

# The Future of Agriculture in a Global Market



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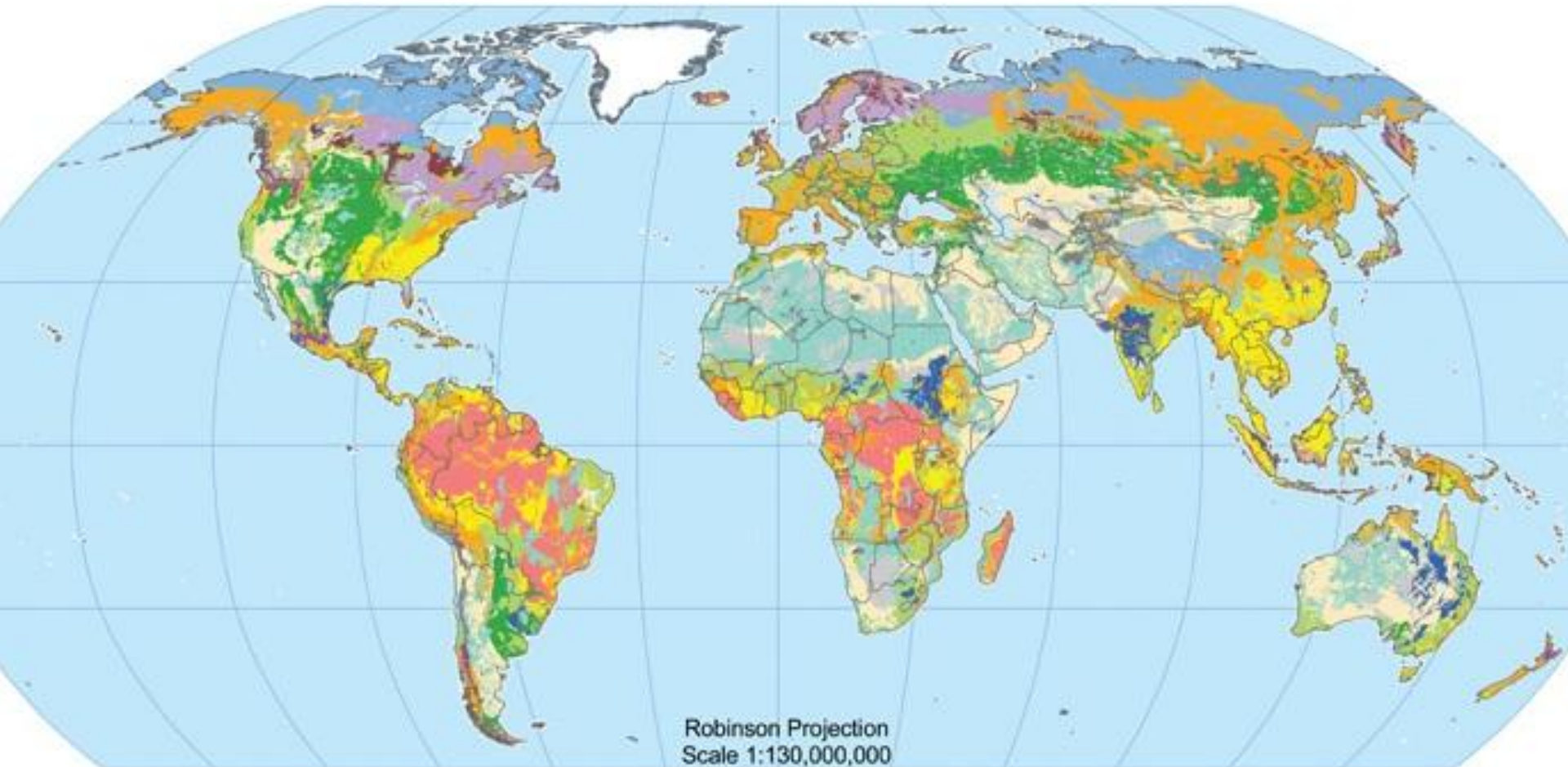
January 16, 2014

All soils are not equal







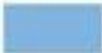


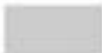







*U.S. (Western Hemisphere) is a  
blessed land*

# Global Soil Regions



## Soil Orders

 Alfisols	 Entisols	 Inceptisols	 Spodosols	 Rocky Land
 Andisols	 Gelisols	 Mollisols	 Ultisols	 Shifting Sand
 Aridisols	 Histosols	 Oxisols	 Vertisols	 Ice/Glacier

# Soil Order

	Mollisol	Alfisol	Ultisol	Oxisol
Corn Yield*	175	150	141	130
Soybean Yield*	53	48	45	42
Additional fertilizer costs**			+\$10	+\$10
Additional lime costs**			+\$10	+\$10

