



Input zu ‘Laudato Si’

Integrale Ökologie

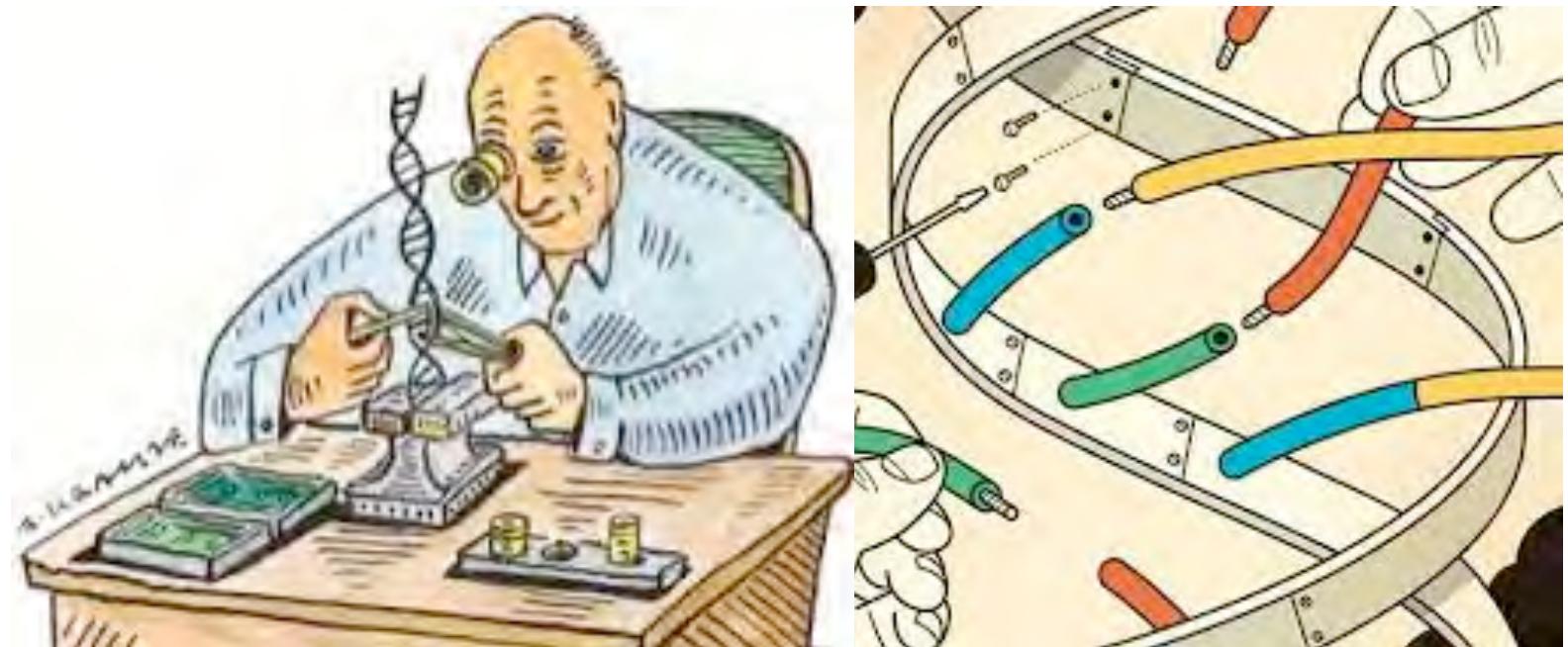
Angelika Hilbeck

Institute für Integrative Biologie, ETH Zürich, Schweiz

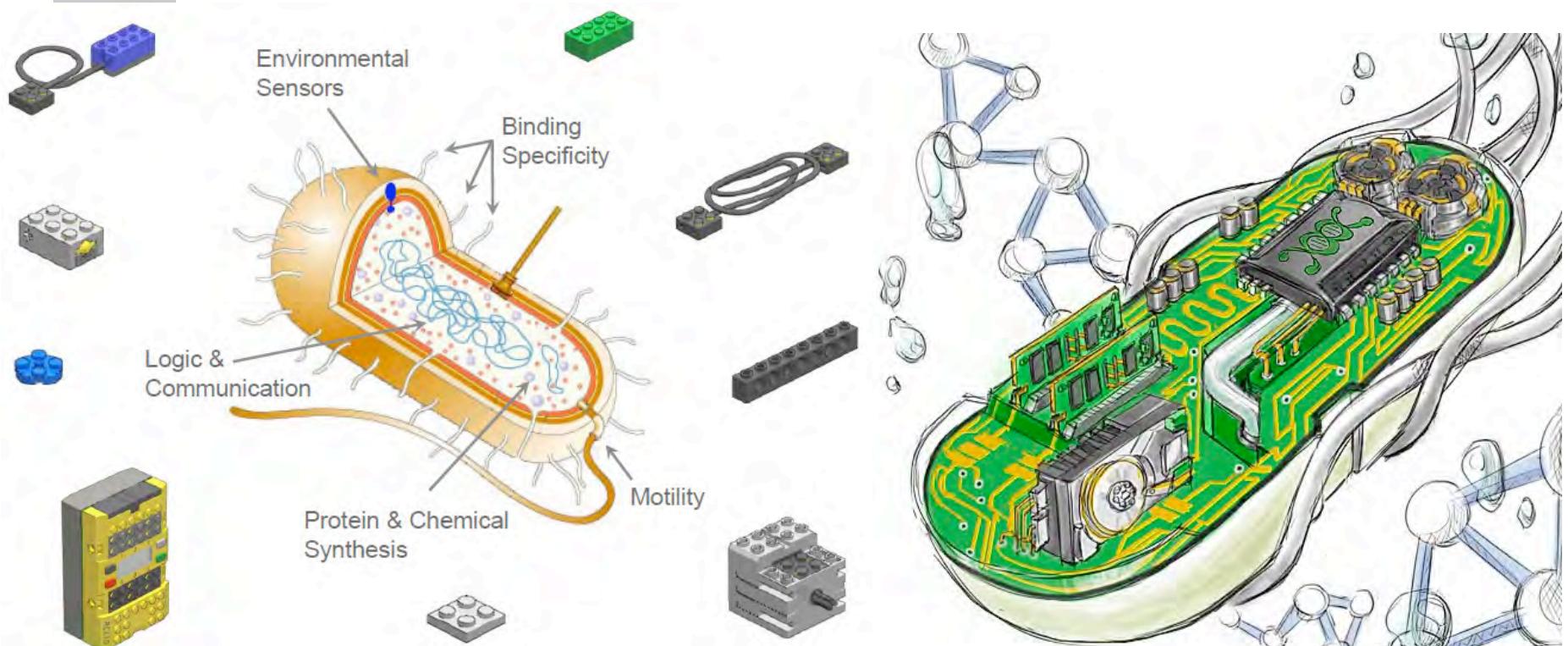
Stiftungsrätin Brot für Alle



“Life as a Construction Kit”

