



**29 April 2009, Panel: Responding to Social
Challenges of Global Change: Role of Knowledge**

**Global Environmental Change
(GEC) and Equity: A Challenge
for Food Sovereignty**

**Úrsula Oswald Spring
National University of Mexico/CRIM
MRF Chair on Social Vulnerability, UNU-EHS**

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1. Definitions
2. World food situation
3. Social and food insecurity: a problem of equity
4. Threats to food sovereignty: three models of food production
5. Survival strategies, micro business and local food sovereignty
6. Alternative food integration with livelihood

1. Some definitions: Food security

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.

Household food security is the application of this concept to the family level, with individuals within households as the focus of concern.

Vulnerable people are greatly exposed to famine (FAO, 2003)

***Via Campesina's* food sovereignty**

“Food sovereignty is the right of people, communities, and countries to define their own agricultural, pastoral, labour, fishing, food and land policies which are ecologically, socially, economically, and culturally appropriate to their unique circumstances. It includes the right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and their societies” (2004).

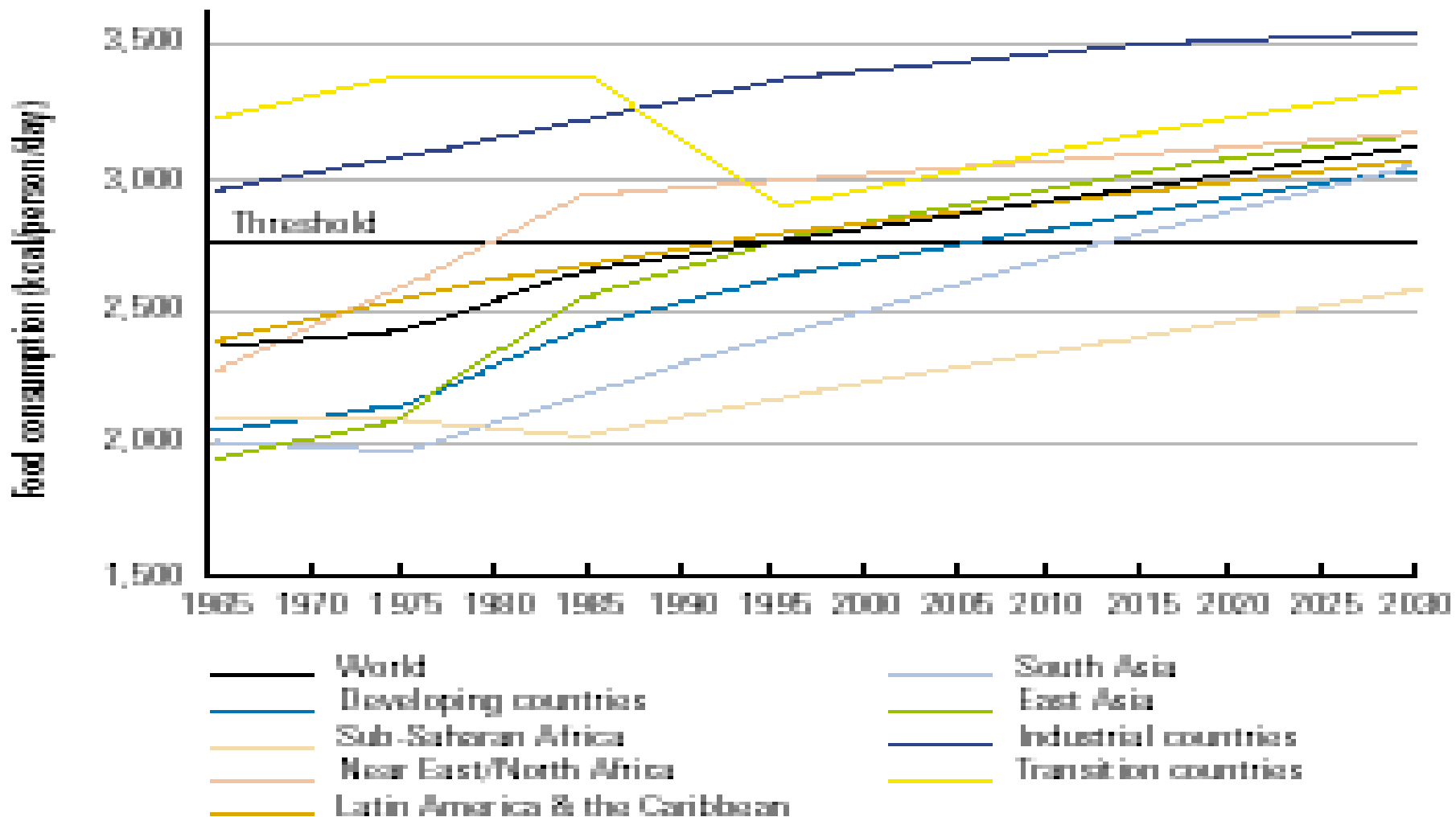
Women are key food producers

- Women are in all parts of the world responsible for food and food transformation
- In most countries of Sub-Saharan Africa women represent:
 - 33 % of the rural labour force;
 - 70 % of paid rural daily work;
 - 60-80 % of self-subsistence crops and local sale;
 - 100 % of food transformation;
 - 80% of harvest, transportation from the fields to the community and food storing;
 - 90% of weaving and hooking;
 - 60% of market activities (FAO, 2008)