# U.S. is a blessed land

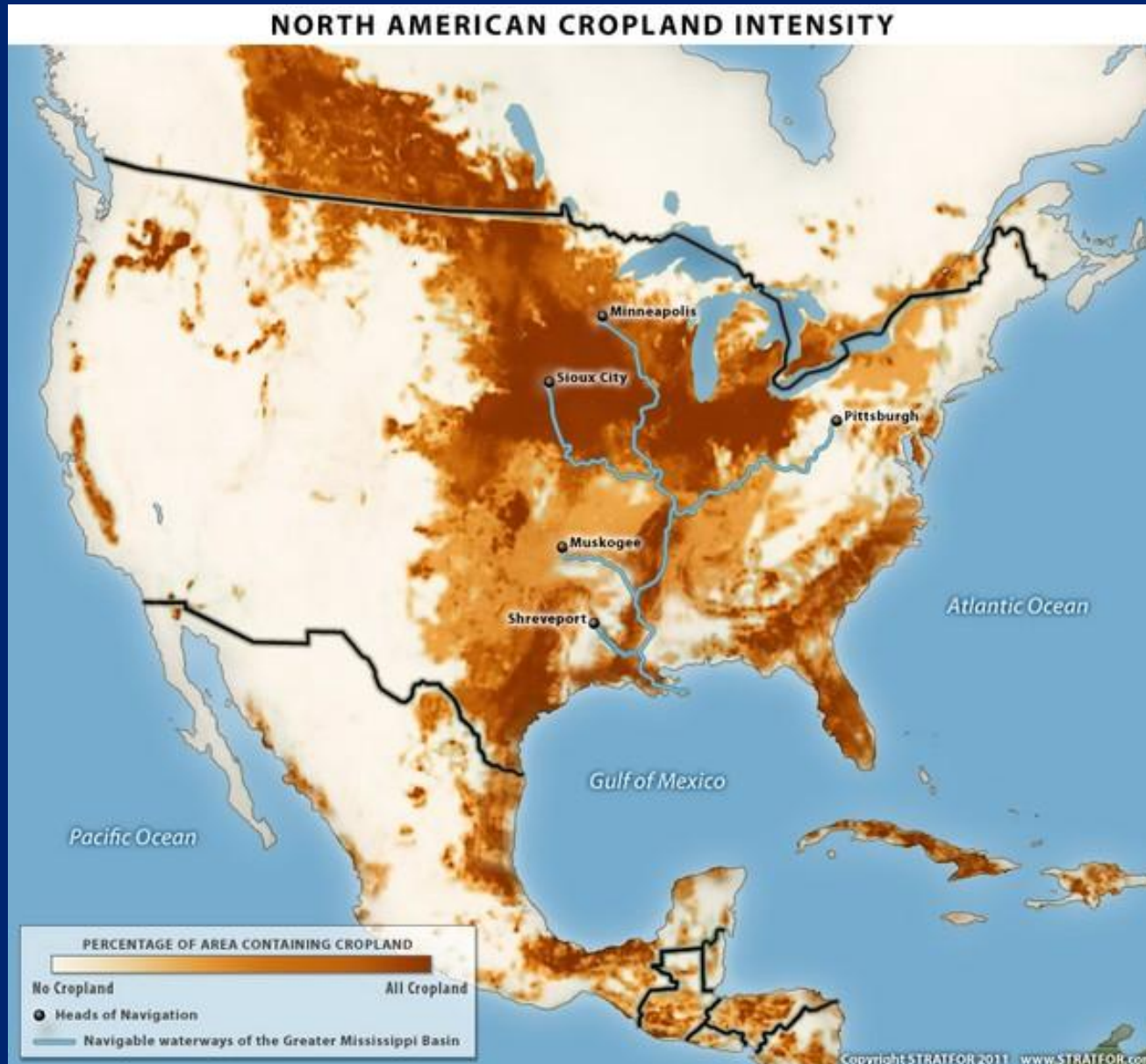
6.7% of land area

4.2% of population

21% of **Mollisols**

10% of **Alfisols**

# U.S. is a blessed land



# Key Points

- ❖ The U.S. (Western Hemisphere) is a blessed land and will continue to be a major breadbasket of the world
- ❖ Much of world lacks the natural resources to feed themselves

