

# Annual Report 2011



# Annual Report

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*2011*



Centre for World Food Studies

Stichting Onderzoek Wereldvoedselvoorziening van de Vrije Universiteit

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## ***Colophon***

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# ***Main trends in the world food situation***



## ***Food security under threat***

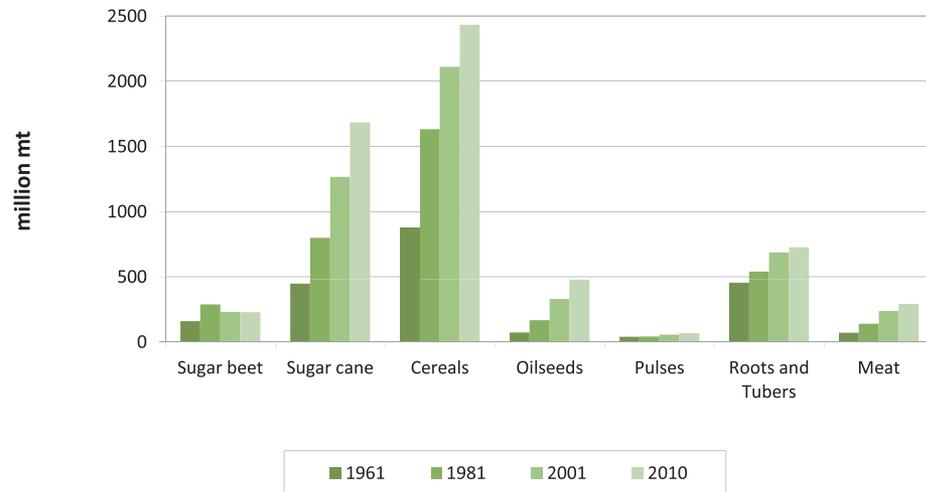
After decades of gradually declining agricultural commodity prices, since 2007 world food markets are experiencing short episodes of sharp price peaks; the first in 2007-'08, the second in 2010-'11, and the third one is taking off in mid-2012. These recurrent shocks and the new, much higher level to which prices have rebounded are manifestations of an increased volatility in commodity prices and the growing pressures on world commodity markets, caused by the steady increase in demand by an expanding world population. Climate change is likely to increase the frequency of shocks in food production, while the need for a transition to a bio-based economy adds its own dynamics to the already stressed system. Both consumers and producers are affected by these strong fluctuations; for the poorest among them, food security is directly at stake, but also in richer countries, possible threats to food security remain on the list of policy priorities.

Yet, it is only one of the many items on the list that is dominated by concerns about the consequences of the banking crisis, the euro crisis and the recession, and the political and social developments in the Middle East. Even more importantly, through the funding of the bailout and recapitalization programs, many governments in the developed world are facing high levels of budget deficits and debt and are forced to execute severe austerity programs. Even China with its vast foreign exchange reserves is now more reluctant than ever to furnish new packages, after spending massive amounts in its domestic stimulus programs to maintain growth. Therefore, the international community runs the danger of lowering the guard on global food security, while the underlying tensions on food markets continue to build up under the surface.

Bearing in mind this is a distinctive new feature of the world food situation, we present a short factual summary of it, captured in four topics: (1) the growth of agricultural production, (2) the trend in per capita production, (3) the behavior of prices, and, finally, (4) the influence of recent events on the prevalence of global undernutrition.

***Agricultural production increases steadily,  
but so does demand***

Growth of global agricultural production has certainly been impressive over the past fifty years (Figure 1). Broad commodity aggregates such as cereals, sugarcane and oilseeds have increased three or four-fold, to meet the demand of the world population that more than doubled over that period, from 3 to 7 bln, accompanied by an impressive increase in average per capita income (rising by 125%). For 2011-'12, it is estimated that cereal production keeps pace with demand, at least temporarily easing market tensions as stocks are replenished. Initial estimates for the harvesting year 2012-'13 also look promising, and again supply may equal or even exceed demand, FAO (2012). Yet in the course of 2012 a prolonged period of drought in the Midwest of the US caused a downward adjustment of global production forecasts by 2%, and subsequent downward revisions may follow. For Eastern Europe drought has led to a revision of previous estimates of maize production by -10%. Still, in total, the forecasts for total production of cereals in Europe remain close to the five-year average, due to favorable conditions in Western Europe (EU, 2012).



*Figure 1. Global agricultural and meat production.*  
Source: FAOSTAT

## Per capita agricultural production starts to increase

The challenges for the next 40 years, when the population will increase by another 30%, implying that food production should rise by 75 to 100% to keep up with demand (FAO, 2009), can be highlighted further by considering the global footprint of food consumption, expressed as total arable crop production in dry matter equivalents per capita. Over time it reflects increased pressure and may serve as a kind of sustainability indicator (Figure 2). Despite the strong increase in meat consumption and diversification of diets, the index has been stable for a period of 25 years, testimony to the strong increase of productivity of livestock rearing, due to higher off-take rates and shortening of the lifespan of animals. From 2007 onwards the index seems to move to higher levels, as biofuels enter the equation and the tendency towards a more diversified diet, based on more meat, more fruits and vegetables, more sugar crops and less roots and tubers continues.

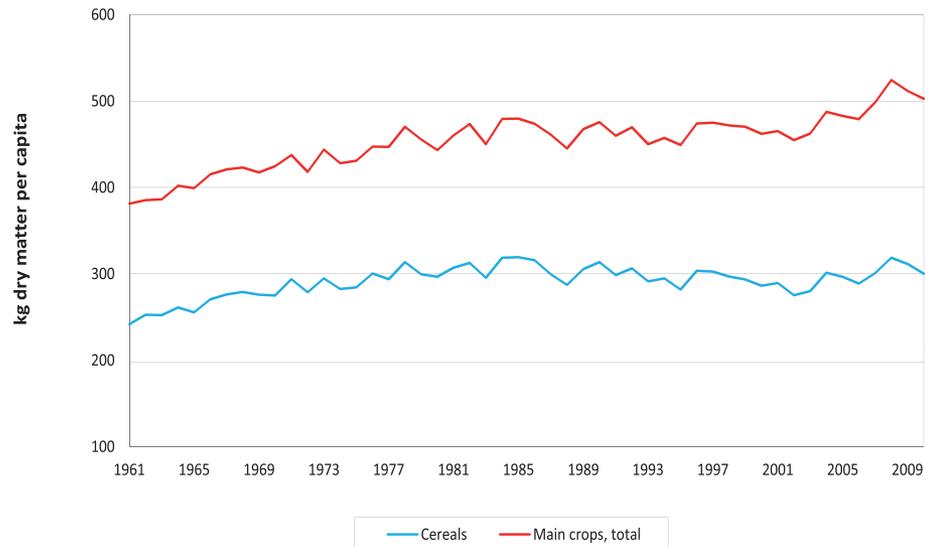


Figure 2. Per capita arable agricultural production in dry matter equivalents.

Source: FAOSTAT

Concerning the future development of the index, the impact of population and income growth in emerging economies may override anything else. Still policy changes with respect to biofuels and changes in livestock productivity matter as well. It is clear that a significant yield gap exists between livestock systems across countries, leaving room for further improvement of the feed/meat ratio on a global level. On the other hand, in richer countries productivity may decrease as consumers express concerns about animal welfare, leading to more extensive production methods (free range chicken and “outdoor” cattle).

### **Prices of agricultural commodities and oil: delinked again?**

The functioning of major agricultural markets has improved in the past few years, due to the reforms of the US commodity exchanges. Future and spot market prices now appear to converge again upon delivery, allowing futures markets to function properly. Since at maturity the possibility of physical delivery is always open and real, convergence also implies there is little room for speculative forces to set the tone on agricultural markets and a boost of liquidity like the one that infused futures markets during the first food crisis should at best lead to more transactions at the exchange and not much else (see SOW-VU, 2011 and IFPRI, 2012).

The year 2011 was also relatively free of export bans, which can have a major impact on price formation as we have seen during the food crisis, when almost all rice exporters consecutively decided to halt their exports, and when Russia and Ukraine, two of the upcoming agricultural exporters, did the same after a severe drought in the case of wheat. Although more recently occasional export restrictions and a discretionary licensing system have been imposed by these latter two countries, this had little effect on overall price developments.

Therefore, market fundamentals again prevail in the major commodity markets. Price determination of the homogenous, well graded commodities that are typically traded at the exchanges are primarily determined by three factors: the increasing demand by emerging countries, the weather induced supply shocks in the major producing areas, and the blending mandates, which earmark part of the production for energy purposes, making the price formation of the remaining part more responsive to shocks. As an illustration of recent price movements, we display agricultural com-

modity prices that have been at historically high levels ever since the first food crisis; they came down after the first and second price peak, but are still twice as high as at the beginning of the millennium. The drought in the Midwest of the US in 2012 affected price expectations and prices went up by more than 20% (Figure 3). The behavior of the commodity prices depicted here is representative for the overall food index (consisting of an aggregate of major food commodities as compiled by the IMF) which when normalized to 100 in 2005, peaked at 180 in mid-2008, at 190 in April 2011 and has reached a new peak of 185 in July 2012. Through the biofuel policies in the EU and the US, prices on cereals and oilseeds markets were linked to crude oil prices, as the simultaneous occurrence of price peaks in both markets illustrate: a barrel of oil reached 140 US\$ in mid-2008, and peaked again in April 2011 (at 125 US\$), before it started to decline, as a result of the ongoing economic slowdown in the majority of OECD countries.

