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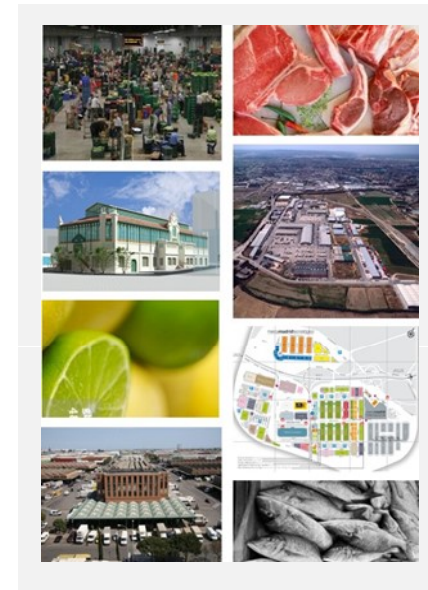


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# WORKSHOP

## Agricultural supply chain and role of wholesale markets in Vietnam



Hanoi, December 3<sup>rd</sup> 2018



Asian Development Bank

Investment Assessment and Application of High-Level  
Technology for Food Security in Asia and the Pacific  
(Bangladesh, Nepal, Vietnam and Pakistan)

## Vietnam Fruits and Vegetables Value Chain.

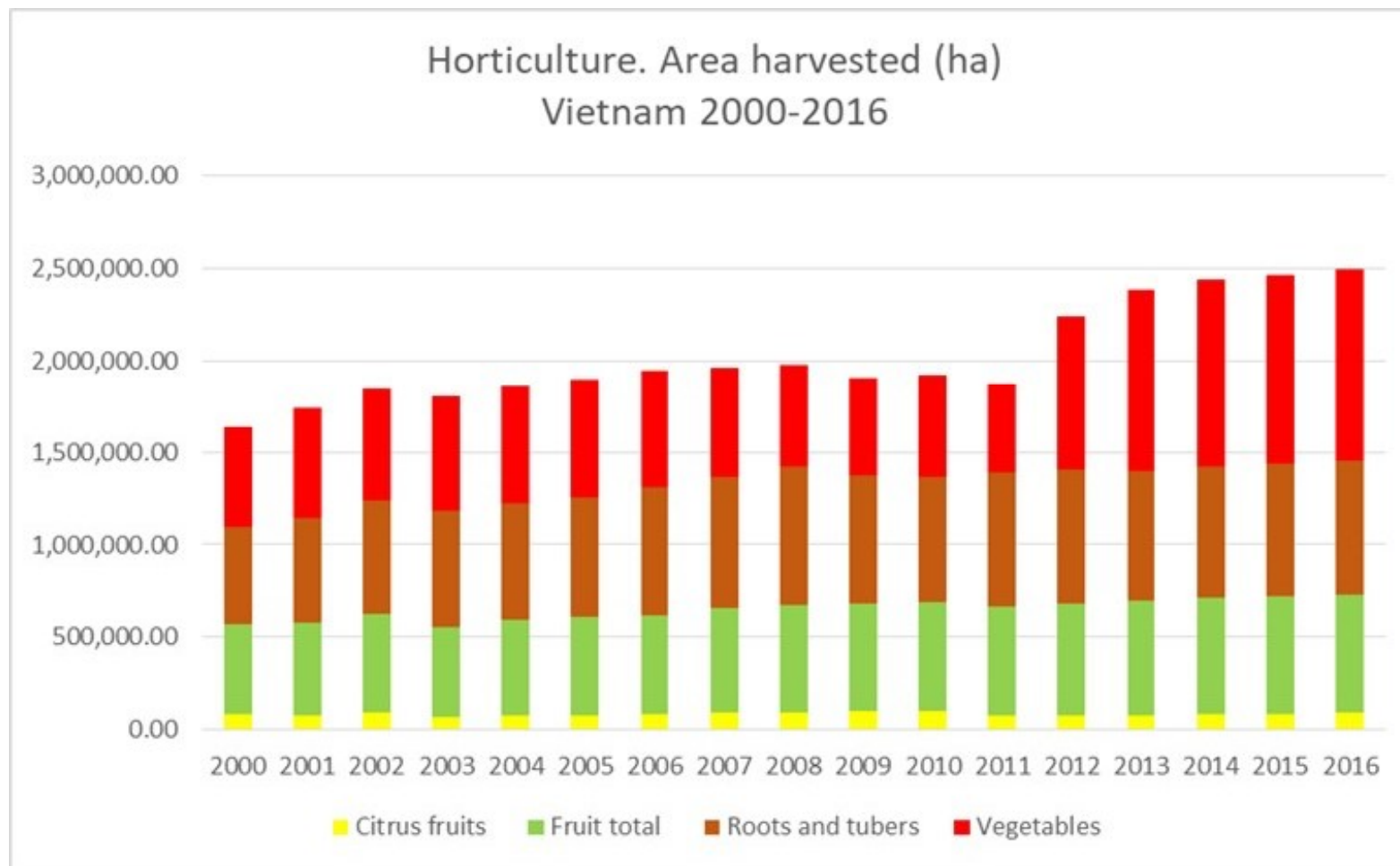
Tones	2012	2013	2014	2015	2016	
Vegetables production	12,658,055	13,501,874	14,404,187	14,268,258	14,902,861	
Fruits production	9,139,524	9,256,776	9,482,703	9,672,080	9,707,478	
Potatoes and tubers production	1,830,959	1,671,558	1,723,055	1,654,373	1,571,530	
Total production	23,628,538	24,430,208	25,609,945	25,594,711	26,181,869	
Fruits, vegetables and potatoes losses *	4,725,708	4,886,042	5,121,989	5,118,942	5,236,374	

Source: FAOSTAT (production)

