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Dr.-Ing. Ngoc Luan Nguyen is technical consultant for an independent company, SDCC Ltd. He has been involving mainly in the areas of farming systems of rice, industrial crops as well as energy production from biomass and environmental technologies. He has worked and traveled extensively in Myanmar, Laos, Cambodia and Vietnam. At his current position as project engineer, he also cooperates with German companies in relation to bioenergy and



environmental technologies. In addition, he is working closely together with private companies and universities in Vietnam and Germany, especially with DAAD and GIZ, in developing applied research programs and subsequently implementation of processes for bioenergy production and environmental technology in ASEAN countries.

His first study in agronomy was done at University of Agriculture and Forestry in Saigon, Vietnam. His second study in process engineering was completed at Karlsruhe Institute of Technology (KIT) in Germany, where he received Ph. D. in fuel technology.

Rice production in Vietnam

- Vietnam agriculture overview
- Key features of rice production
- Policy on rice production
- Future challenges

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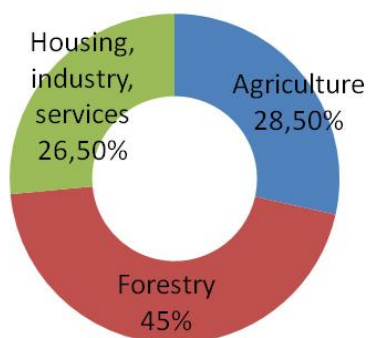
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Vietnam agriculture overview

Agricultural area

- About 10 million ha of total land area of 33,12 million ha are utilized for agricultural purposes
- 62% of cultivable area are occupied by seven major crops including rice, maize, rubber, coffee, cassava, cashew and sugar cane



Crop	Planted area (1000 ha)	Average Yield (kg/ha)	Production (1000 tons/year)
Rice	7750	5600	43400
Corn	1127	4100	4621
Rubber	910	1720	1565
Coffee	615	2300	1415
Cassava	560	17600	9856
Cashew	350	850	298
Sugar cane	290	65000	18850

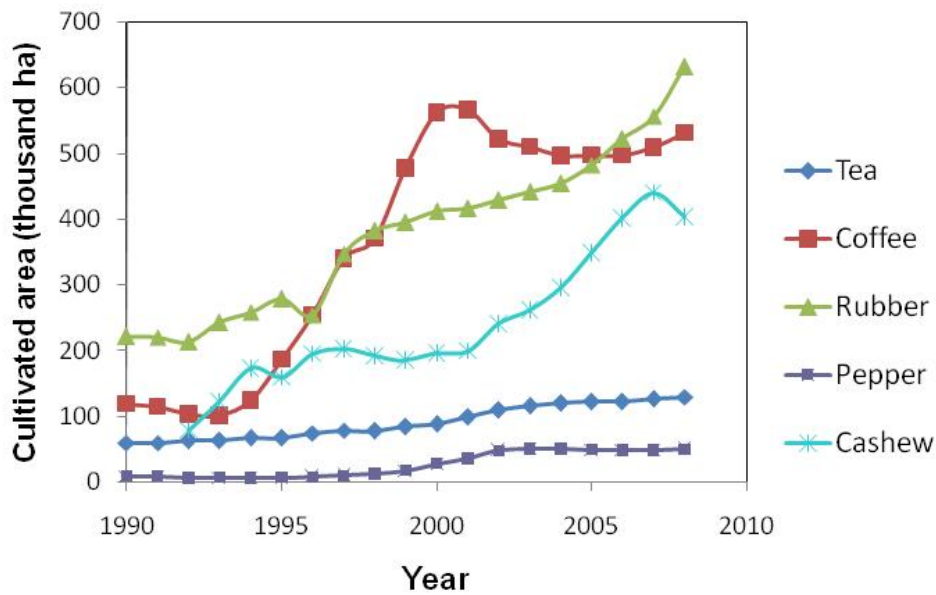
Source: Ministry of Agriculture and Rural Development (MARD) 2012

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Vietnam agriculture overview

