

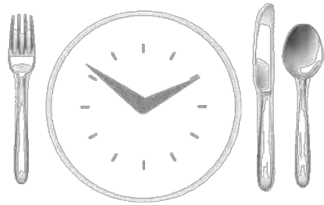


Novus International, Inc.

IFAMA 2013

Tomas Murtagh

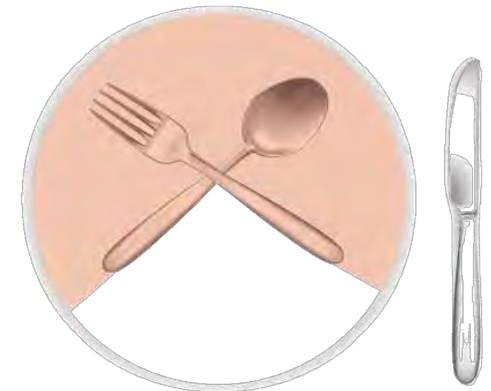
Global Challenges, Global Opportunities



In **50** years,
the world **population**
will require...



100%
more **food**, and...



70%
of this food must come
from efficiency-improving
technology.

Think about it...



“To feed our growing global population, we will have to produce the same amount of food in the next 40 years that we previously produced in the last 10,000 years.”

Quote:

Norman Borlaug (father of the modern Green Revolution)

Increasing Complexity



Food Safety/Food Security

- Disease Prevention & Control
- Traceability
- Shortage

Animal Well-Being

- Optimized Health
- Proper Care-Caged, not caged, Free Range



Production

- Organic/Natural/Conventional
- Waste Reduction

Environment

- Best Management Practices
- Land Availability/Urbanization
- Water

WE ARE NOVUS INTERNATIONAL



Vision

To help feed the world affordable, wholesome food and achieve a higher quality of life.

Mission

Make a clear difference in sustainably meeting the growing global needs for nutrition and health.

Our Global Footprint



GLOBAL HEADQUARTERS

REGIONAL HEADQUARTERS

MANUFACTURING PLANT

SALES OFFICE

RESEARCH FACILITY

Thank You!



მადლობა

Obrigado

Merci

谢谢

धन्यवाद

mulțumesc

Благодаря ви

Gracias

有難う

Asante sana

cảm ơn lắm



- Using technological innovations to feed a growing world

**During the course
of this presentation...**



60 babies
will be born in the U.S.

