

# The rapid rise of agricultural mechanization in Myanmar

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Food Security Policy Project

South-South Knowledge Sharing on Agricultural Mechanization  
IFPRI, CIMMYT, Ethiopian Agricultural Mechanization Forum

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November 1, 2017

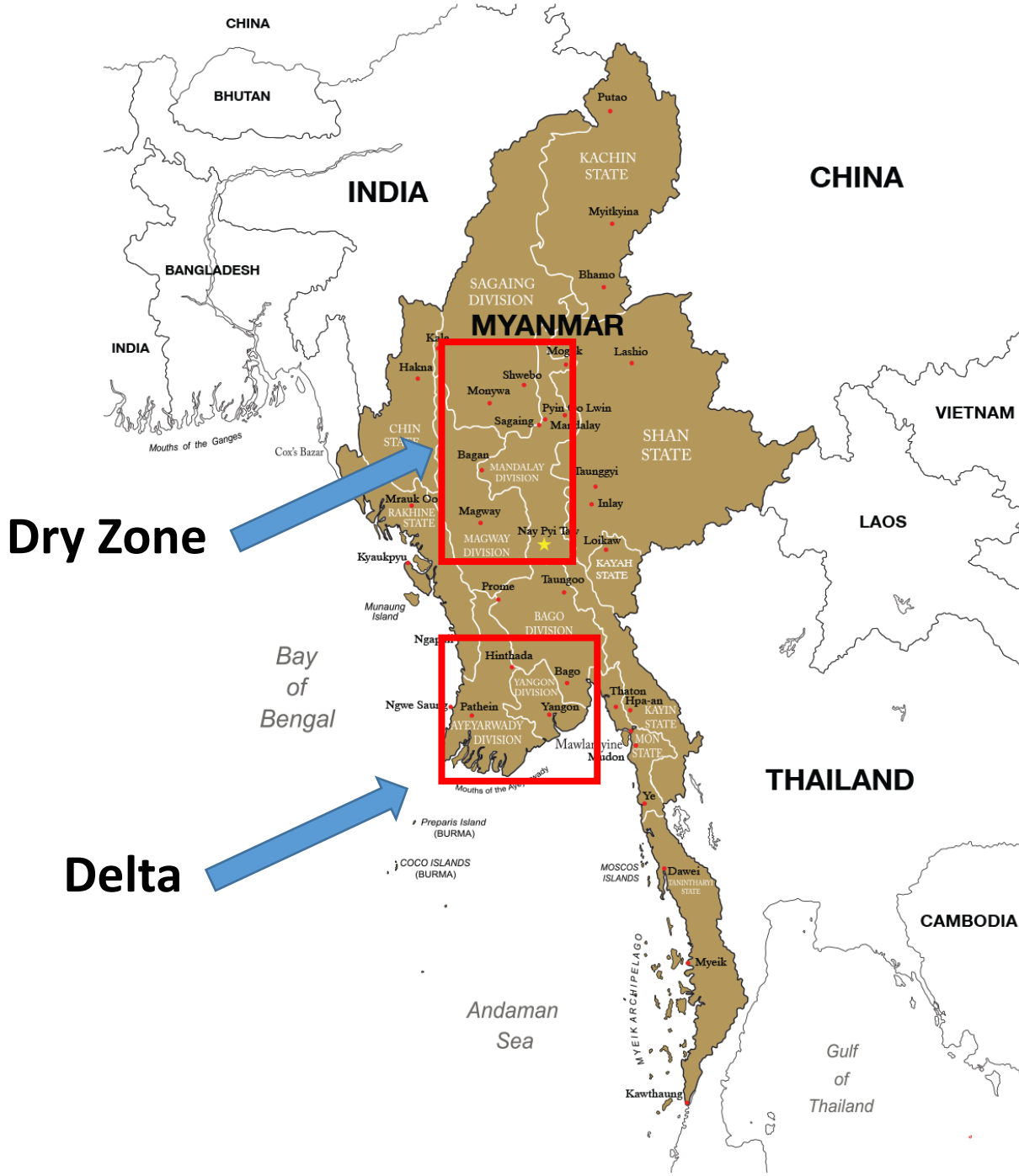


# Myanmar recent historical context

- Recently emerging from 50 years isolation - political & economic reforms from 2010
- Least developed economy in SE Asia
- Agricultural GDP = 38%; Population 70% rural
- Conventional view of Myanmar's rural economy is gloomy one of stagnation:
  - still- “The level of agricultural mechanization in Myanmar is still low... not a surprise given the low wages in rural areas, the excess agricultural labor, and the lacking infrastructure and regulatory environment for machinery service providers... Farmers in general do not have the access to long-term capital, preventing investments in agricultural machinery” (World Bank, 2016)
- BUT, situation changing very quickly

# Data sources

- Two recent household surveys:
  - Delta: Myanmar Aquaculture-Agriculture Survey 2016, 4 townships, 1100 HH
  - Rural Economy and Agriculture Dry Zone Survey 2017, 4 townships, 1600 HH
- Both aim at generating 'benchmark' of current status of rural economy (farm & non-farm) and recent changes within it, including mechanization
- Survey of agricultural machinery supplier businesses from main 'cluster' in Yangon (2016)
- Surveys of suppliers and rental service providers in Dry Zone (ongoing)



CHINA

BHUTAN

INDIA

BANGLADESH

INDIA

Mouths of the Ganges

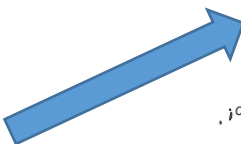
Cox's Bazar

**Dry Zone**



Bay of Bengal

**Delta**



Munaung Island

Preparis Island (BURMA)

COCO ISLANDS (BURMA)