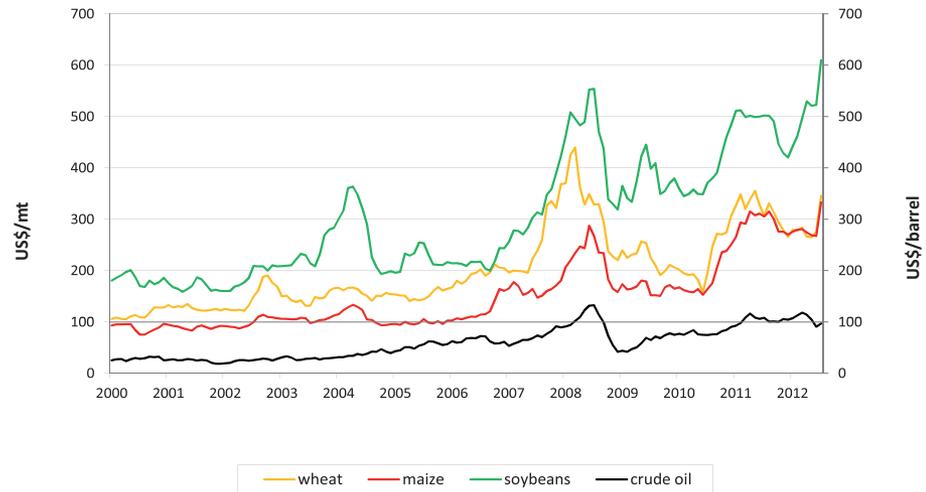


Figure 3. Prices of selected commodities (wheat, maize, soybeans and crude oil).  
Source: IMF

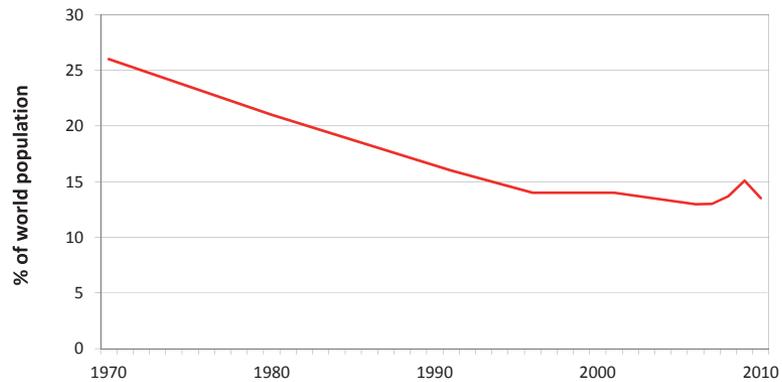
Having said this, for both cereals and oilseeds, the link with crude oil has been weakened in recent years. Oilseeds prices have kept their high level when oil prices fell, as imports by China (now half of the world trade in oilseeds) decoupled the prices from that of oil. For cereals, the introduction of blending mandates in the US (early 2012) to replace the policies of direct subsidization of ethanol producers and border protection has changed the dynamics on the maize market. Biofuel production now enters this market directly as a demand category that is unresponsive to price changes, leading to larger price sensitivity to supply shocks than before (such as the drought in the Midwest illustrates). As can be seen in Figure 3, the price of wheat follows suit through substitution on the demand side. The sharp increase in cereal prices has led to an appeal by substantial parts of the US Senate and House of Representatives to (temporarily) lift the blending requirements, but it is far from sure that such a policy change will be implemented.

For the next decades, it is expected that a high level of agricultural and crude oil prices will persist, see the Agricultural Outlook of OECD-FAO (2012), as a result of continuing demand pressures, but also because of increasing production costs caused by the strong demand for nutrients and minerals exercised by the upcoming economies.

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### ***The food price crisis and food security: a closer look***

Global trends in production and prices point at underlying causes for tensions on world markets. The important question remains how these trends have affected and will affect food security. Although it is generally acknowledged that food security comprises many dimensions, we focus here on the nutrition side, and in particular, we restrict ourselves to an assessment of average calorie intake, as is still common in publications of international data on undernutrition that are provided by FAO. We recall that the definition of being undernourished used in these data is to have a daily intake of calories less than 1800 kcal per person, and usually the share of the population below this threshold is reported. The food crisis of 2007-'08 and the new price peak of 2010-'11 are believed to have, at least temporarily, reversed the long-term decrease in relative undernourishment (Figure 4); high prices cause reduced food intake by the poor, since the vast majority of the poor are net food buyers and the impact on their real income is high because of the large share spent on food.



*Figure 4. Undernourishment.*

*Source: FAO*

However plausible this reasoning may seem, it would be too much to suggest that this pattern is entirely data driven. Methodologically, estimates of undernourishment since 2005 are no longer derived from the elements of the FAO food balance sheets. Instead, less data intensive and undocumented methods for the annual updating of the degree of undernourishment are used, while desk studies provide impact estimates of the price peaks (see De Haen et al., 2011). This implies that the reported data follow the assumptions, and cannot be used to test these.

Hence, we propose to include other indicators to assess nutritional status, specifically anthropometric indicators as reported in the Demographic and Health Surveys (DHS) that monitor weight, height, age and many health related variables for women and children (and for some countries, men), in a large number of developing countries, usually at five year intervals. Anthropometric indicators have the advantage over food intake measurements that they are direct and simple and do not require elaborate calculations or assumptions. Measures such as low weight for height and low weight for age offer insights into the extent of acute and chronic undernutrition in children, while the Body Mass Index is widely accepted as an indicator of nutritional status of adults. Whereas we fully acknowledge the limitations of these measures in the sense that they reflect much more than only food intake (for example, the general sanitation condition that impacts on the

prevalence of diarrhea; the ability to prepare the food available in a correct way and the health status of the individual), we nevertheless find it instructive to confront these figures with the trends sketched above.

For 13 countries, DHS surveys were available that roughly covered the period 2000-'10, hence, before, during and after the food crisis of 2007-'08. Countries are grouped into two classes: for one group, most surveys are available for 1998, 2003 and 2008; for the other group, most surveys have been conducted in 2000, 2005 and 2010. Figures 5 and 6 summarize the shares of populations in these 13 countries that are undernourished by nutritional standards – shares presented are the population-weighted averages of adults with a BMI below 18.5 and children with a weight lower than 2 standard deviations below the norm weight for their age.

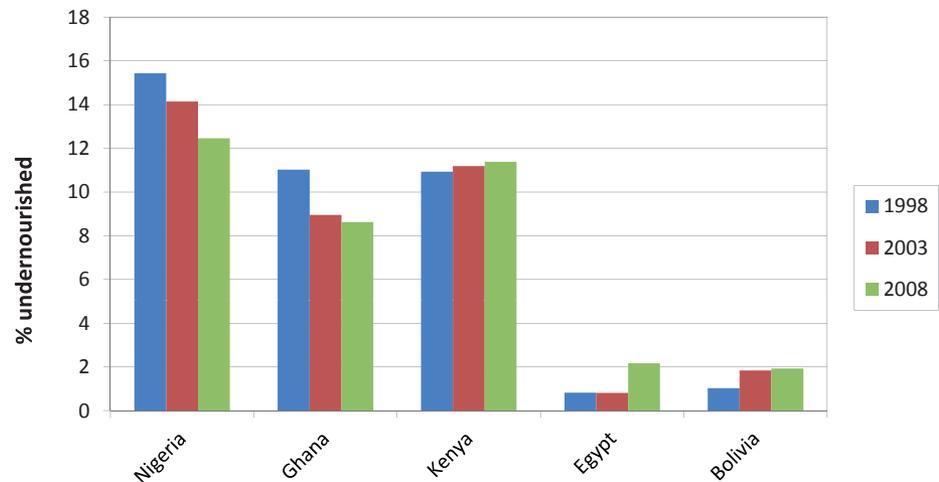


Figure 5. Trends in undernutrition (country group 1).

Notes: Nigeria: 1999, 2003, 2008; Kenya: 1998, 2003, 2009; Egypt: 2000, 2003, 2008;

Source: Demographic and Health Surveys, various editions

For country group 1, it seems that the strong growth in Nigeria and Ghana (6.3% and 7.5%, respectively, over the 2003-'08 period) has outweighed the negative effects of price increases. In Kenya, there seems to be an unfortunate upward trend in the rate of undernourishment, despite the fact that also here, growth figures have been impressive. The unrest that broke out after the 2007 elections has had a profound negative influence on the well-being of the population, but also in the period 2003-'07, economic growth seems to have benefitted only a small part of the population. Egypt seems to be a clear case where the price crisis impacted negatively on food security, with the share of undernourished doubling after being virtually stable in the years before. For Bolivia, the share that had risen in the period 1998-'03 when the country was plagued by social unrest remained stable.