244 babies
will be born in China

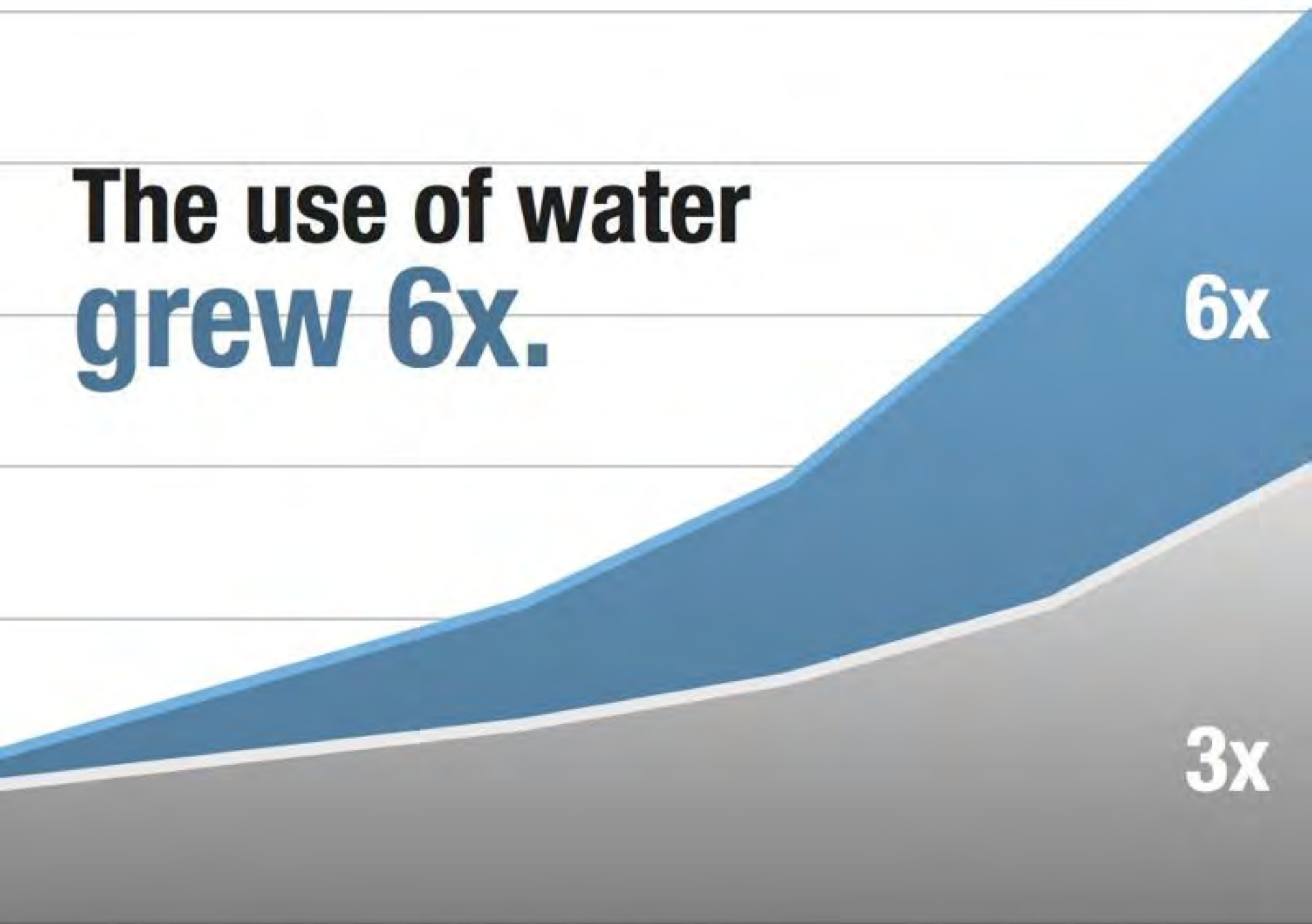
351 babies
will be born in India



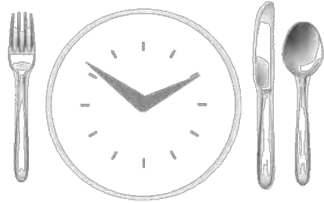
**In the 20th century
the world's population
tripled.**

3x

**The use of water
grew 6x.**



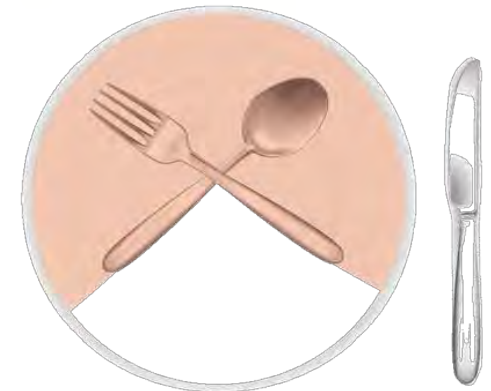
Global Challenges, Global Opportunities



In **50** years,
the world **population**
will require...

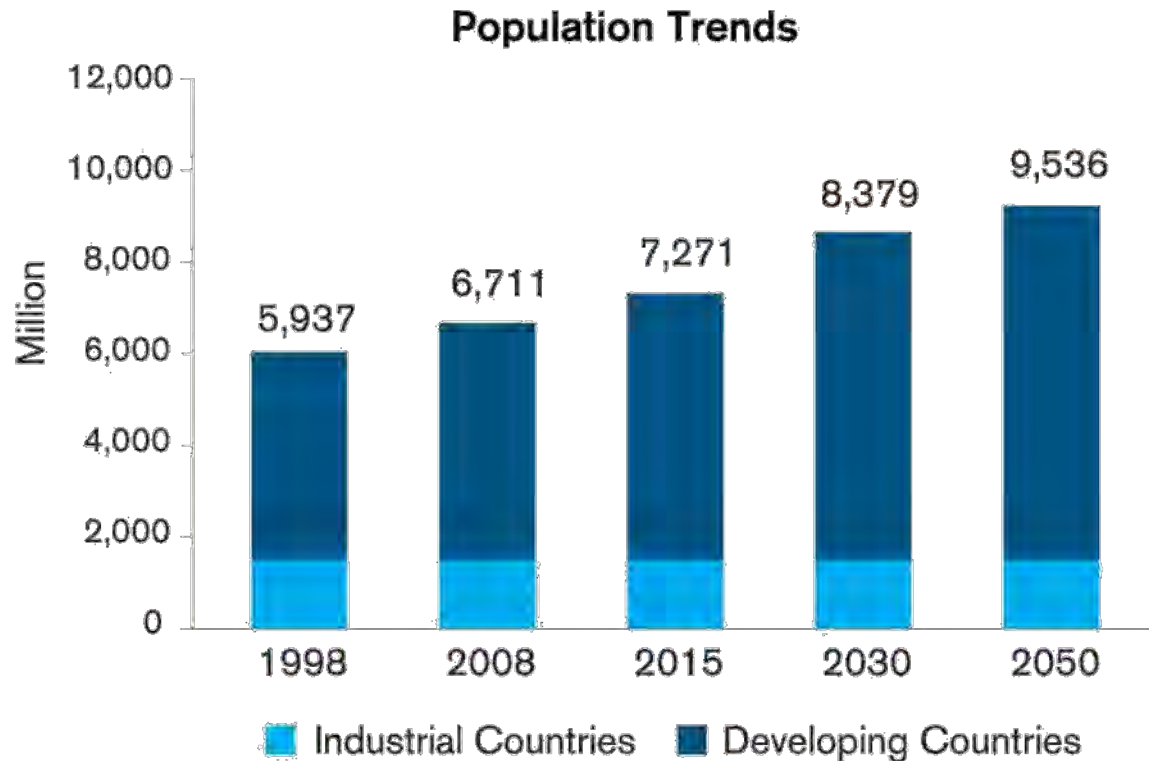


100%
more **food**, and...



70%
of this food must come
from efficiency-improving
technology.

