

# Regional Overview of Agricultural Mechanization



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**Presentation by**

**Centre for Sustainable Agricultural Mechanization**



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# I. Introduction



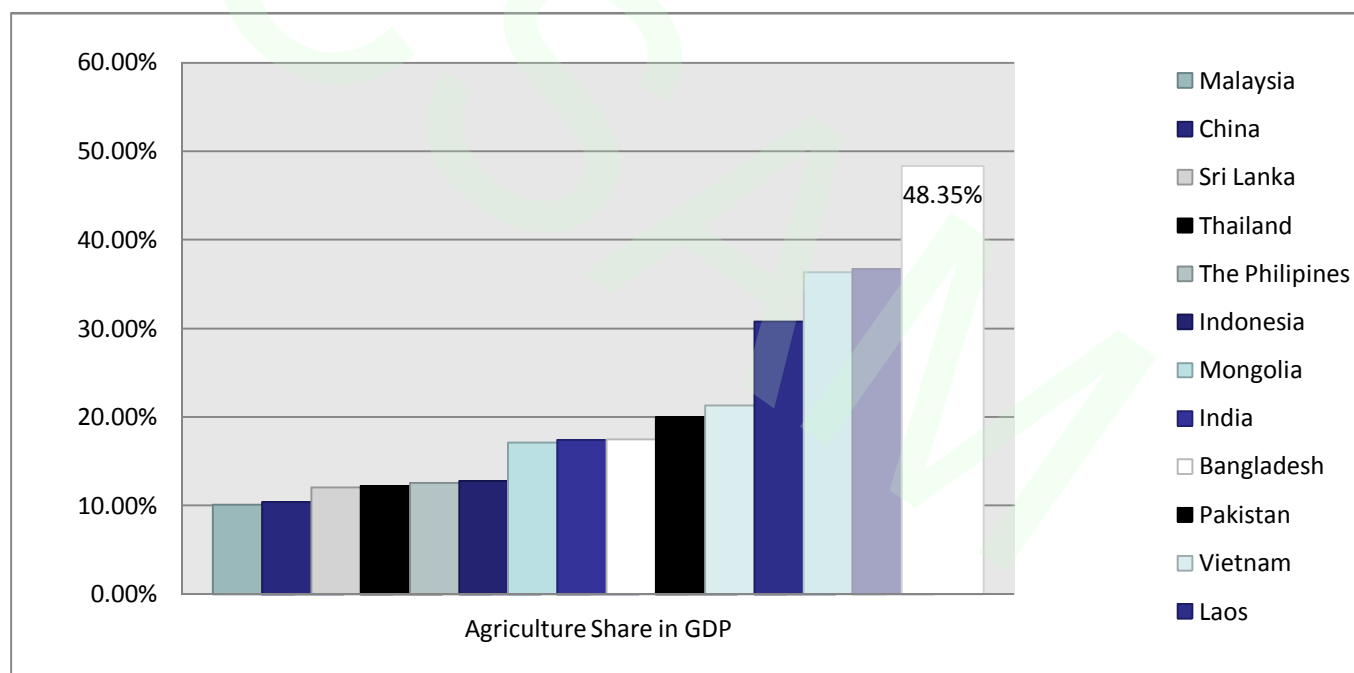
## Scopes and Definitions

- The Asian and Pacific Region in UN speak usually include the 62 members/associate members of ESCAP;
- The focus of this overview, though, is on the more active member countries (15 circa) of the Centre for Sustainable Agricultural Mechanization, a group of countries of different nature but most of which are LIFDCs.

