

# Cambodia's Agriculture Productivity: Challenges and Policy Direction

**By Mr. LAO Poliveth**

Chief of Research Division, General Department of Policy, Ministry of  
Economy and Finance

Phnom Penh

December 16<sup>th</sup>, 2019

# Outline

1

- Introduction

2

- Research Objectives, Analytical Framework and Literature Review

3

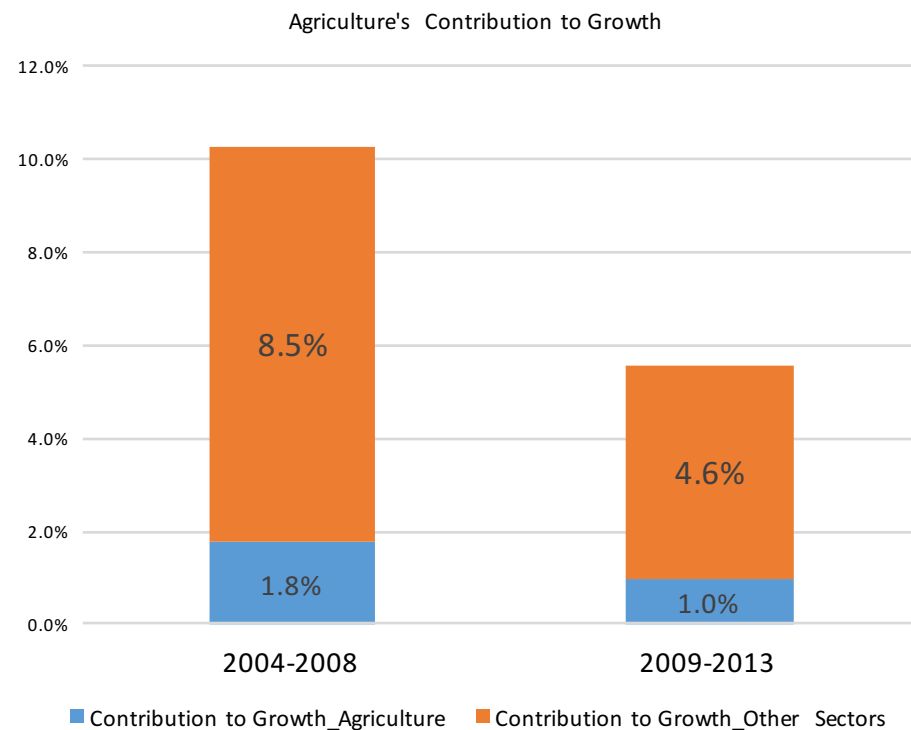
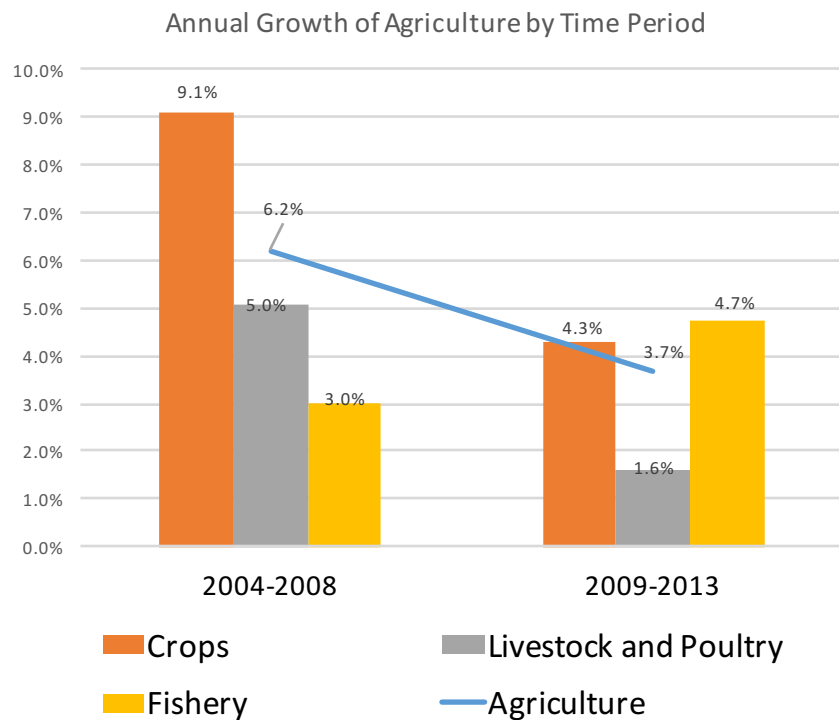
- Discussion of Research Findings

4

- Conclusion and Policy Recommendations

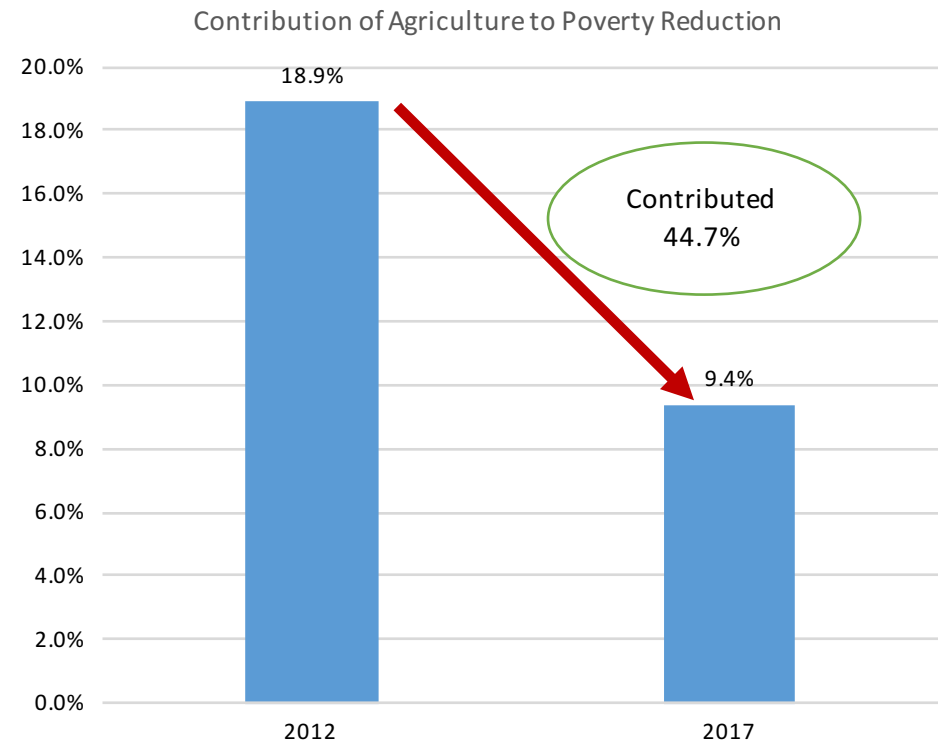
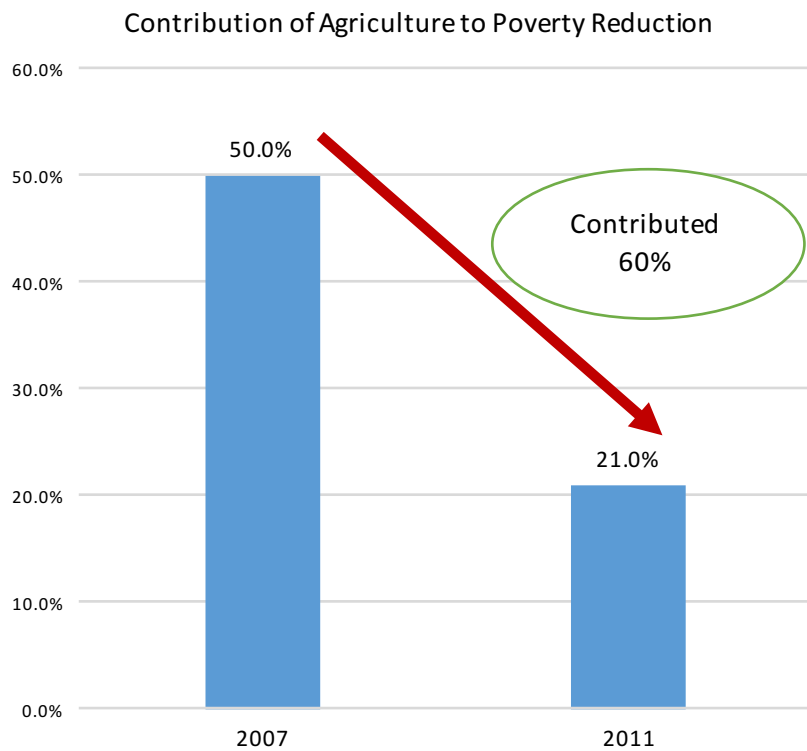
1. Introduction:  
Development of Agriculture Sector and  
Motivation of Study

Agriculture enjoyed strong growth during 2004-2013, mainly attributed to land expansion, introduction of new farming technique, and strong commodity prices....



Source: NIS

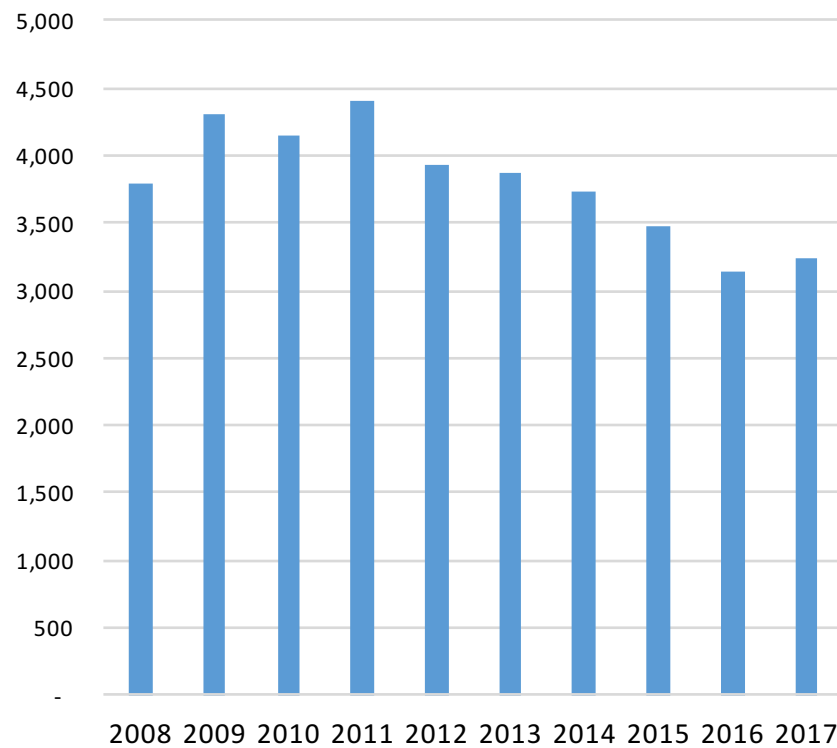
# The remarkable growth of agriculture significantly contributed to poverty reduction.....



