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Price trends on
world agricultural markets

Photo: laif

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Dear Reader,

At this year's World Food Day one issue stood out: the prices of agricultural commodities and their impact on food security. Over the past year, prices have again proved volatile and have risen sharply. The current famine in the Horn of Africa has made the wider public aware that the problem of hunger is far from being a solved case and that developments on the global agricultural markets – while certainly not the only factor – exert a crucial influence on the food situation around the world. For example, the World Bank calculates that between June and December 2010, 44 million more people fell into poverty as a result of the price hike.

As in the food crisis of 2007–2008 it is once again the poorest, in particular women and children, who suffer from this development. And again, too, a mixture of familiar factors are held responsible for the rising and, above all, volatile prices – including mounting energy prices and a depreciated dollar, extreme weather events, increasing demand for bio-fuels, and trade-distorting actions such as export bans and panic purchases. That all these factors play a part is not disputed; opinions differ sharply, however, on the significance of each. So while Shenggen Fan of the Food Policy Research Institute in Washington views the rising demand for biofuels with great concern and calls for an urgent shift in public policies (pages 10–14), agricultural economist Prof. Harald von Witzke sees biofuels as playing only a minor role. For him it is the traditional supply- and demand-determining variables that are responsible for the price spike (pages 15–16).

Our authors also hold differing views on the importance of speculation. In a recent study for Welthungerhilfe, economist Prof. Hans-Heinrich Bass calculated that 15 per cent of the price hike of 2007–2008 could be attributed to speculation on the commodity futures exchanges. In his article on pages 17–21 he explains the workings of forward transactions and the part played by hedgers, arbitrageurs and financial investors. And because the issue of speculation, alongside the “food or fuel” debate, is probably one of the most emotionally charged aspects of the discussion of rising food prices, we have invited a representative of the association of the oil seed crushing and oil refining industry and a spokeswoman from Oxfam to give us their point of view.

The global markets are one side of the coin. But how do global developments affect regional and national markets?

Our authors from the African Development Bank, the University of Bremen and Welthungerhilfe put forward some answers. They make clear that the effects vary greatly from country to country – depending on the extent to which countries engage in world trade, the level of their integration in regional markets, the measures they have taken to counteract such developments and not least whether the population depends for its food supply mainly on maize or rice, wheat or sorghum (pages 22–33).

What developments should we be prepared for in the coming years? Although much uncertainty attaches to the factors that influence the fluctuation of food prices, experts consider it likely that food prices will continue to rise and that volatility will increase. Frequently debated methods of mitigating the effects include strengthening market mechanisms, improving market transparency, introducing social protection mechanisms and facilitating adaptation to climate change. Yet another option is the establishment of a global emergency grain reserve. Such a measure has already proved successful on a local scale, as the example of village granaries in Cameroon shows (p. 27.) While the IFPRI is in favour of a similar model at international level, the Chief Scientific Advisor to the UK government is more sceptical, arguing that it would be too expensive and potentially even counter-productive (see pages 34–37).

Our authors agree, however, that years of neglect of the agricultural sector have contributed considerably to the present crisis. Policies and investments to strengthen agricultural growth must therefore be a top priority and must in particular involve helping small farmers to increase their productivity and access the markets. Some examples of this can be found in our International Platform articles.

We are interested to know whether you share our authors' views! Send us your opinion: we shall collect your comments and – assuming your consent – publish them at www.rural21.com.



Silvia Richter

Partner institutions of Rural 21:



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Photo: GIZ

World Food Day 2011: Grounds for hope?

Let's refresh our memories: wasn't the first of the Millennium Development Goals adopted by the international community of states in 2000 a resolution to eliminate hunger from the world? No – it was merely an undertaking to halve the proportion of people suffering from hunger by 2015. And even this “disgracefully feeble target” will not be met, as Klaus von Grebmer, Communications Director at the International Food Policy Research Institute

(IFPRI), reported on 11 October 2011 in Berlin. With Welthungerhilfe, the Institute traditionally uses the week of World Food Day (16 October) to draw attention to the pressing problem of food insecurity, using the Global Hunger Index (see Box).

