



2nd Cambodia Development Cooperation Forum

Agricultural Productivity & Diversification

**Paper for: 2nd Cambodia Development Cooperation Forum
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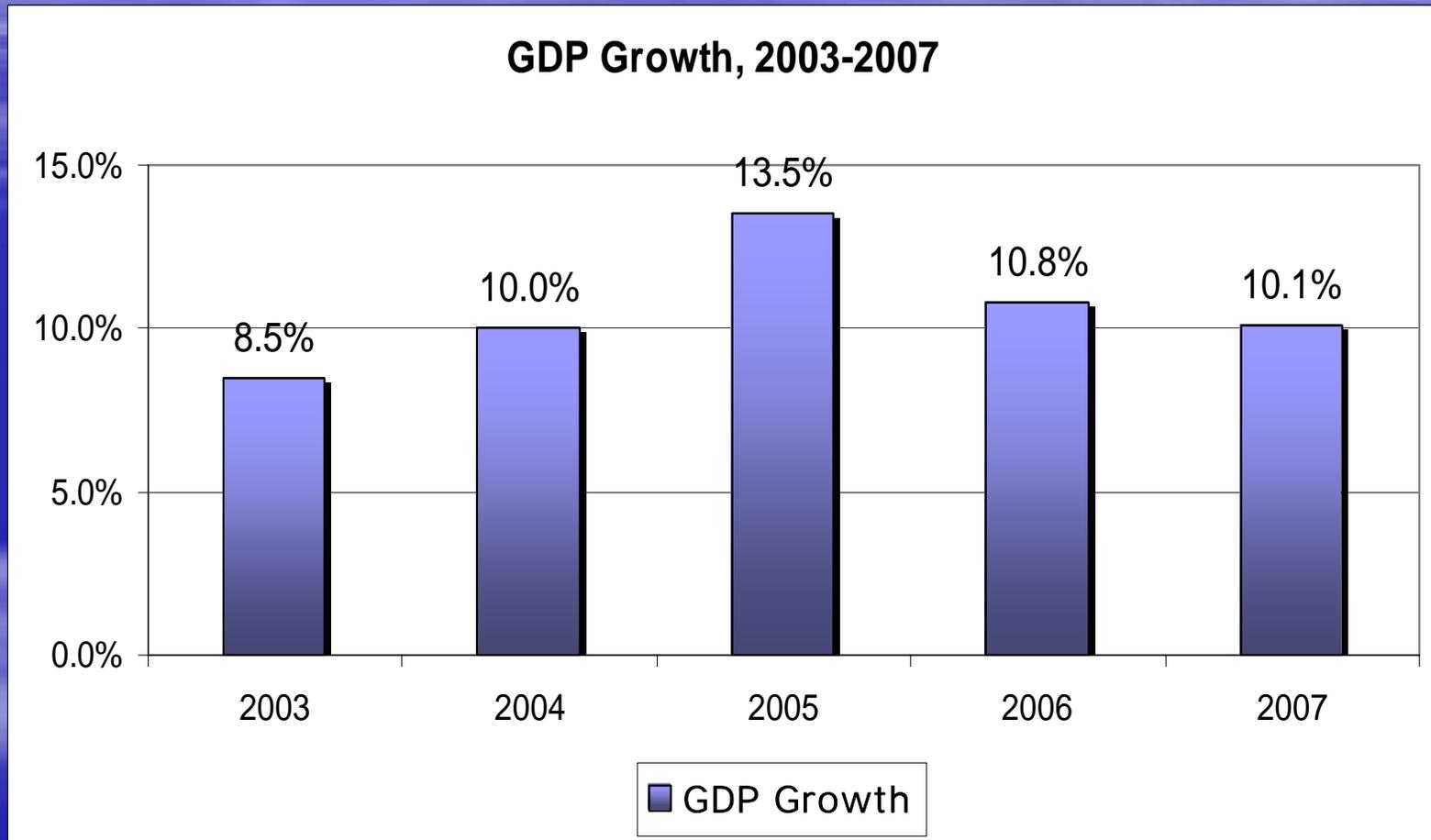
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I. General Overview of Agricultural Sector



