

Dick de Zeeuw Lezing 2011



**Food Security and  
Economic Change:  
What to do about  
the food crisis?**

Prof. Dr. Joachim von Braun

The Hague  
14 April 2011

**Dick de Zeeuw** heeft zich altijd ingezet om mensen een stem te geven in de wereld. Hij deed dat als voorzitter van de International Dialogues Foundation, en in zijn werk als adviseur voor de Wereldbank. In 2007 schreef hij hierover in zijn boek *Schrijven op Marmer*: “Politiek actief zijn betekende voor mij: recht doen aan mensen, zorgen dat er geen scheiding komt in heersers en onderdanen, zorgen dat iedereen kan deelnemen aan het proces van besluitvorming. En daarnaast: mensen bewust maken dat ze zelf een bijdrage moeten leveren.” Dit vormt ook het uitgangspunt voor de Dick de Zeeuw Foundation

De **Dick de Zeeuw Foundation** is opgericht als platform om mensen uit onder meer de politiek, wetenschap, overheid en non-gouvernementele organisaties bijeen te brengen voor een gedachtewisseling over onderwerpen rond ontwikkeling en milieu, en het belang van landbouw voor een duurzame ontwikkeling. De Foundation is opgericht ter herinnering aan de in 2009 overleden oud-politicus Dick de Zeeuw, en organiseert onder meer de jaarlijkse Dick de Zeeuw lezing.

**Dick de Zeeuw Foundation**

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**Food Security and Economic Change:  
What to do about the food crisis?**

Joachim von Braun



*Prof. Dr. Joachim von Braun, Center for Development Research (ZEF), Bonn University  
Lecture held at ISS, The Hague, 14 April 2011*

Dear Mr. Pronk and dear family and friends of Dick de Zeeuw. Thank you for the invitation. It's an honour to be asked to give the first Dick de Zeeuw lecture.

I always enjoyed my meetings with Dick. On almost every occasion we not only talked about food security, though this was of course a topic he was very interested in, but we also talked about history and more specific about his personal history. We talked about his time in the German concentration camp, something that I, as much as you, probably, was eager to know much more about than he seemed to want to share sometimes. He preferred to talk about current problems of development and about the future. I cherish those moments with Dick. The last time I saw him was probably in 2007 when I was Director General of the International Food Policy Research Institute (IFPRI), when he walked into my office in Washington, D.C. He came unannounced and again we had a very uplifting, deep and optimistic conversation.

Dick is remembered by me as an eternal optimist. The kind of projects he engaged himself in, like the Chad-Cameroon pipeline, are, I admit, of the kind which would have made me pessimistic from the beginning. But Dick took them on with optimism and I think he was setting an example that was, and still is, very important to many of us who work on development.

But Dick probably would not have liked me to talk in this way for too long, so I would like to focus on today's topic....

## 1- Introduction

I will talk about food security, the changing economics of food, and what to do about the food crisis. The world has about a billion undernourished people, but at least as important is the fact that there are two billion people who cannot afford a healthy diet and are, therefore, suffering from micronutrient deficiencies with severe health consequences. When this happens to children, this stays with them their whole life. The sticky problem of child malnutrition is with us and even under fast economic growth this problem is confronted only very slowly.

It is a puzzling fact that in the last five years we have seen that countries with considerable economic growth (like Egypt with 5-6% economic growth) show an increase in the statistics of underweight and stunting of children, which is the brutal result of child undernutrition.

When we think and talk about the food crisis, the first idea which comes to mind is the increase in food prices. When you ask a senior politician about food prices, the first idea which comes to his or her mind is people marching in the streets. And, indeed, the two have become increasingly related: people demonstrating in the streets and increasing food prices.