A Dynamic and Changing World: Population



Source: Dr. Paul Aho

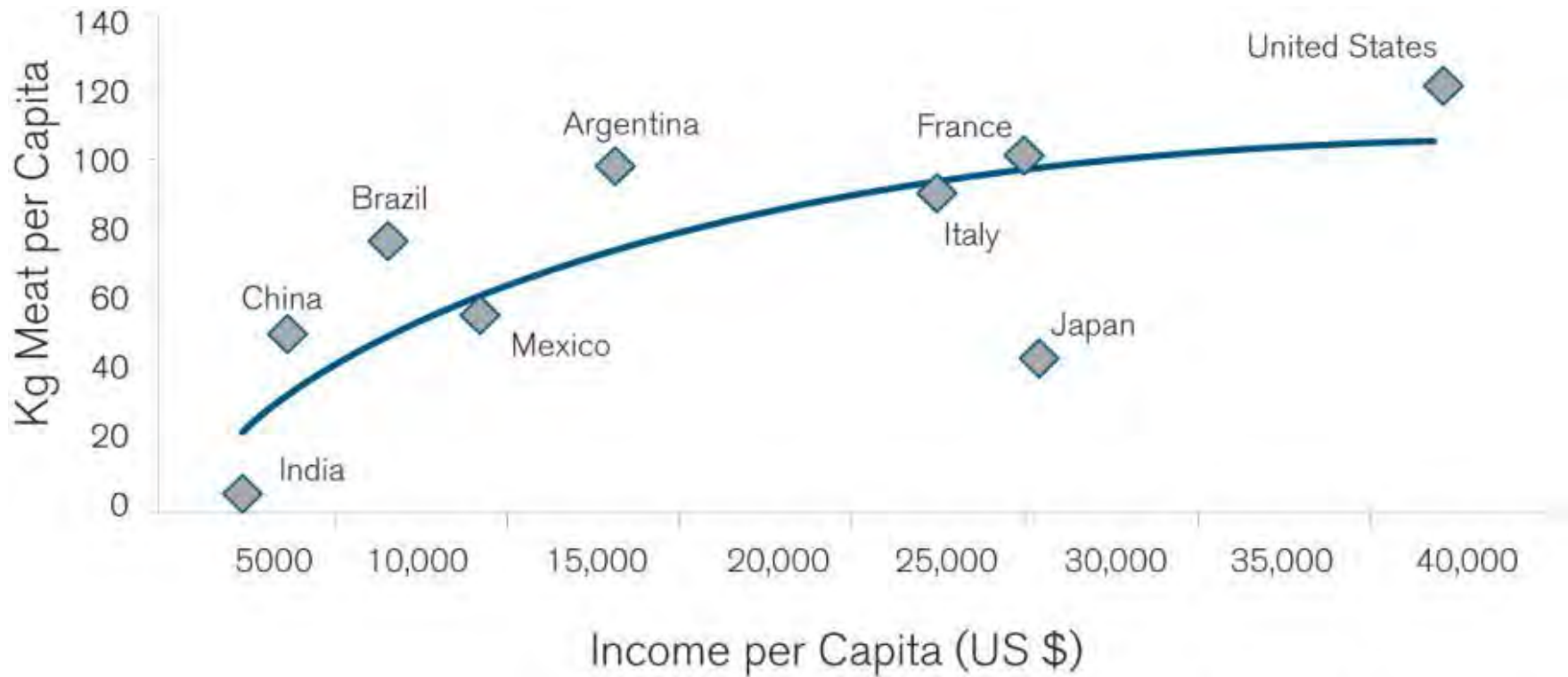
Income distribution impacts meat consumption
Each quintile represents 1.2 billion people

Income Per Capita (US\$)	Broiler Per Capita Consumption (kg)
30,000	26
8,000	19
3,500	9
1,500	4
730	2