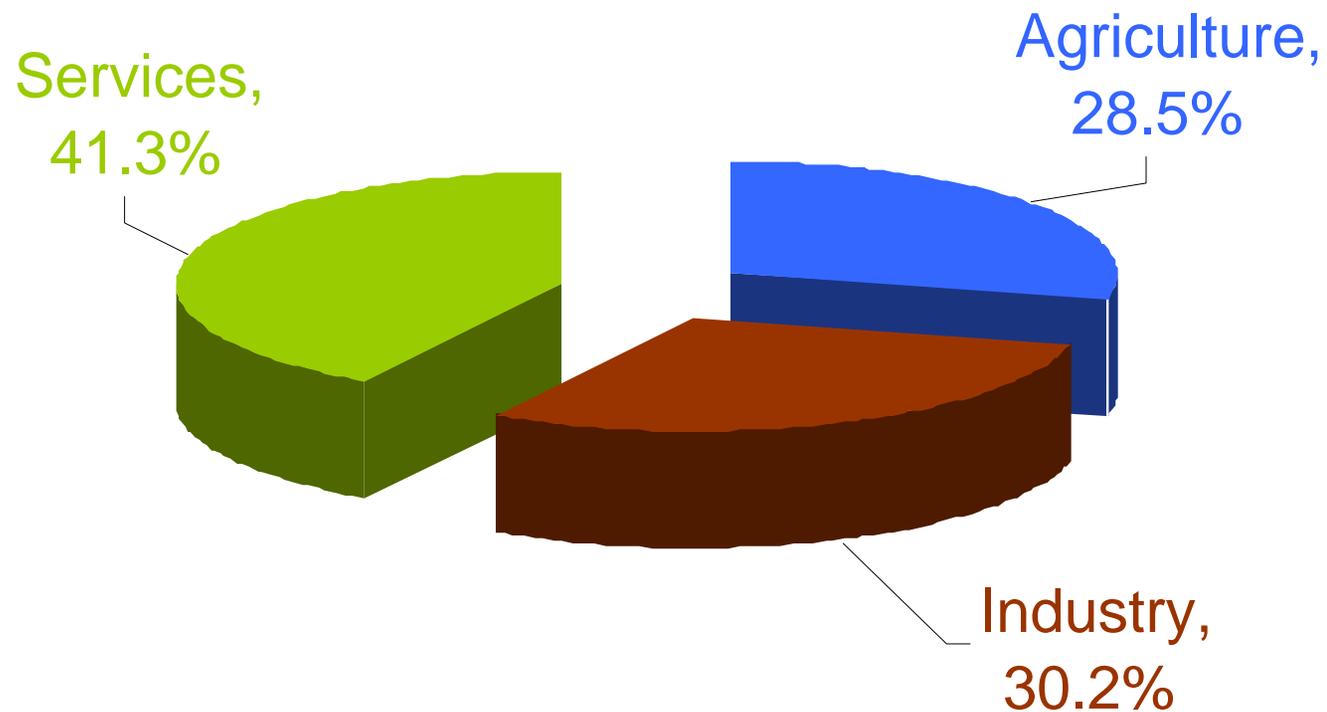
GDP Growth Rate





GDP by Key sector

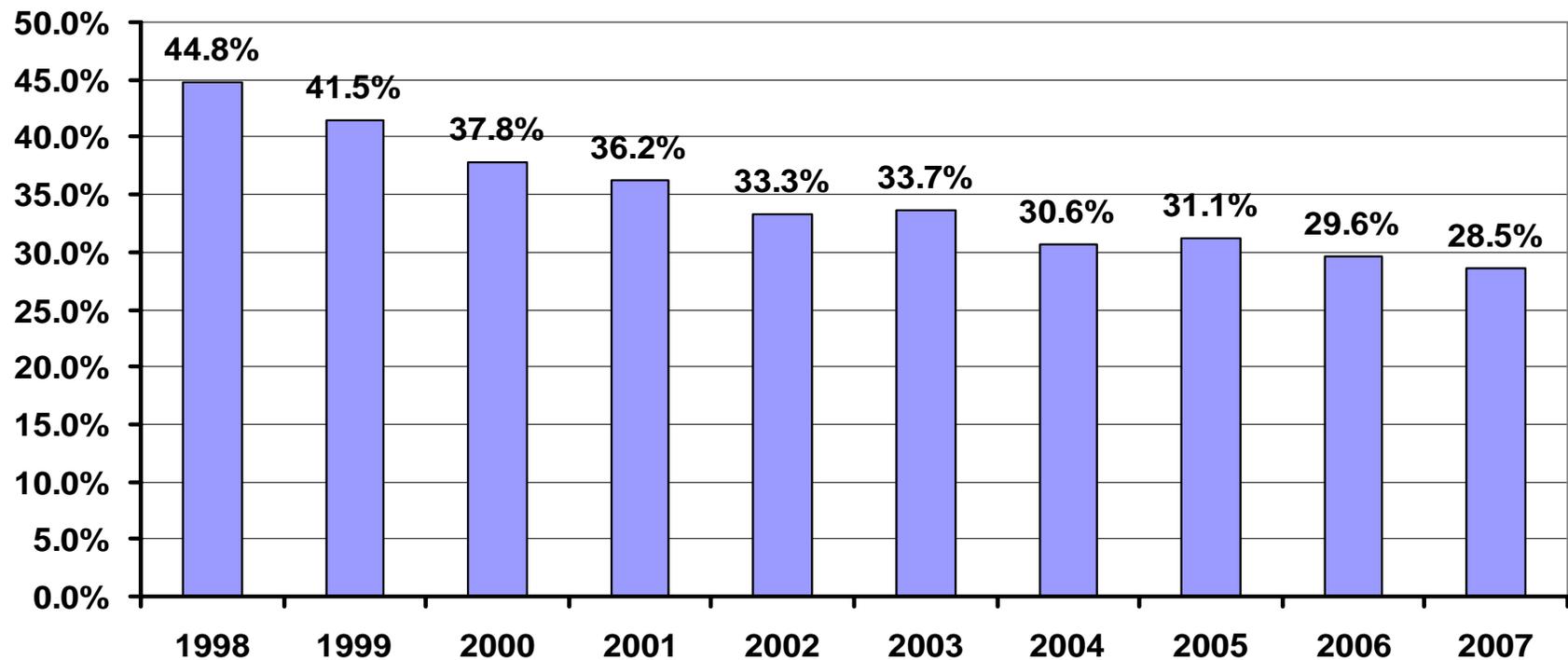
Cambodia GDP 2007 (at constant prices)





Evolution of agricultural sector in GDP 1998-2007

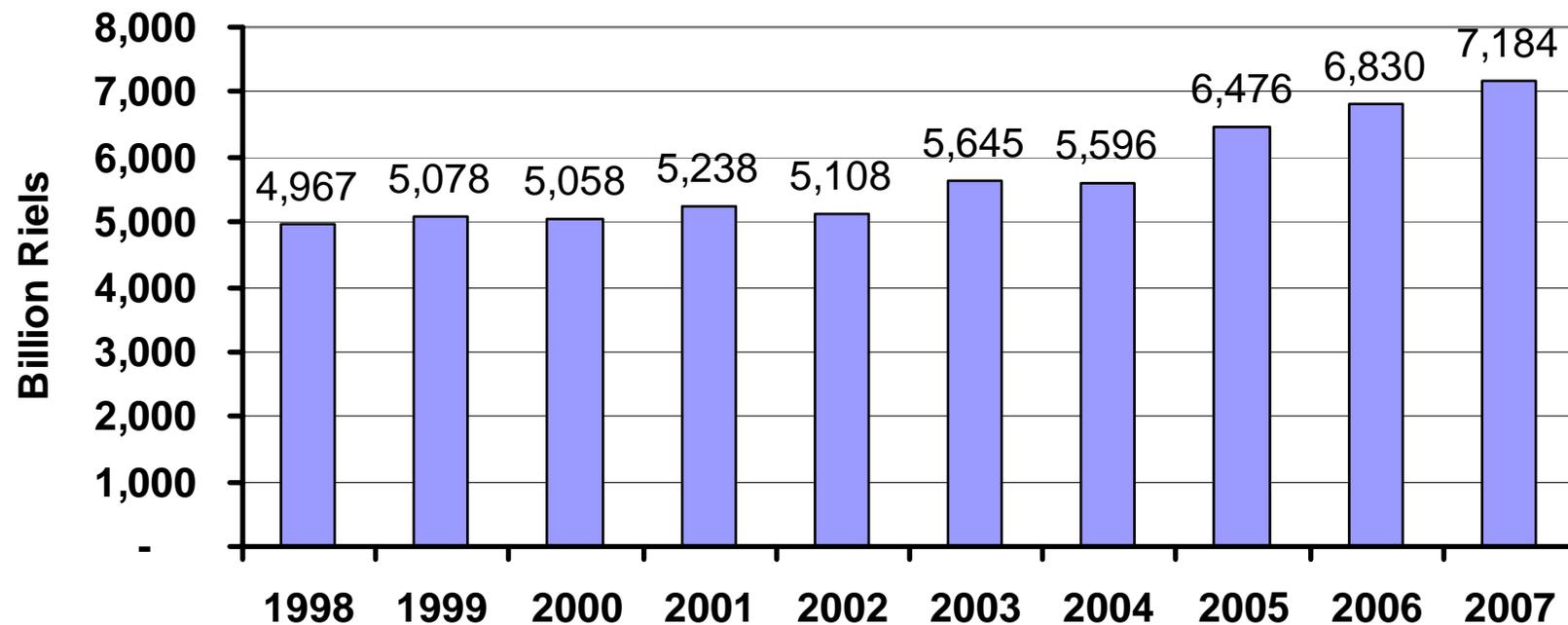
Share (%) of Agriculture Sector in GDP, 1998-2007