Planted areas of major crops for export excluding rice

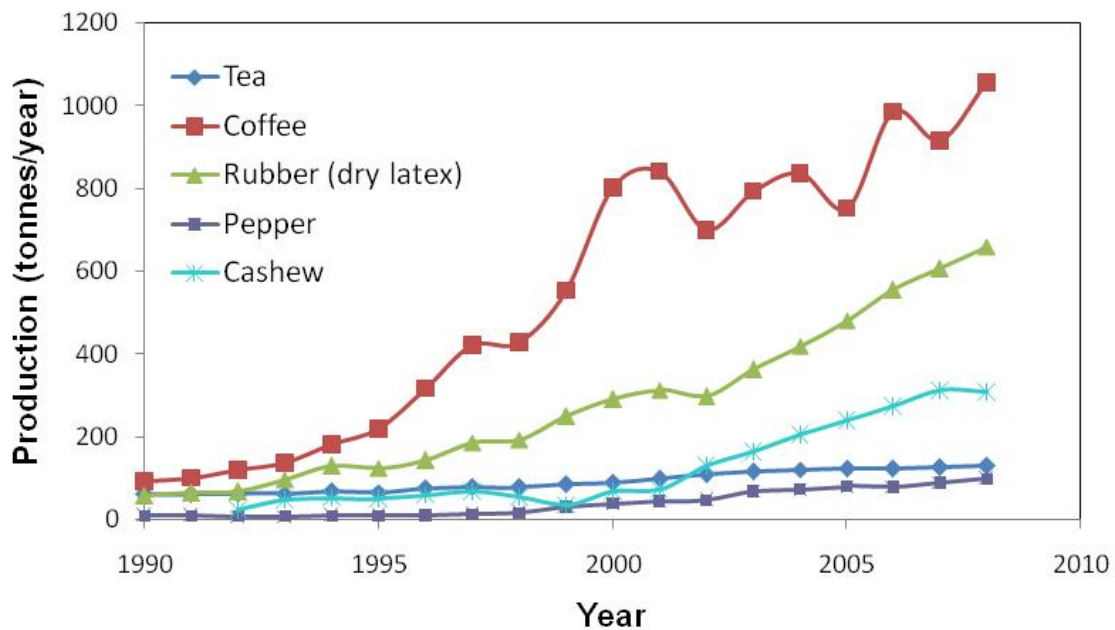


Source: General Statistics Office (GSO)

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Vietnam agriculture overview



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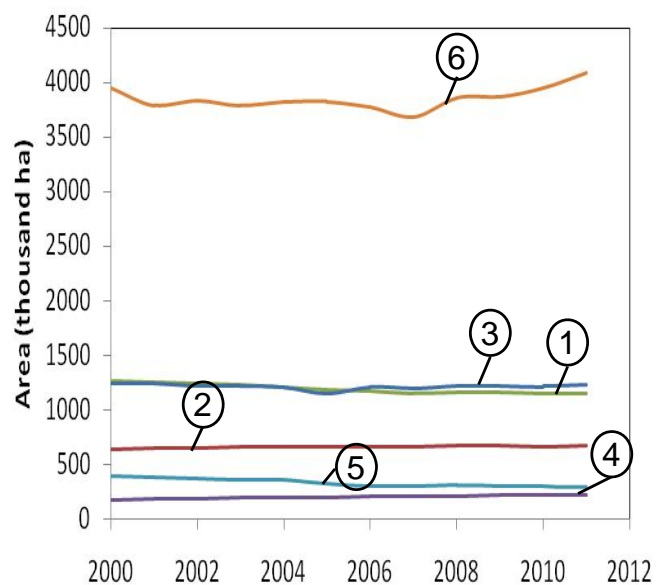
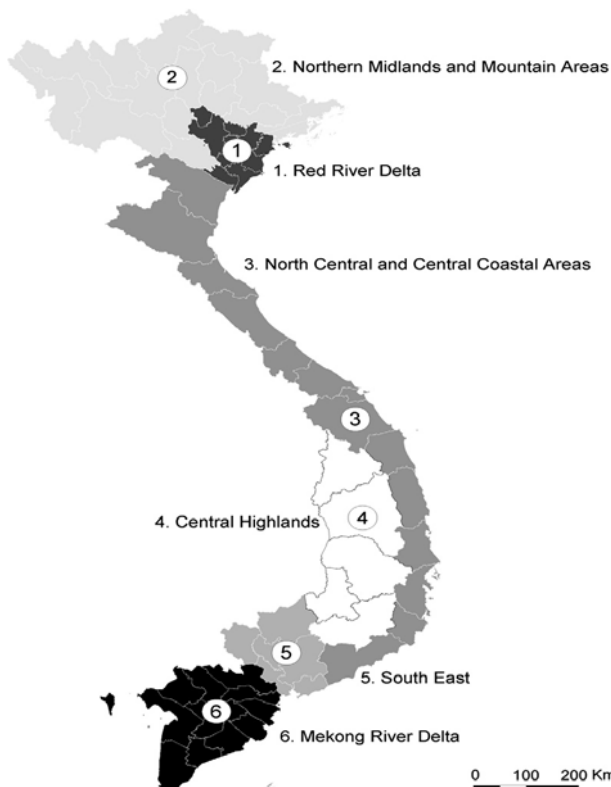
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Rice-planted areas in six eco-geographical regions