A Dynamic and Changing World: Income



Total Meat Consumption & Per Capita Income

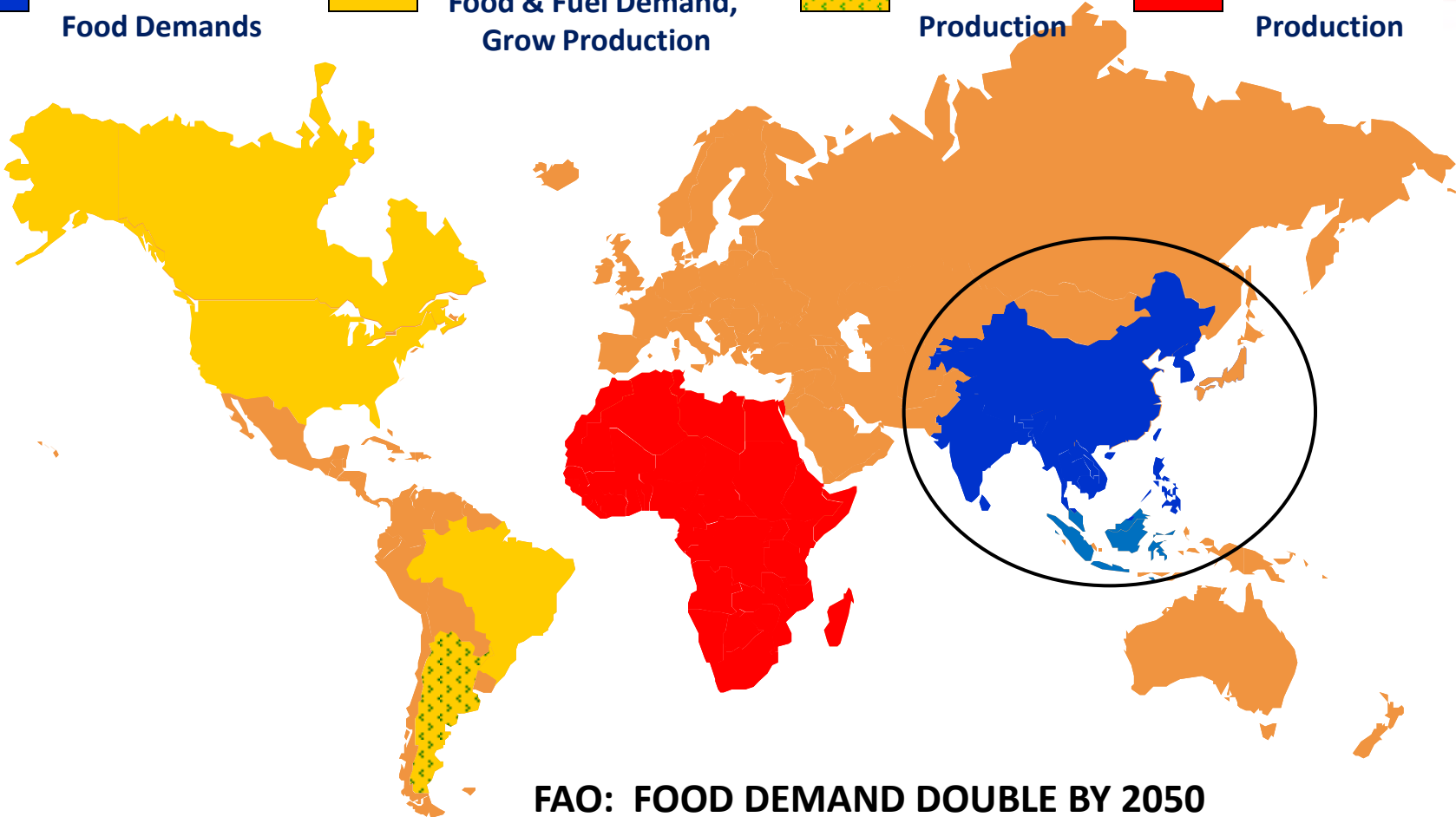


Source: FAO, 2009

Mega Supply and Demand Drivers



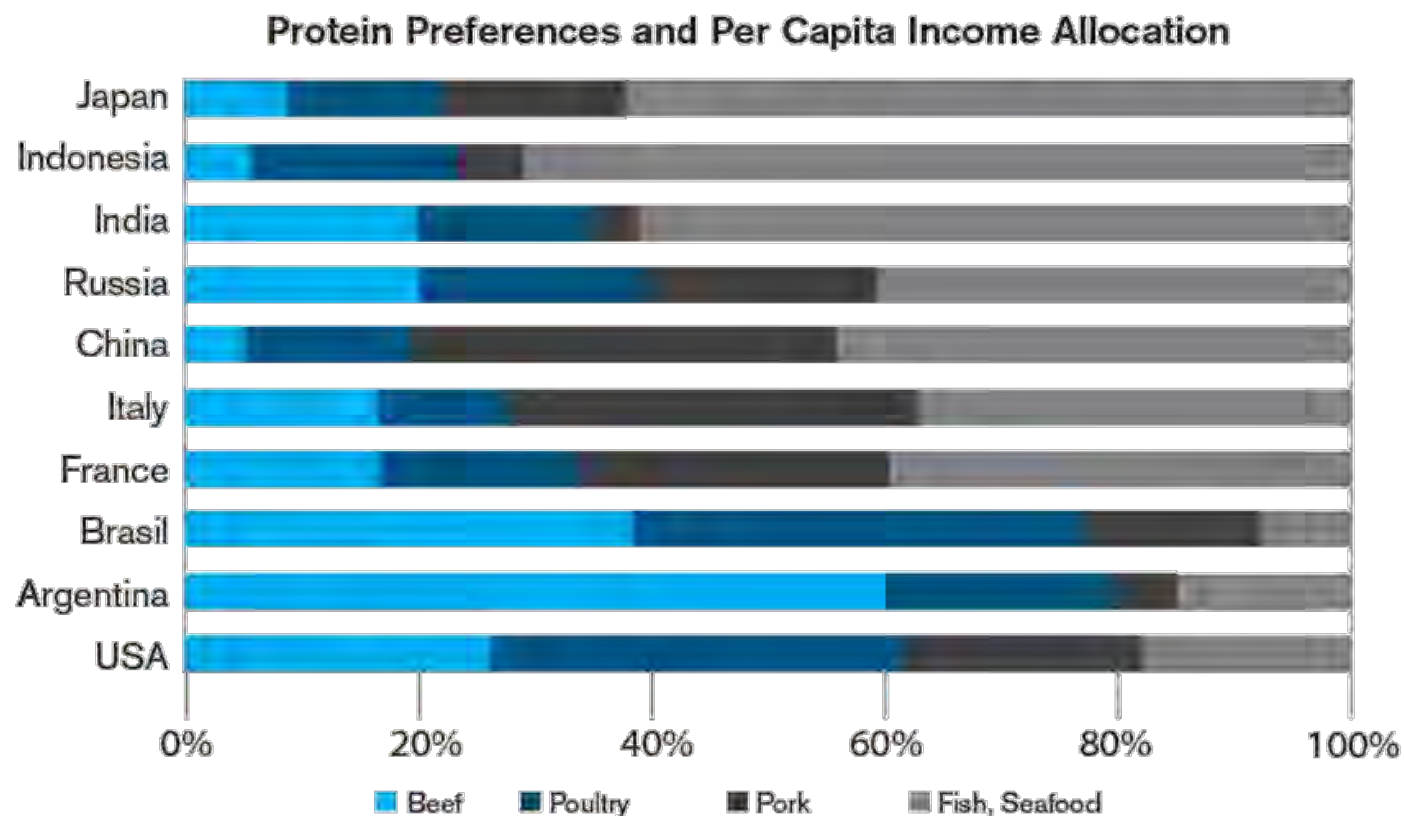
-  Income Drives Food Demands
-  Food & Fuel Demand, Grow Production
-  Grow Production
-  Local Production