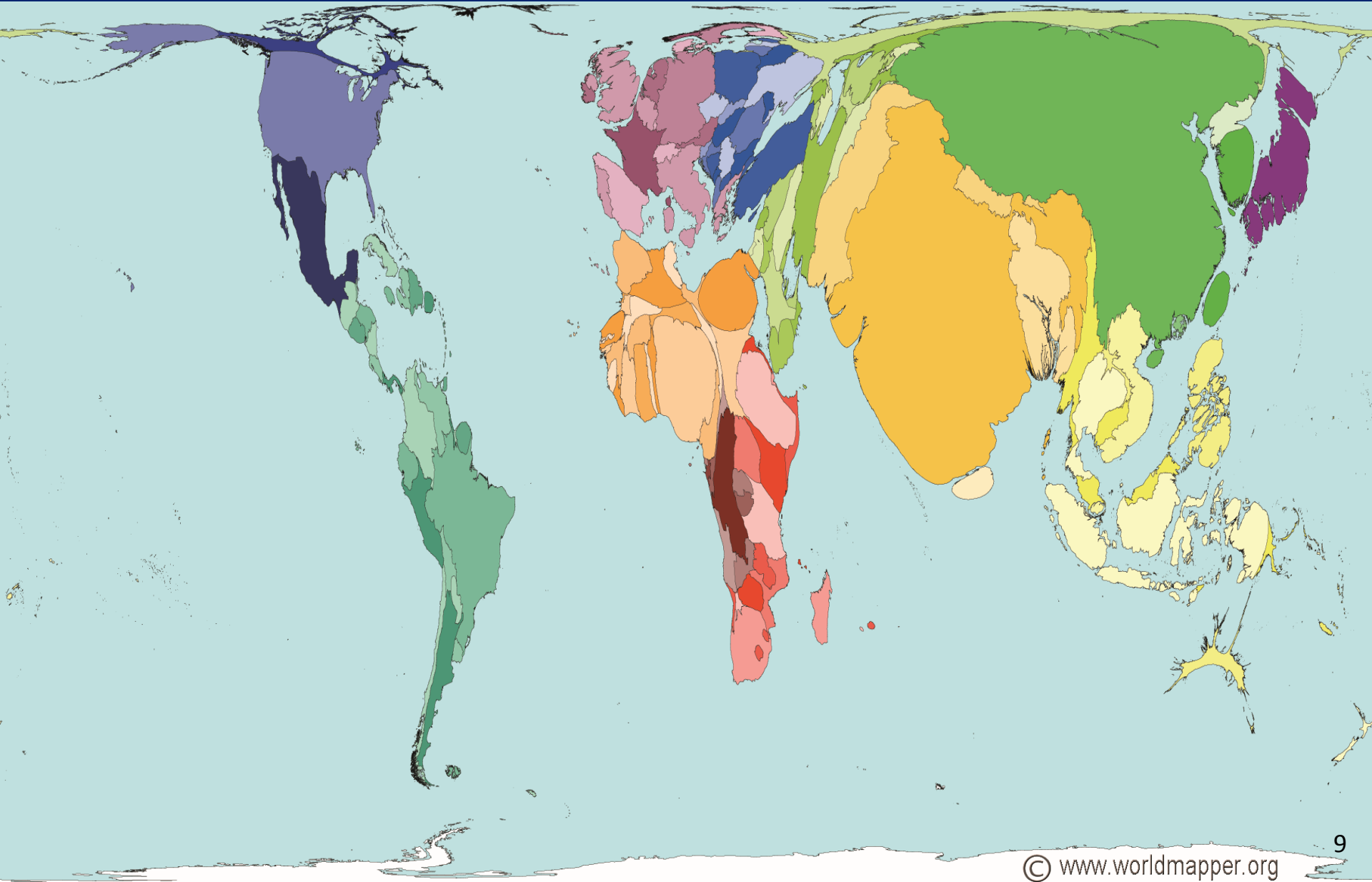
# Hunger is a major issue



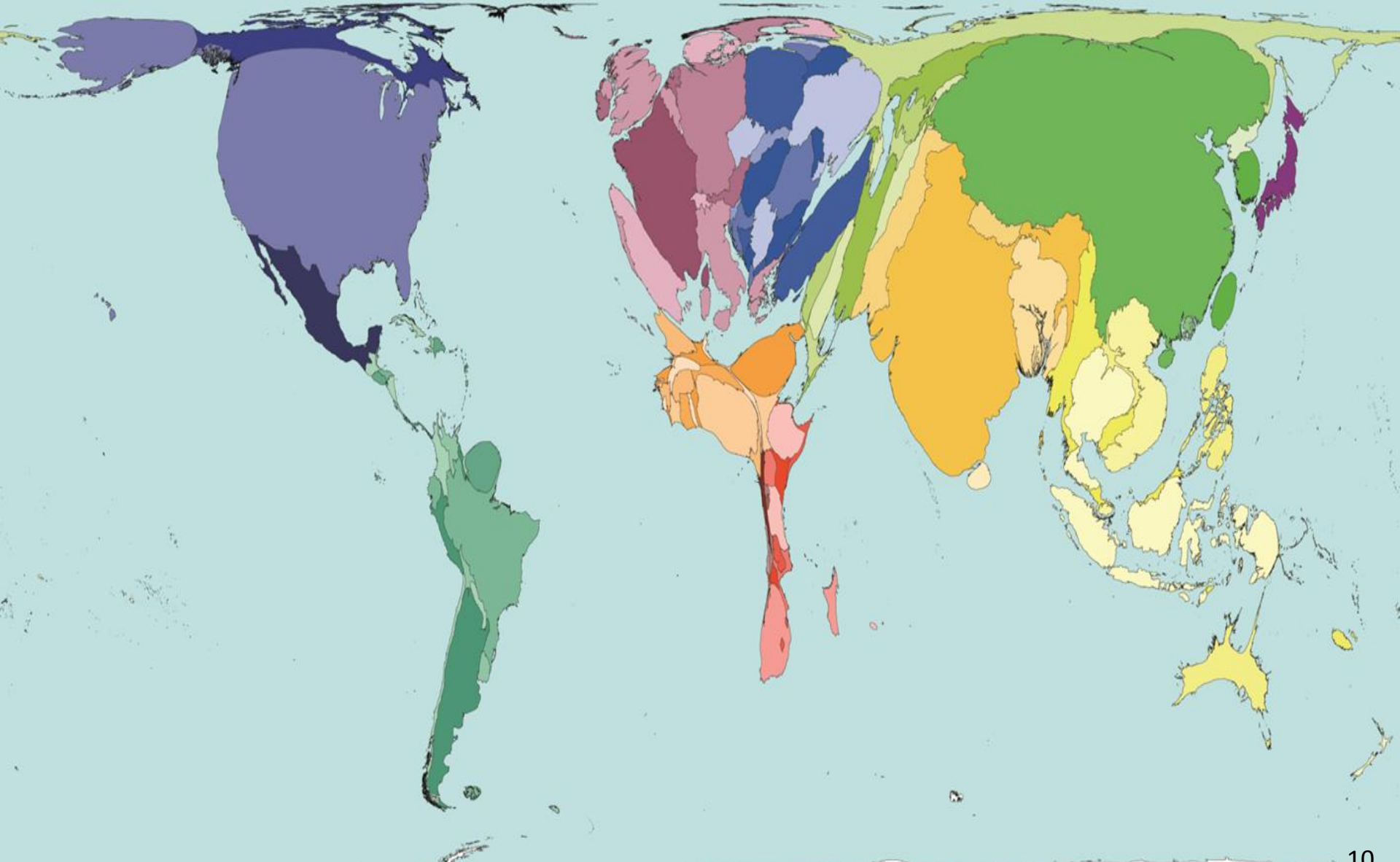
*Starvation is a reality for  
many*



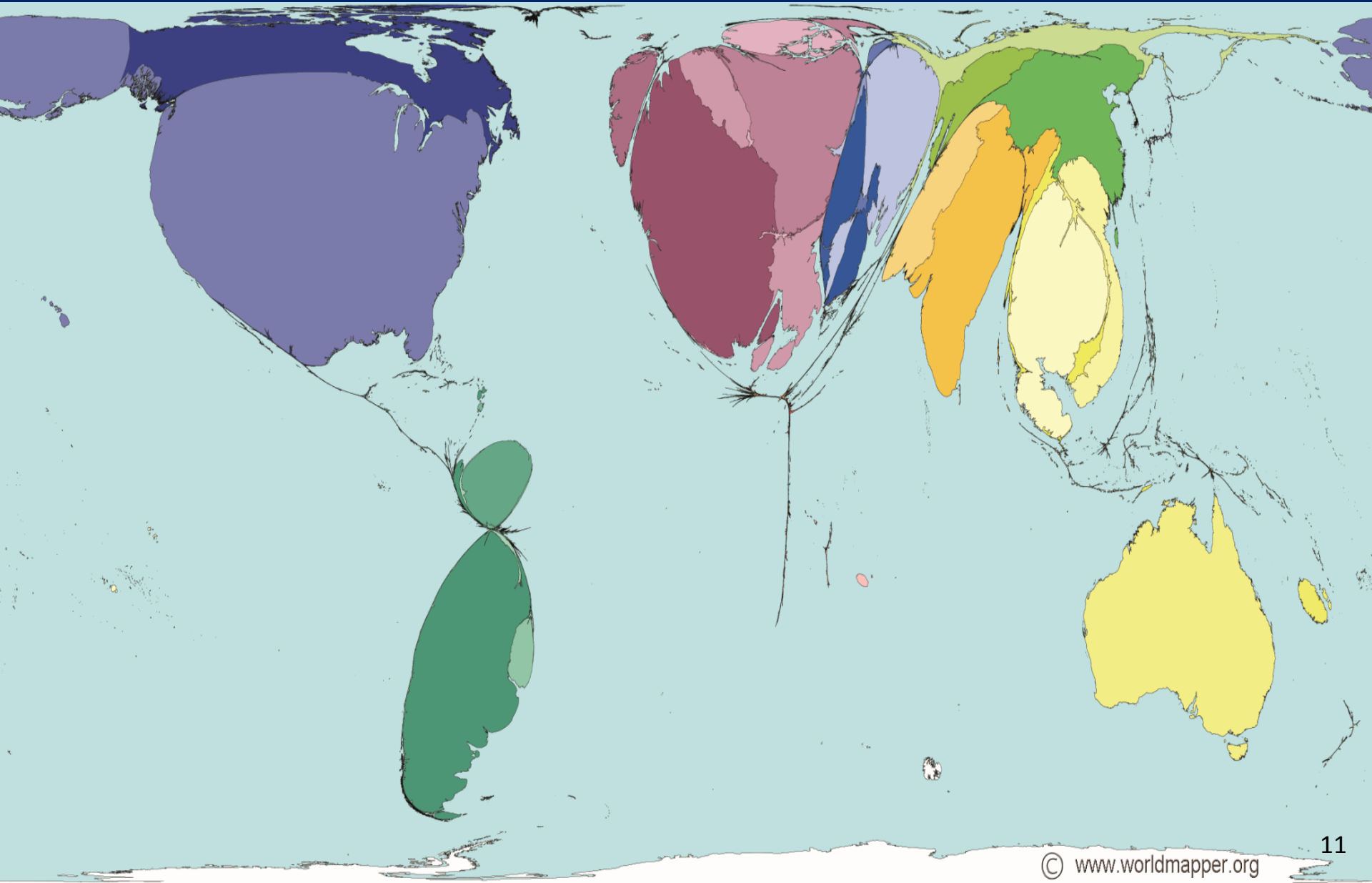
# World Map in Proportion to Population



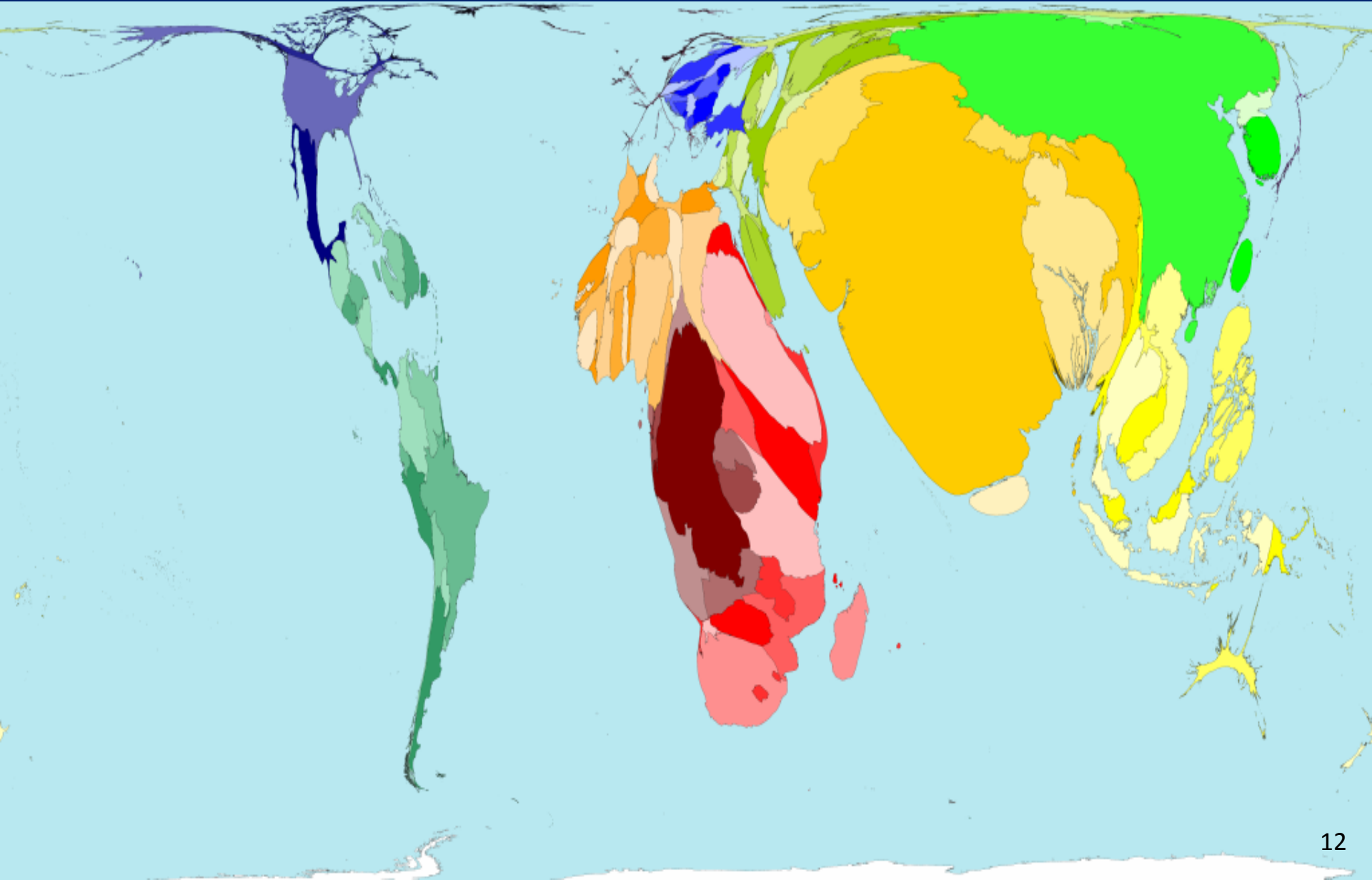
# World Map in Proportion to Grain Production