The Global Hunger Index (GHI) is based on three indicators: the proportion of the undernourished as a percentage of the population, the prevalence of under-

weight children under the age of five and the mortality rate of children under the age of five. While improvement has been achieved on all three indicators since 1990, the situation remains serious. The position in the Horn of Africa shows just how fragile food security is: when chronic malnourishment is accompanied by military conflict, bad governance and extreme weather events, an acute crisis is not far away. And if – as usual in the developing countries –

Global Hunger Index 2011: Taming price spikes and excessive food price volatility

As the hunger crisis in the Horn of Africa has demonstrated this year, food security continues to be threatened for millions of people throughout the world, a trend that is reflected in the Global Hunger Index (GHI) 2011. This is the sixth time that the GHI has been published jointly by Welthungerhilfe (WHH), the International Food Policy Research Institute (IFPRI) and Concern Worldwide. The GHI is a multidimensional tool for calculating the global hunger situation. By raising awareness and understanding of regional and country differences in hunger, the GHI aims to trigger actions to reduce hunger.

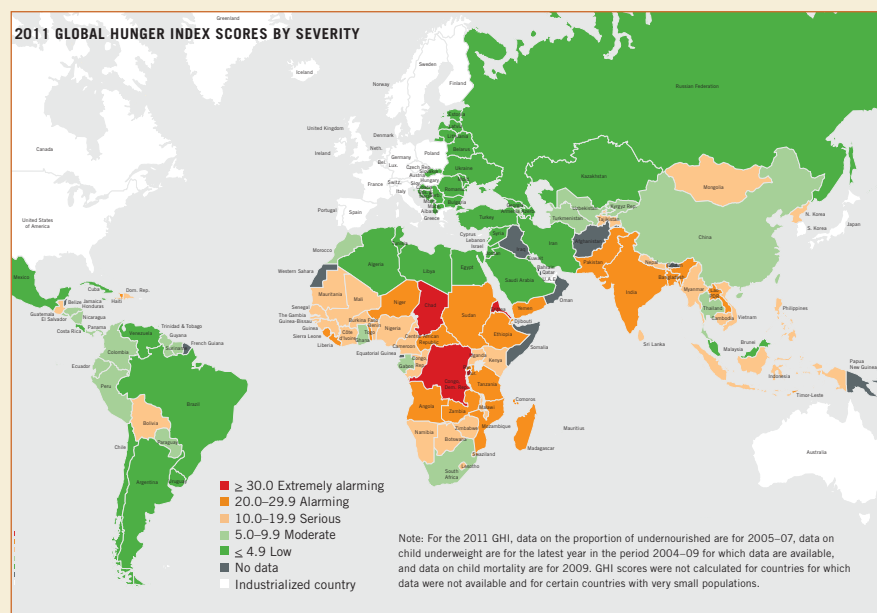
Although the global GHI score has dropped by more than a quarter since 1990, now, in 2011, there are still 26 countries in which the hunger situation is referred to as alarming or even extremely alarming (see chart). The countries with the poorest hunger scores all lie in sub-Saharan Africa: the Democratic Republic of Congo, Burundi, Eritrea and Chad.

Among the countries with the worst GHI scores, the Democratic Republic of Congo stands out. Not only has the country scored the highest GHI value of all countries in 2011, but it has also had to accept the clearest worsening of the hunger situation since 1990 and has therefore been the only country to slip down from the category “alarming” to the poorest category, “extremely alarming”. The country has recorded the largest share of undernourished people (70 percent) and one of the highest child mortality rates world-wide.

A positive example from this region is Ghana. During John Kufuor's period of office, the government's investment in agriculture, rural development, education and health enabled Ghana to officially join the medium-income countries in 2007 and figure among sub-Saharan Africa's politically most stable countries and fastest growing economies. The region with the poorest GHI score world-wide in 2011 is, once again, South Asia. The low status of women in the region is one of the primary factors contributing to a persistently high prevalence of child undernutrition, which in turn has impeded progress in reducing GHI scores. In this region, the trend is chiefly determined by India, by far the largest country in South Asia.

