavily on the supply of suitable seeds, planting materials, farming techniques, and extension.
- The Horticulture Law implicitly prioritizes extensive expansion because it inhibits the development of improved planting materials.
- If production growth must be sustained, this slowdown in the development of planting materials must be **compensated for by bringing more land into production.**

# SCENARIOS

## **Scenario 1 (baseline)**

Technological progress (as measured by output/ha) continues on the same growth rate as before the law was introduced

## **Scenario 2**

A proportional decline in the rate of technological progress in increments of 10%, from 100% (baseline) to 0% (complete technological stagnation).

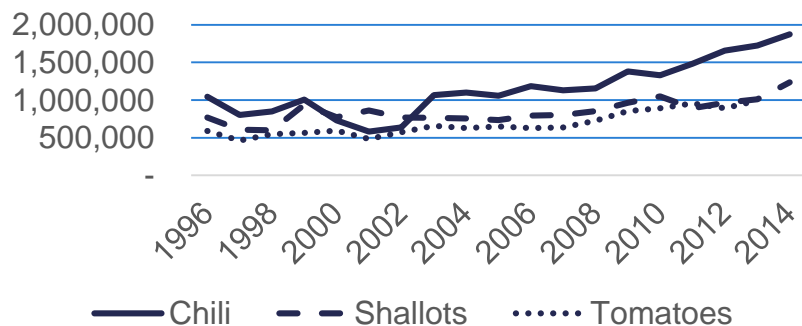
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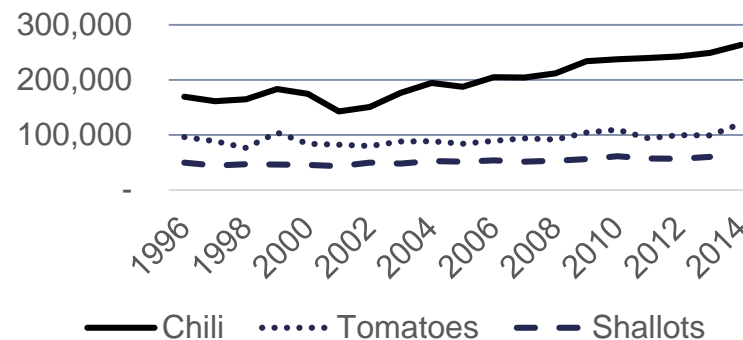
*Case Studies: Chili, Shallot and Tomato*

# NATIONAL PRODUCTION, LAND AND PRODUCTIVITY GROWTH

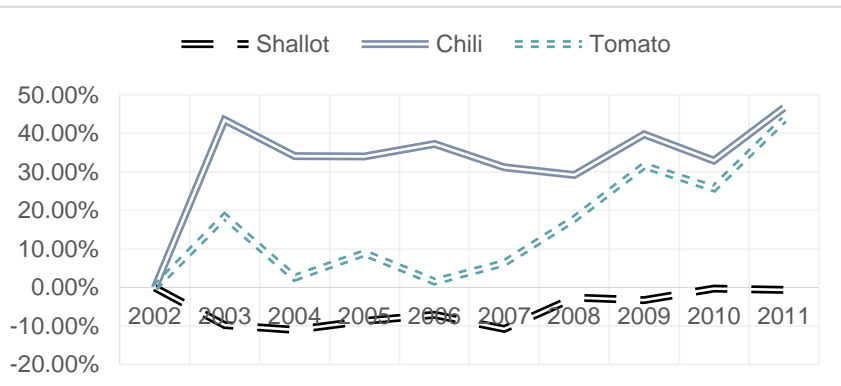
### National Production (Ton)



### Area Planted (Ha)



### Productivity (Tons/Ha)



	Shallot	Chili	Tomato
<b>Production</b>	3.10%	6.21%	4.25%
<b>Productivity</b>	0.04%	3.01%	2.30%
<b>Land</b>	2.69%	3.10%	1.90%

# SHALLOT, CHILI AND TOMATO PRODUCTION

## Shallot Production (Tons)

Year	Production	Land (Ha)	Ton/Ha
2000	772,818	84,038	9.20
2001	861,332	82,147	10.49
2002	766,572	79,867	9.60
2003	762,795	88,029	8.67
2004	757,152	88,672	8.54
2005	732,609	83,614	8.76
2006	794,931	89,188	8.91
2007	802,810	93,694	8.57
2008	853,615	91,339	9.35
2009	965,164	104,009	9.28
2010	104,8934	109,634	9.57