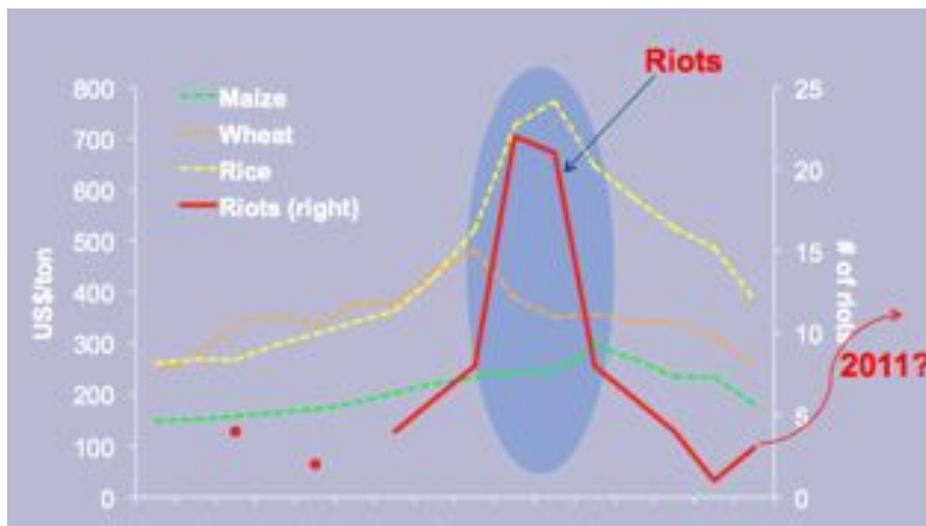


Figure 1: Food riots when prices spiked in 2008.

The red curve in this graph shows you the frequency of people rioting on the streets by month during the 2008 food price crisis. But when you look at the thin line after 2008, you can see that things have become more complicated now. Policy makers have learned from the first food crisis and have prevented people from going to the streets, at high political and economic costs: Lots of support to lower-level bureaucrats, urban people, subsidy schemes for the people who matter in the first place when it comes to political rioting. So, although the prices are at the same level now as they were in 2008, you see less of the same type of food riots we had then.

However, things became more complex. Actually, the majority of the food protests in the world have been in countries which are badly governed.

### Changed world food equation, early 21st century

Many of us think about the food markets as some curve of supply and demand. The economists among you assume that supply is rather price inelastic, i.e., that little will change in response to short run price changes; while demand on the world food market is a bit more elastic. There is some truth to that, but the more dramatic thing that is happening is that supply and demand are shifting. And those shifts have moved us into a situation of doubling food prices over the last ten years, and supply and demand will continue to shift.

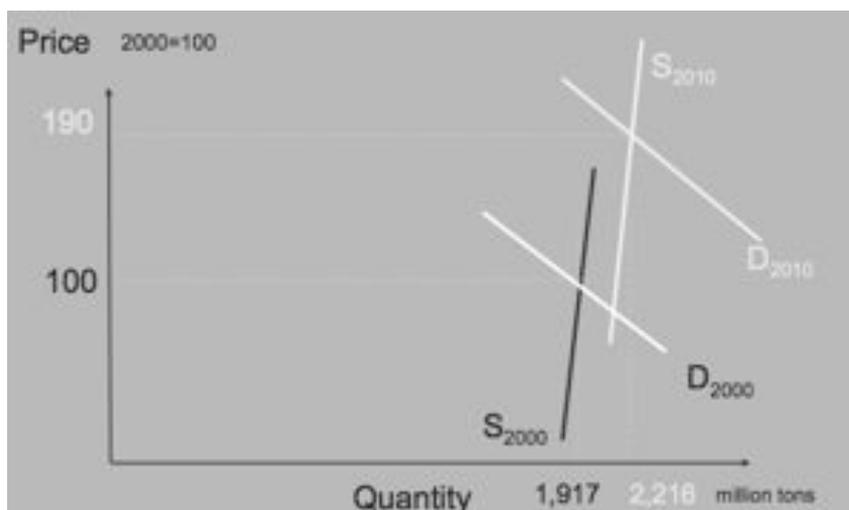


Figure 2: A simplified image of the world food market (grains 2000 – 2010)

The world food market of the early 21st century has some key new ingredients on the supply side that change the equation of supply and demand. To be highlighted in particular are water scarcity, climate change and technology. On the demand side, there is accelerated income growth; shifting demand; the bioenergy (biofuel) factor; and, the emerging CO2 market policies coming new into the equation. And in the trade and market context, not only the “supermarketisation” of the food system but also the “financialisation” of the food system and the role of banking and index funds have changed the traditional food equation.

A comprehensive lecture would need to go into each and every one of these items. But I will be selective. I will talk about some key supply-side actions needed, some demand-side actions, market and financial actions, social protection, and nutrition direct actions, and I will close with some reflections on how to change the system.

