

Annual Report 2012



Centre for World Food Studies
Stichting Onderzoek Wereldvoedselvoorziening



Annual Report

2012



Centre for World Food Studies
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Changing course



Ships at full sea prefer a steady course, but when conditions change, they must chart out an alternative route to reach their destination. In 2011, the Ministry of Foreign Affairs decided to stop all institutional support for development cooperation to Dutch institutes. SOW was inevitably affected by this decision that ended over forty years of sponsoring of SOW and its predecessor, a project for the Club of Rome. As a termination allowance, SOW received about one year of annual support, spread over one and a half year: for 2012 and the first half of 2013.

For SOW, these changing conditions obviously called for a major change of course, and surely, some may have expected it not to succeed in meeting this challenge. Remarkably, the institute has proved to be capable within little more than one year to shift from a largely core funded organization to one without any core funding, and is aiming for a portfolio of projects in the coming years that is sufficient to warrant additional recruitment of staff, and to provide guarantees for its continued scientific independence.

A major asset in this transition has been that the Centre could rely on a broad portfolio of projects already in stock, and on its international contacts and credentials, built up over the years. Hence, SOW owes credit to its past sponsors for having made this possible.

Ever since its inception 40 years ago, the Centre has insisted on scientific rigor and permanent effort towards advancing its methodology. Over time, this has proven to be a right choice that enabled SOW's staff to be a relevant partner in the many international partnerships it got engaged in, and continues to be part of, where a recent example is the long term research partnership with the International Food Policy Research Institute (IFPRI) and Wageningen University and Research Centre (WUR) - established in early 2012 - that provides a strong basis for acquiring joint, externally funded, research projects in the years to come.

The scope for partnerships with emerging countries is also increasing. While these countries have impressive macro growth figures, their rural areas often lag behind and even extreme poverty may still exist. Typically, emerging countries have the financial resources and well educated researchers for in-depth research to support policy making and realize the need for it.

The Centre's approach always has been motivated by the recognition of the complexity of the problems surrounding poverty, sustainable development and food supply. This calls for interdisciplinary research that combines insights from many different fields, including economics, agronomy, hydrology, nutritional science, system analysis and statistics, while maintaining coherence and transparency. This has led to spatially explicit modeling of economic activity and natural processes, in particular related to the management of scarce land and water. More recently, this has been broadened to the modeling of institutions and the explicit representation of social norms and values in economic models.

Incorporating various research fields also confronts the researcher with the different ways data are being collected and stored. Appropriate methodology is required to analyze this diversity of data. Hence, dedicated software for data analysis has been developed, specifically designed to perform integrated statistical analysis of data from different scientific fields (maps, survey data, census data, point data, qualitative assessments). It also takes into account the fact that as a rule only observational data are available, since the scope for experimentation to obtain data is limited. Dedicated estimators have been developed for this case, along with further use and development of the tool kit, manuals and interfaces.

The change in course will neither affect this methodological agenda in fundamental ways, nor the Centre's basic functions such as reporting on the world food situation, signaling new developments, and providing guidance to their meaning. It is this adherence to principles that has allowed the Centre to maintain its relevance and attractiveness as a partner over the years, also in turbulent times.

Trends in the world food situation

Growth of cereal utilization stagnates in 2012

Over half of the food consumed has its origin in cereals, which makes the demand and production of this basic staple a crude but useful indicator of the current status of the world food situation.

Typically, utilization of cereals increases steadily, for many years in a row at about 1.5 percent per year, see Figure 1. This reflects population and income growth, mainly in developing countries, and a gradual shift of diets, towards more meat and dairy. Contrary to the long-term trend, in 2012 global cereals utilization has hardly gone up. As income and population growth trends in developing countries have not changed in any substantial way, this stagnation can be entirely attributed to lower demand for bio-ethanol (and hence for maize) in the US.

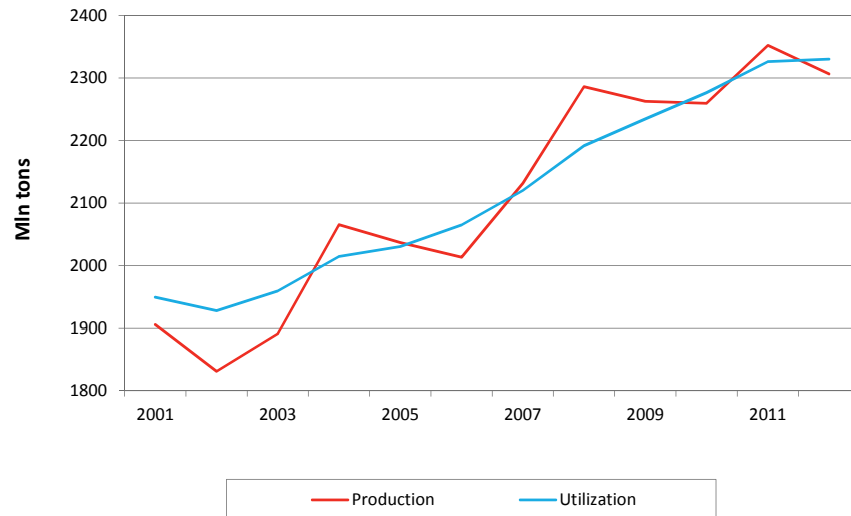


Figure 1. Production and utilization of cereals.

Source: FAO

At first sight this looks surprising since legislation in the US charts out the growth of the blending mandates, so demand for bioethanol is supposed to follow this path. In practice, however, the growth in ethanol demand stagnated since the US car fleet is technologically not ready for higher blends than E15, and consumers are reluctant to move even to E15 or flex-fuel vehicles. This implies that further pressure on cereal markets by higher blending mandates is temporarily suspended but that it will increase again when the technological barrier gradually resolves.

Other countries' biofuel programs could potentially also put pressure on cereal markets, but for various reasons, this has not been the case so far. In Brazil all ethanol is joint output from its domestic sugar cane plantations, unrelated to cereal production. EU policy makers have formulated ambitious goals, primarily to reduce greenhouse gas emissions. However, they still cannot make a convincing case for this position, particularly when the consequences of induced land use changes are taken into account and benefits of lowering greenhouse gas emissions all but disappear (IISD, 2013). This creates a political stalemate, leaving the future development of the mandates uncertain.

In China, occasionally, old grain stocks are being discarded as fuel, but the country remains reluctant to strongly promote the use of biofuels, as, potentially, this would pose a threat to its food security. China officially aims at self sufficiency of basic staples, which is already challenged by the increasing imports of oilseeds in order to feed its growing livestock population. The rest of the world accounts for less than 10% of global biofuel production, and hence hardly plays a role, although occasionally ambitious plans (Ukraine) are being ventured, and some countries starting from relatively low levels are promoting biofuels (Argentina).

Compared to the steady trend in demand, cereal production differs from year to year, in response to weather conditions and other specific events, again see Figure 1. For 2012, this resulted in relatively tight market conditions, as production could not match utilization and stocks levels were on average lower. The ensuing upward pressure on prices should therefore not come as a surprise.

Peaks in commodity prices persist

Cereal prices increased strongly in the first half of 2012, as soon as the first news about droughts in the US and Russia became known, followed by downward revisions of harvest prospects (Figure 2). Through the same mechanism, but triggered by fairly good upcoming prospects for the 2013 harvest, prices came down in the course of 2012 and the beginning of 2013. They have returned to the levels of early 2012, which is still high from a historical perspective.

Commodity price increases appear to be more broadly based than in the past years. All cereals compete for the same area, and their prices often tend to display some co-movement. In recent years this effect was weakened by the strong demand for maize by the bio-ethanol processing industry, and price formation on that market was dominated by the development of the fossil fuel price.

