

*Tradition, Innovation and Fusion:
how to produce enough food for the
population?*



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**Current situation:
changes in
tradition**

Enough food is produced globally to feed the planet but even so more than one billion people go to bed hungry every night. Famine is a leading cause of death, killing more people than AIDS, tuberculosis and malaria combined.

A child dies of famine every 6 seconds
([U.N. World Food Program - WFP](#))

PARADIGM:

A quarter of children in developing countries is underweight ([WFP](#))

Myanmar, picture made in January 2010



Australia, pictures made in January
2010



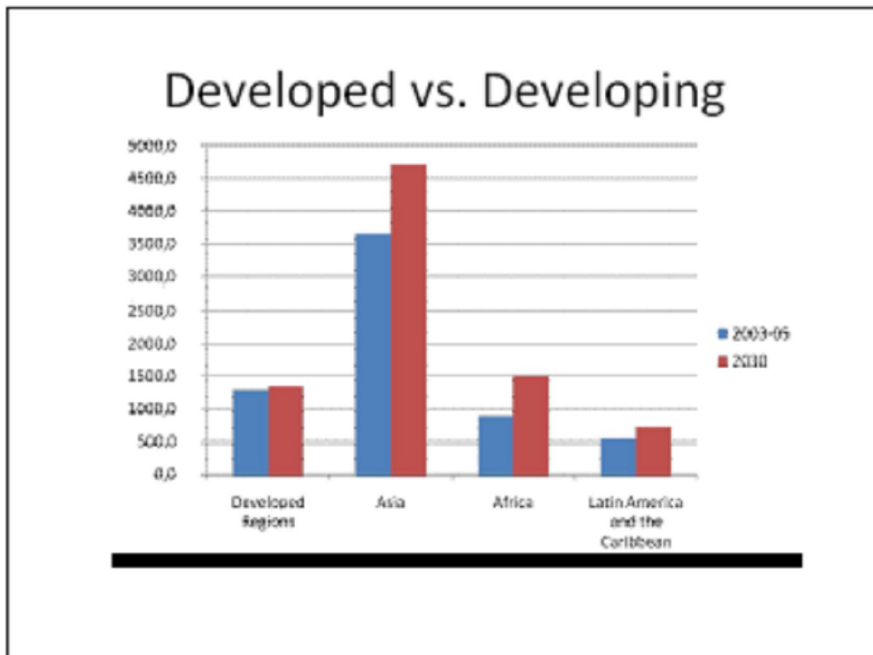
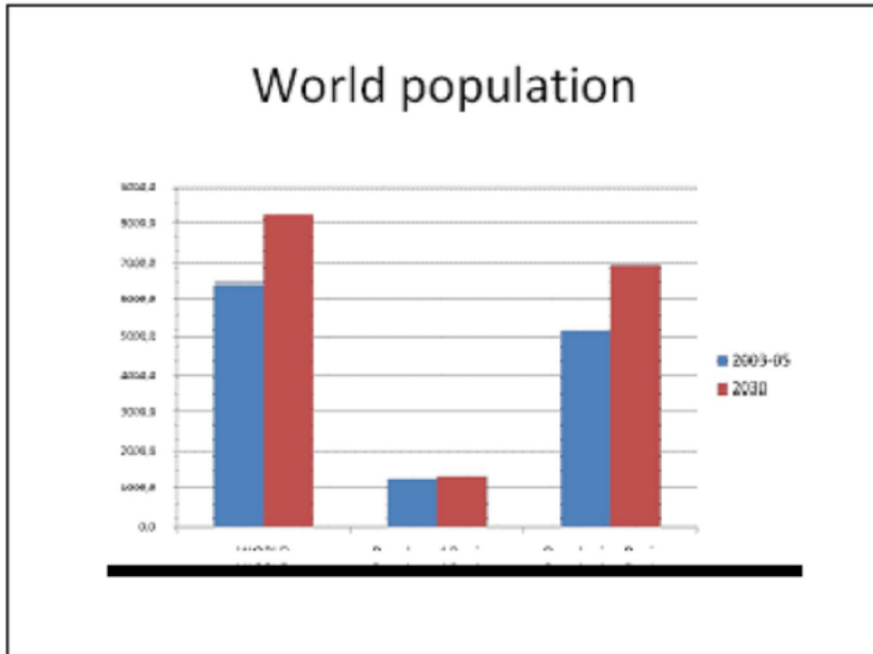
California (USA), pictures made in
November 2009