Andaman Sea

MOSCOS ISLANDS

Dawei

MYEIK ARCHIPELAGO

Myeik

Kawthaung

CHINA

VIETNAM

LAOS

THAILAND

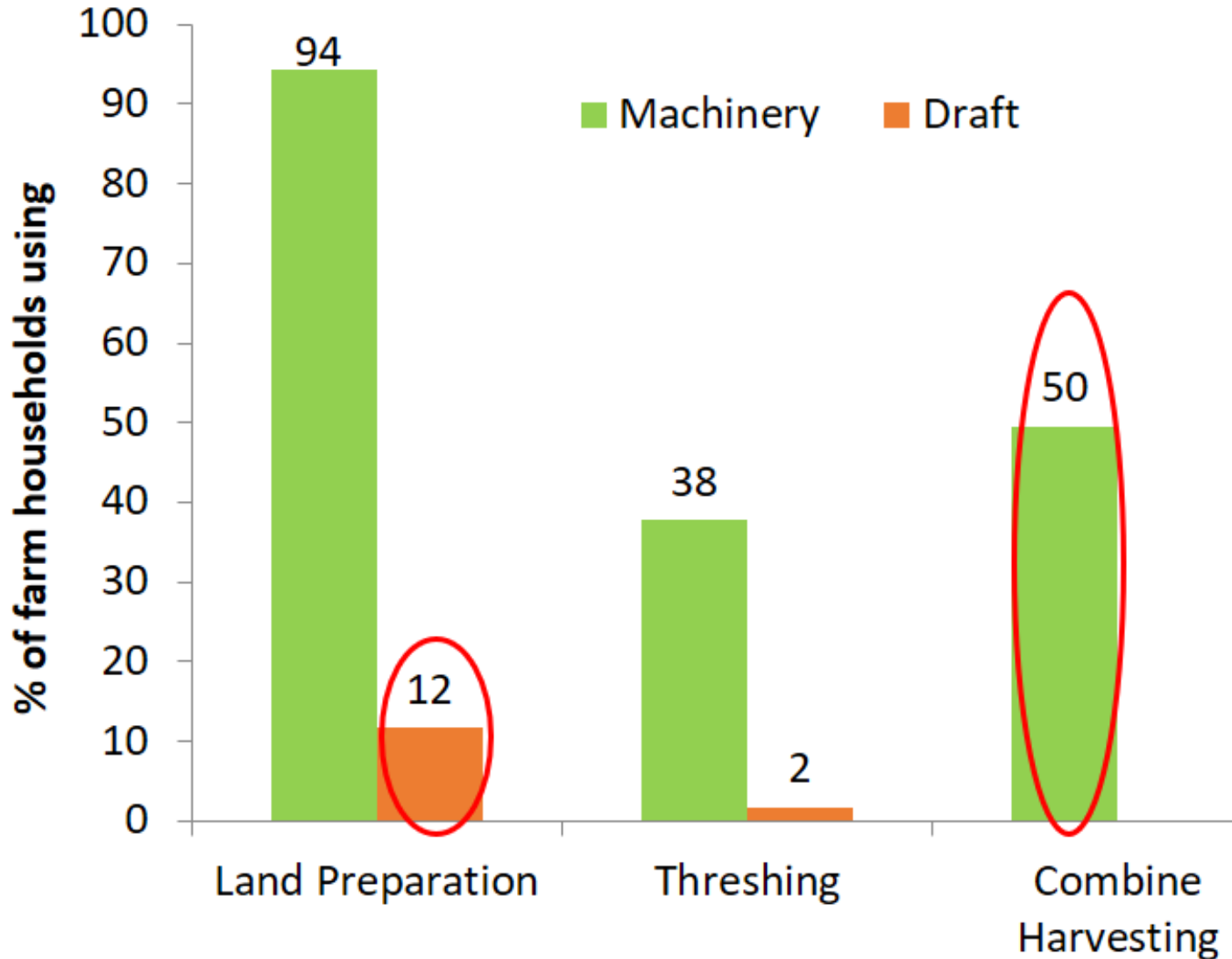
CAMBODIA

Gulf of Thailand

**DELTA**



# Machines displacing draft