# World Map in Proportion to Grain Exports



# World Map in Proportion to Undernourishment

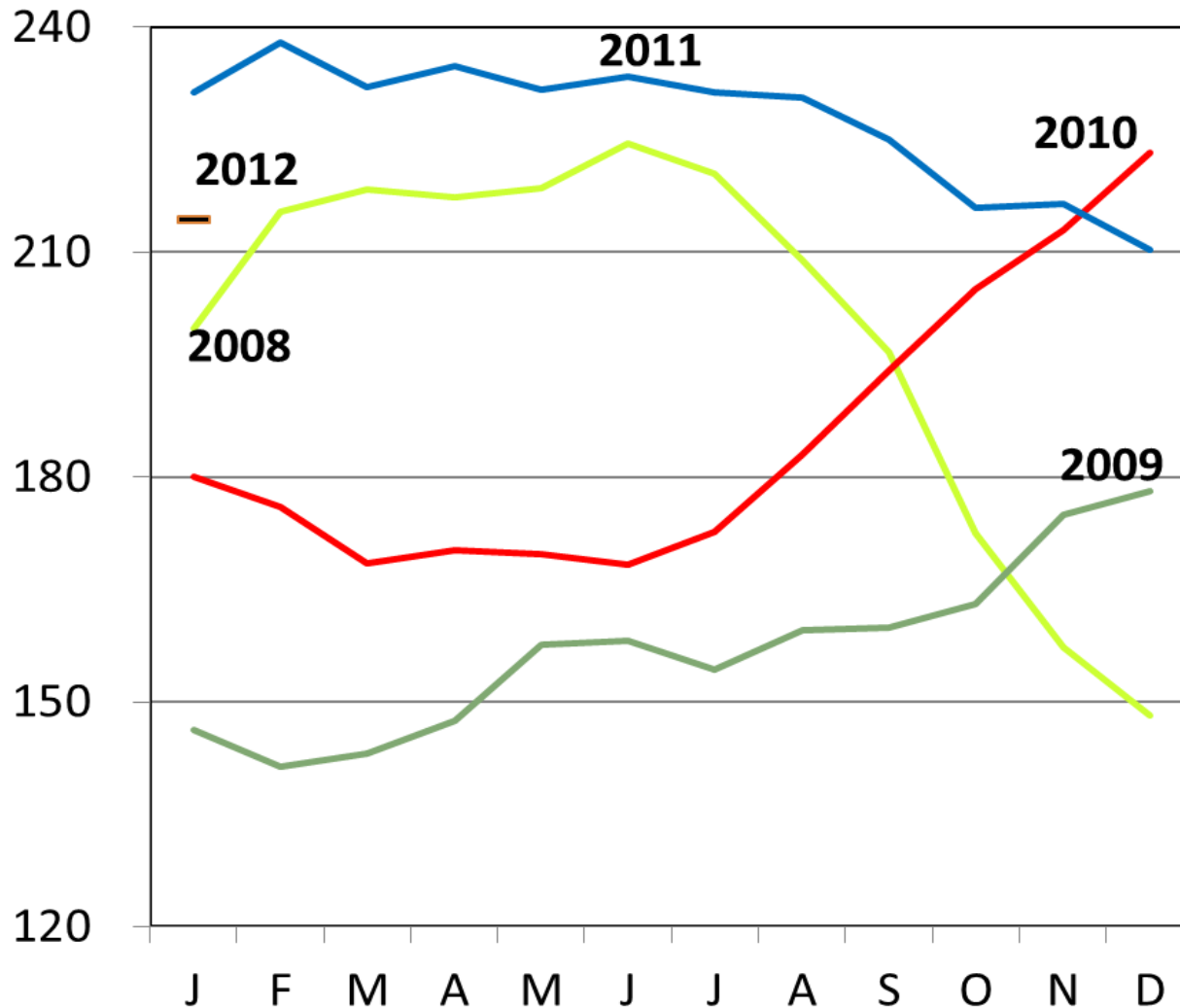


# Hunger Around the World

- ❖ 1 billion people go to bed hungry every day
- ❖ 6 million children will die this year from malnutrition
- ❖ 1,000 children will die from malnutrition during this presentation

# Food Price Index

(2002-2004 = 100)



# Expenditure of Consumptive Income for Food

Country	Food, % of income	Food, cost per capita
United States	6.4	\$2,087
Germany	11.0	\$2,425
China	22.3	\$338
Brazil	24.8	\$1,641
India	27.7	\$223
Russia	29.0	\$1,561
Tunisia	35.6	\$862
Egypt	38.0	\$842
Morocco	40.5	\$777
Jordan	40.6	\$1,183
Ukraine	41.7	\$770
Pakistan	41.9	\$320
Algeria	43.7	\$674
Azerbaijan	45.3	\$1,028
Cameroon	46.9	\$369

\* *Pink denotes significant civil unrest*

USDA ERS 2010

# Growing Demand

- ❖ The U.N. estimates that we will need twice as much food in 30 years.
- ❖ It will to a great degree be supplied by the Western Hemisphere in particular the U.S.