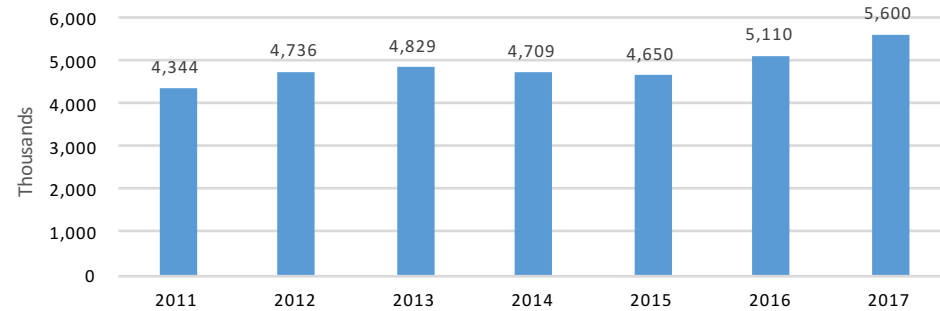
Source: World Bank and Author's Calculation based on CSES

# ...and provided employment and addressed food security

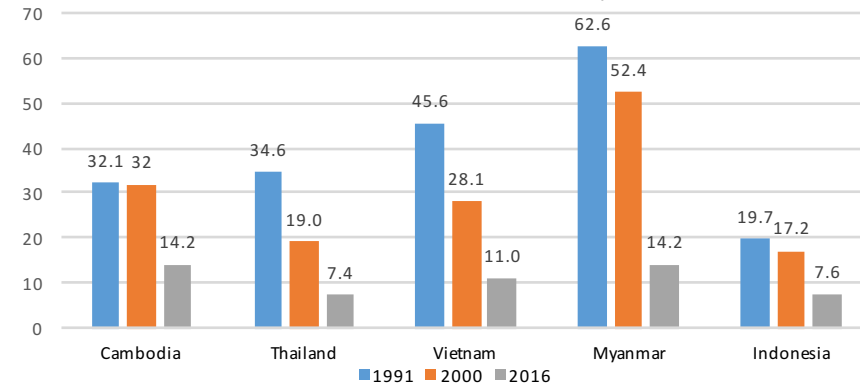
Employment in Agriculture Sector



Annual Surplus of Paddy Rice (2011-2017)



Share of Undernourished, % of Population



Source: CSES, MAFF, and FAO

However.....

**“Strong growth of agriculture in the past becomes the history over the last five years: 2014-2018”**

**“Boosting Agriculture Productivity is the Key to accelerate agriculture growth”**

The government has regarded enhancement of agriculture productivity as the key priority, which is included in RS4...

### Key Focuses of Agriculture Development in RS4

- (i) Enhancing productivity, quality, and diversification;
- (ii) Upgrading processing industry and commercialization,
- (iii) Promoting livestock and aquaculture,
- (iv) Promoting vegetable production aimed at import substitution,
- (v) Strengthening the management of economic land concessions;
- (vi) Prioritization of investment in irrigation systems.



## 2. Objectives, Analytical Framework of Study, and Literature Review

## Research Objectives

- (1) To assess the current status of agriculture productivity growth including the growth of total factor productivity, land productivity and labor productivity in agriculture;
- (2) To identify the critical challenges affecting the weak performance of agriculture productivity growth;
- (3) To provide policy recommendations aimed at accelerating the growth of agriculture productivity—land productivity, labor productivity and total factor productivity in Cambodia's agriculture.

# Analytical Framework

Agriculture Productivity

Land Productivity

Labor Productivity

Total Factor  
Productivity (TFP)

Performance  
Critical Issues

Performance  
Critical Issues

Performance  
Critical Issues

**Macro Level:** Law, Regulation, Policy, Public Investment etc.  
**Micro Level:** R&D, Extension, Human Capital, Technology etc.

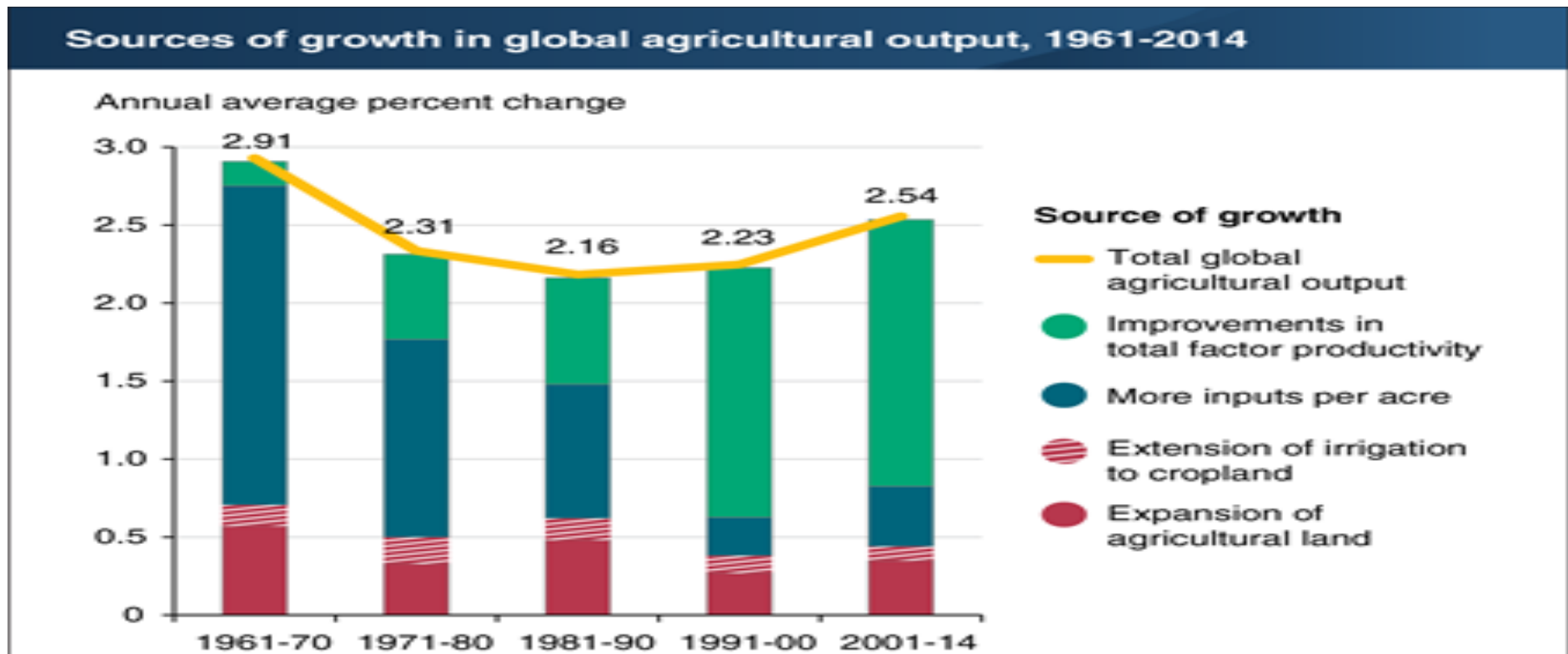
# Concept of Agriculture Productivity

- **Agriculture Productivity** is measured as the Ratio of Agriculture Outputs to Agriculture Inputs.
- **Land Productivity:** Measures of land productivity—partial factor productivity (PFP) measures—are calculated as the **ratio of total output to total agricultural area.**

# Concept of Agriculture Productivity

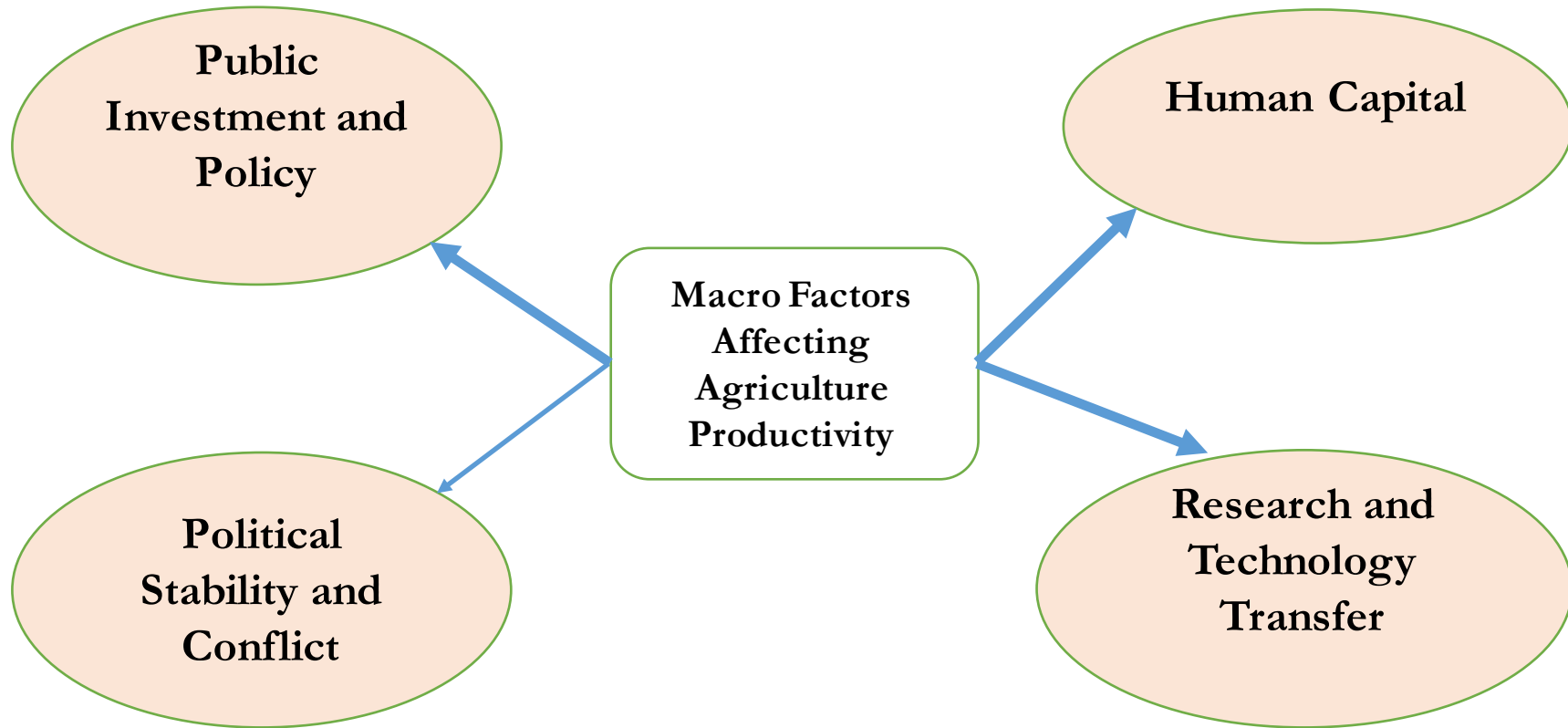
- **Labour Productivity:** Measures of labour productivity—partial factor productivity (PFP) measures—are calculated as the ratio of **total output to the number of economically active persons in agriculture.**
- **TFP** is an indicator of how **efficiently agricultural land, labor, capital, and materials (agricultural inputs) are used** to produce a country's crops and livestock (agricultural output).

Global experience clearly demonstrated that enhancement of agriculture productivity was very important to boost agriculture growth....