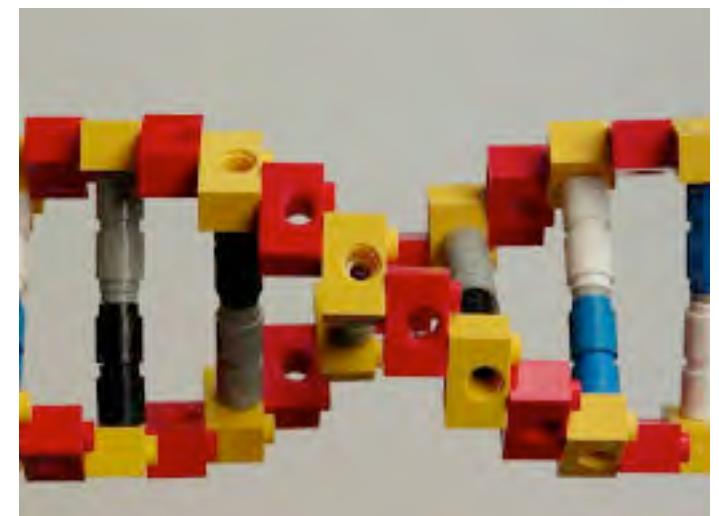


INGENIEURSPHANTASIEN ZU SYNTHETISCHE BIOLOGIE



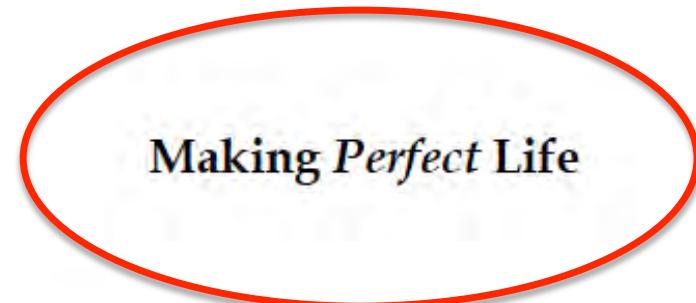
Computer modeliert nach Vorbild einer biologischen Zelle

Synthetic Biology is envisioned to become 'intentional biology' that will make biological systems truly "**computable, controllable and predictable**" and get "**rid of all the unintended consequences in biological systems**"

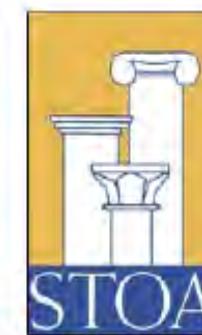




**Bescheidenheit ist keine Tugend in dem Gebiet
– THINK (TOO?) BIG!**



**European Governance Challenges
in 21st Century Bio-engineering**



**Science and Technology
Options Assessment** 2012

Reductionism







ibz

Industrielle Landwirtschaft “ernährt” Menschen nur mittelbar mit ‘clever rearrangements of Corn’ Michael Pollan, UC Berkeley



<http://www.ontariocorn.org/classroom/products.html>

<http://www.foodincmovie.com>

Documentary ,Food, Inc.’ 2010



ibz

Industrielle Landwirtschaft “ernährt” Menschen nur mittelbar mit ‘clever rearrangements of Corn’ Michael Pollan, UC Berkeley