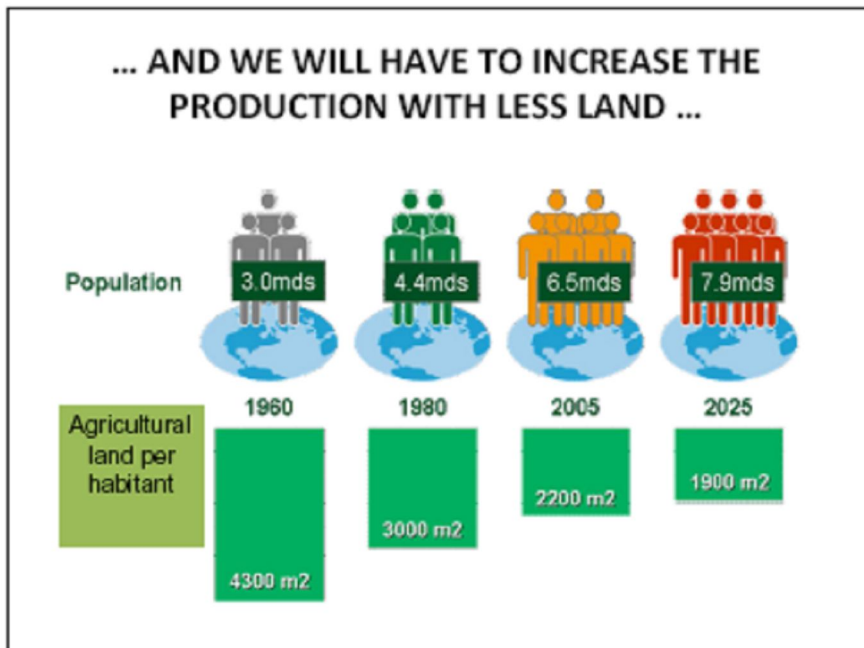
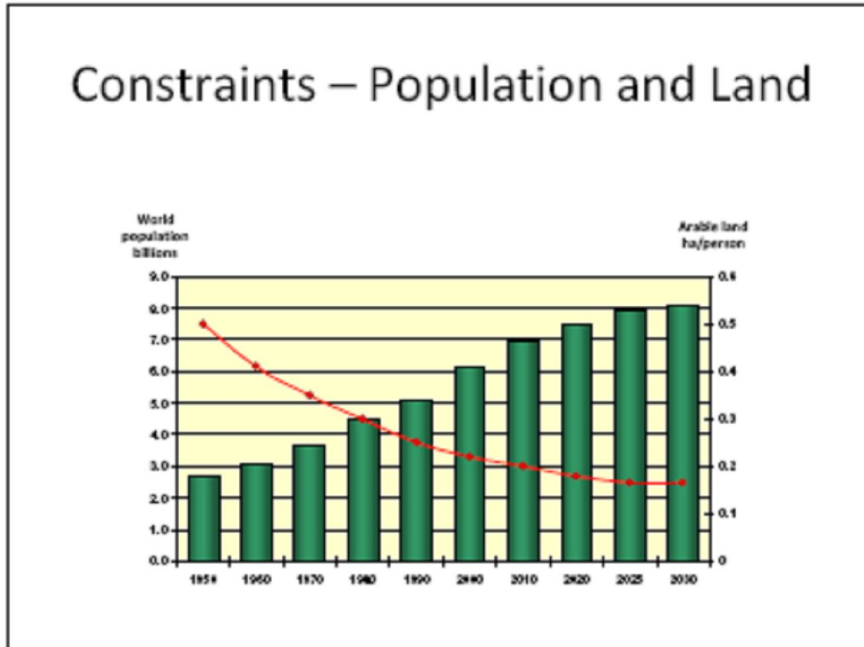


3 countries:
Are we in the same
world?