A Dynamic and Changing World: Choice



% of Meat Consumption in Selected Countries



We are Facing Complex Questions & Issues



Food Safety/Food Security

- Disease Prevention & Control
- Traceability
- Shortage

Animal Well-Being

- Optimized Health
- Proper Care-Caged, not caged, Free Range



Production



- Organic/Natural/Conventional
- Waste Reduction

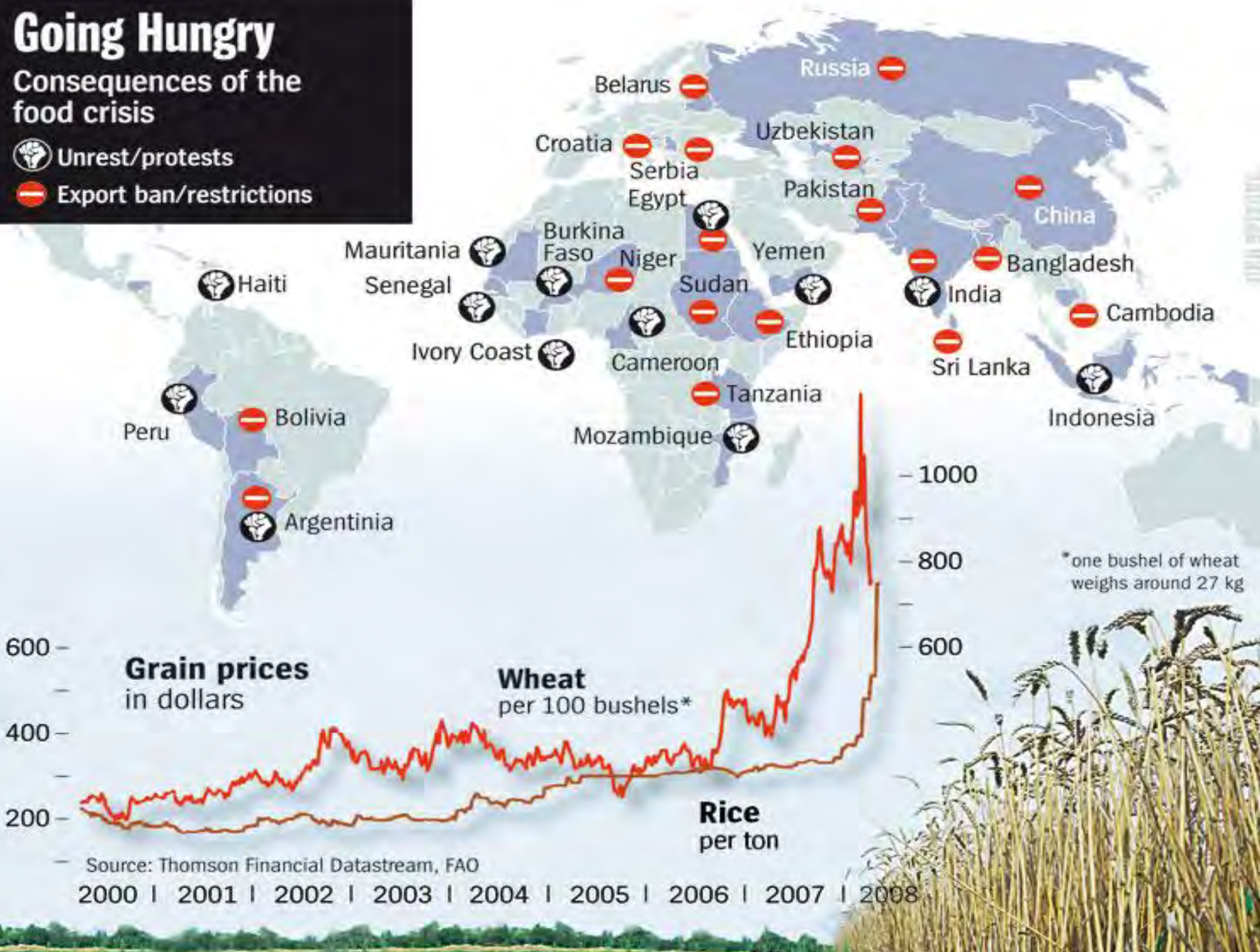
Environment

- Best Management Practices
- Land Availability/Urbanization
- Water

Going Hungry

Consequences of the food crisis

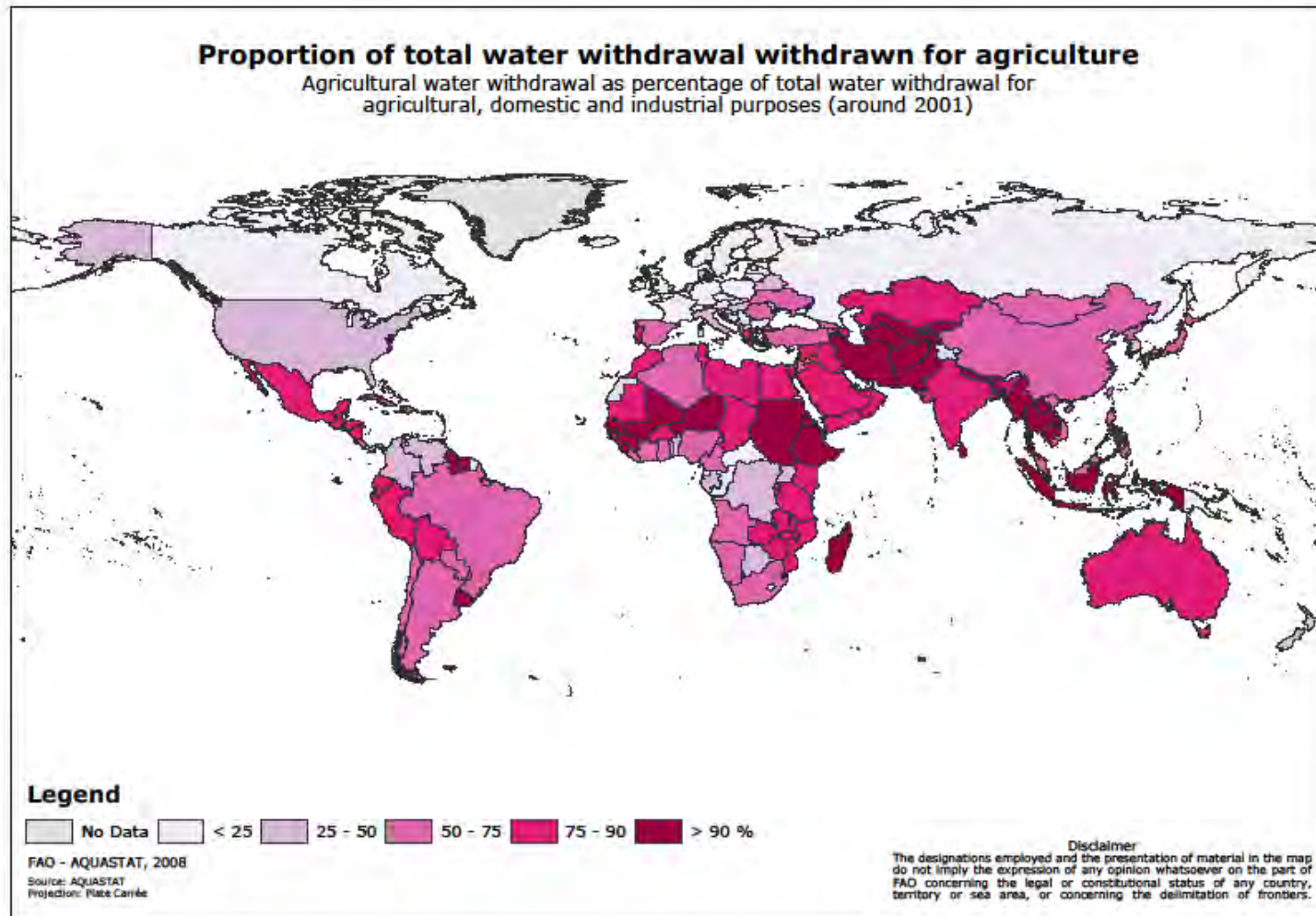
-  Unrest/protests
-  Export ban/restrictions



**The emerging worldwide
water shortage is serious.**



More Efficient Use of Water is a Must!