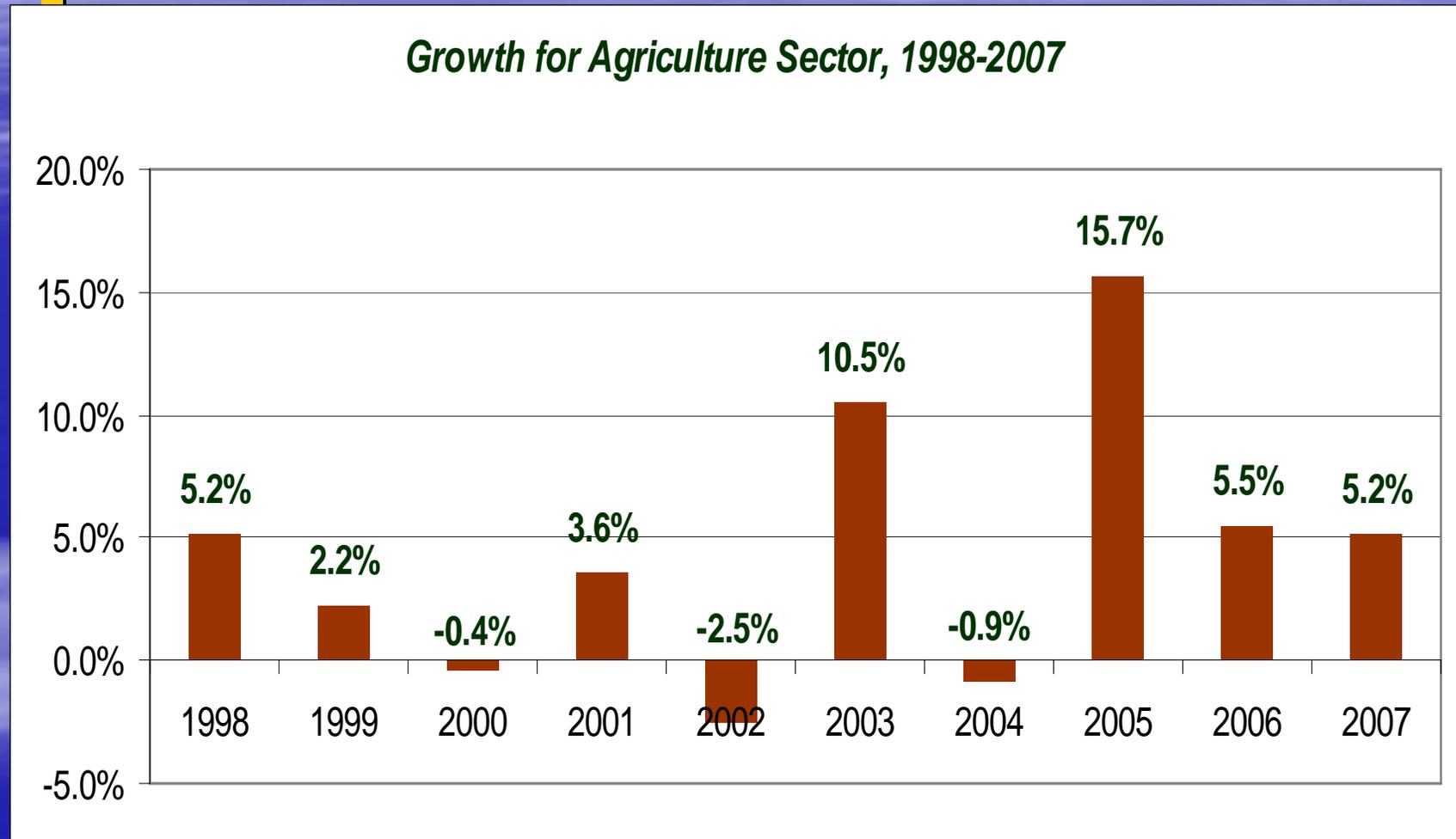
Gross value added of agricultural sector