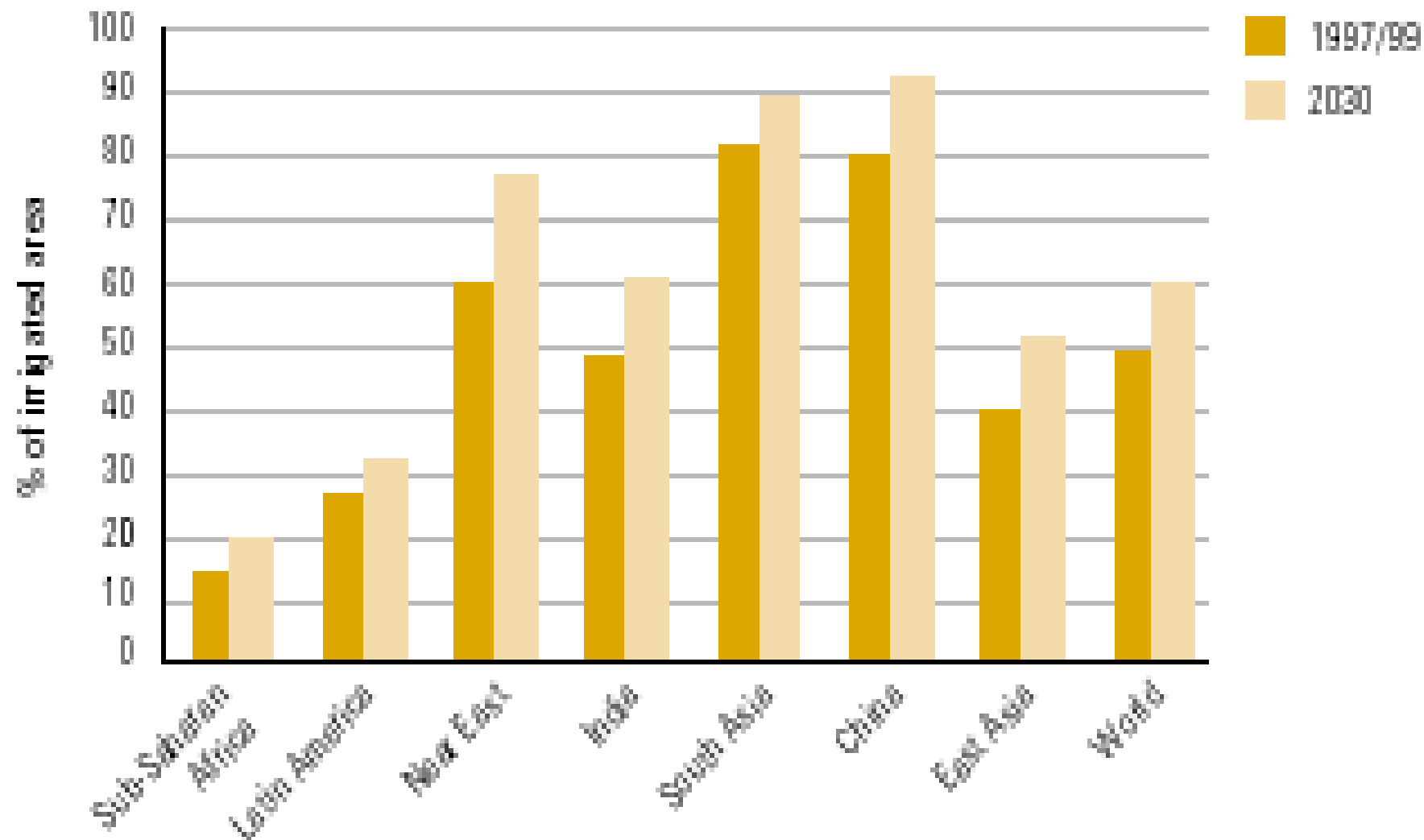


2. World food situation

