

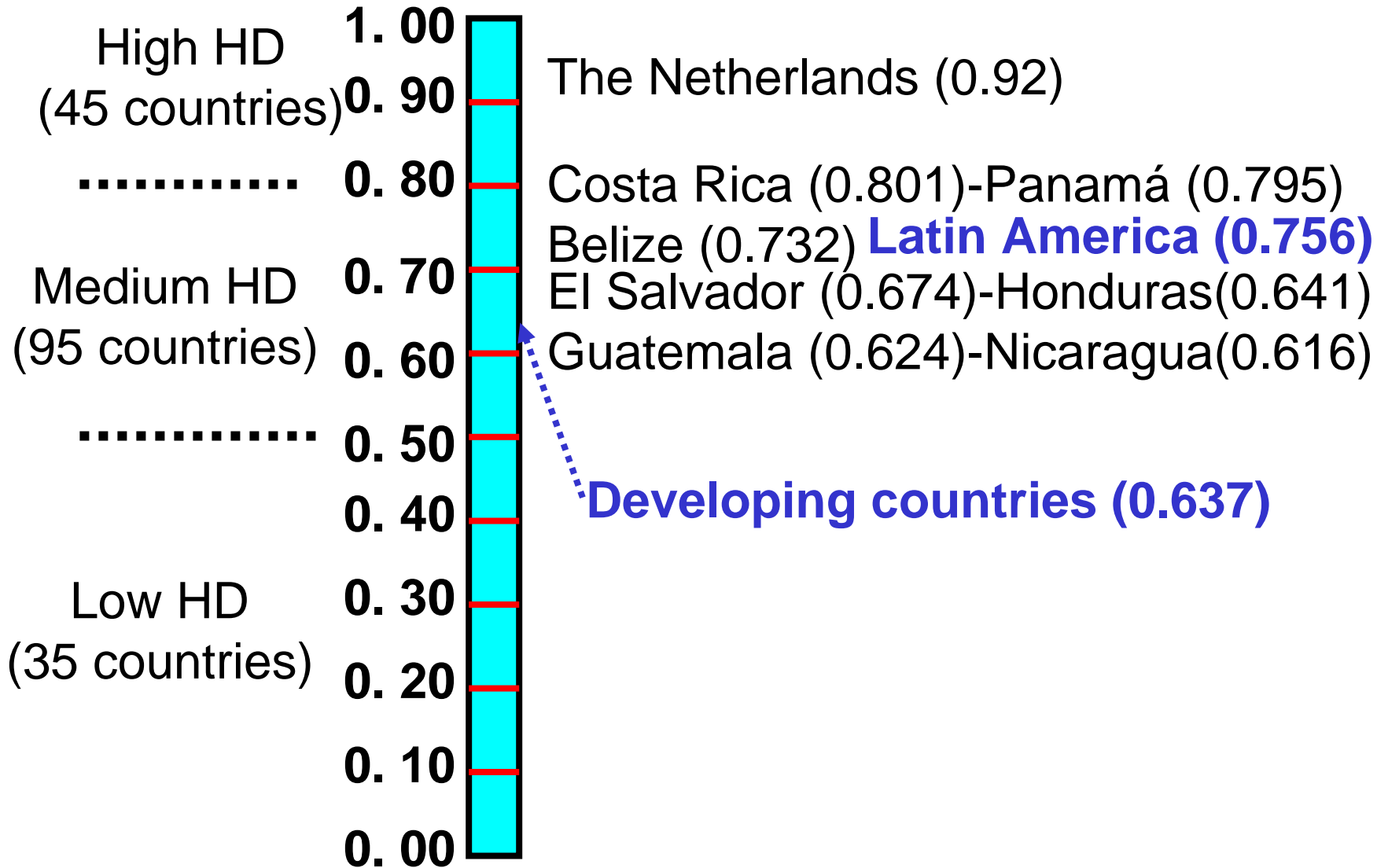
Perspectives for Sustainable Animal Production in Central America

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WU/UNA

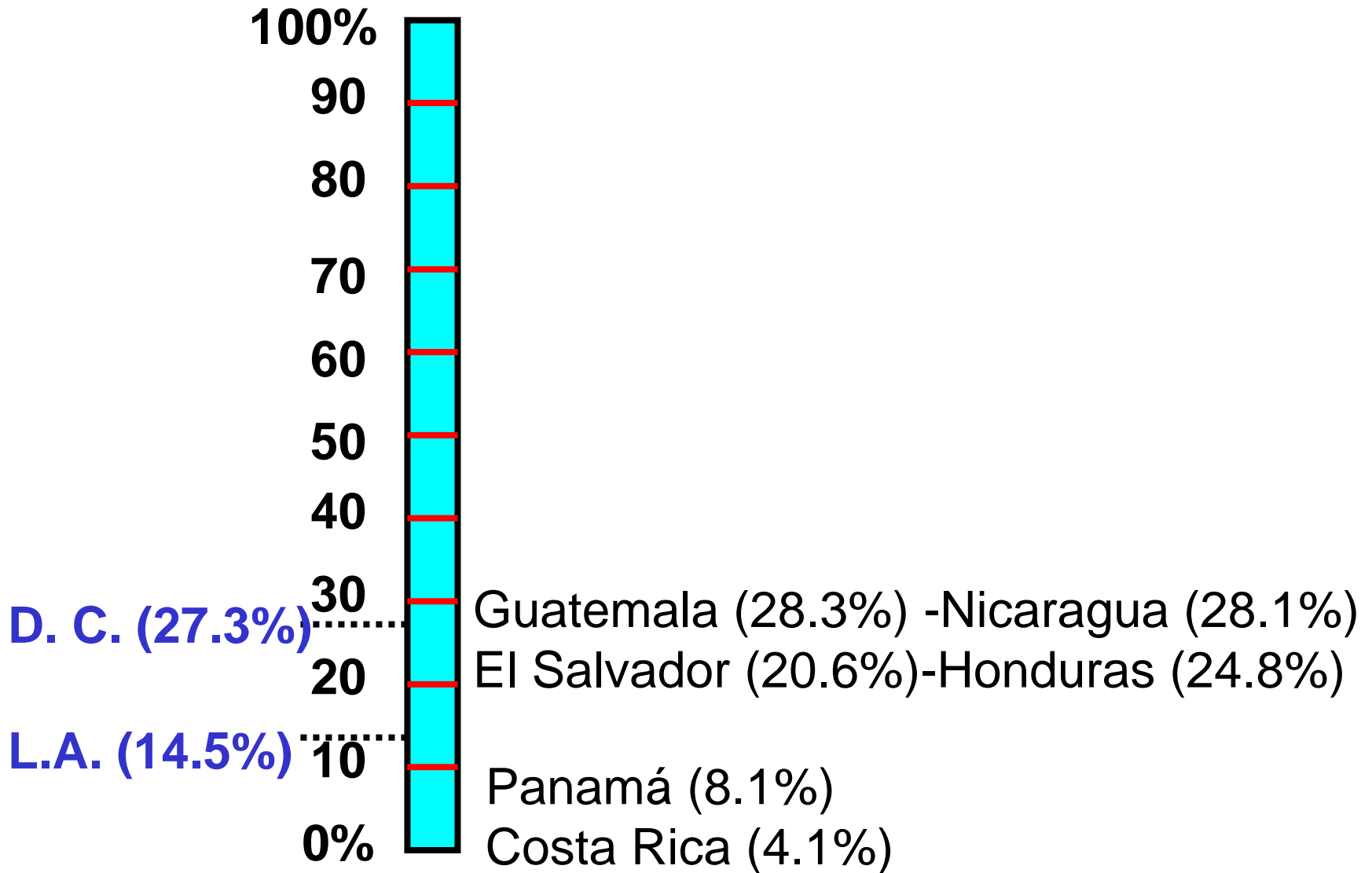
TOPICS

- Human Development
- Demographic trends
- Land use
- Environmental degradation
- Economic development
- Food Balance
- Productivity
- Trade
- Implications for SAP
- RESAP

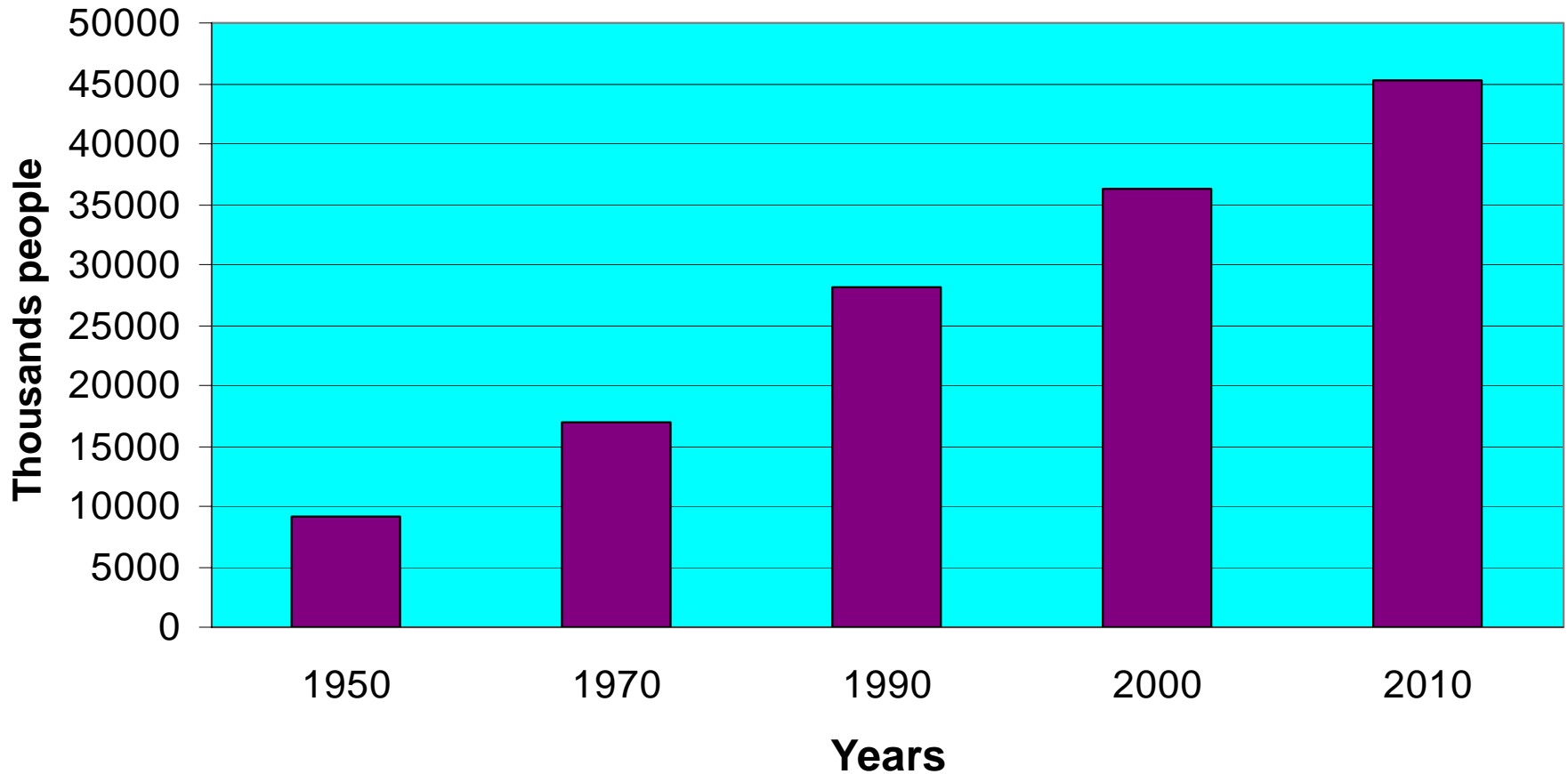
Human Development Index (HDI)