GVA for Agriculture, 1998-2007
Constant 2000 Price, Billion Cambodia Riels





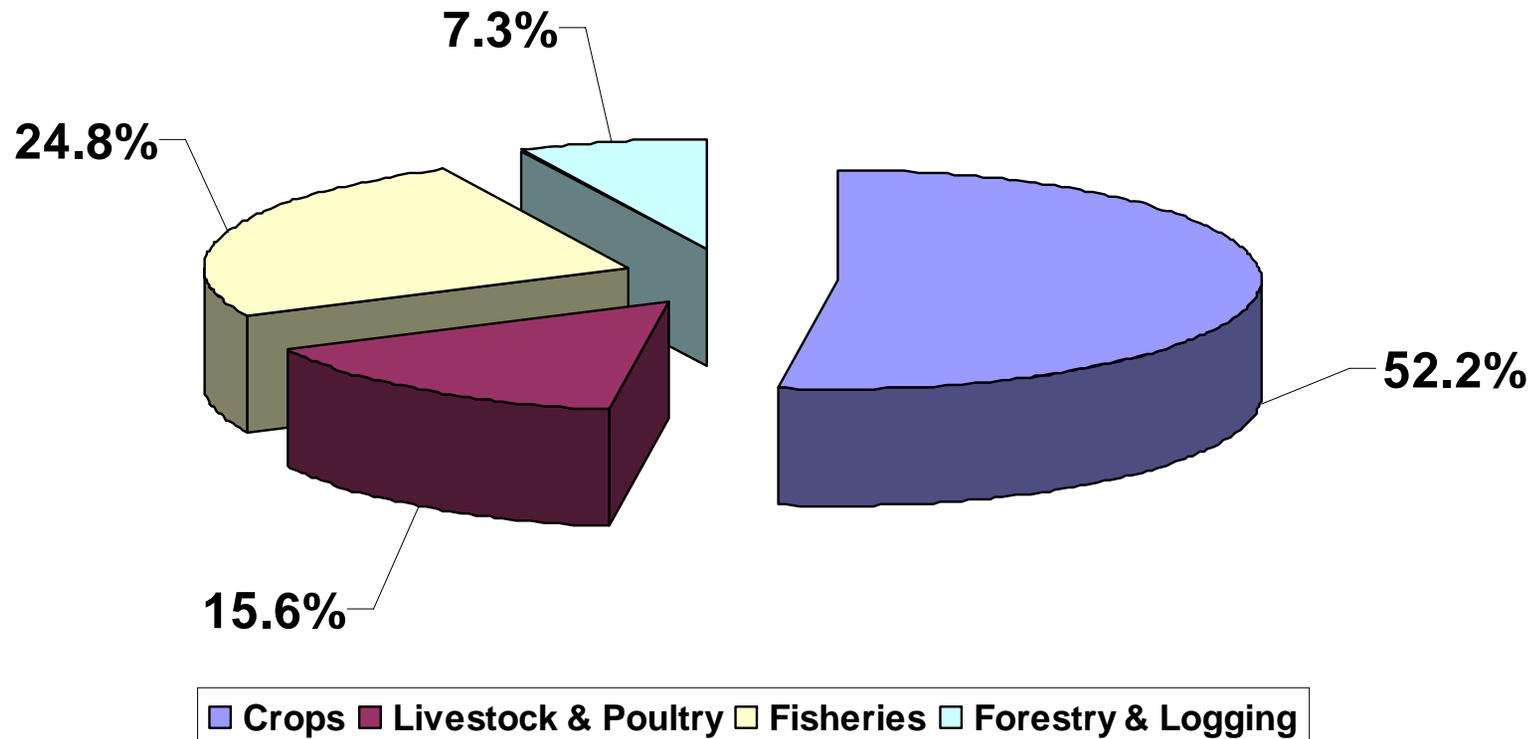
Growth for Agricultural Sector 1998-2007





Composition of share in agriculture GDP

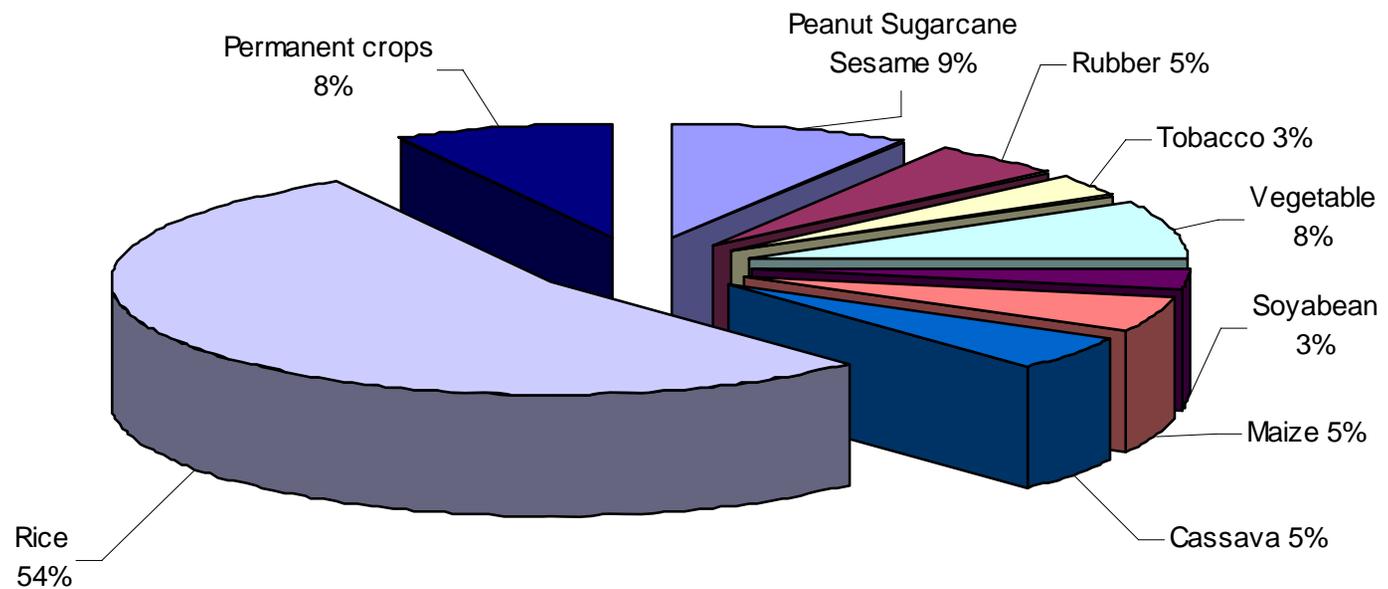
Composition of share in Agriculture GDP, 2007