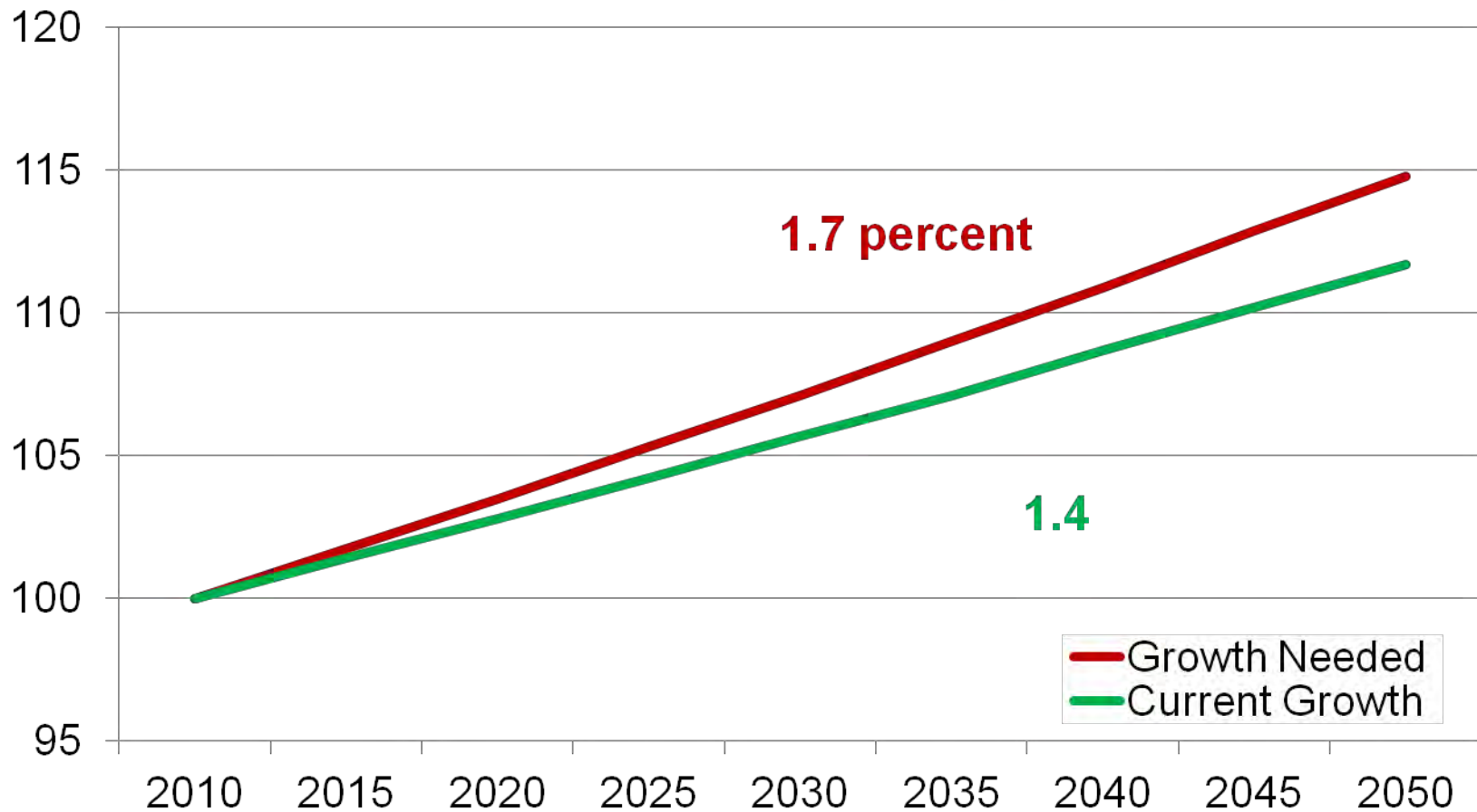
Cutting Food Waste to Feed the World



- Every year, **one third** of food produced in the world for human consumption gets **lost or wasted**
- It is more effective to **reduce food losses** than increase food production to feed a growing population
- **Efficient solutions exist** along the entire food chain for reducing total amounts of food loss and waste

Filling the Productivity Gap

Agricultural Productivity Gap



Impact



Current Modern Technology and Technological Advances in the Future is the only way we will be able to Feed our Growing Global Population.

The First Green Revolution



“To feed our growing global population, we will have to produce the same amount of food in the next 40 years that we previously produced in the last 10,000 years.”

-Norman Borlaug

Productivity Increases Over the Past 50 Years

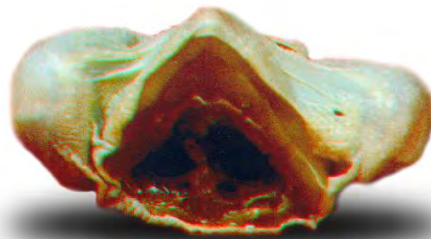


- In 1960, a farmer fed just 26 people.
- Today, the average U.S. farmer feeds 155 people – using less land, energy, water and fewer emissions.



Source: America's Farmers Campaign-U.S. Farm Facts

Tremendous Genetic Evolution



Year : 1957

Time to market: 120 days

Average Weight: 1.4 kgs

Average Conversion : >3



Year : 2009

Time to market: 42 days

Average Weight: 2.6 kgs

Average Conversion : 1.7

Land to Feed California Eggs



40 million people live in California and each year they consume 10 billion eggs.