animals; Mechanized harvesting





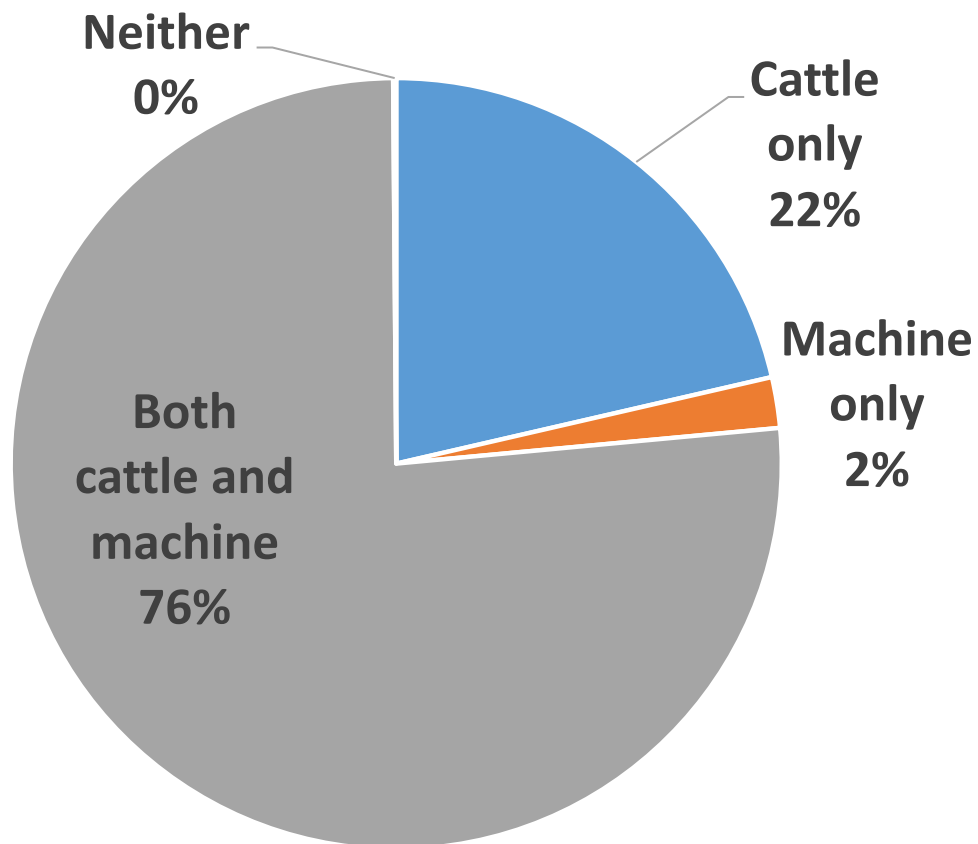
**DRY ZONE**





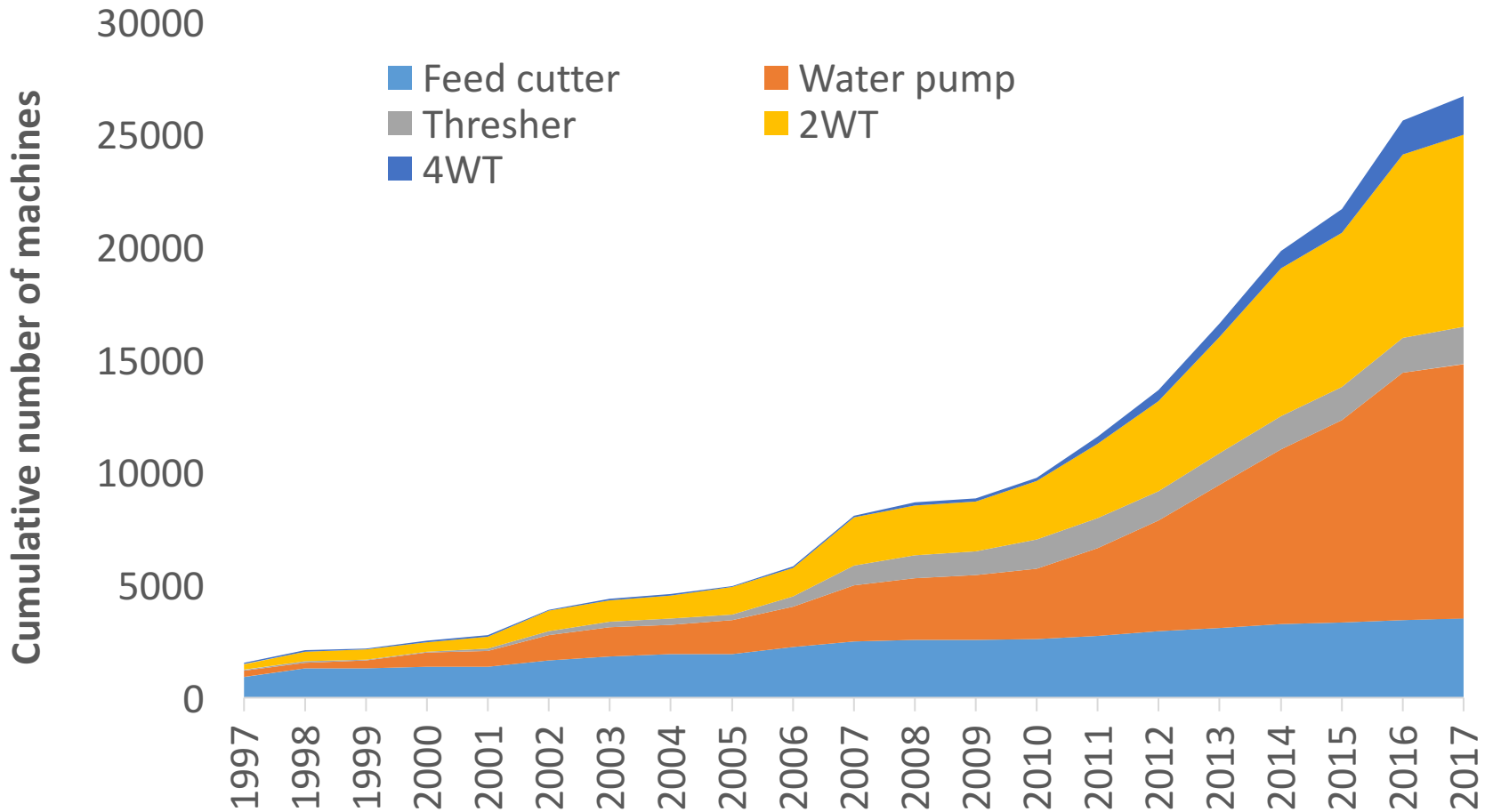


# Combined use of machines and draft animals



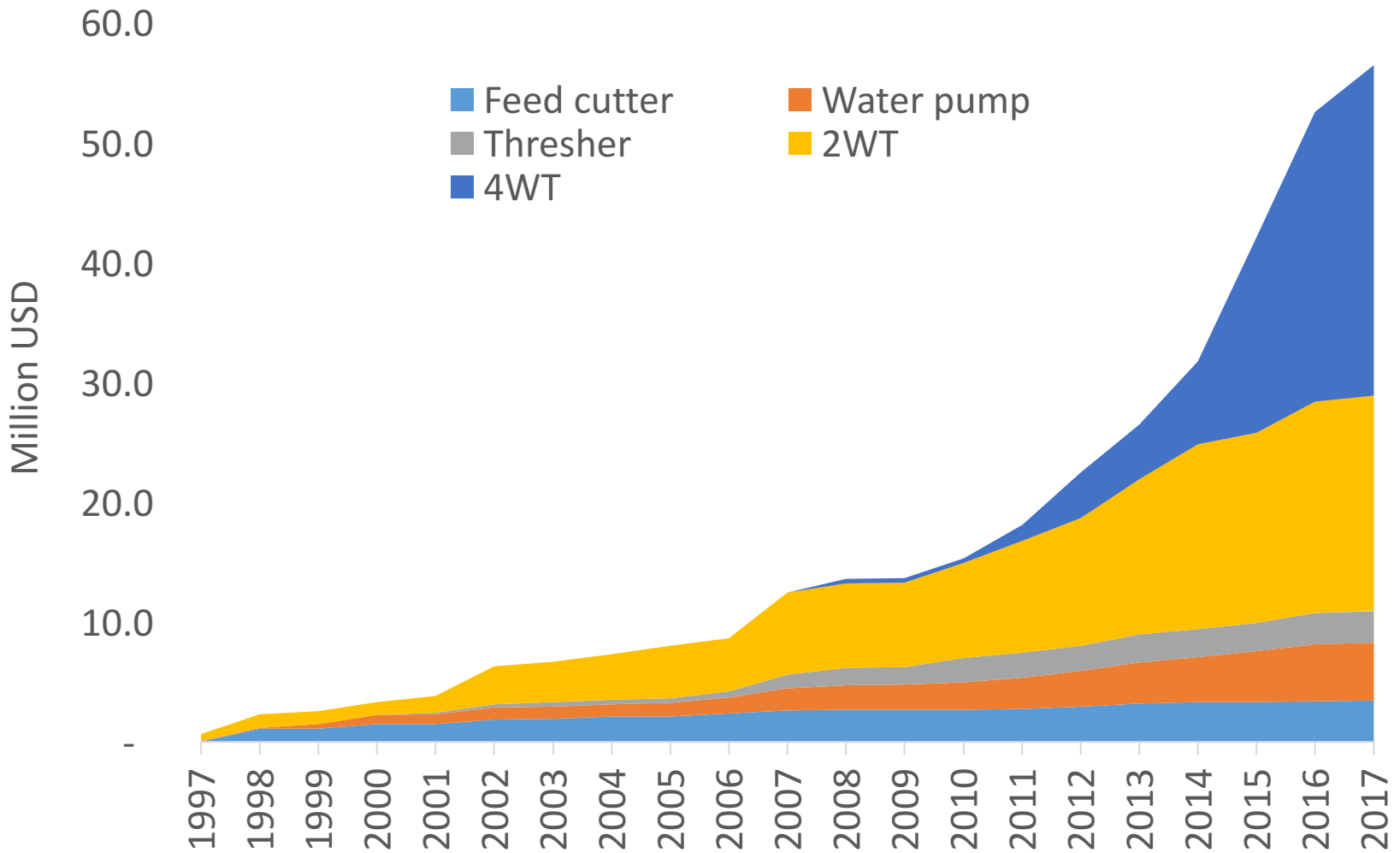