Gross value added by crops

Gross Value added-detail of "Crops" 2007





II. Agricultural Productivity and Diversifications

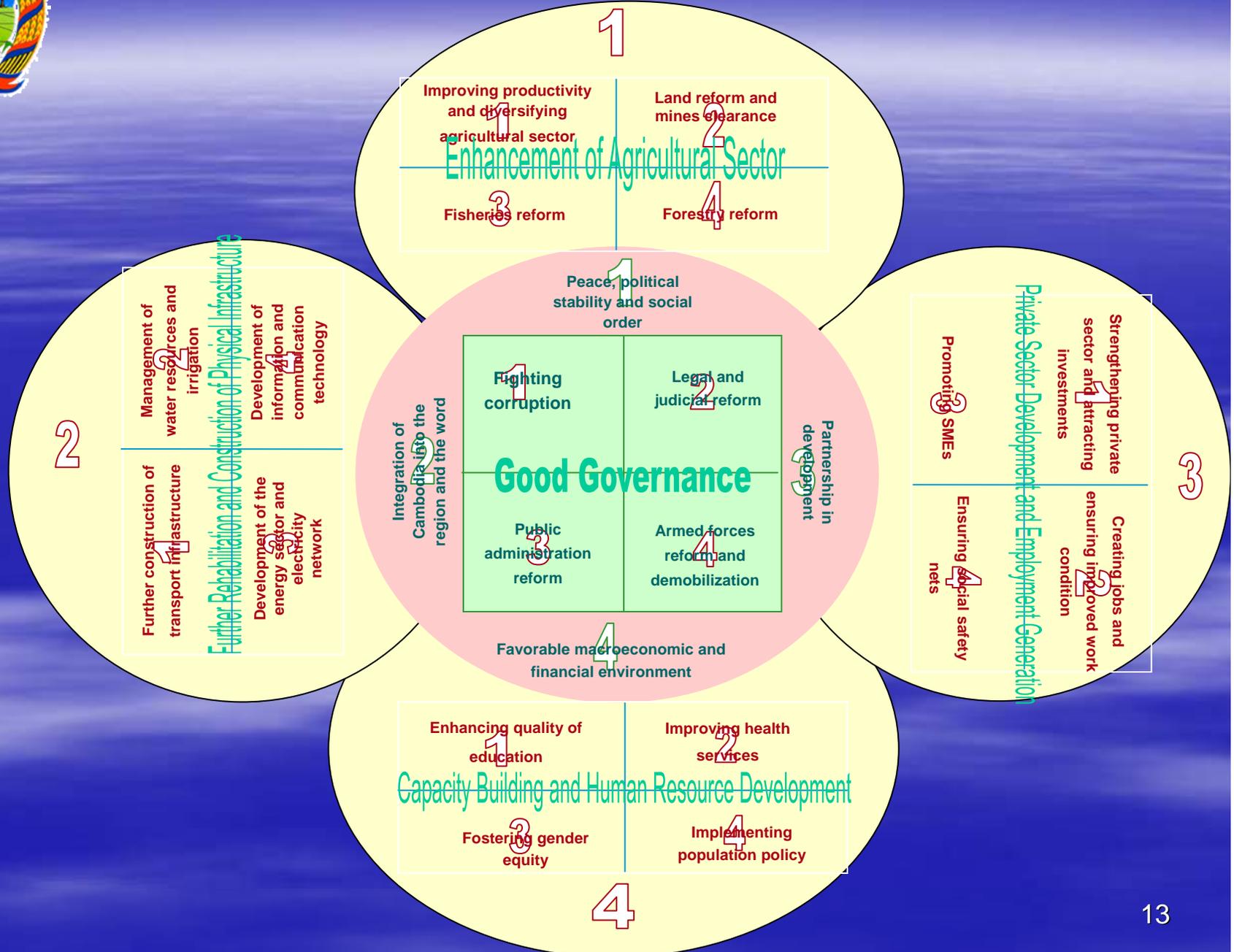


2.1. Policy frameworks

- The agriculture policy of RGC to improve agricultural productivity and diversification, thereby enabling the Agriculture sector to serve as the dynamic driving force for economic growth and poverty reduction.



Rectangular Strategy of RGC





2.2. Conceptual Framework

- Agricultural productivity is measured as the return received from the applied inputs of labor, fertilizer, water etc... and from land.
- It is expressed in term of land productivity and labor productivity. Labor productivity is measured as the value of aggregate agricultural output per hectare of agricultural land: Yield. Labor productivity is measured as value of aggregate agricultural output per worker.
- Increase in productivity will lead to increase of value of aggregate agricultural outputs per hectare of agricultural land and worker.



2.2. Conceptual framework

- Agricultural diversification at the farm household level implies the addition of other crops and other enterprises.
- Agricultural diversification at the agriculture sector level is created by household level specialization as household shift away from traditional self-sufficiency goals and toward profit and income oriented decision making with increase responsiveness of farm to market needs.



- Agricultural diversification and commercialization are inter related as commercialization lead to greater market orientation of farm production, progressive substitution of non-traded inputs by purchased inputs and the gradual decline of integrated farming systems and their replacement by specialized enterprises for crops, livestock, poultry, and aquaculture productions etc... and products for bio fuel...



- Agricultural diversification and commercialization are interrelated as agricultural commercialization proceeds, the market share of agricultural output increase.
- As economy grows, there is a gradual movement out of subsistence food-crops production to a diversified market oriented production systems.



- The process of diversification out of staple food crops production is triggered by:
 - Rapid technological change in agricultural production
 - Improved rural infrastructure
 - Diversification in food demand pattern (diet diversification).