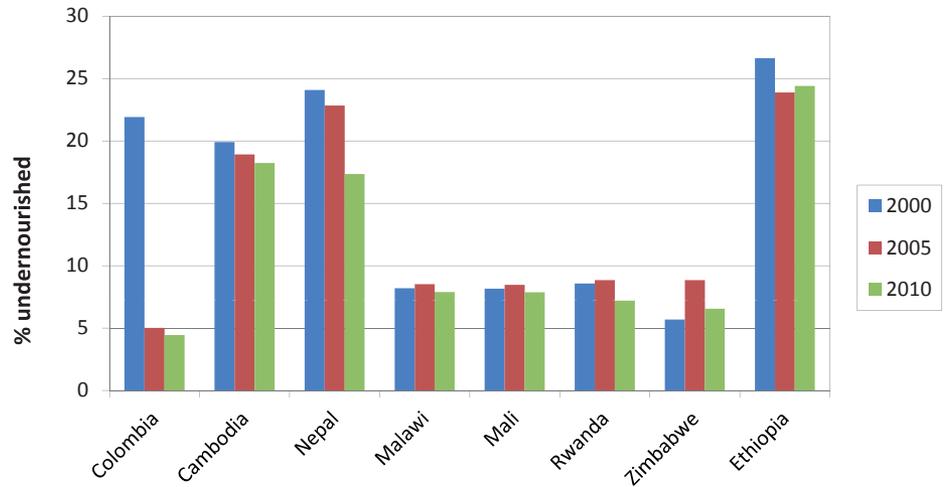


Figure 6. Trends in undernutrition (country group 2).

Notes: Nepal: 2001, 2006, 2011; Malawi: 2000, 2004, 2010; Mali: 2001, 2006, 2010; Zimbabwe: 1999, 2006, 2011; Ethiopia: 2000, 2005, 2011; Source: Demographic and Health Surveys, various editions

For country group 2, Colombia, Cambodia and Nepal have shown consistent improvements in food security, where for Colombia the major improvement is achieved in the period 2000-'05, when the government gradually regained control over the country. Malawi, Mali, Rwanda and Zimbabwe all show minor to moderate increases in the share of undernourished in the period 2000-'05, but a recovery in the period 2005-'10, which is the period when the major price crises took place. In each of these countries, specific events can be pointed at to explain the observed pattern involving outbursts of political and social unrest, succeeded by periods of relative calm developments. In the second country group, Ethiopia therefore seems to be the only country where anthropometric data support the negative impact of the price crisis on undernutrition. For the African countries in the total sample of 13 countries, the average rate decreased from almost 12% in 1998-'00 to 11.6% in 2003-'05 and almost 11% in 2008-'10, a slow but steady progress.

It is clear that the 13 countries presented here do not constitute in any way a representative sample from which global trends could be derived. However, the analysis does suggest that simply posing a relation between price spikes and undernutrition trends can be misleading as it neglects important country specific forces including high growth in GDP, social and political unrest and the degree to which countries are linked to the international markets. For a more rigorous assessment of the world food situation clearly a deeper analysis is needed, both in terms of data collection and in the application of data processing techniques. It requires frequent monitoring, which need not be very costly when rapid appraisals are being combined with existing survey and census data. Yet this requires adequate processing to establish the representativity of the appraisals and the surveys, and to obtain a sufficiently fine spatial differentiation. In such a setup it is possible to keep track of particular local events and household characteristics to provide some insight into the causes of a change in nutritional status, and to indicate which groups are most vulnerable (or resilient) to specific threats. In this way not only a more accurate and timely assessment of the evolution of food security can be made, but it can also indicate which policies would be most conducive to enhancing it.

While there is no doubt that policies to increase food security cannot be considered in isolation, and may vary considerably between and even within countries, it is equally clear that the required doubling of food production in 2050 must form part of any strategy to enhance global food

security. This necessarily implies a substantial increase in per hectare and per farmer output. Since smallholder farms produce a large share of the world output of agricultural produce, much of the agricultural development programs will need to focus on them. Currently, however, their production strategies are designed for survival rather than profit and the vicious circle of low yields, low revenues, low levels of investments that keep yields low needs to be broken, for their own sake and to secure their contribution to global food security.

Applying trade barriers to shield farmers off from international markets is too costly an option that, moreover, tends to create an uneven distribution of rents. Coping and prevention instruments such as crop insurance and diversification, or social safety nets can directly help smallholders improving their resilience but the basic challenge is to enable them to benefit from the rising trends in international prices on agricultural markets that are foreseen by easing access to markets for inputs, outputs and finance, and to strengthen their farm enterprises as such, so that these can withstand adverse price and weather shocks.

On the input side, the package includes improved seeds, more efficient use of inputs, better pest management and improved access to markets to improve the quantity and quality of output and to increase farm income. Inputs should be available for farmers at nearby market places where they can also deliver their outputs for traders to buy for further processing and transportation. This will take massive investments into rural areas.

### ***The need for agricultural finance to transform small holder***

#### ***agriculture***

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Currently, financial flows to rural areas seem to be grossly insufficient: according to Motes (2011) there is a gap of 100 bln US\$, which is larger than the sum of own savings, development aid, remittances and foreign direct investments in agriculture together.

Governments are stepping in to fill the void: China for example has ambitious plans to modernize its agricultural sector, and intends to invest up to three percent of its GDP in it. This represents a huge increase in its transfers to rural areas complementing the rural savings, which are already tradi-



tionally high in China but also earmarked as provision for old age (since pensions are low) and as compensation for the lack of social amenities (since the provision of health services and education is limited as well). In Africa on the contrary rural savings are generally low and here international organizations try to step in, with funding programs to boost agricultural productivity, and the call that countries themselves allocate 10% of their investments in agriculture (the 2003 Maputo declaration by the African Union). The pledges are until now only moderately successful, but it may help that the sustained growth of on average five percent augments the continent's GDP by 100 billion US\$ and this will eventually free resources to flow into agriculture as well.

It is not very likely that this will be enough and additional flows of capital from outside agriculture need to be tapped. The history of modernization in advanced economies may serve as a guide here, where support from government (such as the Common Agricultural Policy) and lending provided by banks created a strong agriculture sector with a fair share of highly capitalized family farms. History has learnt more lessons in this respect that developing countries should take at heart. First, support programs like the CAP are meeting with increased resistance as in many European countries transfers from national to European level are under pressure, as domestic issues take priority in the current euro crisis. Second, there is pressure from international competitors, pointing at an uneven playing field and possibly also dumping practices, when subsidized goods are sold on their market below the cost of production. Finally, most of the loans were at fixed interest rates and when farms started to accumulate debt they became vulnerable to shocks in output and input prices. The food crisis has accentuated again this lesson particularly for horticultural farms in counties like The Netherlands and Denmark, which have high revenues per hectares but also high input costs (e.g. for energy, and linked to that of fertilizer) that become highly variable under the current regime of commodity prices.

Other ways of financing may be more attractive in this respect. Direct investment and foreign direct investments (FDI) have a role to play. FDI has acquired somewhat of a bad reputation recently, since it sometimes is taken to refer to a class of land acquisition programs of which the modalities are far from clear, unleashing fears that landowners are being expelled from their land, or otherwise negatively affected. The way to counter such development is labeling and certification, not to block much needed investment. In states with little governance and weak institutions, where it is difficult to enforce laws, the labeling of their exports, at the initiative of the importing

country, may help to certify that the production process is acceptable and that standards for environmental criteria and labor conditions are met. In this way the importing country may serve as an external anchor for change, when the domestic governance situation hampers progress in this respect.

Direct investments provided by local venture funds or well-to-do persons with knowledge of local circumstances seem attractive as well, since these avoid the high margins charged by banks, and local knowledge provides insight into the value of collaterals and management skills. Investors can also provide access to their networks and have a better capacity to buffer shocks than smallholders, allowing them to profit from the good prospects on world markets.

Anyhow, even when most of the funding would come from private sources, a facilitating and supportive public role is often a catalyzing factor. Yet, government attention for food security may be watered down since there are other important policy domains in need of government involvement or a stronger institutional framework. Governments have committed themselves to open trade channels, as promised first in the GATT and later codified in the WTO, but the past decade has shown no substantial progress in this domain. Rather, WTO members are resorting to labeling schemes and bilateral trade agreements, which may harm third parties, and protectionist measures are gradually creeping back in (Evenett, 2012). Climate change is another threat to food security since production systems have to adapt to changes in precipitation and temperature faster than expected. Governments also seem to lose their pivotal role in managing the energy transition, where the continued progress in reducing production costs of renewables and the innovation of technology inspires local and private initiatives, without much overall coordination.