Supply-side drivers	Demand-side drivers	Trade and Market-drivers
Land degradation	Population growth	Supermarkets
Water scarcity	Income growth	Financial markets
Inputs & transport costs	Poverty and inequality	Stocks
Climate change	Consumer behavior	...and policies
Farm structure & labor	Bioenergy	
technology	Biomass (CO2)	

*Changed world food equation*

## 2- Supply-side issues and action

### Enhancing the growing positive role of the private sector for food security

To start with supply-side issues and actions, one of my main messages is to enhance the growing positive role of the private sector for food security. Agriculture production has been too low and was growing too slowly in the past 20-30 years. The total factor productivity is too low, not just yield growth. A 2% annual growth based on investment of capital, labour, land, water, et cetera is not making a food-secure world possible. There is a critical additional percentage point missing. So whatever trick we may try, if we do not correct the problem of low total factor productivity, hunger will continue to grow and the world will remain in a risky food situation.

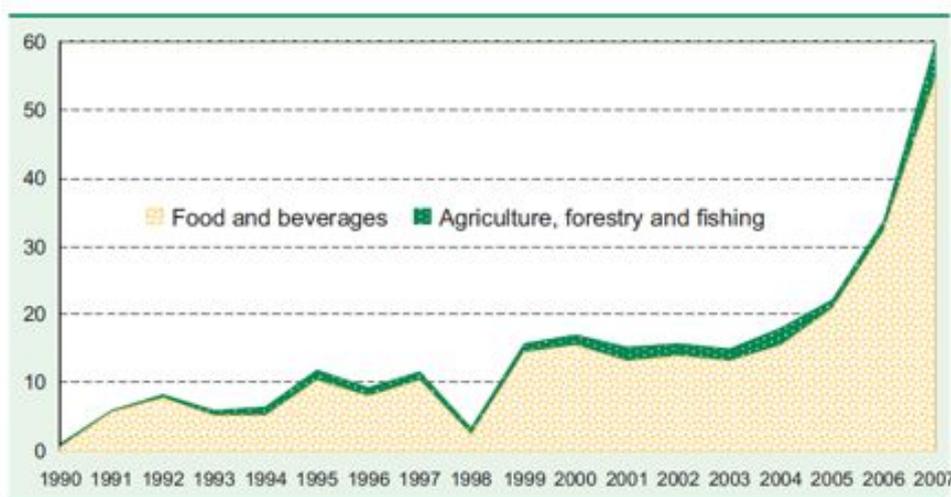


Figure 3: The new key role of the private sector: FDI inflows in agriculture, forestry and fishing, and food and beverages, 1990–2007

To accelerate growth, agricultural research for the poor is a key factor. It is fundamental: spending on agricultural R&D is among the most effective investment for promoting growth and reducing poverty. Plant breeding, biotechnology and productivity in livestock are central. Investment in productivity enhancing agriculture, in science and technology and in research and development is critical and goes a long way in the long term to address the food security risk issue. Hundreds of millions of people can be lifted out of poverty if the investment in good international agricultural research would be doubled or tripled.

The new key role of the private sector is exemplified by Figure 3. The curve shows you the foreign direct investment development over the past few years. It really picked up drastically after 2002. FDI and agriculture and the food industries also picked up a lot. A lot of this, two-thirds, goes to East Asia; Africa has only a share of about 7%, but is also growing.

#### **“Agriculture” is being redefined**

At the same time, agriculture is changing and redefining itself. Agriculture is being redefined from traditional agriculture towards the so-called bio-based economy, or “bioeconomy”. That has large implications for what science should do, and what the private sector and civil society can do. Traditional agriculture – i.e., farms, forests, and fish – is moving towards a system of interlinked value chains, bringing into the system perspectives on ecosystems, water, biodiversity and so on.

Agriculture is seen as a system of resource management for a whole set of end-products: from food, fibre, and fuel, to bio-based industrial raw materials. The bioeconomy is a strategic move towards a green-growth strategy.

For the corporate sector engaging in developing countries, this means a stronger emphasis on the role of services in the whole agricultural economic field. The ever-growing diversity in different types of farms is to be observed and will probably help us in one respect: In the crisis and the aftermath of 2008, the traditional small scale farm economies of the developing world hardly responded to the price increases by increasing production. Even if they wanted to, they couldn't: When the prices went up, many people expected the small farmers, with more money in their pockets, to grow more and increase production. But what should they have done? Roll up their sleeves and work even harder? The women on these farms are already working up to their full capacity. It should be no surprise that although prices doubled and tripled in 2008, small farmers – due to facing the severe constraints in terms of infrastructure, market access, finance, seeds, fertilizer and mechanisation – could not expand supply in the short term. Supply response to the price increase was close to zero. In the OECD countries, of course, it was stronger. Over time I expect the diversity in farms to change also in Asia and Africa, and farms will become more market connected and more price responsive if the services provided to them become more effective.