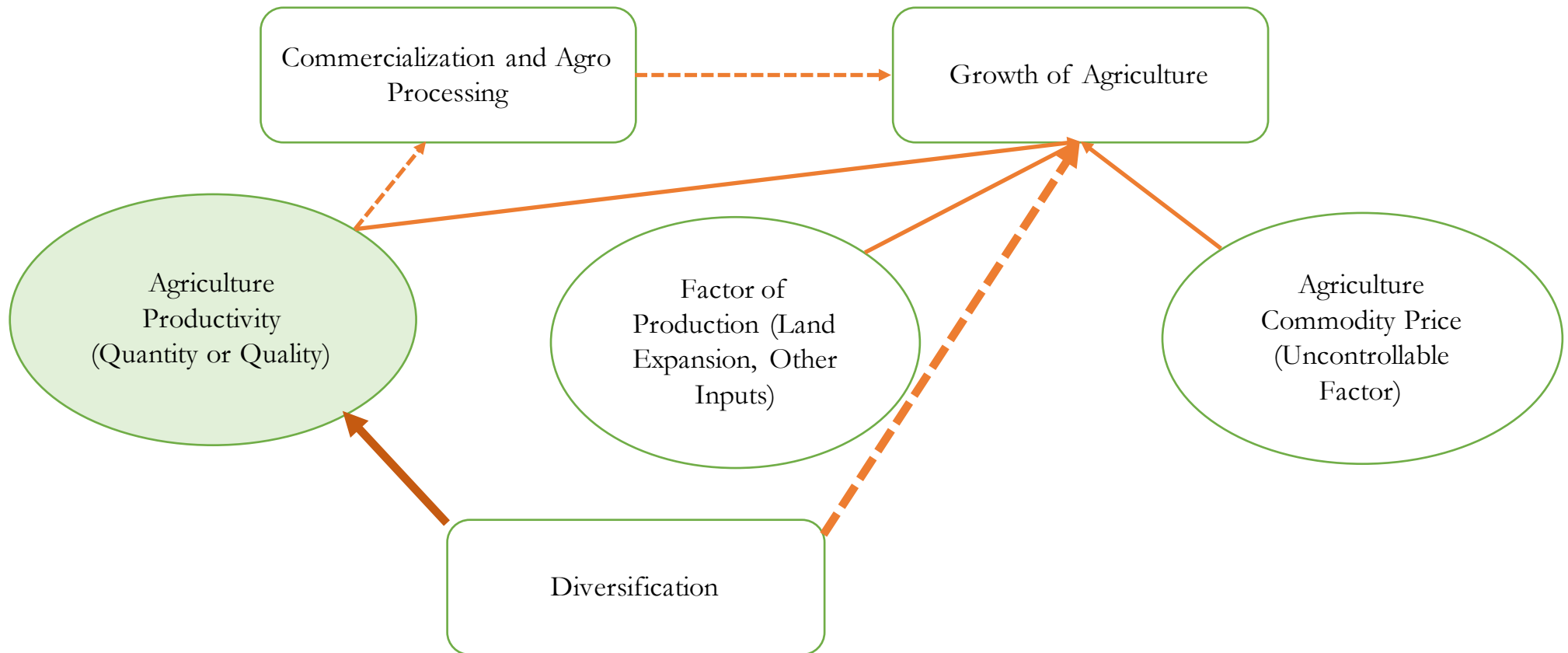
Source: USDA

# Macro Factors Affecting Agriculture Productivity



Source: FAO

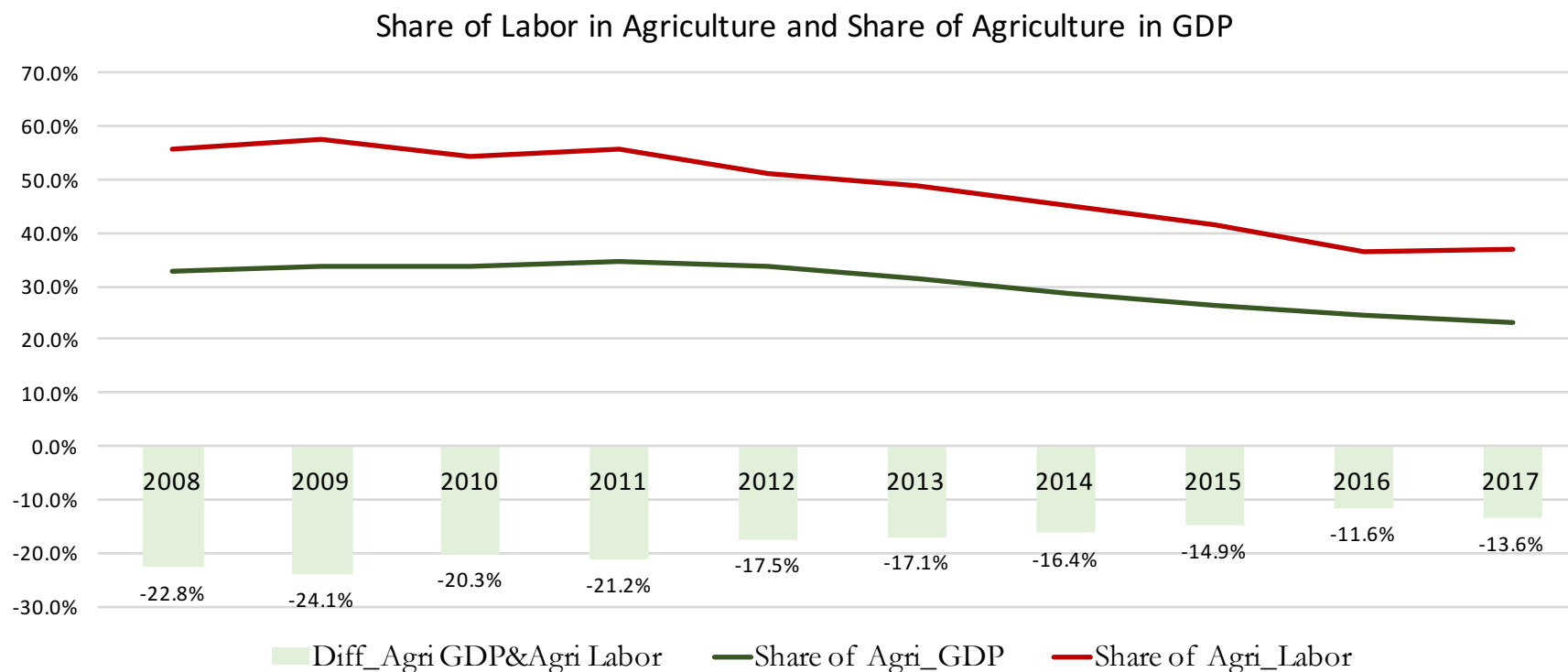
# Growth, Productivity, Commercialization and Diversification





### 3. Discussion of Preliminary Findings

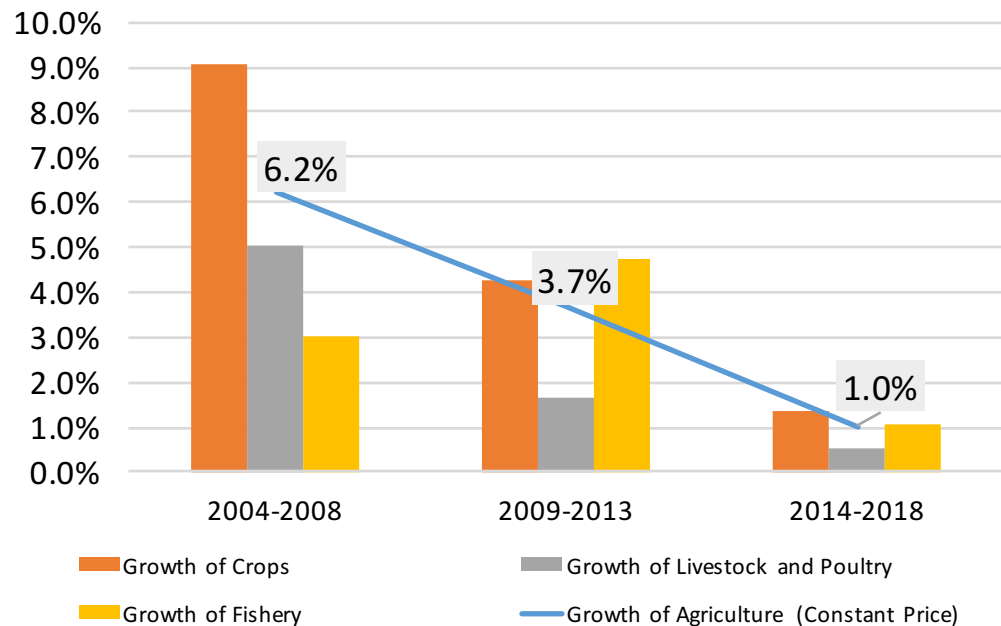
# Agriculture sector demonstrated remarkable structural transformation over the last five years....



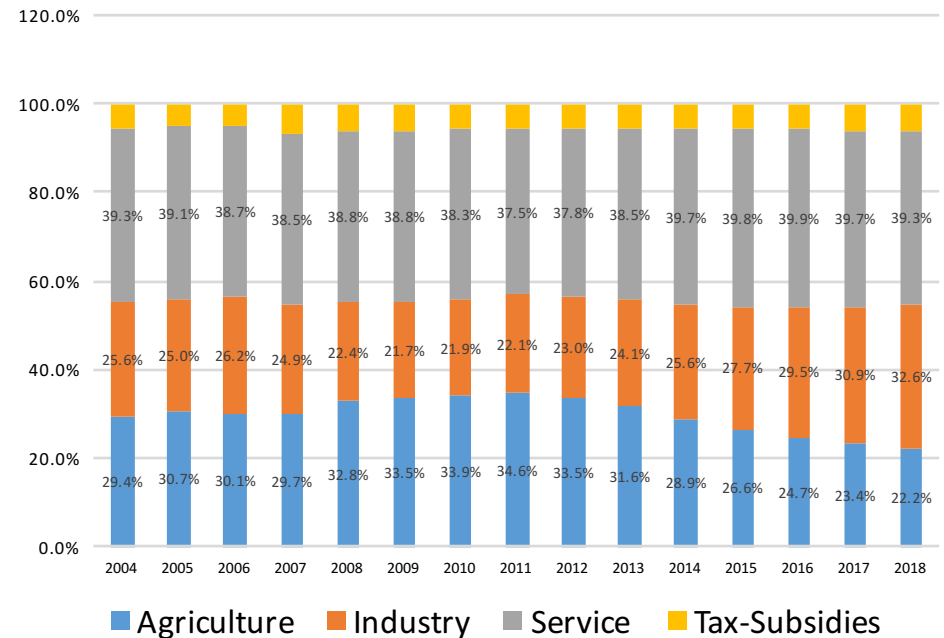
Source: CSES and NIS

However, during 2014-2018, agriculture experienced much declining growth while its share to economy gets smaller....

Growth of Agriculture Sector and Sub-Sector by Time Period



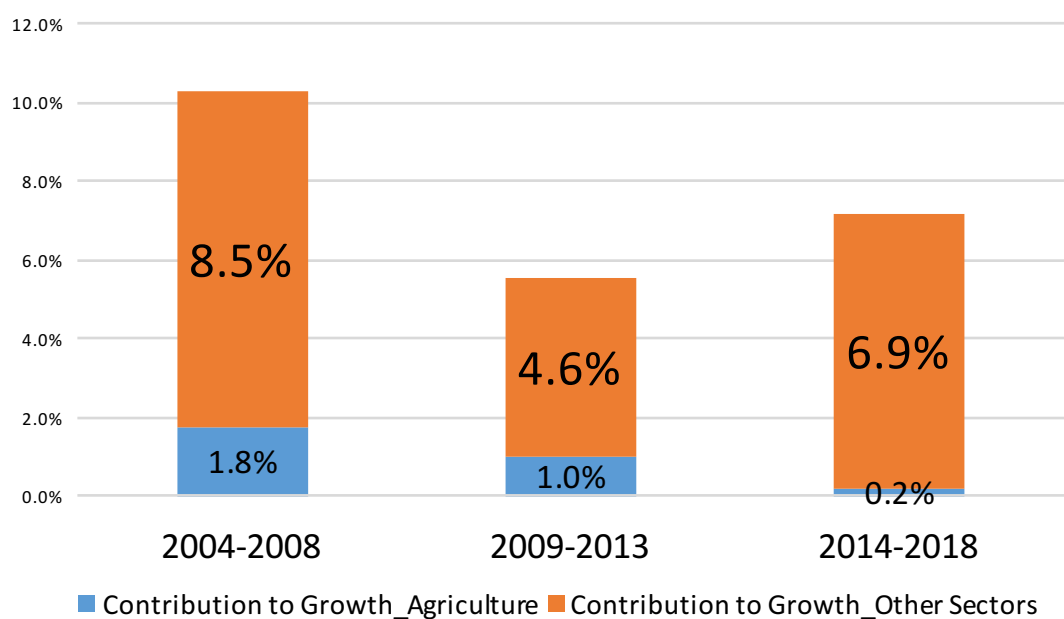
Share of Sector to Economy (2004-2018)