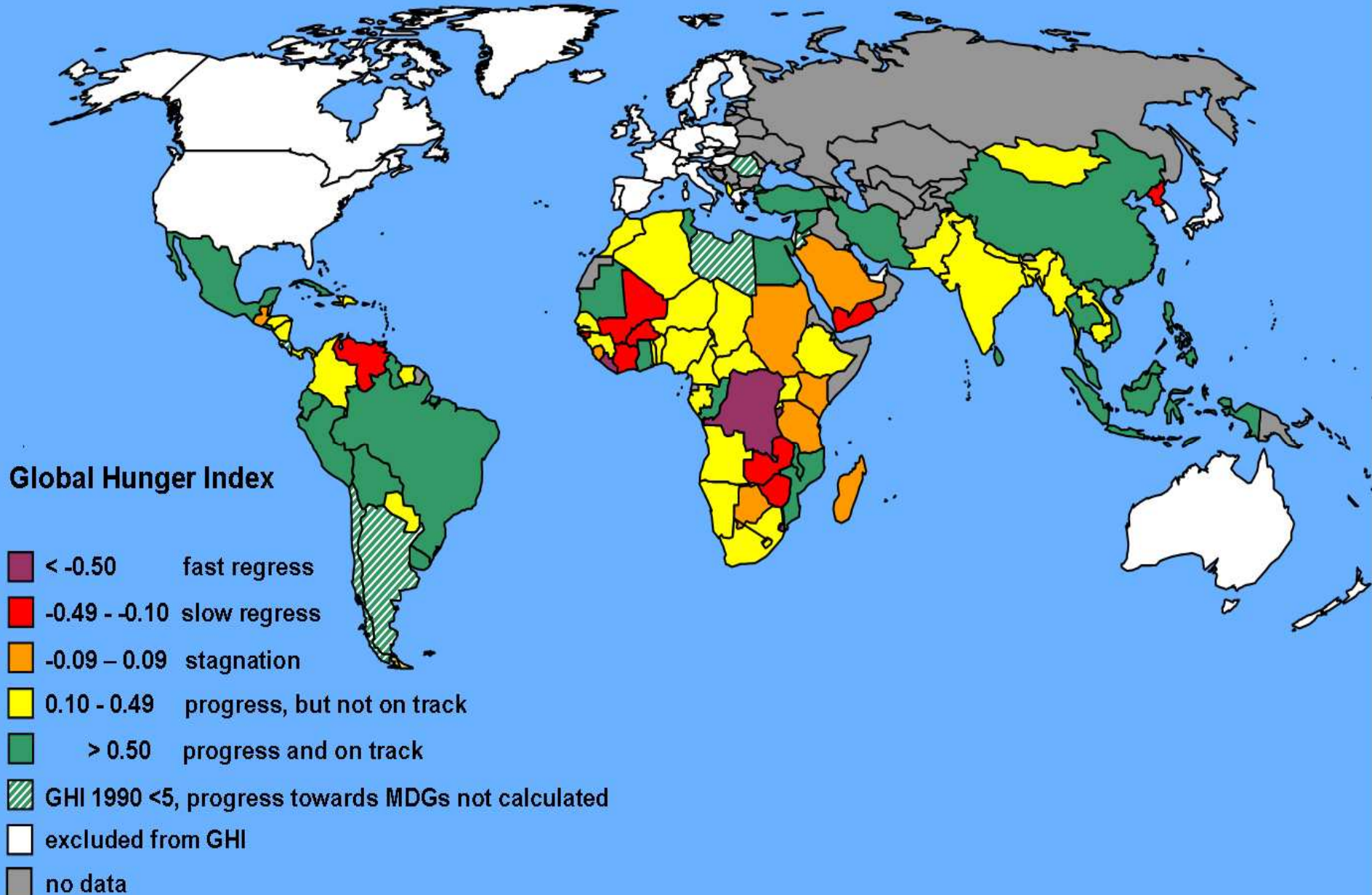
Evolution of food situation in the world