All these topics define the rapidly changing setting in which food security is embedded, but policy is slow to develop a comprehensive view, and as said earlier, is plagued by lack of funds.

Not only governments are cash strapped after the prolonged crisis; many urban households in developing countries enter a new food crisis with reduced levels of savings and assets. Their wages may be lower and remittances have suffered, which are now mostly used for consumption purposes to make ends meet. Revival of urban agriculture could be part of the solution that can be organized without much external funding, although it may require zoning and land policies, which is often a sensitive issue.

## **Transforming agriculture: not just economics and technology**

The transformation of small holder agriculture entails much more than raising productivity of farms: rural life itself is affected with far-reaching implications for family and community life and will cause changes in traditional relations with the environment. To guide the transition, an approach is needed that is capable of including not only the commercial aspects of the transition, but also the wider cultural and natural context in which smallholder farmers operate.

Conceptually, all interactions between people and between people and other living organisms can be described as belonging to the three domains of nature, culture and commerce. All three domains are important for sustainable food security: nature as supplier of environmental quality and biodiversity, culture as supplier of governance and social norms and commerce as provider of goods via enterprises and markets. The domains are strongly integrated, and at the same time they are also fierce competitors (each in its own domain and with respect to one another) and have the tendency to be intrusive.

To give a few examples, global commons suffer when commerce becomes too dominant and commercial norms take over private ethics. Globalization is seen by many as a threat to national heritage and local autonomy, and therefore strongly opposed as demonstrations during G-20 and Bretton Woods meetings show. On the other hand, emancipation movements may use changes in society caused by commercialization as an argument for change of existing norms. More often, however, adjustment processes are far from evident and disguised under the veil of progress, so that it is only realized that fundamental and possibly valuable institutions have been lost when it is too late to reverse the process; historians are apt to describe such processes, especially when traditional forms of rural life disappear, but scenario analysis and impact analysis, with their narrow focus on easily quantifiable topics, will not reveal it.

Striking a balance between the three domains will prove necessary in many cases, and this calls for interdisciplinary research that studies the world as it is, but also is able to represent a counterfactual situation where some of the existing rules and regulations are not present to guide actions of individuals and groups, and assess the possible outcomes of institutional change



at a par with the impact of economic policies on, say, trade and income distribution. In this way it may be better possible to describe and affect the governance of the domains themselves and their interactions.

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## ***Conclusion***

It is clear that pressure on the agricultural sector will remain high. To ensure food security in the future a substantial increase in per capita and per hectare production of food is needed, and this requires a transformation of rural areas, with large inflows of capital, in a global setting characterized by budget squeezes and recession. To guide the transformation process, a narrow view that takes into account only the commercial economic aspects will fail to capture other relevant characteristics, as new norms for interactions – among people as well as with nature – need to be developed and existing ones protected from silent extinction. The development of formal approaches that can represent complex realities, and integrate information and data from different fields to enhance understanding, stands in the Centre's tradition of taking a broad view on food security and poverty. Some examples of research projects highlight this approach.

# ***SOW-VU activities in 2011***

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## ***Africa in Maps***

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The Centre has published a data repository of the food economy of Sub-Saharan Africa. For all countries a series of variables related to food and undernutrition (key variables are the production, consumption and trade of food, nutritional status of adults and children, food aid deliveries and transport costs of food) is now available at grid level (10x10 km). The data can be accessed as ready-to-use maps or as aggregates at district level. It uses only publicly available data which through dedicated procedures is downscaled to grid level.

The database offers a novel way to assess undernourishment, which is based on information from the Demographic and Health Surveys. Weights of women and children have been translated into calorie intake for the population as a whole, using physiological relationships while correcting for age and gender. This approach delivers a consumption map expressed in the familiar kcal per day per person. Direct use of measures of undernourishment in the surveys (BMI for adults and weight for age for children) leads to a reassessment of the undernourishment that differs markedly with levels published in other sources, and highlights the spatial diversity at a given year but also over time, where local and national events may have a much more marked impact on food security than global trends (recall Figure 5 and 6).

The grid-level data repository on Sub-Saharan Africa is a valuable instrument for the Centre's research programs, in particular since it can be complemented with data inputs that are project-specific.

## ***Policy response of poverty patterns in Mozambique***

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A project that clearly illustrates the value of using transparent methods of survey research, and stresses the importance of spatially explicit approaches to poverty and undernutrition, is the research activity undertaken in Mozambique.

Mozambique is experiencing a sustained period of high growth, but there is

some doubt whether poverty reduction is in line with the favorable macro prospects. The National Poverty Assessment tracks the situation over the past 15 years and poverty patterns revealed a certain ambiguity over time as well as over the various population groups and provinces. For example, it was found that the poverty headcount initially declined, but remained practically constant over the period 2003 to 2009. Also poverty rankings at the provincial level show an unusual pattern with swings of more than 20 per cent points up and down and a complete re-ranking of provinces over the three survey rounds. Poverty in Maputo City, which is the major growth pole, was found to be about as high as some of the rural parts of the country.

Upon request of the donors and the World Bank, SOW-VU conducted at the end of 2010 a desk study to review the poverty trends in Mozambique. Based on the presentation in the beginning of 2011 and the ensuing report, a follow up project has been formulated and negotiated with the Dutch Embassy, to conduct a broader study that will establish a poverty profile and explore the implications for poverty reduction policies; the project has started with the identification of Mozambican counterparts, who have already received their first training on using modern statistical methods of poverty research.

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### ***Scarcity and use of minerals and nutrients***

As was mentioned in the introduction, upcoming scarcity of mineable resources of metals that are essential mineral nutrients for plants, animals and humans alike, is considered to be one of the major drivers for food price movements in the future. It has led to the Scarcity and Transition policy dialogue in Netherlands; it played a prominent role in the Centre's China project (highlighting the unbalanced and excessive use of nutrients in China); and the Joint Research Centre of the European Commission frequently organizes seminars to discuss the policy implications, e.g. see Malingreay et al. (2012).

The Centre has emphasized at these meetings that increasing scarcity of mineral resources implies that lesser quality sources are increasingly mined, which in turn implies increasing contamination with toxic elements such as cadmium or uranium. Currently, there is no legal obligation for producers to

fully label the composition of fertilizer sold on the market. Hence, farmers (and consumers) are unaware of the possible presence of these elements when they apply the fertilizer, with as yet unknown impacts on the environment and the food chain. The EU Commission has committed itself to legislation that will regulate labeling that makes the amounts of pollutants explicit.

Of particular concern with respect to nutrients is the situation in Sub-Saharan Africa (SSA), where human undernutrition is widespread, where fertilizers are very expensive and consequently unaffordable, and where manure in many instances is not available because of prevailing animal diseases (e.g. trypanosomiasis). More importantly, conventional fertilizer technologies frequently produce very modest yield improvements in SSA, if at all. In the light of the needed transformation of agriculture, this point has been one of the main issues of a seminar on the development of smart fertilizer technologies organized and sponsored by the De Wit School of Production Ecology, Wageningen University, the World Data Centre for Soils (ISRIC) and SOW-VU. The presentations are available from PERC (2011).

### ***Theoretical representation of "The Law of the Jungle"***



Research on methodological issues is a core activity at the Centre, and has over the years provided indispensable input into most if not all applied projects. This work focuses on the integration of (bio)-physical processes as well as social dynamics into economic theory. The first line expanded into spatially explicit methods including models of water flows, the second into explicit representation of institutions, such as the representation of price formation as a visible auction process. While the adequate representation of (bio)-physical processes allows for the integrated assessment of economic and physical effects of shocks, the inclusion of social dynamics is important to understand the resilience of systems against shocks that are likely to be of a different kind and intensity than in the past.

Theoretical work to conceptualize a world without social institutions as a food chain where predators compete with rivals for prey animals that in turn may have to compete for lower level prey and where all interactions are therefore governed by pressure is ongoing. This world mimics the Jungle, where the weakest suffer and the strong dominate, but neverthe-

less a stable equilibrium can be shown to exist, characterizing a long-term balance between prey and predators. If humans are considered as the top-predators, pacification of the rivalry between competing individuals can take place through the introduction of market prices at which transactions are settled, representing and replacing the physical effort needed to obtain the good by force. This can be viewed as a first step towards commercialization of society. Pressure can still exist alongside market prices, given room to represent the acquisition of goods through bribes or force.

A next step is to recognize the importance of non-commercial relations between people (the social fabric) and to explicitly represent these as investments and transactions that are valued at bilateral or group-coordinated “prices”, and put limits on the use of power by strong individuals, explaining why in well-functioning societies, even the strong comply with laws and (explicit and implicit) regulations that restrict their freedom to act.