As was already the case in 2007/08, it is once again the rising and increasingly volatile food prices that are threatening food security for many people in developing countries. The Global Hunger Index refers to three key factors that are crucial in this context: increasing use of food crops for biofuels, extreme weather events and climate change, and increased volume of trading in commodity futures markets. In order to counter a deterioration of the global hunger situation, the reasons for rising and more volatile food prices have to be combated while people in developing countries also need to be supported in adapting to the new situation.

Nina Wünsche, Welthungerhilfe, Bonn, Germany



people are already having to spend more than two-thirds of their income on food, even the smallest rise in food prices has catastrophic consequences, as Bärbel Dieckmann, president of Welthungerhilfe, pointed out in Berlin. She therefore strongly supports attempts to tackle the causes of marked swings in agricultural prices (see box). Looking at the GHI map, things seem simple: violent

conflict almost always results in “red” status, while good governance is the best guarantee of “green”. In addition, countries that introduce social assistance programmes and income transfers (Brazil, Mexico) and promote agriculture (Ghana) are able to rise quickly up the index ranking. To provide the necessary external assistance the German Ministry for Economic Cooperation and Devel-

opment has set up a new Task Force, which will assume responsibility for all development-policy aspects of rural development and food security. The Ministry states that it allocates some 700 million euros – around 11 percent of its budget – to these areas. (sri)

For more information, please visit www.welthungerhilfe.de

In brief

■ Child mortality remains alarmingly high

Despite making some progress, the world is expected to fall short of the target to reduce child mortality by two thirds between 1990 and 2015 (Millennium Development Goal 4). Thus concludes the report “Child Mortality – Levels And Trends 2011”, published jointly in mid-September by the UN Inter-agency Group for Child Mortality Estimation (IGME), children’s charity UNICEF, the World Health Organization (WHO), the World Bank and the UN Population Division. The report states that nearly 21,000 children under five died every day in 2010 – about 12,000 fewer a day than in 1990. This is a drop of around 35 percent in twenty years. In absolute terms, the number of deaths among children under five has declined from more than 12 million a year in 1990 to 7.6 million in 2010.

The risk for children of dying from preventable or treatable illness is highest in sub-Saharan Africa, where one in eight children under five still dies. In South Asia, one in fifteen children dies before their fifth birthday. Most children’s deaths result from four causes: pneumonia (18 %), diarrhoeal diseases (15 %), preterm birth complications (12 %) and birth asphyxia (9 %). More than a third of deaths in children under five is associated with chronic or acute malnutrition. Against this backdrop, UNICEF warns of further child mortality in the Horn of Africa,

where in Somalia alone some 160,000 children are currently severely malnourished and therefore at acute risk.

Children from rural and poorer households are nearly twice as likely to die before they turn five than children in urban areas and wealthier families. UNICEF is therefore calling on governments to work for better access to basic services for the most disadvantaged families. (UNICEF/sri)

The report can be downloaded at: www.unicef.org/media/files/Child_Mortality_Report_2011_Final.pdf

■ WDR 2012: Supporting women strengthening growth

Countries that provide better conditions for women and girls will increase productivity, give children a better start in life and ultimately promote development, to the benefit of all their citizens. This is the conclusion of the “World Development Report 2012: Gender Equality and Development”, which the World Bank presented in Washington in mid-September 2011. According to the report, there is still much work to be done in terms of gender equality, despite the progress already made. For example, an estimated 3.9 million women are “missing” in developing countries each year, because some girls are never born due to a preference for boys, because girls have a higher mortality rate, and because they die in their reproductive

years. In sub-Saharan Africa, especially in countries with high levels of HIV/Aids, female mortality is even rising. It is true that the gap between boys and girls in primary education has closed in almost every country. Even in secondary education, girls have caught up rapidly. But women’s access to work remains unsatisfactory. Women continue to be paid less and they have less influence, both at home and in society and the economy.