**Share of farmers using draft animals and machinery for land preparation**

# Increasing ownership of machines



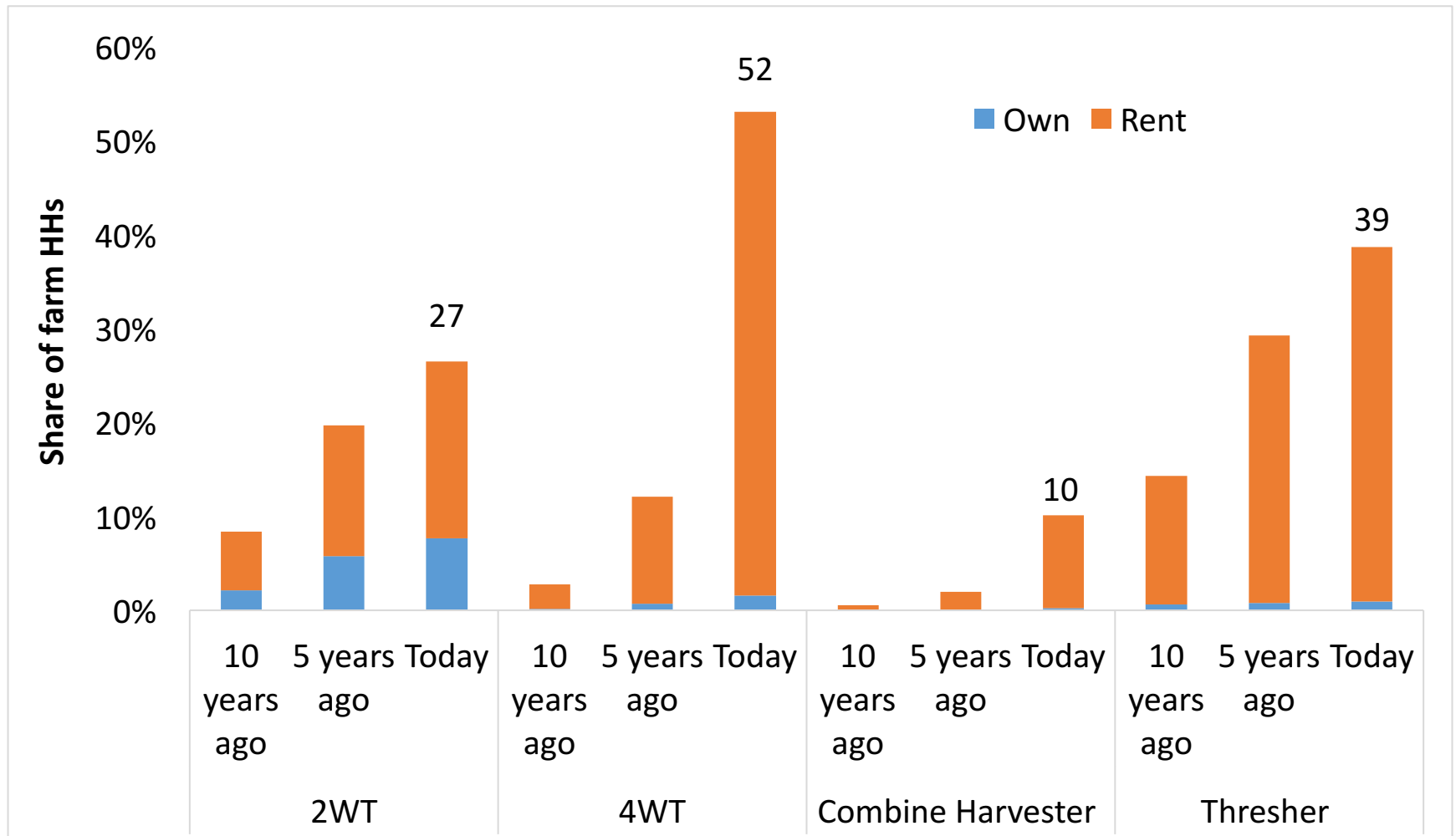
**Cumulative purchases of selected machinery (1997-2017)**