Human Poverty Index (HPI)



Demographic trends -Total Population-

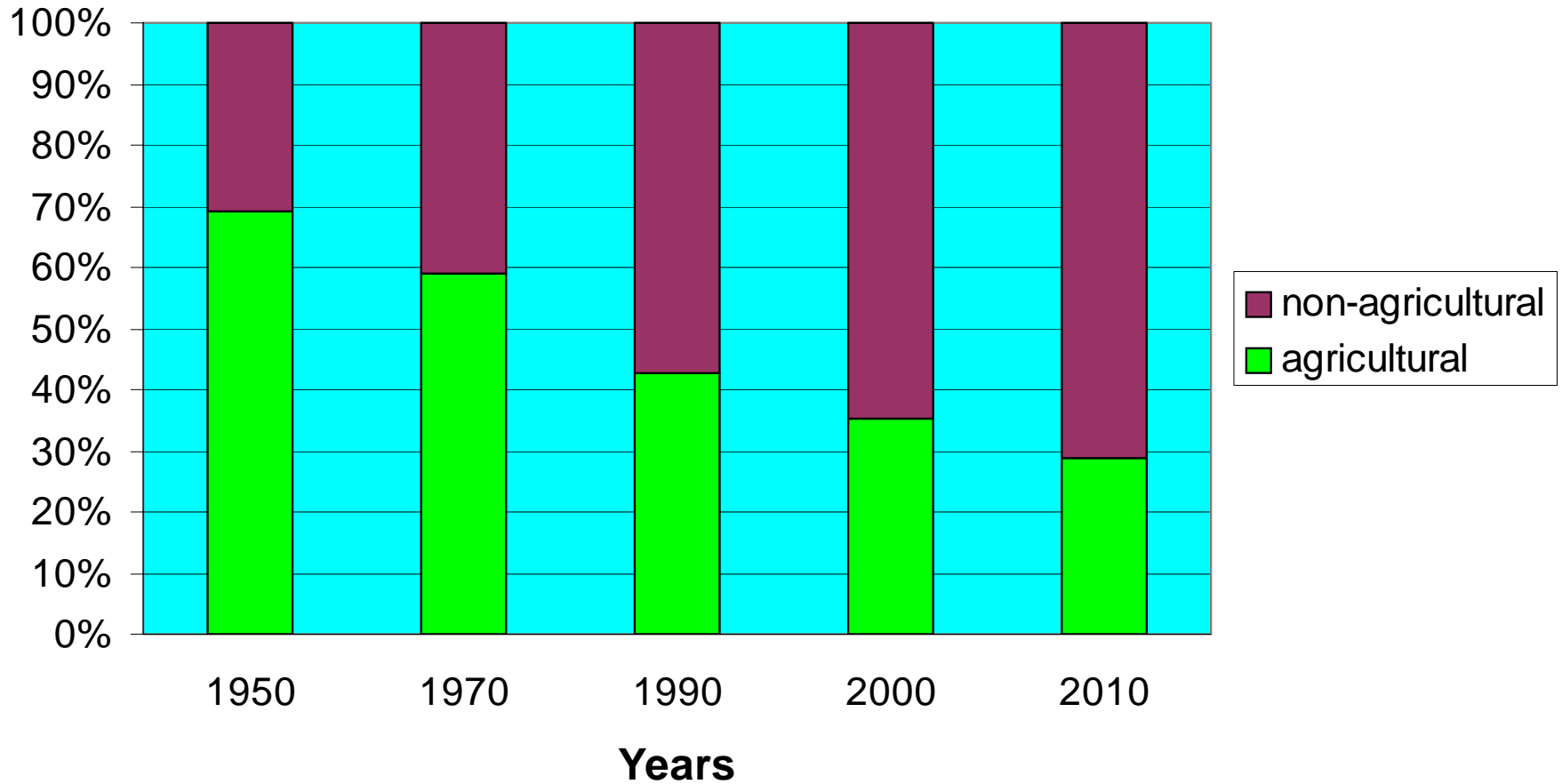


Demographic Trends -Growth Rate-

Country	Population Growth Rate (%)	
	1975-1997	1997-2015
The Netherlands	0.6	0.1
Costa Rica	3.0	1.9
Panamá	2.1	1.3
Belize	2.4	2.0
El Salvador	1.7	1.7
Honduras	3.2	2.3
Guatemala	2.6	2.5
Nicaragua	2.9	2.5
Latin America	2.0	1.4
Developing countries	2.0	1.4
Industrialized countries	0.6	0.3

