

## Why Be Concerned With Third World Agricultural Development

### PERCENT EMPLOYED IN AGRICULTURE

	% Males	% Females	% Total
Sub-Sahara Africa	62	75	
East Asia	66	72	
South Asia	59	75	
Mid-East & North Africa	27	55	
Latin America	29	12	
Mexico			23
Peru			33
Germany			1
Turkey			48
Japan			7
U.S.			2

---

### AVERAGE ANNUAL GROWTH RATES

							Index of Food Production	
	Agriculture			Population			1979-81 = 100	1989-91 = 100
	1965- 1980	1980- 1989	1990- 1997	1965- 1980	1980- 1989	1990- 1997	1987-89	1998
Sub-Saharan Africa	1.9	2.0	2.5	2.7	3.2	2.8	95	97
East Asia	3.2	5.2	3.8	2.2	1.6	1.5	123	106
South Asia	2.5	2.9	2.7	2.4	2.3	2.1	112	106
Mid East & North Africa	--	2.9	1.7	1.9	2.0	2.7	99	107
Latin America	3.1	1.9	2.7	2.5	2.1	1.9	105	110
High Income/ Industrialized	0.8	2.2	0.6	0.8	0.6	0.7	98	105

(World Development Report 1991; 1999)

## 21<sup>st</sup> CENTURY DEBATE

CAN THE WORLD PRODUCE ENOUGH  
TO FEED 5 BILLION MORE PEOPLE?

\*AGRONOMISTS SAY 'YES'

\*POPULATION ACTIVISTS SAY ;NO'