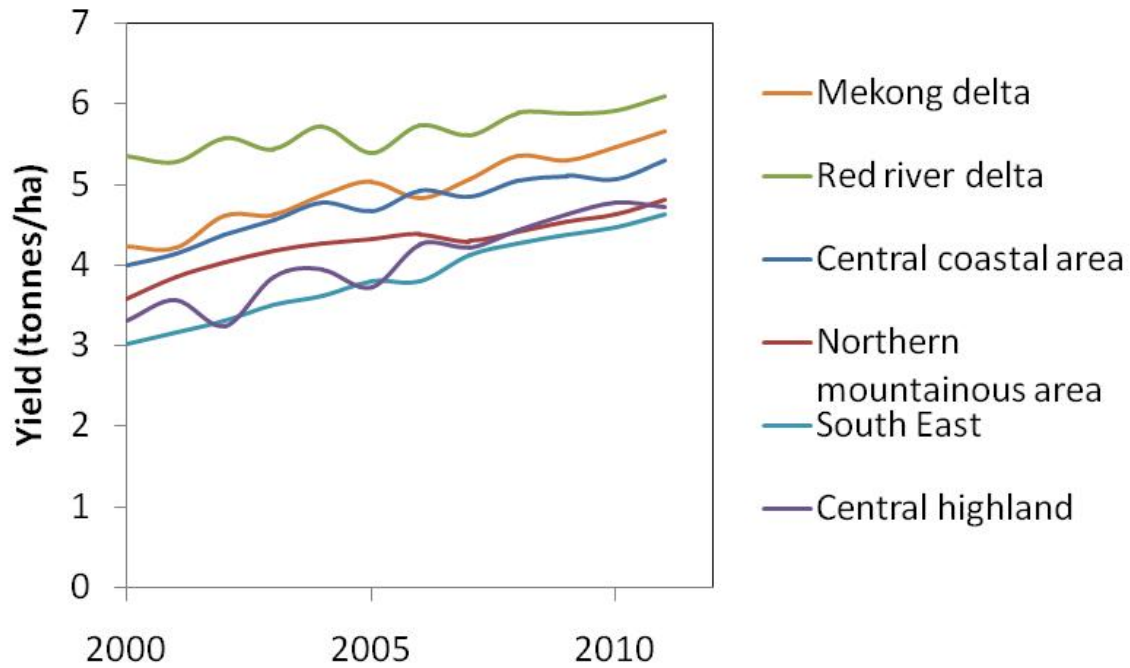


Source: MARD, GSO

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Rice yields in six eco-geographical regions



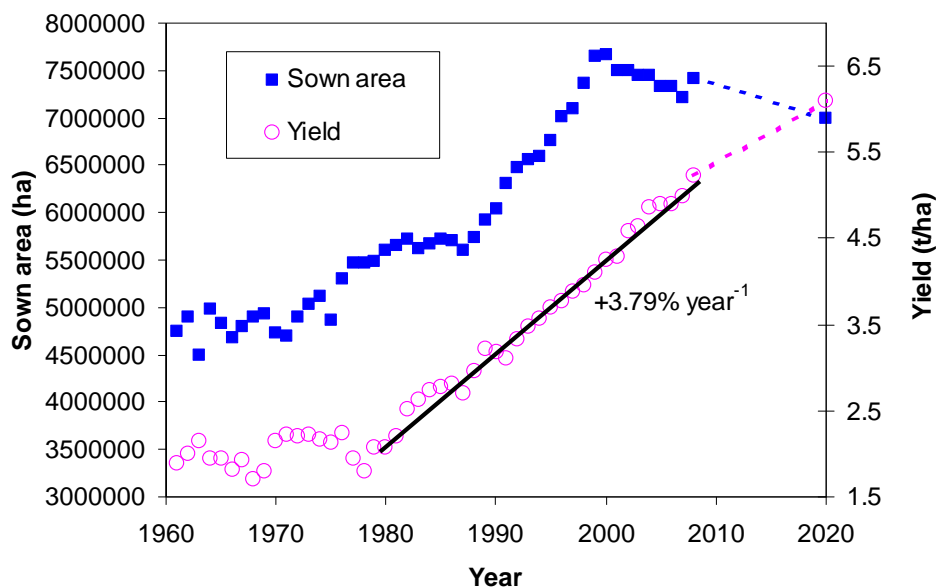
Source: MARD, GSO

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Trend of rice sown area and production to 2020

- Rice land is limited and should be protected by law 3.8 mil. ha
- Yield per hectare is the main output driver

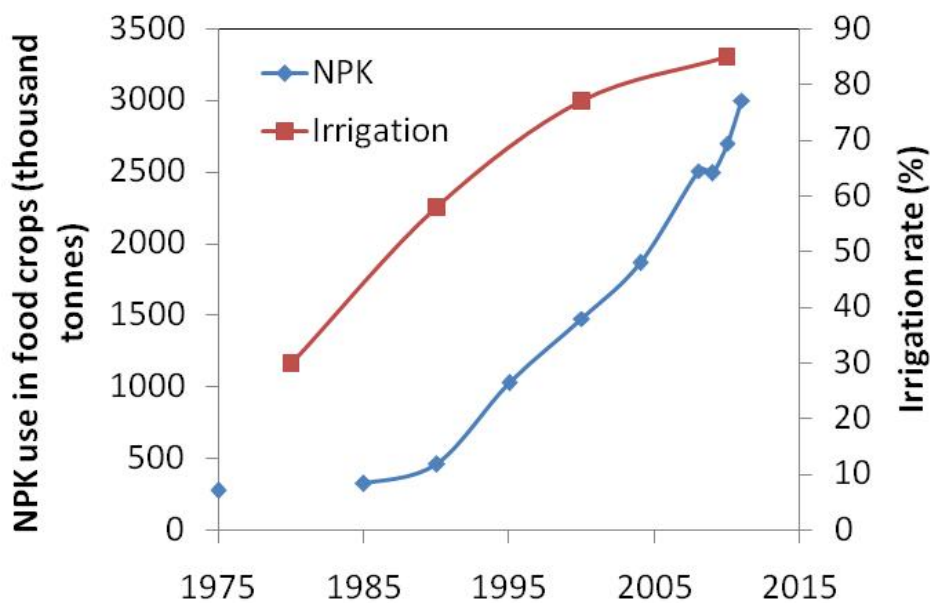


Source: FAOSTAT

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Fertilizer consumption and irrigated land