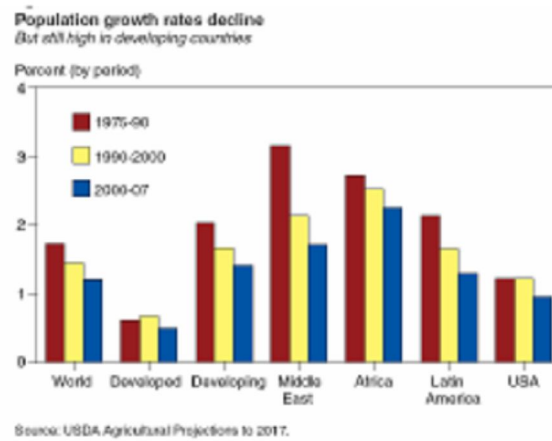
The answer is NO

Let us consider what is happening with the population....

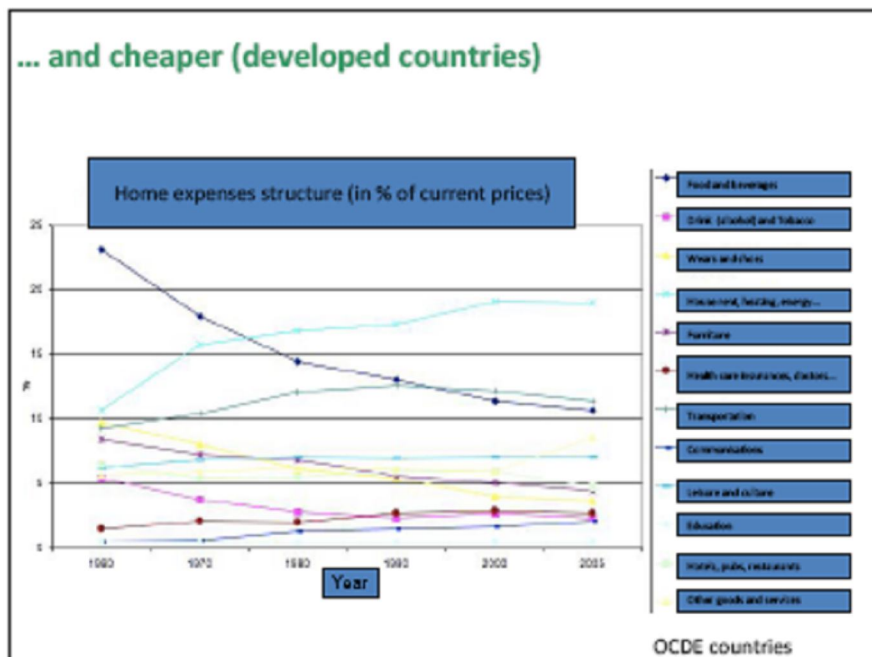


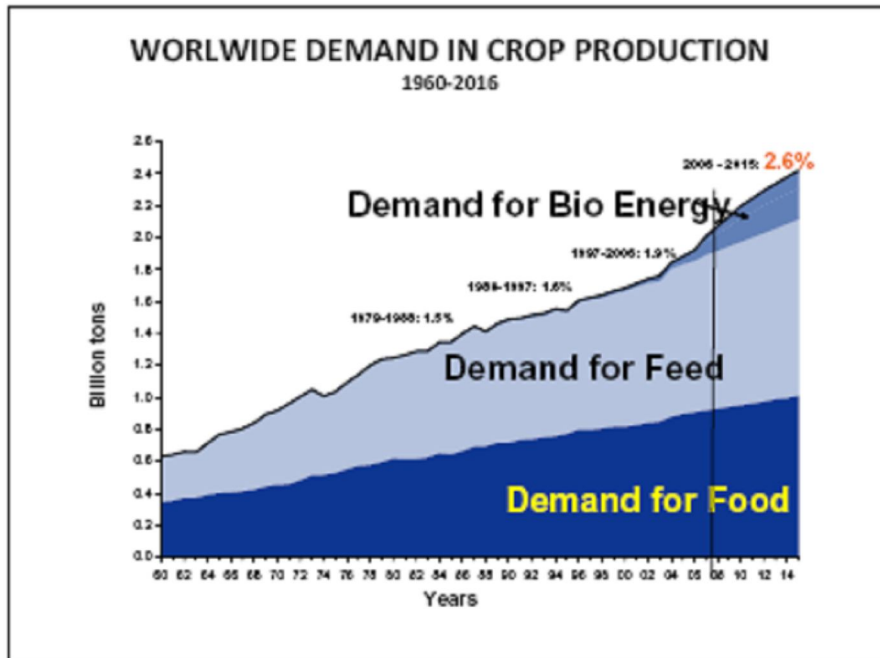