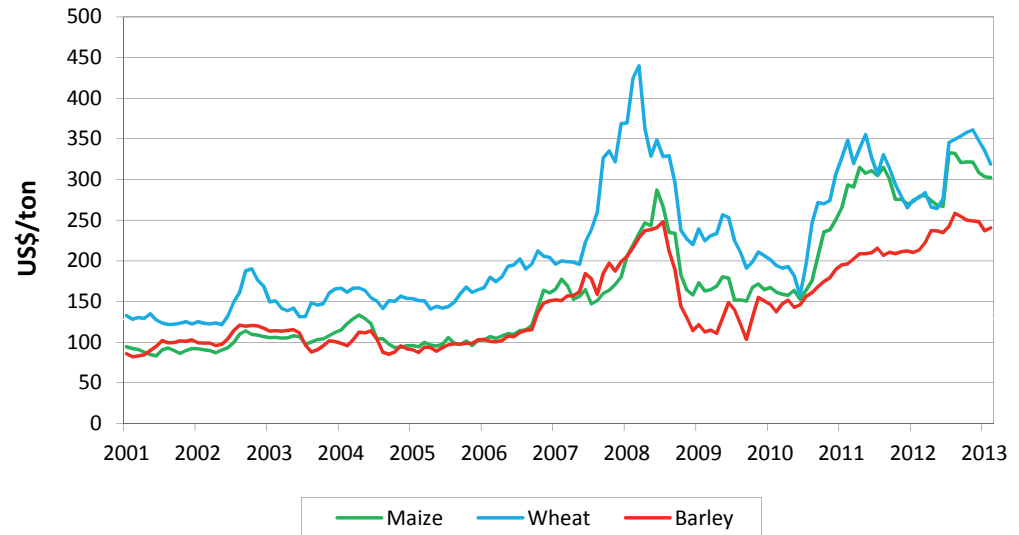


Figure 2. International cereal prices.

Source: IMF

In 2012, the co-movement in cereal prices seems to be re-established (witness the movements of barley prices in Figure 2). Since barley is used mainly as feed grain - the other major destination being alcohol - and oilseeds prices have been consistently high also, input cost of livestock production have increased. Eventually this leads to higher meat prices as livestock farmers cannot run losses indefinitely. Finally, also dairy prices have doubled compared to ten years ago, and showed considerable fluctuations over that period.

The evolution of a composite index of 22 key food commodity prices poses further evidence that the rise of agricultural prices is broad-based. The food index has almost tripled compared to a decade ago, and is consistently high over the whole of 2012, see Figure 3.

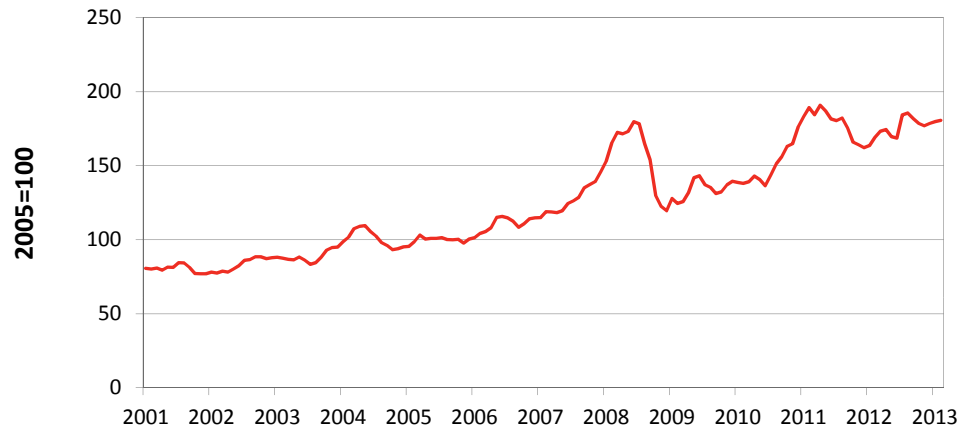


Figure 3. Food price index, 2005 = 100.
Source: IMF

The persistence and causes of price volatility have been discussed at a Seminar organized by the Centre and the Directorate Agriculture of the Ministry of Economic Affairs. Price volatility is primarily driven by the fundamentals of demand and supply. Tight market conditions caused by strong demand - also for biofuels - are aggravated by supply shocks, from policy (export

bans) and from weather (droughts and flooding). Speculative forces are not setting the tone anymore, since bottlenecks in the commodity exchanges in the US have been removed by improving and extending the physical infrastructure of storage and transport. Projections as in OECD-FAO (2013) can only forecast the trend in prices, not its volatility, but they predict that for the next decade commodity prices will increase further, even in real terms, due to a combination of slower production growth and stronger demand. Meat and biofuel prices are projected to rise even stronger than those of primary agricultural products.

Nutritional status improves as poverty declines

Since many of the world's poor are net buyers of food, the immediate effect of price peaks is rising food bills, threatening food security. Measures based on calorie intake derived from food balance sheets, as reported by FAO immediately after the food crisis, indeed show a strong increase of food insecurity (Figure 4, green line). Yet, scattered information from other measures for undernutrition, e.g. based on anthropometry, shows the situation is not so clear (the Annual Report of 2011 provides some examples of this). Coping mechanisms may have been underestimated, and price movements at local markets may be much more affected by local demand and supply conditions than by changes in world prices. These and other considerations on how to estimate the number of undernourished have led the FAO to reassess its undernutrition estimates (Figure 4, red line) and the peak in the number of undernourished all but disappears.

This illustrates that the measurement of undernutrition requires a much more solid underpinning and would benefit from more sophisticated statistical techniques, complemented with direct measurement of nutritional status, say, in rapid appraisals. The issue of adequate monitoring of progress in achieving food security – in fact, food security itself – no longer figures as prominently on the agenda of G20 and G8 meetings as it did during and after the food crisis of 2007/'08. Concerns on the international security and macro-economic situation are now center-stage and likely to remain there for some years to come. However, with the 2015 appraisal of the Millennium Goals approaching rapidly, reliable estimates of progress should become available soon, if correct conclusions on the causes of success or failure are to be drawn, and lessons learned.

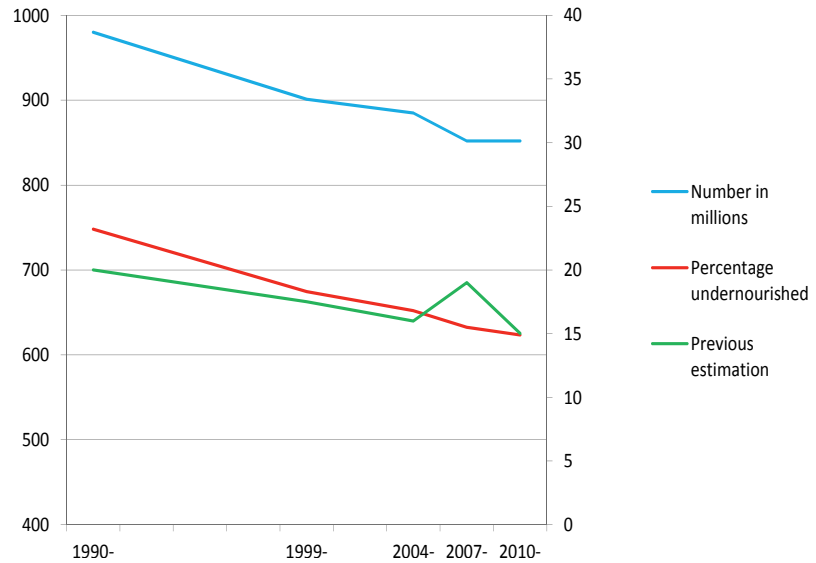


Figure 4. A decline in hunger.
Source: FAO

Food production systems are at a crossroads

In the coming decades world agriculture will need to undergo a major transition to meet future food demands. With the increasing and ever more urbanized population and the physical boundaries of the planet, production per farmer and per hectare must increase, amongst others, through improved management of natural resources, including water, and use of improved inputs. The Annual Report of 2011 discusses the financial side of this transition, but equally important is to guarantee that farmers will continue to have access to inputs at affordable prices.

Recent press releases on the expiration of US patents on Roundup Ready crops have sparked a discussion on the likely effects on prices for genetically modified seeds. In the slipstream of this, there seems to be renewed

attention for the possible negative effects of GMOs - safety of GMO food and their impact on biodiversity.

Yet, the discussion should not be narrowed down to GMOs only. First, resilience of ecosystems may be at stake when organisms modified using conventional technology or GM techniques – or simply introduced from other habitats - start to dominate the scene, driving out incumbent species. Examples abound on the harm that may result from such interventions.