# Increasing value of machines owned



**Real annual value of agricultural machinery purchases at 2016 prices, by year and machine type (1997-2017)**

# Rental services enabling access to machines



**Share of farmers using machinery, by machine type, year and ownership status (2017-2007)**



KUBOTA

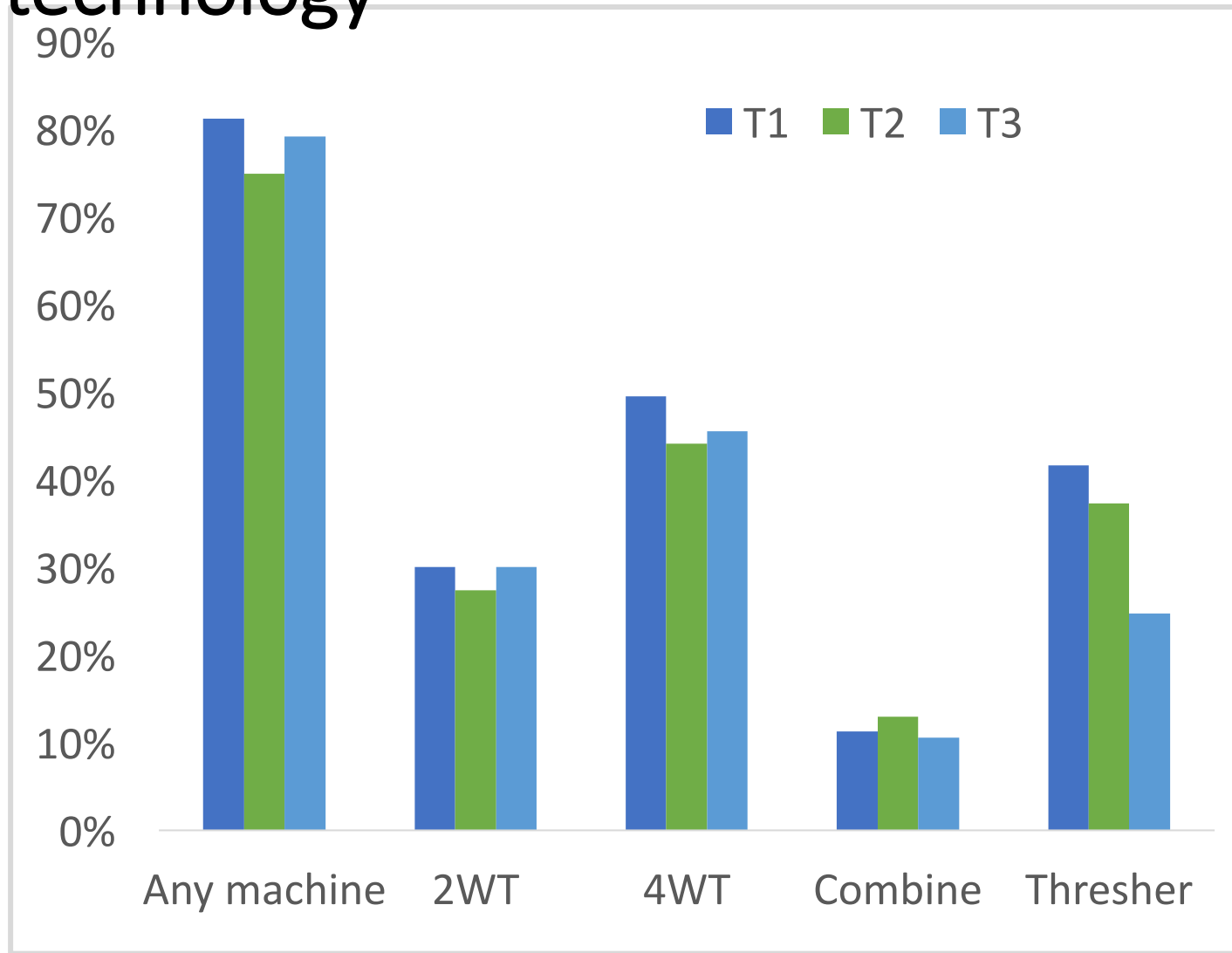
KUBOTA

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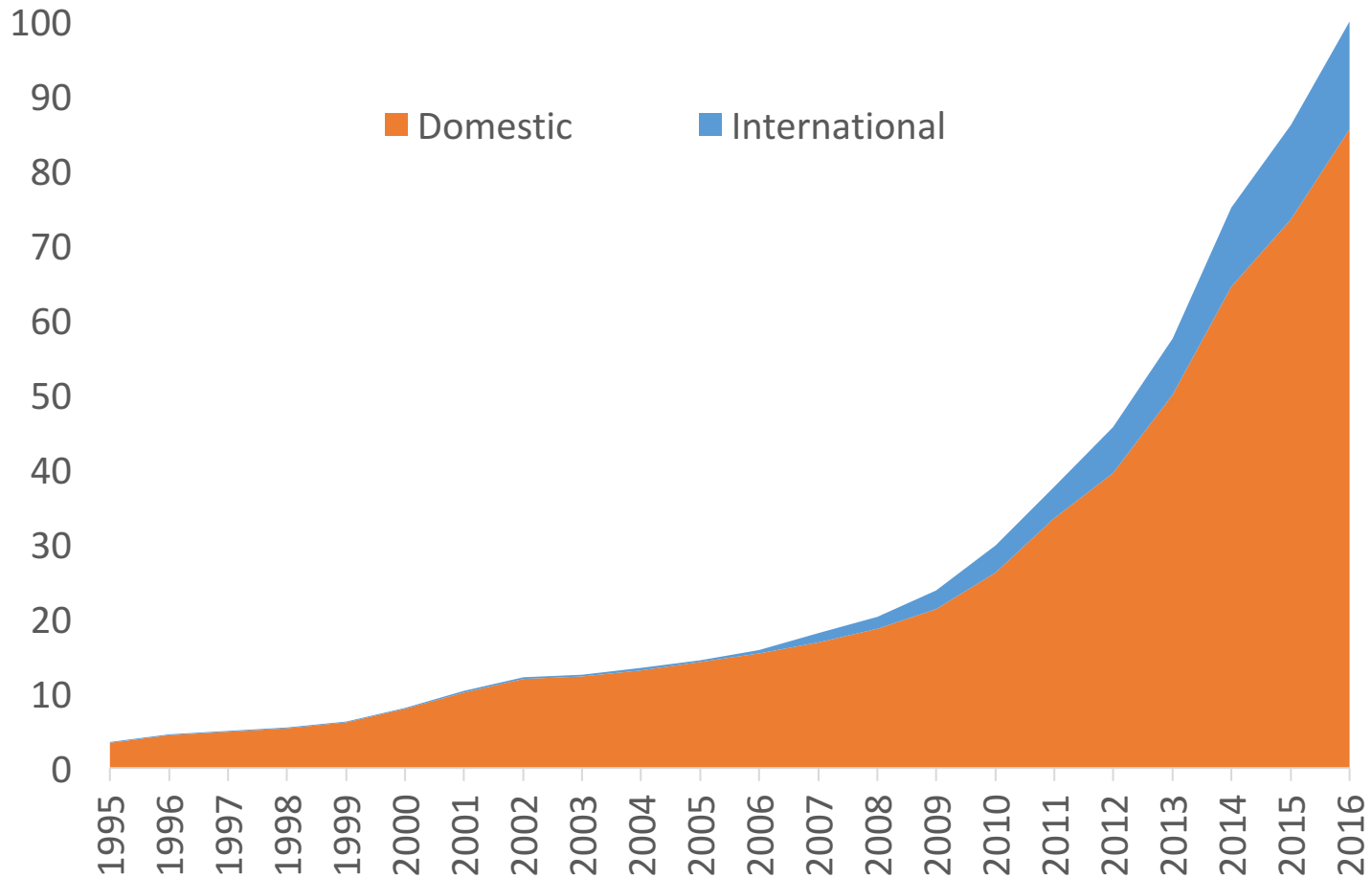
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# Rental services → scale-neutral technology