#### **Land's growing value: foreign land acquisitions and soil degradation**

The changed price situation has increased the value of land. Land grabbing has set in, initiated first by government to government deals. But a more generally increasing commercial pressure on land is happening now. And what do you expect, since food price and energy crop prices are still going up. A lot of that price effect is sinking in the land, the land gets more valuable and therefore banks can lend more. In many places in the Midwest of the US prices have increased by up to 50%. In East Africa they have more than doubled. Out of that come new opportunities, but also new conflicts in countries where the property rights for land are ill-defined. We therefore need a code of conduct for foreign land acquisition. The UN has been negotiating that for three years, but progress is too slow.

At the same time, land and soil degradation also need more attention. We talk a lot about water and about biodiversity. But the forgotten and underrated natural resource, in my opinion, is soil and soil fertility. Therefore I am arguing that we need a global assessment of the cost of inaction with regard to land and soil degradation. A lot of the poorest of the poor live on degraded soil and the long-term food security of the world will be further and further undermined if this issue is not more comprehensively addressed. The revaluation of land may help us to move forward with anti-soil-degradation policies.

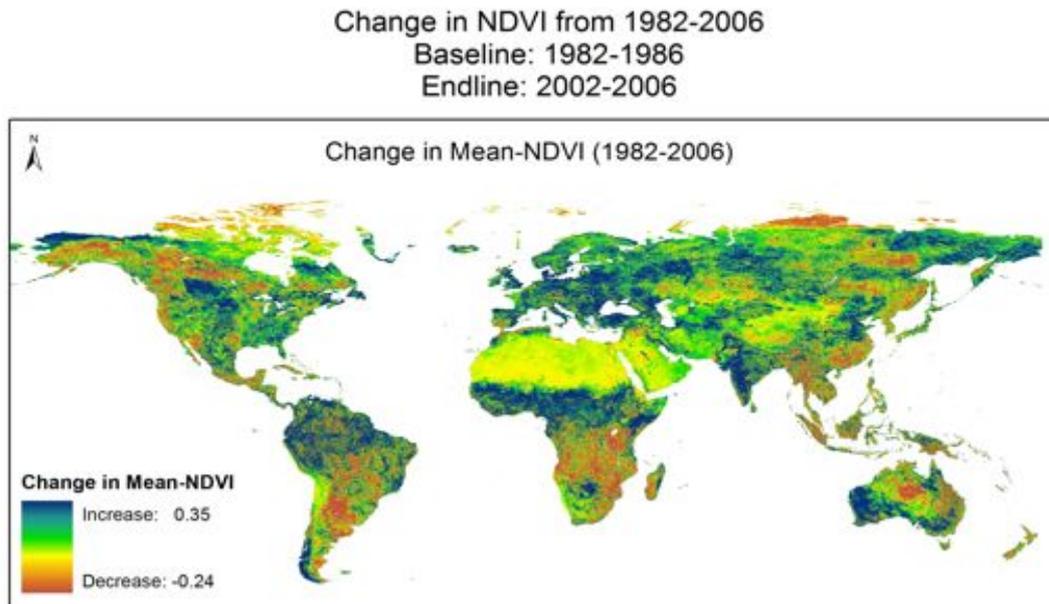


Figure 4: 1.5 billion people depend on degrading areas (Bai et al.,2008); 42% of the poor live in degraded areas

### 3- Demand-side issues and action

#### Addressing animal foods, waste and biofuels

Let me now shift to the demand-side issues. Here I want to address only the consumption habits, the runaway animal-foods consumption, and issues about waste and biofuels.

#### Meat consumption is income driven

If you look at global consumption patterns, at the top is the growth of meat and eggs. The main dynamic of consumption is with animal products. When income rises, people from all over the world want to eat more meat, drink more milk and eat cheese. They are no different from the Dutch in that respect, or the Germans, as we can see in Figure 5.