Secondly, the focus on GMO patents should also not divert from the real issue at stake here, which is the fundamental question whether or not patenting living organisms – genetically modified or not – should be allowed. If the recently (by Monsanto) filed patent for conventionally crossed bred broccoli is granted by the EU patent office (2013), this opens the way for many others to follow, with potentially large impacts for farmers' access to seeds, and for the prices they have to pay to obtain complementary inputs needed.

Although the complexities of legislation and regulation of intellectual property rights are beyond the scope of the Centre, the outcome of the battle for patenting living organisms will, much like the battle over biofuels, have a large impact on food production and ecosystems that needs to be accounted for in future analysis.

SOW-VU activities in 2012

Some of the projects discussed in this review of activities (in Mozambique, the Afar State and Ukraine) are underway for some time, and have been reported on before. New projects include a study on the effects of climate change on vulnerable populations in Africa (ClimAfrica) and a project that addresses the concerns related to water use in the Middle East by developing consistent perspectives on the sharing of water resources in that region (Concerted Sharing). For a balanced and comprehensive review of the project portfolio, each project description highlights the methodology used, the capacity building efforts and the policy implications. The Centre's study for the Ministry of Economic Affairs on the role of stocks in stabilizing markets and safeguarding food security is of a different nature, since it aims to give a state of the art summary of this field, as input into a policy dialogue between the Ministry and the Centre.

Impact of climate change on vulnerable groups

Africa is probably the continent most vulnerable to climate change and climate variability. Nevertheless, most of the available studies on climate predictions and impacts are based on scarce information often not adapted to the African context. The ClimAfrica project - an international project funded by the European Commission under the 7th Framework Programme (FP7) – aims to improve the existing predictions of climate change for Africa, and assess the impacts on vulnerable populations. SOW's research concentrates on the direct and indirect effects of climate-related events such as droughts and floods. For the analysis, two groups of countries are identified: a West African group consisting of Ghana, Burkina Faso, Benin, Côte d'Ivoire, Mali and Togo, and an East African group including Sudan, South Sudan and Uganda. Both country groups are representative for prevailing ecological and agricultural characteristics in Africa.

Two different methodologies are employed in this project. First, integrated statistical analysis is performed – using the GRCP software – combining cultural, socio- economic and health indicators from available Demographic and Health Surveys (DHS), Multi Indicator Cluster Surveys (MICS), and Afrobarometer surveys with grid level data on agro-ecological and climatic

conditions. Outcomes of this analysis include the localization of vulnerable and very vulnerable groups, and the profiling of these groups (SOW-VU, 2013). Figure 5 shows the location of the vulnerable groups in persons per km² for the two research areas, where vulnerability is defined using a combination of nutritional and health indicators. In general, vulnerability is negatively associated with educational attainment, employment status and wealth indicators, as would be expected. More specific associations are found for rural West Africa, where within agro-pastoral systems of millet or mixed cereal-root crop cultivation the agriculturally self-employed are particularly vulnerable.

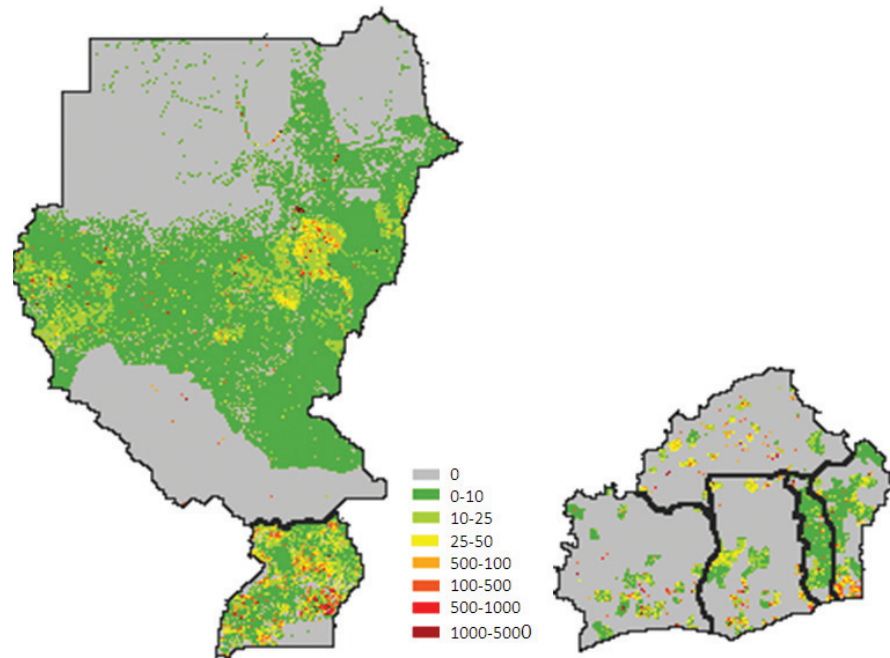


Figure 5. Vulnerable population in persons per km²

For urban areas of West Africa, the report concludes that the vulnerable live on the outskirts of cities, with little or no formal employment and a reliance on own cultivation of crops. Finally, in East Africa, characterization of vulnerable groups seems to imply that many of them are refugees with little or no relations in local communities, and hence little opportunities to cope with adverse conditions while already suffering from adverse health and nutritional status.

A preliminary analysis of the likely effects of climate change on these populations reveals that for West Africa, especially the vulnerable and very vulnerable populations in Burkina Faso and the northern areas in Benin, Ghana and Togo may experience climate shocks, in the case of declining rainfall. For Uganda, the Karamoja region, already home of many vulnerable households, is the area where the largest negative effects of climate change may occur, while for South Sudan, the South Eastern part is likely to experience significant yield decreases with negative effects on the very vulnerable population located there. For Sudan, the northern areas are already unsuited for crop cultivation, and hence, climate change is bringing more hardship to the pastoralists residing here.

This statistical analysis is, however, only the first, exploratory, part of the project. Existing analyses of impacts of weather related events concentrate on the area where these events are located and estimate, for example, expected loss of harvest or expected deterioration in food security indicators for that specific area (specifically, this is the purpose of early warning systems such as FAO's Global Information and Early Warning System (GIEWS) and USAID's Famine Early Warning Systems Network (FEWS)). The methodological challenge taken up in the second part of the project is to model the domino effects of such local events, i.e. to represent the spreading of hardship over larger areas through movement of people, which may lead to conflicts with people living in neighboring areas over land and other resources. One of the specific features of the domino model is that transmission of hardship only occurs when a specific threshold – for example a minimum nutritional requirement – is passed, unlike, say, transmission of price changes over larger areas. This implies that pressure on an individual can build up below the surface without noticeable effects, until the threshold is exceeded and a tumbling process starts, where one individual after the other 'falls', negatively affecting connected individuals, for whom the additional pressure may be the final 'push' that causes their situation to

deteriorate below their threshold level and so forth. A better understanding of the manner in which the initial shock is transferred through the system as a whole provides insights in the appropriate preventive and coping policies, to minimize harm done.

Towards concerted water sharing in the Jordan River Basin



Water is a particularly scarce resource in the Middle East, rendering its distribution one of the most relevant issues in the region. Since its main water basin - the Jordan River - stretches from the Jordan Highlands in the East, Syrian and Lebanese territory in the North and the West Bank to the Dead Sea in the South, this is also politically a very sensitive topic. In addition, as in all river basins, no water prices are available to determine the value of water and a basis is lacking for a fair or just allocation among the different users. Distributional issues may be delegated to negotiations at political level, but still a credible justification is needed to make the outcomes politically acceptable. An economic model, incorporating water flows and providing water valuation as a result, could offer such a rationale. Yet, credibility and acceptance of the model by the countries in the Middle East poses high demands on the strength of the applied methods and the transparency of the process, precisely because of possible political interventions.