## Chili Production (Tons)

Year	Production	Land (Ha)	Ton/Ha
2000	727,747	174,708	4.17
2001	580,464	142,556	4.07
2002	635,089	150,598	4.22
2003	1,066,722	176,264	6.05
2004	1,100,514	194,588	5.66
2005	1,058,023	187,236	5.65
2006	1,185,057	204,747	5.79
2007	1,128,792	204,048	5.53
2008	1,153,060	211,566	5.45
2009	1,378,727	233,904	5.89
2010	1,328,864	237,105	5.60

## Tomato Production (Tons)

Year	Production	Land (Ha)	Ton/Ha
2000	593,392	45,215	13.12
2001	483,991	43,118	11.22
2002	573,517	49,457	11.60
2003	657,459	47,884	13.73
2004	626,872	52,719	11.89
2005	647,020	51,205	12.64
2006	629,744	53,492	11.77
2007	635,474	51,523	12.33
2008	725,973	53,128	13.66
2009	853,061	55,881	15.27
2010	891,616	61,154	14.58

- *Supply growth of shallot was driven by extensive expansion onto more land*
- *Chili and tomato growth were driven by a combination of extensive expansion and intensive technological progress*

# SCENARIO 1 : BUSINESS AS USUAL - ASSUMPTIONS

- Scenario 1: Before the Horticulture Law was introduced in November 2010
- Characterized by rapid growth driven by both intensive expansion and extensive expansion.
- The rate of technological progress (productivity: growth in output/ha) continues unhindered for 5 more years - output per hectare for shallot, chili, and tomato will improve at a rate of 0.04%, 3%, and 2.3% respectively.
- The rate of production growth must continue 5 years into the future - the annual production growth rate for shallot, chili, and tomato is about 3.1%, 6.2% and 4.2% respectively.
- Only land can be adjusted to meet production targets.



# RESULT FROM SCENARIO 1

	Shallot	Chili	Tomato
Historical (2009-2014)	16,695	52,050	6,630
Baseline rate (2014-2019)	17,624	53,011	6,034
Productivity Growth	<i>ADDITIONAL LAND NEEDED</i>		
90% of baseline	336	5,612	928
80% of baseline	673	11,340	1,872
70% of baseline	1,012	17,187	2,830
60% of baseline	1,351	23,156	3,803
50% of baseline	1,691	29,251	4,792
40% of baseline	2,032	35,473	5,797
30% of baseline	2,373	41,826	6,819
20% of baseline	2,716	48,313	7,856
10% of baseline	3,060	54,938	8,911
No Tech Change	3,405	61,704	10,945

**Total: 75,375 hectares**

**Total: 76,669 hectares**

- Indonesia would need an additional 76,000 hectares for production by 2019, as big as Jakarta-sized piece of land (66,000 ha) to keep up with production for three horticulture products.
- These projections are very close to the amount of land added over the previous 5 years (2009-2014).
- Any decline in the rate of technological innovation will mean very large amounts of land will need to compensate.

## **Scenario 2 (Baseline)**

A proportional decline in the rate of technological progress in increments of 10%, from 100% (baseline) to 0% (complete technological stagnation)

*Case Studies: Chili, Shallot and Tomato*

## SCENARIO 2

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- Estimating the trade-off in land with different levels of alpha (slowdown in technological progress).
- Commodities like shallot, that still utilize traditional saved-seed systems will not be affected.
- Commodities like chili and tomato, that have a high adoption rate of improved varieties will likely be adversely affected by the declining role of foreign companies in the seed sector.

# RESULT FROM SCENARIO 2

	Shallot	Chili	Tomato
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<b>No Tech Change</b>	3,405	61,704	10,945

- The worst-case scenario – no tech change: Indonesia will need to add an additional 3,000 ha of shallot; 61,000 ha of chili, and; 11,000 ha of tomato compared to the baseline scenario.
- For example: A small 20% decline in technological progress (recall that MNC share of R&D expenditure and seed market is significantly more than 20%, (under-estimating), an additional 600 ha of shallot; 11,300 ha of chili, and; 1,800 ha of tomato would be needed compared to the baseline scenario.
- Adding this with the baseline (Jakarta size land), an additional Bogor sized piece (12,000 ha) of land will be needed to compensate for the decline in technological innovation.