As you can see, the world is still far away from reaching the per-capita maximum of meat consumption. If nothing changes, the future 9 billion people in the world will consume a lot more of these water- and land-intensive products. We must change our taste to change our consumption patterns and we must work to reduce waste. The amount of unconsumed and discarded food products in the rich world is enormous. The economics of ending waste needs to come to the forefront as part of a food security agenda: The economics of ending waste in rich countries and the economics of ending waste in poor countries, where most of the waste happens at the beginning of the food value chain. Waste in poor countries happens because people don't have access to plant protection and to protection of the crops in storage. Ending waste needs to emphasize a different agenda in rich countries and in poor countries.

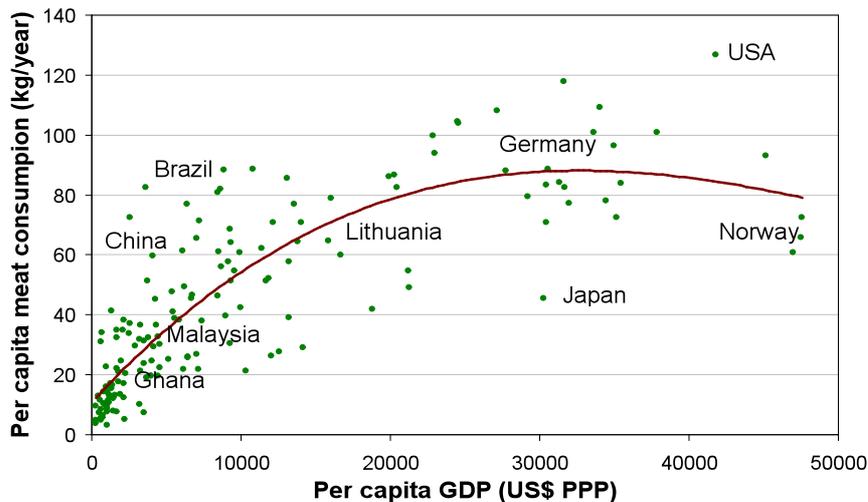


Figure 5: Meat consumption is income driven, up to a high point, which is a long time from being reached<sup>1</sup>

### Biofuels

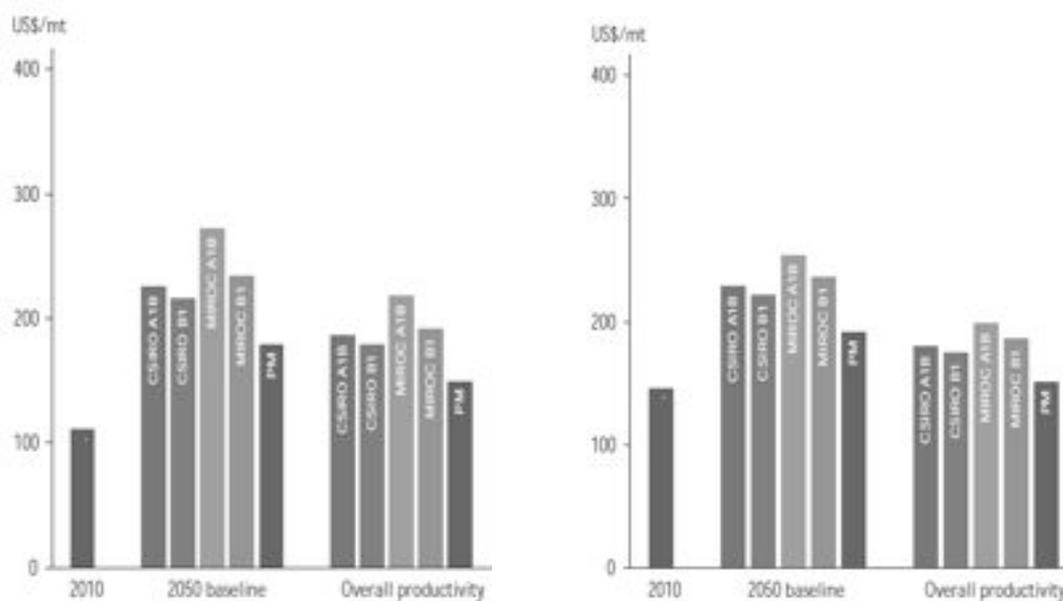
Let me switch to the contentious topic of biofuels. Biofuels, no doubt, have changed the world food equation. A large share of what used to be traded in terms of maize and of oil seeds is nowadays utilised for driving cars or for producing electricity in the fast-growing, highly-subsidised European biogas industry. There are three actions we need to take for biofuel right now: First, end the subsidized segments of biofuels. Second, use biofuels more flexibly: Make grain-based biofuels part of a global volatility reduction scheme, i.e., when prices spike, temporarily shut down grain-based biofuels processing, and possibly compensate investors. Third, use biofuels more for stabilization in the energy grid system. Biomass has the capacity, like pumped water, to be stored. The bio-based contribution of energy should be largely in storability and not the regular, day-to-day filling up of car fuel tanks.