CONVENTIONAL

320 acres

<1% of
San Francisco



CAGE FREE

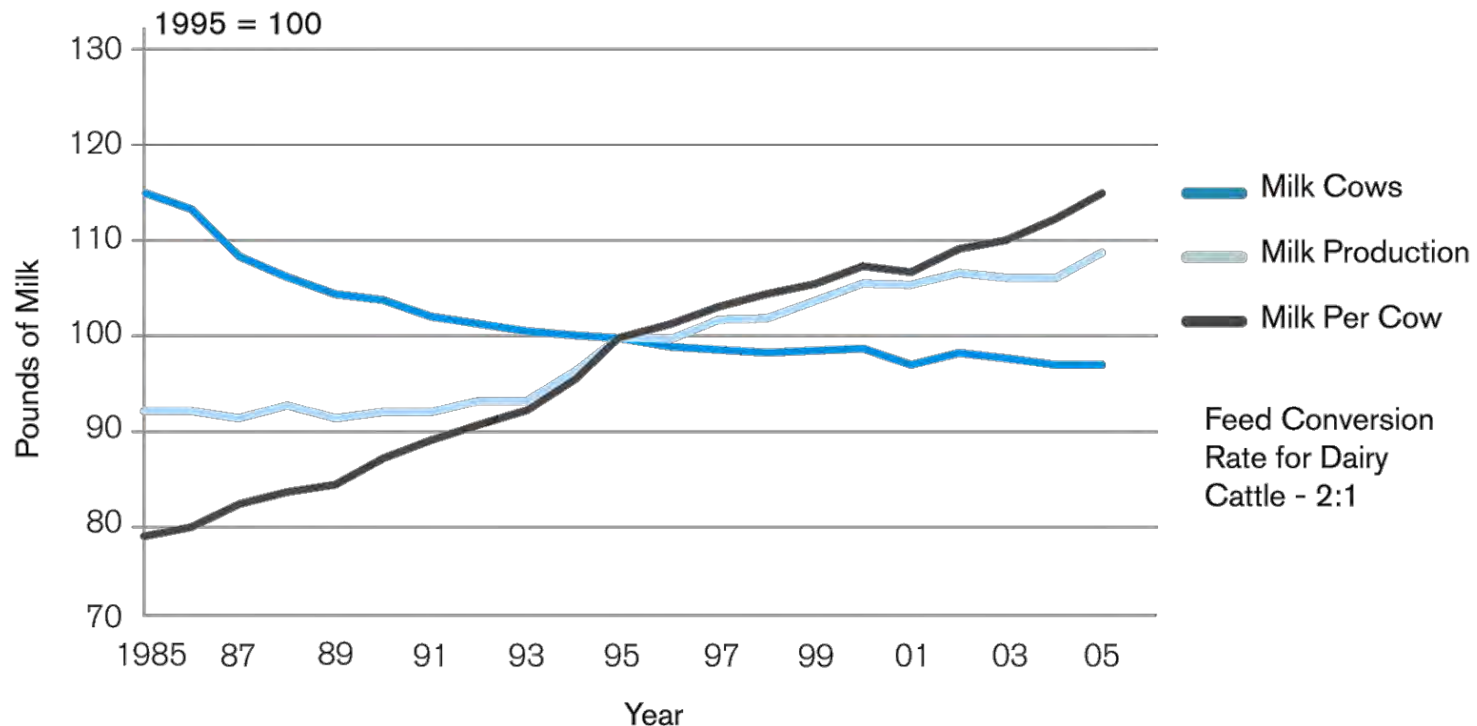
30,000 acres

95% of
San Francisco

The Drive for Efficiency in Dairy Production



Milk Cows, Milk Per Cow and Milk Production, 1985-2005



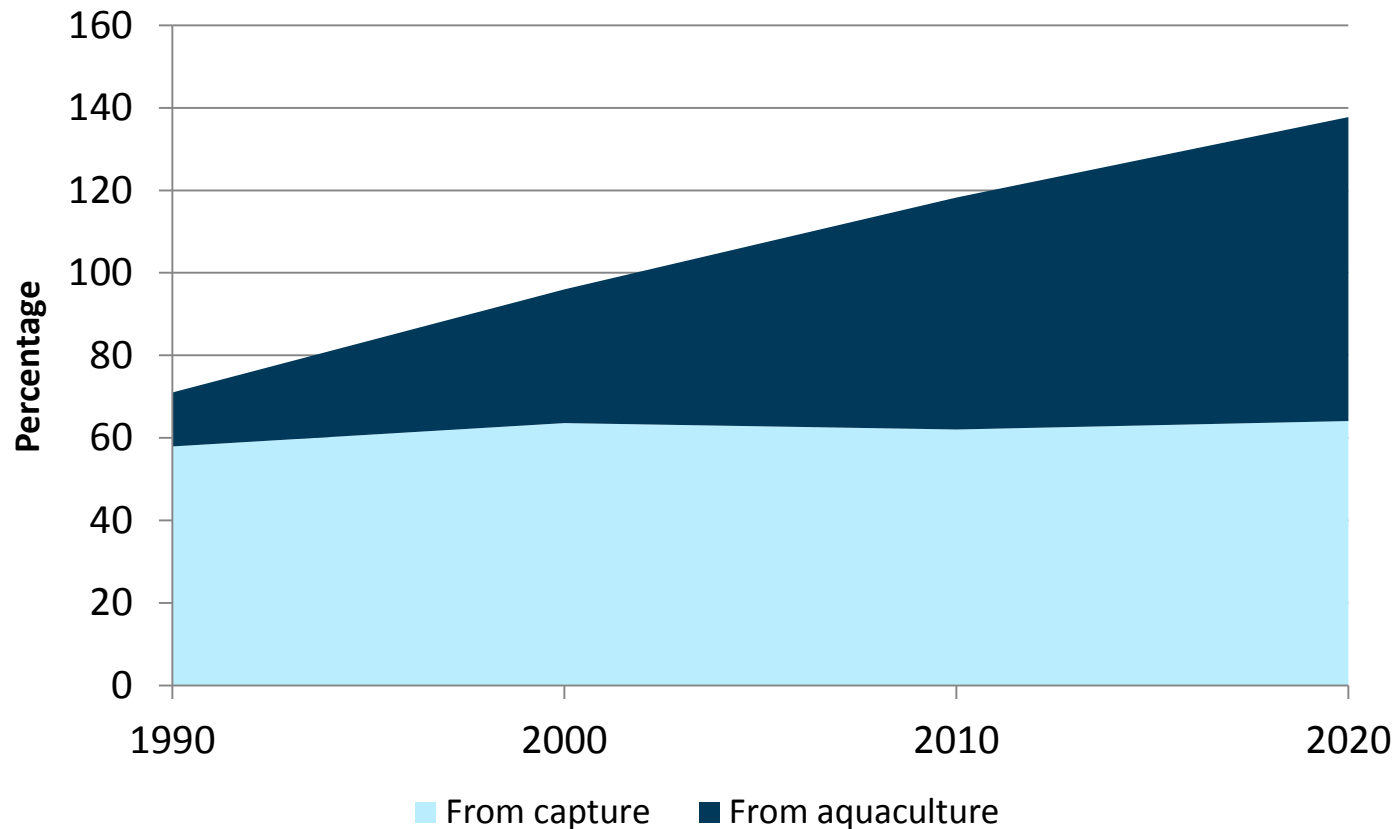
Source: ERS using data from USDA's National Agricultural Statistics Service, *Milk Production*, various issues.

Growth in Aquaculture Demand & Production



Increasing role of aquaculture in fish consumption

Share of fish originating from capture and aquaculture in total fish for human consumption by decades





- More efficient use of raw materials
- Ingredient differentiation in protein sources for animal feed
- Technologies to address water resource concerns
- Increased consciousness of climate issues among protein producers