The Centre has accumulated experience with interdisciplinary water research by coordinating various water related research projects. SOW was involved in the construction of a grid-based model for the Jordan River Basin, conducted joint research activities in the region with the Palestinian Water Authority and was involved in several water research projects over the past years (Zambia, Incomati, Benin, China). In 2011, the Centre has taken the lead in forming a consortium of four research institutes in riparian states of the Jordan River, representing Lebanon, the Kingdom of Jordan, and the Palestinian Territories. The Arab Center for Studies of Arid Zones and Dry Lands, mandated by the League of Arab States, is a regional partner in the consortium. The consortium will participate in the project "Towards concerted sharing: development of a regional water economy model in the Jordan River Basin", that was approved in 2012 for funding by the Swedish International Development Cooperation Agency (SIDA). The acknowledged role of the Centre is to provide the methodology of the project, but also to act as independent broker, ensuring transparency of the process and credibility of the outcomes.

The project's main research objective is to construct a regional water economy model for the Jordan River Basin, which serves as analytical framework to assess the economic consequences of changes in water distribution and evaluate the impact of policy interventions on local and cross boundary water users and the sustainable exploitation of ground water resources. Water scarcity is evidently the key issue, but equally important is the representation of water quality. Hence, the various prevailing pollutants need to be considered, in particular salt, since its concentration is high due to the warm climate, the low precipitation rates and the rather flat topography in the lower Jordan Valley.

The project calls for methodological innovation in various ways. A specific technical issue is the spatial representation to be chosen. The previous model for the Jordan River was made at grid level, with relatively few data available for calibration. Also, the relief, and hence the gravity induced flows following the digital elevation map, were hard to reconcile with the actual water flows. Although solutions have been suggested and tested to work around these hurdles, the present project adopts a more practical approach, following common hydrological modeling of identifying water basins and their flows. This makes the model easier to compute, and avoids strong dependence on data interpolation in view of missing observations. Still new issues are to be resolved, since maps of a fine resolution need to be aggregated to the basin level. Formal procedures have been developed for this, such that aggregation errors, which are inevitable in this case, can be assessed explicitly and depict to what extent properties of the model at the fine resolution are carried over to the more aggregated level at subdistricts.

A second major issue is that blending of quantity and quality (such as salt concentration and oxygen content) is an intrinsic property of water and hence needs to be represented as such. This implies that at each point and time when a liter of water is used, it comes necessarily with all its quality properties, good and bad. This blending property is in fact a kind of inseparability that cannot be treated in a simple way, say via fixed coefficients since the quality characteristics themselves are variable. This requires a dedicated mathematical representation and dedicated solution procedures that should still provide a feasible solution without making overly restrictive assumptions on the model structure.

The project is challenging in its organizational design as well; work and travel in the region are hampered by the current political and safety situation, and the institutes are for the first time involved in such a type of project under this mode of cooperation. This requires careful execution: drafting of contracts, enhancing the cooperation and ensuring smooth logistics are key. To facilitate this, the project has appointed an executive secretary familiar with the institutions in the region.

Early 2013 a kick off meeting was held in Amman, with a key note lecture presented by the former Minister of Water of Jordan, and with all participants present.

Policy response of poverty patterns in Mozambique



After its difficult post war recovery, Mozambique is still one of the poorest countries in the world, with challenges including inadequate food consumption throughout the country, low literacy rates and poor access to safe drinking water, electricity and medical treatment. In addition, many households are vulnerable to the risk of floods that destroy harvests, houses and infrastructure. The HIV/AIDS epidemic levies a high toll in terms of production foregone, prime-age deaths and children orphaned.

To some extent, Mozambique managed to overcome these challenges, making a transition to a stable society with a multi-party democracy. The economy has been growing over the past decades and its growth has been accelerated by the recently started exploration of its oil reserves. Still poverty is widespread, but the rates are decreasing nonetheless: according to recent figures it fell from 70% in the mid-nineties to around 54% now. Yet, this outlook is disputed, since the decline seems incompatible with growth patterns and the geographical distribution of poverty does not match the distribution of economic activity. For example, data on poverty suggest that the Maputo region is relatively poor, even compared to rural areas in the north.

The Centre became involved in this debate when bilateral donors and the World Bank at the end of 2010 commissioned a desk study to look into the poverty distribution and trends. The study reviewed the underlying methodology that used context specific poverty lines. By proposing a

national poverty line, the report shows that the above mentioned anomalies would disappear (Boom et al., 2012). The study also concludes that the construction and use of poverty profiles is more relevant than poverty lines for poverty analysis. It proposes a capacity building program with local counterparts that should be trained in statistical techniques to identify these profiles in order to investigate the causes of poverty and how it can be alleviated.

Early 2012 contacts were established with the Statistical Institute (INE) and with the Ministry of Planning and Development (MPD), who both showed a clear interest in the training and the research component. Under a follow-up project they participated in training workshops in Maputo and Amsterdam. This activity also attracted the attention of other ministries and development partners in Mozambique involved in food security.

This has led to a broadening of activities, involving the World Food Programme (WFP). The provision of food aid in Mozambique by the WFP is substantial, but based on a rather crude assessment of the food security needs over the country, leading to poor targeting of the beneficiaries and poor monitoring of the public interventions, as acknowledged by WFP and the government. The Centre will provide additional training programs in the use of statistical methods to assess the geographical distribution of poverty, both to the Statistical Institute INE and other research and government institutes that join the partnership. The program starts with the construction of dependable sub-national statistics and maps, and aims at the creation of a spatial statistical analysis platform and the consolidation of a unified up-to-date dataset that can be used to identify areas with high incidence of poverty and vulnerability.

Coping strategies for pastoralists in Afar State

The project in Afar State, Ethiopia, aims to identify feasible strategies that will improve the well-being of pastoralists. It studies how the various clans govern the common grazing areas without an elaborate system of monitoring or (central) governance. A survey held among 400 pastoralists in the Afar Region elicits information, for each sub-clan, on the rules and regulations for communal use of rangeland and watering points. In addition, a geographical inventory is made of range lands, water wells and nomadic

routes, again for each subclan and for the various seasons. To obtain this information, the Centre has contracted the Haramaya University based in the Afar, specialized in nomadic agriculture and well placed to execute the questionnaire, the results of which will become available early 2013. The Centre also cooperates with the MARS (Monitoring Agricultural Resources) Unit of the JRC (Joint Research Centre of the EU) that uses satellite images and remote sensing techniques to investigate the carrying capacity of the natural resources in the most inaccessible areas.



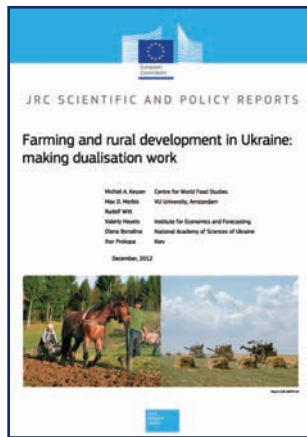
The Afar project is a prime example of obtaining insight into a complex institutional setting through dedicated modeling and questionnaires, and input from local researchers. The defining characteristic here is the open access to range lands and wells, distributed over large territories that are impossible to monitor and control at the given low population density rates. Still the system, while being fragile, has proved to be resilient to shocks and able to survive for ages. Clans appear to adhere to unwritten rules, which determine how long herds can stay at watering points, how much they can use, and what regulates their departure. The questionnaire is designed to make these rules explicit and eventually to formalize them.

The project has wider implications than the fate of nomadic tribes themselves, however much they may need support for their case. Open access areas do not refer merely to the traditional common pastures, but occur everywhere in the world: the internet, the inner cities visited by groups of tourists or football fans, and the metropolises of rich countries where companies settle with free access to safe streets and a creative cultural climate. In all cases the basic question is how (large) groups can visit and enjoy the commons, without permanent surveillance at every corner. Modern societies may in this respect have something to learn from traditional societies, when viewed as a repository of successful social evolution.

Agricultural transition in Ukraine

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, due to the political disarray and the still incomplete transition of the collective Soviet-style agricultural sector. In fact, after its independence in 1991, a dualized agricultural system in Ukraine has

gradually emerged, comprising of corporate farms and traditional family farms. Corporate farms are largely export oriented and benefit from important economies of scale, particularly in mechanized operations, input purchase and marketing of outputs. Traditional family farms cultivate the former private plots. They specialize on products from animal husbandry and horticulture with higher value added per hectare but their access to foreign markets and even to domestic marketing chains is limited. Furthermore, traditional farmers lack the social amenities they used to have access to before the transition, and their parcels are fragmented over many plots. This dualization has increased the tensions between small holders and large land owners.