<http://www.ontariocorn.org/classroom/products.html>

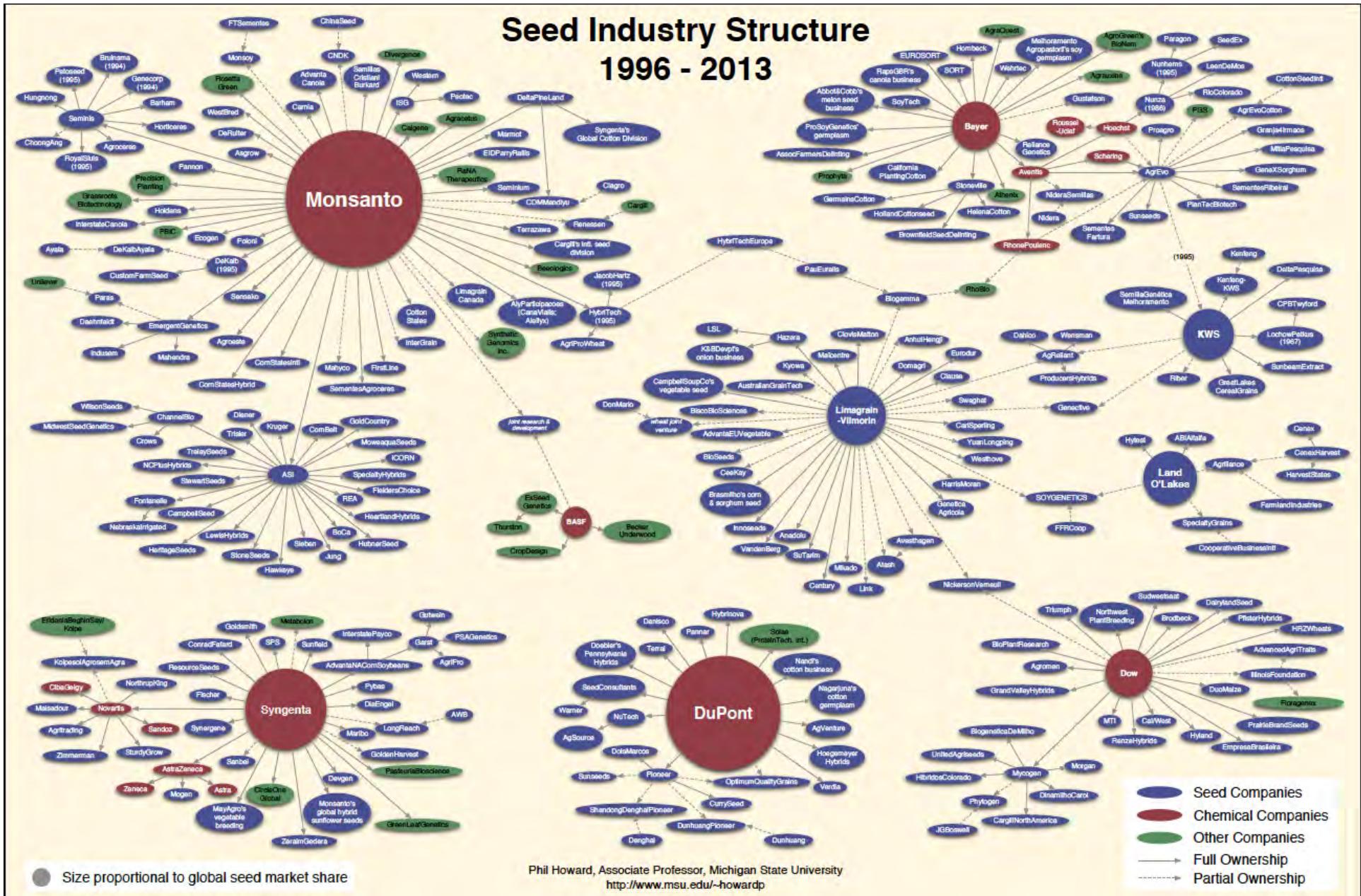


Industrielle Landwirtschaft “ernährt” Menschen nur mittelbar mit ‘clever rearrangements of Corn’ Michael Pollan, UC Berkeley



<http://www.ontariocorn.org/classroom/products.html>

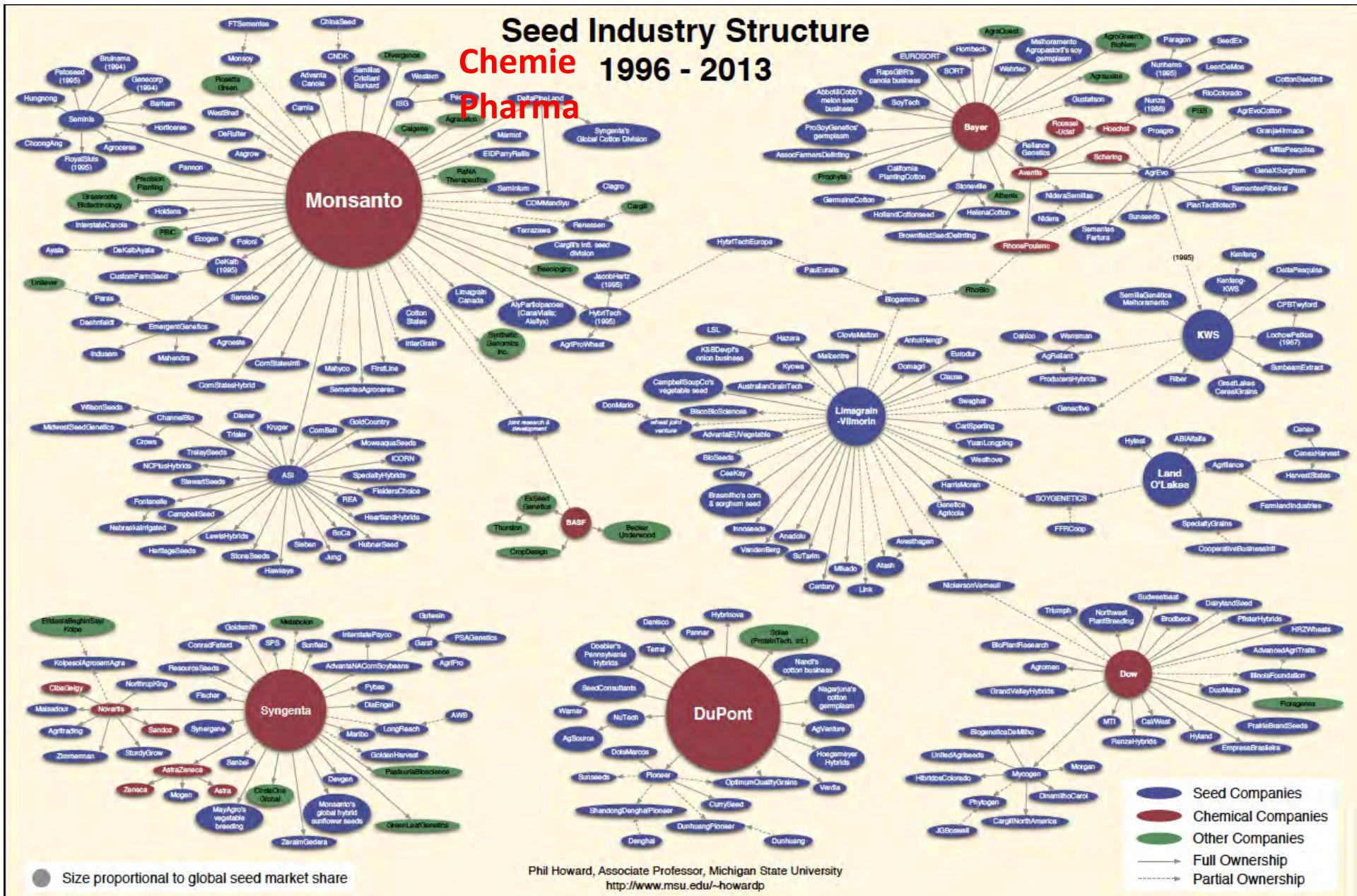
MONOPOLISIERUNG DER INPUT UND VERARBEITUNGSDUSTRIEN



MONOPOLISIERUNG DER INPUT UND VERARBEITUNGSDUSTRIEN



MONOPOLISIERUNG DER INPUT UND VERARBEITUNGSINDUSTRIEN





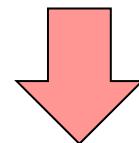
Industrielle Agri-Food Systeme

Modelliert nach ökonomischen Regeln

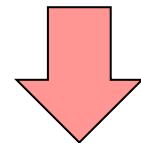
Missachtung ökologischer Regeln

Reduktion der LW auf 1 Funktion:

**Rohstoffe für profit-maximierte industrielle
Verwertungs- und Wertschöpfungskette**



Logik der extraktiven Industrien



Rohstoffhandel/Terminwarenbörsen

Chicago Board of Trade for Futures/Options



ibz





ibz

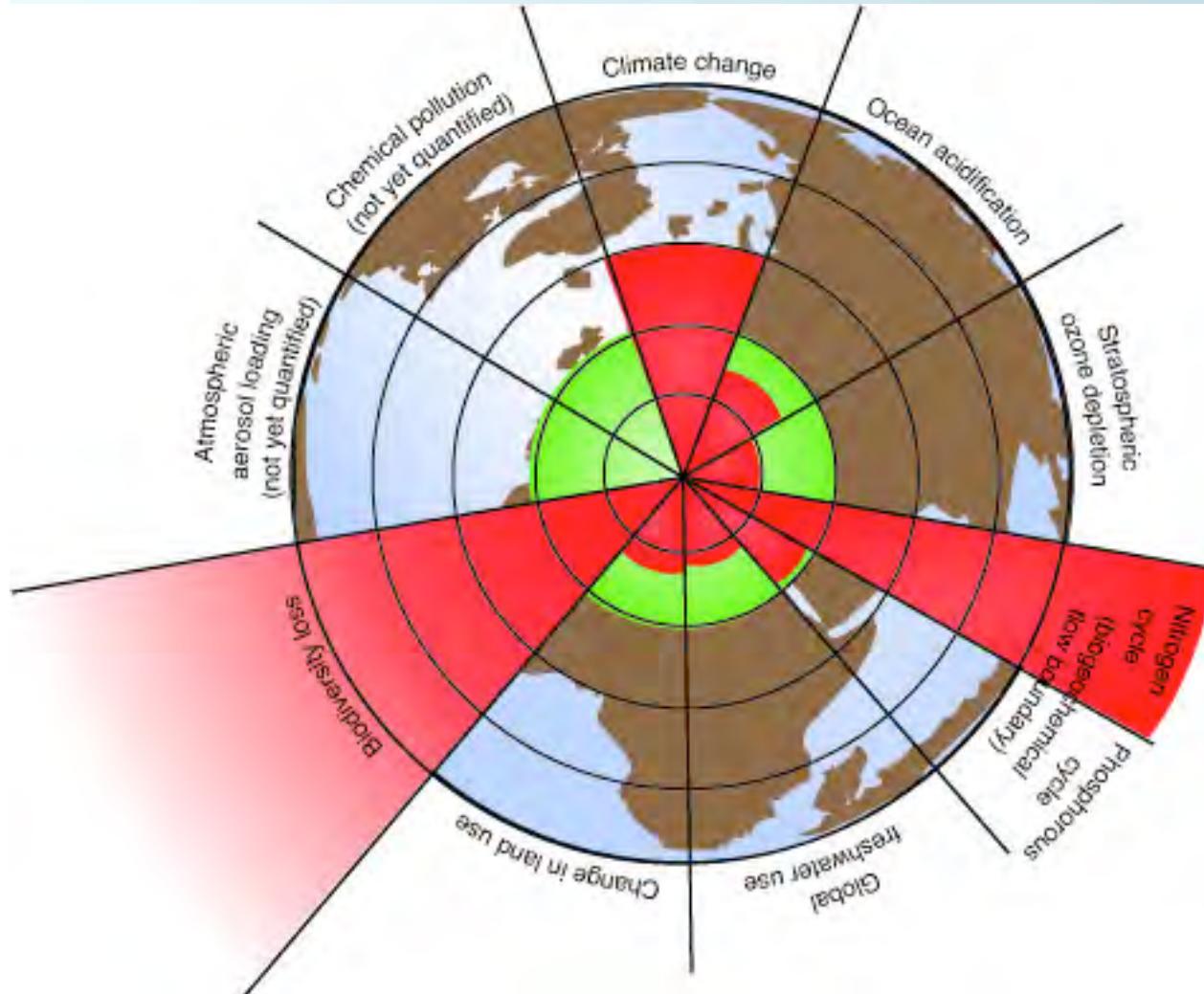


DIE BIPOLARE WELT



'GOLD DIGGERS'

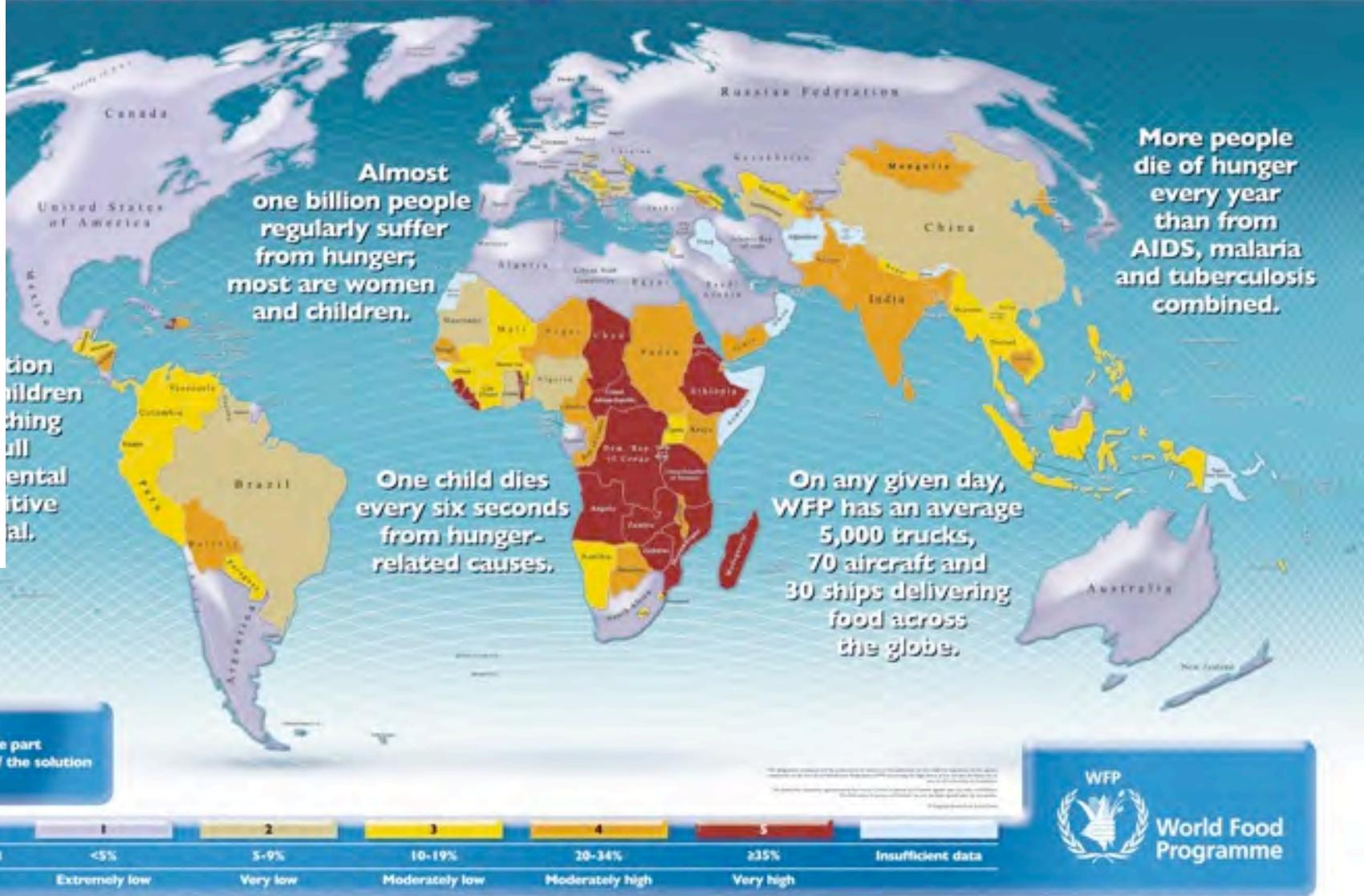
Planetary boundaries for safe operating space of humans exceeded