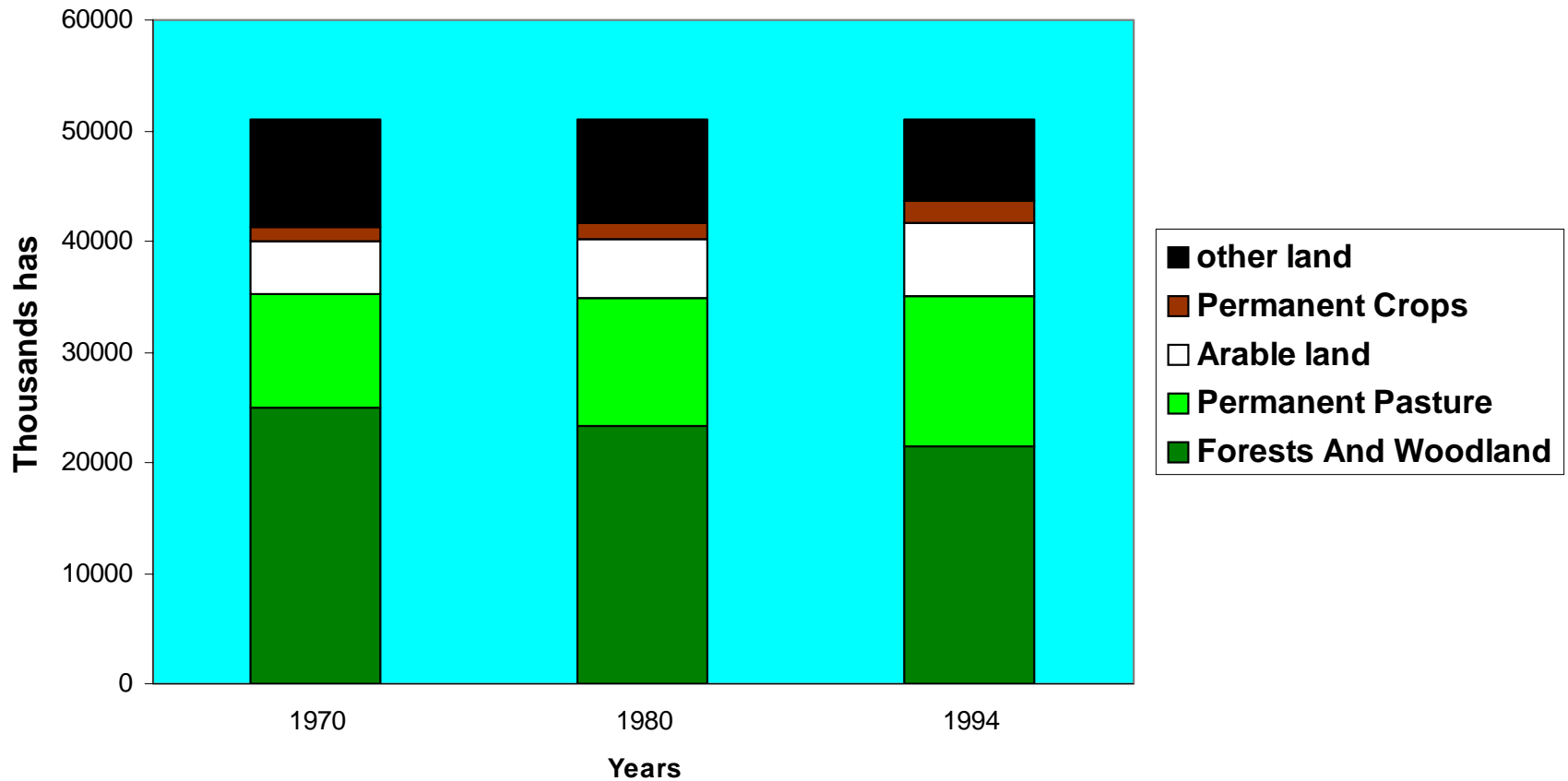
Demographic trends

- Non Agricultural /Agricultural Population-

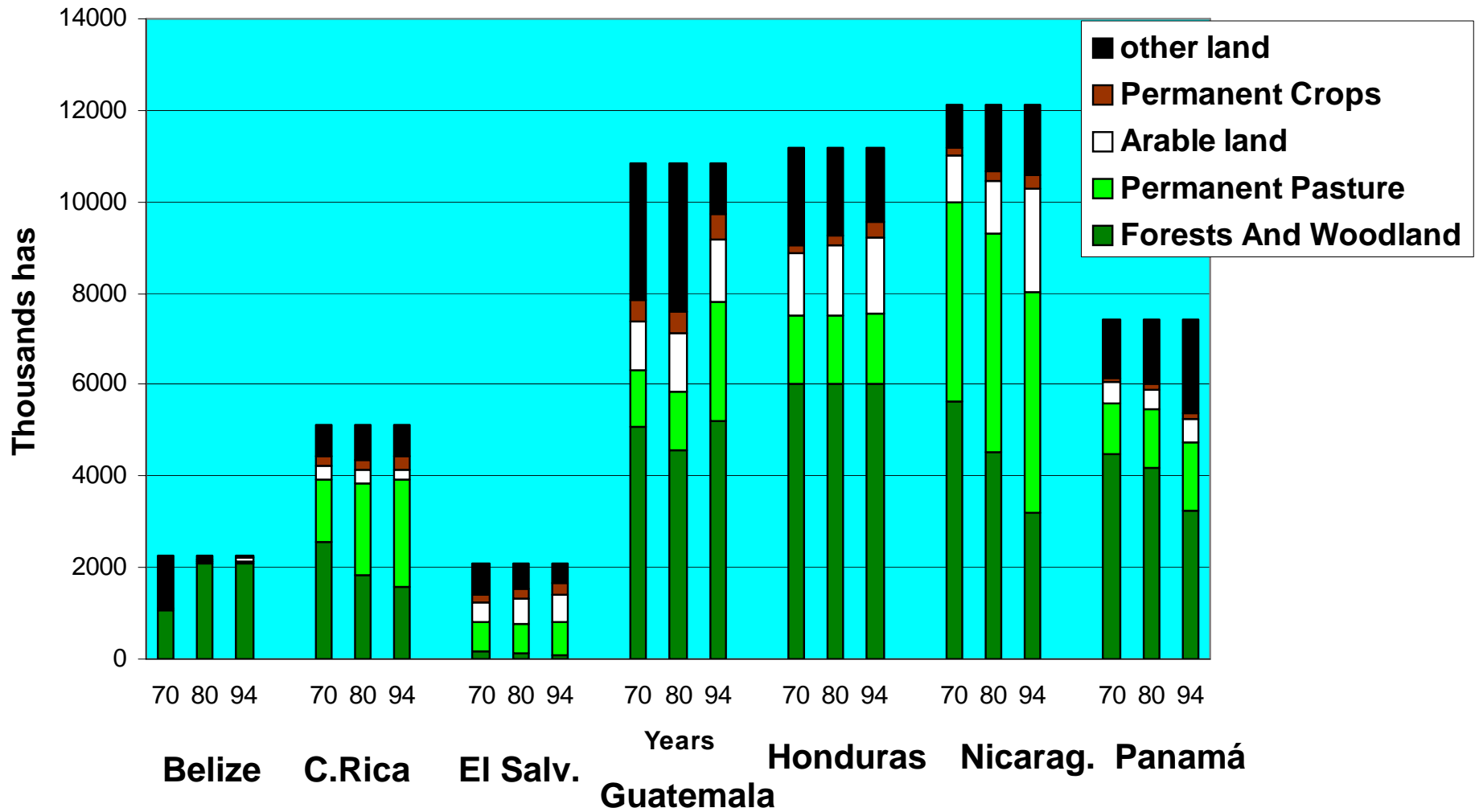


Land Use in Central America

-Total area-



Land Use -Within country-



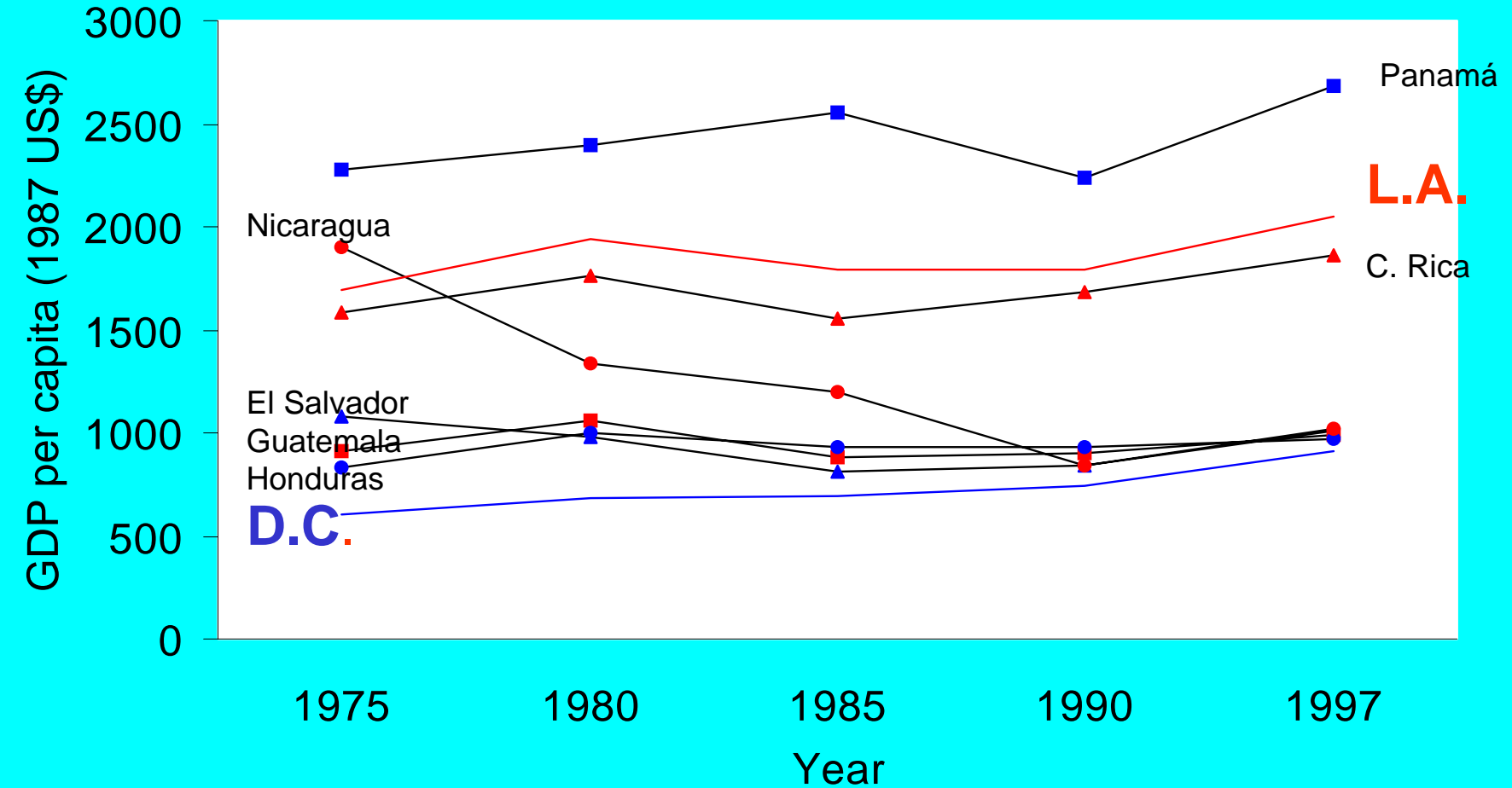
Environmental deterioration

Country	Water Resources per capita* (m ³ /year)	Withdrawals fresh water (%)	Deforestation Rate	
			80-90	90-95
The Neth.	635	78		
Costa Rica	26027	1.4	2.8	3.1
Panamá	52042	0.9	1.9	2.2
Belize	69565	0.1	0.3	1.4
El Salvador	3128	5.3	2.3	3.3
Honduras	9015	2.8	2.1	2.3
Guatemala	10033	0.6	1.7	2.0
Nicaragua	39203	0.5	1.4	2.5
Latin America	21504	1.9		
Dev. countries	6055	6.2		
Ind. countries	9817	10.3		

*Internal Renewable

Economic Development -GDP per capita-

The Netherlands= 12500-18000



Economic Development -Growth rate and inflation-

Country	Growth Rate GNP (75-95)	Inflation rate	
		85-96	1996
The Netherlands	1.7	1.5	1.8
Costa Rica	0.9	17.8	16.7
Panama	0.5	1.5	1.7
Belize	3.0	4.0	6.3
El Salvador	0.3	14.6	6.4
Honduras	0.5	14.8	21.2
Guatemala	0.1	17.4	8.9
Nicaragua	4.0	531.0	4.4
Latin America	0.7	263.7	22.4
Developing countries	2.3	88.8	25.3

Economic Development

-Contribution of Economic Sectors-

Country	Relative contribution to GDP (%)		
	Agriculture	Industry	Services
Costa Rica	15	23	62
Panama	8	18	73
Belize	23	28	49
El Salvador	13	28	60
Honduras	20	28	52
Guatemala	24	20	56
Nicaragua	34	22	44
Latin America	8	32	60
Developing countries	13	36	51