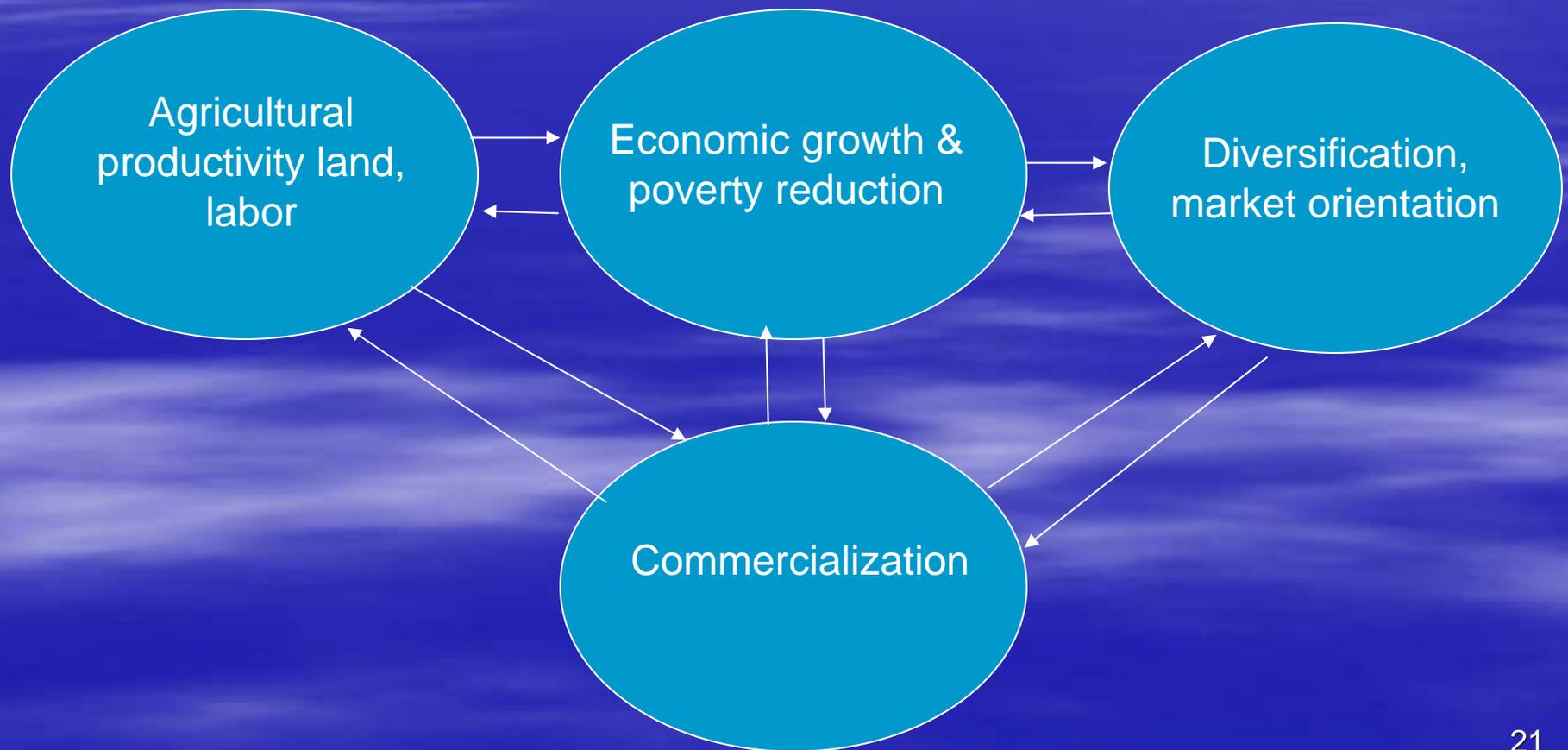
- Diversification and commercialization benefit the poor by directly generating income, employment and increasing agricultural productivity.



- Agricultural diversification proceeds through:
 - Horticulture revolution: Fruits, vegetables, flowers
 - Livestock and aquaculture revolution
 - Agro-processing and export
 - Bio-Fuel revolutions.



- Agricultural productivity, diversification and commercialization are inter-related as they contribute to a great extent to poverty reduction and economic growth.





III. Achievement

Progress on Rice Production 2004-2007

Description	2004	2005	2006	2007	(%) for 4 years
Cultivated Areas	2,374,175	2,443,530	2,541,433	2,584,907	8%
Harvested Areas	2,109,050	2,414,455	2,516,415	2,566,954	20%
Yield (T/ha)	1.977	2.479	2.489	2.621	30%
Production (T)	4,170,284	5,986,179	6,264,123	6,727,138	60%



Progress Rice Production

- From 2004 to 2007, rice production has increased significantly in the following:
 - Harvested area from 2.1 million ha to 2.56 million ha an increase of 8%
 - Production from 4.17 million tones to 6.72 millions tones an increase of 60%.
 - Yield also increased from 1.97t/ha to 2.62 t/ha an increase of 30%.
 - Surplus milled rice increased from 416,118 t to 1,642,040 tons and increase of 290%



Food Balance

1. For 2007-08:

- Production of paddy is 6.72 million tons
- Surplus of milled rice : 1.64 million tons
- (or 2.57 million tons of paddy) for export

2. For 2008-09:

- Production of paddy is 6.778 million tons
- Surplus of milled rice : 1.803 million tons
- (or 2.818 million tons of paddy) for export