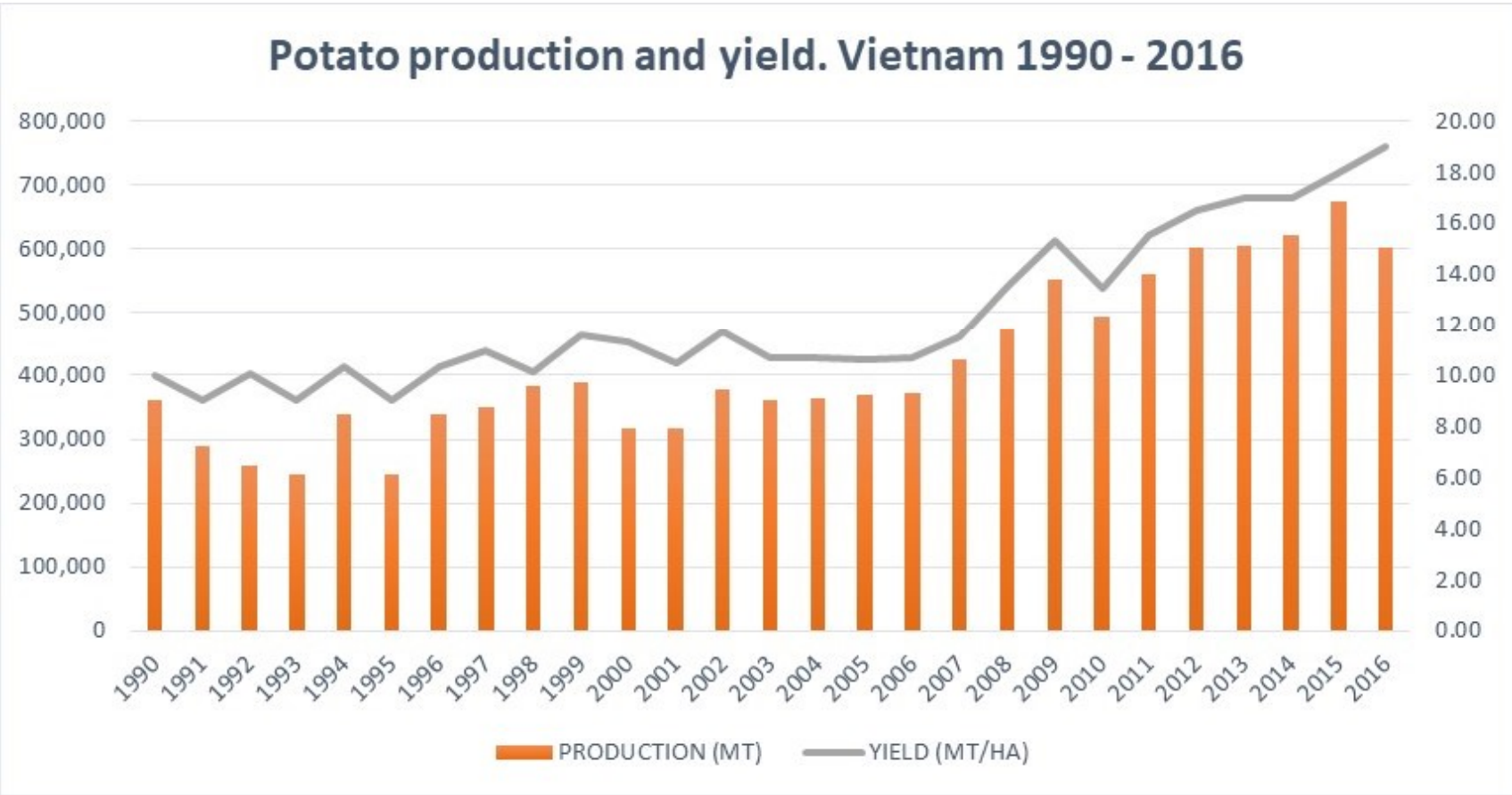
\* F&V Losses: 20% of production (estimate)

**Agriculture provides employment to 41 % of the total population and contributes to 15.3 % of country GDP**  
**Arable land remains stable. Cereals account for 70% of total planted**

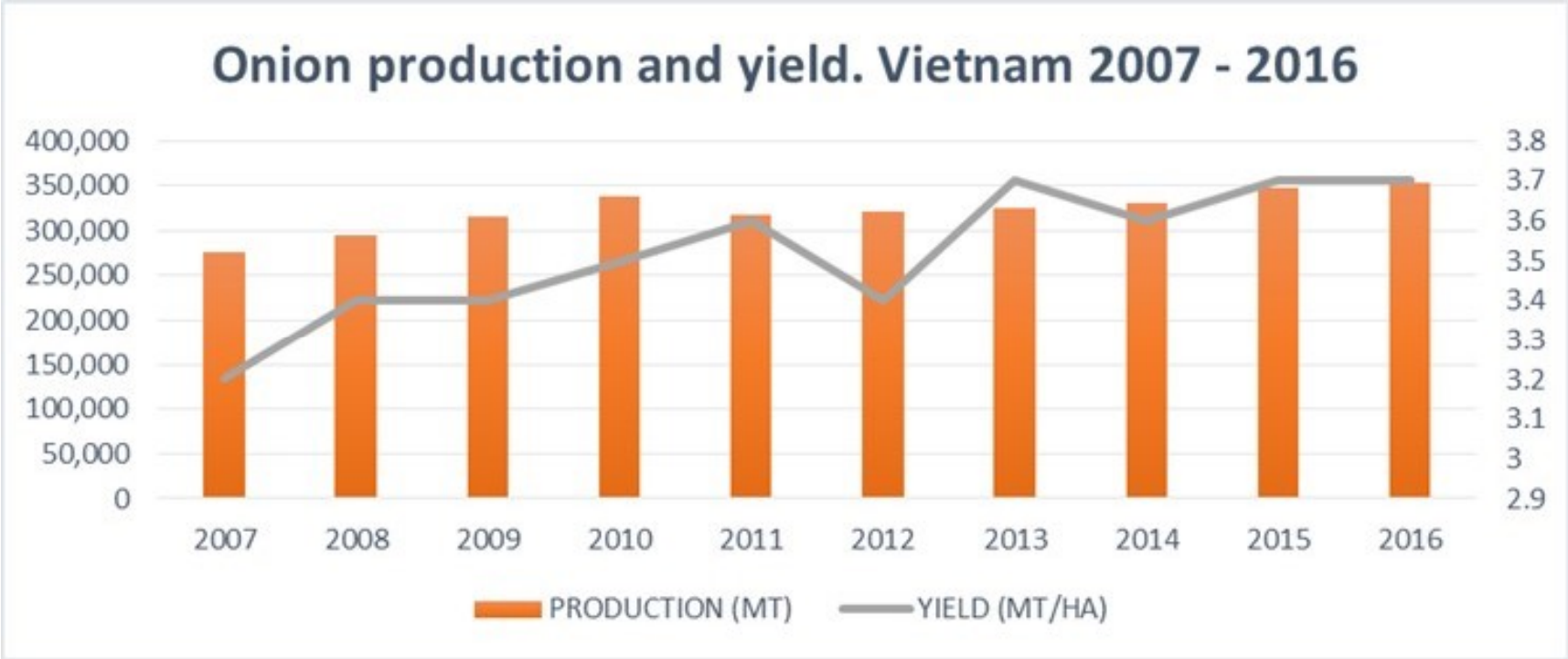
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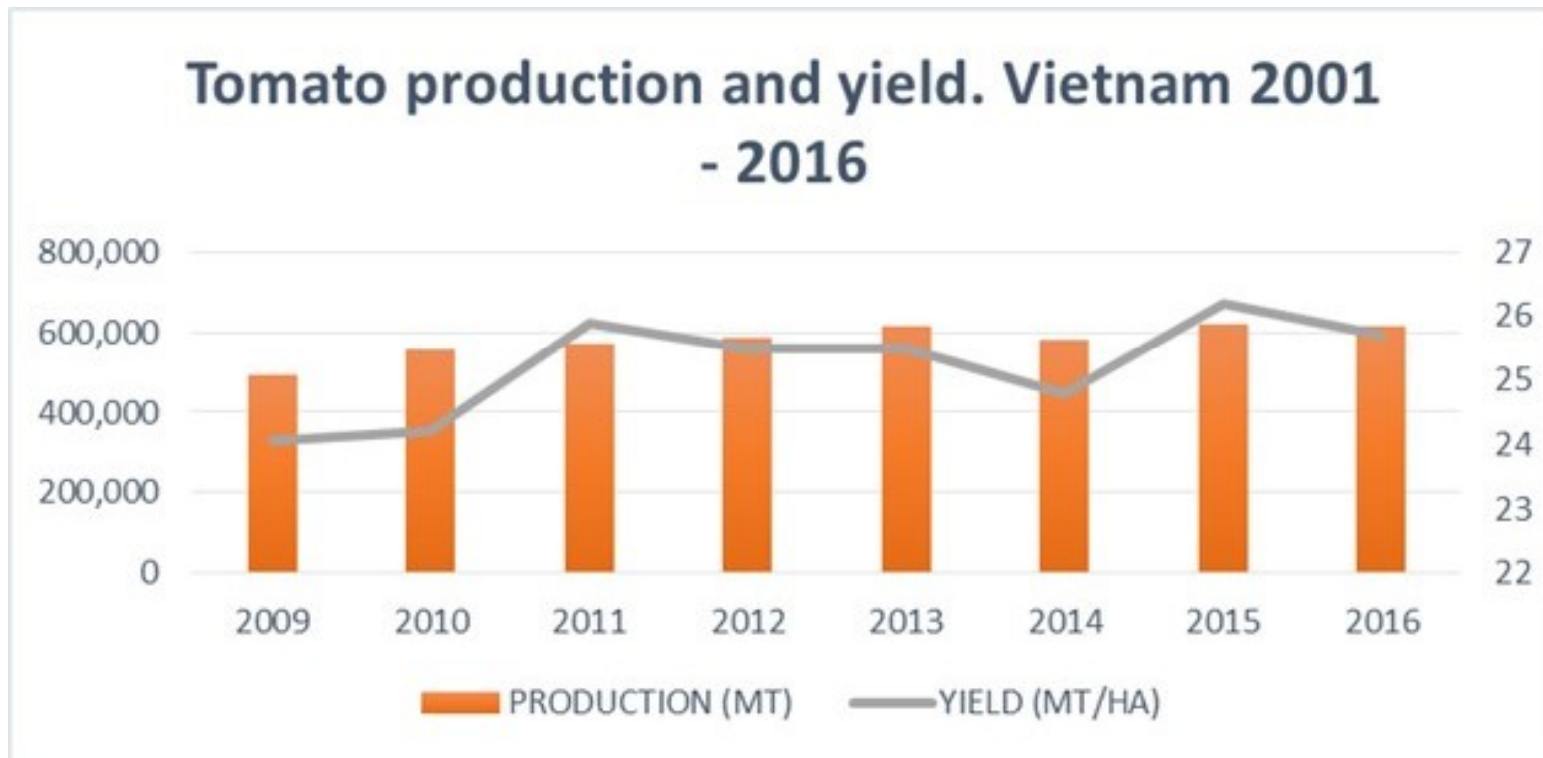
**Potato yield increasing moderately over the last eight years.  
No clear trend is discernible for production in the last years.**