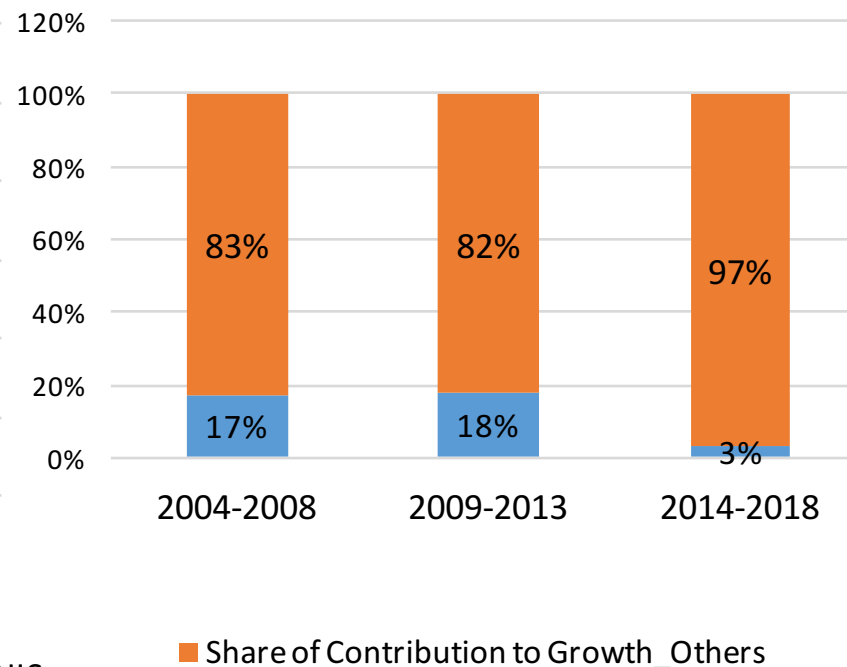
Source: NIS

# Much slower sectorial growth pushed its contribution to GDP growth to near zero...

Contribution to Growth of Agriculture and Other Sectors



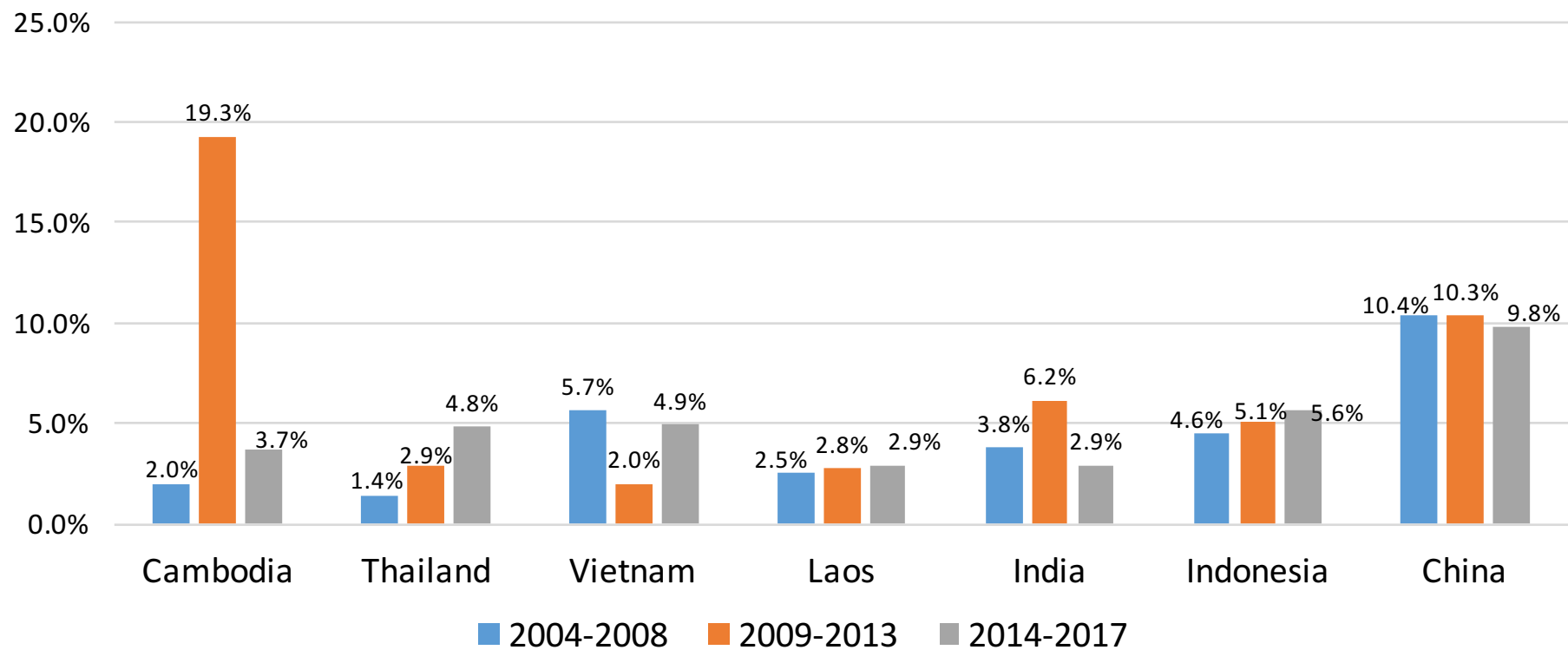
Share of Contribution to Growth of Agriculture vs. Other Sectors



Source: NIS

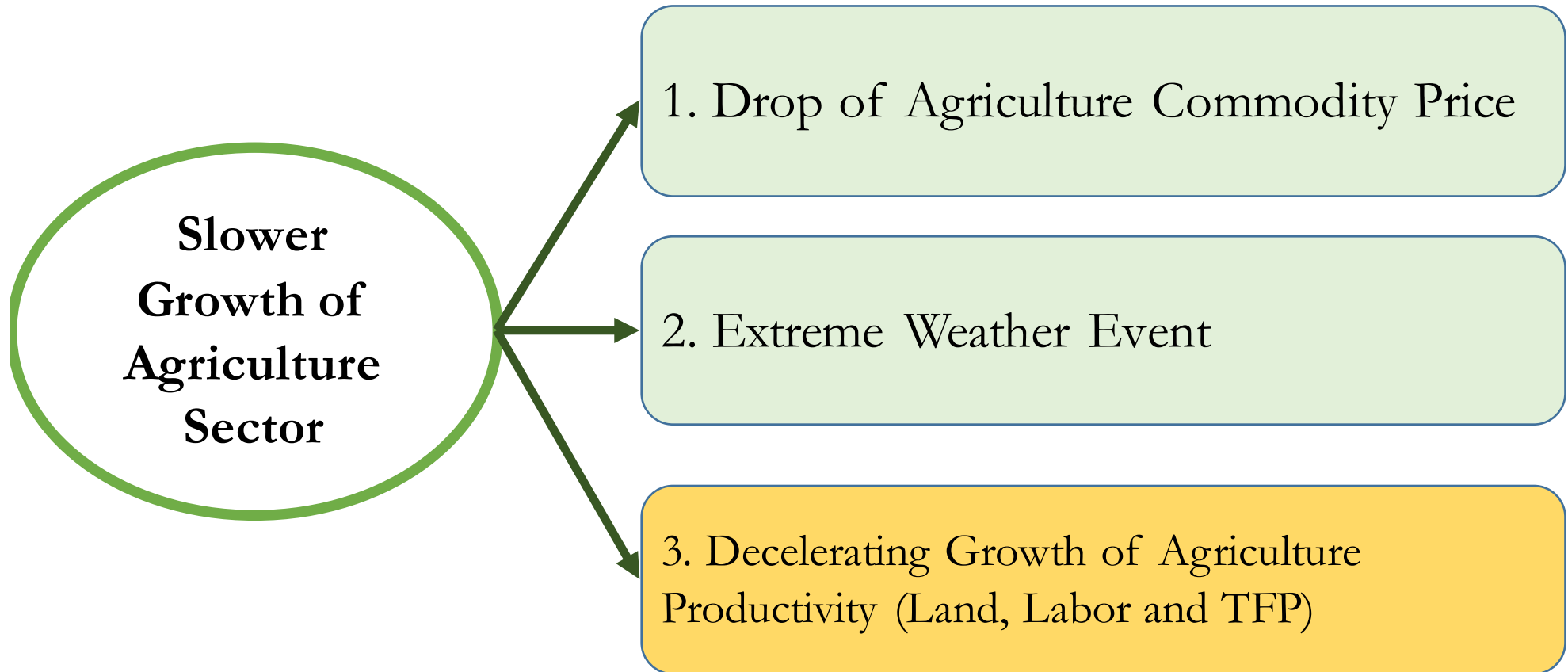
And this weak growth performance has caused the agriculture value add per worker to extremely decelerate.....