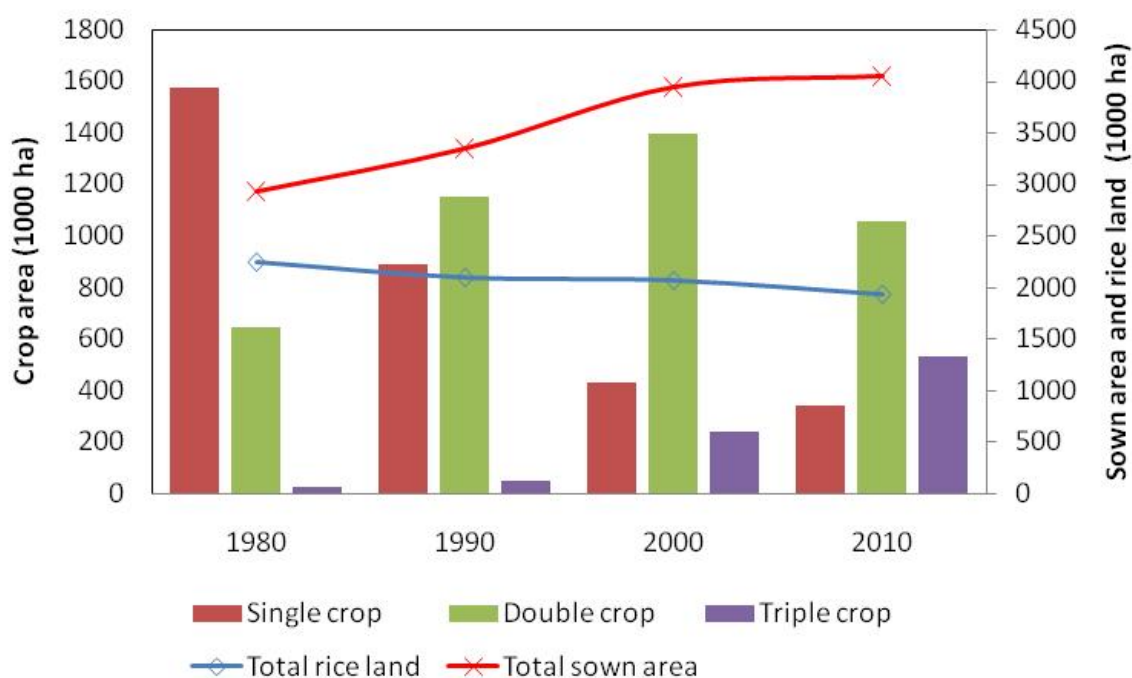
Average fertilizer use per ha: 200 kg (N + P₂O₅ + K₂O)

Source: GSO, Vinachem

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Changing structure of rice cultivation in Mekong delta

