

# Global food crisis and future scenarios on organic food

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# Contents

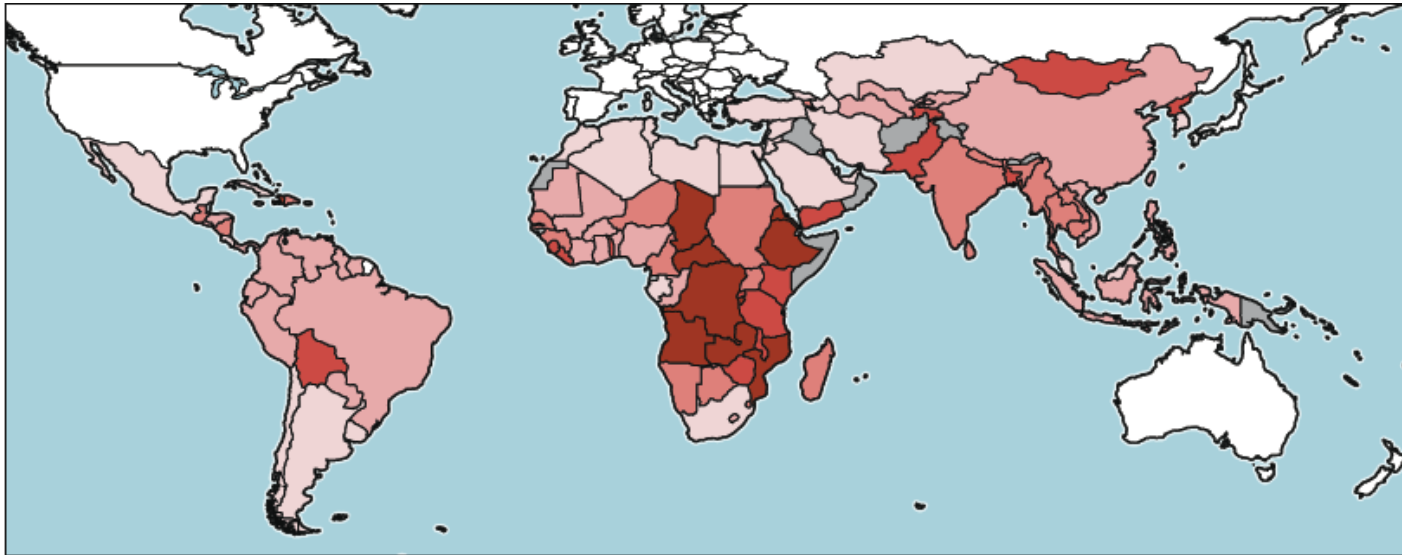
- Food crisis
- Causes and prospects
- Food on a healthy planet
- Equity in access
- Can organics show a way?



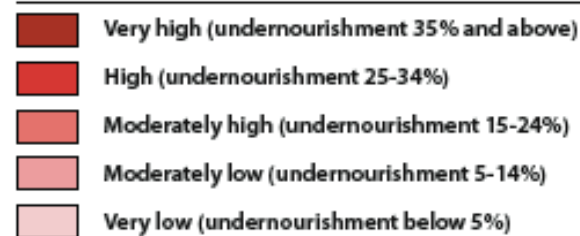
# Food security

## Availability, utilisation, access, stability

- Chronically undernourished 14% or 1 bill., most rural, 75% < 5 years
- MDG 1: halving poverty and hunger 2015
- SSA: more hungry people 2015 than 1990