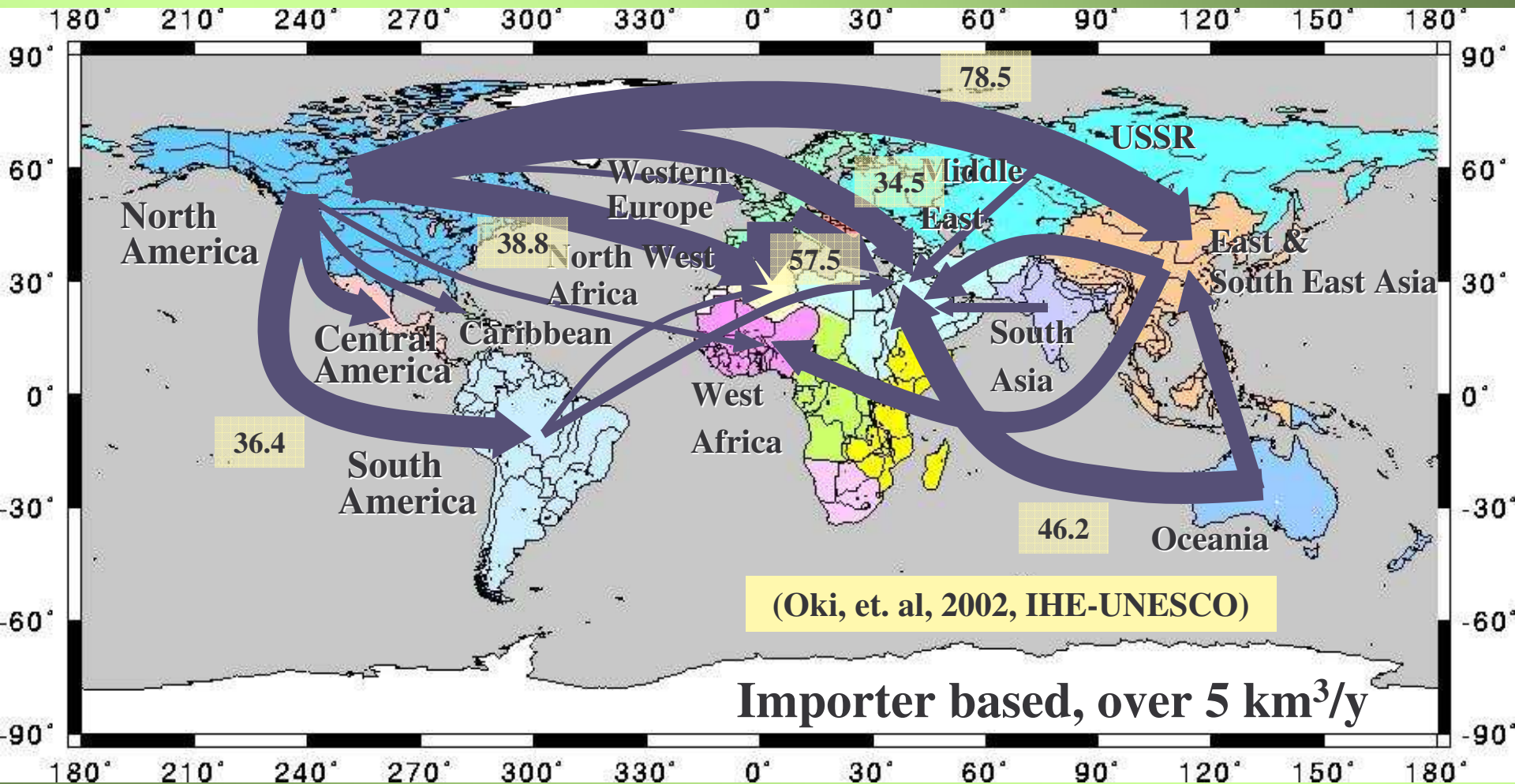
Potential of irrigation in the world



Global hunger index



Food and virtual water in 2000 (only grains)



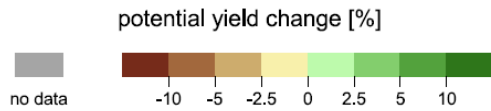
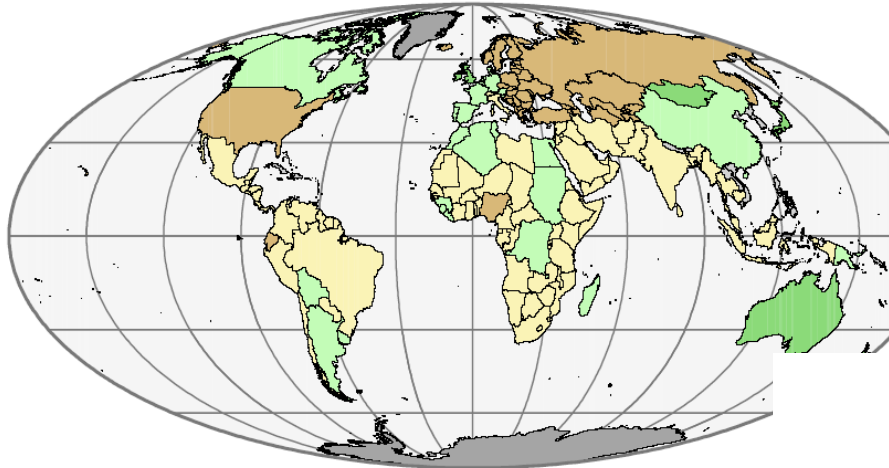
(Oki, et. al, 2002, IHE-UNESCO)