... even if the growth rates decline ...



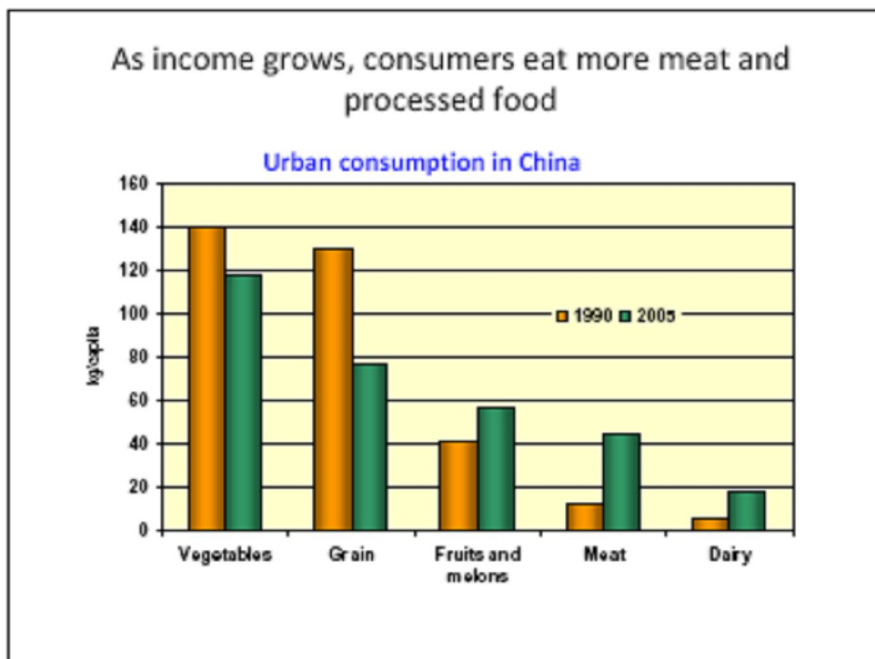
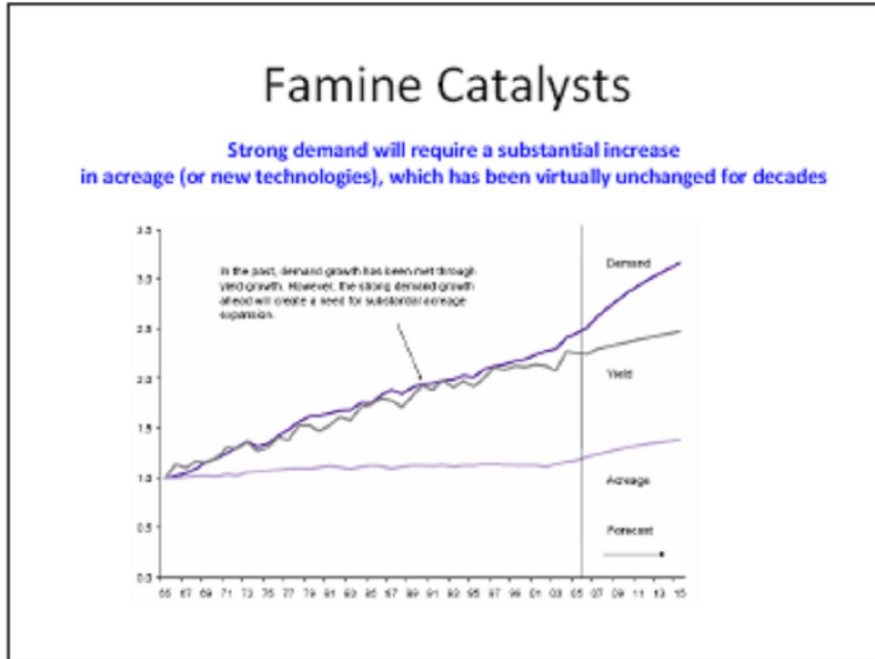
Let us consider what is happening with food production....