### Growth of Agriculture Value Add Per Worker by Country

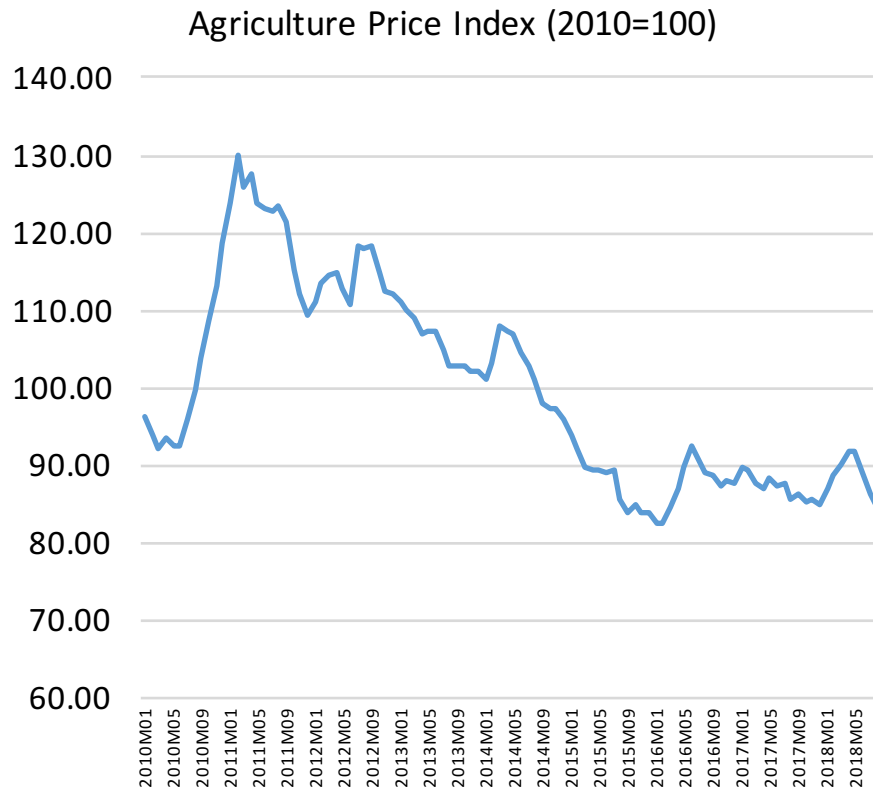


Source: WDI

# Factors Affecting Decelerating Growth of Cambodia's Agriculture

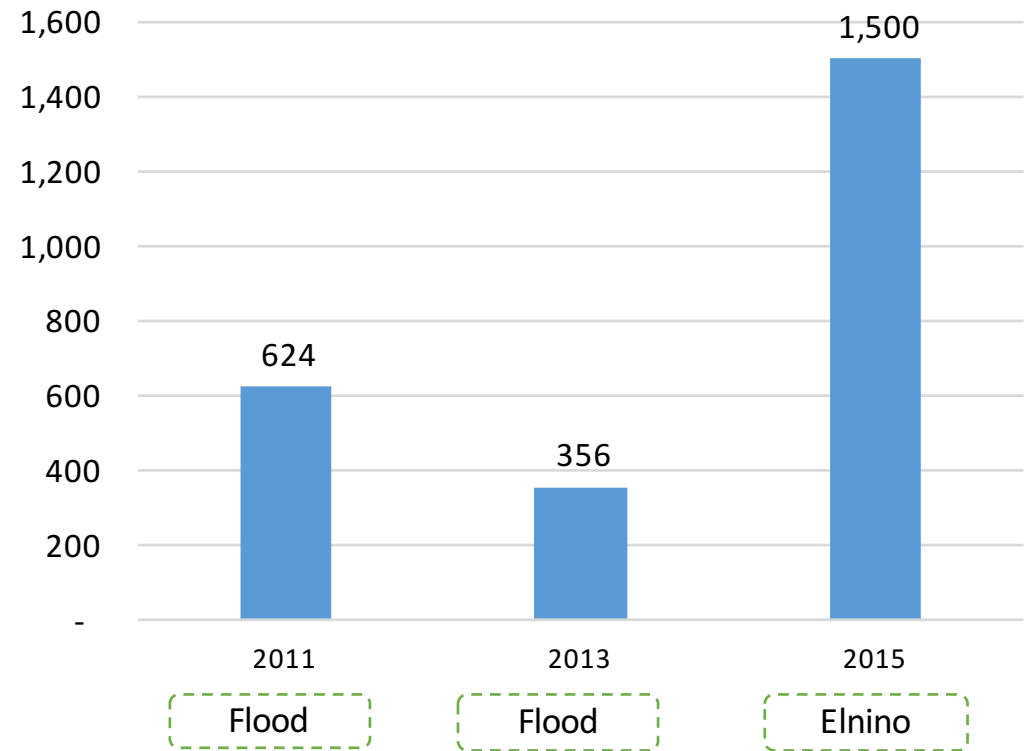


# The combined effect of agriculture commodity price drop and extreme weather on agriculture growth was significant....



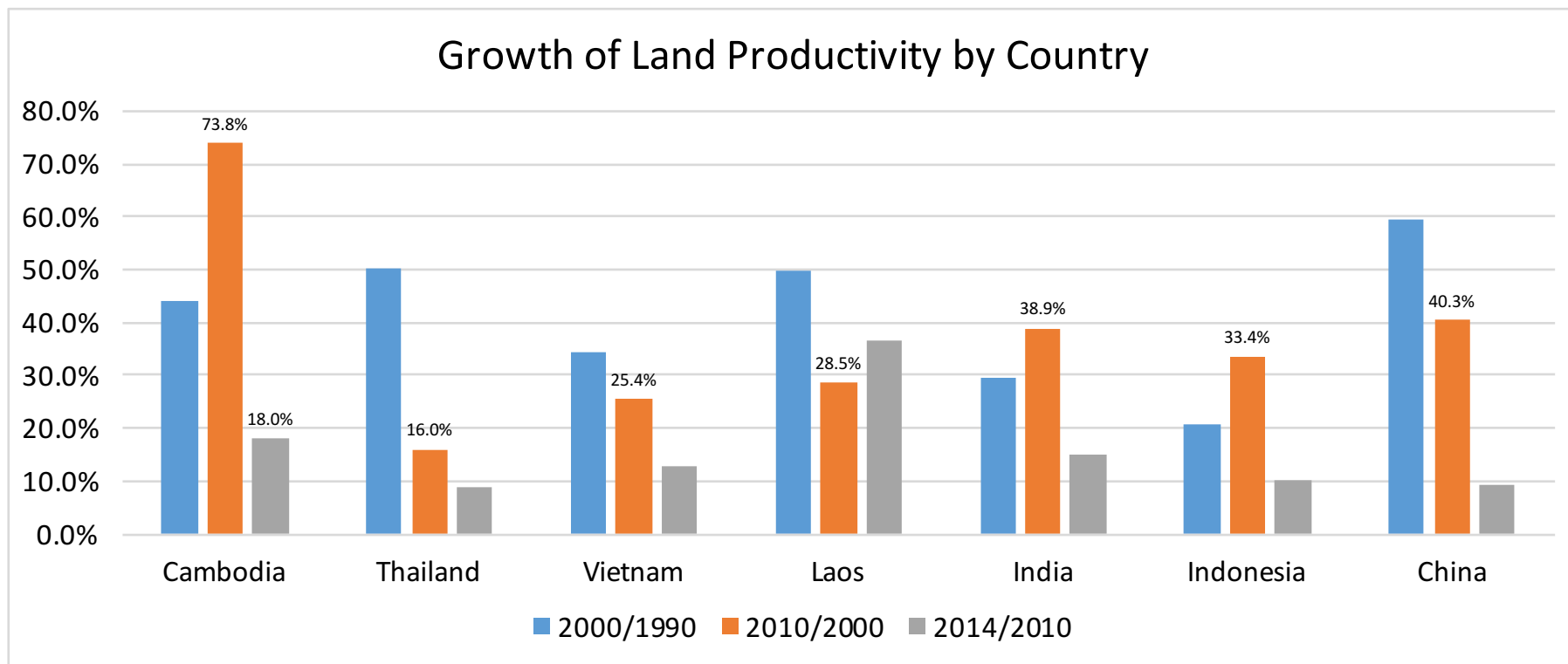
Source: WB

Economic Loss and Damage Caused by Flood and Drought, USD Million



Source: ADB and NCDM

# Agriculture's land productivity growth keeps decelerating....

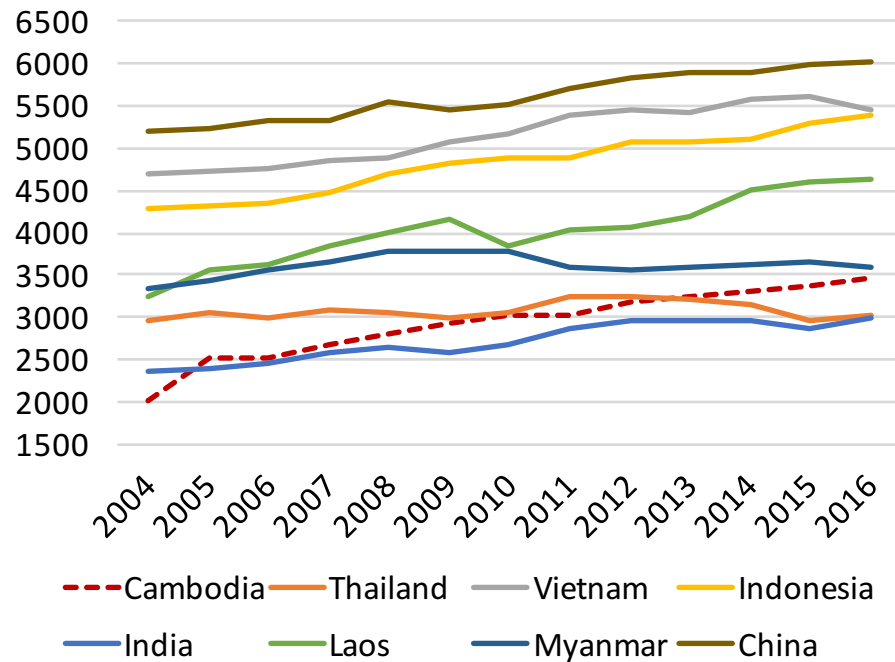


Source: GFPR 2018



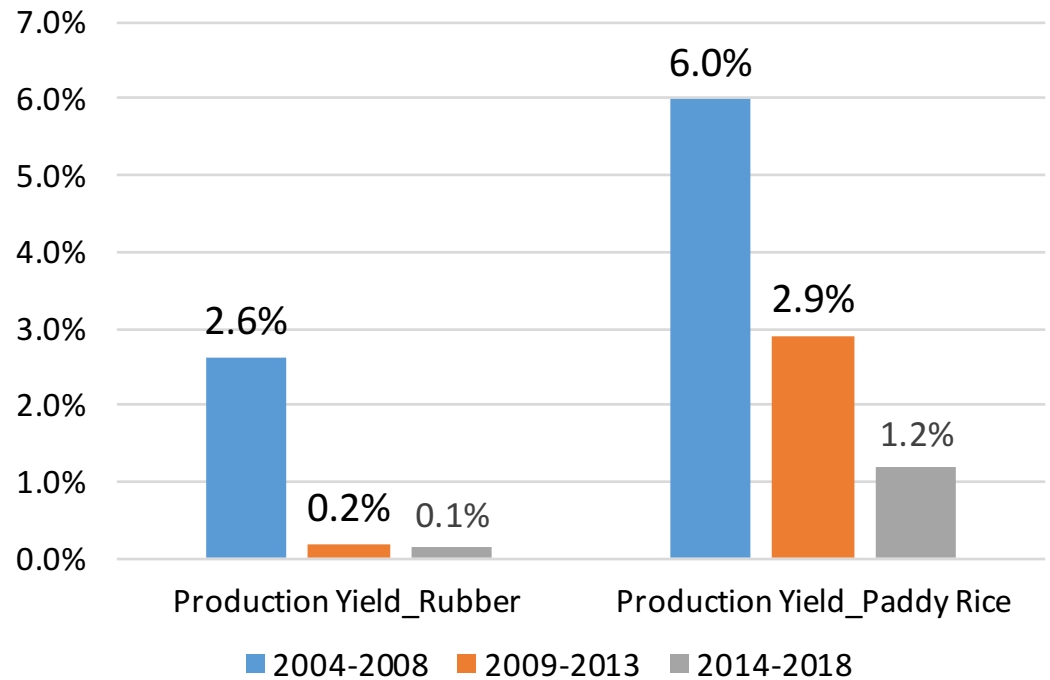
# Softer growth of land productivity was reflected by declining growth of production yield..