This approach provides a far richer description of the world than the standard competitive model, and recognizes that the purely commercial sphere is only a part of the system which has implications for policies aimed at ensuring sustainability and preservation of nature. Commercialization implies treating what is traded as a commodity, depriving it of many of its essential characteristics (the living creature with its place in a food chain being reduced to kilograms of meat). Labeling goods re-introduces some of these characteristics (e.g. animal welfare requirements derive from what is considered to be natural behavior for the animal as living being), but such lists can never be complete and from this it follows that commercial markets by themselves cannot be expected to yield results that are compatible with sustainability and protection of ecosystems. Hence, an integrated approach may offer new insights to guide regulatory policies in this area.

The above examples can be extended to include the representation of existing institutions to protect and manage natural resources but also to include social conventions that exist within societies and groups within society, making it possible to design policies that “fit” existing institutions and may therefore attract enough popular support. This is an ongoing research program, of which a broad outline and some first results have been reported at the 2011-meeting of the Centre’s Scientific Advisory Council.

## ***Advances in the empirical toolkit***

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To enable empirical application of many of the theoretical innovations and to involve partners in developing countries in the process of analyzing trends and identifying policy options, further improvements of the GRCP package (the Centre's integrated statistical package for data processing and classification and inference) have been implemented. Theoretical work on the design of optimal stratification (useful for survey design and tabulation) and the establishment of treatment effects (with ongoing work to develop procedures that establish stability in estimation) when dealing with observational data have been completed. A new user interface, for easier handling of data inputs and data output, together with a user's guide and manual, have been written, and tools for data conversion and facilities for map plotting have been added to the package. Two courses using new teaching material have been given, one to the team of researchers that work at the Ukraine project and one to researchers of the Joint Research Centre (JRC) at Seville.

# Ongoing and upcoming research projects



The Centre has a diversified portfolio of projects, and a brief summary is given of some of the ongoing projects as well as some new initiatives.

## *Agricultural transition in Ukraine*

The Ukraine project started in mid 2011, with funding from the Joint Research Centre of the EU as part of the EU's Neighbourhood Policy program, which aims to improve relationships with the neighboring countries and assists in governance and development programs. Ukraine is rapidly becoming an important agricultural exporter, based on its vast land resources and its excellent soils. Yet, it fails to fully unlock its agricultural potential and a higher contribution to global food security, due to the political disarray, spilling over to the economy and the still incomplete transition of the collective Soviet-style agricultural sector, exemplified by the tensions between the interests of smallholders and large land owners.

The Centre cooperates with local researchers of the National Academy of Sciences in Kiev, who will look into the social, trade and environmental consequences of this transition, and can tap from a set of primary surveys that have not been analyzed in depth before, let alone in combined fashion. For this, the Centre's GRCP package is the key toolkit. The project is expected to be completed in mid 2012 and also serves as a pilot study for similar countries as to how to establish a data platform for doing independent policy analysis, and the type of capacity building that is needed for it.

## *China's agricultural transition*

The Centre has built up a substantial experience and network in China, and maintains a detailed model for Chinese agriculture. This model incorporates the latest developments on world commodity markets and China's internal agricultural policies that rapidly change to assist the modernization of its agricultural sector. It also played a key role in a recently finalized, four-year project on China's agricultural transition (CATSEI), coordinated by the Centre. Currently follow-up projects are being prepared, under leadership of

the Centre of Chinese Agricultural Policy, that concentrate on the formulation of scenarios to assess the consequences of climate change for China's agriculture.

### ***Drought coping strategies for pastoralists in the Afar region***

The project in Afar, Ethiopia, aims to identify feasible strategies that will improve the well-being of pastoralists. It looks into the institutional aspects of pastoralism, in particular, how the various clans govern the common grazing areas without an elaborate system of monitoring or (central) governance. A survey among 400 pastoralists in the Afar Region should elicit information, for each sub-clan, on the rules and regulations for communal use of rangeland and watering points.

### ***New initiatives in the Middle East and Niger***

Several new projects are in preparation, with a focus on the management of natural resources, in their relation to agricultural activities, and supported by a capacity building component to perform such an integrated analysis. The Centre is building a consortium of four research teams in the Middle East, to improve their understanding of the water economy and institutional setting of the Jordan River basin, in particular the cross-border related water issues. The main tool will be a regional water model, with detail on agriculture as the largest water consumer, but also on the secure delivery to the industrial sector, and with a focus on new water treatment techniques to tackle the waste water problem. The project builds on the results of an earlier project (with the University of Hohenheim) on the Jordan basin and the capacity building project with the Palestinian Water Authority.

The upcoming project in Niger, upon request of the World Agro Forestry Centre, is meant to provide insight into the relation between the process of greening of the Sahel and the food security situation in Niger. It looks into the possible contribution of replanting trees, which is in principle economically valuable. However, its feasibility needs to be secured better, since the trees are used as firewood and feed, and their long-term growth is vulnerable under the threat of climate change. Therefore, the project focuses both on the biophysical questions of optimal planting locations and varieties and on questions surrounding optimal institutions that will guarantee sustainable tree management.



Methodological innovations will continue to figure prominently on the Centre's agenda, following the major challenges for the next years that include the management of the transition to a more sustainable bio-based economy, the identification of steps needed to boost agricultural productivity, in particular for small holders in developing countries, and sustainable management of natural resources including water. These are the focal points for policy and for research, in particular because policies to preserve and enhance food security are not self evident. The Centre, as it did in the past, intends to play its part in filling some of the needs of this research agenda, and prove the viability of the proposed methods in applied projects.

As before this mandate will be executed in partnerships with researchers in developing and emerging countries. The ongoing project in the Ukraine has been one of the activities under the partnership with the Joint Research Centre of the EU, and more joint activities are envisaged to follow under this agreement. Finally, national and international cooperation in the field of food security research is strengthened under a long-term research cooperation agreement between the Centre, the International Food Policy Research Institute and Wageningen University.

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- SOW-VU (2011) Annual Report 2010. Amsterdam: Centre for World Food Studies.

# Staff

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## List of staff members

*The following staff members were working at the Centre by the end of 2011:*

Bart van den Boom	Economist
Alex Halsema	Economist
Michiel Keyzer	Economist/Director
Max Merbis	Economist/Deputy director
Maarten Nubé	Nutritionist
Boualem Rabta	Economist
Ben Sonneveld	Agronomist
Clary Stolte	Secretary
Kees Traas	Administrator
Wim van Veen	Economist
Roelf Voortman	Ecologist
Rudolf Witt	Economist
Lia van Wesenbeeck	Economist

## ***Board and Advisors***

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### *The Board*

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Prof.dr.ir. R. Rabbinge	Chairman
Prof.dr. E.H. Bulte	Wageningen University; upon nomination by the Minister of Foreign Affairs
Prof.dr. M. Lindeboom	Department of Economics, VU University
Prof.dr.ir. G. Meester	Ministry of Economic Affairs, Agriculture and Innovation
Prof.dr. H. Verbruggen	Department of Economics, VU University

### *The Scientific Advisory Committee*

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Prof.dr. A.J. Dolman	Department of Earth and Life Sciences, VU University
Prof.dr.ir. P.P.S. Ho	Faculty of Humanities, University of Leiden
Prof.dr. R. Ruben	Centre for International Development Issues Nijmegen and Director of the Policy and Operations Evaluation Department, Ministry of Foreign Affairs (IOB)
Prof.dr. E.M.A. Smaling	Royal Tropical Institute, Development Policy and Practice
Prof.dr. H.A. Verhoef	Department of Earth and Life Sciences, VU University
Prof. dr. P. van der Zaag	UNESCO-IHE Institute for Water Education Delft

The Scientific Advisory Committee convened on December 21th, for their annual meeting. The meeting started with an overview of the world food situation and the Centre's activities (outreach, methods, themes for future research), followed by a series of presentations on the Centre's ongoing research projects (on the impact of price volatility on food security, the consequences of climate change on vulnerable population groups in Africa, advances of the GRCP toolkit, and the role of micronutrients in the world food system).

# ***Accounts and result for 2011***

## *Key figures of SOW-VU's Balance per December 31, 2011*

<b>Assets</b>	
Fixed assets	€ 22,039
Current assets	€ 313,506
Liquid assets	€ 392,179
<b>Total Assets</b>	<b>€ 727,724</b>
<b>Liabilities</b>	
Capital	€ 224,205
Provision for personnel risks	€ 0
Current liabilities	€ 503,519
<b>Total Liabilities</b>	<b>€ 727,724</b>

## *Key figures of SOW-VU's Operating Account 2011*

<b>Expenses</b>	
Research activities	€ 1,068,926
Specific material expenses on research	€ 42,711
Institutional costs	€ 76,768
<b>Total Expenses</b>	<b>€ 1,188,405</b>
<b>Earnings</b>	
<b>Subsidies:</b>	
- Ministry of Foreign Affairs	€ 641,009
- Ministry of Agriculture	€ 150,000
- Vrije Universiteit	€ 195,658
Other income	€ 179,594
<b>Total Income</b>	<b>€ 1,166,261</b>
<b>Result</b>	<b>€ -22,144</b>

## ***Publications and activities, 2011***

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The Centre's research output is split into academic (refereed) and professional publications, followed by a selection of other activities related to education and capacity building efforts. Downloadable publications can be found at the Centre's website <http://www.sow.vu.nl>.