The Ukraine project started in mid 2011, with funding from the JRC as part of the EU's Neighbourhood Policy program, which aims to improve the relationships of the EU with its neighboring countries and assists in governance and development programs. In the execution of the project the Centre has cooperated with local researchers of the National Academy of Sciences in Kiev, who looked into the social, trade and environmental consequences of agricultural transition, and tap from a set of primary surveys that have not been analyzed in depth before. Using the Centre's GRCP package for integrated statistical analysis, this resulted in case studies on how to improve the social conditions in rural areas and the prevailing system of land rents. As background document a review of Ukraine's agricultural sector under the transition was written.

The findings have been synthesized in the final project report that addresses how Ukraine can make dualization work (Keyzer et al., 2012). The report argues that with its wealth of natural resources and its relatively well educated population, Ukraine has ample means to let both parts of its dualized agriculture flourish in parallel. There is no need to prioritize either of them. Rather the study advocates implementing property rights beyond the regular ownership titles of parcels, such as the right of passage across plots to ensure their accessibility and user rights in commons. Land productivity needs protection as well, since the rapid growth of agricultural exports amounts to a large outflow of nutrients. Domestic recycling of plant nutrients and fertilizer imports are needed to prevent soil fertility loss. Finally, as regards foreign trade, the report draws attention to product labeling as a vehicle for institutional innovation and improved governance, with labels requiring satisfaction of social as well as environmental standards.

Stock holding, price volatility and food security

The Centre has a long standing relationship with the Netherlands Ministry of Agriculture, now part of the Ministry of Economic Affairs. In 2012, the Centre and the Ministry agreed upon a program of work that aims at strengthening the Ministry's policy evaluation and decision making capacity. As input for the discussions, the Centre is preparing summary papers on particular issues reflecting the Ministry's policy concerns, starting with a review on the role of stock holding (Halsema and Keyzer, 2013). This paper consists of an interpretative framework and a long list of proposals, in which stock holding plays a role, be it as instrument for the stabilization of markets, or as food aid emergency assistance. All the proposals are reviewed against the background of analytical assessments and empirical evidence. This provides a series of examples, which illustrated how evaluations of – similar – future proposals could be made by Ministry staff.

The topic of stock holding policies was chosen to respond to concerns about world food security during the recent price spikes following the food crisis of 2007/8. At that time a series of proposals to coordinate stockholding at international level emerged, with the aim to reduce price volatility and possible negative effects on malnutrition and agricultural production.

In the review of these proposals it appears that plans for keeping physical stocks to these aims, often in parallel with plans to keep financial reserves as well, have been too costly and have failed to mobilize critical support. This may not be much of a surprise, since stockholding is an intrinsic element of food delivery that cannot be dealt with as a policy variable. The world food system nowadays is far too connected to be controllable by public stock operations beyond their activation during emergencies.

Hence, policies should focus on mitigation and adaptation. Mitigation refers to the elimination of policy-induced contributions to food price volatility, primarily by ensuring that spot and futures markets function well, and by gradually abolishing blending mandates for biofuels. Adaptation refers to physical as well as financial instruments that can help to cope with volatility. Stocks still have a role to play as adaptation measure, but as a small emergency reserve in case of a crisis, along with pledges of countries to give access to their stock, and to supply international agencies in charge of emergency relief with adequate structural funding.

Prospects for 2013 and beyond



Many of the projects described before (Mozambique, ClimAfrica, Afar State, the Middle East) continue in 2013, some of them also into 2014. Small scale projects on China's agriculture also continue, via the partnership with the Chinese Center for Agricultural Policy (CCAP) in Beijing, partly as follow up of the recently concluded CATSEI project, partly as new initiatives on the long term consequences of climate change for China's agriculture. Ukraine has expressed interest in continuation of cooperation, in particular focusing on the establishment of a data platform that allows for transparent analysis of social and environmental aspects of the agricultural transition, to further feed discussions between Ukraine and the EU as part of the EU's Neighbourhood Policy program. Also the policy support project for the Ministry of Economic Affairs, with various demand driven topics, continues in 2013. The first half of 2013 is the last period over which the Ministry of Foreign Affairs provides institutional finance.

The cooperation with the Ministry of Foreign Affairs may still be continued on a different basis and at a different scale. A project with the Policy and Operations Evaluation Department of this Ministry, which starts early 2013, provides an example of this. This six-month project is a pilot on the modeling of policy coherence for development. In a quantitative analysis the coherence of Dutch and European policies with Ghanaian development objectives and policies over the period 2006-2011 will be assessed. The study aims to enhance the understanding of the joint positive and negative effects of interventions by the Netherlands and the EU, particularly against the background of Ghana's rapid economic development and increased options for alternative financing – through other donors, foreign direct investments or own oil revenues – of its policy priorities. The study also reflects on the choice of analytical tools for policy evaluation.

To maintain a balanced project portfolio, new projects have been formulated, and consultations and negotiations with potential sponsors are underway. The Centre aims of a mix of projects that reflects the diversity of its activities. While some projects are of relatively short duration, others may span three to five year periods.

Improving national accounts in Ghana

Ghana recently revised its GDP estimates which led to increase of the size of the national economy by 60%, through which Ghana moved into the ranks of middle income countries. It continues its efforts to upgrade the statistical data collection process and to improve the analytical capacity for processing the data, in particular with respect to monitoring poverty, e.g. via the Millennium Development Goals and for support to poverty reduction programs.

The Ghana Statistical Service (GSS) bears prime responsibility for this process. With the support of the Centre, it has written a project proposal, first, to strengthen the basic infrastructure at GSS with books, software and computer facilities and several training programs, using GRCP and commercially available statistical software, and, second, to enter a capacity building program for the systematic and reproducible consolidation of its accounts, making full use of the available statistical databases. Cooperation with local research institutes (the University of Ghana at Legon) is envisaged as well. GSS has started the process of acquiring funding for this project on the basis of the agreed project document.

Agricultural dynamics and food security in an age of turbulence

Many of the smallholder farmers are among the poorest people in the world, and while there always has been much attention for the coping mechanisms by which they meet their food security ends, the basic challenge is to enable them to benefit from the rising trends in agricultural prices, and to understand how they can transform to viable enterprises. This will require massive investments in rural areas, a substantial part of which is expected to come from outside agriculture.

To guide these investments, IFPRI, Wageningen University and SOW have proposed a multi-year program that combines research at a micro, national, regional, continental and global scale, to study this transition in depth. The proposed research program represents the first of a series of joint research activities the three parties committed themselves to under the IFPRI-SOW-WUR partnership concluded in early 2012. It focuses on a specific set of

countries (Ghana, Ethiopia, Benin, Bangladesh, Indonesia), involving local research institutes, and charting their development processes, investigating the scope for productivity increases, accounting for the natural resource base, and the scope for institutional change accounting for existing formal and informal societal arrangements. The three partners are in the process of discussing the proposal with potential donors.

Prospects for Mexico's rural development



Small holder development is a key policy concern not just in least developed countries, but also in many of the emerging countries. Mexico is a case in point, having a long and wretched history of improving social conditions in the rural areas. The latest of these attempts is the Pacto por México, initiated by President Peña Nieto when he came into office in December 2012 and endorsed by all political parties and major stakeholders. The Pact aims to enhance economic growth, to increase the competitiveness of the Mexican agricultural sector, to create better employment opportunities and to eradicate poverty.

The Centre has been contacted by the Mexican Ministry of Agriculture, to gauge the Centre's interest in conducting for Mexico a modeling study in the spirit of the program on prospects for agricultural development in China by 2030. This resulted in a proposal for a two-phase five-year research project with as primary aim to help defining strategies for reducing extreme poverty in rural areas of Mexico, and promoting rural development more generally. These outcomes are to be used for initiating and feeding the policy dialogue among all stakeholders, as put forward in the Pact. The proposal is currently being reviewed by the Ministry of Agriculture within the broader context of the Pact that also requires cross-ministerial coordination of activities related to poverty reduction and agricultural development and innovation.