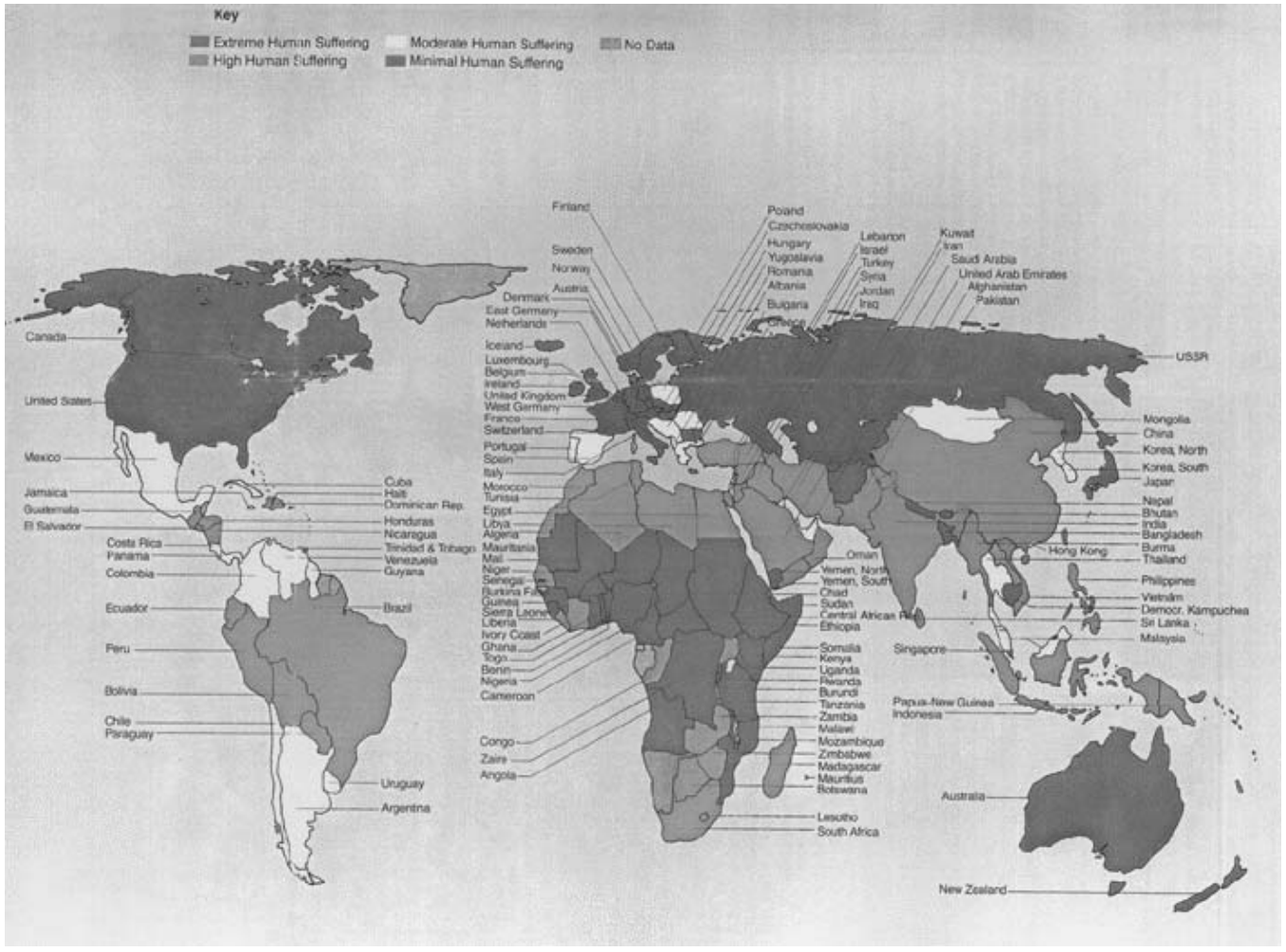
---

“AFTER SO MANY DECADES OF ECONOMIC DEVELOPMENT, 3/4 OF THE WORLD  
(THE PEASANTRY) IS STILL NOT INCLUDED. AFTER SO MUCH PROGRESS, YOU  
WOULD THINK THAT MORE PEOPLE WOULD BE BETTER OFF.”

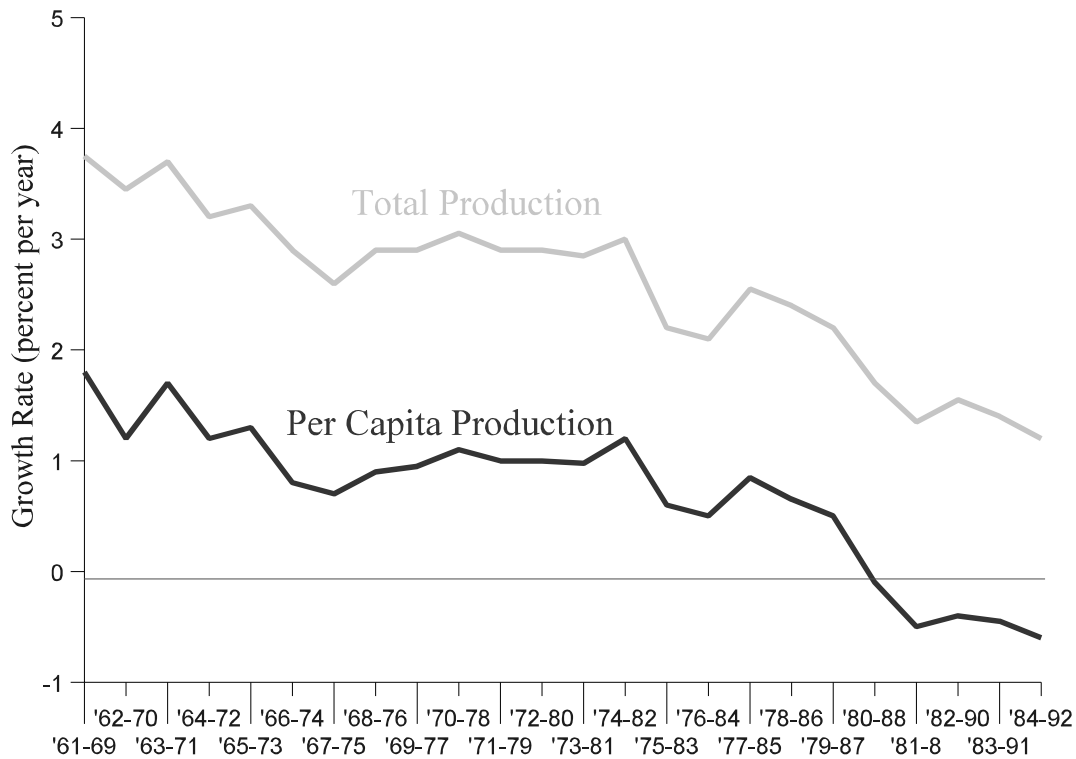
(Arnold Toynbee, English historian, died 1975)