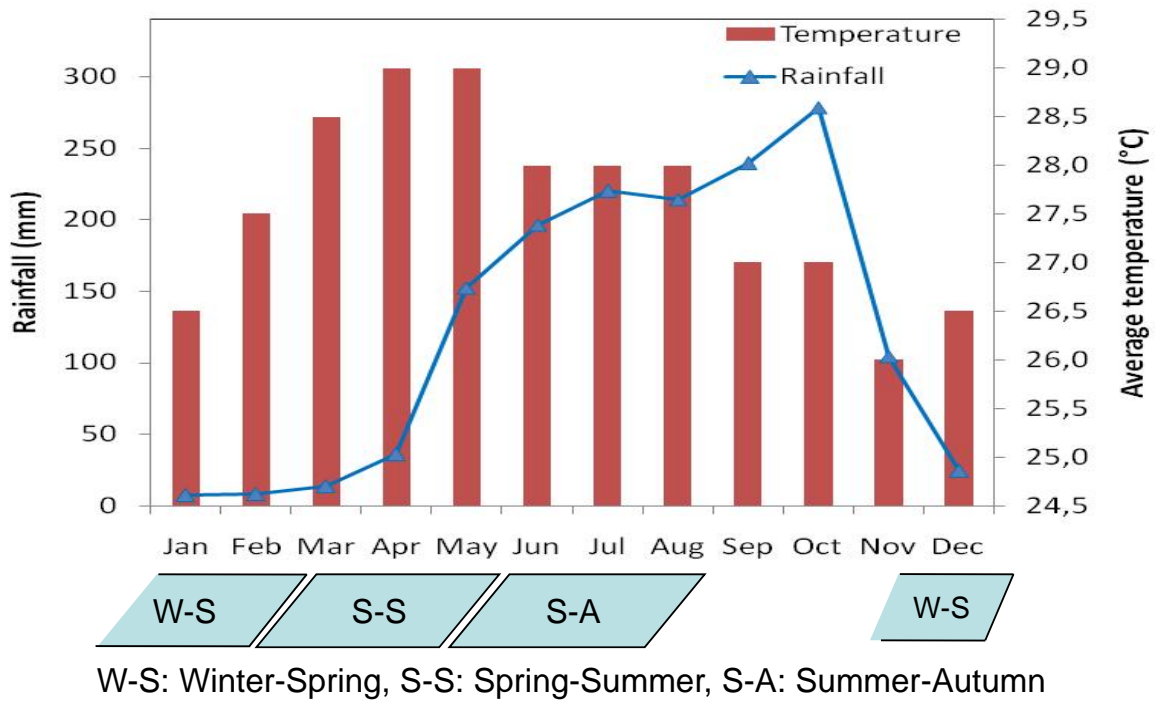


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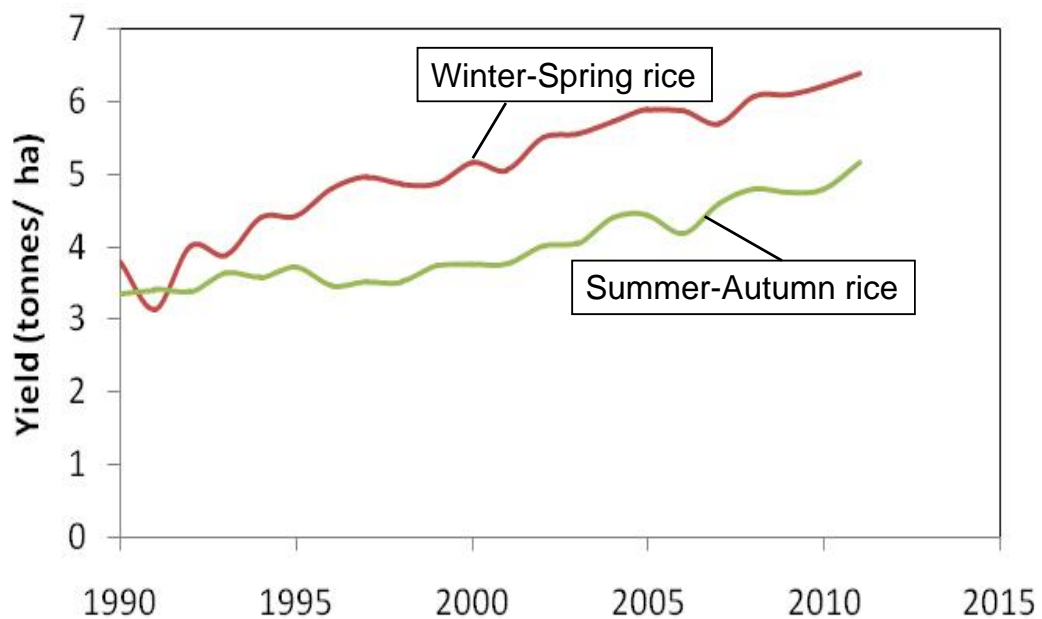
Influence of monsoon on rice cropping patterns

Meteorological data and rice cropping seasons in Mekong Delta



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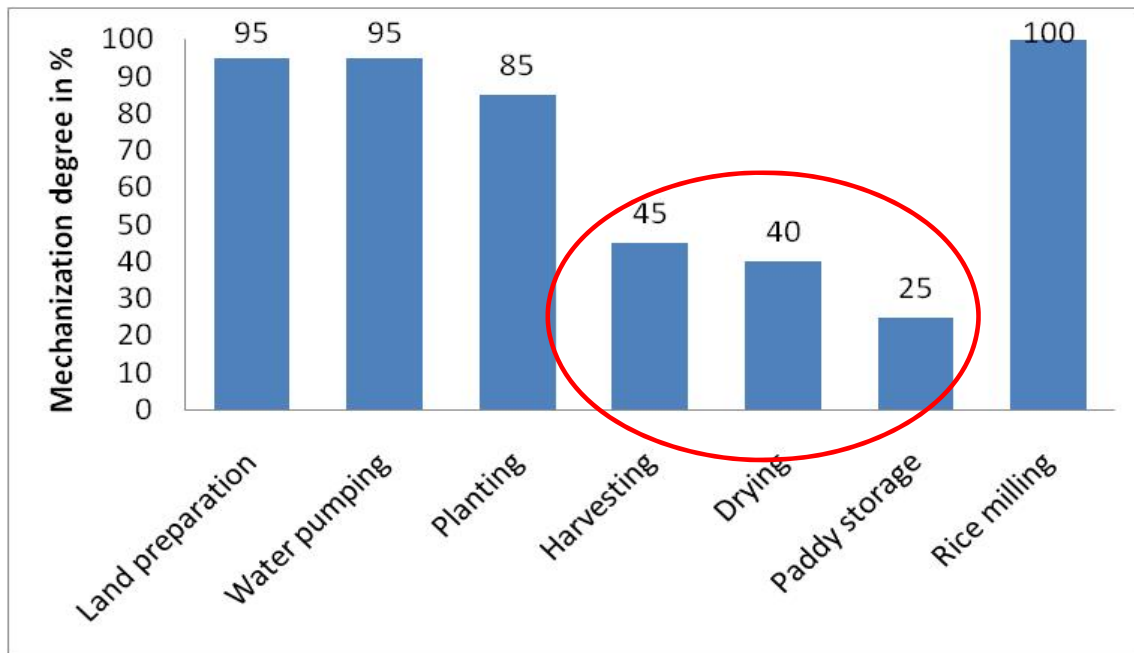
Yield gap between seasonal rice crops