Re-greening for economic development in Niger

Niger is one of the poorest countries in Africa. Most of its fast growing population lives in rural areas that are affected by desertification, and the threat of famine looms large during the recurrent droughts. There are

also positive developments and one of these is the re-greening of Niger's Sahel zone, delivering multiple eco-services through all seasons. Yet, many re-greening programs are constrained by the lack of the necessary long term investments for tree management and protection. To fit Niger's development priorities of reducing undernutrition and poverty this calls for a shared perspective on the positioning of the re-greening initiative. Nationwide analysis is called for to explore the food security implications of the re-greening process in its geographical dependence of ecological and socio-economic characteristics, accounting for the main drivers of food security in Niger, such as desertification and the influence of the economic power of Nigeria. Furthermore, an incentive structure that guarantees the nurturing and protection of the trees is needed as well.

The World Agroforestry Centre (ICRAF) and SOW have formulated a joint project for such a study that establishes the relation between re-greening and food security, and that provides operational guidelines for tree development under a wide range of social and ecological conditions. In a more pragmatic mode, it also aims to elect a number of pilots to test the suitability of tree species and husbandry techniques under various degrees of environmental pressure.

Keeping course

The Centre aims, as before, to undertake a range of activities that covers a wide spectrum of policy issues related to poverty and development with considerable geographical spread. Many of the projects currently undertaken continue in 2013 / 2014 and a number of promising initiatives is in the pipeline. The annual report can only take stock of the research and acquisition efforts once a year. Additional information is available from the Centre's website (www.sow.vu.nl), providing actual information on new acquisitions, research output and project descriptions and reports.

References

- Boom, van den B., A.N. Halsema, V. Molini and S. Dade (2012) Upward and downward bias of the poverty line – implications for poverty assessment and evidence for Mozambique. SOW-VU Working Paper 12-02, Centre for World Food Studies, Amsterdam.
- European Patent Office (2013) EP 1 597 965 B1. European Patent Specification.
- Halsema, A. and M.A. Keyzer (2013) Stock holding, price volatility, and food security: a review of proposals. Centre for World Food Studies, Amsterdam.
- IISD (2013) Biofuels – At What Cost? A review of costs and benefits of EU biofuel policies. The International Institute for Sustainable Development, Manitoba, Canada.
- Keyzer, M.A., M.D. Merbis, R. Witt, V. Heyets, O. Borodina, I. Prokopa (2012) Farming and rural development in Ukraine: making dualisation work. JRC Scientific and Policy Report EUR 25878, JRC-IPTS, Seville.
- OECD-FAO (2013) OECD-FAO Agricultural Outlook 2013-2021, OECD/FAO, Paris/Rome.
- SOW-VU (2013) A spatially explicit assessment of specific vulnerabilities of the food system due to climate change and characterization of vulnerable groups, Technical Report ClimaAfrica, Centre for World Food Studies, Amsterdam.

Staff

List of staff members

The following staff members were working at the Centre by the end of 2012:

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

The Board

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

The Scientific Advisory Committee

Prof.dr. A.J. Dolman	Department of Earth and Life Sciences, VU University
Prof.dr.ir. P.P.S. Ho Prof.dr. R. Ruben	Faculty of Humanities, University of Leiden 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 Prof.dr. H.A. Verhoef	Member of Parliament 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 20th, for their annual meeting. The meeting started with an overview of the Centre's activities (research projects, outreach, methodology) and announced the change of course. It was followed by a series of presentations on recent activities: the prospects of agriculture in Ukraine and of pastoralism in the Afar State; on the scope of contract enforcement in Ghana, on a new statistical estimation method, and on the role of stockholding to enhance food security and stabilize markets.

Accounts and result for 2012

Key figures of SOW-VU's Balance per December 31, 2012

Assets	
Fixed assets	€ 15,119
Current assets	€ 88,120
Liquid assets	€ 1,233,715
Total Assets	€ 1,336,954
Liabilities	
Capital	€ 164,929
Provision for personnel risks	€ 0
Current liabilities	€ 1,172,025
Total Liabilities	€ 1,336,954

Key figures of SOW-VU's Operating Account 2012

Expenses	
Research activities	€ 1,017,908
Specific material expenses on research	€ 79,972
Institutional costs	€ 77,256
Total Expenses	€ 1,175,136
Earnings	
Subsidies:	
- Ministry of Foreign Affairs	€ 500,000
- Ministry of Agriculture	€ 75,000
- Vrije Universiteit	€ 248,251
Other income	€ 299,114
Total Income	€ 1,122,365
Result	€ -52,771

Publications and activities, 2012

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

- Alfarra A., E. Kemp-Benedict, H. Hötzl, N. Sader, B.G.J.S.Sonneveld 'Modeling Water Supply and Demand for Effective Water Management Allocation in the Jordan Valley'. *Journal of Agricultural Science and Application* no. March 2012: 1-7.
- 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.
- 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 in China: estimation and reduction of nitrogen impacts'. In Y. Ermoliev, M. Makowski and K. Marti (eds) 'Managing Safety of Heterogeneous Systems: Decisions under Uncertainties and Risks'. Berlin: Springer-Verlag.
- Halsema, A.N. and C.A.A.M. Withagen 'Cartel-fringe models of the oil market: a quantitative Assessment'. *International Journal of Technology Management* 60 (1-2): 60-82.
- Keyzer, M.A. and C.F.A. van Wesenbeeck 'Food Security Management, Aid and Governance'. In: N. Pouw and I. Baud, eds. 'Local Governance and Poverty in Developing Nations'. Routledge Studies in Development and Society. New York: Routledge.
- 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* 26 (2): 553-579.
- Sonneveld, B.G.J.S., Z. Bai, D. Ndiaye and P.S. Bindraban 'Comparing RUE trends with expert judgments for nation-wide land degradation assessments: the case of Senegal'. *Journal of Sustainable Development* 5 (8): 116-135.
- Sonneveld B.G.J.S., D. McGarry and D. Ndiaye 'Using the VS-Fast metho-

dology for soil degradation assessment: a case study from Senegal'.
Soil Use and Management doi: 10.1111/sum.12005.
Withagen, C.A.A.M. and A.N. Halsema 'Tax competition leading to strict environmental policy'. International Tax and Public Finance doi: 10.1007/s10797-012-9232-1.

Professional publications

- Boom, B. van den, and A. N. Halsema 'Policy response of poverty patterns in Mozambique'. Project inception report, Maputo: Royal Dutch Embassy.
- Keyzer, M.A., M.D. Merbis, R. Witt, final report of the project 'Prospects of the Farming Sector and Rural Development in Ukraine'. Kiev, Ukraine, August 30.
- Keyzer, M.A., H. Qiu and W.C.M. van Veen 'Greening Chinese agriculture: with special reference to fertilizer practices'. Paper presented at 'International Conference: The EU and China – Partners for a Green World'. Organized by the InBev-Baillet Latour Chair of European Union-China Relations of the College of Europe, together with Madariaga - College of Europe Foundation and the Committee of the Regions. Brussels, April 19-20.
- Keyzer, M.A., 'Panel 4: Green Agriculture' abstract in The EU China Observer Issue 2, 2012. Report of the International Conference 'The EU and China – Partners for a Green World' InBev-Baillet Latour Chair of European Union-China Relations. Brussels, April 19-20.
- Keyzer, M.A., contribution to the JRC Science and Policy Report 'NPK: Will there be enough plant nutrients to feed a world of 9 billion in 2050?' ed. J.P Malingreau, H. Eva, A. Maggio. Final report of the NPK workshop, Brussels, June 2012.
- Merbis, M.D. and C.F.A. van Wesenbeeck 'Africa in Maps: Data repository of the food economy of Sub-Saharan Africa'. Available on CD-Rom. Amsterdam: Centre for World Food Studies.
- Voortman, R.L., 'Micronutrients in agriculture and the world food system - future scarcity and implications'. In 'Scarcity of micronutrients in soil, food and mineral resources - background reports' (Schaarste van micronutriënten in bodem, voedsel en minerale voorraden - achtergrondrapporten) background report of the Platform Agriculture, Innovation and Society (LIS). June 30.