# Onion: Stable production and yields over the last years



## Tomato: Stable production and yields over the last years





**Yields.** High compared to other neighboring countries. Efforts should be put on improve quality and diversification to higher value crops (F&V).  
High soil fertility in some regions and relatively good climatic conditions.

	2012	2013	2014	2015	2016
<b>POTATOES AND TUBERS (MT/Ha)</b>					
Vietnam	16.52	17	17	18	19
Nepal	13.58	13.64	13.70	13.13	14.03
Bangladesh	18.59	18.82	18.89	19.16	19.44
Pakistan	18.34	21.81	18.15	23.44	22.45
The Netherlands	45.17	42.21	45.66	42.73	42
China	18.4	18.51	18.61	18.72	18.6
<b>ONION (MT/Ha)</b>					
Vietnam	3.4	3.7	3.6	3.7	3.7
Nepal	13.82	12.98	12.03	11.90	12.00
Bangladesh	8.54	8.69	9.19	10.05	9.78
Pakistan	13.05	13.19	12.99	12.80	12.80
The Netherlands	25.33	20.80	20.71	21.05	20.93
China	35.47	35.46	35.77	35.27	35.23
<b>TOMATO (MT/Ha)</b>					
Vietnam	25.5	25.5	24.8	26.2	25.7
Nepal	15.14	15.77	16.84	17.20	18.60
Bangladesh	9.97	9.54	9.59	13.52	13.46
Pakistan	10.10	9.86	9.53	9.33	9.55
The Netherlands	476.05	483.60	505.62	507.12	507.04
China	50.49	51.43	52.68	54.86	56.20
<b>MANGO (MT/Ha)</b>					
Vietnam	7.70	11.14	8,09	8.40	8.40
Nepal	5.79	8.01		7.05	7.15
Bangladesh	7.62	8.00	8.00	10.03	7.59
Pakistan	9.86	9.86	9.68	10.05	7.85
Brazil	17.19	17.72	17.32	17.10	17.95
China	8.22	8.27	8.19	8.23	8.14



## Prices: large commodity fluctuations during peak season and lean season

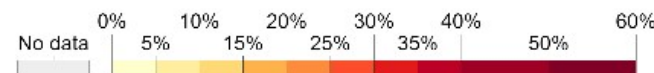
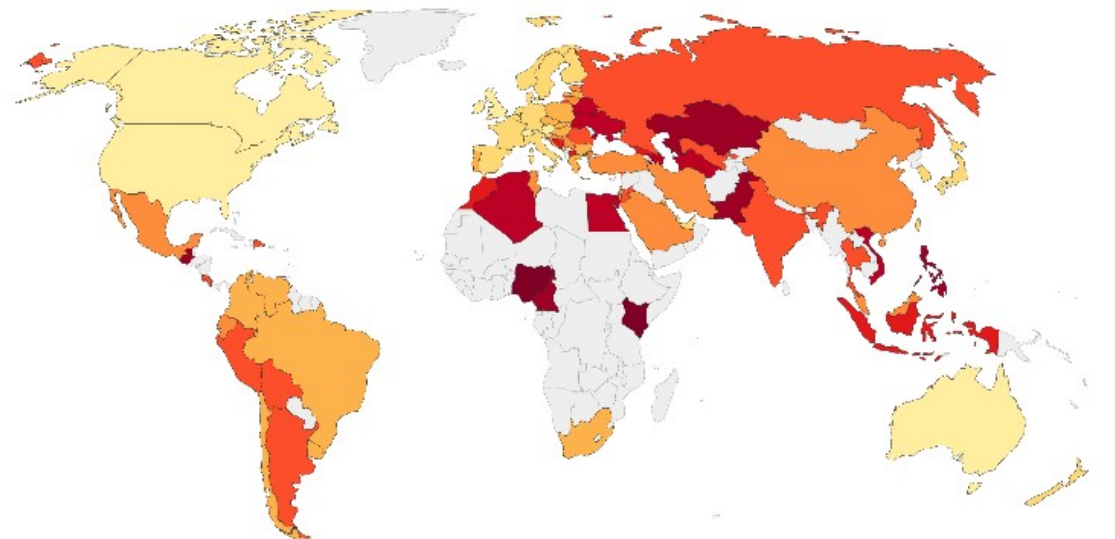
### Food expenditure: almost 40% of total expenditure in households

- Prices of fruits and vegetables fluctuated by almost 500 % throughout the year.
- The average annual household consumption of Vietnam in 2016 is 1,569 US\$ of which 612 US\$ is spent on food (39%)

#### Share of consumer expenditure spent on food

The share of consumer expenditure spent on food products, measured as the percentage of total consumer expenditure per person. This share includes only food consumed at home, and does not include expenditure on alcoholic beverages or tobacco.