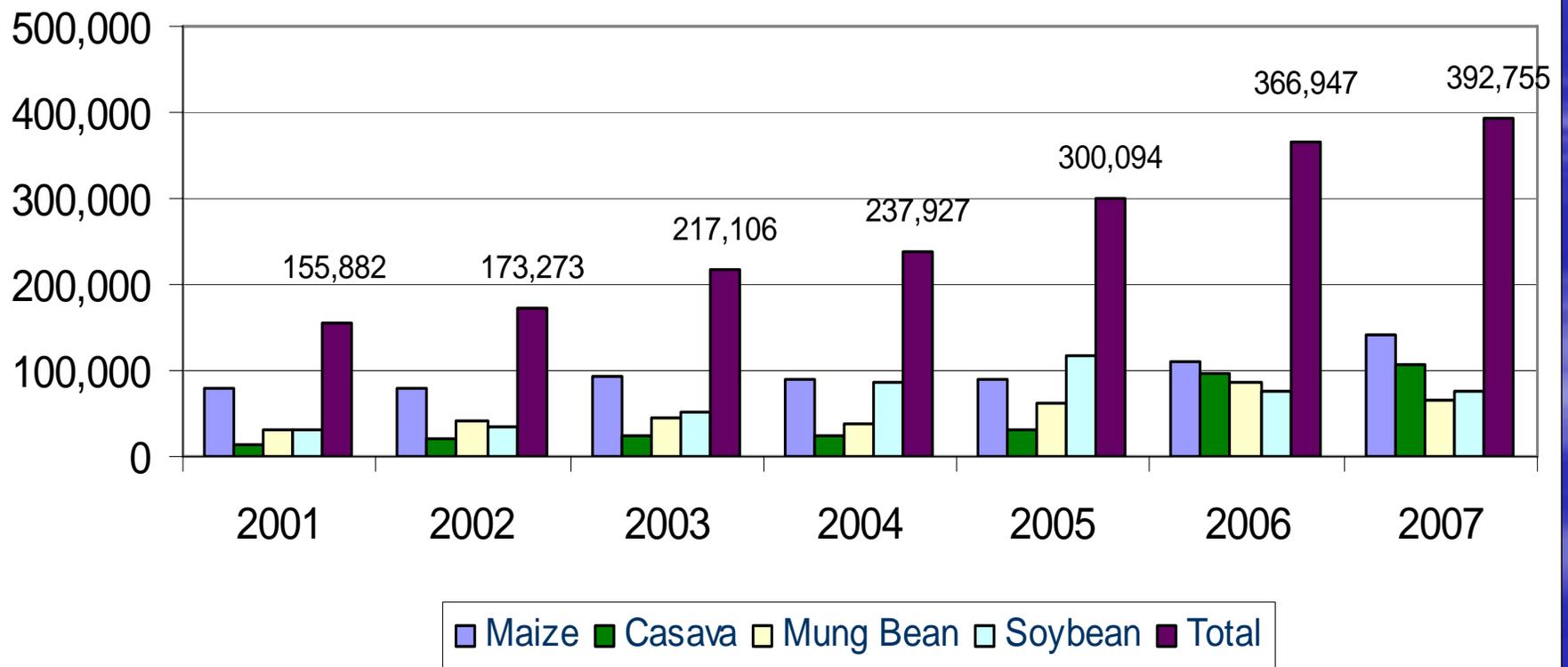
Secondary crops & industry crops

- **Secondary crops: Cultivated areas 366,744 ha and production of 3,057,360 tons, including vegetables: 42,360 ha and production: 226,426 tones**
- **Industrial Crops: 164,453 ha and 481,160 tons**
- **Fruit trees and perennials: 165,000 ha**
 - **Coconut 17 %**
 - **Banana 16%**
 - **Mango 9.3%**
 - **Cashew 36%**
 - **Pineapple, coffe, peper 3%**
 - **Other fruit trees 12%**



Secondary crops & industry crops

Cultivated areas 4 main crops 2001-2007





Rural Infrastructure

- **Irrigation: Full and supplementary irrigation (Wet and dry):**
 - **Until 2003: 560,149 ha irrigation capacity representing 24.86% of cultivated areas**
 - **In 2008: Irrigation capacity 1,063,581 ha representing 47.20% of cultivated areas in which wet season 765,335 ha and dry season 298,246 ha**



Inputs Use

- **Use of Agro-Chemicals: Estimated quantity used every year**
 - **Fertilizers: Between 175,000 MT and 223,00 MT on rice upland crops, vegetables, fruit trees average per hectare between 50-70Kg**
 - **Organic fertilizers and manures: data not available (need survey)**
 - **Pesticides:**
 - **Liquid: estimated quantity 20,000 liters**
 - **Powder: estimated quantity 22,630 Kg on rice upland crops, vegetable, fruit trees. Mechanical controls are currently practised.**



Rubber Plantation in 2008

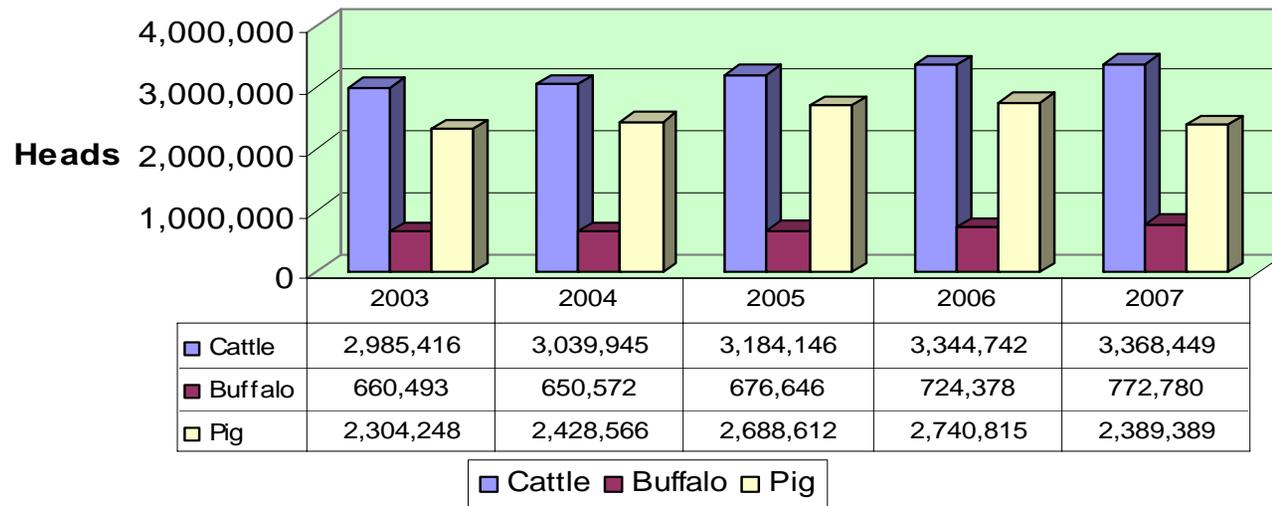
- Rubber : 108,676 ha
 - State owned enterprises: 44,745 ha
 - Private owned and concession : 10,887 ha
 - Smallholder rubber farm : 53,044 ha.