Cereal Yield Comparison by Countries, Kilogram/ha



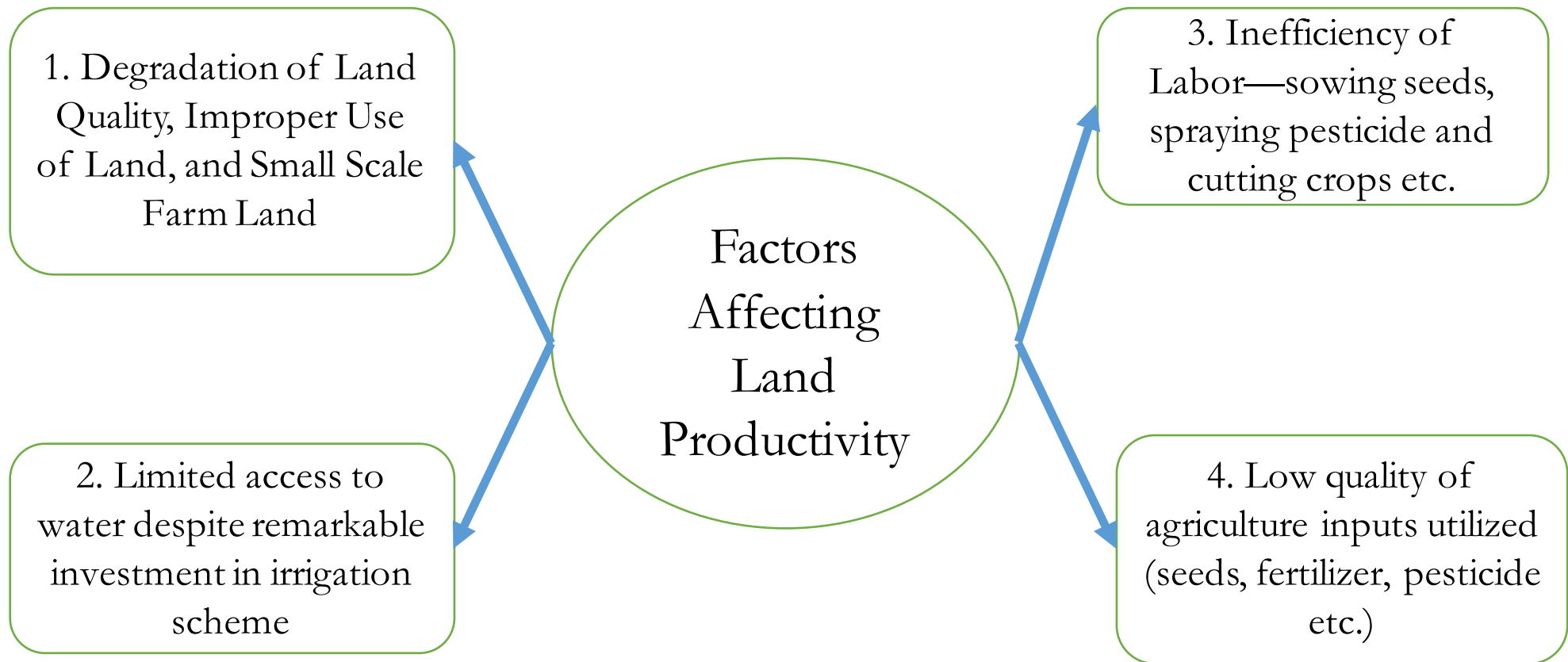
Source: WDI

Annual Growth of Production Yield (PaddyRice and Rubber)

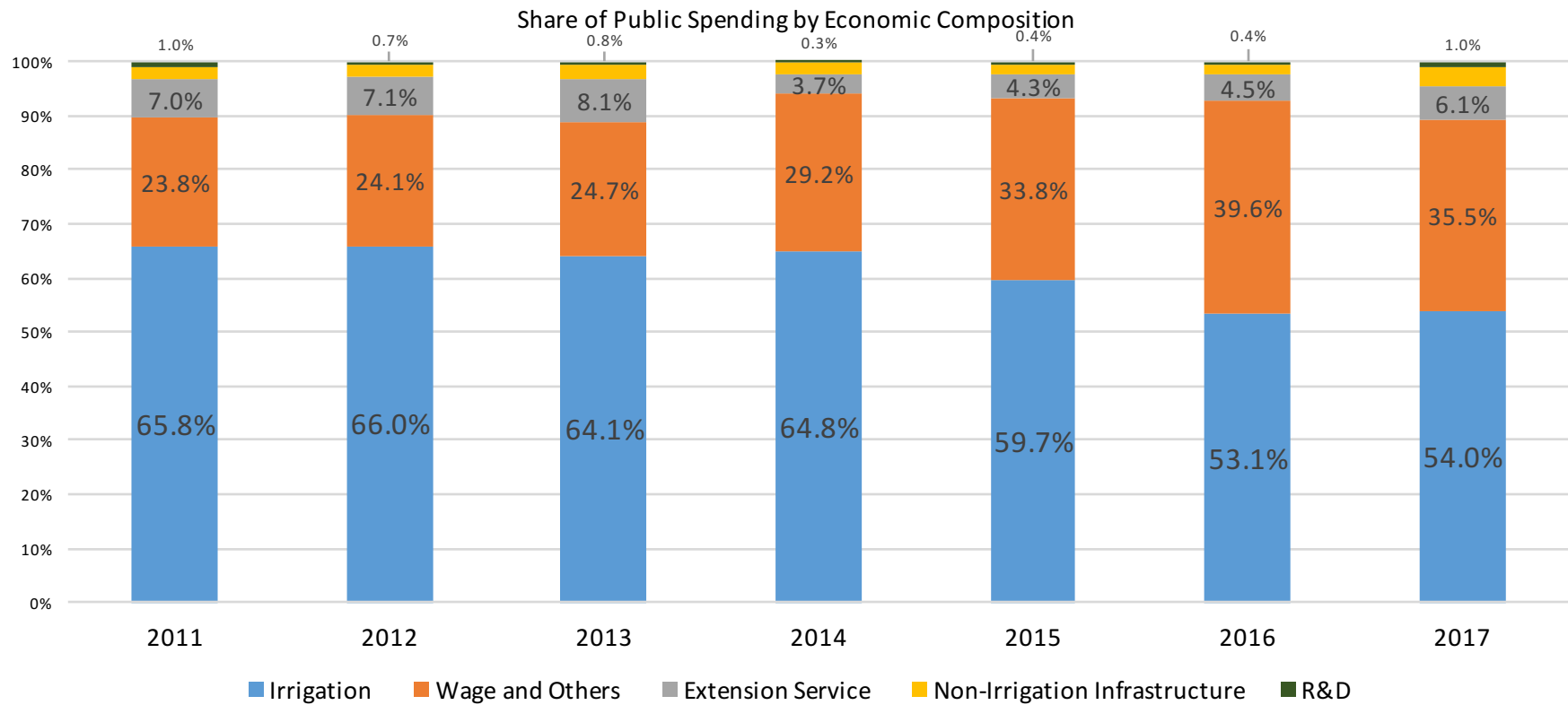


Source: MAFF

# Slower growth of land productivity was caused by four main factors.....

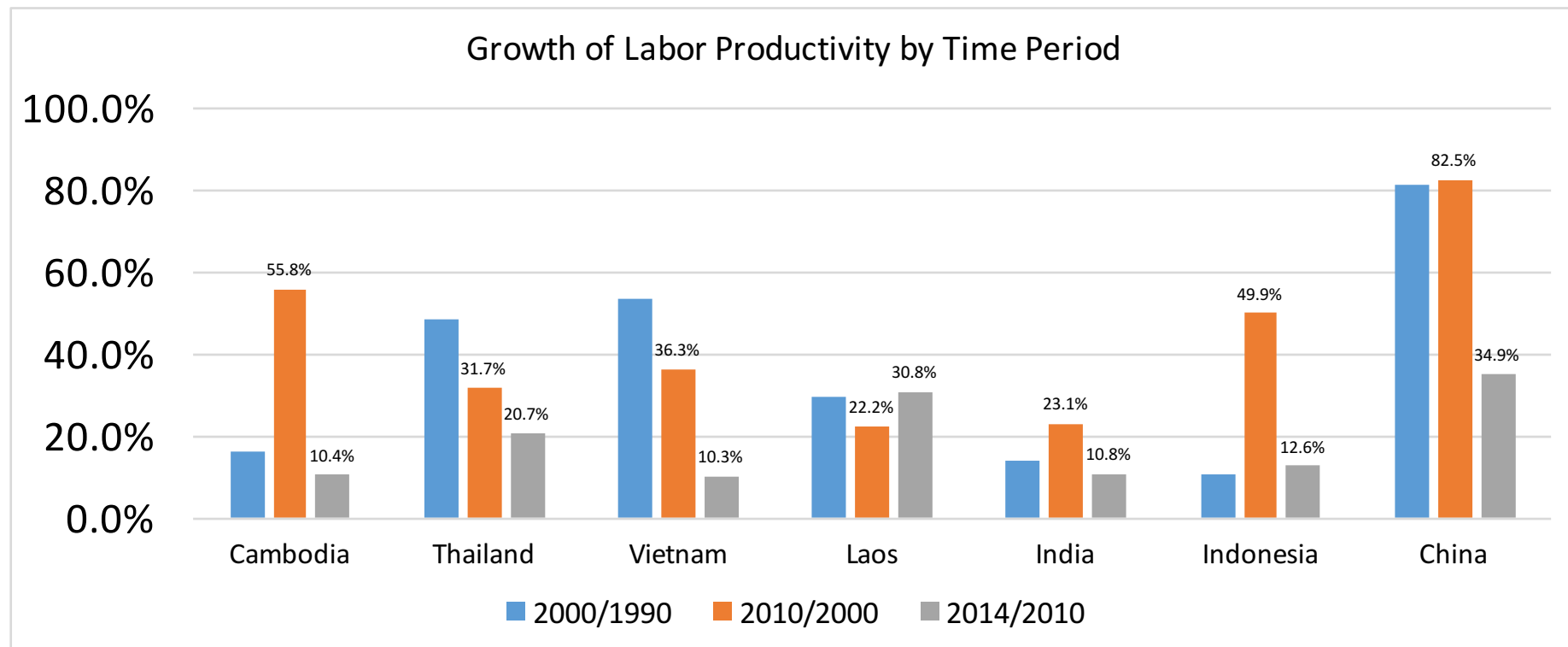


# Limited spending on R&D could be the major constraint to boost land productivity.....



Source: MEF, CDC

The growth of labor productivity was much decelerating if compared to other peer countries' .....



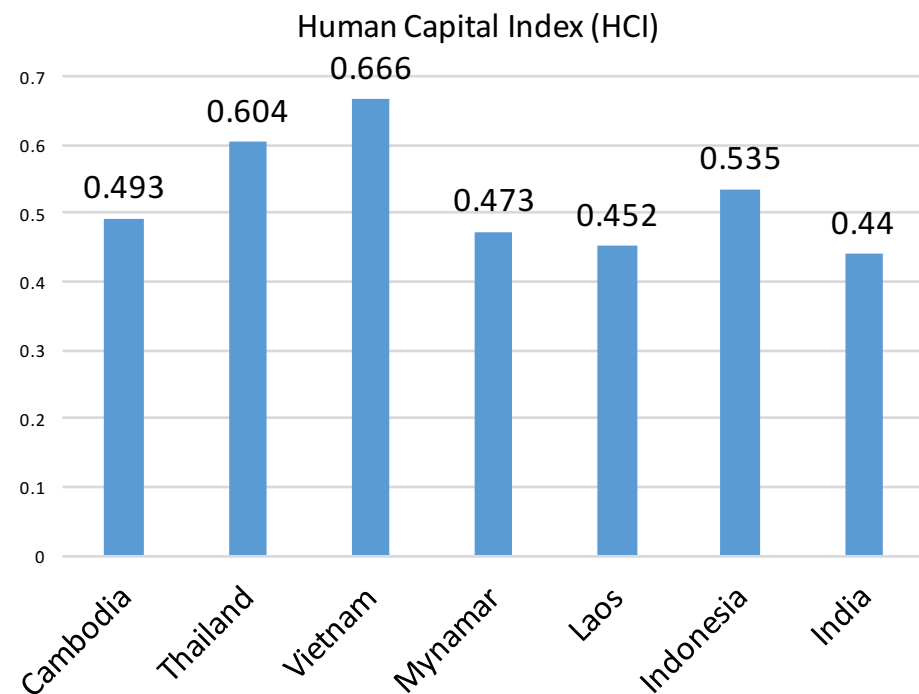
Source: GFPR 2018

Slower growth of agriculture labor productivity is attributed to relatively low farming technique caused by limited and not effective extension services....

- The annual public spending on extension services was estimated around 5.8 % of total public spending in agriculture.
- However, large percentage of farmers still do not have proper farming technique.
- Messages of agriculture extension delivered to farmers by key actors are not consistent and the same.