Prevalence of undernourishment in developing countries



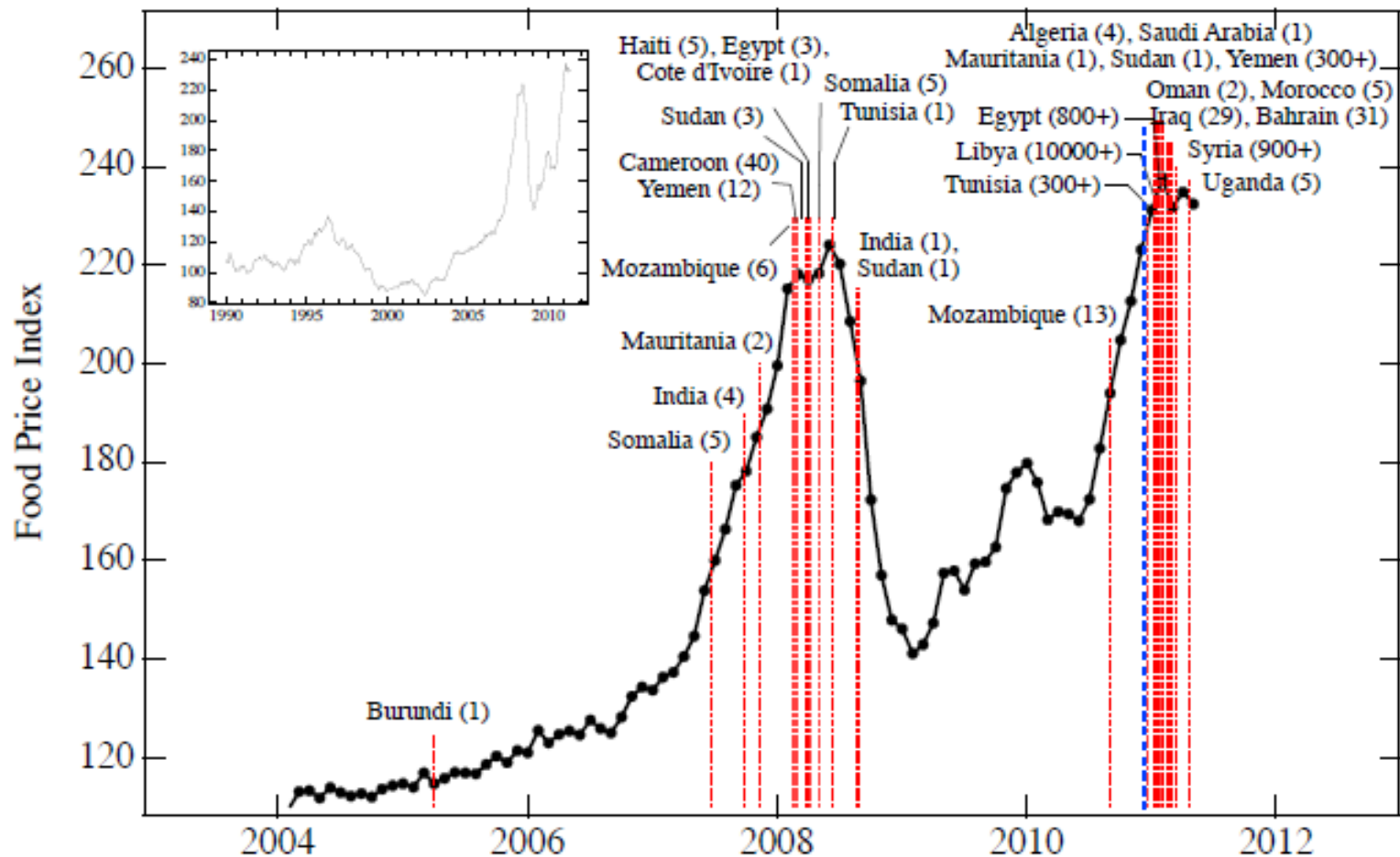
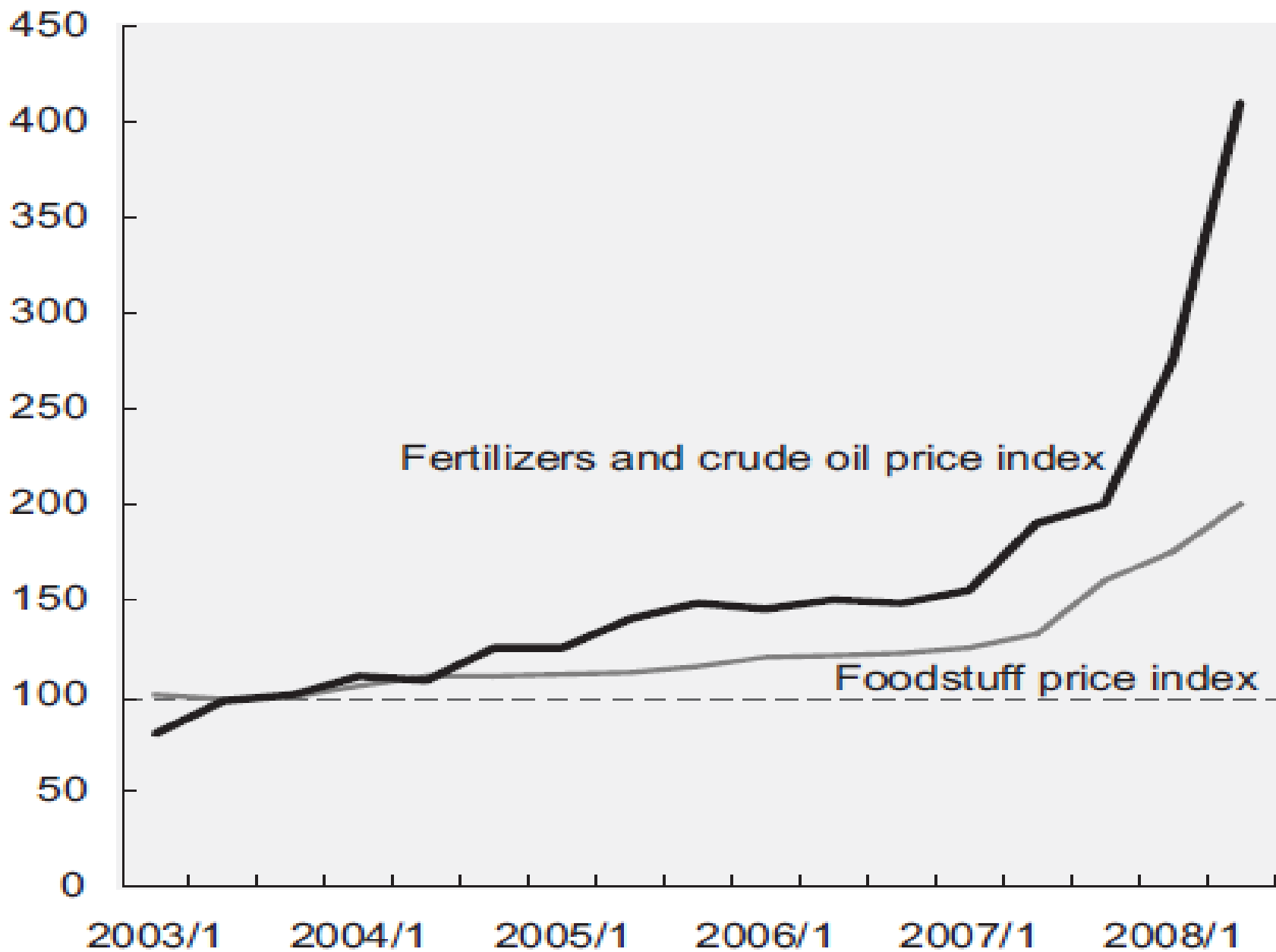