# TECHNOLOGICAL SLOW DOWN AND IMPORT

- If foreign owned companies exit Indonesia completely, the productivity stagnation will reduce the production of horticulture products in the future.
- The production gap needs to be fulfilled from import. Increasing the importation volume of horticulture products will increase deficit of trade balance.

# THE IMPACT OF THE HORTICULTURE LAW ON IMPORT: CHILI COMMODITY

Year	Production using baseline scenario (ton)	Land (ha)	Productivity (ton/ha)	Production using constant productivity (ton)	Gap of Production (import, ton)
(1)	(2)	(3)	(4)	(5)	(6)
2017	2,246,304.76	288,908.38	7.11	2,054,977.26	191,327.50
2018	2,385,715.70	297,867.37	7.11	2,118,701.68	267,014.02
2019	2,533,778.81	307,104.18	7.11	2,184,402.19	349,376.62
2020	2,691,031.06	316,627.42	7.11	2,252,140.06	438,891.00

continually increase

If foreign companies exits, technological stagnation

- Import volume increase
- Leading deficit of trade balance of chili to increase

- land expansion is needed
- Amount of production of chili with constant productivity is lower compared to production using the baseline scenario


# THE IMPACT OF THE HORTICULTURE LAW ON IMPORT: TOMATO COMMODITY

Year	Production using baseline scenario (ton)	Land (ha)	Productivity (ton/ha)	Production using constant productivity (ton)	Gap of Production (import, ton)
(1)	(2)	(3)	(4)	(5)	(6)
2017	1,172,803.02	64,450.05	16.79	1,082,055.59	90,747.43
2018	1,222,694.87	65,679.53	16.79	1,102,697.44	119,997.43
2019	1,274,709.15	66,932.46	16.79	1,123,733.07	150,976.09
2020	1,328,936.16	68,209.30	16.79	1,145,169.98	183,766.19

  
continually increase

  
If foreign companies exits,  
technological stagnation

- land expansion is needed
- Amount of production of tomato with constant productivity is lower compared to production using the baseline scenario

  
• Import volume increase  
• Leading deficit of trade balance of chili to increase

## 8. PATH FORWARD



# PATH FORWARD

- Domestic seed companies face challenges to meet the proficiency of MNCs in the seed industry.
  - Lack access to the germplasm
  - Lack the national distribution channels to market new varieties to farms across Indonesia
  - Lack ability to build proper technical capacity in their workforce
- As response of Horticulture Law No.13, 2010, no cohesive or unified plan to transition the domestic seed industry into its new role as market leader.
- The domestic industry needs policy and program support to overcome three significant hurdles in development:
  - Access to genetic resources
  - Development of national distribution platform
  - Human resource development

# PATH FORWARD

## Genetic Resources

- Success in the seed industry is primarily driven by the ability to generate and protect intellectual property in the form of germplasm.
- In the 1970s, the global seed industry was a network of thousands of small household enterprises, but now it is dominated by a handful of agrochemical firms that invested in the development of vast collections of proprietary genetic resources used to breed new valuable traits faster and cheaper than their competitors..
- In the short-run, small and medium seed companies can make large strides in improving publically available varieties by creating localized variants that fit with Indonesia's farming systems.
  - Focus on adaptation and localization of existing varieties to the surrounding farming systems (local agro-climactic, reduced chemical use)

# PATH FORWARD

## Distribution Platform.

- Large companies have spent decades building a nationwide brand and a network of distributors, nurseries, and farmers who demand their products.
- A typical marketing model for a large company often consists of demonstration plots, dissemination of trial seeds, extension services to lead farmers and nurseries, and long-standing trade relationships with input retail stores
- Smaller company → capture only a localized market without a distribution platform to market product to end-users.
- For domestic industry to successfully transition, they will need to build their own marketing platforms that can disseminate seeds in an equally efficient way.
  - Policy and programming support is needed to build this capacity as the capacity is not within the domain of expertise of smaller firms that tend to focus on the seed propagation side of the enterprise.

# PATH FORWARD

## Human Resource Development

- Another key constraint is the ability of domestic firms to build capacity in their workforce.
- Currently, even large foreign companies rely on international hires to fill technical roles or send Indonesian staff to train abroad to build the technical skills necessary for their jobs.
- FDI restrictions that cause certain firms to exit also means the ending of important technology spillover that help domestic industry.
- To support domestic industry, there must be improvements in the capability to train the seed industry work force.
  - This may involve an expanded role for the ministry of agriculture and agricultural universities to work closely with domestic seed industry to identify training needs and designing programs to fill the void.

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Thank You