**Share of HH using machinery by landholding tercile and type of machine**

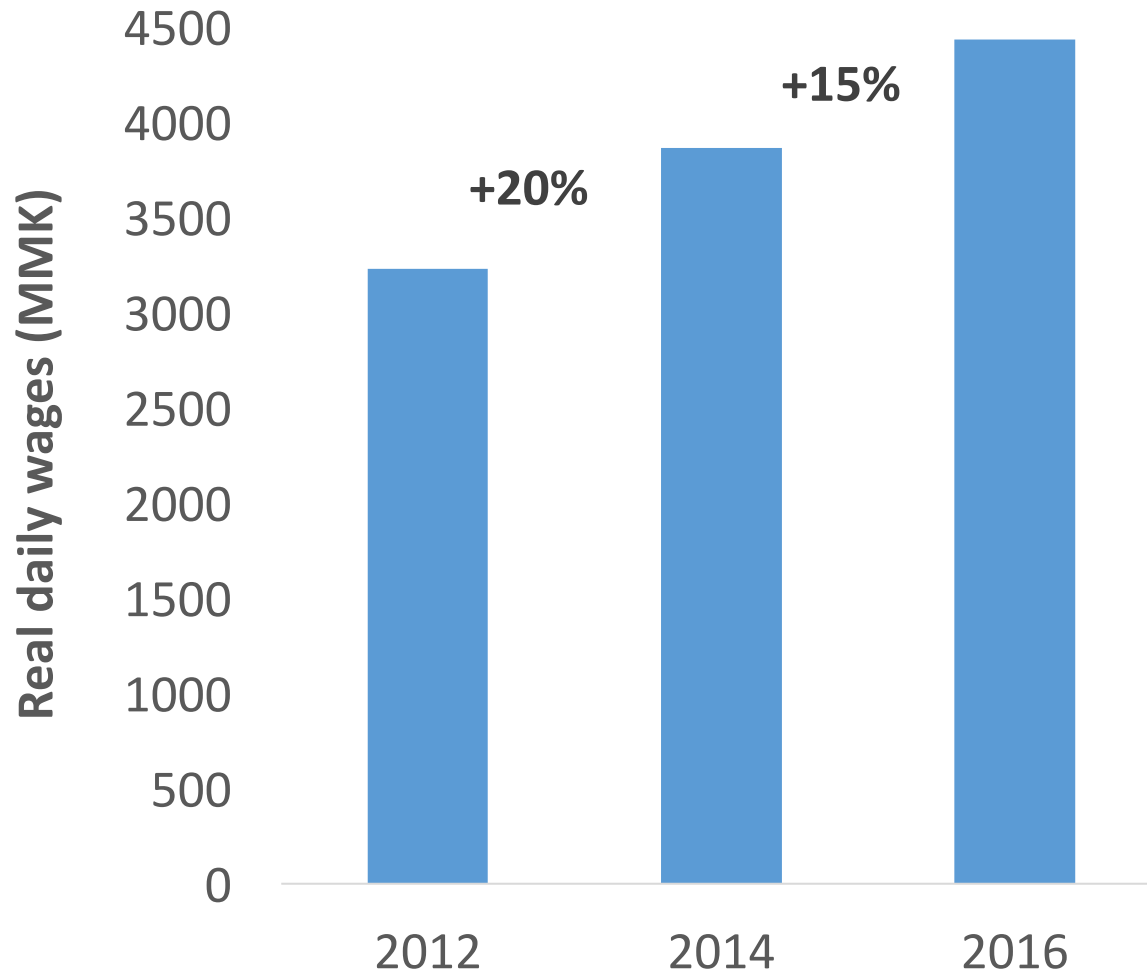
# Drivers: rural-urban migration



**Cumulative share of all long-term migrants by year first migrated (%), 1995-2016**

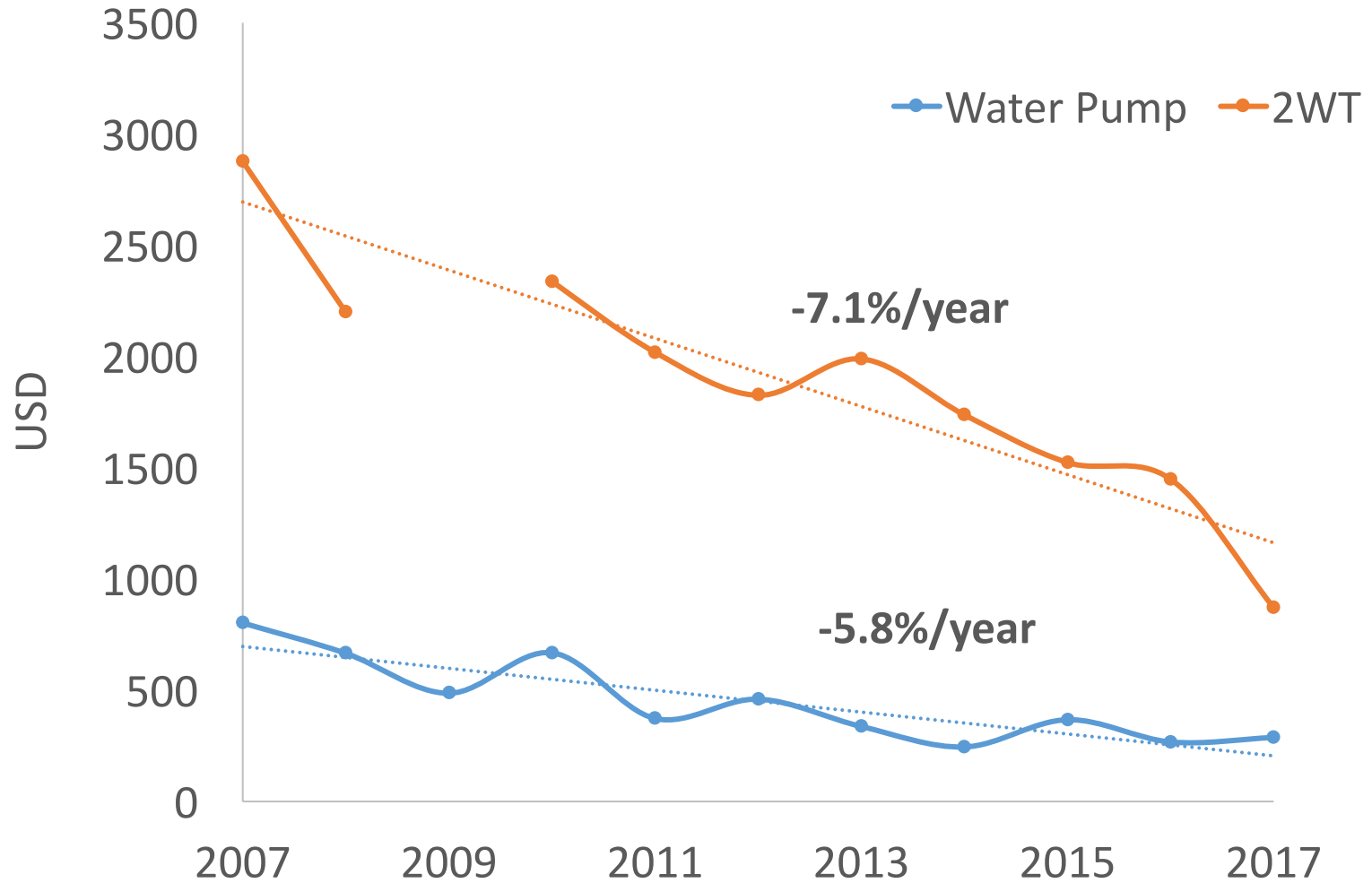


# Migration → large rural wage increases



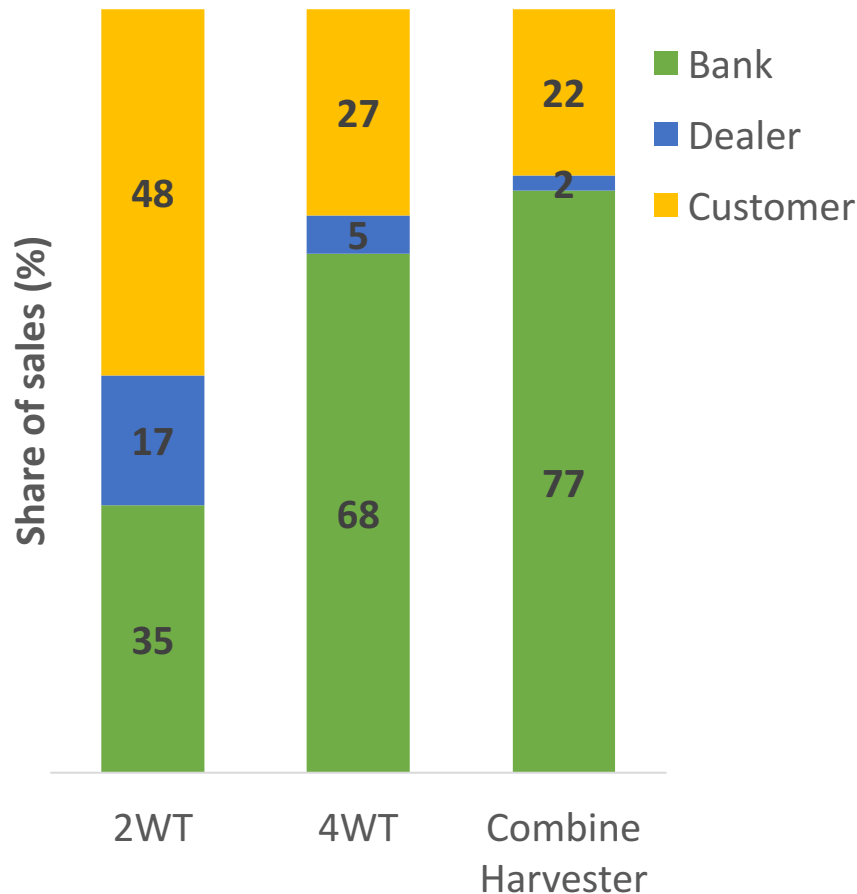
**Change in real daily wages for male casual workers (2012-2016)**