FIG. 1: Time dependence of FAO Food Price Index from January 2004 to May 2011. Red dashed vertical lines correspond to beginning dates of “food riots” and protests associated with the major recent unrest in North Africa and the Middle East. The overall death toll is reported in parentheses [26–55]. Blue vertical line indicates the date, December 13, 2010, on which we submitted a report to the U.S. government, warning of the link between food prices, social unrest and political instability [56]. Inset shows FAO Food Price Index from 1990 to 2011.



# Food crisis and climate change

- 260 000 people died in 2010-2012 in Eastern Africa - more than half of those were children under the age of five – as a result of a drought.
- After a dry rainy season, Somalia is NOW being hit by severe floods, aggravating the already alarming food insecurity.



# Causes and prospects

More people,  
less resources on  
the more unstable  
planet

## Causes

- Population growth
- Dietary changes
- Environmental change
- Speculation
- Inequity

Is organic food part of the  
problem?  
Or could it be part of the solution?  
And... HOW?

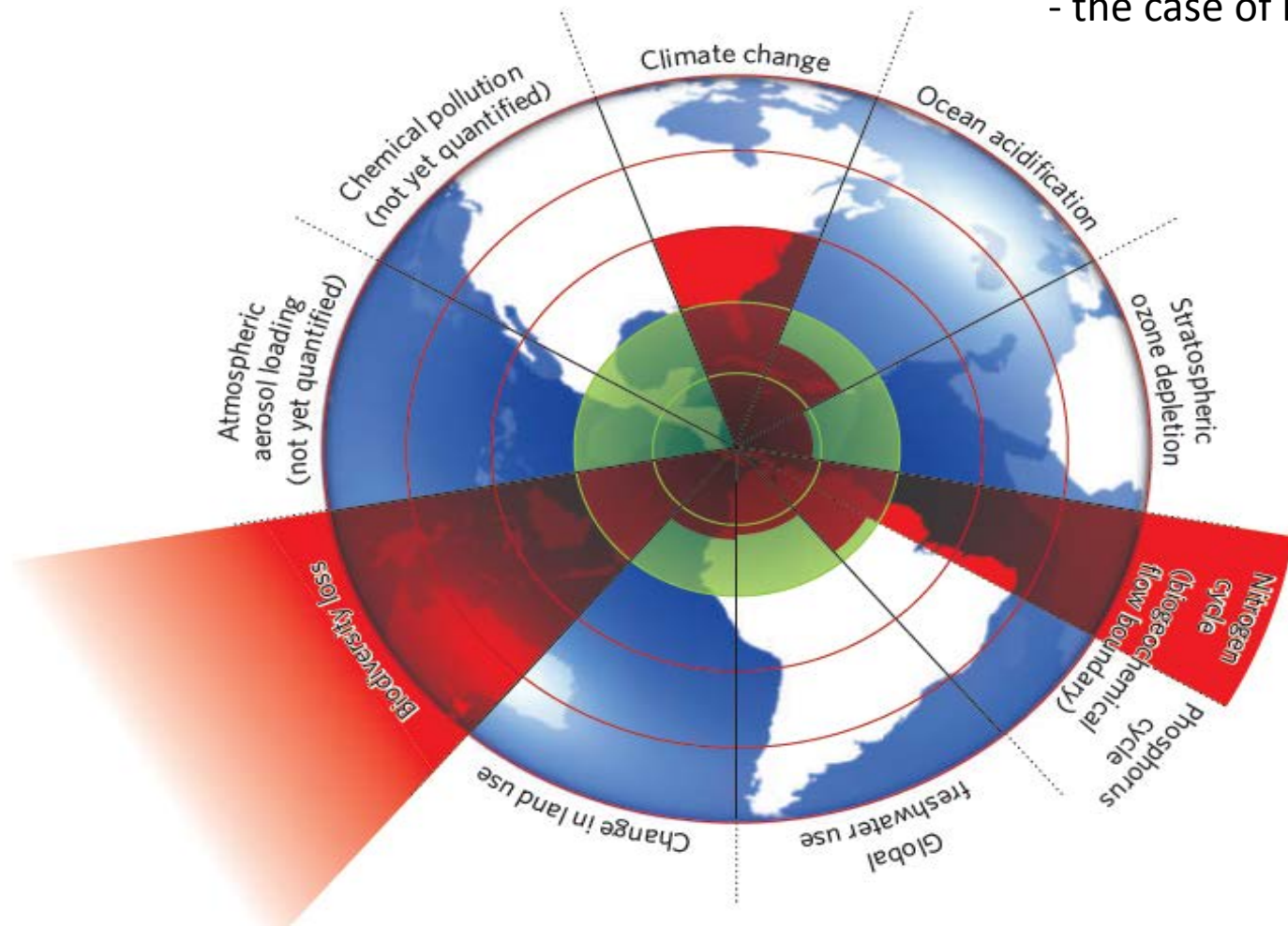


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# Planetary boundaries

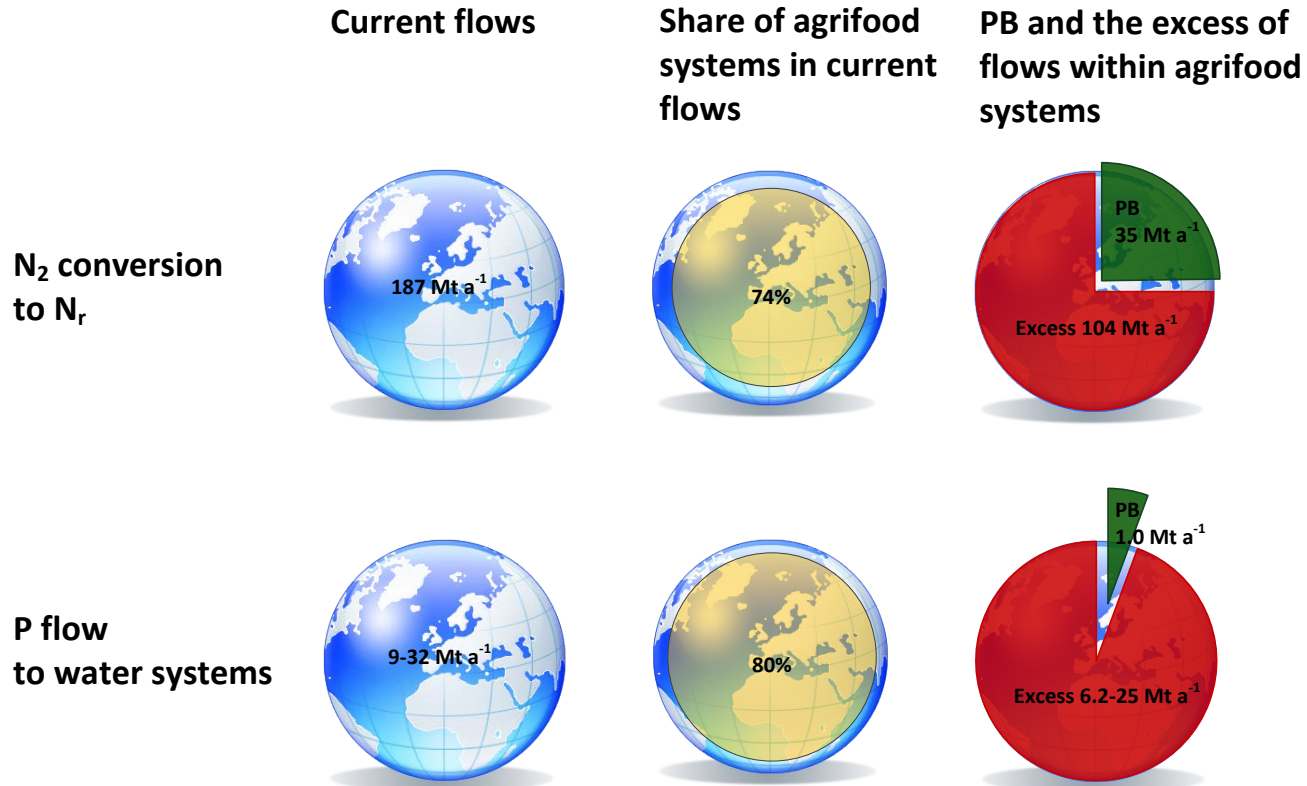
- the case of nutrients



**N: 25% of the current conversion to  $N_r$**   
**P: 10 \* pre-industrial P load to oceans**  
**24  $\mu\text{g l}^{-1}$  in freshwaters**

Rockström et al. 2009a,b  
Carpenter and Bennett 2011

# Share of agrifood systems



The share of agrifood systems (yellow) in the needed reduction (red) of current nutrient flows to return to within the planetary boundaries (green).