# Key Points

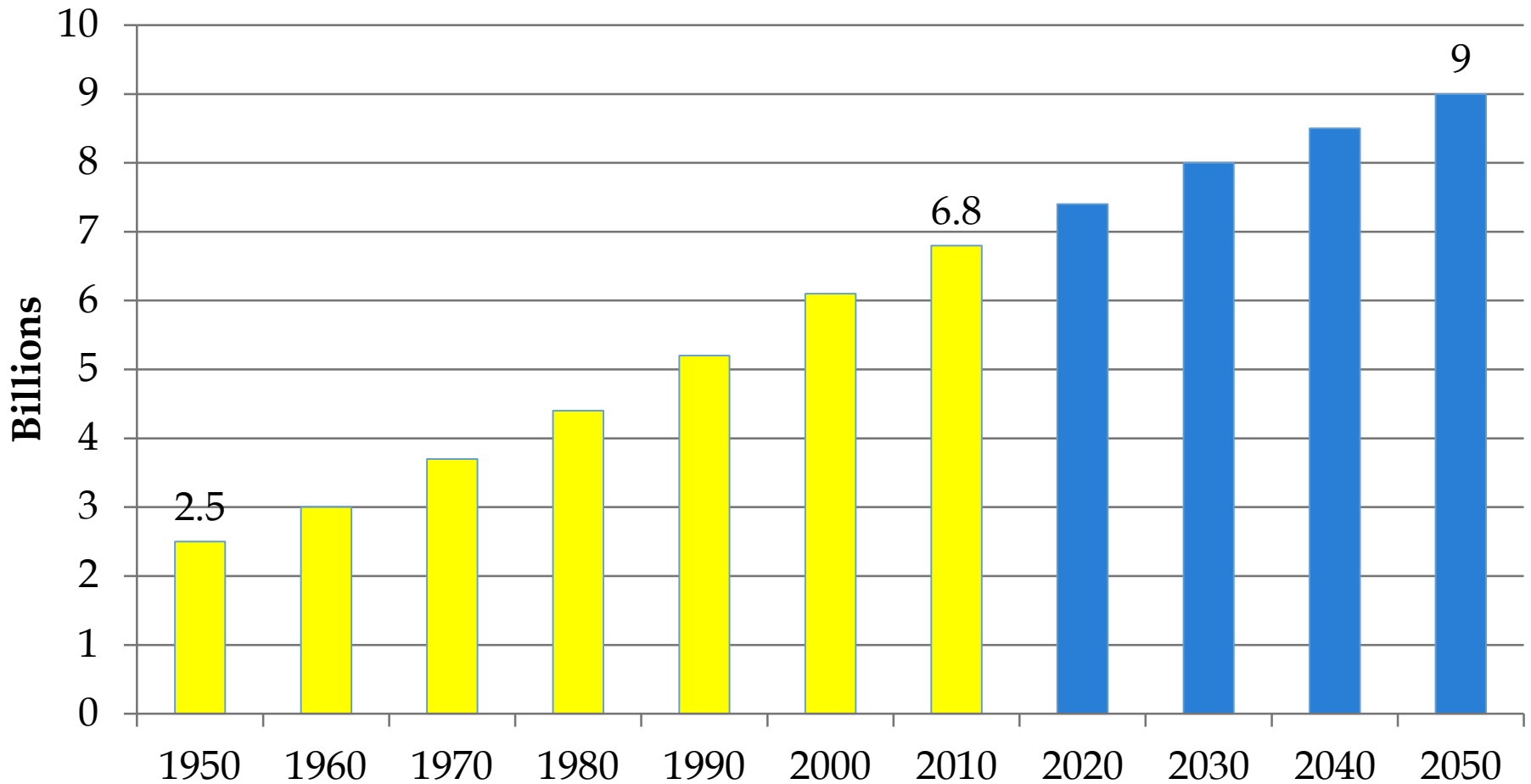
- ❖ Hunger is huge problem politically and morally
- ❖ Problem is increasing
- ❖ North and South America is the only answer to world hunger problems

# Factors that Aggravate the Issue

- ❖ Population growth
- ❖ Growing middle class
- ❖ International unrest
- ❖ Non-food use of commodities, i.e., food to fuel
- ❖ Political, financial, and transportation barriers

# Population Growth

## World Population Growth



# Population Growth

- ❖ 80 million people per year annual world population growth
- ❖ A country as big as Germany

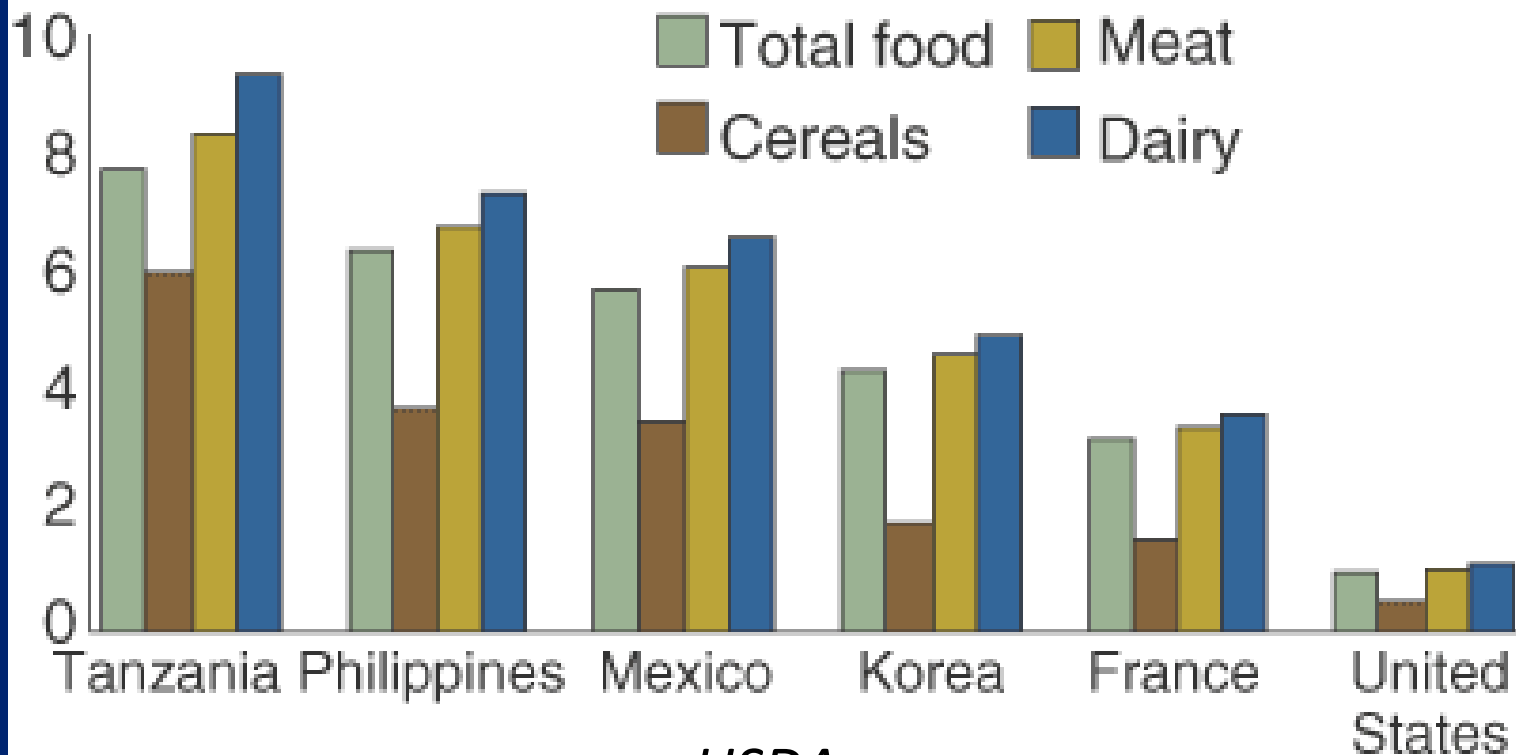
# What About Beef?