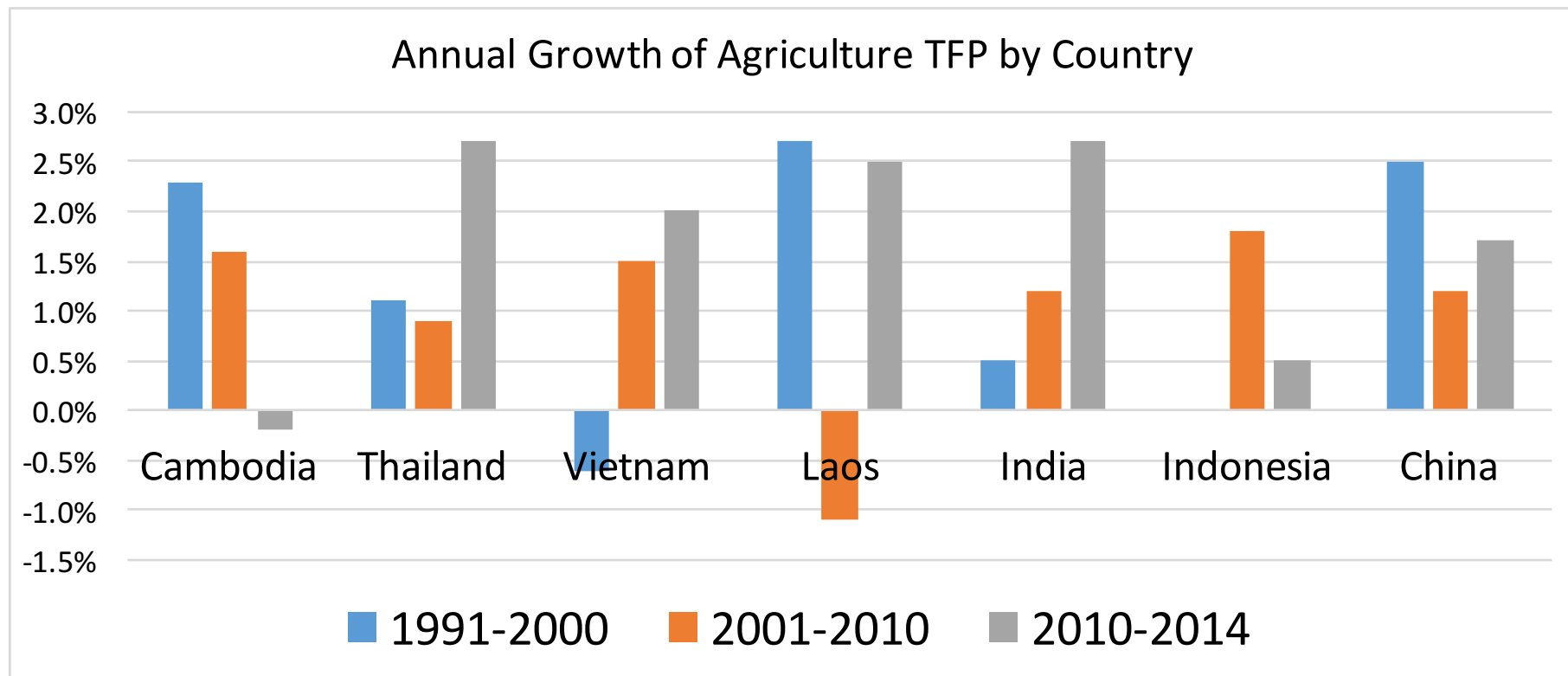
Human capital plays important roles to promote labor productivity; however human capital in Cambodia remains low..

- Building the **human capital** of smallholder farmers can **raise productivity, increase livelihoods and improve food security**.
- It plays a critical role in **agricultural growth and development**.
- Human capital determines the **quality of the labour force** that can be employed in innovative activities.



Source: World Bank

Cambodia experienced negative growth of total factor of productivity while other countries enjoyed the strong growth.....



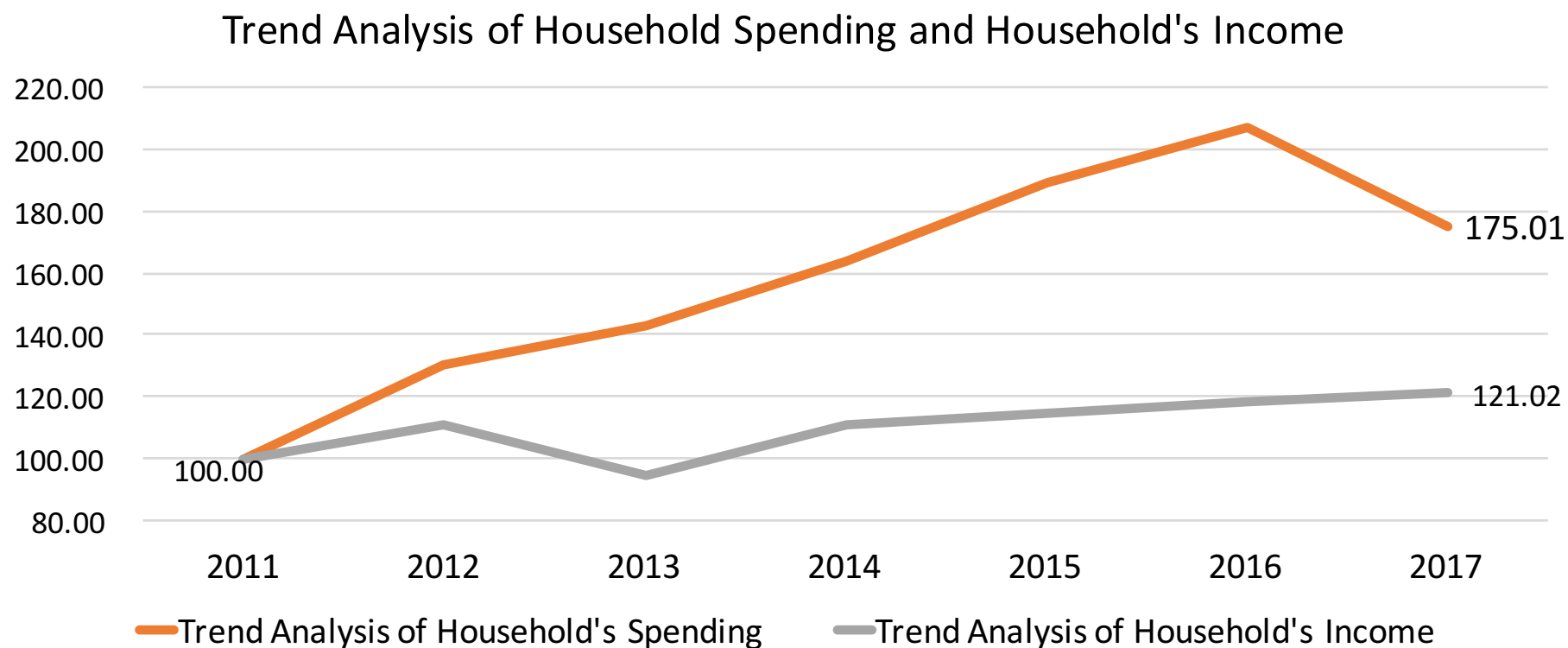
Source: GFPR 2018

## Inefficiency of agriculture inputs use and mechanization

- Study showed that **LOSS** during harvest of paddy rice is very significant—around **150-200kg** per hectare—equivalent to around **USD 300 million/annum**.
- Despite no concrete number, past field consultation showed that farmers don't appropriately use agriculture inputs (fertilizer, pesticide and amount of seeds).



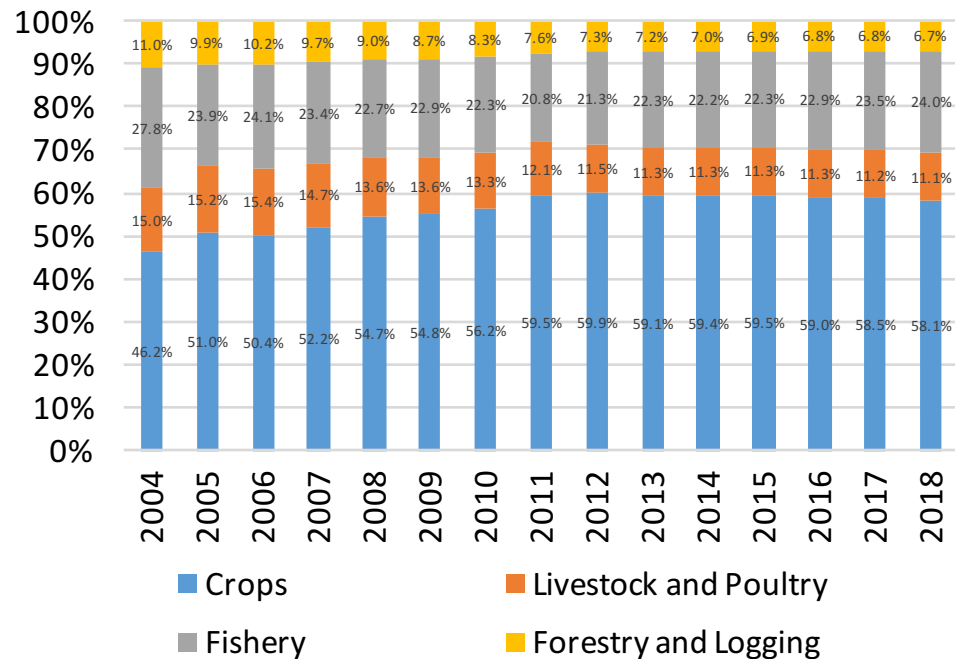
The inefficiency of agriculture input use and mechanization could be explained by diverging trend of household's income and spending...



Source: CSES

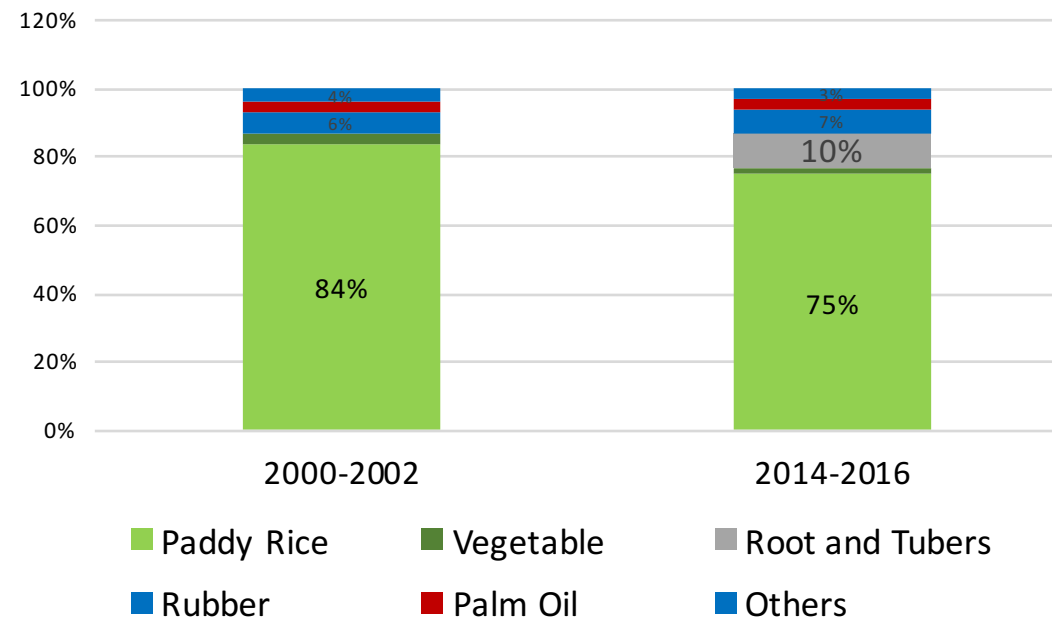
# Slower growth of diversification has explained the reasons of declining growth of TFP Cambodia's Agriculture....