PB = planetary nutrient boundaries, N<sub>r</sub> = reactive nitrogen, P = phosphorus.

# Shifts in agrifood systems

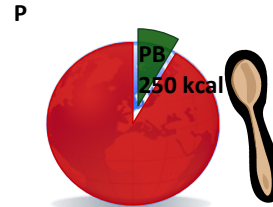
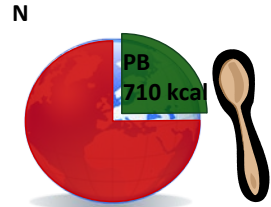
Current food supply



Food supply within PB

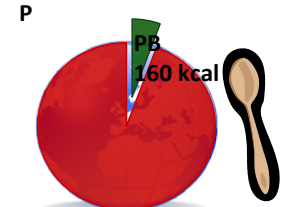
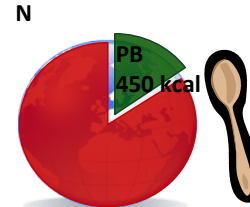
*Shifts in agrifood systems*

*Current diet*

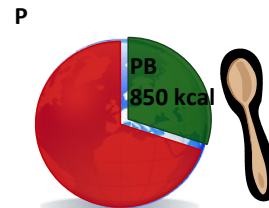
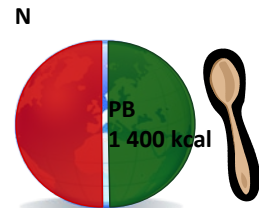


*Population growth*

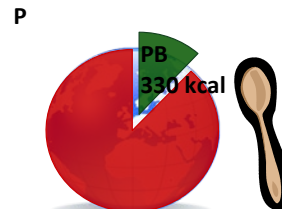
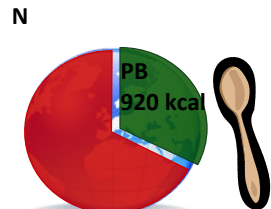
*Current diet*