Importer based, over 5 km³/y

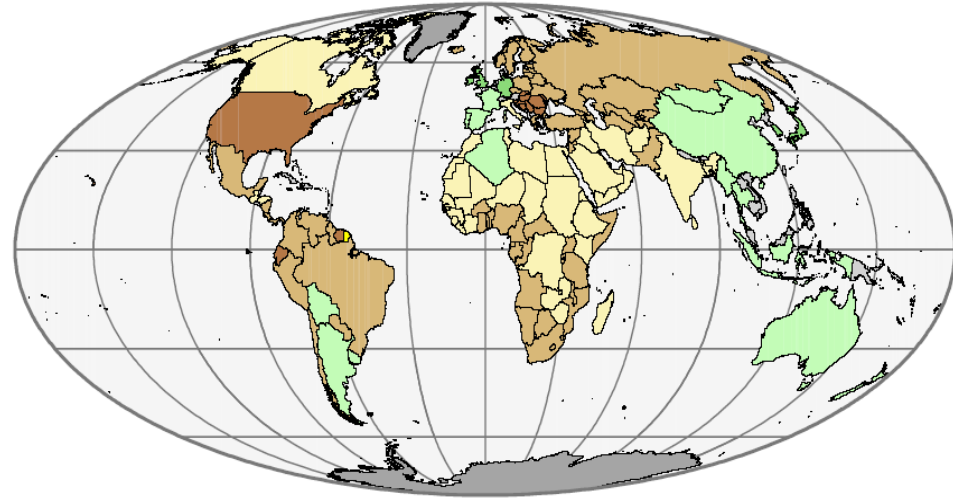


(Based on Statistics from FAO etc., for 2000)

Food Scenarios: 2020, 2050, 2090



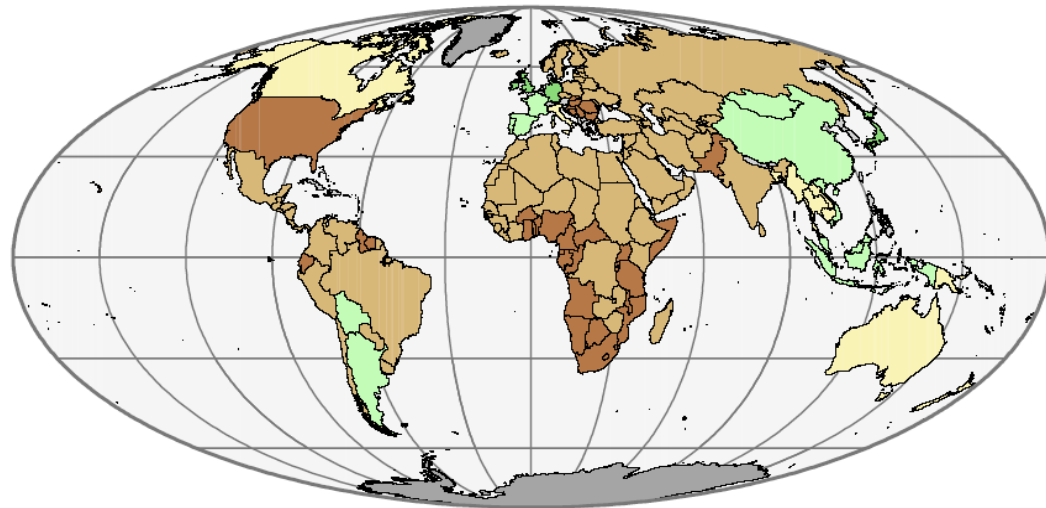
Food security 2040 - 2069 (HADCM3 GGA1)



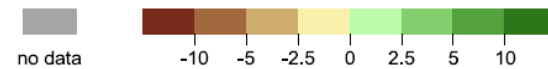
potential yield change [%]



Food security 2070 - 2099 (HADCM3 GGA1)



potential yield change [%]



3. Social, human, gender and food insecurity: a problem of equity

- Drought, Land Degradation and Desertification (DLDD) covers one third of the world land surface and affects around 485 million people; 46% in Africa with 43% of desert.
- In Africa the productivity loss/year is estimated in 0.5-1%
- DLDD poses multiple global, regional and national security issues: food, water, climate, livelihood, health, urban, rural and transportation security.
- DLDD induces large-scale forced migration movements, hunger riots and emerging conflicts on scarce resources.
- One billion of people suffer from hunger and food price rise provoked 65 million more hungry people. MDG can not be reached and affects above all rural and urban poor.