Food Balance -Daily supply of nutrients-

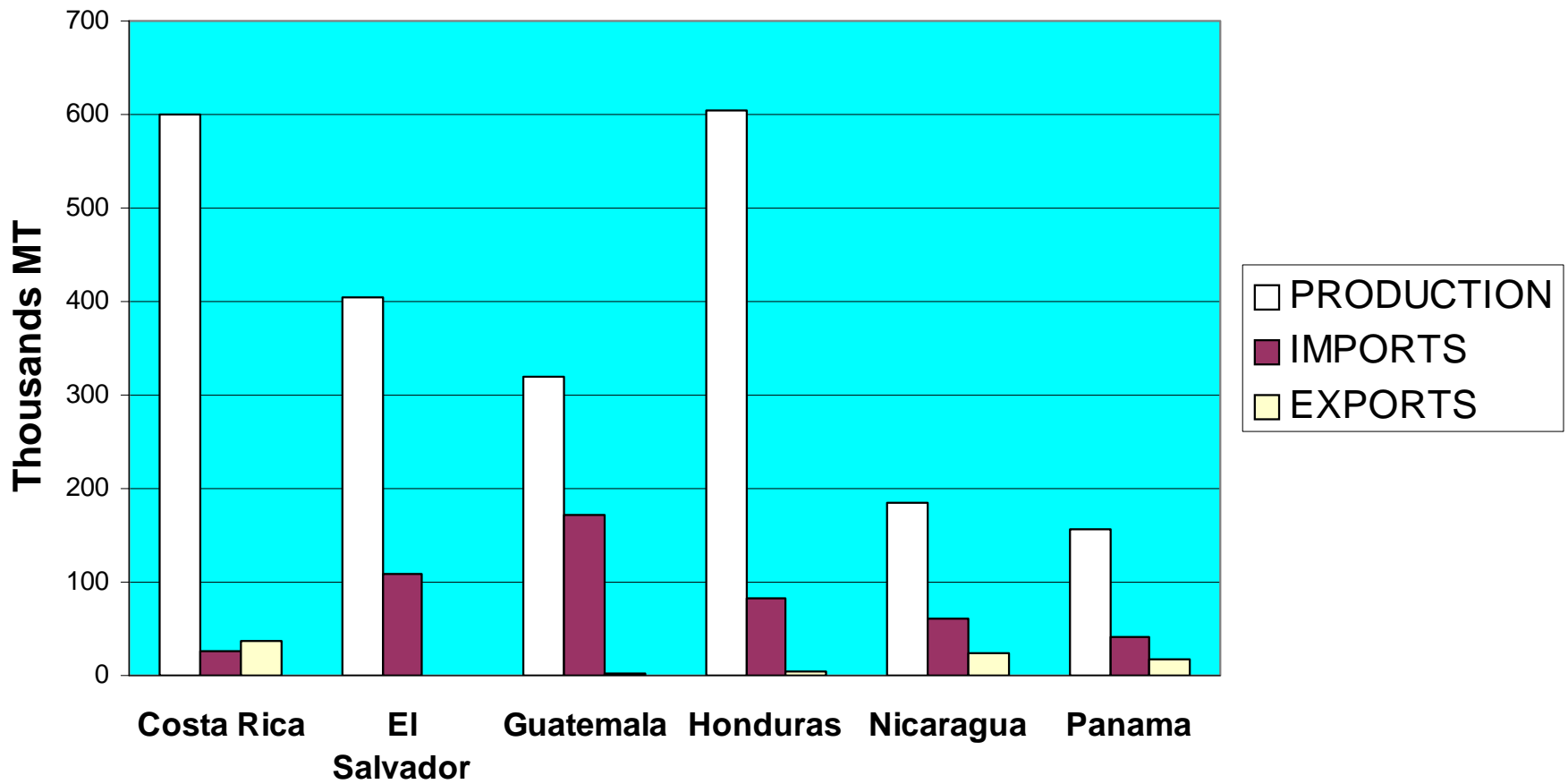
	Calories	Protein (g)	Fat (g)
The Netherlands	3259	103.7	141
Costa Rica	2822	74.3	77.5
Panamá	2556	64.2	71.5
Belize	2862	63.5	74.0
El Salvador	2515	62.8	53.4
Honduras	2368	55.4	60.1
Guatemala	2191	55.6	42.0
Nicaragua	2328	51.5	47.2
Latin America	2812	72.4	77.8
Developing countries	2628	66.4	57.7
Industrialized countries	3377	104.8	133.1

Food Balance

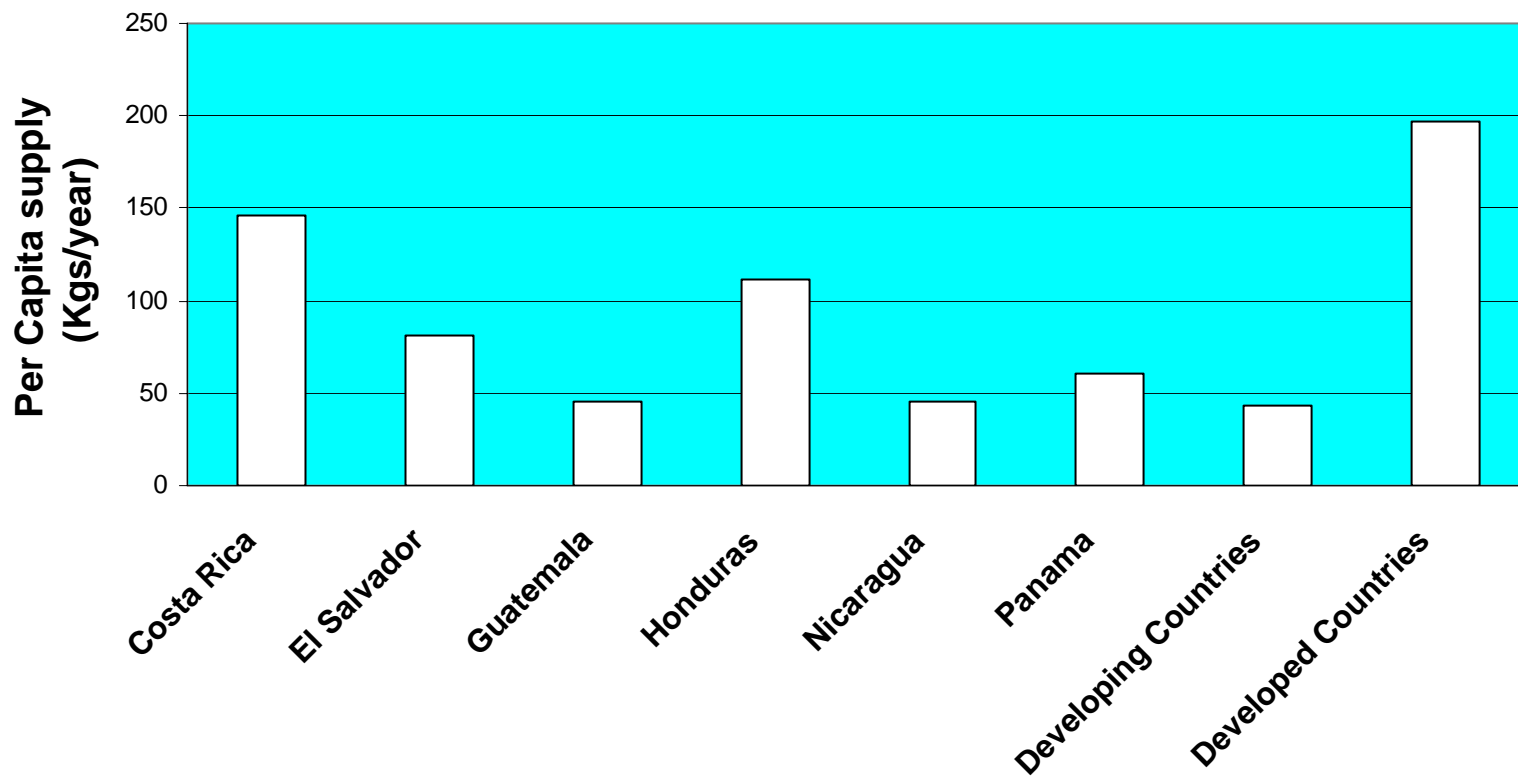
-Trends in meat and milk consumption-

Region	Annual Growth -% (1993-2020)		Per Capita consumption (kg/year) (2020)	
	Meat	Milk	Meat	Milk
Latin America	2.3	1.9	59	117
Developing world	2.8	3.3	30	62
Developed world	0.6	0.2	83	189