*Vegetarian diet*

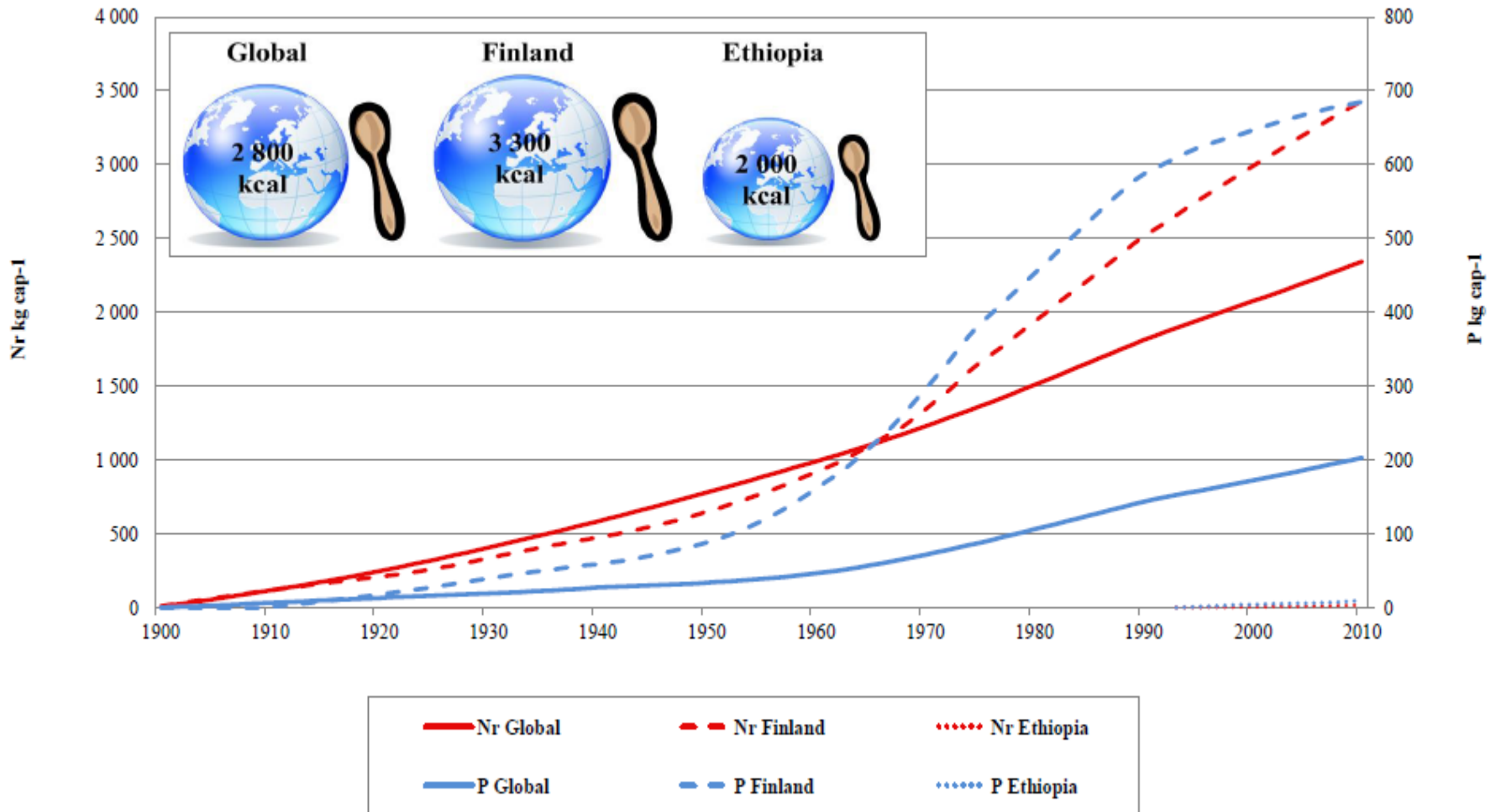


*Current diet without food waste*



Food supply within the planetary nutrient boundaries (PB) (green) affected by the projected population growth and shifts in agrifood systems (kcal capita<sup>-1</sup> d<sup>-1</sup>). The deficit in comparison with current food supply is shown in red.

# Spatial inequity



Accumulated nitrogen ( $N_r$ ) and phosphorus (P) use ( $\text{kg cap}^{-1}$ ) and the current food supply ( $\text{kcal cap}^{-1} \text{d}^{-1}$ ) (FAO, 2014) globally and in Finland and Ethiopia. Kahiluoto et al 2014 Submitted