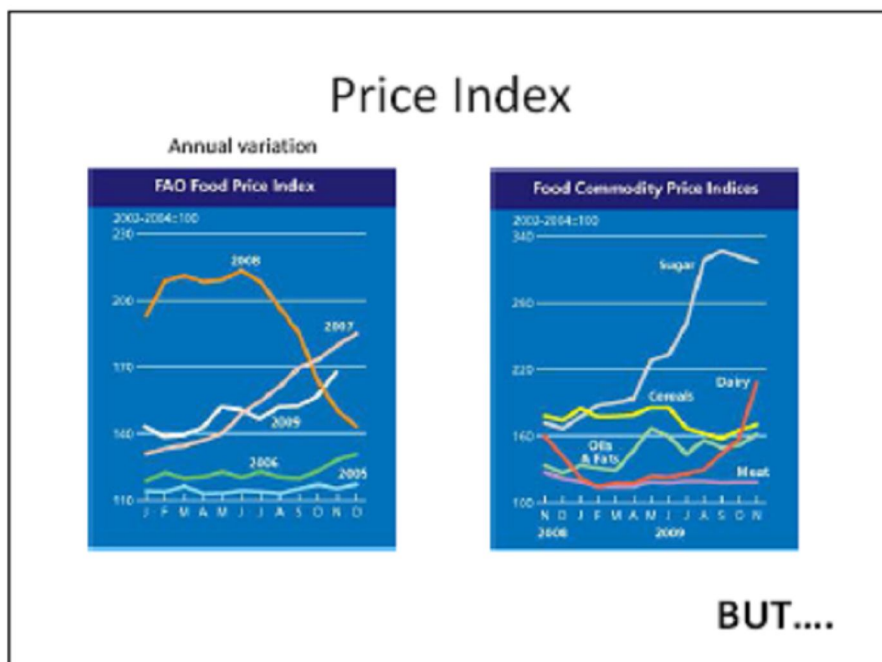
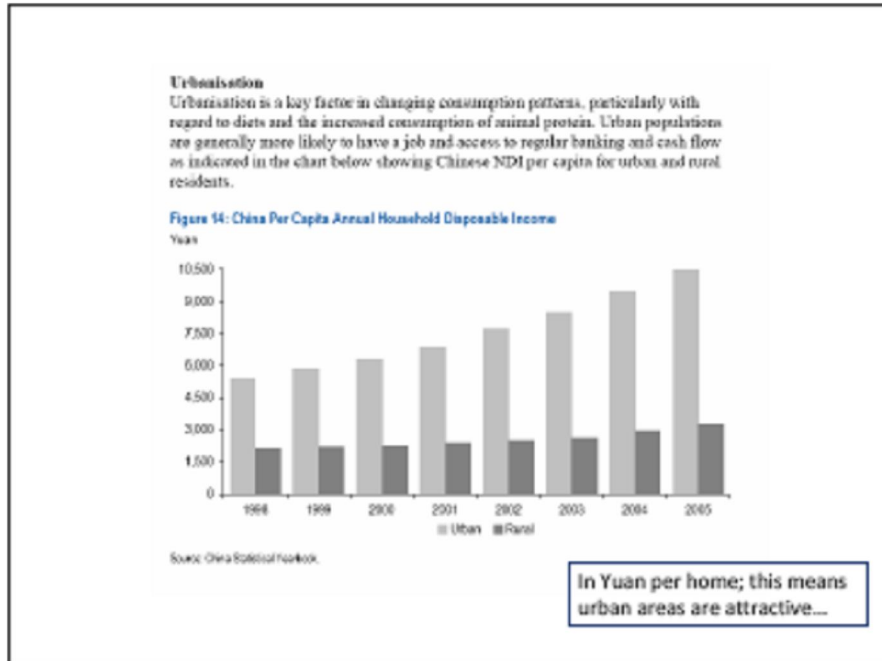