Family Animal husbandry 2007

- Cattle: 4.141.229 heads an increase 12-16%
- Pigs: 2.389.389 heads an increase 16%
- Poultry (chicken & ducks): 15.825.314 head

Livestock Production, 2003-2007





Semi- commercial animal farm 2007

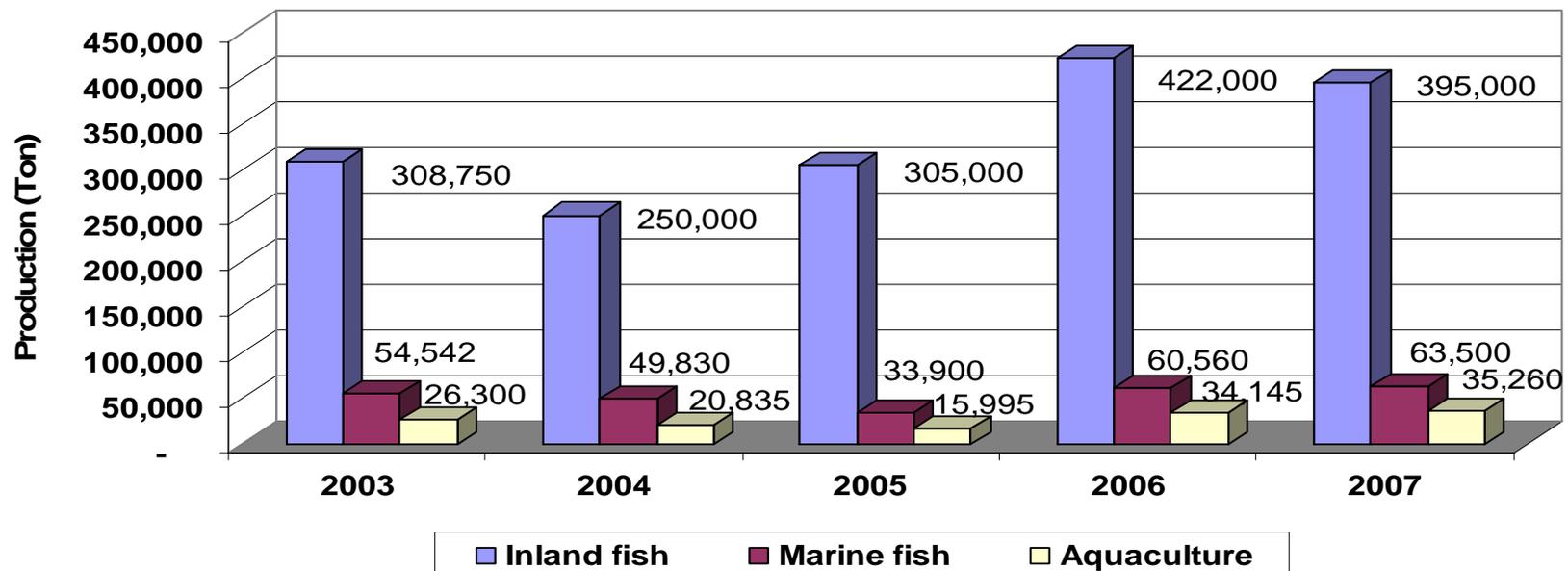
- Poultry farms: 902 farms and 1,345,605 heads
- Pig farm: 287 farms and 60,147 heads
- Cattle farms: 43 farms and 5,019 heads



Aquaculture

- Fish & shrimp production: 35,260 tons
- Fish fingerling : 33,778 million heads.
- Crocodile farms: 128,945 heads

Inland, Marine fish and Aquaculture, 2003-2007





Potential export products

- Paddy/Rice (Domestic demand surplus)
- Seasonal Crops: Maize, Soybean, Mung bean, Sesame, Peanuts, Cassava, Tobacco
- Perennial Crops: Cashew, Pepper, Rubber...
- Fish products
- Cattle/Buffaloes.



Local use and export of some Agricultural products

Selected Commodities	Domestic Consumption (%)	Exportation (%)
Corn/Maize	30~40	60~70
Soybean	20~30	70~80
Cassava	20~30	70~80
Mung Bean	35~45	55~65
Ground Nut	40~50	50-60
Sesame	30~40	60-70



Agri-business and Agro-industry in 2007

- Rice mills and cereal mills: 24,227 Units
- Agro-processing's plants: 142 Units
- Fishery processing plants: 377 Units
- Fish processed products: 24,000 tones
- Fish sauces: 16,500,000 liters
- Fish product exports: 3,000 tones
- Dry rubber export: 30,000 tones
- Cassava: 1,600,000 tones (export and locally processed).



IV. Challenges and Constraints

- Inadequate rural infrastructures: Roads, irrigation systems, rural markets...
- Limited technological changes at community level as well as farmers and producers, agricultural research and extension are still inadequate.
- Limited access to credits and micro-finances in the rural areas.
- Limited investment capacity or interest in investing in agriculture.



Challenges and Constraints

- Low soil fertility in some areas
- Variable climatic condition and water resources
- Limited access to agriculture inputs: fertilizers (chemical organic), pesticides, machineries, improved seeds...
- Weak agri-business and agro-enterprises.
- Export constraints due to technical barriers (Quality standard, quality control, quality certifications)
- Regional disparities
- Landless among poor farmers.



V. Direction and Recommendations

- Investment in irrigation and water control (Public & private)
- Investment in rural markets, transportations and communication infrastructure to facilitate the integration of markets and reduction in regional disparities
- Improvement in agricultural research and extension. For extension adopt a policy of grass-root extension systems
- Development of rural financial markets
- Investment in productivity and conservation- enhancing technology by improving soil fertility, using best agricultural practices, efficient and effective use of agricultural inputs and water, best practices in post-harvest technology, ect...



Direction and Recommendations

- Encourage private sector to invest in agricultural research and extension, irrigation, agri-business, and agro-enterprise, livestock and aquaculture development
- Improve access to world market for agricultural products including livestock (poultry if possible), fish products etc...
- Establishment of agricultural development communities
- Secure right to land for farmers



- Invest in education for better transfer of technology to improve labor productivity and facilitate transition from subsistence food production to commercial agriculture through diversifications
- Improve agricultural statistics
- Start agricultural census.



Conclusions

- Agricultural productivity and diversifications have contributed to:
 - Support increasing food production and ensure food security in the country.
 - Create job opportunity and increase incomes in rural areas.
 - Increase export of agri-products.
 - Increase contribution to processing plant and producing bio-fuels.
- Based on increasing demand of rice, maize, beans, cassava rubber products in local and world market and bio-fuel production, agricultural productivity and diversifications will be developed in Cambodia.



Conclusions

- Thanks to all EDPs for their great contribution to agricultural sector development for economic growth and poverty reduction. For Efforts are needed to improve agricultural performances with regards to productivity and diversification