## II. Background



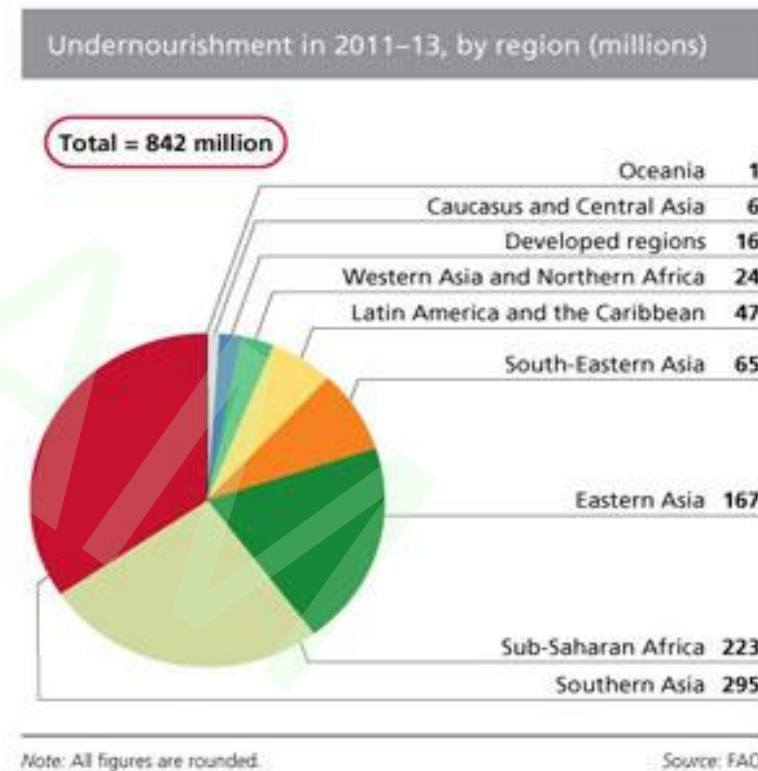
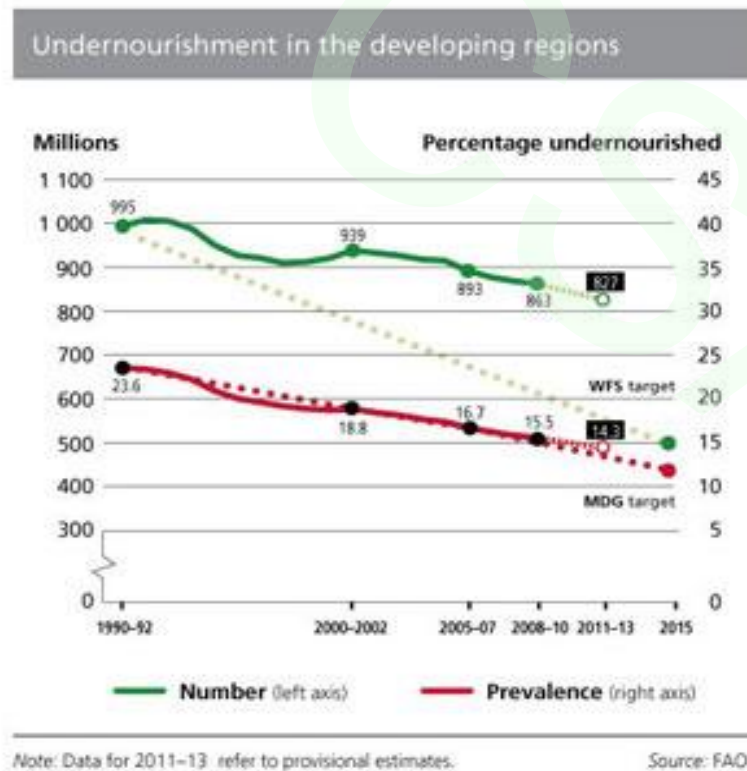
- Traditionally agricultural countries, though agriculture's share in their GDPs showing a decreasing trend, it still represents important part of national economies.