I think the ethics of burning food for fuel needs a societal discourse. The feeling that there is something wrong with biofuels is widespread and increasing. We urgently need an ethical platform on this issue. Maybe, Mr. Pronk, this is something which the Dick de Zeeuw Foundation can take up in the future. Dick always connected economics and science with ethics, and so this would be an interesting topic for future lectures.

### Price scenarios under climate change

The price of food may increase further. Climate change may contribute to driving up food prices. Figures 6 and 7 show the different climate change scenarios of the International Panel on Climate Change, combined with the modelling of the International Food Policy Research Institute. By 2050 under the various climate models, regardless of whether we get a big boost in productivity and investment, prices will about double.

<sup>1</sup> Source: Henning Steinfeld, FAO 2010



Figures 6 and 7: The price of food will increase further: Price scenarios under climate change and enhanced productivity 2010 – 2050 for Maize (left) and Wheat (right)<sup>2</sup>

#### 4- Market and finance issues and action

##### Dealing with volatility in market-oriented ways

As food prices fluctuate around an increasing trend, we have to distinguish between the trend and the volatility around the trend. We can see increased volatility of food prices in the last ten years. This is a global issue that needs to be globally addressed.

##### Change in market structure: new links between financial crises and food prices

Historically, we are in a new situation. In this graph (Figure 8), I have mapped two curves: The first (the red line) is from Kenneth Rogoff (the American economist) and his team. It shows an index of bank crashes. Mapping onto that the development of the world wheat price shows no relationship up until 1990: The financial sector and the food sector on a global scale had no relationship until that year. After 1990, the correlation has been strong and significant. Financial instabilities are now transmitted into the food sector quite significantly.

<sup>2</sup> Source: *Food Security, Farming, and Climate Change to 2050*. IFPRI 2010. P 49



Figure 8: New links between financial crises and food prices only after 1990 (1905-2008)<sup>3</sup>  
 Source: J. von Braun Oct. 2010 (draft, not for quotation)

We can also see this relation in the next graph (Figure 9), showing the commodity sectors. The commodity prices of food, energy, and of metals became more covariate. They move up and down together. Why is this? It is because they are traded jointly: A modern index fund has a bit of oil, a bit of gold, a bit of wheat, and some pieces of pork, if you like, usually 10 to 15 components.

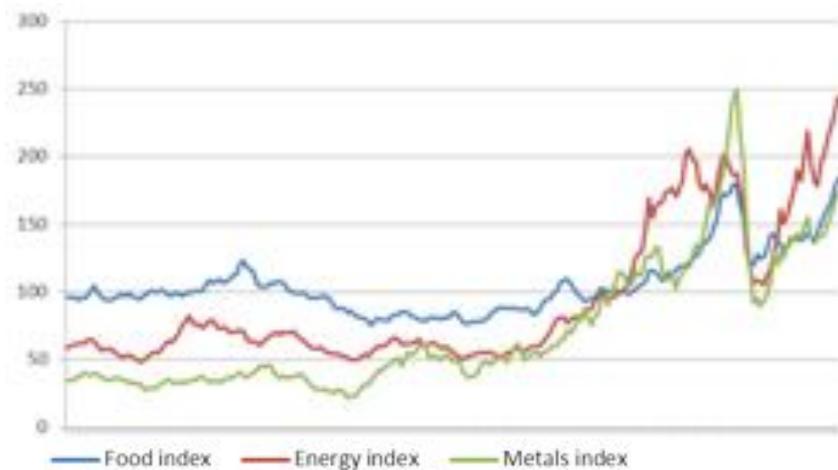


Figure 9: New Trend: the close connection among food-, energy- and other commodity-markets<sup>4</sup>

<sup>3</sup> Compiled by the author on the basis of the following sources: The wheat price are compiled and interpolated from data from BLS 2008, Godo 2001, NBER 2008, OECD 2005, U.S. Census Bureau 2008, and United Nations 1999. The BCDI Index is a composite index of banking, currency, sovereign default, and, inflation crises. It was developed by C. Reinhart and K. Rogoff, and presented at Brookings Institution in April, 2009.