- ❖ Growing middle class demands “better” diets
  - China, India, Mexico, Brazil, etc.
  - ↑ Meats, Dairy, Nuts
- ❖ Result: Greater demand and higher prices for commodities

# Food Expenditures

What would be the result of a 10-percent rise in incomes?

Percent increase in expenditures

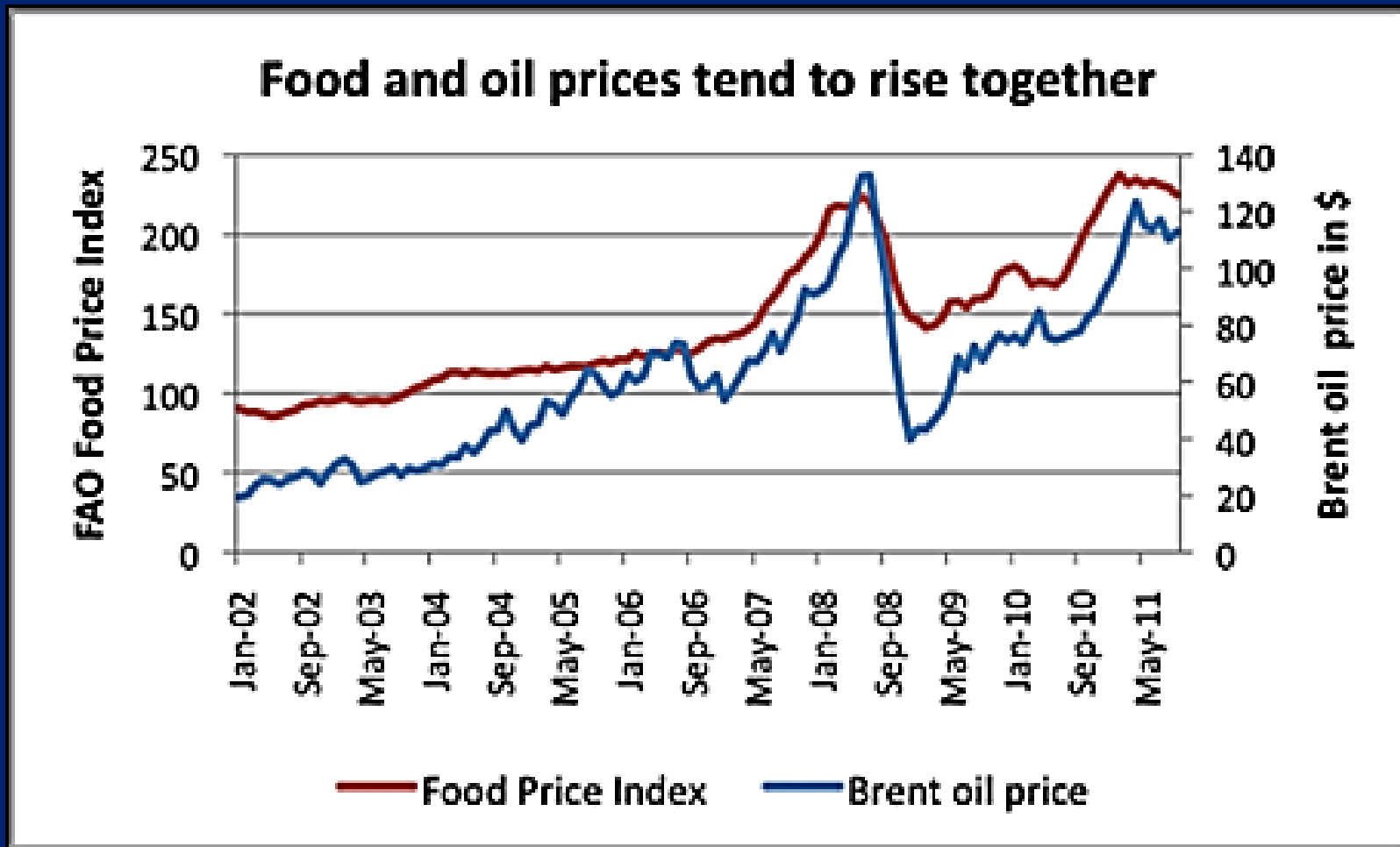


USDA

# Rising Commodity Prices

- ❖ Oil is King
  - Energy prices affect all commodities
- ❖ Corn is Queen
  - All food commodities follow corn
- ❖ Gold is the Joker