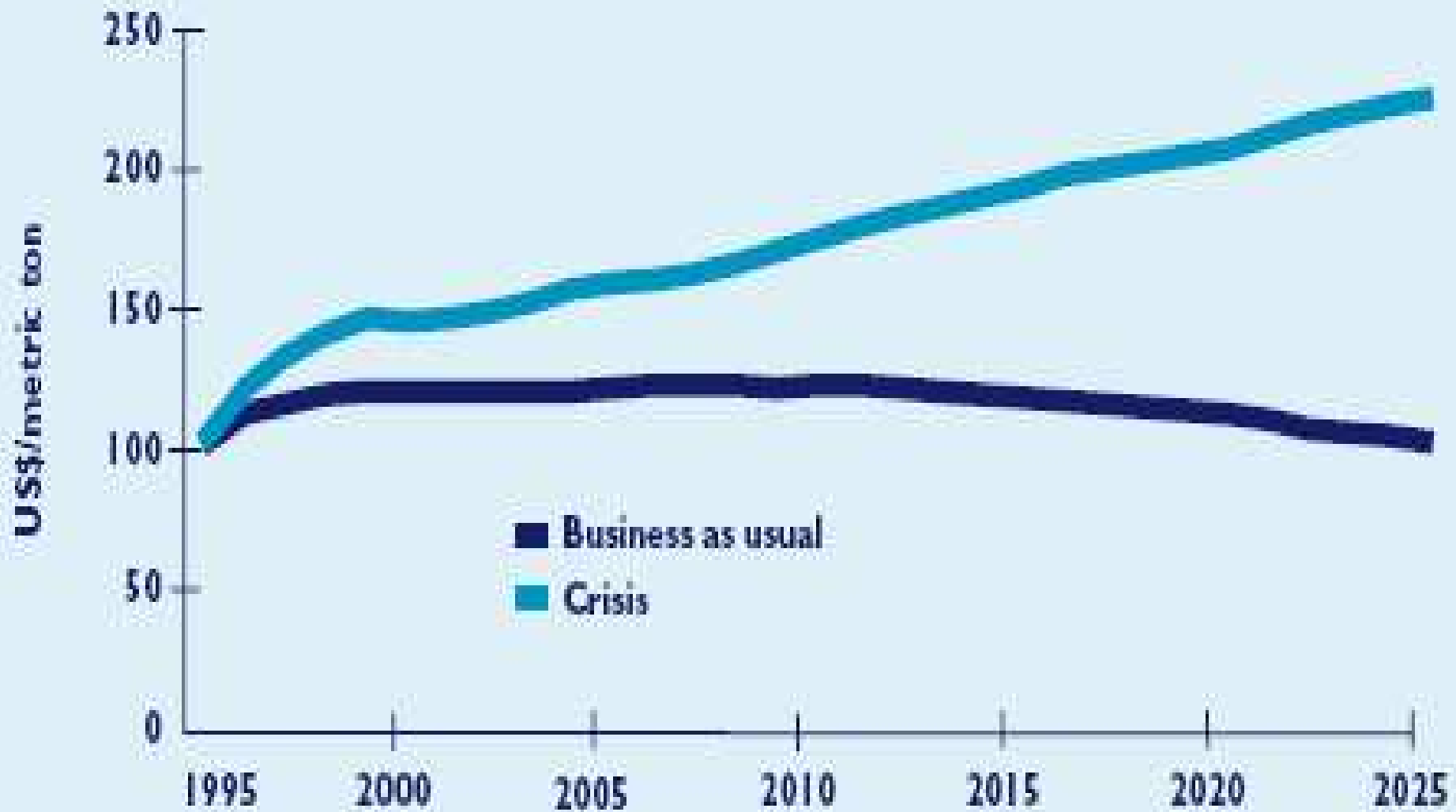
4. Threats to food sovereignty: three models of food production



Productivity paradigm

- **Green revolution with intensive use of chemicals, veterinarian drugs, improved seeds, machines, fossil energy, and irrigation systems;**
- **industrialization of agriculture.**
- **cheap and homogenous food for urban areas with government subsidies,**
- **Low food prices leaving poverty in the countryside.**
- **Production controlled by agronomists, veterinarians, and the chemical industry.**
- **Ministry of Agriculture managed natural resources: soils, water, forests, flora, fauna, and fish. Health and environment concerns were marginal.**
- **Limits of this model: negative effects on health, environment (scarcity in water and oil resources) and the destruction of rural livelihood.**