**Key**

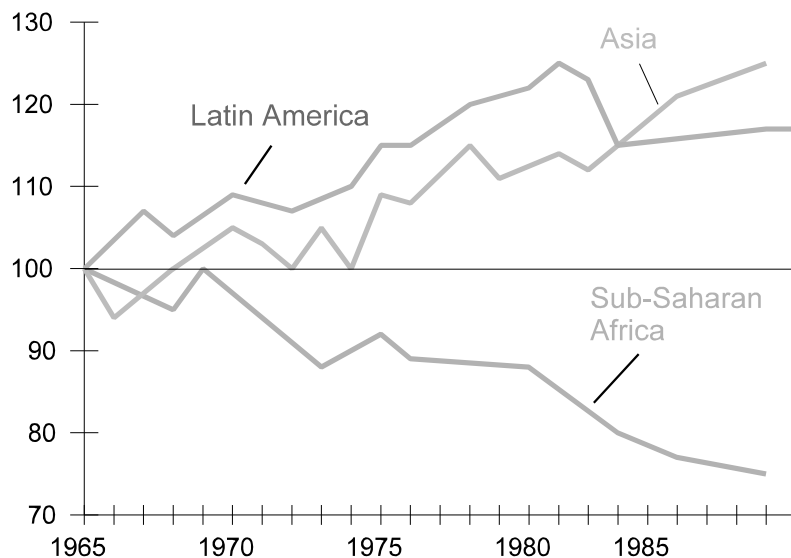
- Extreme Human Suffering
- High Human Suffering
- Moderate Human Suffering
- Minimal Human Suffering
- No Data



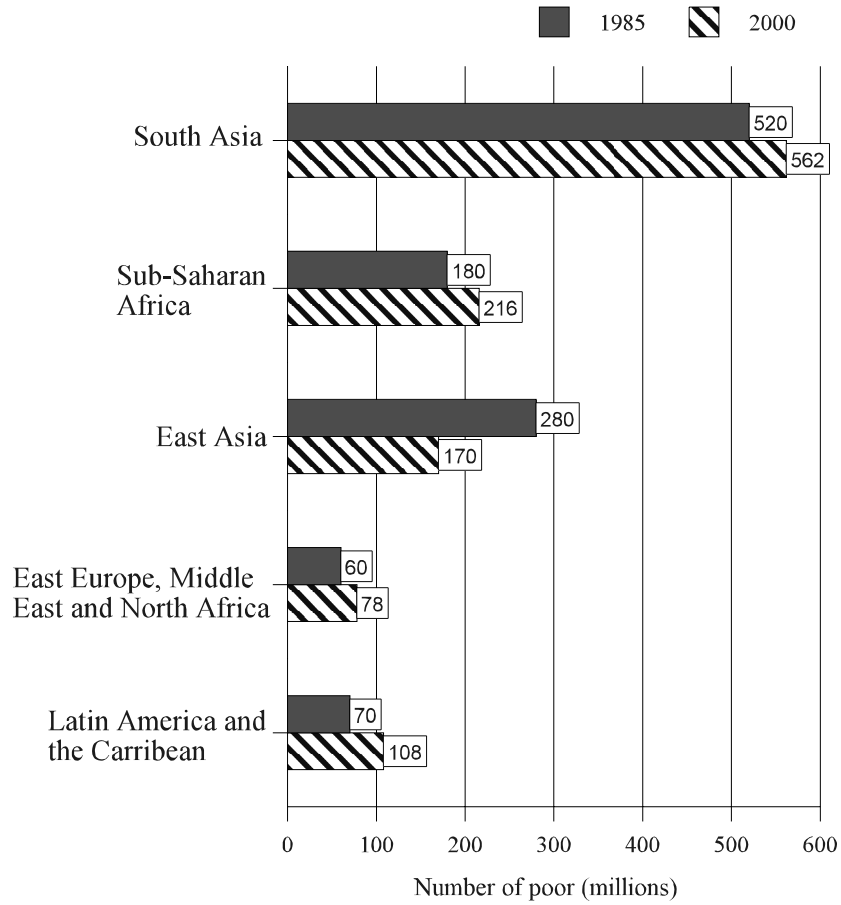
Growth rates of production (world, cereals),  
moving eight-year periods, 1961-92.