### ***Academic publications***

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- Fischer, G., W. Winiwarter, T. Ermolieva, G. Cao, H. van Velthuisen, Z. Klimont, W. Schöpp, W.C.M. van Veen, D. Wiberg and F. Wagner, 'Sustainable agriculture expansion: estimation and reduction of nitrogen impacts, case study of China', chapter in 'Coping with Uncertainty: Managing Safety of Heterogeneous Systems', *Proceedings of the Fourth IIASA/GAMM-Workshop*, published by Springer-Verlag (accepted).
- Halsema, A.N., *Essays in Resource Management: Ownership, Market Structures and Exhaustibility*. Tinbergen Institute. Amsterdam: Thela Thesis Academic Publishing Services. Online available: <http://dare.uvu.vu.nl/bitstream/1871/18741/1/dissertation.pdf>
- Keyzer, M.A. and C.F.A. van Wesenbeeck 'Optimal coalition formation and surplus distribution: Two sides of one coin', *European Journal of Operational Research* 215: 604 - 615. doi: 10.1016/j.ejor.2011.06.030.
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- Sonneveld, B.G.J.S., M.A. Keyzer and L. Stroosnijder, 'Evaluating quantitative and qualitative models: An application for nationwide water erosion assessment in Ethiopia', *Environmental Modelling & Software* 26:1161-

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Sonneveld, B.G.J.S., M.A. Keyzer, P. Adegbola and S. Pande 'The impact of climate change on crop production in West Africa: an assessment for the Oueme River Basin in Benin', *Water Resources Management* 25: 1-27, DOI 10.1007/s11269-011-9931-x .  
Liu, B., M.A. Keyzer, B. van den Boom and P. Zikhali 'How connected are Chinese farmers to retail markets? New evidence of price transmission', *China Economic Review* 23(1): 34-46, doi:10.1016/j.chieco.2011.07.010

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### ***Professional publications***

- Banse, M., M.A. Keyzer, M. Kuiper and W.C.M. van Veen, 'Generating world price functions for the Chinagro model: the use of GTAP'. CATSEI project paper. May 2011.  
Boom, B. van den, 'Analysis of poverty in Mozambique: Household poverty status, child malnutrition and other indicators 1997, 2003, 2009'. Study for the group of bilateral donors (G19), Maputo: Royal Dutch Embassy & United Nations Development Programme. March 2011.  
Halsema, A.N., 'Volatility of Food Markets: mitigation or anticipation?' (Volatiliteit van voedselmarkten: tegengaan of meegaan?). Vuurwerk Digital Edition, June 2011.  
Keyzer, M.A. and W.C.M. van Veen (on behalf of CATSEI-team), Executive Project Summary of CATSEI project 'Chinese Agricultural transition: Trade, Social and Environmental Impacts'. February 2011.  
Keyzer, M.A. and W.C.M. van Veen, 'China's food demand, supply and trade in 2030: simulations using the Chinagro II model'. Contribution to CATSEI synthesis report. May 2011.

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### ***Advisory Work***

- Boom, B. van den, and A.N. Halsema, consultation on Poverty Analysis in Mozambique to the group of bilateral donors in Mozambique (G19), The Royal Dutch Embassy in Maputo, The World Bank Maputo and UNDP Maputo, Maputo, Mozambique, February 21-25.  
Keyzer, M.A., consultation on reorganizing the Chair Groups of the Department of Economics of Agriculture, Food and Rural Areas (AEP) of Wageningen University, Wageningen, January 25.  
Keyzer, M.A., consultation for the publication 'Food, Biodiversity and Climate Change; Global challenges and national policy' (Voedsel, biodiversiteit en klimaatverandering; Mondiale opgaven en national beleid), the

- Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving).
- Keyzer, M.A., participation in Scarcity and Transition Meetings (Schaarste en Transitie) for the publication 'Strategic knowledge and innovation agenda of the knowledge chambers' (Strategische kennis- en innovatie agenda van de kenniskamers), Ministry of Economic Affairs, Agriculture and Innovation, The Hague.
- Keyzer, M.A., advice on position paper 'Commodity Prices and Food Security' of the Dutch Ministry of Economic Affairs, Agriculture and Innovation, Ministry of Foreign Affairs and the Ministry of Finance. February 8.
- Keyzer, M.A., consultation with Ministry of Economic Affairs, Agriculture and Innovation, and the Ministry of Foreign Affairs on the letter for the Dutch Parliament 'High prices for agricultural commodities and food' (Hoge prijzen voor agrarische grondstoffen en voedsel). March 21.
- Keyzer, M.A., consultation with Ministry of Economic Affairs, Agriculture and Innovation on the report of the Seminar 'Food Price Volatility and Speculation', April 12.
- Keyzer, M.A., invited review on the report 'Predictions under Change (PUC): Water, Earth and Biota in the Anthropocene' by Prof. Murugesu Sivapalan, University of Illinois at Urbana Champaign, April 18.
- Keyzer, M.A., consultation on the report 'The vulnerability of the European Agricultural and Food System' (De kwetsbaarheid van het Europese landbouw- en voedselsysteem) of the Platform Agriculture, Innovation and Society of the Ministry of Economic Affairs, Agriculture and Innovation, June 14.
- Keyzer, M.A., M.D. Merbis, C.F.A. van Wesenbeeck, online consultation on 'Price Volatility' for the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS), July 2011.
- Keyzer, M.A., M.D. Merbis, C.F.A. van Wesenbeeck, online consultation on 'Land tenure and international investment in agriculture' for the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS), July 2011.
- Keyzer, M.A. and R.L. Voortman, online consultation on 'Proposed scope of the HLPE study on climate change and food security' for the High Level Panel of Experts of the Committee on Food Security (HLPE-CFS), July 12.
- Keyzer, M.A., invited participant 'Knowledge and Research Consultation meeting for Development Cooperation', Ministry of Foreign Affairs, The Hague, September 21.

- Keyzer, M.A., participant of the first meeting of the Strategic Advisory Council of the International Food Policy Research Institute (IFPRI), Des Moines, USA, October 13.
- Keyzer, M.A., invited participant and discussant 'The new Consortium Research Programs (CRPs)', Ministry of Foreign Affairs, The Hague, November 22.
- Sonneveld, B.G.J.S., invited participant 'Global assessment of human-induced land degradation and associated loss of ecosystem services from pristine to present' organized by the Netherlands Environmental Assessment Agency (PBL) in collaboration with ISRIC World Soil Information, Wageningen, September 12.
- Wesenbeeck, C.F.A. van, advice on position paper 'Commodity Prices and Food Security' of the Dutch Ministry of Economic Affairs, Agriculture and Innovation, Ministry of Foreign Affairs and the Ministry of Finance. February 8.
- Wesenbeeck, C.F.A. van, invited participant of the conference 'Development cooperation in business (Ontwikkelingssamenwerking in bedrijf)', Ministry of Foreign Affairs. Amsterdam, October 26.
- Wesenbeeck, C.F.A. van, online consultation on 'Social protection for food security' for the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS), July 1.
- Wesenbeeck, C.F.A. van, 'On the number of hungry in the world' (Over het aantal hongerigen in de wereld), brief to the Ministry of Foreign Affairs, September 22.
- Voortman, R.L. and M. Nubé, advice on nutrient management for a mission farm and on human nutrition (zinc and copper deficiency) for missionary Mr. Thomas Riedener in Kibidula, Southern Highlands, Tanzania, September 26.

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## *Lectures*

- Boom, G.J.M. van den, M.D. Merbis, M. Nubé, W.C.M. van Veen and C.F.A. van Wesenbeeck, module 'World Food System', Institute for Interdisciplinary Studies, Future Planet Studies, University of Amsterdam.
- Keyzer, M.A., 'Increasing turmoil on food markets: what is going on and how to respond?' (Toenemende onrust op de voedselmarkten: wat is er aan de hand en hoe er op in te spelen?), Master Class World Food Prices, Wageningen Business School, Wageningen, January 25.