**Landwirtschaft
Opfer und Treiber
der
zerstörerischen
Prozesse**

Rockström et al. Nature 2009

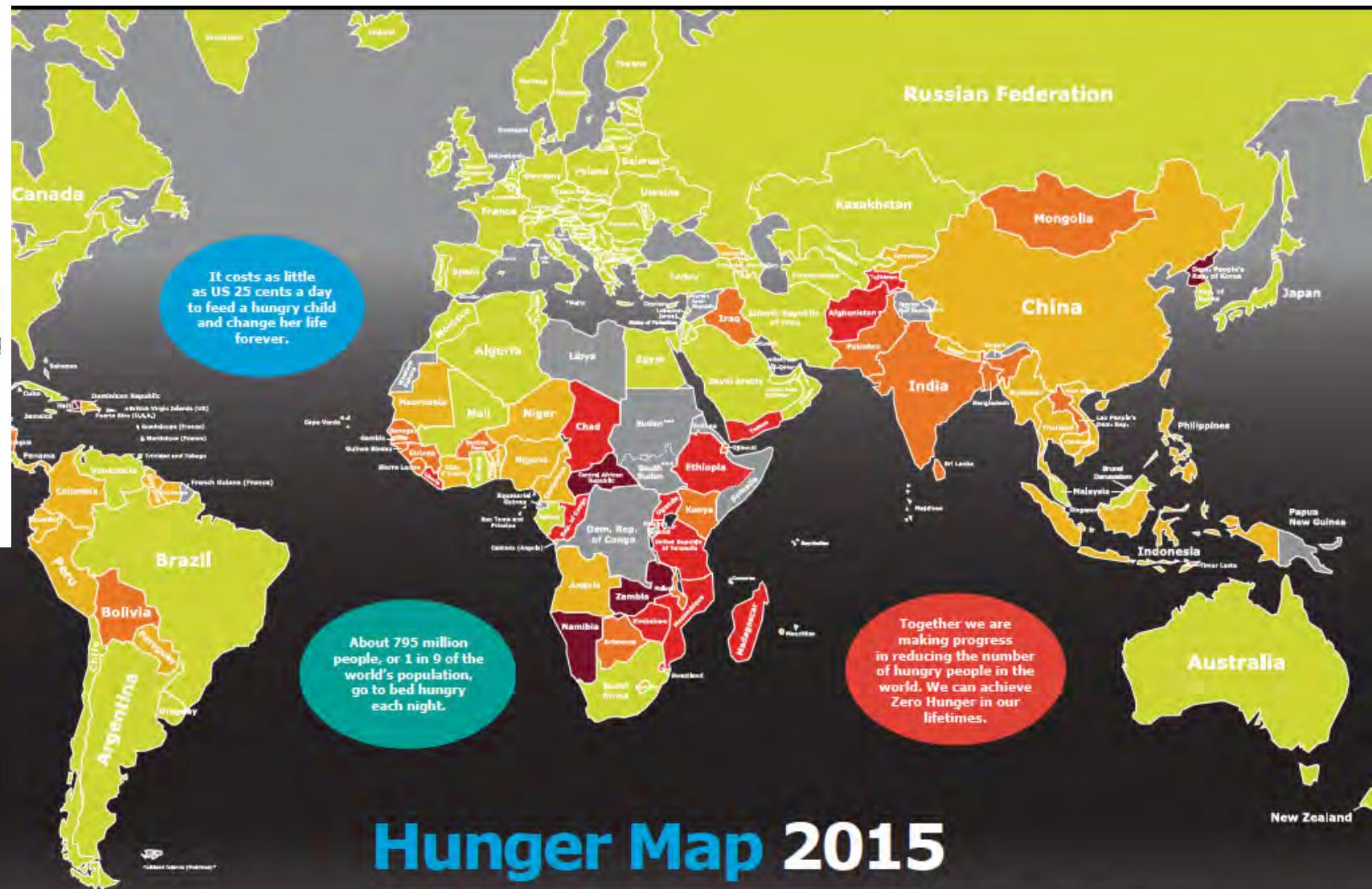
2009 Hunger Map



Sources: The State of Food Insecurity in the World 2008, Food and Agriculture Organization of the United Nations and FAOSTAT.
© 2009 United Nations World Food Programme

wfp.org

> 1 Milliarde (1 000 000 000) Menschen hungern



Hunger Map 2015



World Food Programme



The map shows the prevalence of undernourishment in the population of developing countries as of 2010-12. The indicator measures the probability that a randomly selected individual in the population is consuming an amount of dietary energy, which is insufficient to cover his/her requirements for an active and healthy life.