Per Capita Food Production, 1961-65 to 1988  
(1961-65 average = 100)



## Poverty in the developing world, 1985 and 2000



## POVERTY IN THE DEVELOPING WORLD, 1985-2000

Region	Percentage of population below the poverty line			Number of poor (millions)		
	1985	1990	2000	1985	1990	2000
All developing countries	30.5	29.7	24.1	1,051	1,133	1,107
South Asia	51.8	49.0	36.9	532	562	511
East Asia	13.2	11.3	4.2	182	169	73
Sub-Saharan Africa	47.6	47.8	49.7	184	216	304
Middle East and North Africa	30.6	33.1	30.6	60	73	89
Eastern Europe <sup>a</sup>	7.1	7.1	5.8	5	5	4
Latin America and the Carribean	22.4	25.5	24.9	87	108	126

Note: The poverty line used here – \$370 annual income per capita in 1985 purchasing power parity dollars – is based on estimates of poverty lines from a number of countries with low average incomes. In 1990 prices, the poverty line would be approximately \$420 annual income per capita. The estimates for 1985 have been updated from those in *World Development Report 1990* to incorporate new data and to ensure comparability across years.

<sup>a</sup>Does not include the former U.S.S.R.

Source: Ravallion, Datt, and Chen 1992.

### WHO ARE THE POOR?

- > 90% are farm residents, or rural and dependent on agriculture
- > 50% are small farmers who own or lease land
- 20-25% are landless
- 80% of these are in India, Bangladesh, Pakistan

OR

2/3 of Third World Population draw living directly from agriculture  
 thus, 60% of the absolute poor in Third World are farmers

## Food Security

Availability of Food and the Ability to Acquire It

Not Enough Calories to Prevent Serious Health Risks

---

Total and Annual Food Demand Growth to ZPG from 1995.

Study	ZPG Population (Billion)	Year of ZPG (Year)	Food Demand Growth from 1995 (Percent)
IIASA (Wolfgang Lutz)	10.5	2084	144
UN (medium)	10.3	2094	147
World Bank (Bos et al.)	11.3	2128	201

Source: Tweeten.

Note: 1995 world population 5.6 billion.

---

World crop supply (yield) and demand (population and income per capita)  
trend growth rates by selected years.

Supply or demand	Projected		
	2000	2020	2050
Supply	1.28	1.01	0.77
Total (weighted average)			
Demand			
Population gain UN (medium)	1.44	1.08	0.48
Income effect gain	0.31	0.27	0.20
Total demand gain	1.75	1.35	0.68
UN pop. plus income			
Excess demand			
Demand less yield gain	0.47	0.34	-0.09

### **THREE TYPES OF AGRICULTURE SUMMARIZED**

	Industrial	Green Revolution	Third/'CDR'
Main locations	Industrialized countries and specialized enclaves in the Third World	Irrigated and stable rainfall, high potential areas in the Third World	Rainfed areas, hinterlands, most of sub-Sahara Africa, etc.
Main climate zone	Temperate	Tropical	Tropical
Main type of farmer	Highly capitalized family farms and plantations	Large and small farmers	Small and poor farm households
Use of purchased inputs	Very high	High	Low
Farming system, relatively	Simple	Simple	Complex
Environmental diversity, relatively	Uniform	Uniform	Diverse
Production stability	Moderate risk	Moderate risk	High risk
Current production as percentage of sustainable production	Farm too high	Near the limit	Low
Priority for production	Reduce production	Maintain production	Raise production

CDR: complex, diverse and risk-prone

Source: Farmer First: Farmer innovation and agricultural research by Robert Chambers, Arnold Pacey and Lori Ann Thrupp (eds). Intermediate Technology Publications: London, 1983.