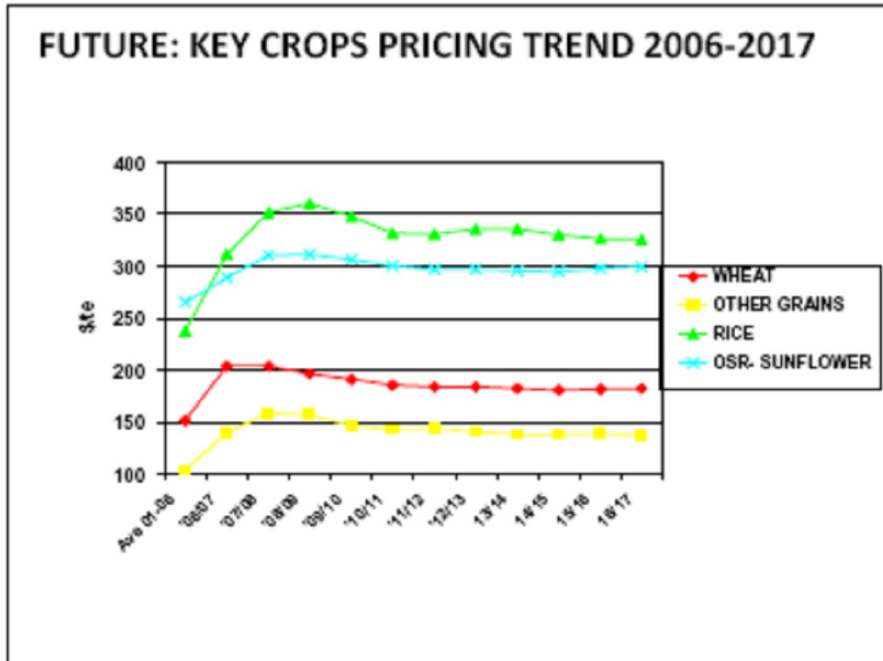


World and European context

- An ever-increasing demand for all crops
(population and new development opportunities...)
- Stocks of food are decreasing
- A European market of 455 million consumers
- Climate change will affect crop production
- World and European crop land are not expendable
- Use of Crop Protection Products is unavoidable
- Seed improvement and new varieties are unavoidable







Impact for consumers is critical ... but varies according to their income situation