<sup>4</sup> Source: IMF, 2011

At the same time, the most modern market institution, the Commodity Exchange, is changing in its structure (Figure 10). We see here two curves from the Chicago Board of Trade, the red curve going down in the current crisis is the volume of contracts for the so-called commercial traders. You see they have gone down over the last six to seven years since food crisis symptoms have set in. Those are the guys who trade grain, who hedge, who want to lock in with the miller or the baking industry to secure a good price for the future. We call them the commercial traders. The blue line going up through the roof represents the so-called non-commercial traders. They buy and sell but never are really interested in the commodity they trade in, and they roll over their contracts to each other.

In addition, a third group, the derivative index trading group, has now captured about a third of market activity. Mind you, speculation as such is nothing bad or evil, up to a point. But it does have a price spike boosting effect. While we can observe significant price spike boosting effects in the time of price spikes, we don't observe speculative price change effects in normal years. That's a very important conclusion for policy actions under consideration.

### **Costs of volatility and what to do**

Hunger and disease costs from volatility are very severe, because poor people have no capacity to adjust to them in the short-run, and incurable disease, especially for children early in life, can be the consequence. Also, there are a host of economic consequences of volatility as well:

- Mis-allocation in consumption (diets)
- Distortion of private investments
- Public expenditure mis-allocation
- Increased transaction costs in markets
- Adverse macroeconomic dynamics (inflation)
- Costs of triggering political riots.

The G20 meetings in 2011 had this at the top of their food security agenda: What should they do and should not do to reduce volatility-related speculation?

1. More information and transparency on actors and transactions is called for. These markets have become rather in-transparent. They are currently almost as in-transparent as the US housing market was for many people before the banking crash. The so called "over the counter" trading needs to be included in transparent markets.
2. Tax transactions, not in general, but on non-commercial and index funds and when we are approaching price spikes. There needs to be an automatic market-oriented transaction tax.
3. Establish physical and virtual reserves against price spikes.
4. Overcome the export ban problem. The G20 have to act, because the World Trade Organisation has not been able so far to act on these export restrictions.
5. Do not impose commodity market restrictions, quotas, et cetera. Do not over-regulate the market.

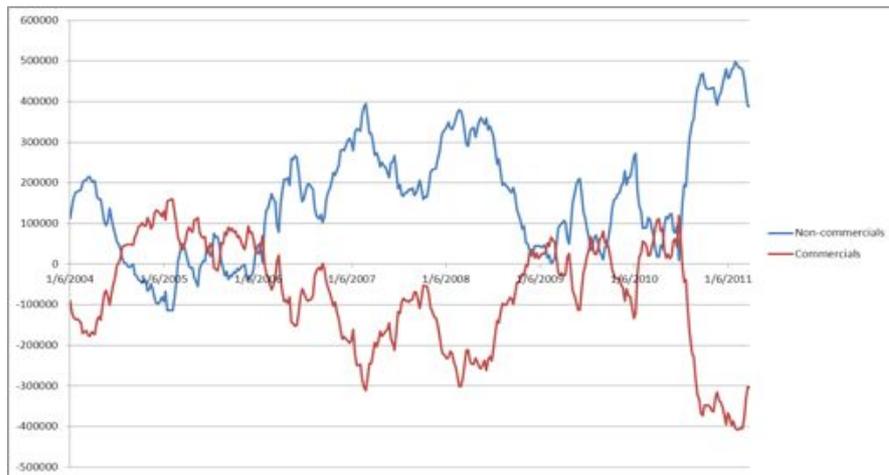


Figure 10: Change in market structures – “Commercial” and “non-commercial” traders Chicago<sup>5</sup>

## 5- Social Protection and nutrition action

### Combine social protection with food security agenda

The last action area I want to address in this lecture is social protection and nutrition. Here the main message is to address these not in isolation, but jointly with the agriculture and food security agenda. The instruments to expand social protection and nutrition policies are:

- Cash and in-kind transfers
- Insurance
- Nutrition and health actions focused on young children

With the latter I mean the so-called first 1,000 days: The nine months of pregnancy and the two years thereafter. Children suffer most from the food crisis and they suffer for the long-run if they suffer from a hunger shock.

We need some new ways to bring together the nutrition and social security action with the agriculture growth agenda. Options for criteria on priorities include:

- Focus on lives saved and livelihoods improved (mortality, morbidity)
- Focus on economic productivity, growth, and returns to investment (expected benefit–cost ratios; live time earnings)

We need to have both of these on the table when we are making decisions on where to put the money to address food and nutrition security. We need a dual framework approach with both of these concepts in an informed policy discourse for priority setting.