International corn prices

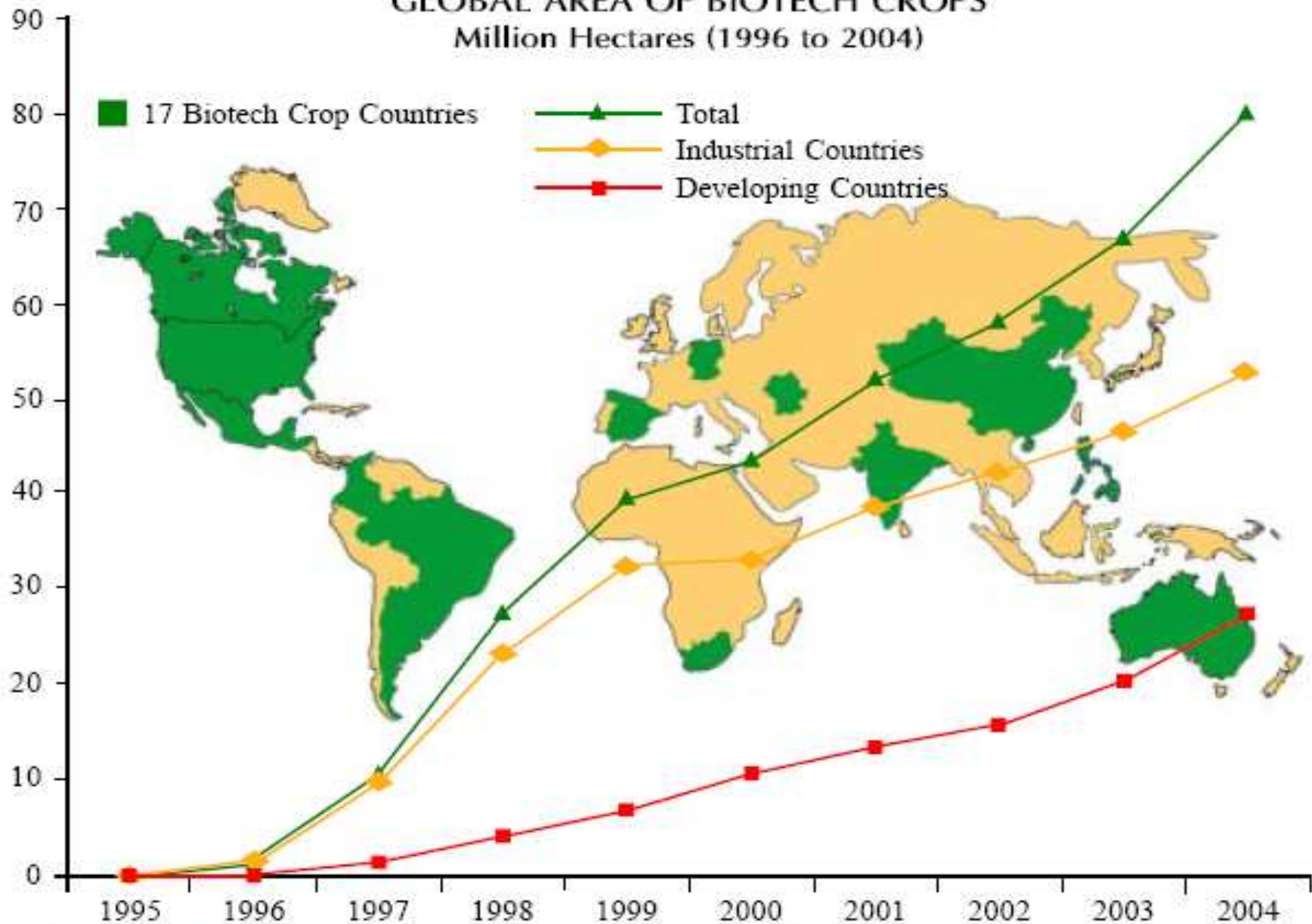


source: Rosegrant, Mark W.; Cal, Ximing; Cline, Sarah A., 2002: 20

Life science paradigm

- *Life science model* integrates the food chain in form of clusters relating production, transformation & trade of food.
- Combines genetic research with field experiments, biotechnology, engineering, nutrition, pharmacology, health, and mobile field labs controlled by multinational food chains.
- Offers clean, safe, and homogenous products that can stay for weeks on the shelves of supermarkets, thanks to *genetically modified genes and organisms with some undesired social, health and environmental effects.*
- Cornucopian vision of life where MNE resolves environmental, social, and health problems through science and technology.
- Increases costs of production and food prices due to TRIPs, and created monopolies of agro-chemicals and food transformation.
- Food get transformed into medicine (Nestlé, 2002)

GLOBAL AREA OF BIOTECH CROPS Million Hectares (1996 to 2004)



Increase of 20%, 13.3 million hectares or 32.9 million acres between 2003 and 2004.