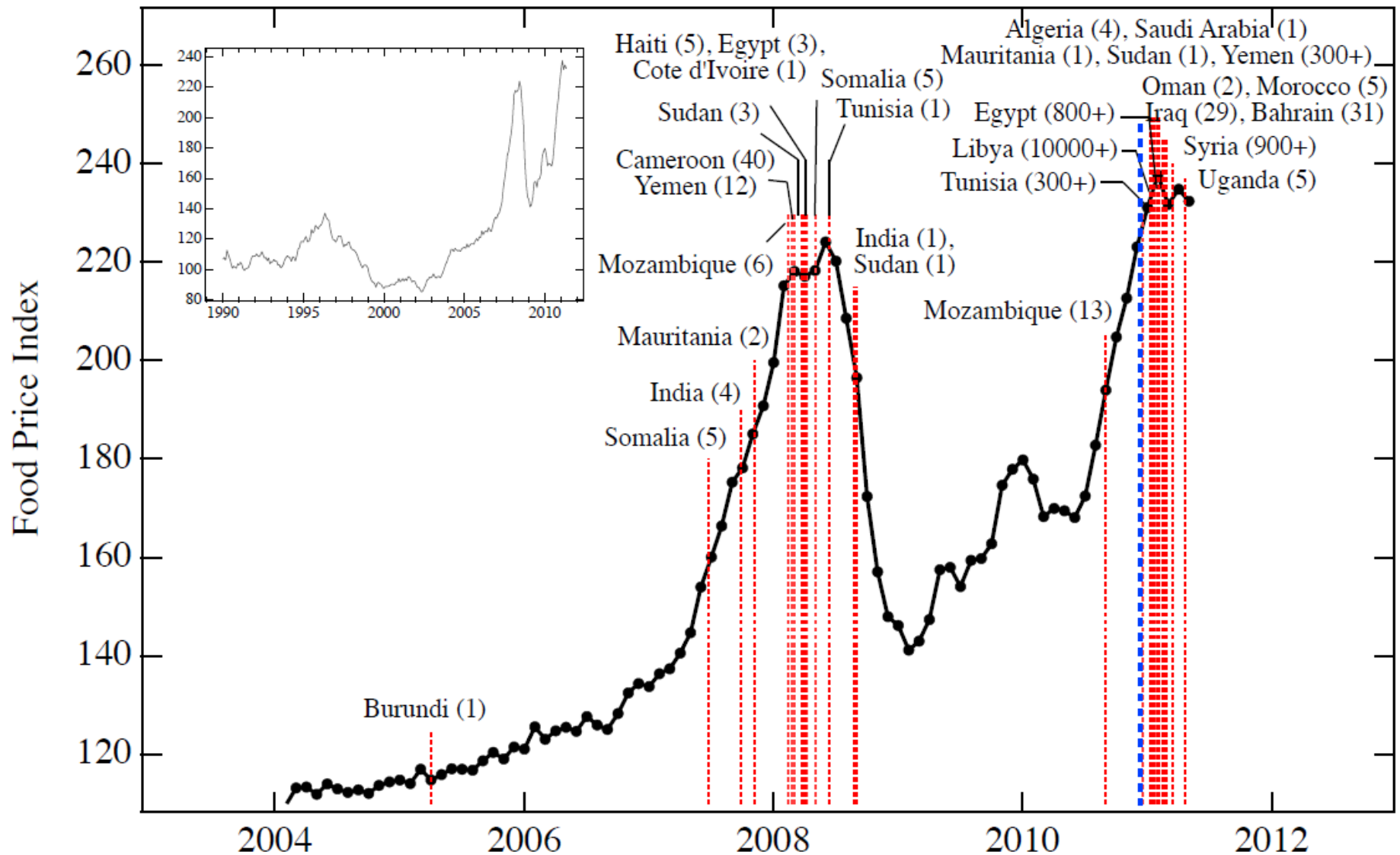
# Food/Oil Correlation



Oil is King

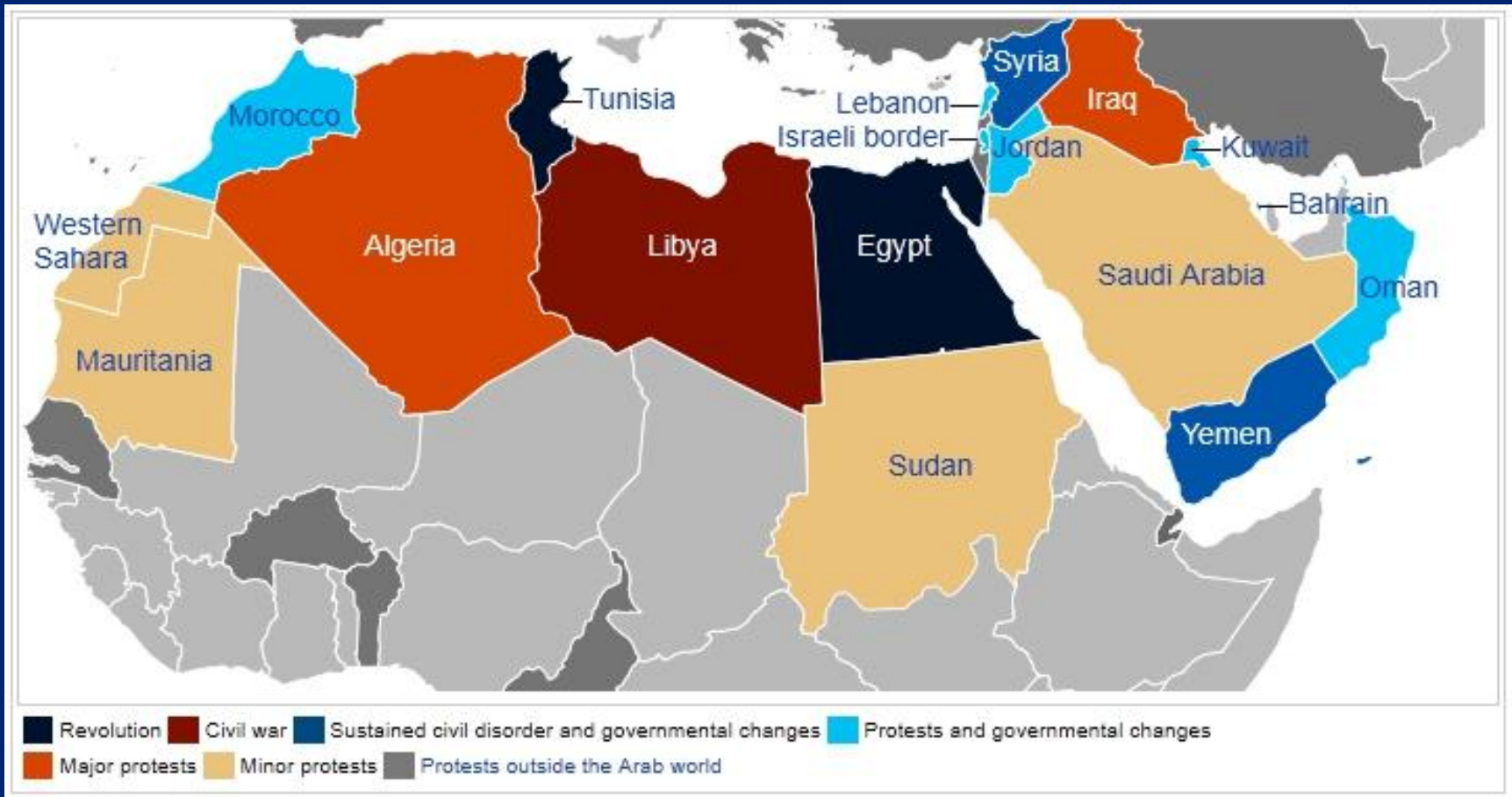


# Food Prices and Instability

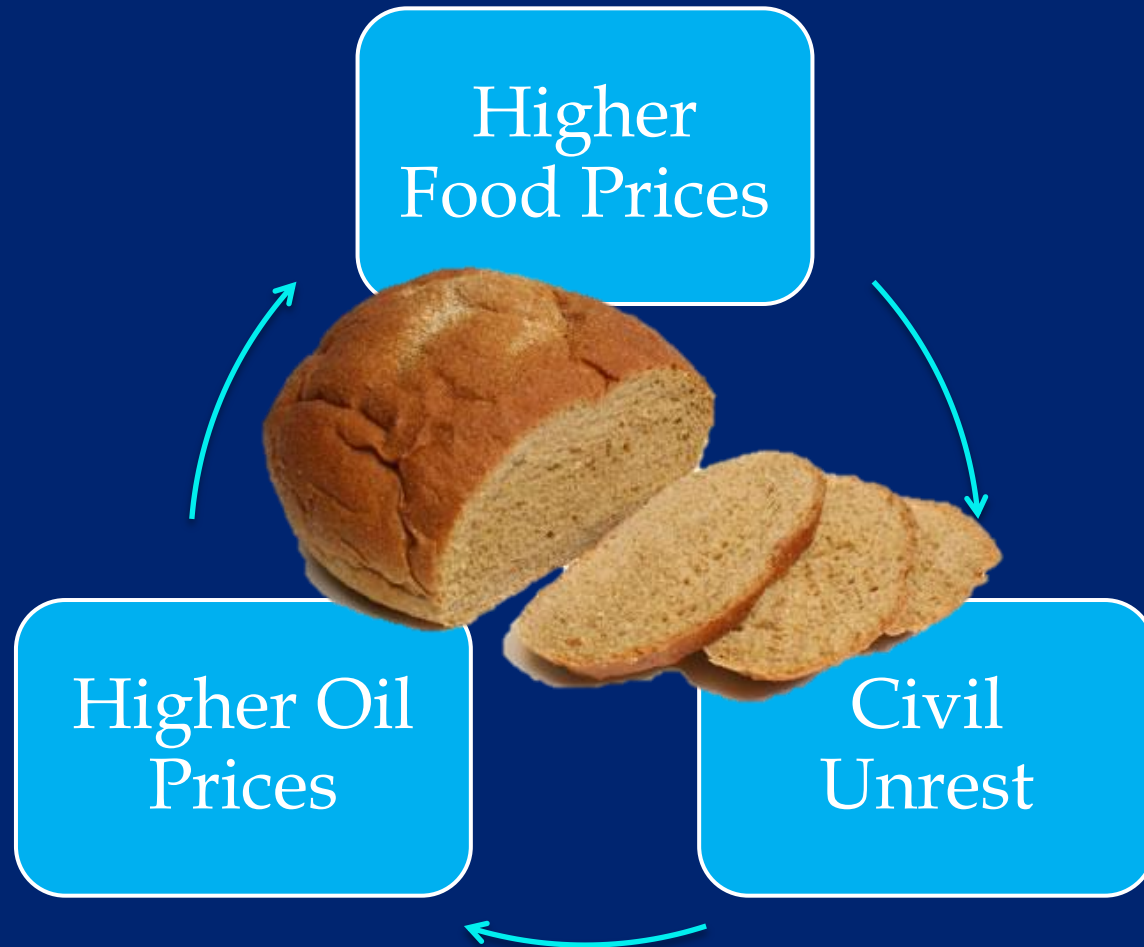


# Food Prices and Instability

## *Arab Spring*



# Factors that Aggravate the Issue



# Non-Food Uses of U.S. Corn

	2007	2008	2009	2010
Planted (mil. acres)	93.5	86.0	86.4	88.2
Yield (bu/acre)	150.7	153.9	164.7	152.8
	<i>Millions Bushels</i>			
Production	13,038	12,092	13,092	12,447
Beginning Inventory	1,304	1,624	1,673	1,708
<b>Total Supply</b>	<b>14,362</b>	<b>13,729</b>	<b>14,774</b>	<b>14,175</b>
<b>Ethanol</b>	<b>3,026</b>	<b>3,677</b>	<b>4,568</b>	<b>4,950</b>
Sweeteners, Alcohol, etc.	1,337	1,316	1,371	1,400
Exports	2,436	1,858	1,987	1,950
Livestock Feed	5,938	5,205	5,140	5,200
<b>Total use</b>	<b>12,737</b>	<b>12,056</b>	<b>13,066</b>	<b>13,500</b>
<b>Ending Inventory</b>	<b>1,624</b>	<b>1,673</b>	<b>1,708</b>	<b>675</b>
<b>Carry-over % Annual Use</b>	<b>12.8%</b>	<b>13.9%</b>	<b>13.1%</b>	<b>5.0%</b>
<b>Avg Farm Price (\$/bu)</b>	<b>\$ 4.20</b>	<b>\$ 4.06</b>	<b>\$ 3.55</b>	<b>\$ 5.20</b>

# Political Barriers

- ❖ Argentina's export quotas on corn and other foodstuffs
- ❖ Mexico's Zapata agrarian laws...100 hectares
- ❖ Brazil's ban on foreign ownership of farmland
- ❖ U.S. inheritance tax

# Key Points

- ❖ A variety of factors are impacting commodity prices: no one factor accounts for current high prices
- ❖ The increase in commodity prices is permanent; will fluctuate around new and higher mean