Our World  
in Data

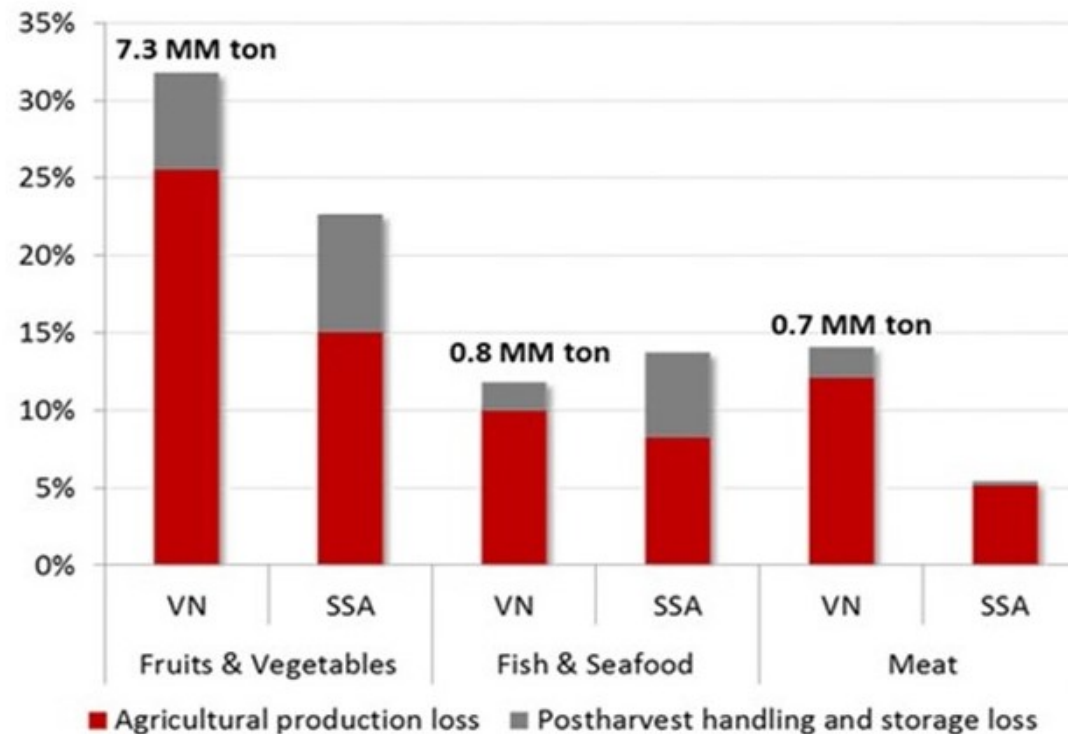


Source: United States Department for Agriculture (USDA)

OurWorldInData.org/food-prices/ • CC BY-SA

**Estimates of post-harvest losses.** According to the FAO, Vietnam's post harvesting losses accounted for 10 % of rice production, 10-20 % of root and tuber crops, and 10-30% of fruit and vegetables.

*Agricultural production and postharvest handling, storage, and transportation losses for Vietnam (% and estimate in million ton) and FAO results for South-Southeast Asia (%).*



Source: CEL Consulting. Survey 2018

According to survey of CEL Consulting: 32% of production for fruits and vegetables is lost. That is approximately 7.3 million ton lost per year

According to different studies and reports, estimate average of 20% of food losses, approximately 5 million tons

Post-harvest losses due to poor postharvest handling practices (no sorting, grading, packaging or any other value-adding activities) and poor production&storage infrastructures

**Percentage of collectors having grading practice and percentage of losses (%)**

Type and scale of operation			% collectors having grading practice		% losses after grading
			Before buying	After buying	
Fruits	Traders at wholesale markets	small	61.54	80.77	<b>3.30</b>
		medium	60.00	100.00	<b>4.40</b>
		Large	83.33	83.33	<b>2.80</b>
	Traders at production area	small	100.00	91.67	<b>4.50</b>
		medium	83.33	83.33	<b>3.20</b>
		Large	75.00	100.00	<b>2.40</b>
Average			77.20	89.85	<b>3.43</b>
Vege	Traders at wholesale markets	small	39.13	65.22	<b>9.10</b>
		medium	69.23	76.92	<b>7.60</b>
		Large	62.50	87.50	<b>5.40</b>
	Traders at production area	small	58.82	64.71	<b>13.30</b>
		medium	40.00	70.00	<b>13.40</b>
		Large	60.00	90.00	<b>16.80</b>
Average			54.95	75.72	<b>10.93</b>
<b>Total average</b>			<b>66.07</b>	<b>82.79</b>	<b>7.18</b>

Source: Nguyen Thi Hang Nga. 2017. Value Chain of Horticulture Products in the Southern region. Phd. Dissertation. Can Tho University.

**Farmers' share on consumer's dollar.** The share of farmer price on the retail price ranges between 27% and 45 % for the selected vegetables.

Agriculture marketing information on volumes, prices and quality is vital for farmers.

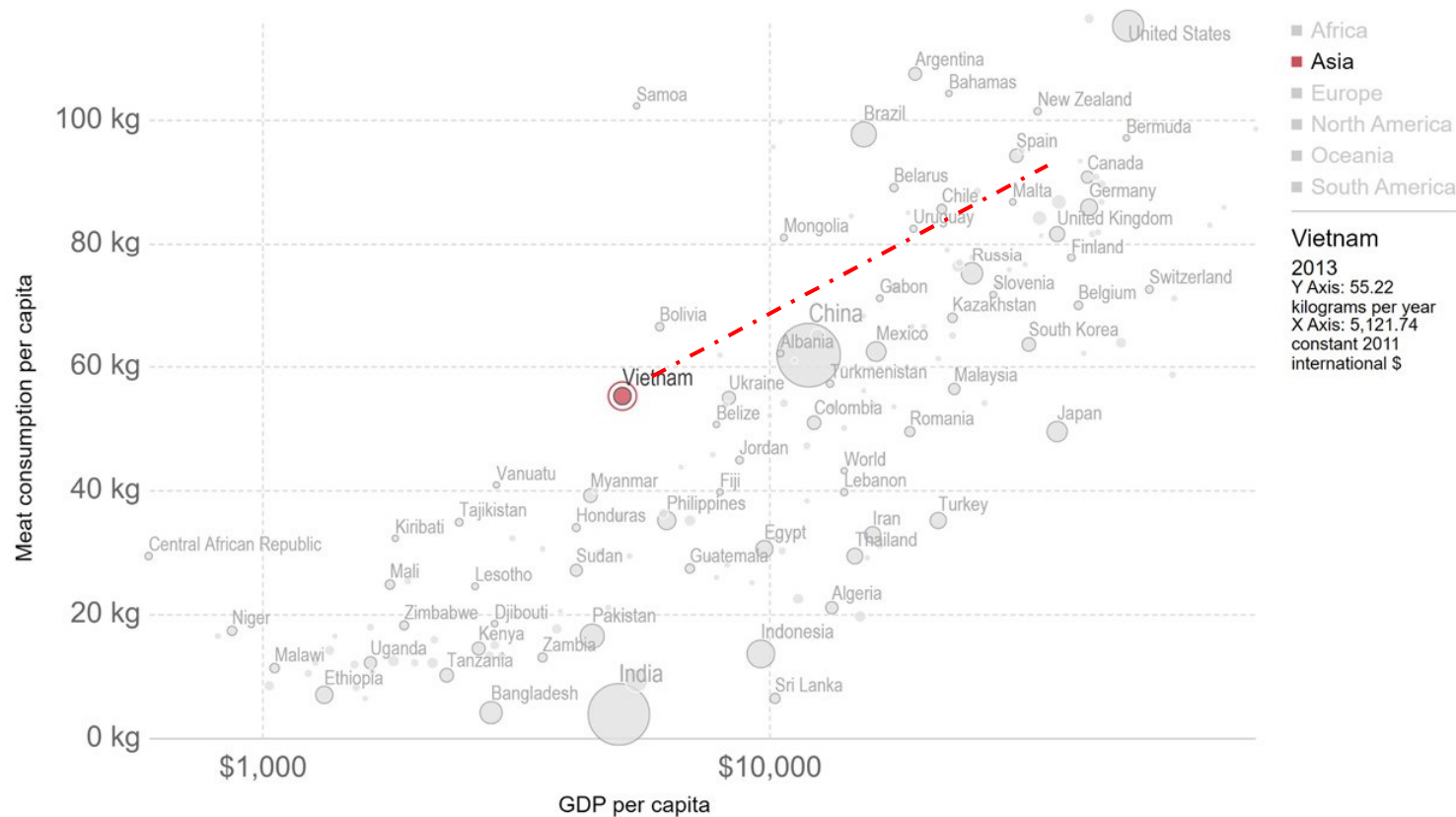
Vegetable/fruit	Price (USD/kg)		Wholesale price	Retailer price	% farmer price/retailer price
	Farm gate price	Trader price			
Purple onion	0.64	0.77	1.14	2.12	30.02
Garlic	0.82	1.05	1.14	2.50	32.73
Hot chili	0.91	1.14	1.36	2.80	32.47
Cabbage	0.18	0.27	0.36	0.60	30.30
Spinash	0.32	0.41	0.55	1.15	27.67
Sweet potato	0.18	0.23	0.36	0.40	45.45
White radish	0.14	0.18	0.27	0.39	34.97
Yam	0.18	0.23	0.36	0.45	40.40
Water melon	0.14	0.27	0.36	0.50	27.27
Cucumber	0.18	0.32	0.45	0.58	31.35
Tomato grade 1	0.41	0.59	0.68	1.35	30.30
Lettuce	0.18	0.25	0.55	0.62	29.33
Local onion	0.41	0.45	0.91	1.20	34.09
Cucumber	0.36	0.45	0.77	1.20	30.30
String bean	0.14	0.18	0.45	0.50	27.27
Ginger	0.45	0.59	1.00	1.40	32.47
Okra	0.18	0.25	0.45	0.58	31.35
Gourd	0.23	0.30	0.55	0.68	33.42