Working papers

- Keyzer, M.A., and W.C.M. van Veen 'The Chinagro model: a spatially detailed general equilibrium welfare model of China's agricultural economy'. WP 12-01, 44 pp.
- Boom, van den B., A.N. Halsema, V. Molini and S. Dade 'Upward and downward bias of the poverty line – implications for poverty assessment and evidence for Mozambique'. WP 12-02, 40 pp.

Advisory Work

- Halsema, A.N., C.F.A. van Wesenbeeck and M.A. Keyzer, online consultation on 'Suggestions for ToR of Food Security Committee HLPE study on Constraints to Smallholder Investments in Agriculture' for the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS). May 2012.
- Keyzer, M.A., invited participant at the JRC Foresight on Global Food Security Prioritization Workshop 'Global Food Security Expert Meeting'. Organized by the European Commission Joint Research Centre (JRC), Scientific Policy and Stakeholder, Science Advice to Policy. Brussels, June 14.
- Keyzer, M.A., participant and commentator at the meeting of the Strategic Advisory Council of the International Food Policy Research Institute (IFPRI). Washington, September 21.
- Keyzer, M.A., keynote speaker at the opening session of Interdepartmental Advisory Committee on DAC criteria (Interdepartementaal Beleidsonderzoek IBO). The Hague, October 30.
- Keyzer, M.A., presenting 'Price volatility on the agricultural markets - an update' (Prijsvolatiliteit op de agrarische markten – een update) at the Expert Meeting 'Volatility in agricultural commodity markets'. Organized by the Dutch Ministry of Economic Affairs, Agriculture and Innovation. The Hague, October 26.
- Merbis, M.D., C.F.A. van Wesenbeeck and M.A. Keyzer, contribution to the open electronic consultation on 'Social Protection for Food Security. A zero draft consultation paper - version of 19 March 2012' of the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS). April 2012.
- Voortman, R.L., M.A. Keyzer, contribution to the open electronic consultation on 'HLPE report Food Security and Climate Change; A zero draft

- consultation paper' of the High Level Panel of Experts of the Committee on World Food Security (HLPE-CFS). May 2012.
- Voortman, R.L., consultation for the publication 'Scarcity of micronutrients in soil, food and mineral resources - Urgency and policy options' (Schaarste van micronutriënten in bodem, voedsel en minerale voorraden – Urgentie en opties voor beleid) of the Platform Agriculture, Innovation and Society. Advisory and research report to the Minister and Secretary of State of the Ministry of Economic Affairs, Agriculture and Innovation. June 30.
- Voortman, R.L., advisor to Platform Agriculture, Innovation and Society (LIS). Participating in a presentation by LIS on micronutrient scarcity and the implications for agriculture, and participating in a meeting with staff of Agricultural Research on research funding at the EU Directorate-General for Agriculture and Rural Development. Brussels, November 12.
- Voortman, R.L., invited reviewer of project proposals for the program 'Basic Research to Enable Agricultural Development (BREAD)' within the context of the partnership of the National Science Foundation (NSF) and the Bill & Melinda Gates Foundation (BMGF).
- Wesenbeeck, C.F.A. van, invited participant 'Workshop on Food Security in Sub-Saharan Africa'. Organized by the Netherlands Environmental Assessment Agency (PBL). Leiden, January 18.
- Wesenbeeck, C.F.A. van, invited participant 'Our position within the new international agricultural research system CGIAR' (Onze inzet binnen het nieuwe internationale landbouwkundig onderzoekssysteem CGIAR). Seminar organized by the Dutch Ministry of Economic Affairs, Agriculture and Innovation, and the Ministry of Foreign Affairs. Utrecht, February 8.
- Wesenbeeck, C.F.A. van, invited participant 'Working Lunch with Dr. David Nabarro', special reporter Food Security of the Secretary-General of the United Nations Ban Ki-moon. Organized by the Dutch Ministry of Economic Affairs, Agriculture and Innovation. Voorburg, March 9.
- Wesenbeeck, C.F.A. van, invited participant expert workshop 'From Islands of Success to Seas of Change; initiative for Scaling Inclusive Agri-Food Markets'. Organized by the Centre for Development Innovation Wageningen UR. The Hague, April 11.
- Wesenbeeck, C.F.A. van, invited participant 'Launch Meeting Knowledge Platforms'. Organized by the Dutch Ministry of Foreign Affairs. The Hague, June 13.

- Boom, B. 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., lecture 'World Food Security and Nutrition' at the course 'Development from an Interdisciplinary Viewpoint' minor in Development Studies, Faculty of Social Sciences (FSW), VU University. Amsterdam, January 19.
- Keyzer, M.A., lecture and staff training program 'Economics of Climate Change'. Centre for Chinese Agricultural Policy, Chinese Academy of Sciences, Institute of Geographic Sciences and Natural Resources Research CCAP/CAS. Beijing, China, December 10 – 14.

Media and Outreach

- Boom, B. van den, interview 'FAO hunger figures were already questioned in 2009' (Hongercijfers van FAO stonden al in 2009 ter discussie). Nederlands Dagblad, October 10.
- Boom, B. van den, interview 'Poverty Rates'. Dutch news radio 'VARA Radio 1. November 26.
- Centre for World Food Studies, Annual Report quoted in 'Abolish Biofuel!' (Schaf de biodiesel af!) by Prof. dr. M.B. Katan. NRC-Columns, March 3.
- Centre for World Food Studies, reference to the report 'China's agricultural prospects and challenges: report on scenario simulations until 2030 with the Chinagro welfare model covering national, regional and county level.'(2007) by Fischer, G., J. Huang, M.A. Keyzer, H. Qiu, L. Sun and W.C.M. van Veen. Reference in 'Eroding National Border: The ASEAN-China Free Trade Agreement (ACFTA)'. Published by German Industry and Commerce Ltd. (GIC) / German Chamber of commerce, Hong Kong (GCC). GC.comm, Issue II, 2012.
- Centre for World Food Studies, discussion of the results of the Chinagro model in 'Who will feed China's livestock?' by Laixiang Sun. IIASA Research Magazine - Options, Summer 2012.
- Keyzer, M.A., interview 'How can the 'expert' be so sure about this?' (Hoe weet de 'deskundige' dit zo zeker?). De Volkskrant, March 27.
- Keyzer, M.A., quoted in '2011 Global Food Policy Report' International Food Policy Research Institute (IFPRI).
- Keyzer, M.A., interview 'Intensification of livestock farming is not necessary

- for feeding the world' (Intensivering veehouderij niet noodzakelijk voor voeden wereld). Boerderij 9, September 3.
- Keyzer, M.A., interview 'Part of the series - Interviews with Global Citizen Leaders'. The Global Citizens' Initiative, October 3.
- Keyzer, M.A., interview 'Food for everybody. Always' (Eten voor iedereen. Altijd). Ad Valvas, October 10.
- Keyzer, M.A., interview 'Such a report about hunger is partly politics' (Zo'n rapport over honger is voor een deel politiek). De Volkskrant, October 11.
- Keyzer, M.A., interview 'Abolishing of blending mandates is painful' (Afschaffen bijmengplicht pijnlijk). Boerderij Weekend, October 12.
- Voortman, R.L., interview by R. Kappelhof, editor Dutch TV program Keuringsdienst van waarde. July 24.