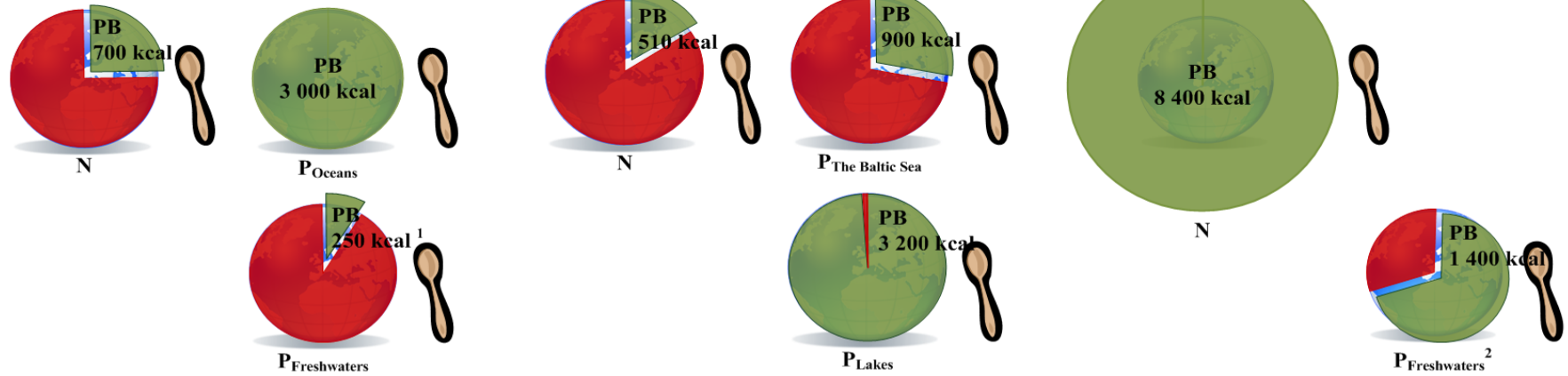
# Variation in PBs and in the excess

## Global

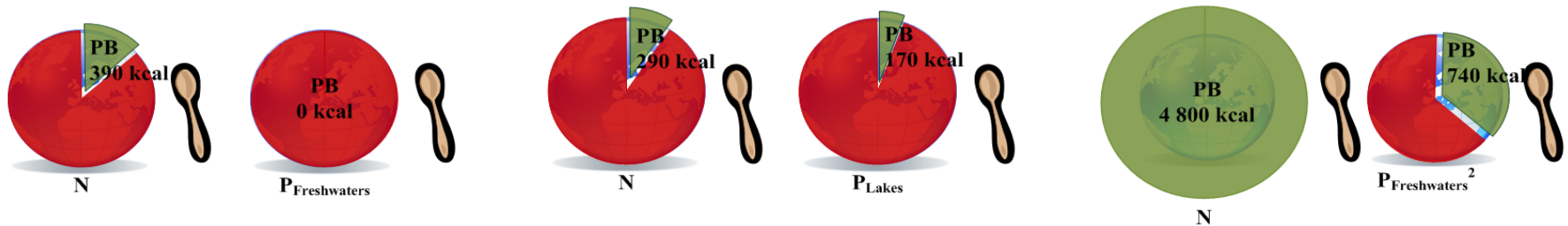
## Local – Finland

## Local – Ethiopia

### Current



### Accumulated 1900-2010<sup>3</sup>



**Fig. 2.** Spatial variation in food supply within the planetary nutrient boundaries (green) (kcal cap<sup>-1</sup> d<sup>-1</sup>) assuming the current agrifood system (green). The deficit in comparison with the current food supply is shown in red. The current average (2006-2010) food supply globally 2800 kcal cap<sup>-1</sup> d<sup>-1</sup>, in Finland 3300 kcal cap<sup>-1</sup> d<sup>-1</sup> and in Ethiopia 2000 kcal cap<sup>-1</sup> d<sup>-1</sup>, illustrated by the size of the plates. <sup>1</sup> Range 110-380 kcal cap<sup>-1</sup> d<sup>-1</sup>. <sup>2</sup> Global freshwater boundary was assumed. <sup>3</sup> Ethiopia 1993-2010. PB = Planetary nutrient boundaries.

# Equity in access to resources

- Equity in access to food, resources, influence
- Distributive, procedural, contextual equity
- Contextual equity implies institutional, socioeconomic and political conditions that determine participation and distributive outcomes (values, norms, paradigms)
- Shifts in contextual equity critical for transformation

- **paradigms!**

Fraser and Honneth 2003;  
Mc Dermott et al 2012;  
Di Gregorio et al 2013

# Conclusions - the case of nutrients

- Required reduction in nutrient flows striking
- Transformation of agrifood systems – many shifts
- Global equity a precondition for food security
- Spatial variation in excess due to inequity in past access
- Exchange of reserves (incl. sediments) and rights
- Equity in access to resources for efficiency and rights

# OFF as part of the solution

- Food within the boundaries
- Practices for the food insecure
- Communication cross the food system
- Diversity of paradigms

## Why?

- Health
- Ecology
- Fairness
- Care

IFOAM



# How?

- Equity is on the world agenda now
- Equity among generations, nations, citizens, actors
- **Can equity be on the agenda of OFF?**
- Can OFF be transformed?
- How can fairness/care become practices?
- How can fairness/care become part of rules?

**Will OFF show a way forward?**



Thank you  
for your attention!