# Other Value Chains. Meat & Dairy. High potential for pigmeat (3.2 mt in 2012). Scope for competitive exports, but still low quality.

Per capita meat consumption (55 kg./per person/per year) close to OECD average

## Meat consumption vs. GDP per capita, 2013

Average meat consumption per capita, measured in kilograms per year versus gross domestic product (GDP) per capita measured in 2011 international-\$. International-\$ corrects for price differences across countries. Figures do not include fish or seafood.



Source: UN FAO; World Bank, World Development Indicators

OurWorldInData.org/meat-and-seafood-production-consumption/ • CC BY-SA



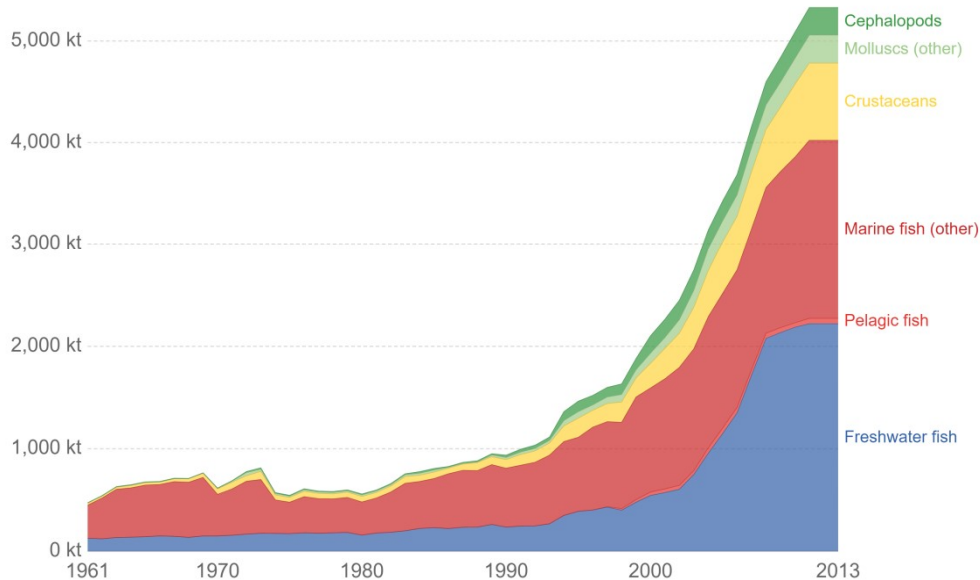
# Fish and Sea Food. Third world's largest exporter of fisheries.

Coastline of over 3,000 km. 1.7 million ha. of water bodies. More than 3,000 islands. 4 million people derive their main income from the sector, including transportation and transformation

## Seafood and fish production, thousand tonnes, Vietnam

Total seafood and fish production measured in thousands of tonnes (kilotonnes) per year. Seafood and fish includes both marine and freshwater species, crustaceans, cephalopods and other molluscs.

Our World in Data



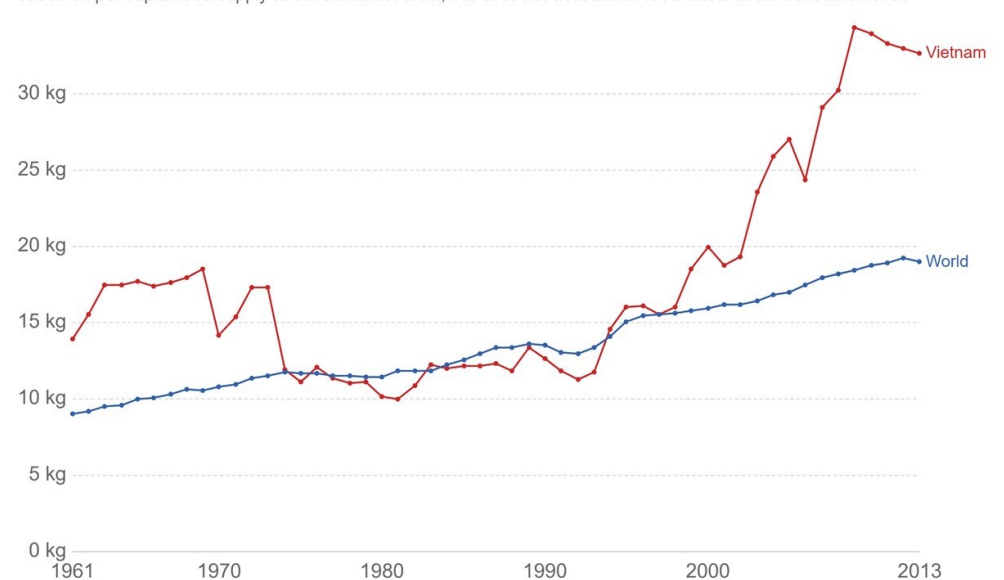
Source: UN Food and Agricultural Organization (FAO)

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## Fish and seafood consumption per capita

Annual consumption of fish and seafood per person per year, measured in kilograms. Data is inclusive of all fish species and major seafood commodities, including crustaceans, cephalopods and other mollusc species. Data is based on per capita food supply at the consumer level, but does not account for food waste at the consumer level.