Impact of Higher Food Commodity Prices On Consumers' Food Budgets*

	High-income countries	Low-income food-deficit countries
I. Base scenario		
Income	\$40,000	\$800
Food expenditure	\$4,000	\$400
Food costs as % of income	10.0%	50%
Disaggregate retail food spending (staples vs. non-staples)		
Staples as % of total food spending	20%	70%
Expenditures on staples	\$800	\$280
Expenditures on non-staples	\$3,200	\$120
II. Scenario: 50% price increase in staples, partial pass-through on staples		
Assumed % pass-through	60%	60%
Increase in cost of staples	\$240	\$84
New cost of staples	\$1,040	\$364
New total food costs	\$4,240	\$444
Food costs as % of income	10.6%	60.5%

*These are illustrative food budgets that characterize the situations for consumers in high- and low-income countries.
Source: As compiled by DSS.

Staples = Basic food: rice, maize, sugar, soybeans...

THIS TIME: A GREENER REVOLUTION?

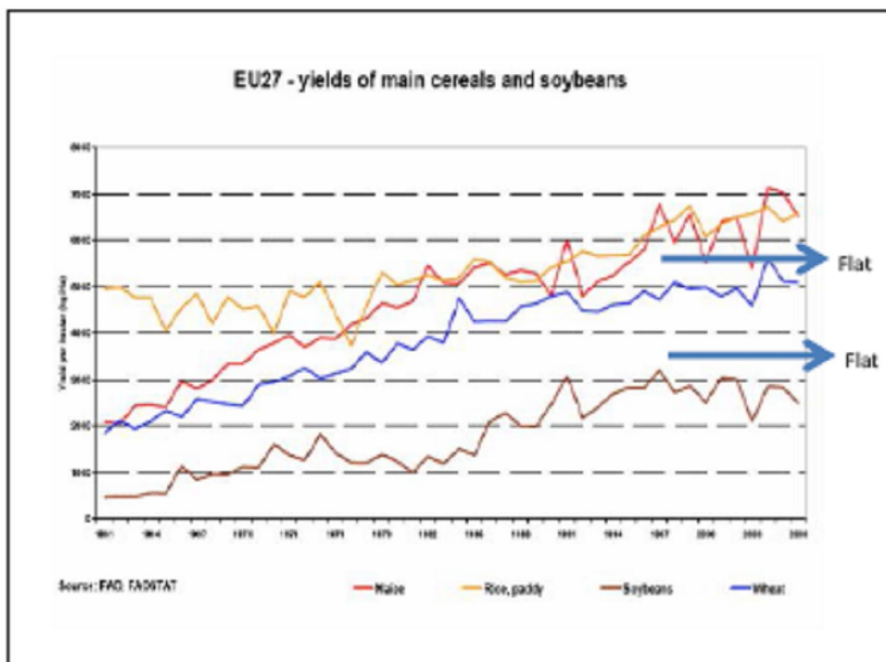
Last year a United Nations panel concluded that "the way the world grows its food will have to change radically... to cope with growing populations and climate change." With growth in grain yield flattening and demand on the rise, some experts see genetic engineering as our best hope to produce more food and have a smaller ecological impact. Others believe we can boost productivity with sustainable methods like organic farming and smarter irrigation.