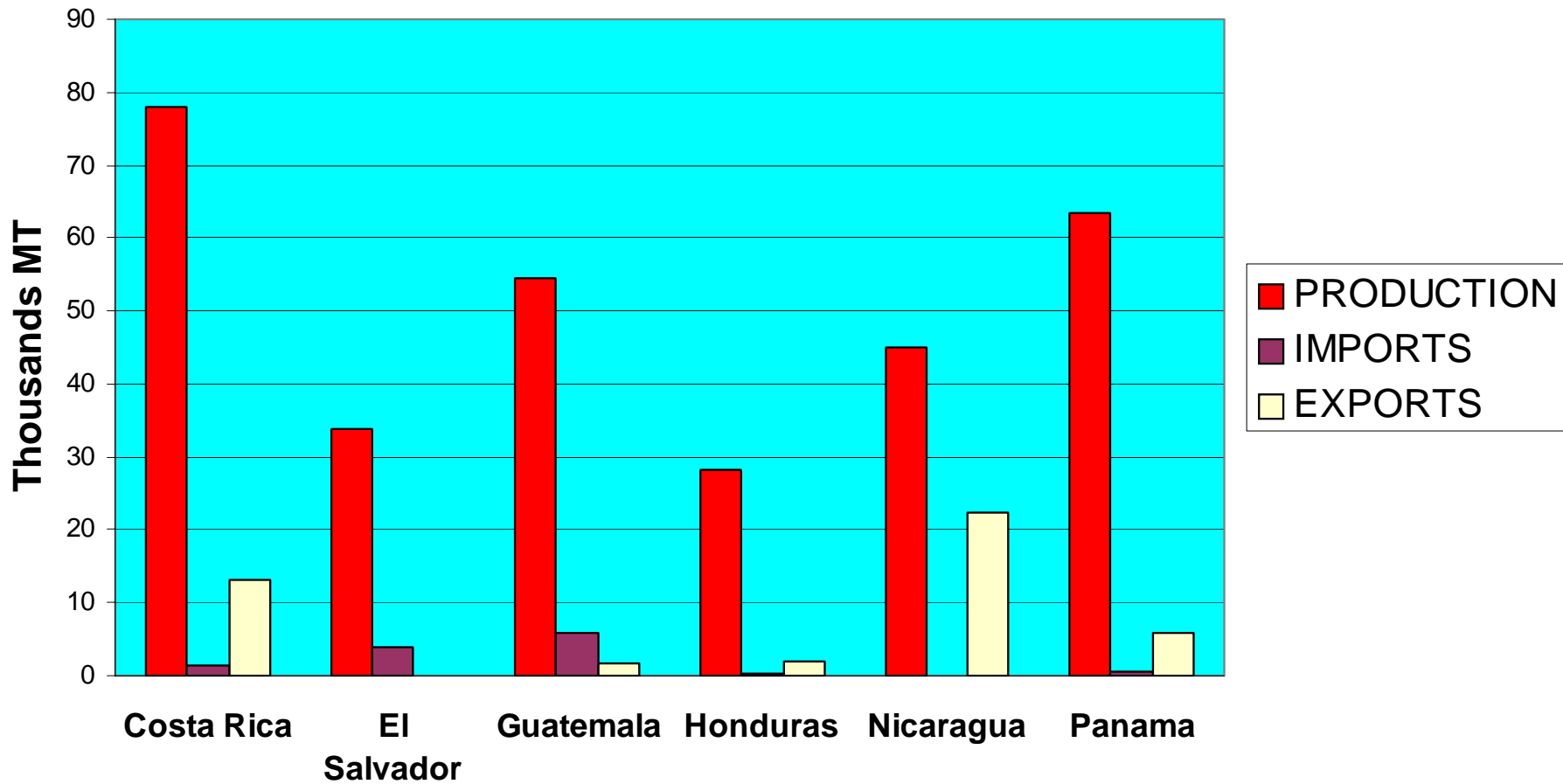
Food Balance -Milk-



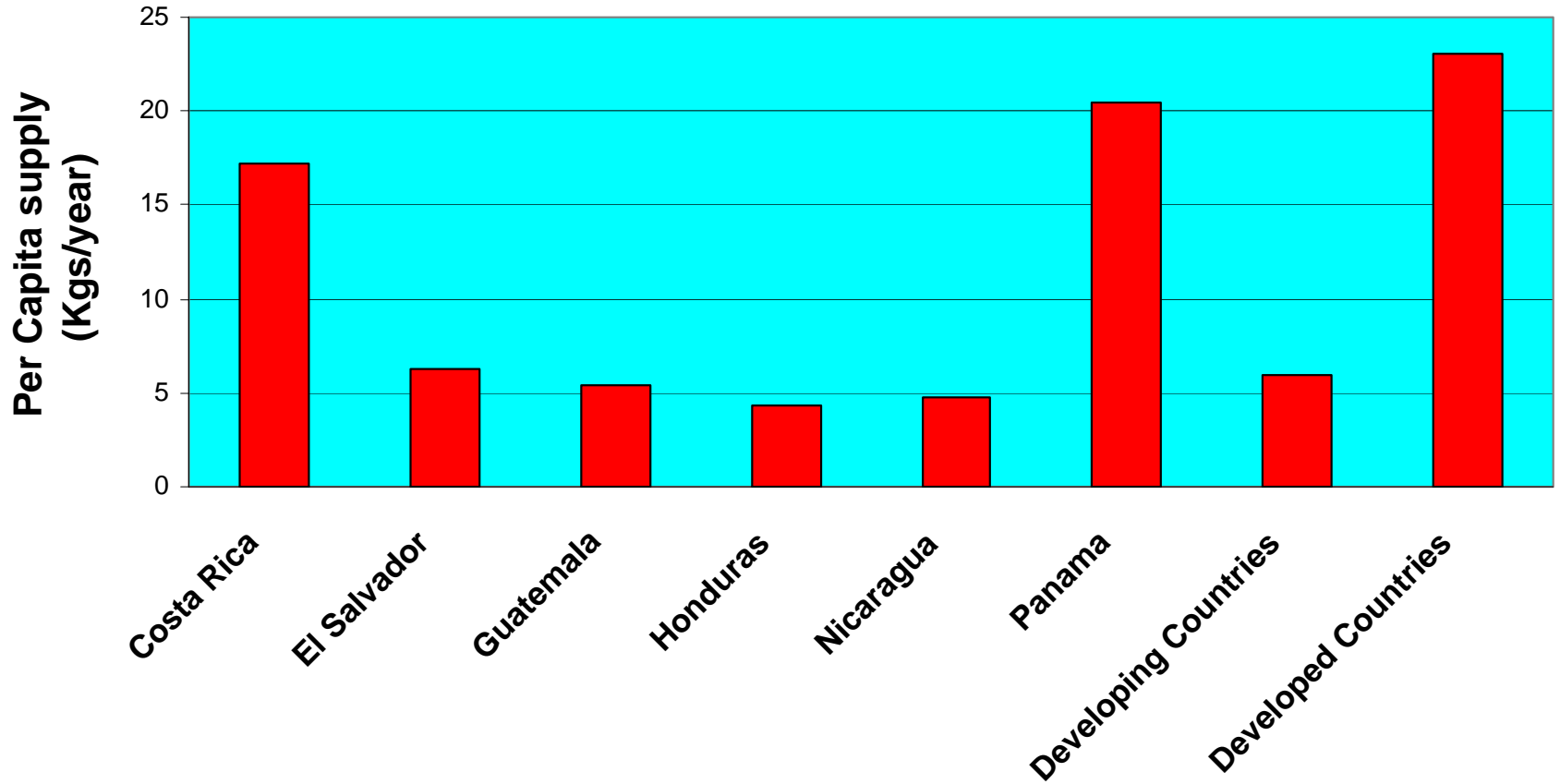
Food Balance -Milk- Per Capita supply



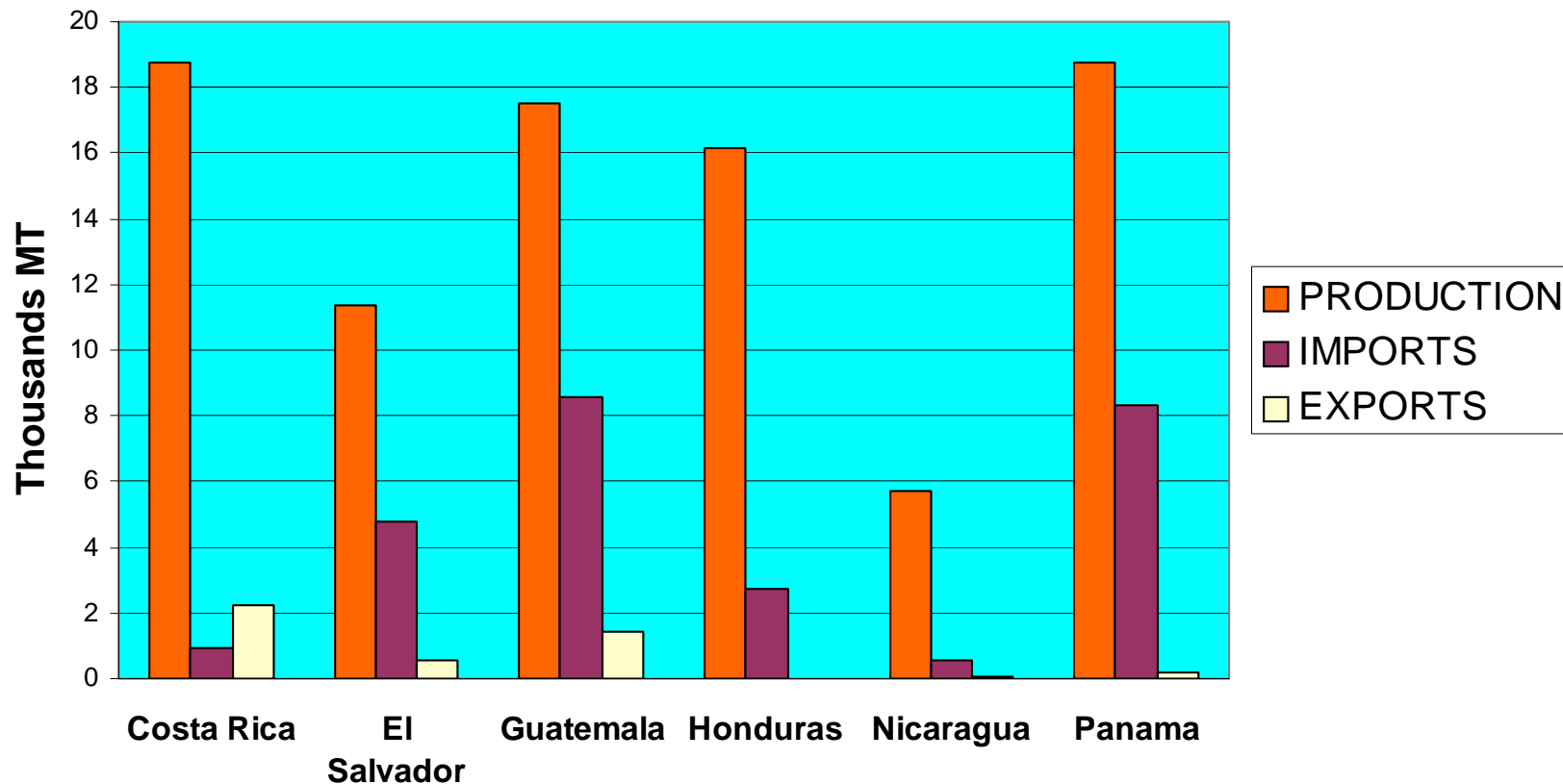
Food Balance -Bovine Meat-



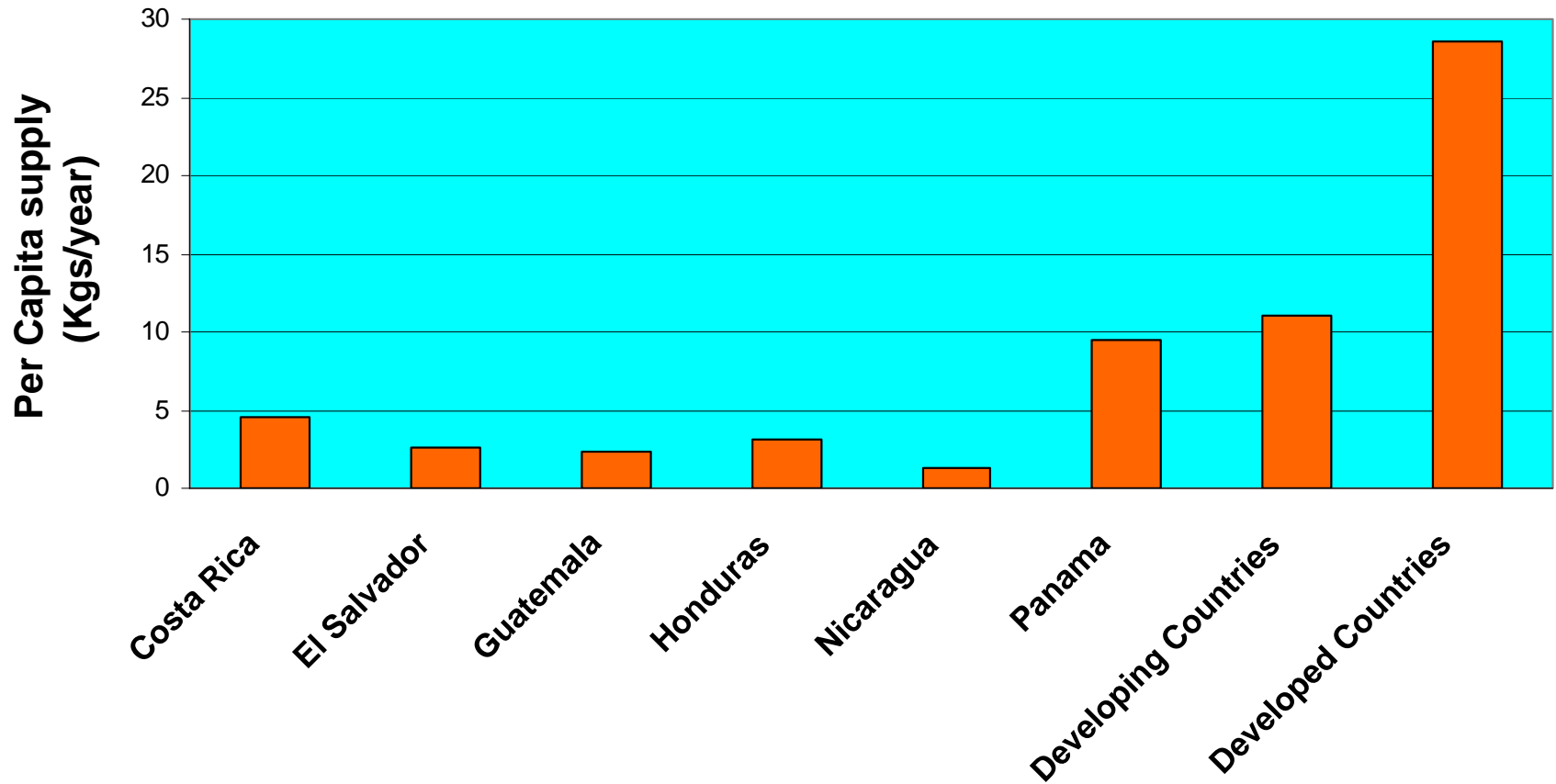
Food Balance -Bovine Meat- per capita supply