Source: MARD, GSO

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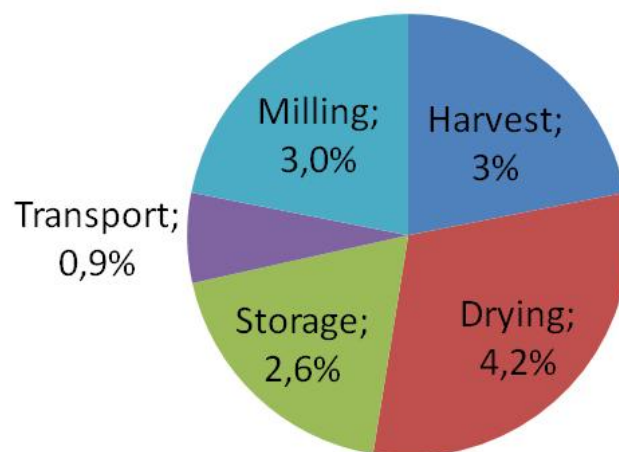
Mechanization in various stages supply chain in Mekong Delta



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Post harvest loss in Mekong Delta

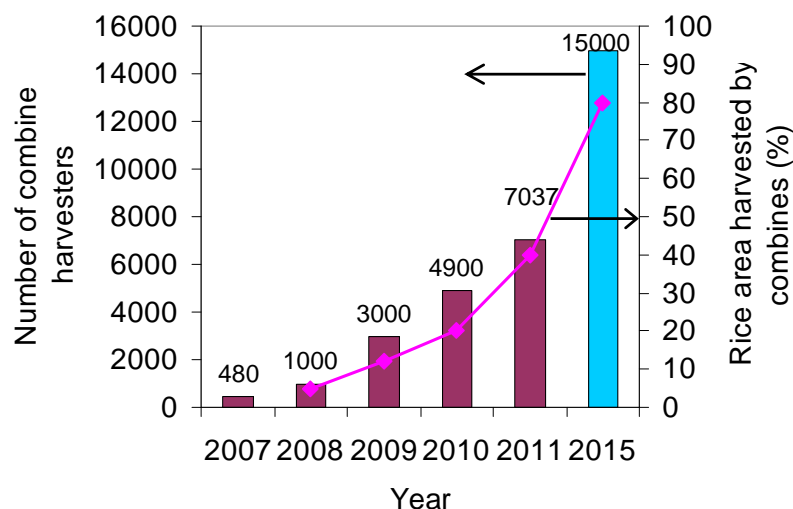


- Total loss of rice remains high at 13,7% or equivalent to 600 mil. USD/year
- National target for reduction of loss: 5% by 2020

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Rapid increase of combine harvesters in response to high wage rate in Mekong Delta



	Cost (USD/ha)	Labor (work days/ha)
Manual cutting + mechanical thresher	130 - 145	13 - 16
Combine harvester	95 - 105	1 - 3

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Cost/return in cultivating rice and maize in 2012 Sample village Lam San

Expense / Income items	Rice	Corn
Seed	50,8	76,6
Land preparation	51,5	153,1
Irrigation	34,2	64,6
Harvest	153,1	167,5
Fertilizer	232,3	464,1
Pesticide	172,4	206,9
Total expense (USD/ha)	694,3	1132,8
Labor (USD/ha)	280,4	264,5
Yield (tons/ha)	5,5	8,0
Price (USD/kg)	0,2	0,3
Gross revenue (USD/ha)	1236,8	2296,7
Returns to home labor and land (USD/ha)	542,6	1163,9

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Major policy reforms

Land reforms (1981 – 2003): Transform of land and production materials from collective to household system

Land policy: Keep minimum 3.8 million ha of land for paddy production to ensure national food security

Investment: large investment in transport & irrigation system

R & D: Account for 1/3 of the S&T governmental budget investing in agricultural research, extension and information activities. Support hybrid rice for farmers

Support to farmers :

Setting up floor paddy prices to ensure a minimum profit margin of 30% for rice growers

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Development of hybrid rice

Year	Hybrid rice area (1,000 ha)	Areas to produce hybrid rice seeds in		Grain yield (ton /ha)		
		1,000 ha	Meet the demand (%)	Hybrid rice	Inbred rice	Hybrid vs Inbred (%)
1995	73.5	3.6	4.9	6.14	3.69	166.4
2000	435.5	52.8	12.1	6.44	4.24	151.9
2005	553.0	118.4	21.4	6.50	4.89	132.9
2008	560.0	97.7	17.4	6.80	5.22	130.3
2012	700.0	141.1	19.9			
Increase (%)				10.7	41.5	