# Price of machines falling



**Trend in real price of small machines (2007-2017)**

# Simultaneous improvement in access to formal financial services



- Hire purchase agreements with commercial banks began in 2013
- Agricultural land titles can be used as collateral since 2012
- Reduced capital constraints for machine suppliers, cost of credit to buyers

**Source of finance for machinery purchases (2016)**

**KBZ BANK** **KBZ BANK**

Good Brothers Company Limited  
09-5020183, 09 260 352137



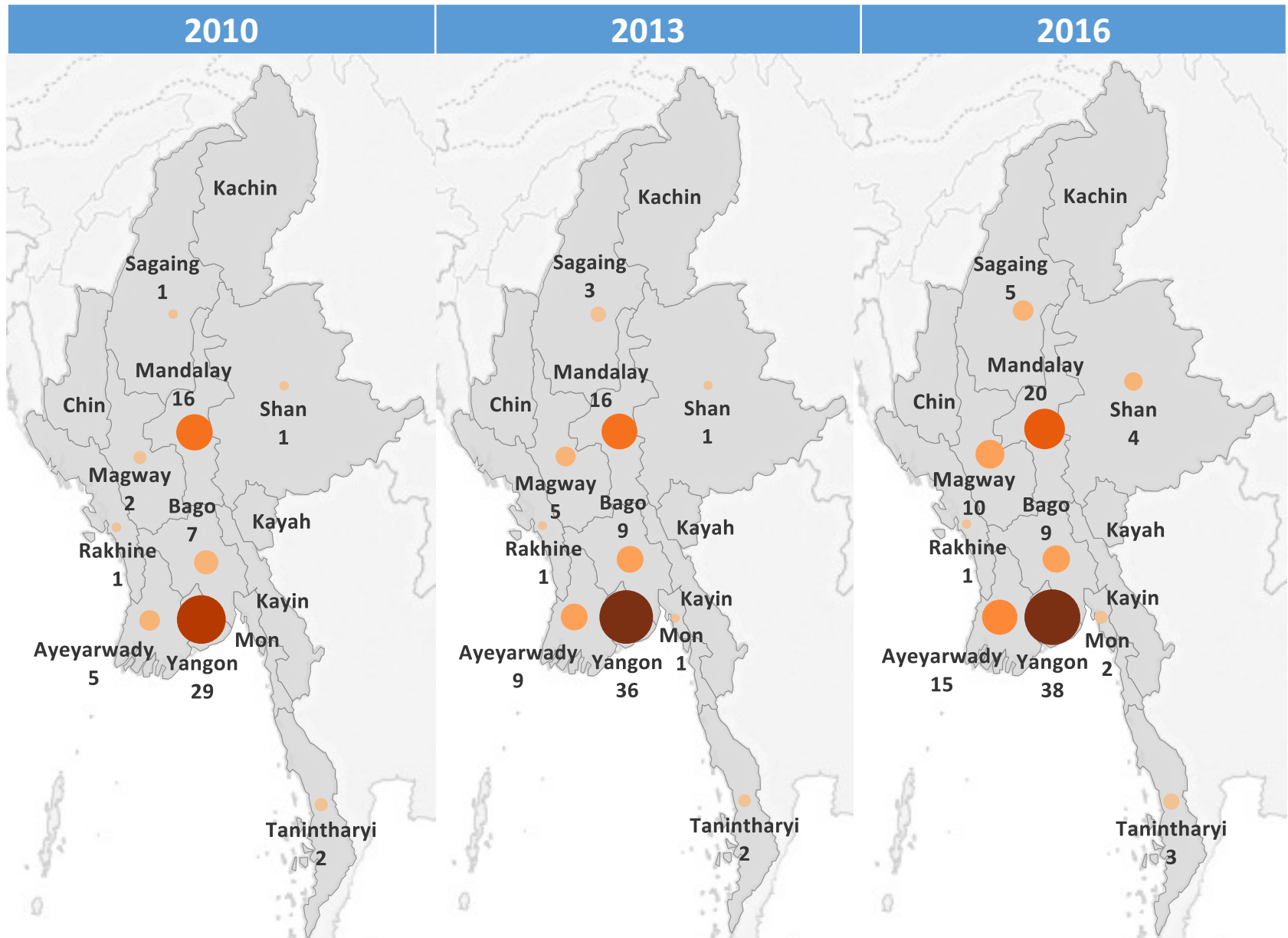
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**KBZ BANK**  
သွယ်တောင်း  
Tat Street

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# Geographical spread of machine supply businesses



# Conclusions

- Demand side drivers: Migration; rising wages rates, labor shortages
- Supply side drivers 1: Hire purchase finance from banks; transferrable land use rights (collateral)
- Supply side drivers 2: Falling cost of machines; no restrictions or tariffs on imports
- Supply side drivers 3: Dynamic informal private rental markets (very limited reach of government rental services)
- Result 1: Extremely rapid mechanization in main agricultural zones, following crop specific patterns (power tillers and combines in main paddy growing areas, 4 wheel tractors drylands)
- Result 2: Machine access scale neutral at point of use; saves time/reduces risk; helps farms remain viable in face of rising production costs