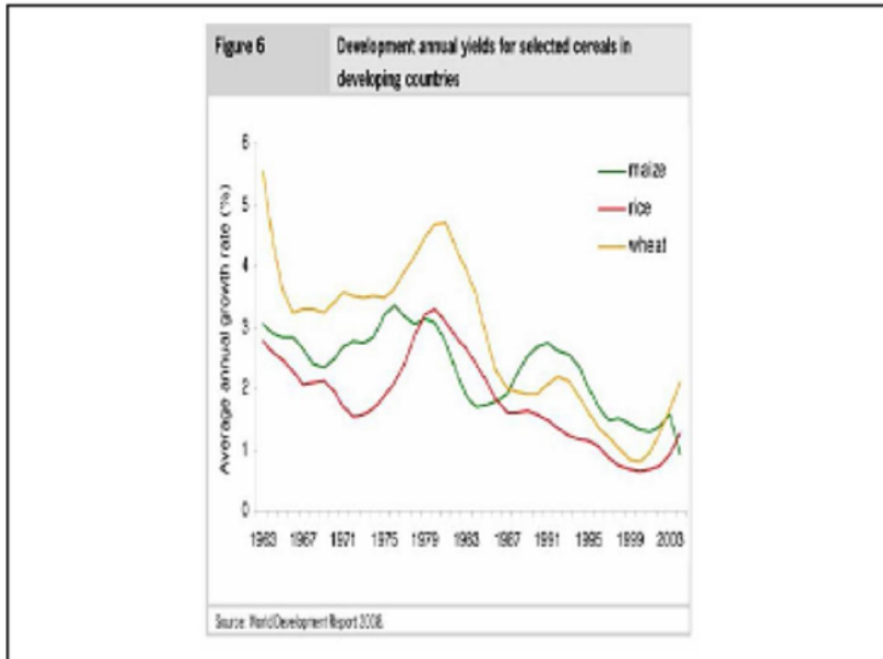
(National Geographic – 2009/06 Cheap food the end of plenty)

Grain yield flattening and demand on the rise...

Solutions?

- Boost productivity:
- + biotech?
- + Smarter irrigation...





TO MEET RISING FOOD DEMAND, WE NEED ANOTHER GREEN REVOLUTION, AND WE NEED IT IN HALF THE TIME.

HOW WE DID IT BEFORE
Four agricultural advancements have been as profound as the green revolution: the farming system of irrigation, high-yield varieties, pesticides, and fertilizers that more than doubled yields in Asia during the 1960s and 70s, lowering prices of the staple crops that feed most of the world today. But these breakthroughs came with ecological costs.

IRRIGATION can double yields compared with most other methods, but with a catch: it takes more water. For a nation like India, increasing higher production but also water depletion and soil salinity.

DWARF VARIETIES of short and top-heavy hybrids create large crops of better crop yields to produce more grain without the plants getting too heavy and falling over.

CHEMICAL PESTICIDES exterminated disease-causing insects but were more susceptible to insects and diseases. Overuse has led to 200-fold increases in pest resistance.

SYNTHETIC FERTILIZERS helped the most vulnerable but raised yields that they require huge amounts of fossil fuels to produce and they've led to soil acidification with the price of oil. Nitrogen fertilizers also pollute aquatic ecosystems.

We need a new green revolution to increase productivity... Solutions?

- Irrigation
- Performing Seeds
- + Chemicals
- + Fertilizers

BUT environmentally friendly !!!

(National Geographic – 2009/05 Cheap food the end of plenty)

Innovation: Food for all

Food Crisis?

- Reduced stocks of food worldwide
- Climate: unpredictable changes, loss of yield
- Changes in population consumption: more meat by urban population
- World population spiraling toward 9 billion in 2050... we need to double food production by 2030
- Bio-fuel demand: affects food production?

Main issues

- We can increase productivity in some geographical areas, BUT how to provide food everywhere?
- How to reduce the cost of transportation of food in developed countries?
- How to replace fossil energies to produce food?

Typical meal in the West:

Beef from USA, Argentina or EU; juice from China; grapes from Chile; olive oil from Spain; butter from The Netherlands etc. This means transport, transformation, energy and so on.



Fusion

There is not a unique global solution, probably a very creative effort has to be made worldwide to meet the challenge of feeding the entire world population.

Fusion of tradition and innovation the action we have to take to save our hot, crowded and hungry world.

Fusion means joining what we
know to what we have to learn....
Innovation is evolution – not
destruction – of the traditions...
**The solution is in our
hands**

Francesc Llauredó i Duran was born in
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Science by the University of Strasbourg (1983)
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He has worked in South America, France,
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