The report uses firm examples to illustrate the benefits gender equality can bring to rural areas:

- In Malawi, the maize harvest would increase by 11 percent and in Ghana by 17 percent if female farmers enjoyed the same opportunities and conditions as male farmers.
- In Burkina Faso, agricultural production would grow by 6 percent if women had the same access to fertilisers and labour as men.

The World Development Report 2012 calls for action in four priority areas. The first is promoting women’s “human capital” by reducing their mortality and closing education gaps. The second is shrinking gender gaps in earnings and productivity. Third comes increasing women’s voice and agency in the household and in society, and fourth is ensuring gender inequality is not reproduced from one generation to the next. (epo/sri)

More information is available at: www.worldbank.org/wdr2012

Development on the margin – Tropentag 2011 conference in Bonn

The problem is as old as it is burning and yet it is unsolved: Increasing population, globalisation effects and a weak resource base in most developing countries require an ever more efficient supply of agricultural food and non-food commodities. Growing production and productivity must be reconciled with growing concerns for the environment. The rapid pace of global change processes makes it increasingly difficult to adapt particularly those production systems operating in variable, high-risk environments.

“Development on the margin” was the lead topic of the Tropentag 2011, held from October 5–7 2011 at the University of Bonn, Germany, under the auspices of the Federal Minister for Economic Cooperation and Development, Dirk Niebel. Organised by Mathias Becker, Professor for Plant Nutrition in the Tropics and Subtropics and his team from the Institute of Crop Science and Resource Conservation INRES at the University of Bonn, the Tropentag initially received over 1,200 scientific contributions, and finally saw 734 participants from 56 countries presenting and discussing their scientific work in 128 talks and

Join the blog!

Since 2010, a team of student reporters takes the topic to a wider international community by feeding discussions, syntheses, different views and impressions as text, photos and videos from the Tropentag in realtime into the new media such as blogs, facebook, twitter, flickr, and youtube – accessible via www.tropentag.de. They invite the interested scientific community to keep the discussion lively at blog.tropentag.de.

373 posters. All tackled the following lead questions: What is the future role of the marginal environments with fragile balances in natural and cultural ecosystems? How to balance development in favourable and marginal environments? How can or should peoples and communities that are currently marginalized become key players in an increasingly globalised resource use? To which extent can these groups shape development in their own circle of influences?

■ The core of marginality

Setting the scene were keynote addresses by Sir Gordon Conway (Imperial College London, UK), Rattan Lal (Ohio State University, USA) and Paul Richards (Wageningen University, The Netherlands). These underlined that marginality is a societal relational concept rather than an inherent property of any given environment, ecosystem or community of people. It is the way that societies attribute value to some commodities and services rather than others that determines what is regarded marginal. It is the way that land users manage and exploit their soils – voluntarily with a choice of options or for want of alternatives – that determines whole regions to become marginalised in the long run. And finally, it is the way in which societal groups interact and use and enforce power relations that lead to societal groups being regarded as marginal.

Trivial as this may sound it appears often inadequately considered, particularly when identifying societal problems that development-oriented agricultural research strives to solve. Viewing marginality as a societal concept permits a much wider range of



Photo: Pavlos Georgiadis

“thinkable” development pathways for which agricultural research could provide the knowledge base and the theoretical concepts. And, encouragingly, this wider range becomes increasingly reflected in the wide variety of scientific approaches and concepts presented at the Tropentag.

■ Outlook

Having nearly doubled in size over the past five years, the Tropentag is the annual development-oriented, inter- and trans-disciplinary scientific discussion forum for students, scientists, extension workers, development strategists, decision makers, politicians and practical farmers – indeed all who are interested and engaged in agricultural research and rural development in the tropics and subtropics. ATSAF e.V., the Council for Tropical and Subtropical Research (www.atsaf.de) has made it its priority to spearhead the joint organising committee, increase the diversity and quality of the conference and to involve more players at the European level. Having shed light on “the margin” in 2011, Tropentag will discuss resilience of agricultural systems as the lead topic in 2012, when it will be hosted jointly by the Universities of Kassel (Witzenhausen) and Göttingen.