Our World in Data



Source: UN Food and Agriculture Organization (FAO)

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**High per capita consumption, 34 kg per capita per year, almost double than world average**

## How does the current fresh produce supply chain in Vietnam, look like and operate?

### STRENGTHS

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- Diversified fruits and vegetables sector with acceptable yields. Particular horticultural crops export-oriented. Highly export-oriented fisheries complying with international standards.
- Traditional retail shops, small shops and wet markets have the largest share. Local brands of supermarkets with increasing demand for fresh products of high quality.
- Middle –class growing and purchase power increasing. Increase awareness of food safety, changing consumption preferences to higher value agricultural products.
- Fisheries and agriculture still are strategic sectors for the government (strategic planning). On going National Strategy on Food Safety. The Government is promoting PPPs, covering agricultural infrastructure.



## How does the current fresh produce supply chain in Vietnam, look like and operate?

### WEAKNESSES

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- Lack of produce consolidation. Small sized farms and farmers organisations are weak. Inadequate postharvest infrastructures.
- No strong linkages in the value chain. Middlepersons between growers and markets. Farmers cannot maintain stable relationships with traders due to their irregular supply.
- High transaction costs and uncertainty as a result of weak contract enforcement.
- Food quality and quantity losses.
- Vietnam's infrastructure is still weak. Low quality of transport and infrastructure .
- Export of low-value commodity sales, quantity growth but short on quality and added value. Global Competition of neighbouring countries.

# How does the current Wholesale Markets in Vietnam, look and operate?

Vietnam has 8,580 markets, 234 being categorized as class-1 markets, 888 as class -2 and 7458 as class-3 markets

Long Bien Market



Southern Market



## How does the current Wholesale Markets in Hanoi, look like and operate?

DIAGNOSIS: Food safety limitations, commercial inadequacies and physical and technical limitations of the current Wholesale Market / infrastructures, which make them inefficient.

MAIN CONCLUSIONS / REASONS ARE AS FOLLOWS:

Commercial. The lack of space, scarcity of stalls, and limitations of necessary infrastructure for efficient operation; parking, storage capacity, produce handling, roads, access, offices and complementary services.

Healthy. Limitations to guarantee public health, with serious risk to public human health and different public administrations responsibility.

Operational. Truck based sales, serious difficulties for the correct development of physical operations which pushed up commercialized products losses, merchandise useless movements, conservation and handling, abusive and inadequate use of space and, in general, a lack of direction and coordination of all the activity.

Environmental Issues. Located in the urban centers of the cities, environmental pollution and high vehicular concentration, with trucks of great tonnage which results on jumps.

Management of Markets needs to profesionalise. No value services.

## The cost of inefficiency. Some very preliminary estimates

### Post-Harvest Losses

- Over 5MT lost every year.
- A reduction of around 75% of the level of waste would be equivalent to an annual saving of approximately **US \$ 1.875 billion** (75% of 5 MT tons of post-harvest losses, according to the consultant's estimations, valued at 500 USD per ton, equivalent to 0.5 USD per kg.).

### Price fluctuations

- Lower fluctuations of prices between season and non-season would bring annual **savings for end-consumers of up to US \$ 581 Million** (US \$ 612 USD expenditure per person x 95 million = total expenditure US \$ 5.81 billion US\$ x 10 % of expenditure on fresh food x 10 % of expenditure savings = US \$ 581 M) . At present, up to 40% of household expenses are spent on food.

### No premium export price

- Currently, the lower average quality of the products is evidenced through a punishment at the average sale price (lower quality, lower export price). An improvement in the average quality of products would represent an extra/premium price for exports.

### Marketing Cost

- Marketing costs are high. Marketing costs would reduce up to \$ 0.025 / 0.005 per kg. Considering a trade of 185,000 tons per year at Long Bien, **annual saving of between US \$ 0.95 to US \$ 4.62 million** is estimated as a consequence of the the improvement in operations and logistics of the market.

## The cost of inefficiency. Some very preliminary estimates

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### Tax Collection

- High degree of informality of the existing system results in **low capture of corporate and income taxes.**
- Also, personal contributions to social security are very low and there is need to improve the welfare of workers who will be covered by the system.

### Food Safety & Quality

- Inability to comply with food safety standards and exports requirements.
- The lower average quality of the products is evidenced through a punishment at the average sale price.

### No Added Value Activities. Food Processing and Modern Retail at their earliest stage of development

- At existing wholesale markets, the addition of value to national production, through the development of different activities such as packing, cold and storage technologies, classification and processing is very limited.
- Food industry and modern retail do not benefit from existing markets.

## Proposed Actions. What Should be done.

Area of intervention	Short Term / Urgent / Priority High	Long Term / Priority High
<b>Legal Institutional</b>	Review of Market Regulations and Framework Strengthening and Capacity Building of Market Authorities	Development of Collection Centers / Wholesale Markets / Agricultural Hubs Tailored made PPP model for managing / developing existing and new wholesale markets / related infrastructure development The need for a public policy
<b>Infrastructure and Physical Capacity</b>	Temporary upgrading Laboratory	Develop a pilot Project for upgrading selected / developing new ones COLLECTION CENTERS AT RURAL AREAS AND A MODERN WHOLESALE MARKET in Hanoi Wholesale shifted to new premises, including fruit, vegetables, fish, sea food, meat, others, along with added value companies; supermarkets, cold storage, processing, industry, exporters, others
<b>Model of Management</b>	New Model of Management	Professional management of premises and services Local Staff trained and empowered to operate new infrastructures



## Proposed Actions. What Should be done.

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I

The establishment of a network consolidation centers / assembly markets at productions areas

II

The development of a Modern Wholesale Market in Hanoi in the outskirts of the city and retail market upgrading

III

Upgrading and modernisation of Wholesale Markets in Ho Chi Min



## Establishment of a network consolidation centers / upgraded assembly markets in rural areas linked with Wholesale Markets

- The Centers should serve the function of **collecting and concentrating the goods at origin**,
- The Centers should provide services and infrastructure to farmers, **i.e.; sorting and grading, cleaning, packaging, storage, etc.**, as well as **sales and distribution**. The centers should have **cold chambers for the preservation of products**, and quality control and laboratory testing.
- **Cooperatives and farmers associations**, will be in charge of the efficient management of these centers. This is the most tried and successfully proven system in most countries.



## **From an economic point of view the existence of Modern Wholesale Markets enables different tasks to be carried out more efficiently:**

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- It reduces the transaction costs by reducing the number of trade transactions.
- It encourages the provision of added value services which require a minimum volume of operations that would not be achieved through each individual transaction.
- It increases the size and depth of the market by increasing the power to attract customers who are prepared to travel greater distances in order to find a broad and varied supply
- Positive synergies arise between trading and added value activities, increase in exports and development of new products and value-added services
- Entrance of new operators offering additional services such as cold chain management, integrated packaging management, etc.
- A final effect of relationship of supply and demand in same ground floor, is the formation of the price, so that end consumers and the society will also benefit.

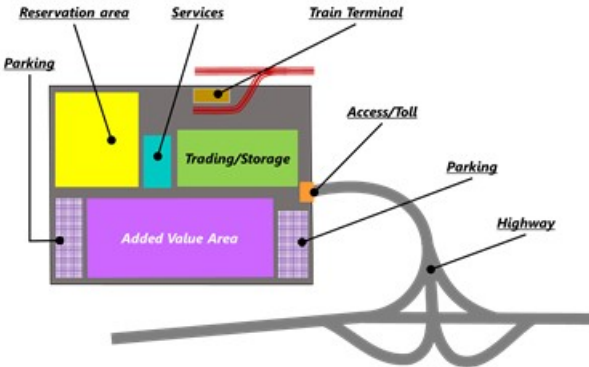
## Development of a Modern Wholesale Market in Hanoi Catchment Area. Cluster of infrastructures, produce and services to meet the needs of the food sector.