# II. Background



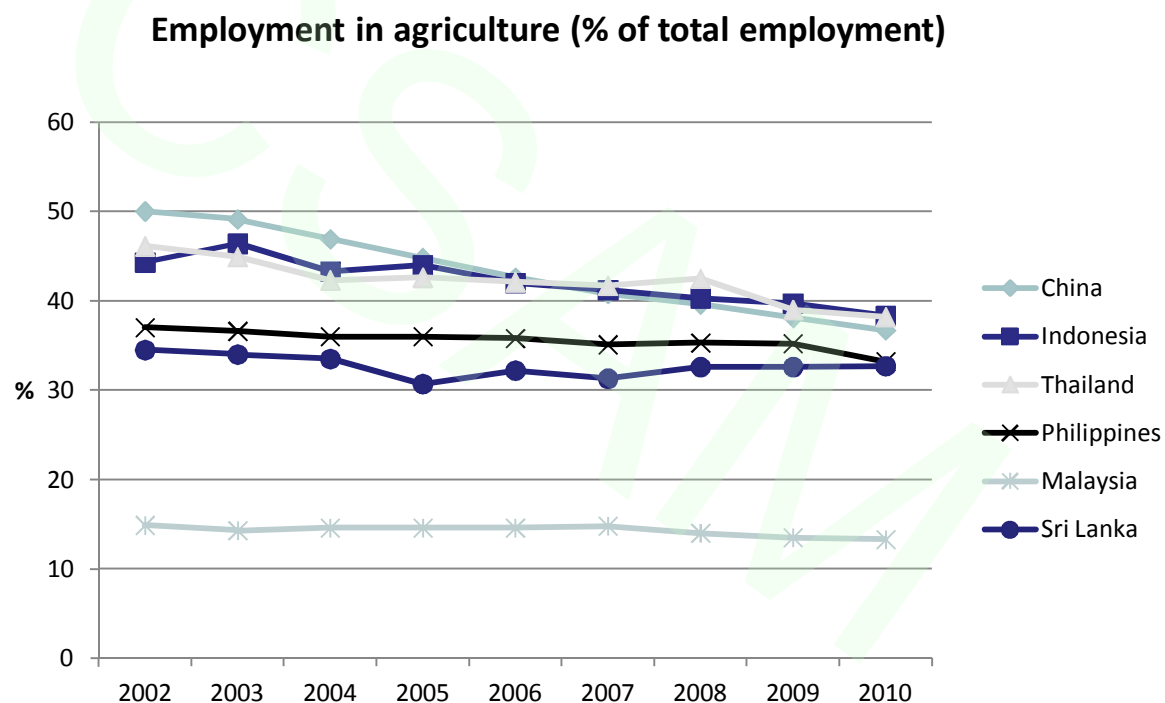
- Food security remains a major concern of many countries.



## II. Background



- Increasing urbanization and decreasing share of rural labour amid dynamic social-economic development.



## III. Overview



### 1. Generally increased mechanization levels...

*Many countries witnessed remarkable growth in mechanization, for example, China's power availability per hectare reached 3.56 kw in 2011 and its 'overall mechanization rate' raised from 35% in 2004 to 57% in 2012.*

*And India's power availability has also achieved steady growth from 1.05 kw/ha in 1995/96 to 1.7 kw/ha in 2011/12; Bangladesh from 0.4 kw/ha in 1990 to 1.17 kw/ha in 2007.*

## III. Overview



*In Cambodia, the number of tractors increased more than 2 folds during 2006 to 2012, its harvesters increased fifteen folds.*

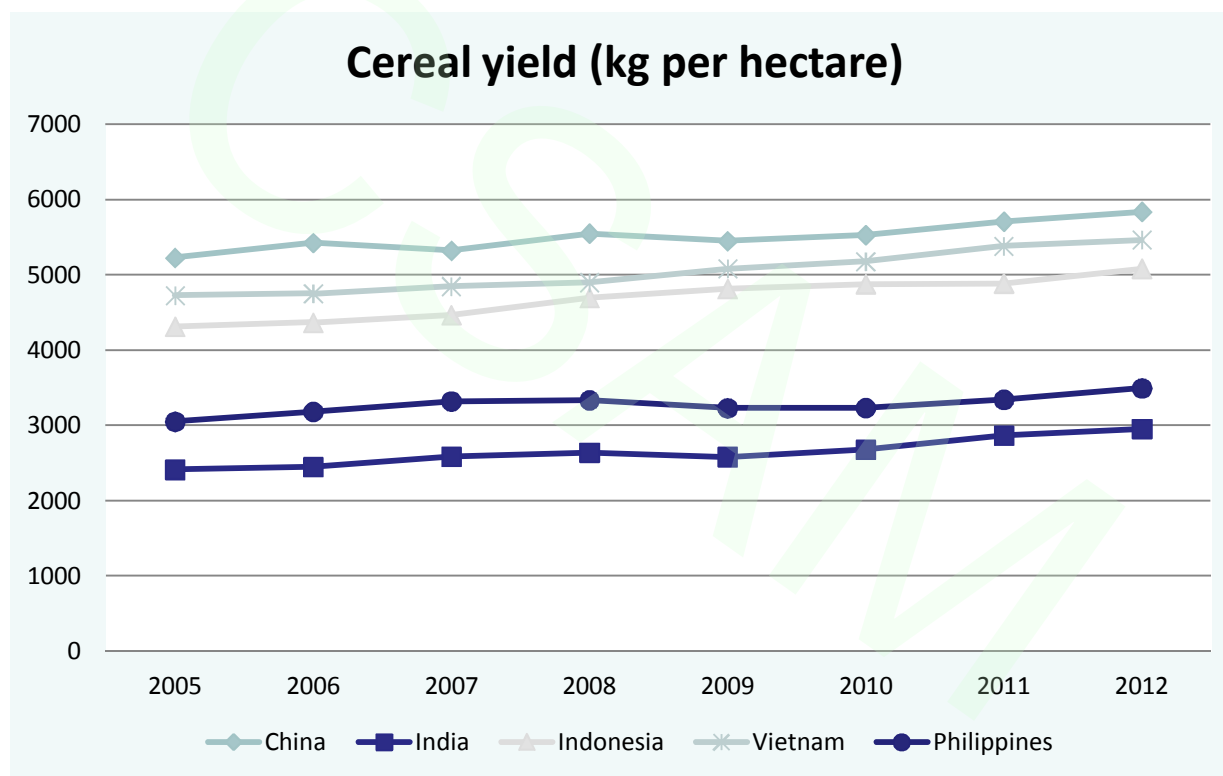
*And total tractors registered in Nepal increased from around 30,000 units in 2003 to nearly 70,000 in 2012. Vietnam's total agricultural horsepower more than doubled during the first decade of this century.*