ANSWER

© 2012 KUTV-TV. All rights reserved.

The following is a summary of the recommendations of APP concerning the implementation of the new system.

¹ A recent study by the Royal Society for the Protection of Birds found that the United Kingdom of Great Britain and Northern Ireland was one of the most bird-friendly countries in Europe.

[View the latest issue](#) | [View the archive](#) | [View the latest news](#) | [View the latest reviews](#) | [View the latest features](#)

Digitized by srujanika@gmail.com

[View Details](#) | [Edit](#) | [Delete](#)

For more information about the study, please contact Dr. Michael J. Hwang at (310) 794-3000 or via email at mhwang@ucla.edu.

Digitized by srujanika@gmail.com

© 2013 Pearson Education, Inc.

bilberr

The following table summarizes the results of the study.

[View Details](#)

> 800 Mio (800 000 000) Menschen hungern

Rome Declaration (1996)

GOAL:
Cut absolute poverty numbers in half from 1996 levels

The Whole World



1996 World Population = 5.8 billion

Total number hungry = 840 million
Total proportion hungry = 1 in 7



World leaders decide to cut absolute hungry numbers in half from 1996 levels

840 million → 420 million

Millennium Declaration (2000)

GOAL:
Cut proportion of hungry in half from 2000 levels

Developing World Only



Population increases



World leaders make 3 major changes:
1) change the goal from *half the absolute number* to *half the proportion* of hungry

2) change from halving the proportion of hungry people *in the world* to halving the proportion of hungry people *in developing countries only*

3) *move the baseline* from 2000 to 1990 hunger levels

1990
Developing World Population = 4.1 billion

2015
Developing World Population = 5.91 billion

MDG-1 (2001)

GOAL:
Cut proportion of hungry in developing world from 1990 levels

1990 = 816 million hungry



20 % in the developing world

New Goal

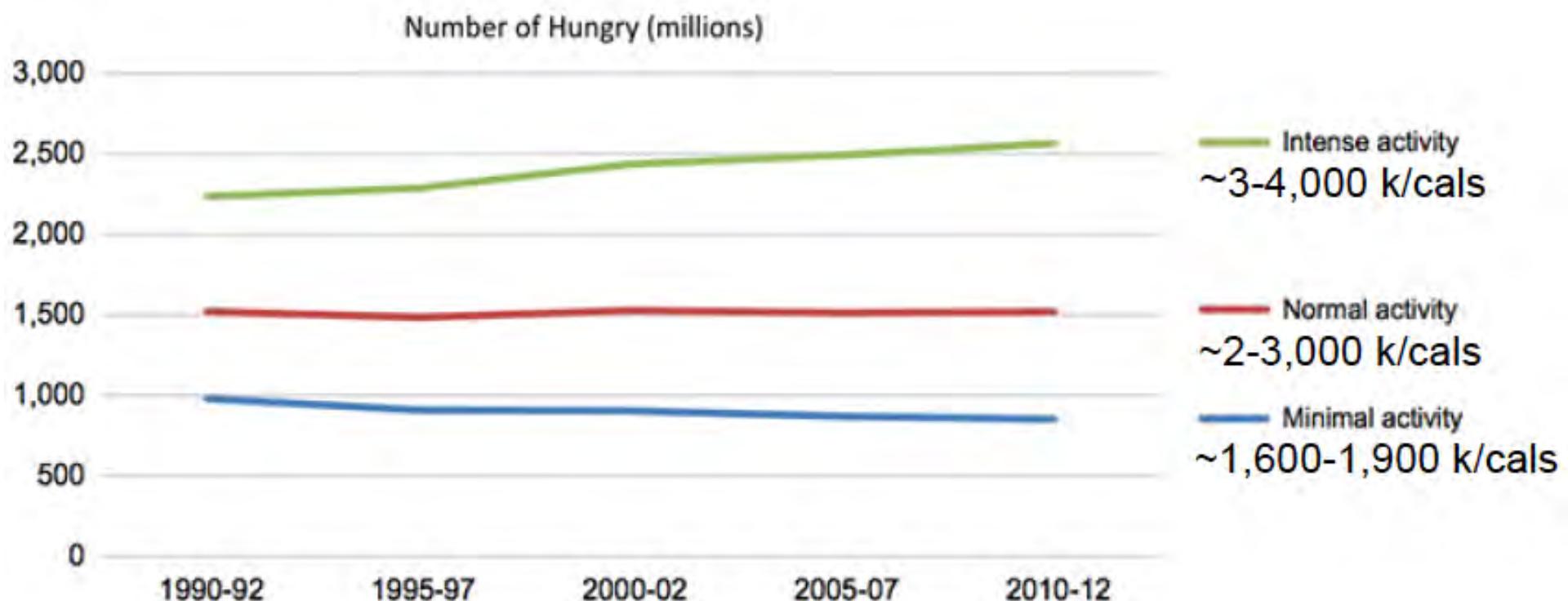
20%

10%

10% of 5.91 billion = 591 million

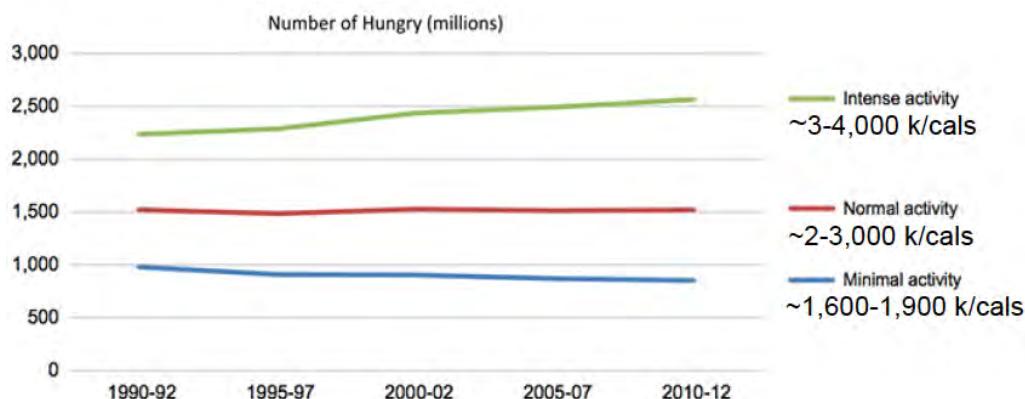
That's 171 million more hungry persons than the 1996 Rome Declaration commitment

Zynische Mathematik



2.5 billion go hungry despite the “good news narrative”

Through the MDGs, the UN has misrepresented the true extent of hunger. In reality between 1.5 and 2.5 billion people do not have access to adequate food—two times more than the UN would have us believe.