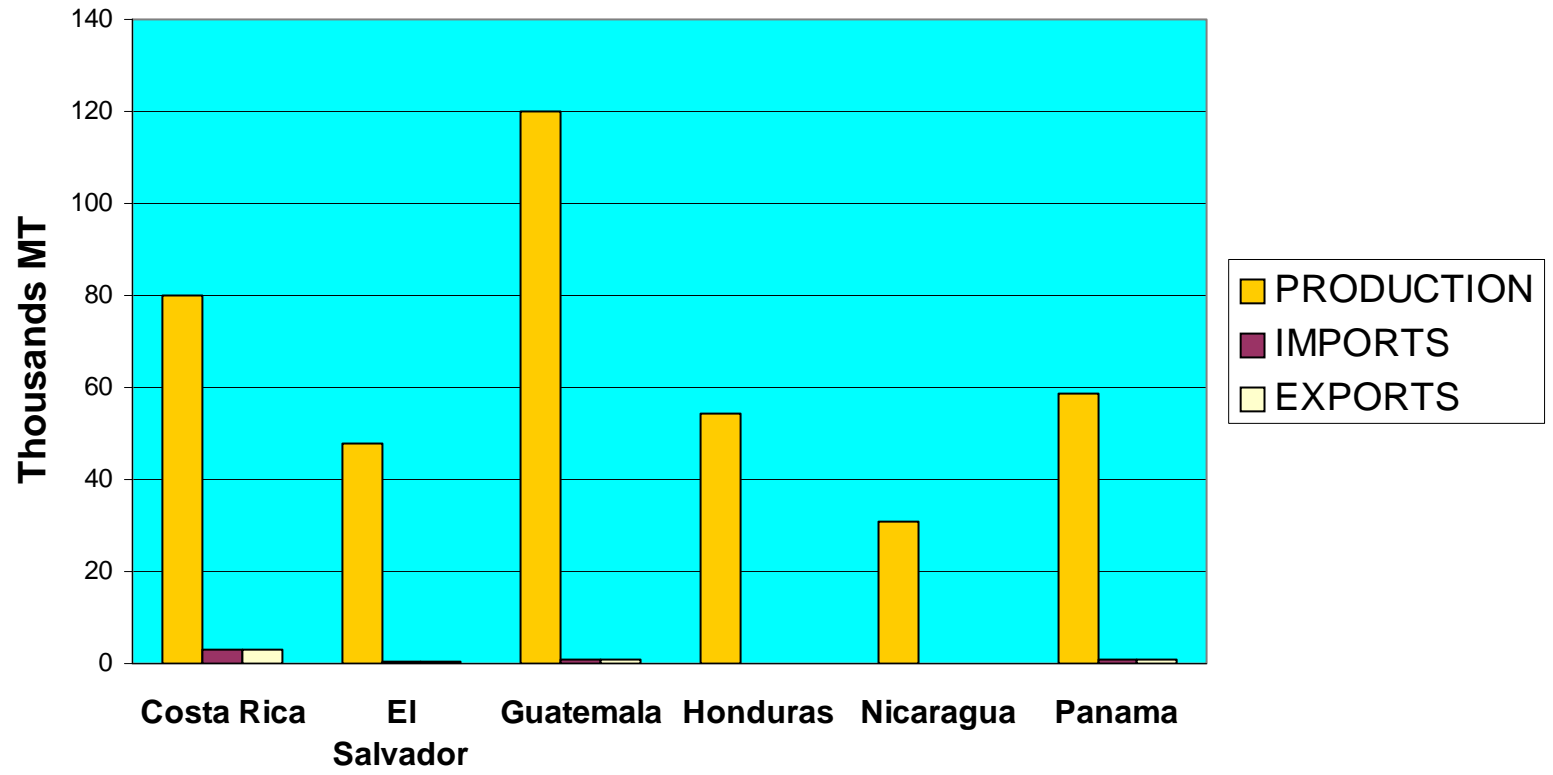
Food Balance -Pig Meat-



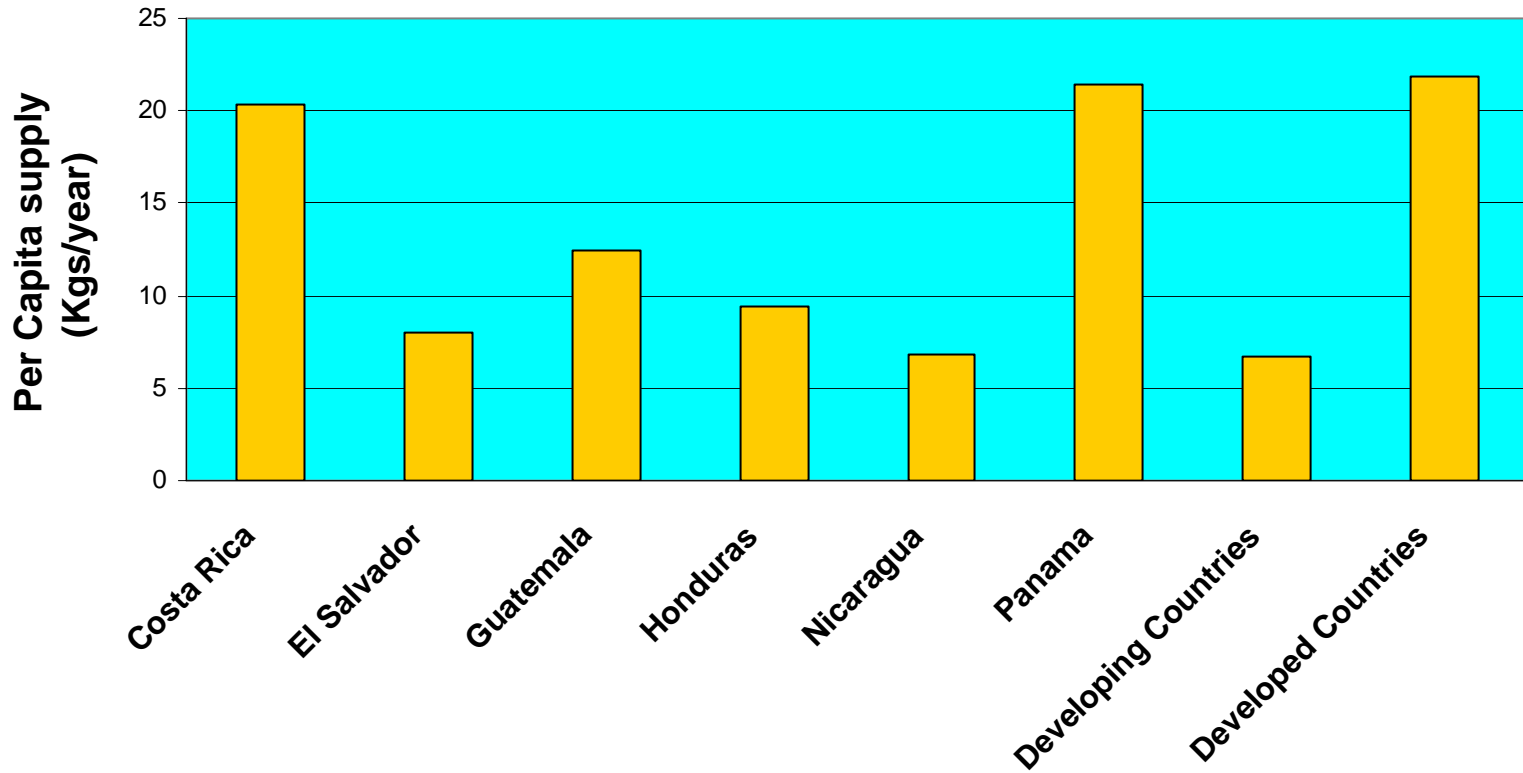
Food Balance -Pig Meat- per capita supply