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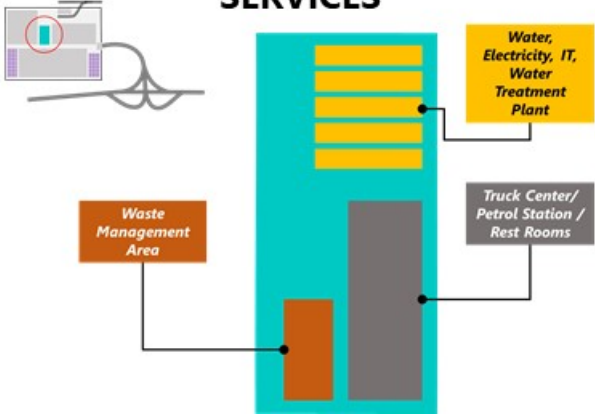


# Development of a Modern Wholesale Market in Hanoi Catchment Area. Concept

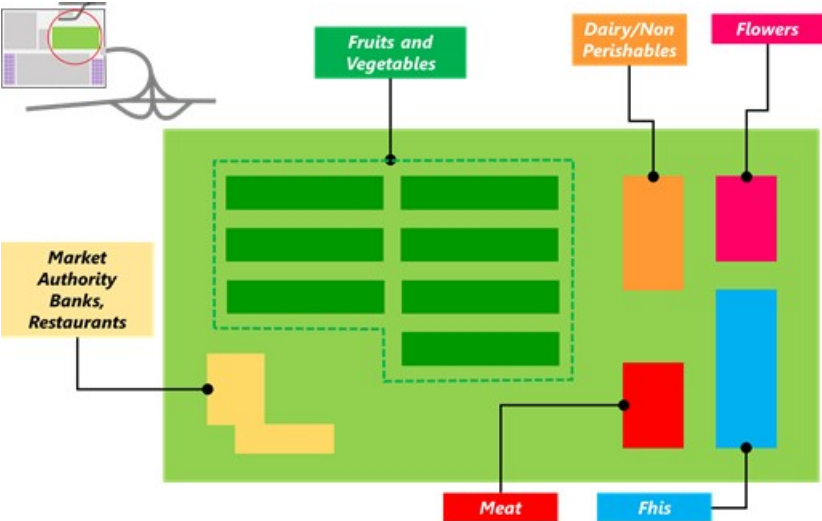
## CONCEPTUAL DESIGN



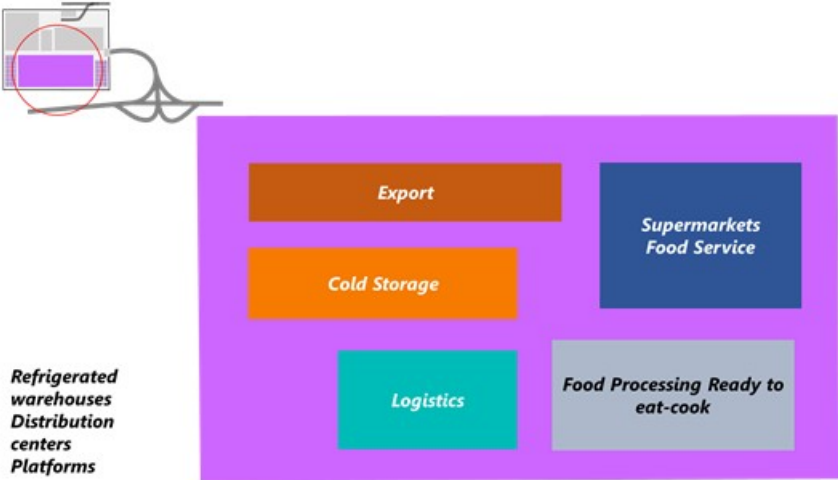
## SERVICES



## TRADING AND STORAGE/OFFICES



## ADDED VALUE ACTIVITIES



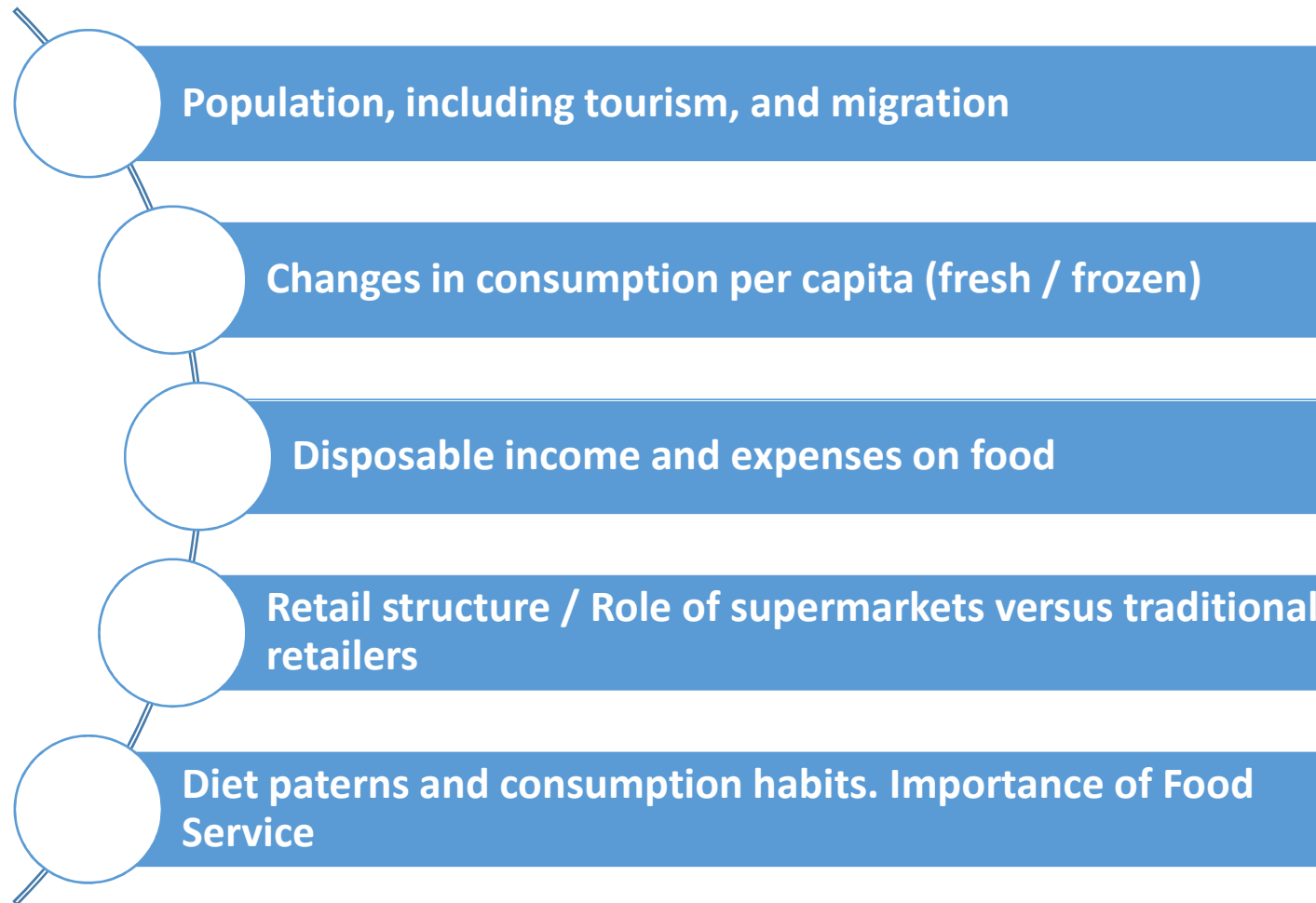


**Modern Infrastructures. “All agricultural produce under one roof”.**



## Future Demand for Safe Food

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## Criteria for Location. 3 Existing F&V Wholesale Markets in Hanoi to be shifted to a new location.