- Keyzer, M.A., quoted in: Henri Nallet, ed., 'Will Europe keep its farmers?'. Fondation Jean Jaurès.
- Keyzer, M.A., interview 'The Politics of Hunger' (Hongerpolitiek). Vrij Nederland, January 15.
- Keyzer, M.A., interview 'Speculation disrupts food markets' (Speculatie verstoort voedselmarkt). De Volkskrant, January 15.
- Keyzer, M.A., background interview and quoted in 'We have learned our lesson' (We hebben ons lesje wel geleerd). Magazine 'Melkvee', Edition 1, January 29.
- Keyzer, M.A., interview 'Special: Food Prices 2011- part one'. Dutch television, RTL News, February 11, 14.
- Keyzer, M.A., interview 'New opinions needed on the feed market' (Nieuwe visie op voermarkt nodig). Pig Business / Finance. February issue.
- Keyzer, M.A., background interview Food Prices and Political unrest. Dutch television News 'NOS Journaal op 3', February 14.
- Keyzer, M.A., registration of 'Table ronde : La régulation des marchés agricoles'. University Paris Dauphine, Terre TV, March 2.
- Keyzer, M.A., interview China Radio International CRI 'News & Reports', March 6.
- Keyzer, M.A., quoted in 'Verslag seminars hoge voedselprijzen en de volatilititeit ervan' (Report on seminars high food prices and its volatility). Nieuwsbank interactief Nederlands persbureau, April 12.
- Keyzer, M.A., interview 'Hunger will increase strongly' (Honger zal sterk toenemen). De Volkskrant, June 1.
- Keyzer, M.A., interview 'Villa VPRO'. Dutch news Radio 1, June 6.
- Keyzer, M.A., quoted in 'Getting to the core of the Bio-Economy: a perspective on the sustainable promise of biomass'. The Hague: Rathenau Institute.
- Keyzer, M.A., interview 'Price Shocks, biofuels and animal feed: What the current food situation means for developing countries' (Prijsschokken, biobrandstoffen en veevoer: wat de huidige voedselsituatie betekent voor ontwikkelingslanden). Magazine Anthropology Development studies, Radboud University Nijmegen, June.
- Keyzer, M.A., interview China Radio International CRI 'The Beijing Hour Evening Edition'. June 27.
- Voortman, R.L., interview on 'Developments in agriculture and the role of fertilizers' with Clare Harrison, Head of Research. FC Business Intelligence, London. March 18.

- Wesenbeeck, C.F.A. van, quoted in the letter to Dutch Parliament 'Implementation of Food Security Policy' (Uitwerking voedselzekerheidsbeleid), Ministry of Economic Affairs, Agriculture and Innovation and Ministry of Foreign Affairs, October 24.
- Keyzer, M.A., background interview World Food Market Speculation. Zembla TV, NTR. October 25.
- Sonneveld, B.G.J.S., M.A. Keyzer, P. Adegbola and S. Pande, 'The impact of climate change on crop production in West Africa: an assessment for the Oueme River Basin in Benin'. AgClim Letters, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), December 1.
- Keyzer, M.A., 'Knowledge Policy and Food Security' (Kennisbeleid en voedselzekerheid). The Broker Magazine, November 16.

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### ***Conferences, seminars, workshops***

- Boom, B. van den, and A.N. Halsema, presenting 'Analysis of Poverty in Mozambique' to the group of bilateral donors in Mozambique (G19). Maputo, Mozambique, February 21-25.
- Boom, B. van den, presenting 'Can water securities increase water use efficiency at basin scale? A welfare economics approach', colloquium at the Faculty Civil Engineering & Geosciences (CiTG).TU Delft, November 17.
- Centre for World Food Studies SOW-VU, organizing the seminar 'Hydrologist-Economist Dialogue at SOW-VU'. Amsterdam, April 11.
- Centre for World Food Studies SOW-VU, organizing the seminar 'Nutrition for development: Research and Policy', on the occasion of the retirement of Dr. Maarten Nubé. Centre for World Food Studies, Amsterdam, May 27.
- Halsema, A.N., presenting 'Hunger in abundance' (Honger in overvloed), Limburgse Land- en Tuinbouwbond (Regional Dutch Federation of Agriculture and Horticulture, section Limburg). Herten, January 28.
- Keyzer, M.A., presenting 'World Food Markets 2011: turmoil, scarcity and opportunities for the Oldambt' (Wereldvoedselmarkten 2011: onrust, schaarste en de kansen voor het Oldambt); Vereniging voor Bedrijfsvoorlichting Oldambt (VvB). Scheemda, January 11.
- Keyzer, M.A., presenting 'Dutch dairy farming: from cost minimization to efficiency' (Nederlandse melkveehouderij: van kostenminimalisatie naar rendement) at the European Dairy Farmers Winter Meeting 2011, European Dairy Farmers – Netherlands. Hegelsom, January 14.

- Keyzer, M.A., presenting 'Uranium, phosphates and China: a sustainable economy perspective' at the Academic China Consultation Meeting (ACO), Clingendael and Modern East Asia Research Centre of the University of Leiden (MEARC). The Hague, February 3.
- Keyzer, M.A., presenting 'La volatilité des prix sur les marchés agricoles' (Price volatility in Agricultural Markets) at the conference 'Regulation of Agricultural Markets: where are we from the 2006-2008 crisis?', SciencesPo and Proléa (La filière française des Huiles et Protéines Végétales). Paris, February 10-11.
- Keyzer, M.A., presenting 'Farmers looking for return; strategic choices for Limburg agriculture' (Boer zoekt rendement: strategische keuzen voor de Limburgse Akkerbouw), Annual Meeting of the Limburgse Land- en Tuinbouwbond (Regional Dutch Federation of Agriculture and Horticulture, section Limburg). Baexem, February 15.
- Keyzer, M.A. and W.C.M. van Veen, presenting 'China's food demand, supply and trade in 2030: simulations with Chinagro II model', CATSEI Final Briefing Seminar 'Prospects of China's Agricultural Economy in 2030: Opportunities and Challenges'. Brussels, February 21.
- Keyzer, M.A., presenting 'Price volatility on Agricultural Markets' at the seminar 'Food Price Volatility and Speculation', Ministry of Economic Affairs, Agriculture and Innovation. The Hague, March 25.
- Keyzer, M.A., presenting 'Hydrology & Economy: sketch of a welfare program' at the seminar 'Hydrologist-Economist Dialogue at SOW-VU', Centre for World Food Studies. Amsterdam, April 11.
- Keyzer, M.A., presenting 'Perspectives sur la Sécurité Alimentaire Mondiale: quel rôle pour l'INRA? (Perspectives on World Food Security: which role for INRA?) at the seminar 'World Food Security and World Food Prices: is it relevant to manage Agricultural World Prices for Food Security Objectives?', National Institute for Agricultural Research (INRA). Paris, May 18.
- Keyzer, M.A., presenting 'Nutrition and Food supply: Maarten's contribution' (Voedingsleer en voedselvoorziening: Maartens bijdrage) at the seminar 'Nutrition for development: Research and Policy', Centre for World Food Studies. Amsterdam, May 27.
- Keyzer, M.A., and M.D. Merbis, presenting 'SARDU-roundoff and PROFDU-kickoff meeting', kick-off meeting of the project 'Prospects of the Farming Sector and Rural Development in Ukraine'. Kiev, Ukraine, May 17.
- Keyzer, M.A., presenting '2010 – 2011 Food crisis, causes and prospects', European Medical Students' Association (EMSA). Leiden, August 31.
- Keyzer, M.A., presenting 'Agriculture and Food Supply' at the National Plat-

- form Rio +20, Ministry of Foreign Affairs and KNAW (the Royal Netherlands Academy of Arts and Sciences). Amsterdam, October 26.
- Keyzer, M.A., presenting 'International food security: the role of policy' at the symposium 'Food Security : the role of research from international and Wageningen perspectives', on the occasion of the retirement of Prof. Rudy Rabbinge. Wageningen, November 24.
- Keyzer, M.A., presenting 'NPK+ issues and policies. How important is the geopolitical aspect relative to other concerns?', at the NPK workshop, Joint Research Centre, Brussels, December 5 - 6.
- Keyzer, M.A., presenting 'Introduction to the JRC-IEF/NASU training workshop' at the training workshop for the Institute for Prospective Technological Studies (IPTS) - Joint Research Centre (JRC) of the European Commission. Seville, December 12-14.
- Merbis, M.D., presenting 'Food security: measurement, knowledge and better' (Voedselzekerheid: meten, weten en beter) at the symposium 'Eat or be eaten', Utrecht Association of Geography Students (V.U.G.S.). Utrecht, May 10.
- Nubé, M., presenting 'Nutrition on the Rocks' at the seminar 'Nutrition for development: Research and Policy' organized by the Centre for World Food Studies. Amsterdam, May 27.
- Sonneveld, B.G.J.S., presenting 'Institutional aspects of improving drought resilience of pastoralists systems in the Afar Region', at seminar organized by the Afar Pastoral and Agro-Pastoral Research Institute. Semara, Ethiopia, January 12.
- Sonneveld, B.G.J.S., presenting 'Institutional aspects of improving drought resilience of pastoralists systems in the Afar Region', at seminar organized by the Ethiopian Institute of Agricultural Research. Addis Ababa, Ethiopia, January 14.
- Sonneveld, B.G.J.S., invited speaker 'Improving drought resilience of pastoralists systems in the Afar Region, Ethiopia; phase II', Institute of Pastoral and Agropastoral Studies of the College of Agriculture and Environmental Sciences, Haramaya University. Ethiopia, May 30-June 4.
- Sonneveld, B.G.J.S., invited speaker 'Monitoring rangelands and pastoralists: trekking routes in the Afar, Ethiopia', 3rd Crop and Rangeland Monitoring Workshop organized by the Joint Research Centre, FEWSNET, RCMRD (Regional Center for Mapping of Resources for Development) and FAO. Nairobi, Kenya. September 25-30.
- Veen, W.C.M. van, presenting 'China's agricultural economy in 2030: simulations with the Chinagro model', Academic China Consultation Meeting (ACO), organized by The Netherlands Institute of International