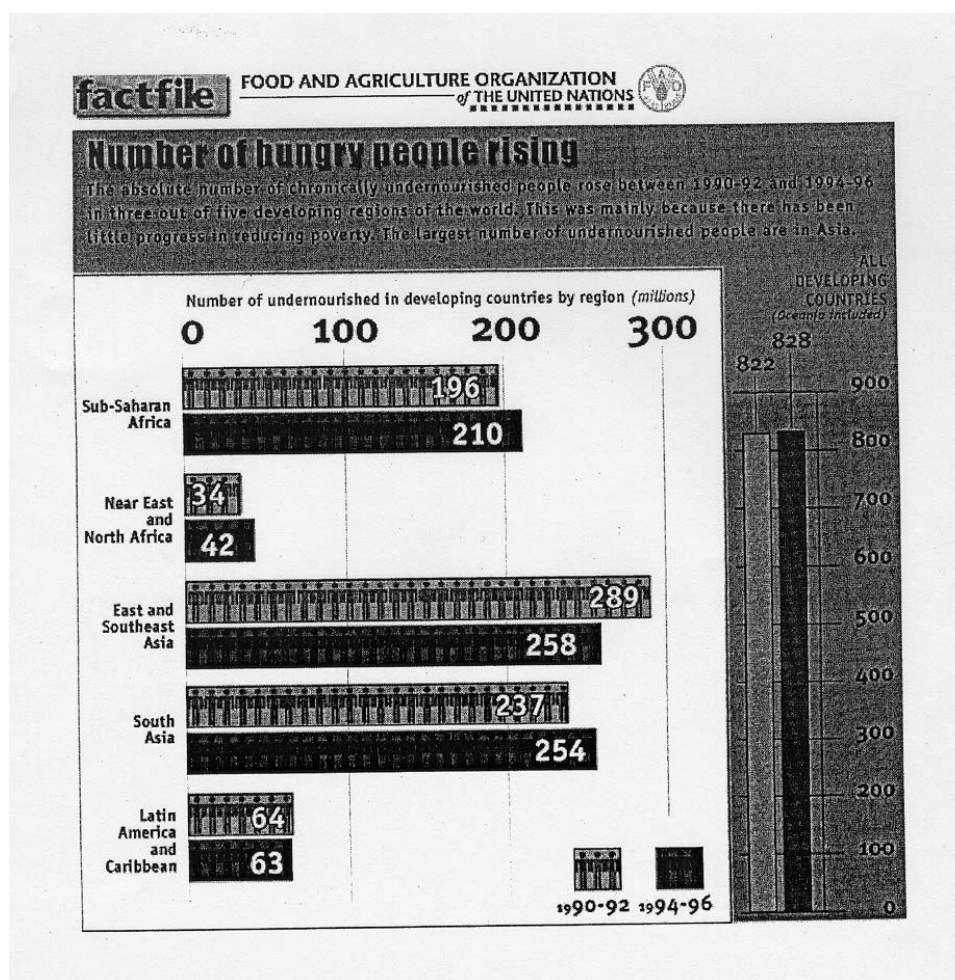
## Share and Size of Population with Energy-Deficient Diets

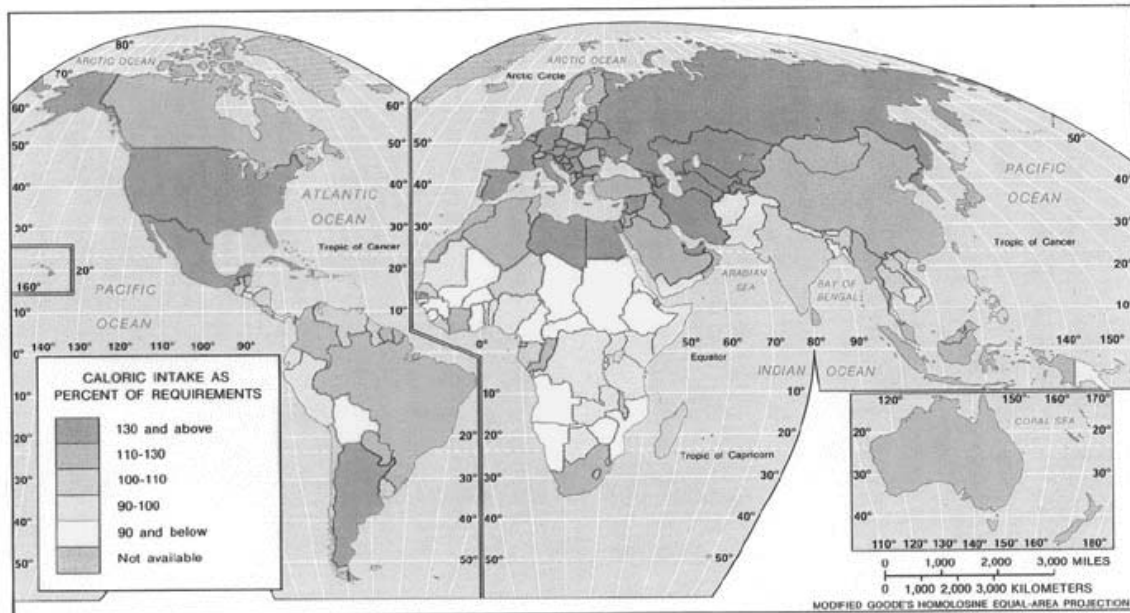
Region	Not enough calorie for an active working life: below 90 percent of FAO/WHO requirement <sup>1</sup>		Not enough calories to prevent stunted growth and serious health risks: below 80 percent of FAO/WHO requirement <sup>2</sup>	
	Share in Population (percentage)	Affected Population (in millions)	Share in Population (percentage)	Affected Population (in millions)
All developing countries (87)	34	730	16	340
Low income (30)	51	590	23	270
Middle income (57)	14	140	7	70
Sub-Saharan Africa (37)	44	150	25	90
East Asia and Pacific (8)	14	40	7	20
South Asia (7)	50	470	21	200
Latin America and Carribean (24)	13	50	6	20
Middle East and North Africa (11)	10	20	4	10