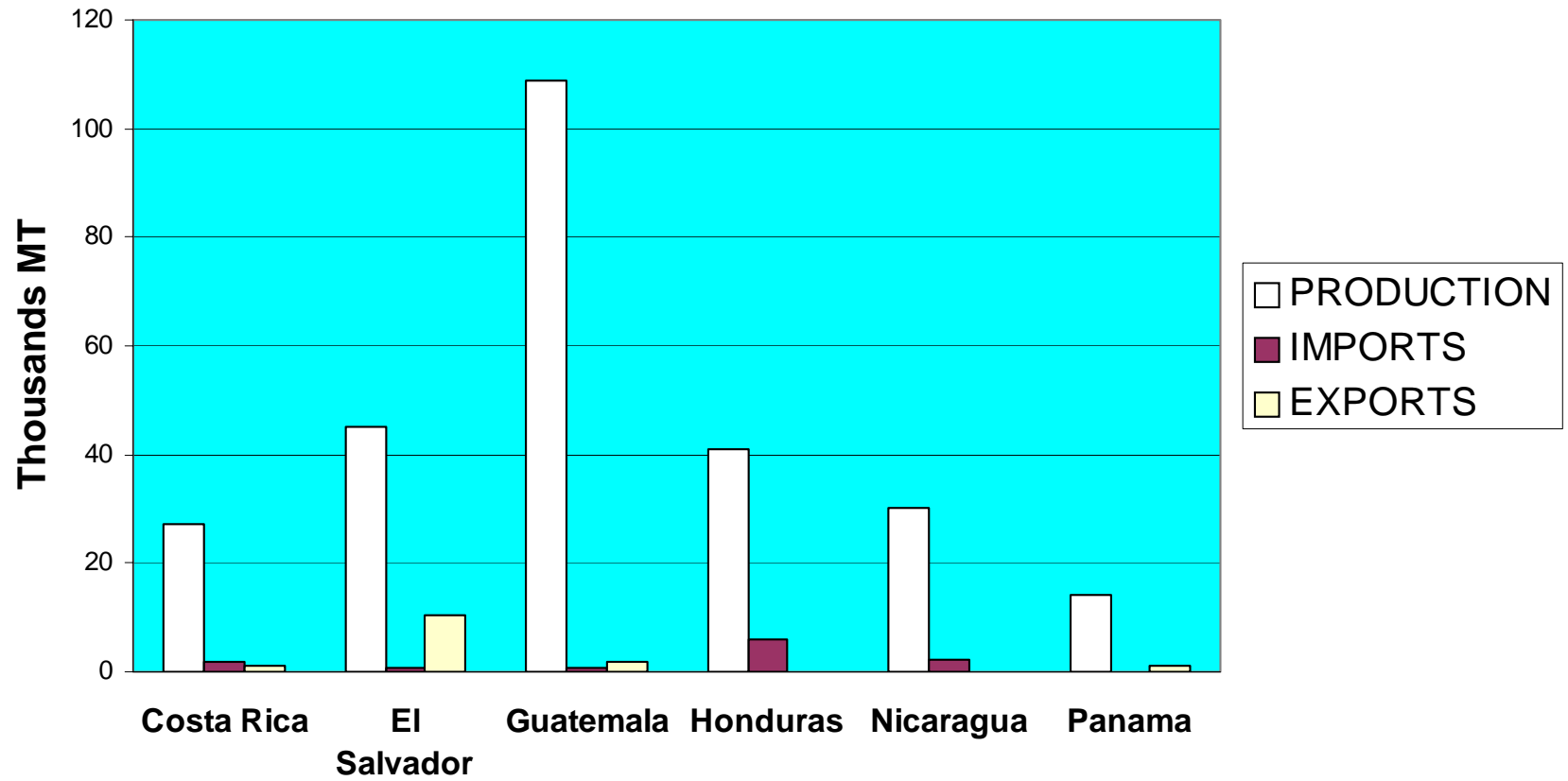
Food Balance -Poultry Meat-



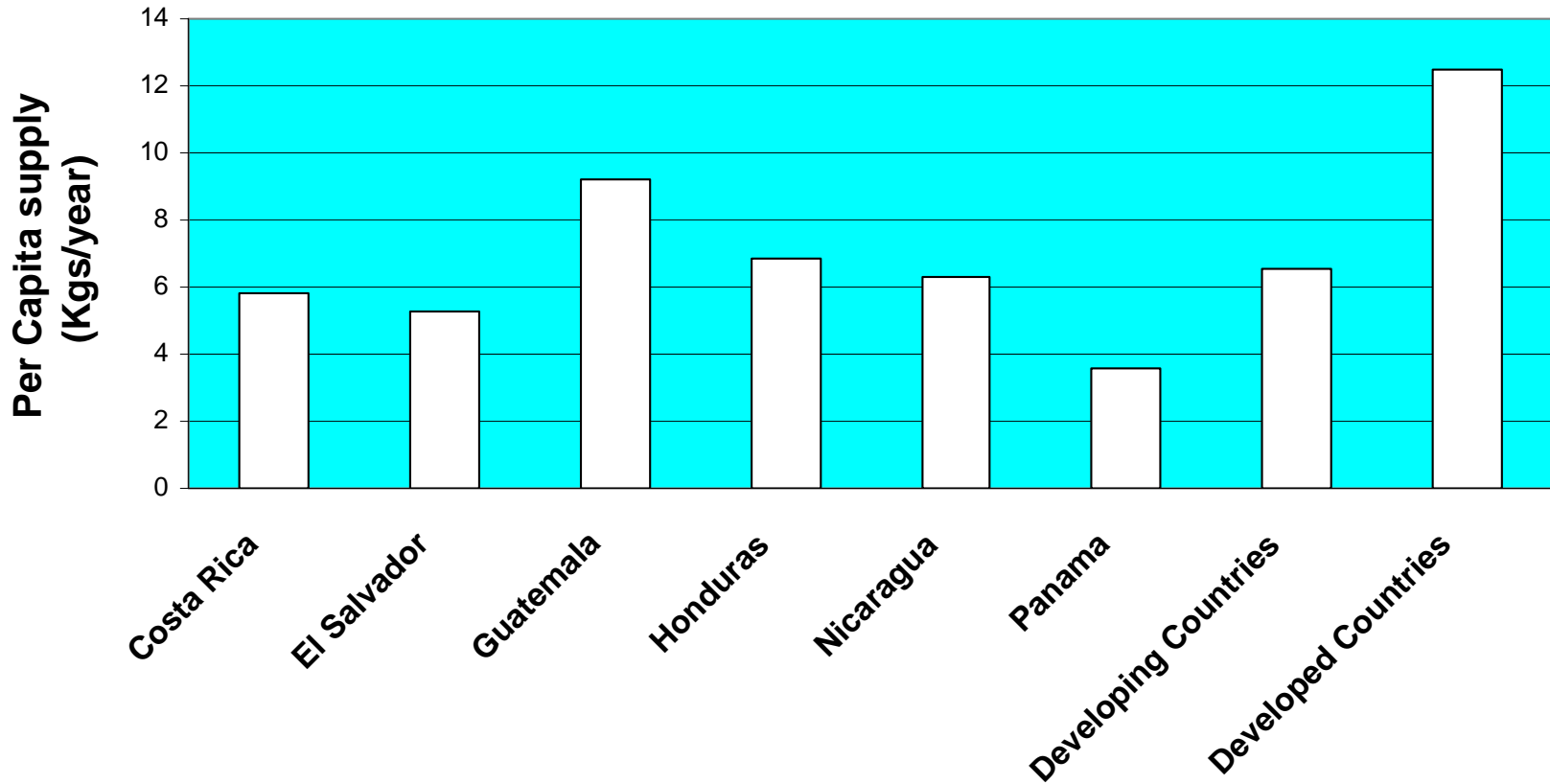
Food Balance -Poultry Meat- per capita supply



Food Balance -Eggs-



Food Balance -Eggs- per capita supply



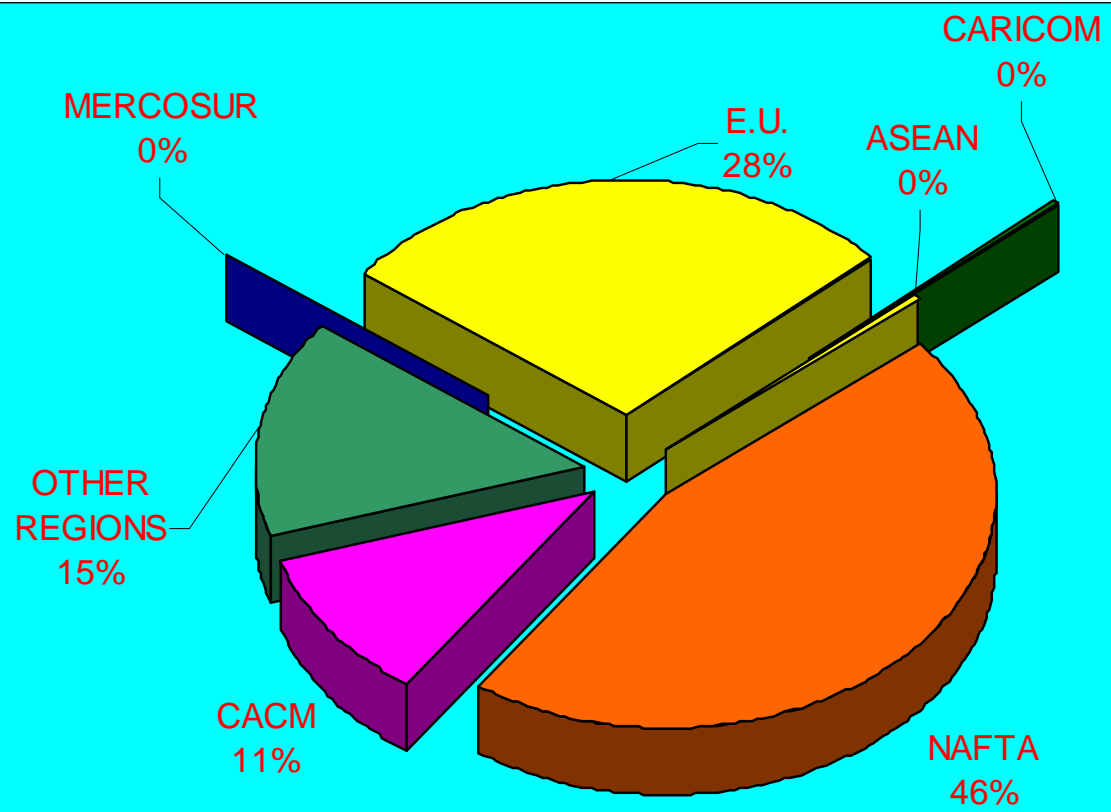
Productivity

Region	Beef		Milk		Pork		Poultry	
	kg*	GR**	kg	GR	kg	GR	kg	GR
Latin America	194	0.2	1137	0.7	71	0.5	1.4	1.1
Developing world	162	0.5	896	1.9	72	1.2	1.2	0.8
Developed world	242	0.9	3739	1.3	82	0.4	1.4	0.8

* kg/head/yr (year 1994)