Hickel, J. (2016). The true extent of global poverty and hunger: Questioning the good news narrative of the Millennium Development Goals. *Third World Quarterly*

Food First 2016 – Oakland, CA, USA

REDUKTIONISMUS IN DER HUNGERBEKÄMPFUNG

GE Golden rice GE Golden banana



- ▶ Golden rice is genetically modified rice that contains a large amount of A-vitamins.
- ▶ The rice contains the element beta-carotene which is converted in the body into Vitamin-A.
- ▶ Beta carotene is needed by humans in order to make vitamin A – which is essential for good vision.

GE = Genetic engineered, patented

REDUKTIONISMUS IN DER HUNGERBEKÄMPFUNG

**'1 vitamin/nutrient at
a time'**



Gentechnisch verändert

Iron Beans

Iron Pearl Millet

Vitamin A Cassava

Vitamin A Maize

Vitamin A Sweet Potato

Zinc Rice

Zinc Wheat

POHNPEI BANANAS (UHT KAN EN POHNPEI): CAROTENOID-RICH VARIETIES



Pohnpei name: Utan Tap
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: orange



Pohnpei name: Umapres
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: orange



Pohnpei name: Karo Taka
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: reddish-orange



Pohnpei name: Karo Pusuh
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: reddish-orange



Pohnpei name: Mangal en Seipahn
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: orange



Pohnpei name: Papai
Species: Australis
Origin: Micronesia
Carotenoids: 640 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Tetraheho
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Elik
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Karo en Tap
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Tahwang
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Petau
Species: Australis
Origin: Micronesia
Carotenoids: 400 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Khadiin Wiyaksa
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Akadahn
Species: Australis
Origin: Micronesia
Carotenoids: 2000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Kebulutuk Rau
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Pohnpei name: Otin Kereka
Species: Australis
Origin: Micronesia
Carotenoids: 1000 µg beta-carotene/100 g
Flesh color: yellow



Diversität
Anbauformen

Kulturelle Diversität, Soziale
Diversität, Spirituelle Diversität



Diversität
Lebensformen





'Integral Ecology' Pope Francis



Integral Ecology

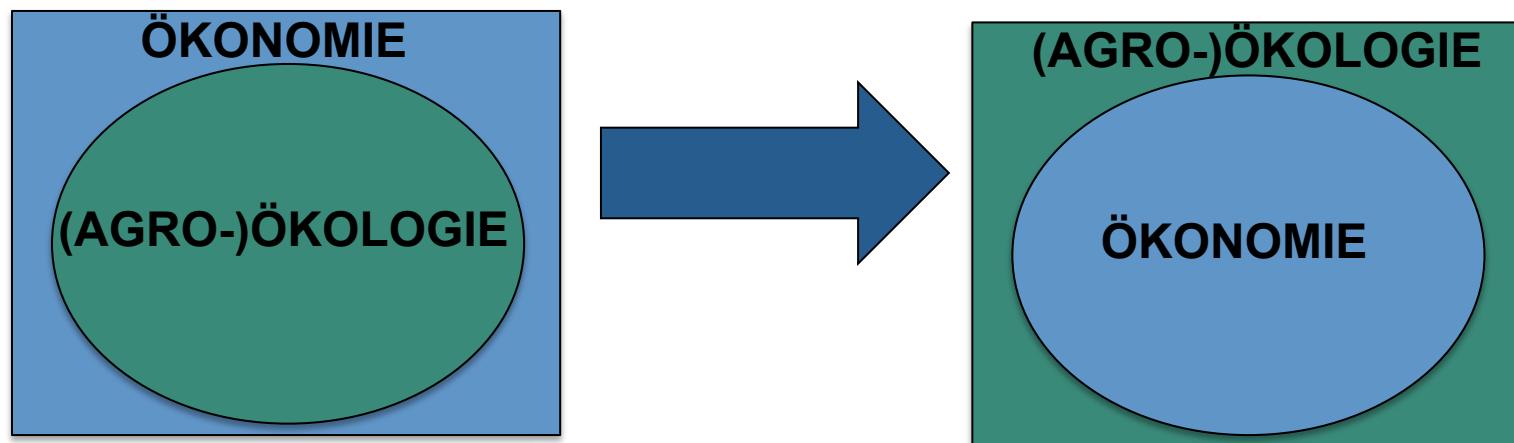
(environmental, economic and social ecology)

"We urgently need a humanism capable of bringing together the different fields of knowledge, including economics, in the service of a more integral and integrating vision."

- **Cultural Ecology** – call for greater attention to local cultures when studying environmental problems, favouring a dialogue between scientific-technical language and the language of the people.
- **Economic Ecology** – a broader vision of reality. The protection of the environment is ... an integral part of the development process and cannot be considered in isolation from it.
- **Human Ecology** – the relationship between human life and moral law. Human ecology is inseparable from the notion of the common good, a central and unifying principle of social ethics.
- ***Common good*** = respect for the human person ... endowed with basic and inalienable rights
- **Ecology of daily life** - integral improvement in the quality of human life, ... entails considering the setting in which people live their lives. Wholesome social life, community, network of solidarity



TRANSFORMATION auch der (makro-) ökonomischen Rahmenbedingungen:



AGRO-ÖKOLOGISCHE ‘BIO’ SYSTEME bilden das FUNDAMENT für (Weiter)Entwicklung von transformierten Agro-Food-Systeme

Wir müssen uns über Landwirtschaftssysteme unterhalten!