Source: Reutlinger 1985:8.

<sup>1</sup>Intake at this standard is sufficient for a person to function to full capacity in all daily activities.

<sup>2</sup>Intake at this standard is sufficient to prevent high health risks and growth retardation in children.





56. FIGURE 8-8 Caloric intake as percent of requirements

Copyright © 1994 Macmillan Publishing Company. All rights reserved.

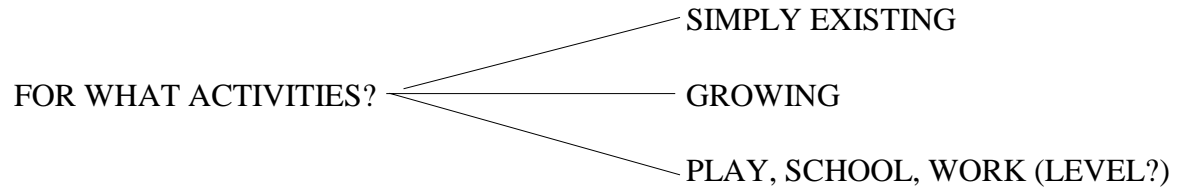
---

Estimated Number of People Affected by Preventable Malnutrition, Worldwide

---

Deficiency	Morbidity owing to malnutrition	Prevalence of morbidity (incidence of the disease)	Group most affected	Mortality per year
Protein and energy	Stunted growth; Clinical cases of Kwashiorkor and marasmus	500 million	Ages 0-6	10 million
Iron	Anemia	350 million	Women 18-45	
Vitamin A	Blindness	6 million	All ages	750,000
Iodine	Goiter	150 million	All ages	—
	Cretinism	6 million	All ages	—
	Mental retardation			
	Stunted growth			

## ENERGY REQUIREMENTS FOR WHAT?



## FOR WHAT GROUPS OF PEOPLE?

- WHOLE POPULATION, ON AVERAGE?
- INDIVIDUALS - CHILDREN
- - ADULTS: MEN? | WHAT AGE?
- - WOMEN?

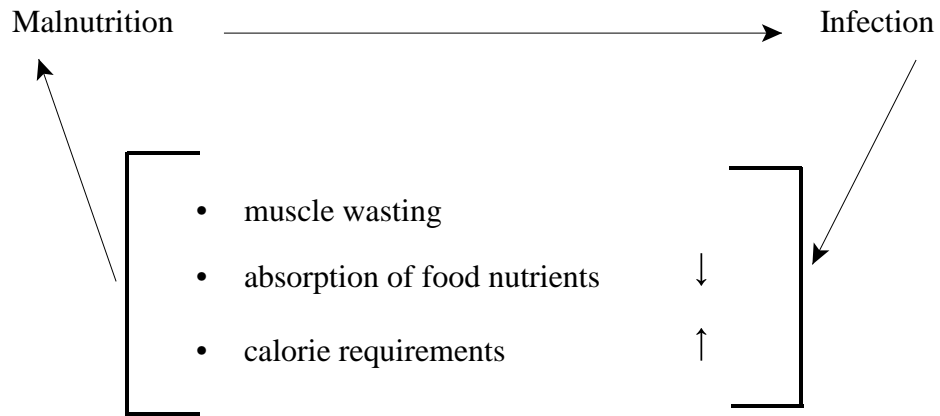


## CAUSES OF MALNUTRITION

Infectious diseases

Poverty

Lack of access to land



---

Other issues

Seasonal Malnutrition

or

“Risky Times”