- Relations Clingendael and Modern East Asia Research Centre of the University of Leiden (MEARC). The Hague, February 3.
- Voortman, R.L., presenting 'On the chemistry between soils, plants and fertilizers; a land resource ecology perspective for Africa' at the conference 'Global Soil Fertility: The role of next generation smart fertilizers', organized by the De Wit School for Production Ecology and Resource Conservation, ISRIC World Soil Information and the Centre for World Food Studies. Wageningen, March 21.
- Voortman, R.L., presenting 'Micronutrients in the world food system; micronutrient deficiencies, sustainability and implications for the research agenda', organized by the Platform Agriculture, Innovation and Society (LIS). Ministry of Economic Affairs, Agriculture and Innovation. The Hague, November 23.
- Wesenbeeck, C.F.A. van, presenting 'SOW-VU Response to Task Force', at the seminar 'Implementing Food Security as a Policy Priority in Development Cooperation', Ministry of Foreign Affairs and Ministry of Economic Affairs, Agriculture and Innovation. The Hague, January 24.
- Wesenbeeck, C.F.A. van, invited discussant at the Lunch Seminar 'Food Prices', Ministry of Foreign Affairs. The Hague, March 3.
- Wesenbeeck, C.F.A. van, presenting 'A new mechanism for truth telling in multi-commodity double auctions', 2nd Workshop 'Industrial Organization: Theory, Empirics and Experiments', Università del Salento. Otranto, Italy, June 23-24.
- Wesenbeeck, C.F.A. van, invited participant 'Partnering for Food Security and Water 2012-15', Ministry of Foreign Affairs. The Hague, June 21.
- Wesenbeeck, C.F.A. van, invited participant Round Table on Monitoring Food Security, Committee on Food Security (CFS). Rome, September 12-13.
- Wesenbeeck, C.F.A. van, discussant at the 10e EUDN conference at the Tinbergen Institute (European Development Research Network). Amsterdam, July 7.
- Wesenbeeck, C.F.A. van, invited discussant at 'The NWO Theme Meeting Agriculture Food and Horticulture', Dutch Organization for Scientific Research (NWO). Utrecht, November 7.

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## *Refereeing*

Applied Geography  
Computers and Electronics in Agriculture

Environmental and Development Economics  
Environmental and Resource Economics  
Food Security; The Science, Sociology and Economics of Food Production  
and Access to Food  
Journal of Soil Science and Plant Nutrition  
Soil & Tillage Research  
World Development

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### ***Memberships of boards and committees***

- Halsema, A.N., member of Program Committee 18th Annual Conference of the European Association of Environmental and Resource Economists (EAERE).
- Keyzer, M.A., member of the 'Structuurcommissie' to appoint a professor for the chair of General Economics at the Wageningen University.
- Keyzer, M.A., extraordinary professor at the Centre for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Sciences. From 2004.
- Keyzer, M.A., fellow Tinbergen Institute, Graduate School and Research Institute of the VU University, University of Amsterdam and Erasmus University.
- Keyzer, M.A., fellow AIID, Amsterdam International Institute for Development, VU University and University of Amsterdam.
- Keyzer, M.A., member Board of Academic Advisors (BAA) of the Center for Chinese Agricultural Policy (CCAP).
- Keyzer, M.A., member of The Royal Holland Society of Sciences and Humanities (Koninklijke Hollandsche Maatschappij der Wetenschappen).
- Keyzer, M.A., member of Knowledge Forum on Agrocluster (Kenniskamer Agrocluster), Ministry of Agriculture, Nature and Food Quality.
- Keyzer, M.A., member of the Editorial Board 'Food Security: the science, sociology and economics of food production and access to food'.
- Keyzer, M.A., member of the Strategic Advisory Council of the International Food Policy Research Institute (IFPRI).
- Keyzer, M.A., representing SOW-VU as partner institute of the AGRODEP Modeling Consortium.
- Keyzer, M.A., member of Program Committee 18th Annual Conference of the European Association of Environmental and Resource Economists (EAERE).
- Nubé, M., committee member of the Scientific Advisory Committee for Integrated Programmes 2009-2010, NWO / WOTRO.

- Wesenbeeck, C.F.A. van, member of the Program Preparation Commission of Global Food Systems (NWO/WOTRO).
- Wesenbeeck, C.F.A. van, member (chairperson) of the Elementary Board (Onderdeelcommissie) of the Faculty of Economic Sciences and Business Administration (FEWEB), VU University.
- Wesenbeeck, C.F.A. van, member of Knowledge Circle 'Growth and Distribution' (Kenniskring Groei en Verdeling), Ministry of Foreign Affairs.
- Wesenbeeck, C.F.A. van, research fellow Tinbergen Institute, Graduate School and Research Institute of the VU University, University of Amsterdam and Erasmus University.
- Wesenbeeck, C.F.A. van, member of the Platform Food Security of the Ministry of Economic Affairs, Agriculture and Innovation and the Ministry of Foreign Affairs.

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### ***Education***

- Sonneveld, B.G.J.S., promotion commission of Mobushir Riaz Khan. Thesis 'Crops from space: improved earth observation capacity to map crop areas and to quantify production'. ITC, University of Twente, February 23.
- Sonneveld, B.G.J.S., external examiner of Msc. Candidate Bana Mediatrice Rwamukwaya. Thesis 'Assessment of Land cover degradation intensities and climate change impacts on carbon fluxes in Nyungwe Forest, Rwanda'. ITC, University of Twente, March 8.
- Sonneveld, B.G.J.S., external examiner of Msc. Candidate Upama Ashish Koju. Thesis 'Food –Chain Study of High Value Export Crops of Kenya'. ITC, University of Twente, March 8.
- Sonneveld, B.G.J.S., external examiner of Msc. Candidate Wycliffe Tumwesigye. Thesis 'Effect of land use change and slope position on soil organic carbon in Kitabi Watershed, Rwanda'. ITC, University of Twente, March 8.

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### ***Traineeships / visiting researchers***

- Dr. H. Qiu, Center for Chinese Agricultural Policy, Chinese Academy of Sciences, within the context of the CATSEI Final Briefing Seminar 'Prospects of China's Agricultural Economy in 2030: Opportunities and Challenges' in Brussels, and for preparation of joint post-CATSEI activities. February 17 – March 15.

Dr. H. Qiu, Center for Chinese Agricultural Policy, Chinese Academy of Sciences, for discussing joint post-CATSEI activities and follow-up projects. October 26 – November 4.

Dr. Victor Yarovsky, Sergiy Kyryzyuk, Oleksandra Borodina, Oksana Rykovska, Institute for Economic Forecasting, Kiev, Ukraine, for training and consultation on the project 'Prospects of the farming sector and rural development in Ukraine'. 23 November- 9 December.

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## *Visitors*

Prof. Murugesu Sivapalan and Dr. Ciaran Harman from University of Illinois at Urbana Champaign, visit the Centre for World Food Studies to discuss prospects for interdisciplinary research between hydrologists and economists. April 11-12.

Prof. dr. H.A. Udo de Haes and Drs. W.J. van der Weijden and Mrs.C. Rougoor (May 30, only) of the Platform Agriculture, Innovation and Society visit the Centre for World Food Studies to discuss study on micronutrients and world food situation. May 23 and 30, and October 31.

Dr. S. Gomez y Paloma, Mrs. S. Acs of the Institute for Prospective Technological Studies (IPTS) and Mrs. O. Borodina of the Institute of Economic and Forecasting national Academy of Science of the Ukraine (IEF/ NASU) visit the Centre for World Food Studies for the Kickoff meeting of the project 'Prospects of the Farming Sector and Rural Development in Ukraine'. June 16.

Prof. A. Bouët from International Food Policy Research Institute (IFPRI) visits the Centre for World Food Studies to discuss progress and prospects of the AGRODEP project. July 4.

Dr. Shenggen Fan, Director General of the International Food Policy Research Institute (IFPRI) and Dr. T. van Rheenen, Senior Researcher (IFPRI), visit the Centre for World Food Studies to discuss IFPRI-SOW cooperation. July 18.

Drs. Roy van der Weide, consultant of The World Bank, Washington DC visits the Centre for World Food Studies, to discuss statistics and use of the GRCP package. September 16.

Mr. Fred Wever (market manager), Mr. Cees de Wit (board member) and Mr. Gert Jan Vlaar (key accountmanager) of FloraHolland International Flower and Plant Market visit the Centre for World Food Studies to discuss the financial structure of the Dutch agri-sector. October 26.

SOW-VU

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