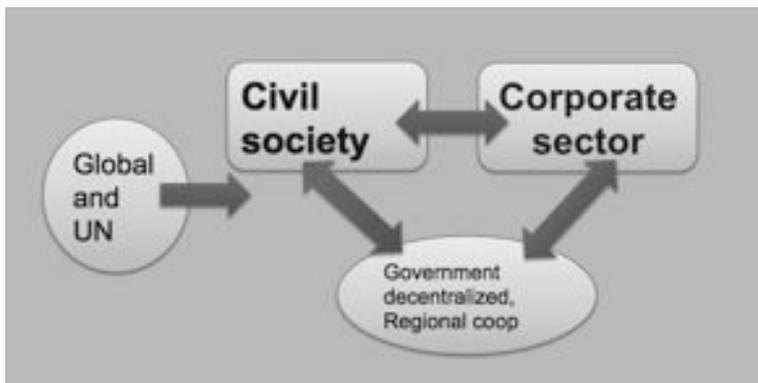
<sup>5</sup> Source: CFTC, 2011

## 6- Reflections on system change

### Enhance the functioning of the multi-polar food world

Let me close with some reflections on system change.

We live in a multi-polar world – not only multi-polar in terms of the changed superpowers – but multi-polar also in terms of the role of government versus civil society, versus the corporate sector, versus international organisations. We see a much stronger role of civil society and the corporate sector and a reduced role of government, and within government, an increased role of the decentralised segments of government. It is in this sphere that food security and nutrition action needs to be reconfigured.



*Figure 11: The multi-poles that govern food*

Cooperation in a multi-polar food world must include the major food players, and new ways of division of labor. Our role in Europe is mainly in generating new knowledge and science, and in sharing that for global food and nutrition security.

## 7- Summing up the agenda

We need some redesign initiatives:

- On volatility, the banking sector has to be part of the changed corporate responsibility action in the world food system. For instance, withdrawal from index trading in price spike situations. So we need ethical standards, similar to what we have in other businesses.
- On investment, we need to enhance the focus on the poor. For that we need more of the social business and shared value approaches, some of which have started already in a number of important food companies.
- In public policy we need a new thinking around grain. The poor, the bottom 2 billion, spend 40-50% of their meagre income on grain. Grain is the currency of the poor. But there is no central bank safeguarding the currency of the poor. Our money is being safeguarded by our central banks, and we have a whole set of instruments to make sure our currency isn't devalued too rapidly. We need something similar institution for grain: an international grain reserve bank, a central bank addressing itself to the bottom 2 billion, a central bank tasked with preventing drastic inflation and volatility in food markets. The set-up is similar to a central bank set-up. You know how a central bank functions for us. But the poor don't have this kind of institution. And they need it on a global level.

To sum up the agenda, these are my five messages:

1. Promote agriculture growth with technology and institutional innovations to prevent risks. That is mostly a national task, but sometimes global.
2. Change demand and behaviour, including behaviour related to waste. That's mostly for the rich world.
3. Facilitate reduced market volatility. That's mostly a global task.
4. Expand social protection and child nutrition action. That's mostly a national task.
5. Move system change onto the agenda. That's a task for all of us, including the media.

Ladies and gentlemen, I've been speaking to you in honour of Dick de Zeeuw, the academic and the food policy expert, the development policy advisor, the committed civil society actor and policy-maker, and it has been an honour to address you.

Thank you very much.



[www.dickdezeeuw.nl](http://www.dickdezeeuw.nl)

Joachim von Braun is Director of the Center for Development Research (ZEF) and Professor for Economic and Technological Change at University of Bonn, Germany. ZEF is a multi-disciplinary research institute with a comprehensive doctoral studies program held in English (see more at [www.zef.de](http://www.zef.de)).

From 2002 to 2009 he was Director General of the International Food Policy Research Institute (IFPRI) based in Washington, DC.

Von Braun serves on the boards of several academic journals, as well as on the international advisory boards of a number of research and policy organizations. He has published research on international development economics topics, including science and technology; on policy issues relating to trade and aid, famine, health, and nutrition; and on a wide range of agricultural economics research issues.

Von Braun has worked in Sub-Saharan Africa, Central America, Egypt, Russia, and China.