Conferences, seminars, workshops

- Boom, B. van den, and A.N. Halsema, presenting 'Policy response of poverty patterns in Mozambique' to the Policy Analysis and Monitoring (PAMS) and Economist group. Maputo, Mozambique, February 9.
- Boom, B. van den, and B. Rabta, providing training for the project 'Policy response of poverty patterns in Mozambique' at the Instituto Nacional de Estatística (INE). 'First Training Workshop' organized by SOW-VU and INE. Maputo, Mozambique, May 28 – June 1.
- Boom, B. van den, presenting 'Incomplete water securitization in coupled hydro-human production systems' at the lunch seminar series FaDo (Faculteit op Donderdag). Organized by the Faculty of Economics and Business Administration, VU University. Amsterdam, June 14.
- Boom, B. van den, presenting 'Vulnerability and Poverty Analysis Platform and Mapping for Mozambique'. World Food Programme (WFP). Maputo, Mozambique, November 29.
- Boom, B. van den, presenting 'Upward and downward bias of the poverty line – implications for poverty assessment and evidence for Mozambique'. World Bank. Maputo, Mozambique, December 4.
- Keyzer, M.A., invited participant and panel member 'International Conference: The EU and China – Partners for a Green World'. Organized by the InBev-Baillet Latour Chair of European Union-China Relations of the College of Europe, together with Madariaga - College of Europe Foundation and the Committee of the Regions. Brussels, April 19-20.
- Keyzer, M.A., and M.D. Merbis, presenting 'Final meeting of the Project Pros-

- pects of the farming sector in Ukraine', within the project 'Prospects of the Farming Sector and Rural Development in Ukraine'. Organized by the Centre for World Food Studies in cooperation with the Institute of Economics and Forecasting of the National Academy of Science of the Ukraine (IEF-NASU) Kiev and the Institute for Prospective Technological Studies of the Joint Research Centre of the European Commission (JRC-IPTS) Seville, Spain. Kiev, Ukraine, May 31.
- Keyzer, M.A., invited participant seminar 'Connecting to the CGIAR; looking for synergies with a focus on food & nutrition'. Organized by the Dutch Ministry of Foreign Affairs. The Hague, October 8.
- Keyzer, M.A., 'Green agriculture in EU and China: Possible relevance for Vietnam'. Presentation to delegation of Vietnamese Ministry of Agriculture and Rural Development (MARD). Organized by the Dutch Institute for Public Administration (ROI -PBLQ). The Hague, November 27.
- Keyzer, M.A., presenting 'Towards a future-proof European Agricultural Policy' (Naar een toekomstbestendig Europees Landbouwbeleid) and invited participant round table 'KLV & WBS - World Lecture - European Agricultural Policy'. Organized by KLV and Wageningen Business School. Wageningen, November 28.
- Keyzer, M.A., presenting 'Fertilizer use in China: what is green agriculture?' to the Foreign Correspondents Club of China. The Royal Dutch Embassy in Beijing, China, December 13.
- Merbis, M.D., invited participant Expert Meeting 'Sustainability perspectives for agriculture and horticulture in the Netherlands'. Organized by the Council for the Environment and Infrastructure (Raad voor de leefomgeving en infrastructuur, RLI). The Hague, September 20.
- Sonneveld, B.G.J.S., presenting 'Socio-economic implications of climate change impacts and adaptation measures in SSA' at the ClimAfrica Project Meeting. Organized by the Crops Research Institute and the Council for Scientific and Industrial Research. Ghana, Accra, January 18-19.
- Sonneveld, B.G.J.S., presenting 'An empirical check of land degradation assessments'. Presentation for the Dutch Environmental Agency and staff members of the Soil Geography and Landscape Group of the Wageningen University. Wageningen University, September 25.
- Wesenbeeck, C.F.A. van, special invitation for preparation of the conference on public-private cooperation on Food Security 'Food Issues across borders; How business life, science and policy can reinforce each other in practice'. Organized by Netherlands Organization for Scientific

- Research; WOTRO Science for Global Development (NWO-WOTRO). Utrecht, January 18.
- Wesenbeeck, C.F.A. van, presenting 'Cooperation and innovation in the food chain: from rural production to urban consumption' at the FoodFirst Conference 'Food Issues across borders; How business life, science and policy can reinforce each other in practice' (VoedselZaken over grenzen heen; Hoe bedrijfsleven, wetenschap en beleid elkaar in de praktijk kunnen versterken). Organized by Socires and NWO-WOTRO Science for Global Development, Rabobank Netherlands, NCDO, the Dutch Ministry of Foreign Affairs and the Dutch Ministry of Economic Affairs, Agriculture and Innovation. Utrecht, March 15.
- Wesenbeeck, C.F.A. van, invited participant 'Lunch meeting with Ertharin Cousin', Executive Director of the World Food Programme (WFP). Organized by the Dutch Ministry of Foreign Affairs. The Hague, September 13.
- Wesenbeeck, C.F.A. van, moderator 'FoodFirst Conference: Urban Agriculture'. Organized by FoodFirst. Venlo, October 2.
- Wesenbeeck, C.F.A. van, presenting 'The food economy of Africa in maps' at the Afrikastudiedag. Organized by The Netherlands African Studies Association (NVAS). Wageningen University, October 13.
- Wesenbeeck, C.F.A. van, presenting 'Food Security Scenarios for Africa' and panel member at the conference 'Africa Works'. Organized by The Netherlands-African Business Council, The Africa Studies Centre, NL Agency (Dutch Ministry of Economic Affairs, Agriculture and Innovation) and the Dutch Ministry of Foreign Affairs. Zeist, October 30.

Refereeing

Environmental and Resource Economics
European Journal of Operational Research
Food Security: The Science, Sociology and Economics of Food Production and Access to Food
Mathematical Reviews

Memberships of boards and committees

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 Hollandse Maatschappij der Wetenschappen).

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., focal person Partnership Agreement between the International Food Policy Research Institute (IFPRI), the Centre for World Food Studies (SOW), and Wageningen University and Research Center (Wageningen UR).

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, member of the Platform Food Security of the Ministry of Economic Affairs, Agriculture and Innovation and the Ministry of Foreign Affairs.

Education

Sonneveld, B.G.J.S., external examiner for three Master of Science candidates: Mrs. van Etambuyu Anamela Kambobe, Mrs. Sakirat Mosunmola Adeniya and Mr. John Joseph Essien. International Institute for Geo-Information Science and Earth Observation (ITC), University of Twente. Enschede, February 29.

Sonneveld, B.G.J.S., doctoral examination committee of Ms. P.F. Mutekanga. Wageningen University, October 9.

Traineeships / visiting researchers

- Dr. H. Qiu, Center for Chinese Agricultural Policy, Chinese Academy of Sciences, for discussing ongoing and future research cooperation between SOW-VU and CCAP. September 7-12.
- Mr. J. Brandsma, Wageningen University / FutureWater visits SOW-VU to work with B.G.J.S. Sonneveld on a global land degradation study commissioned by the Netherlands Environmental Assessment Agency (PBL). November 1 – December 30.

Visitors

- Mr. Fred Wever (Market manager FloraHolland International Flower and Plant Market), Mr. Henk Hoogervorst (Director floriculture sector 'Hobaho'), Mr. Jan Mantel (Plant manager horticulture network 'LTO-Groeiservice') and Mr Peter Raven, (board member of the Royal General Association for Bulb Growing Cultivation -KAVB), visit the Centre for World Food Studies to discuss the financial structure of the Dutch agri-sector. January 17.
- Dr. L. Asveld of the Rathenau Institute (Research and Debate on Science and Technology) and Dr. Ir. E. Hees of the Platform Agriculture, Innovation and Society (LIS) of the Ministry of Economic Affairs, Agriculture and Innovation, visit the Centre for World Food Studies to discuss fertilizer components. March 7.
- Dr. T. van Rheenen, Senior Researcher International Food Policy Research Institute (IFPRI), visits the Centre for World Food Studies to discuss IFPRI-SOW cooperation. May 2.
- Prof. dr. K. Asenso-Okyere, Director Eastern & Southern Africa Regional Office, International Food Policy Research Institute (IFPRI), visits the Centre for World Food Studies to discuss IFPRI-SOW cooperation. May 14.
- Prof. dr. P.F. Lanjouw, Research Manager of the Poverty Group in the Development Economics Research Group of the World Bank, visits the Centre for World Food Studies to discuss cooperation. June 18 – 22.
- Mr. A. Arendsen and Mr. S. Nijssen of The New Motion visit the Centre for World Food Studies for advice on Energy transition. September 13.
- Dr. L. You, Senior Researcher International Food Policy Research Institute (IFPRI), visits the Centre for World Food Studies to discuss geographical food security. November 30.

SOW-VU

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