*Christian Hülsebusch, Folkard Asch
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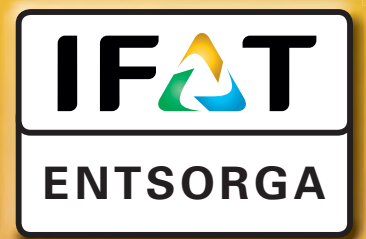


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New topic: irrigation and drainage technology



Not a hopeless case

Every few years, you read the same headlines: People starving in the Horn of Africa! Worst drought for 60 years! Tens of thousands threatening to starve! And each time, there are calls for donations and accusations that development politics is simply not doing enough. Then all the public coffers are scoured for special funds. However, the critical press would like to know why it is always only the symptoms that are tampered with while no efforts are made to address the root problem.

All of the countries in the Horn of Africa are affected by the current crisis. Official figures suggest that presently, 12 million people are suffering hardship of whom 4.8 million are from Ethiopia, 3.7 million from Kenya and 3.7 million from Somalia (almost half the population of this country) and 0.16 million from Djibouti. A study of the causes shows that several factors are at work here that impact negatively on the living conditions of the population: The countries hit are suffering from fragile or even failed statehood and massive terrorism and refugee problems that are also affecting neighbouring countries (Somalia). There are border disputes between countries (Ethiopia and Eritrea, Ethiopia and Kenya) and/or considerable ethnic conflicts (Kenya). Corruption

is widespread everywhere, and massive insecurity based on crime is exacerbating short-term crises and above all preventing long-term planning and necessary investment.

In terms of climate, especially in the arid and semi-arid regions, wide expanses of land are very much disadvantaged. There is only little and highly irregular precipitation, while periods of severe drought are on the increase. Even in the few favourable locations, rainfall is no longer reliable, with flash-floods often alternating with scarce precipitation. Climate change is already becoming noticeable. Thus we can find only very little and very uneven local production of agricultural goods and services and poorly working local and regional markets in the Horn of Africa.

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■ **Appropriate solutions for specific situations**

So is it a hopeless situation all in all? We believe that this need not be the case, despite all the negative factors. Of course only little can sustainably change for the good as long as regions are still dominated by armed conflict. In such situations, it is important to support the local population in devel-



oping survival strategies. Wherever no conflicts are inhibiting people's lives but climate conditions are becoming more and more problematic, appropriate rural development measures can also be the key to sustainable development in disadvantaged regions.

■ **The German Federal Government's special cash financing**

In August 2011, the German Federal Government decided to provide special cash financing totalling 118 million euro to combat the effects of drought in the Horn of Africa; out of this sum, 11 million euro is earmarked for the agricultural projects of German Technical Co-operation (7 million for Kenya and 4 million for Ethiopia). In both countries, the planned measures are being implemented jointly by "Deutsche Gesellschaft für Internationale Zusammenarbeit" (GIZ) and "Deutsche Welthungerhilfe" (WHH) and go way beyond short-term emergency aid. Rather, they are being used to boost the popula-



Photo: Welthungerhilfe

Cash-for-work measure in Ikutha, Eastern Province of Kenya; restoring water retention basins.

In addition to these more technical aspects, capacity development measures are playing an important role in establishing appropriate solutions among livestock keepers and tillers. GIZ and the WHH are confident that in spite of the short running period of the projects of three to six months, effects will be achieved and the people in the arid and semi-arid areas of the Horn of Africa will be in a better position to prepare for the next drought, which is bound to come.