# III. Overview



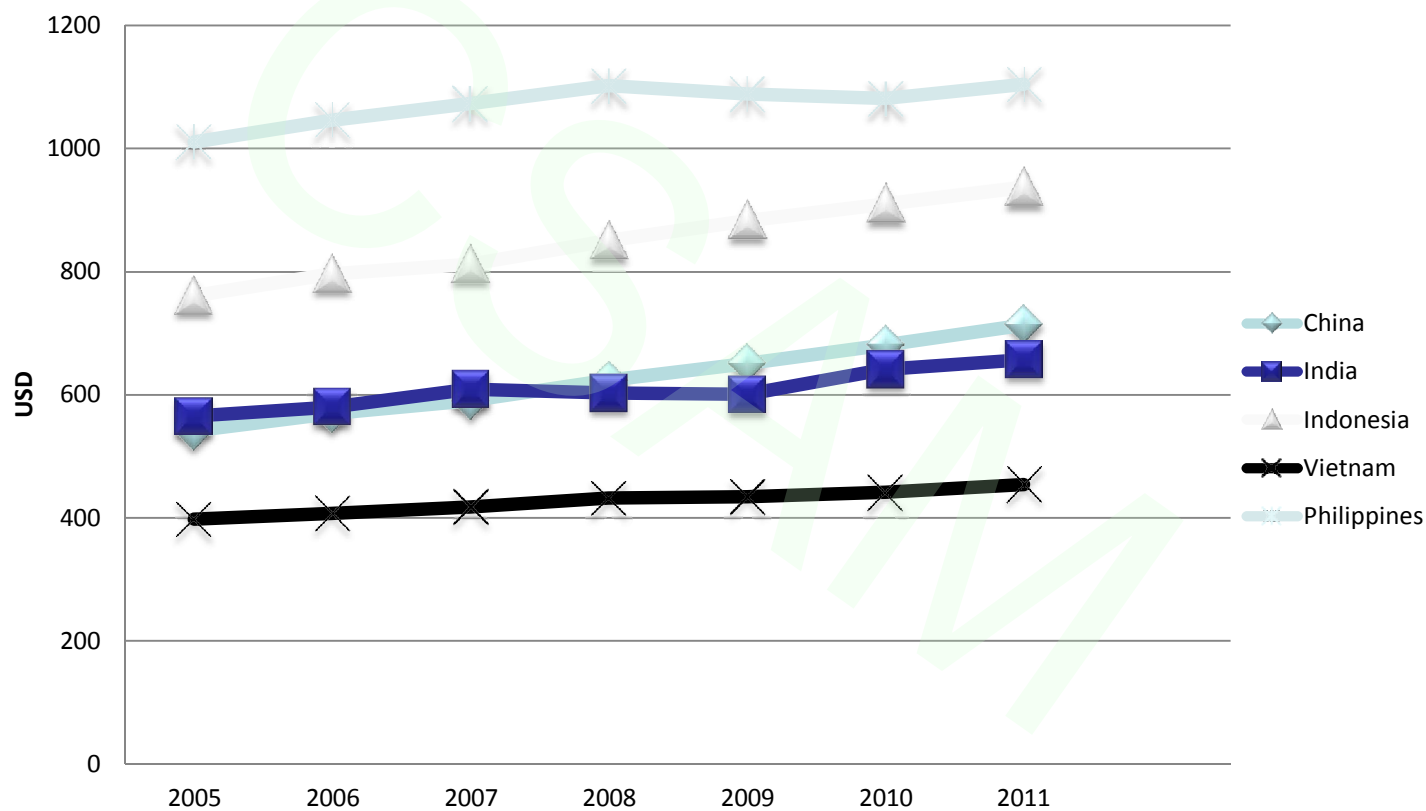
## Productivity gains in line with increased mechanization