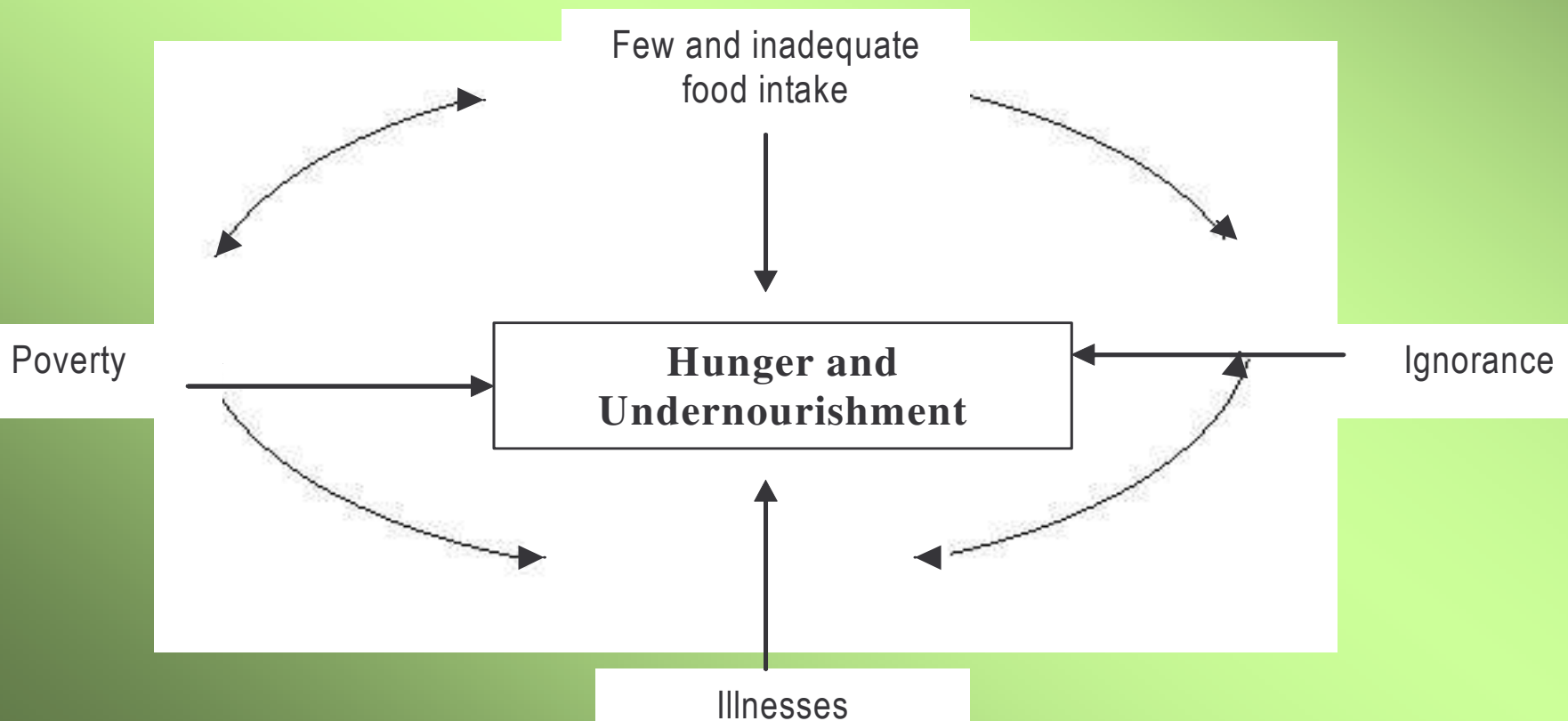
Source: Clive James, 2004

Green agriculture

- Green model generates symbiotic relations and mutual dependence between nature and food production, using soft methods of agriculture.
- Regionally diverse, utilizes polycultivation, association of crops, rotation, mixed agriculture, bio-fertilizers, fixation of nitrogen from air to soil, bio-pesticides, traditional methods of soil conservation and food, inte-gral management of water, plagues, and environmental services.
- Local agricultural production, transformation and trade, with access for peasants to water, seeds, credits
- Women as key producers for food issues, care about vulnerable and consolidate livelihood,
- When livelihood in villages and countries is guaranteed public resources for poverty and hunger alleviation can be reduced and reallocated for other development purposes, creating stable social relations synergies and cooperation.

5. Survival strategies, micro business and local food sovereignty

Vicious circle of hunger, undernourishment, poverty, and ignorance. Source: Chávez/Ávila/Shamah (2007: 208).



6. Alternative food integration with livelihood





Survival Strategies



Survival Strategies (Oswald, 1991, 2007)

1. Massive rural migration to urban slums
2. Illegal occupation of marginal and risky land
3. Construction of shelter with precarious materials (waste)
4. Chronic unemployment of men and lack of cash
5. Selling unnecessary goods
6. Credits from family members and neighbors
7. Economic crises increases and lack of food
8. Recollection of perished fruits and vegetables
9. Collective popular kitchen
10. Rotation of women in collective community work (kitchen, child rearing)
11. Common struggle for basic services (electricity, water, access, community center)
12. Communal organization for regularization of land and services
13. Struggle for public subsidies and poverty alleviation programs
14. Temporary paid work
15. Multiple activities: services, handicraft, food, washing, ironing, paid jobs
16. Social organization against organized crime and gangs
17. Empowerment and fight against intra-family violence
18. Social and economic consolidation of colony and families

Human, Gender, Environmental Security

Determination Which security?	Reference object: Security of whom?	Value at risk: Security of what?	Source(s) of threat: Security from whom or what?
National security	The State	Territorial integrity	State, substate actors
Human security	Individual, humankind	Survival of humankind people	Nature, state, globalization
Environmental security	Ecosystems, rural and urban systems, water and food	Sustainability	Humankind, Nature
Gender security	Gender relations, indigenous people, minorities	Equity, identity, social relations, solidarity, tolerance	Patriarchy, totalitarian institutions (élites, governments, religious fundamentalism, dominant cultures), intolerance



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