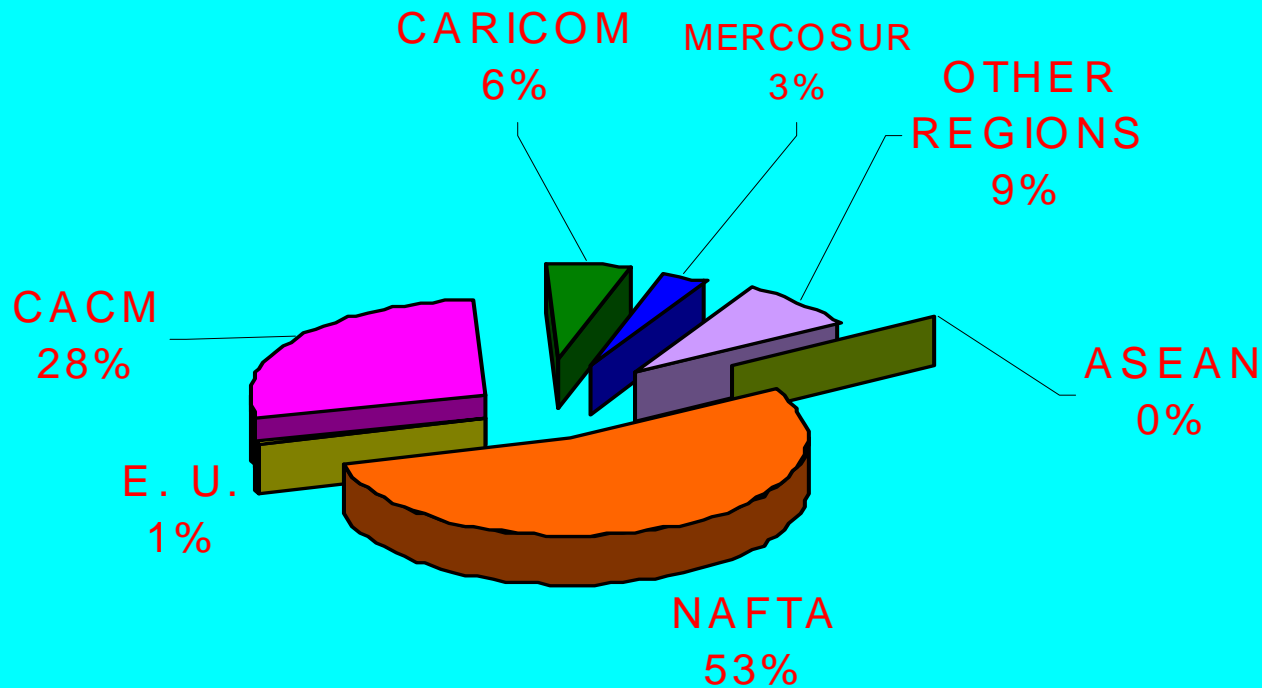
** growth rate (%/yr) (1982-1994)

Trade Agric. Food Products -CACM/Exports-



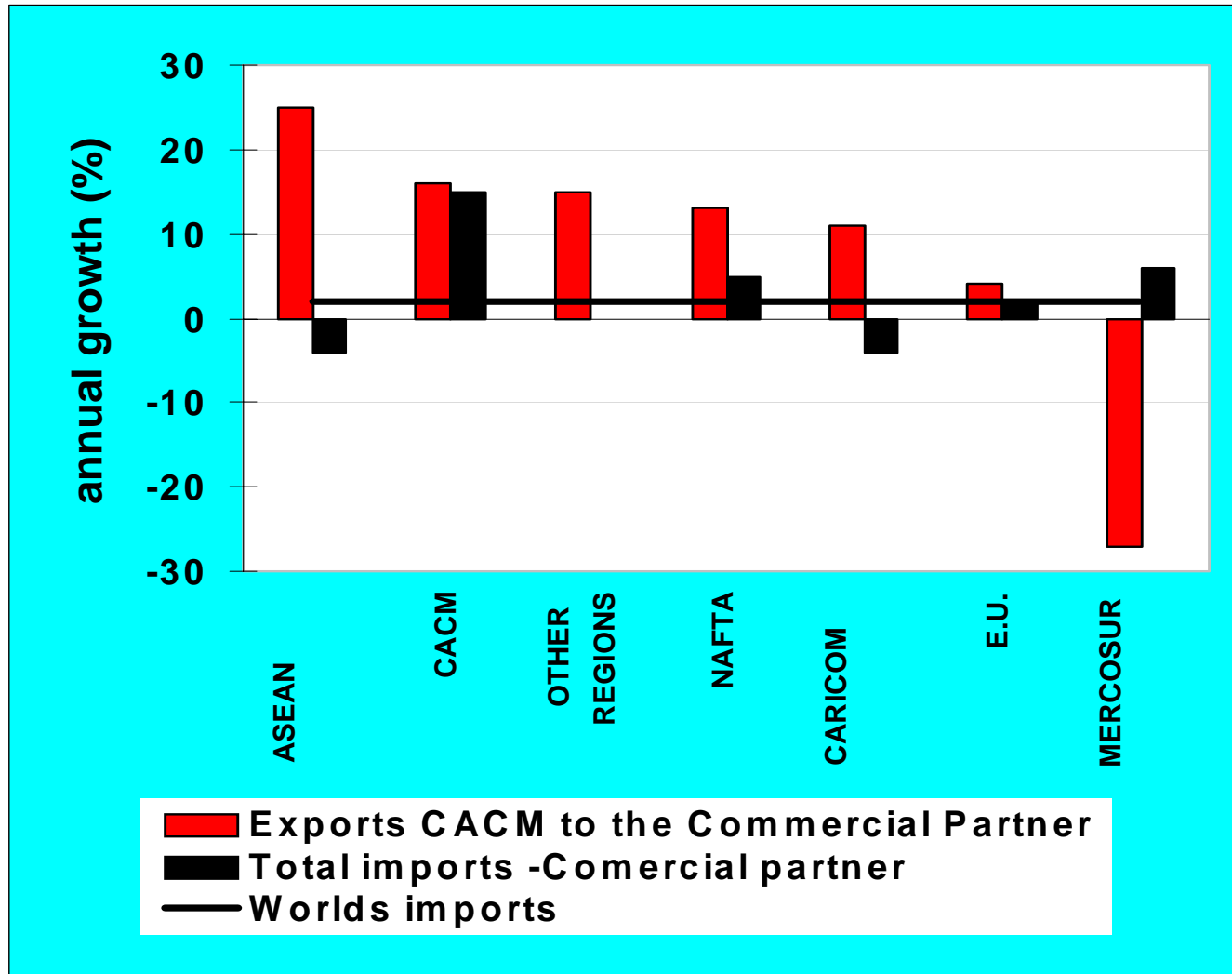
Total agric. exports (1998)= US\$5824 millions

Trade Agric. Food Products -CACM/Imports-

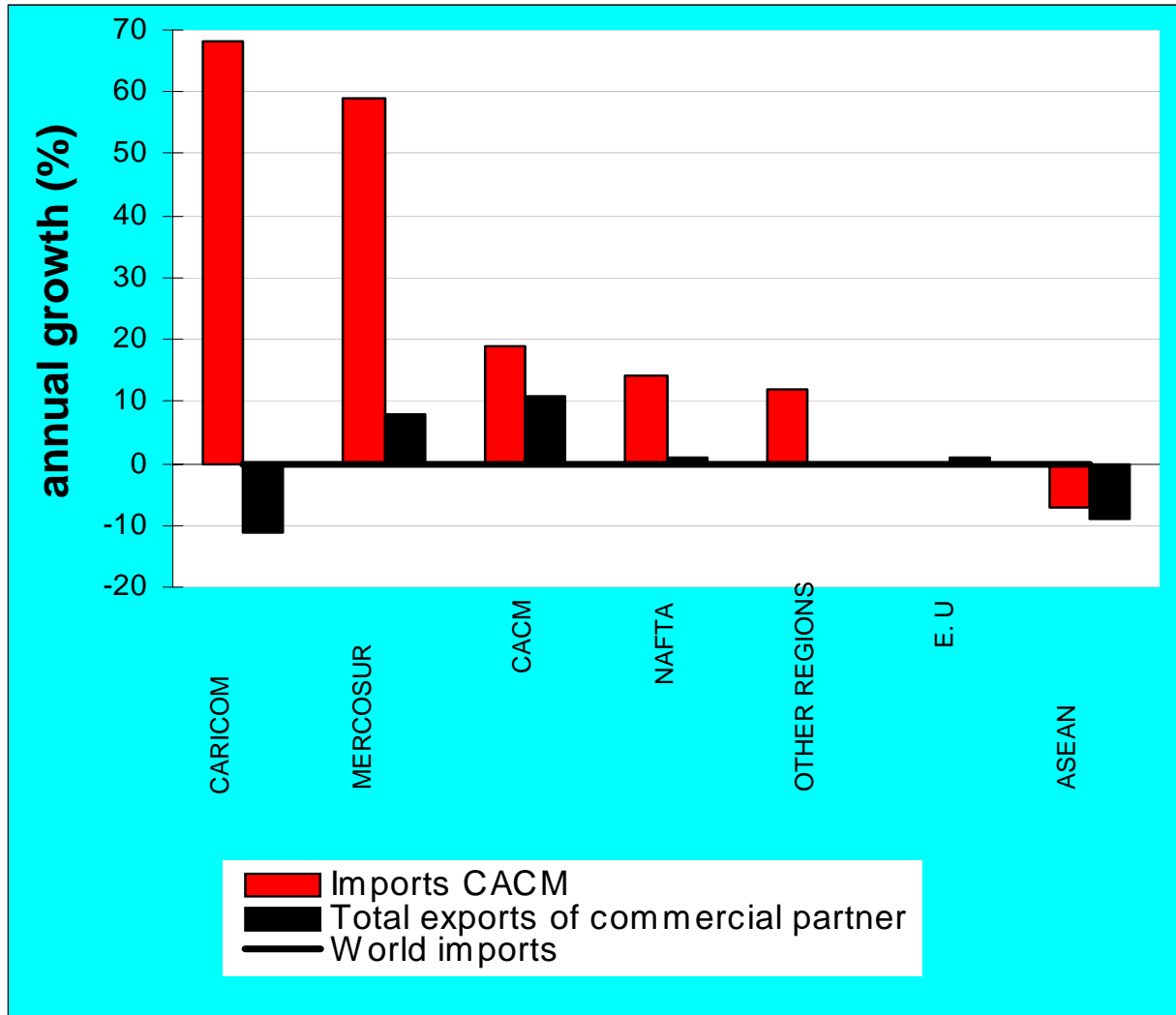


Total agric. imports (1998)= US\$2480 millions

Trade Agric. Food Products -CACM/ Exports Dynamics-



Trade Agric. Food Products -CACM/ Imports Dynamics-



Why SAP in Central America?

- High population growth-rate
- Daily intake of nutrients still low
- Increased consumption of animal food
- Important role of agriculture in these economies
- Animal production is an important social activity
- Sustained economical growth during last decade
- Deforestation rate must cease
- Less land for agriculture
- Less people working in agriculture
- There is still room to increase productivity
- Increased commercial exchange for agric. products
- Need for increased productivity to confront globalization
- Political stability
- Abundant local feed resources

Regional Centre for Training and Research in Sustainable Animal Production

Main objective:

".. to develop regional expertise for increased productivity and sustainability of the livestock production systems in Central America"

Specific objectives:

- to promote research capacity in the area of SAP.**
- to develop a curriculum for a regional MSc. program in SAP.**
- to involve farmers and farm advisors in the philosophy of SAP.**