Share of Agriculture Sub-Sector



Source: NIS

Share of Crops in Gross Cropped Area (2000-2002 and 2014-2016)



Source: IFPR

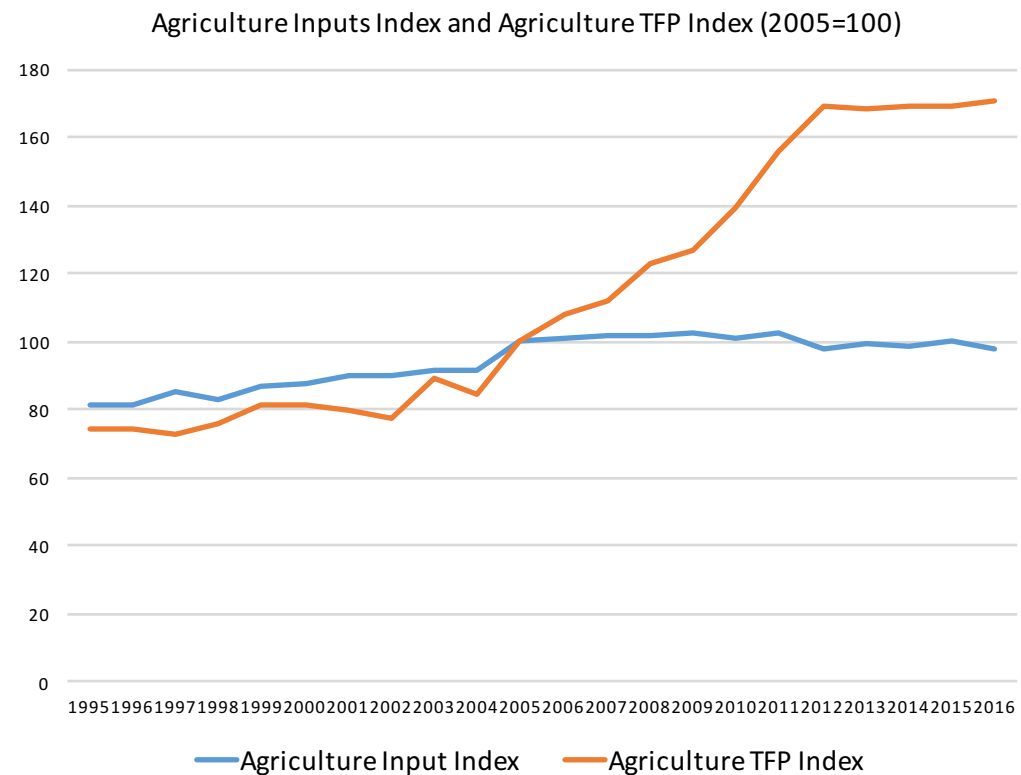
Overall, decelerating growth of agriculture over the last five years would be reflected by the stagnant growth of both  
Agriculture Inputs and Agriculture TFP

### Agriculture Inputs:

- Land
- Labor
- Livestock Capital
- Machinery Capital
- Fertilizer
- Feed

### Agriculture Total Factor Productivity:

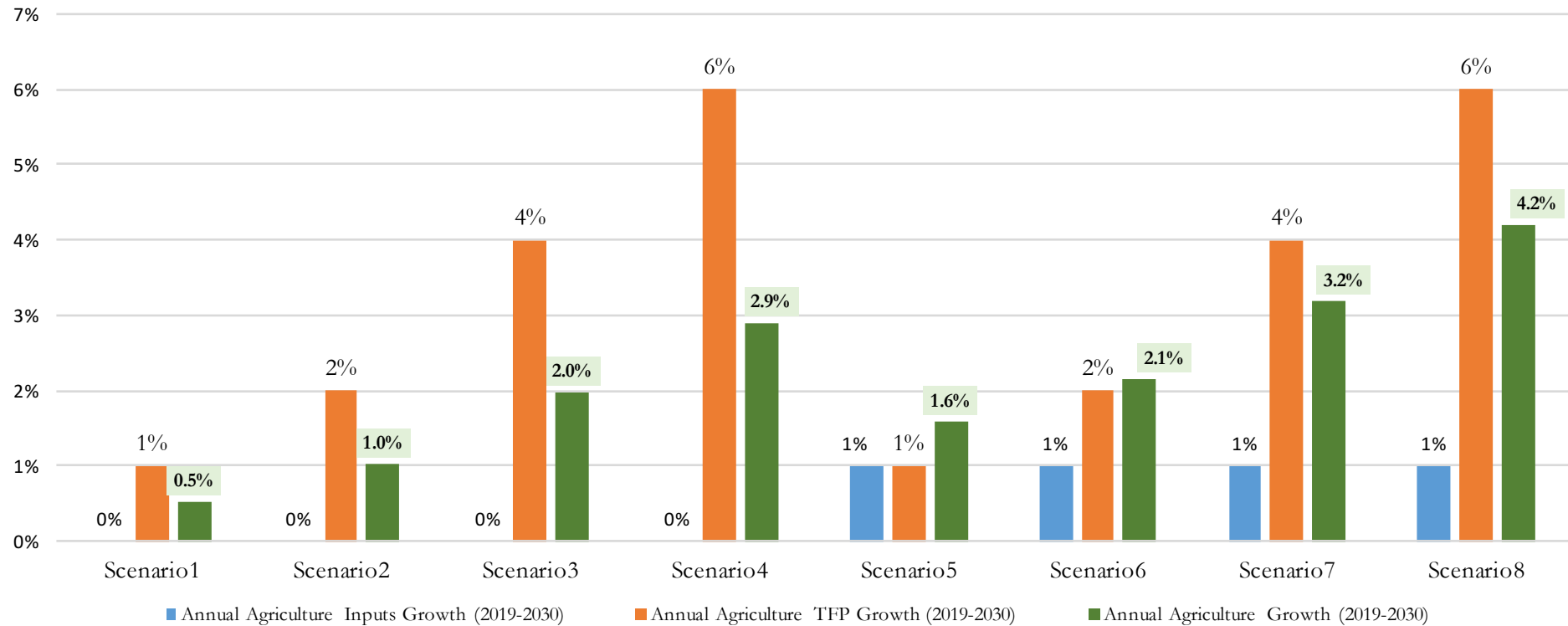
Degree of Efficiency of Utilizing Agriculture Inputs



Source: USDA, Economic Research Services Office

The growth pattern would be on the upward trend with the increase of both Agriculture Inputs and Agriculture TFP....

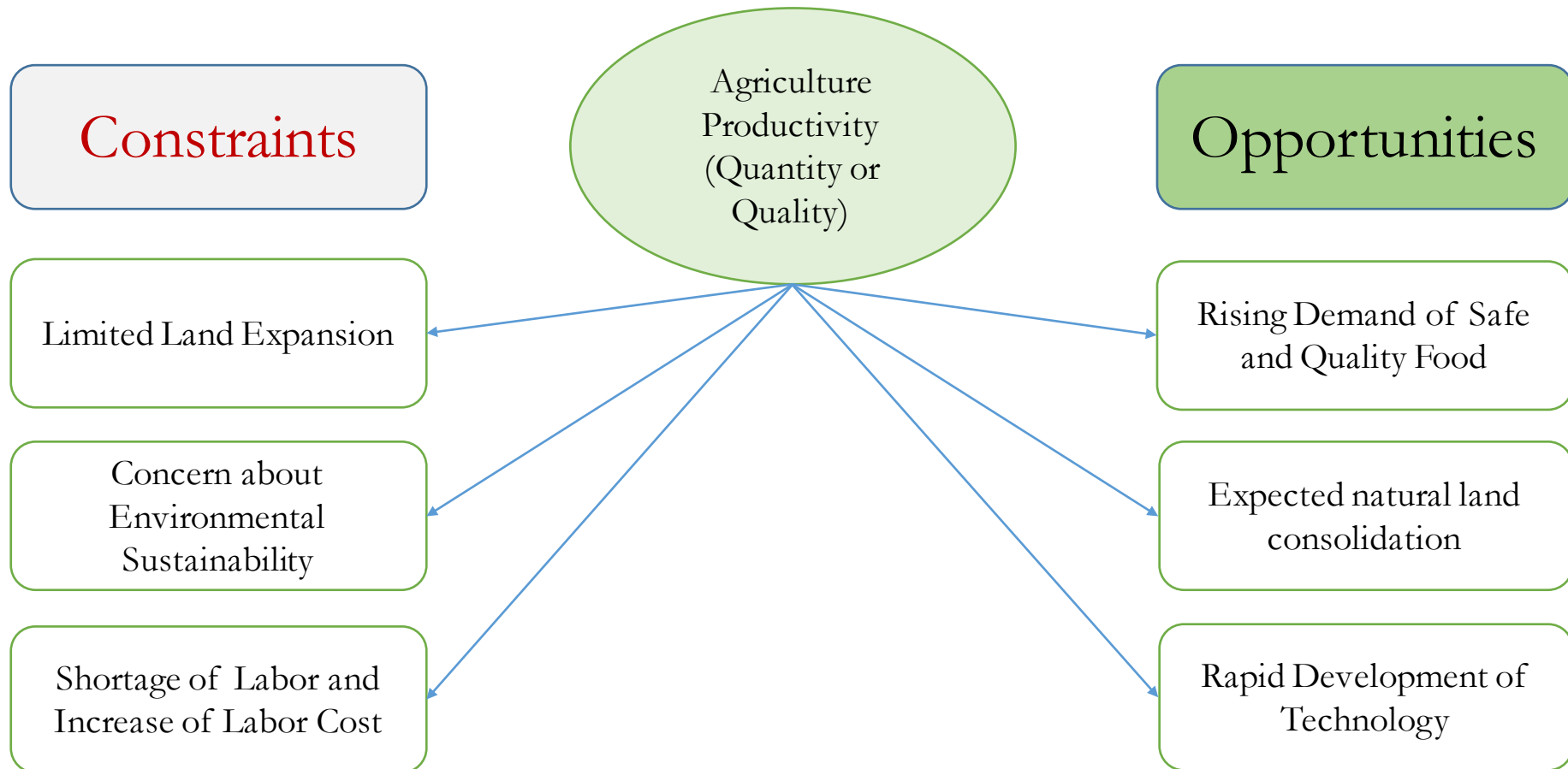
Simulated Annual Growth of Agriculture Sector with Different Scenarios



Source: Simulated by Researcher by Utilizing Data from USDA, Economic Research Services Office

## 4. Policy Recommendations

# Constraint and Opportunity of Boosting Agriculture Productivity



## Increase Land Productivity



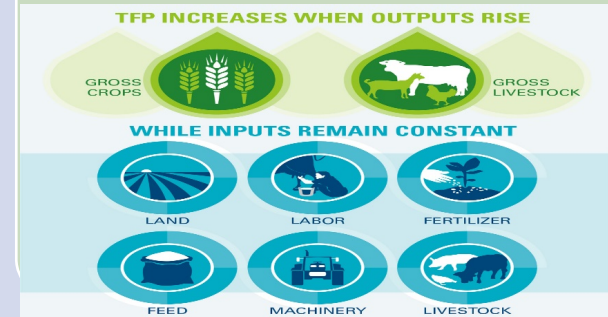
1. Rationalize and harmonize irrigation scheme.
2. Improve land quality, enforce land zoning and natural consolidation.
3. Further invest in R&D in good quality seeds and supply in the affordable manner.
4. Enforce the agriculture input quality control.

## Enhance Labor Productivity



1. Provide demand driven extension services through PPP approach.
2. Strategically focus on relatively niche product with higher value add rather than mass product.
3. Promote basic education and agro-entrepreneurship of farmers.
4. Unlock the potential of technology and educate farmers to utilize it.

## Accelerate TFP Growth



1. Optimize the use of agriculture inputs
2. Increase efficiency of mechanization through training to machinery (tractors) drivers.
3. Promote diversification of agriculture commodities.
4. Improve the infrastructure linkage and harmonization of planning and implementation

Thanks for Your Attention!!!!