70% of hybrid rice seeds are imported from China

Price of imported seeds is 4 – 7 times higher than that of domestic seeds

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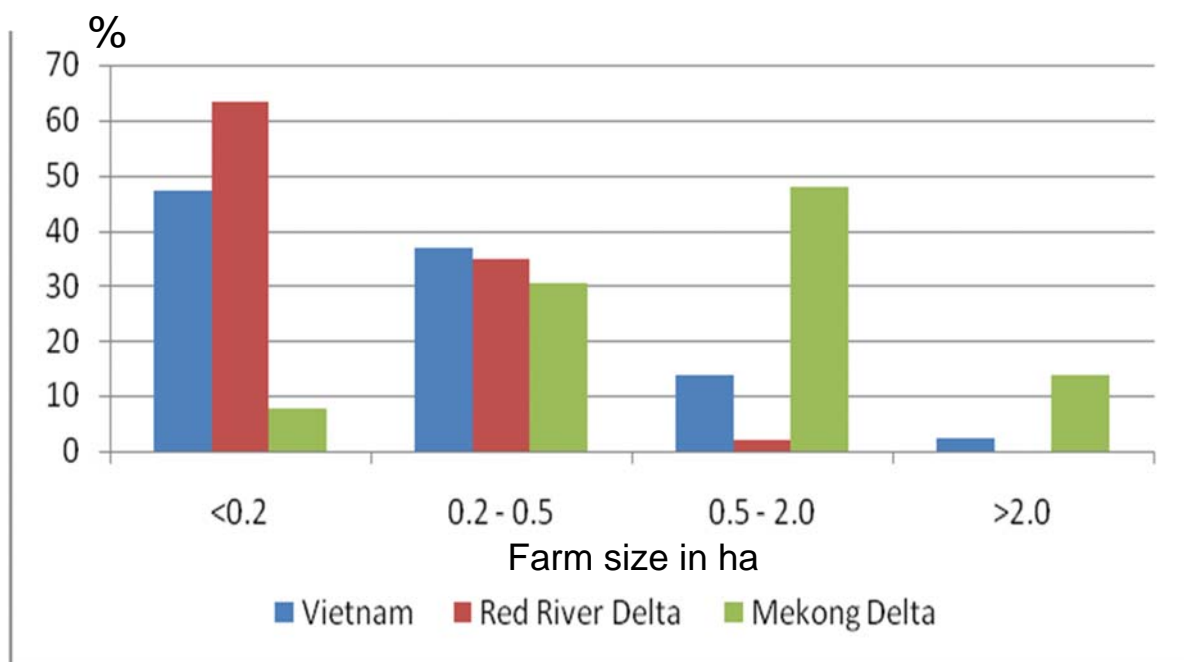
Critical questions for the future

- Which solution is the best for Vietnam: export-driven or farmer income driven approach (Thai-lesson) ?
- How can mechanization and farm consolidation contribute to other social needs, such as increased resource efficiency, environmental sustainability, improved livelihoods for smallholders ?
- What role should policy play in the addressing above ?

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Proportion of farmers by land size used

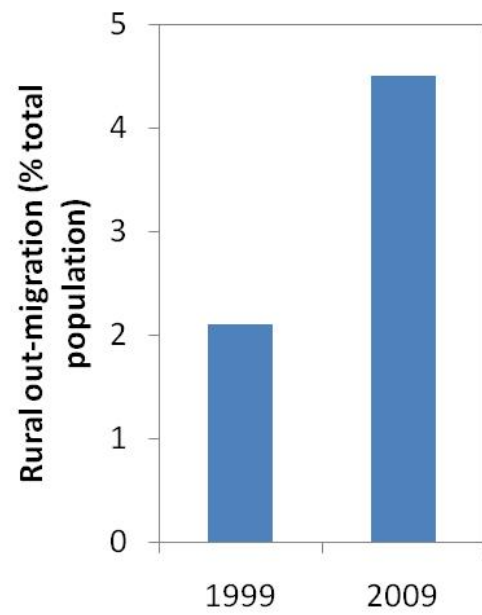
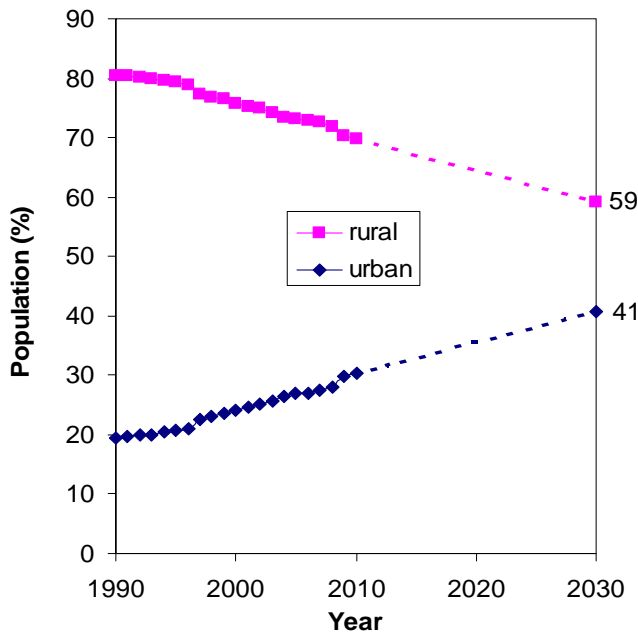


Source: Worldbank, 2011

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Urbanization and rural out-migration in Vietnam