# III. Overview



### Agriculture value added per worker (constant 2005 US\$)



## III. Overview



2. ...but the growth has been unevenly distributed. For instance, mechanized rice harvesting is rather uncommon in Indonesia.

*Yet the unbalance is not only across border but also among different districts within the same country, like in India, the power availability in Orissa was only 0.60 kw/ha in 2001, compared with 3.5 kw/ha in Punjab...*

### III. Overview



*Big gaps also exist among different crops, for example wheat harvesting in China was 91% mechanized while that of cotton only 5.7 in 2011;*

*and among different stages of production too, for example close to 70% of rice is harvested by machines while the mechanization rate of rice planting is only 26%, also in China.*

# III. Overview



## III. Overview



### 3. Major breakthroughs in agricultural machinery manufacturing capacities

*India has been a tractor exporting country since 1980s and now about 10% of its tractors are exported;*

*China became the world leading agricultural machinery producer in 2012, producing over 2 million tractors and 1 million harvesting machinery per year;*

## III. Overview



*Local production of power tillers, seeders, hand and foot sprayers, threshers and millers, among other more sophisticated machines and implements, is becoming very common in most countries.*

## III. Overview



4. Increased volume of trade and investment in the agricultural machinery industry

CSAM



# III. Overview



Contributing factors to increased levels of mechanization:

- Policies and strategies implemented;
- Subsidies/credit/taxation(import duties, tax on industry);
- Research and development efforts;
- Targeted extension service;
- Larger holdings in some countries (cooperatives and land lease); and
- Specialized services (more accessibility and affordability to farmers through custom hiring/leasing).

## IV. Future Trends and Outlook



- Comparatively low level of mechanization implies great potentials and opportunities to mechanize, likely boosted by government initiatives and policies;
- Greater need for adaptable machinery and implements for diversified agro-climate zones and topographies;
- The need to tackle environmental concerns, including through conservation agriculture;

# IV. Future Trends and Outlook



## IV. Future Trends and Outlook



- Improved efficiency of utilization, for example through custom hiring or larger holdings;
- Better trade-off of safety, quality and affordability;
- Stronger public-private partnership;
- Greater scope for regional cooperation in policy assistance, information sharing, collaborative R&D, harmonization of standards, capacity building and trade and investment facilitation.

## V. CSAM's Strategic Fit



### CSAM's Vision

As a regional institute of UNESCAP, CSAM's vision is to:

- “achieve production gains, improved rural livelihood and poverty alleviation through sustainable agricultural mechanization for a more resilient, inclusive and sustainable Asia and the Pacific.”

## V. CSAM's Strategic Fit



### CSAM's Objectives

- The **objectives** of the Centre are to enhance technical cooperation among the members and associate members of ESCAP as well as other interested member States of the United Nations, through extensive exchange of information and sharing of knowledge and promotion of research and development and agro-enterprise development in the areas of sustainable agricultural mechanization and technology for the attainment of the internationally agreed development goals, including the Millennium Development Goals, in the region.

## V. CSAM's Strategic Fit



### CSAM's Strategic Functions:

1. Serving as a regional forum for regular policy dialogues;
2. Becoming a data and information hub;
3. Serving as a recognized reference point for standards and protocols;
4. Strengthening its role as the center for capacity building;
5. Facilitating intra-regional agro-business development and trade.



Thank you.

Zhao Bing

[bing.zhao@un-csam.org](mailto:bing.zhao@un-csam.org)