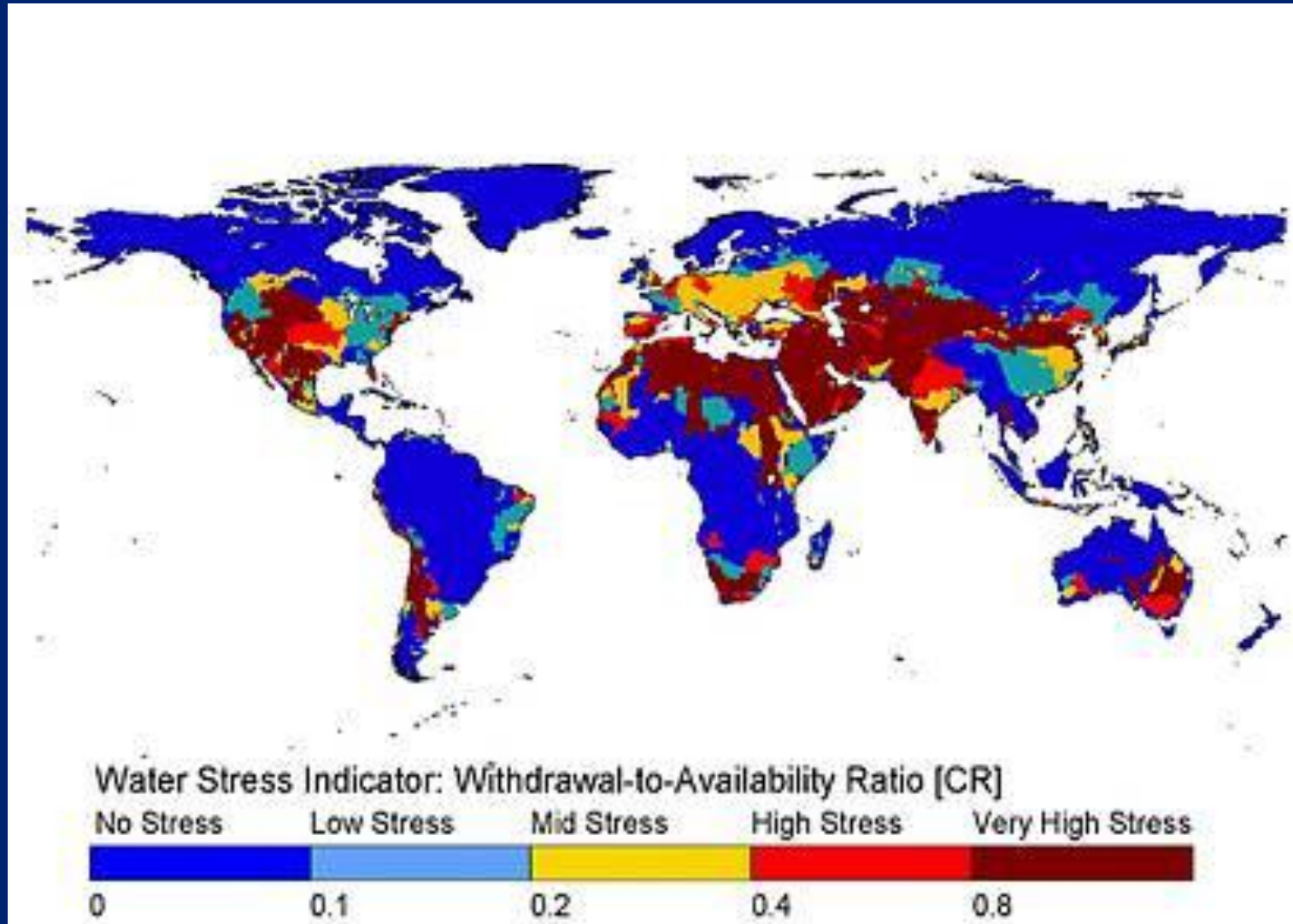
# Water

## *The Developing Perfect Storm*

*"There is a water crisis today. But the crisis is not about having too little water to satisfy our needs. It is a crisis of managing water so badly that billions of people – and the environment – suffer badly."*

– World Water Vision Report

# Water as a Critical Resource





## Key Point

There is a perfect storm developing worldwide with shrinking investment in water infrastructure and growing global demand for food

Visit KRIRM Site for detailed report on water issue

# Potential Solutions to Food Issues

# Potential Solutions

1. Agriculture, U.S. and World, as a whole, is best served by a competitive, free-market system

*Get governments out of the way of free trade of commodities*

# Potential Solutions

2. Viable, profitable agriculture is the best assurance of an abundant and reasonably-priced food supply

*U.S. farmers know how and want to produce—they just need to make a living at it. Excessive regulations and taxes block them.*

# Potential Solutions

3. Meaningful production agriculture research pays big dividends

*With growing desperate need for more food worldwide, how can we not make this investment?*

# Potential Solutions

4. Facilitate entry of bright and talented young people into production agriculture, and...

*Fix Ag Schools. Minimize barriers to entry for young farmers.*

# Summary

- ❖ U.S. agriculture is a key breadbasket
- ❖ Nurture competitive, free-market agriculture everywhere
- ❖ Agriculture is a noble profession

# Thank You