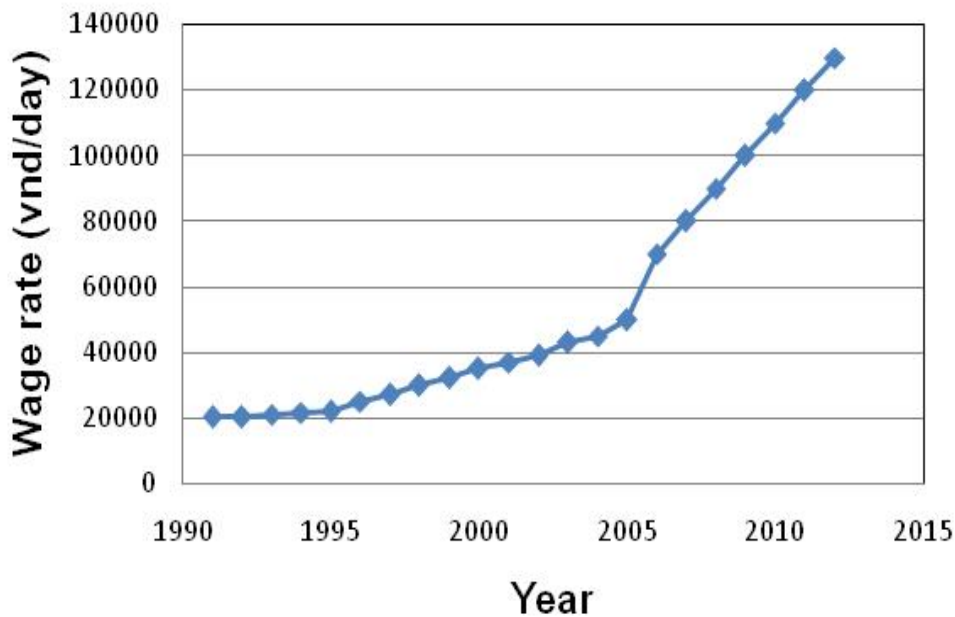


Source: esa.un.org/unpp, VN population bureau, IRRI

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Rapidly increasing wage rate



2005 – 2012: Wage increases 15%/year

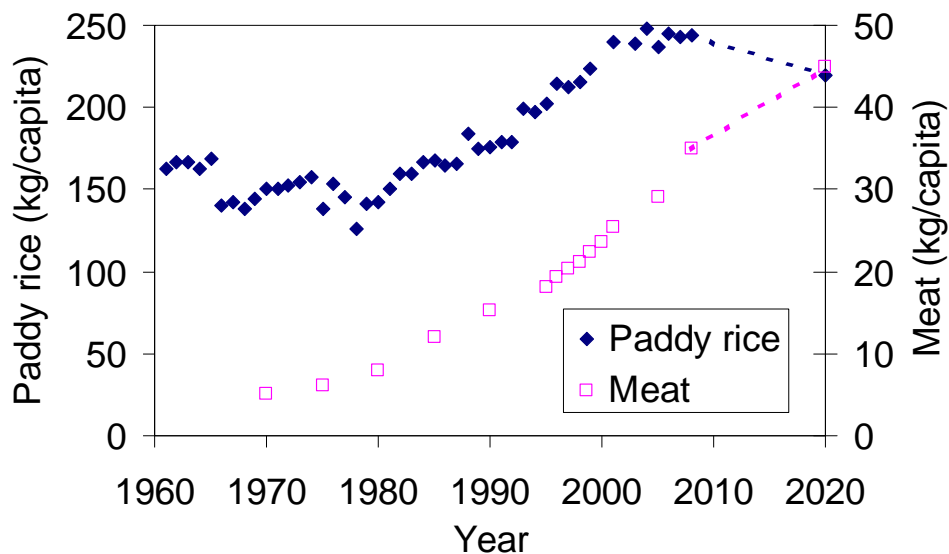
Average inflation rate is 7.4%/year

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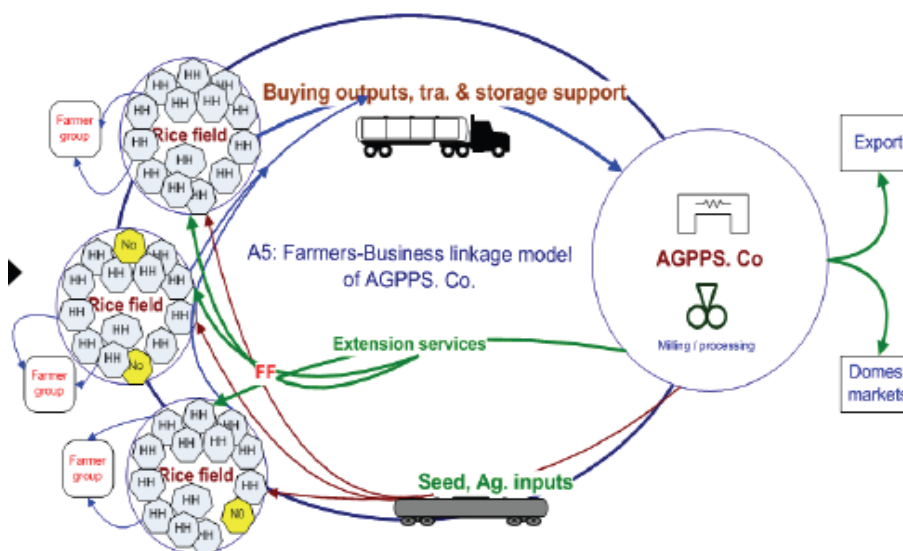
Trend of rice and meat consumption

- Rice surplus is still to produce after 2020, but decreasing export
- Growing demand of meat \Rightarrow increasing import of corn, soja etc.



Source: Calculated by the author from FAOSTAT & MARD (Ministry of Agriculture and Rural Development) data

New large rice field model



- Large field enough (from 50 to 500 ha)
- Farmer are voluntary participate
- Linking input dealers and exporters to buy rice from farmers

Source: Pham Van Du, Department of Crop Production, MARD

Recommendations

- maintaining 3 - 3,8 million ha of paddy land
- increasing cultivation of high quality rice (30% - 40%)
- multi-cropping and increasing area for maize, soybean
- using rice for animal feed production