Kleinräumige, bäuerliche Landwirtschaft mit Fokus auf **Nahrungsmittel**,
Direktvermarktung, lokale kurze Wertschöpfungsketten
versus

Industrielle Landwirtschaft mit Fokus auf **Rohstoffgewinnung** für lange, profit-maximierte. Export-orientierte Wertschöpfungsketten





INKOMPATIBLE ZIELKONFLIKTE

INDUSTRIALISIERTE
AGRO-FOOD SYSTEME

AGRO-ÖKOLOGISCHE
AGRO-FOOD SYSTEME

PROFIT

NAHRUNGSMITTEL



Der Diskurs um das bessere Zukunftsmodell hat NICHTS mit Romantik + Rückwärtsgewandheit zu tun und ALLES mit einer nüchternen Sachstandsanalyse und einer Rationale für das ÜBERLEBEN in Zukunft und die Schaffung einer nachhaltigen, lebenswerten Welt in Frieden.



DAS ZIEL!

Danke für's Zuhören!



ZITATE von Papst Franziskus – ‘Laudato Si’

Pope's Analysis

The technocratic paradigm ... dominate economic and political life. The economy accepts every advance in technology with a view to profit, without concern for its potentially negative impact on human beings. Finance overwhelms the real economy. ... Some circles maintain that current economics and technology will solve all environmental problems, and argue ... that the problems of global hunger and poverty will be resolved simply by market growth. Maximizing profits.

To seek only a technical remedy to each environmental problem ... is to separate what is in reality interconnected and to mask the true and deepest problems of the global system.

ZITATE von Papst Franziskus – ‘Laudato Si’

Ecological culture cannot be reduced to a ... partial responses to the immediate problems of pollution, environmental decay and depletion of natural resources. There needs to be a distinct way of looking at things, a way of thinking, policies, and education programme, a lifestyle and a spirituality which together generate resistance to the assault of the technocratic paradigm.

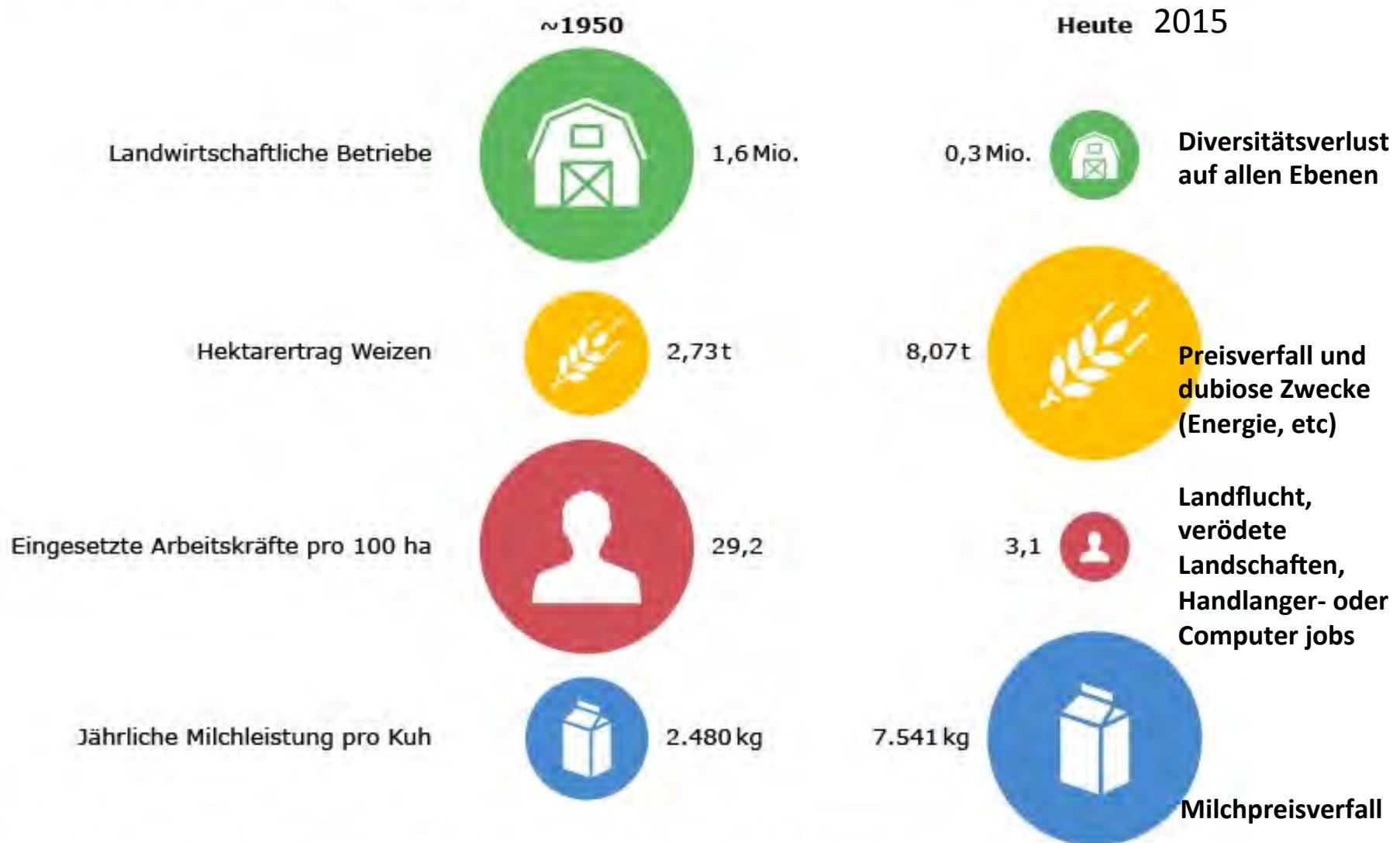
Yet we can once more broaden our vision. ...We can put it (technology) at service of **another type of progress**.

*An authentic humanity, calling for a new synthesis, seems to dwell in the midst of our technological culture, almost unnoticed, like a mist seeping gently beneath a closed door. The urgent need for us to **move forward in a bold cultural revolution**.*

“A consumerist vision of human beings, encouraged by the mechanisms of today’s globalized economy, has a levelling effect on cultures, diminishing the immense variety which is the heritage of all humanity.”

Konzentration in der Landwirtschaft

Kennzahlen zur Landwirtschaft in Deutschland



Bezug: Weizertrag: 1950-1954 (nur BRD), 2015 / Milch und Arbeitskräfte: 1950 (nur BRD), 2014 / Betriebe: 1949 (min. 1 ha Landfläche), 2013/14 (min. 5 ha Landfläche)