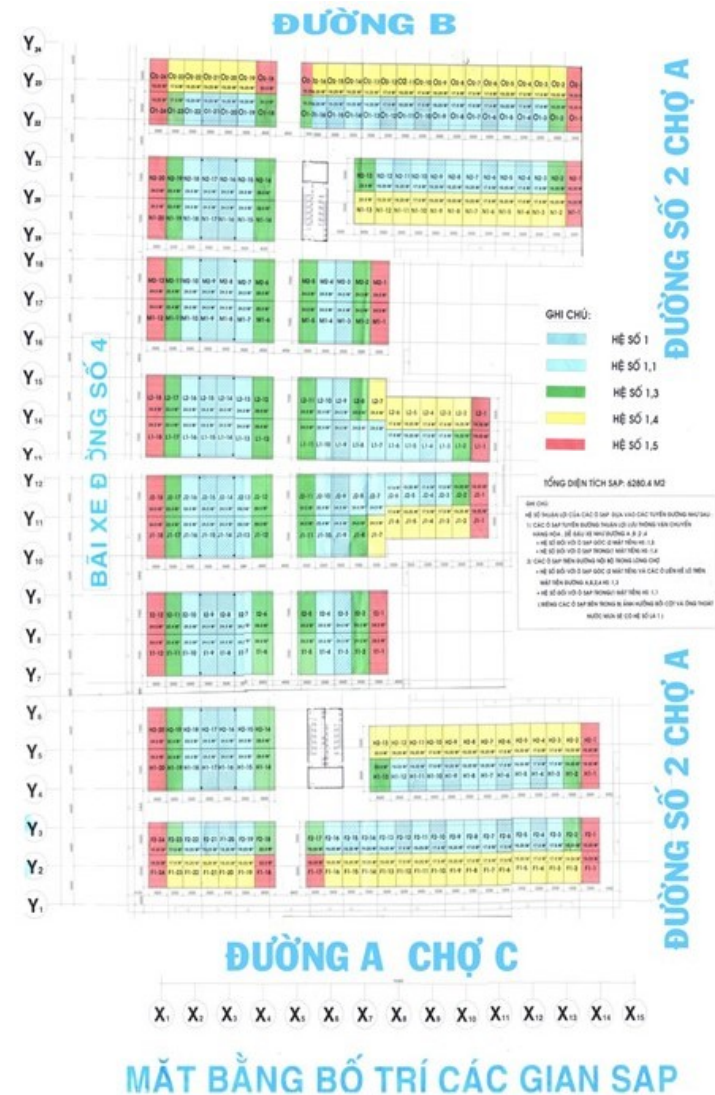
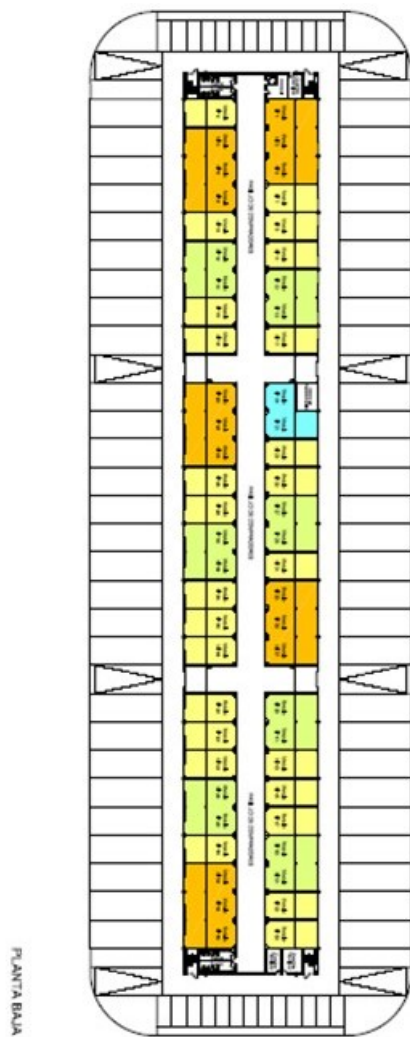
The criteria for the selection of the most suitable site should take into account the following criteria

- Optimum size of 100 has. (if affordable price of land plot) which is not used by households, farmers, or others;
- Proximity to Hanoi. Distance to city centre– 12 km;
- Easy (close) connection to transportation infrastructure;
- Access to supplies. Adequate power infrastructure and water availability
- Plain terrain, no mountain, nor hilly areas;
- No watercourse (river, springwaters, small river streams);
- No environmentally protected area;
- No large-scale/chemical industries around;
- Not complicated legal procedures for land allocation / acquisition; conducting construction works, connections to supplies and transportation infrastructure, etc.;
- Adequate shape of the land plot; rectangular





HCMC currently has 3 operating wholesale markets. All the three markets established in the period 2002-2003 on the base of 10 small specialized markets in the city center that were shifted to these 3 wholesale markets in the outskirts of the city. Only Binh Dien Market could become a modern Hub. Not Duc nor Hoc Mon because of engineering errors.



**Ownership and Management Models of Markets. No matter how much is invested in infrastructure and services, if the management model does not improve / is not professional, there is a serious risk that new markets will not be successful.**

Ownership	Public	Private	Public Private
	Municipal/Local administration Regional/State Administration Central/Federal Administration	Cooperatives and Farmers' Associations Association of traders O&M private company Real Estate Companies	Public Administration Public Financial Institutions International donors Investment and Pension Funds Cooperatives and Farmers' Associations Trader's Associations Real Estate Companies
Management	Public	Private	Public Private
	Direct management of the public administration Government owned company	Association of traders O&M private company Real Estate Companies SPV company	Public-private company

- In any of the option above, a for profit Management Company needs to be set up to manage and operate the Wholesale Markets on its own.
- Alternatively, management company can contract an international professional to entirely manage the Wholesale Market on a fixed fee basis and / or revenue percentage basis for 10-15 years.
- Also, Management Company can contract an international professional, on a fixed fee basis, to act as the “interim manager/mentor” for 3-5 years.

**Along with the development of WMs policies and support programmes are a must. Wholesale Markets HAVE / WOULD to be the conduit to implement these measures. The need for a public policy.**

Cooperatives, Associations and Producers Organizations. Concentration of produce	Financial Support	Quality, Traceability, Marketing Standards	ISO, HACAPP, GLOBALGAP
Packaging. Standardization of boxes	Modernization of retail and rural markets, greenhouses	Training and Capacity Building	Price Information Systems
Promotion of Exports and Import Substitution	Transport and Logistics	Innovation and R&D	Legal issues / Contract Farming
Incentives and tax benefits for tenants	Promotion of the Consumption	Support to the transportation and logistics sectors	Other infrastructure; agro parks, postharvest and collection center, retails markets