■ Outlook

In future, too, the countries in the Horn of Africa will have to reckon with a more frequent occurrence of droughts. Twenty years ago, such phases would set in twice every ten years, while today they already do so four or five times in ten years. This is why the population have to be supported in developing adaptation strategies, for example through longer-term integrated food security programmes. A combination of measures like those described above

A bumper harvest in spite of extreme dryness thanks to planting millet on a farm near Maparasha, Kenya.

and linked with sensitisation campaigns to shift people away from a one-sided orientation on maize as the main staple crop can improve food security in semi-arid areas.

Here, Deutsche Welthungerhilfe can boast considerable experience at local level. GIZ is well-represented at regional and national level. Close cooperation between the two organisations is resulting in synergies and good experience also being provided to other actors in the sector and thus being extended.

So it is by no means a hopeless case but rather a long process, since traditional cultivation methods cannot be changed from one day to the next.



Photo: Welthungerhilfe

tion's resilience towards the effects of the current drought and are aimed to develop appropriate solutions for agricultural production suiting the changed climatic conditions. They above all include locally adapted farming, in particular to raise the ability of soils to retain water, the distribution and reproduction of drought-tolerant seed such as millet or cassava and the restoration or construction of water retention basins including micro-irrigation. In animal husbandry, animal health services are being improved and fodder grass seed is being provided so that the pastoralists can store fodder for the drought period.

Zusammenfassung

Neben den wenigen und sehr sporadischen Niederschlägen sind die Ursachen für die prekäre Situation der Bevölkerung in den von der aktuellen Dürre betroffenen, teilweise fragilen Staaten am Horn von Afrika auch in politischen und gesellschaftlichen Gegebenheiten zu sehen. Im August 2011 hat die deutsche Bundesregierung einen Sonderfonds zur Verfügung gestellt, um die Folgen der Dürrekatastrophe in der Region zu lindern. Damit werden angepasste Lösungen wie standortgerechter Landbau, Vermehrung

von trockentolerantem Saatgut und Bau von Wasserrückhaltebecken sowie Maßnahmen in Tiergesundheit und -haltung und zum Capacity Development durchgeführt.

Resumen

Adicionalmente a las precipitaciones muy escasas y erráticas, las causas de la situación precaria que afronta la población del Cuerno de África sin duda se hallan también en las problemáticas políticas y sociales. Algunos de los países afectados por la sequía son Estados frágiles.

En agosto de 2011, el Gobierno Federal de Alemania puso a disposición fondos especiales en efectivo para fortalecer la resiliencia de la región frente al impacto del desastre. Estos dineros se están utilizando para implementar soluciones apropiadas tales como la agricultura adaptada a las condiciones locales, la propagación de semillas tolerantes a la sequía y la construcción de estanques de retención de agua, medidas relacionadas con la salud de los animales domésticos y la crianza de ganado, al igual que actividades de desarrollo de capacidades.

A second food crisis in three years: Food security at risk

The price surge for basic food staples during the 2007–08 food crisis threatened the food security of millions of people. For a year now, international food prices have been on the rise again, fuelling concerns about the food and nutrition security of poor people across the developing world.

Global food prices have been rising sharply in the past year. In fact, the Food and Agriculture Organization of the United Nations (FAO) food price index shows that the price index for cereals rose by more than 60 percent from June 2010 to September 2011. During the same period, actual price increases by commodity differ. International maize prices, for instance, have almost doubled, and wheat prices have risen by more than three-quarters (FAO 2011). Rice prices, on the other hand, have not spiked as much, increasing only by half. Meat and dairy prices have also risen (see Figure on page 13). The price dynamics of the surge that we see now is different from that of the 2007–08 crisis. Rice and wheat prices at their peaks in 2011 are 36 and 25 percent lower than their peaks during the 2007–08 crisis. In contrast, the price of maize at its highest point now is 7 percent higher.

■ Causes remain the same

The same set of factors that resulted in the 2007–08 food crisis continue to be at play and have been pushing

prices up. These factors include rising oil prices, growing biofuel demand, strong economic growth in emerging economies, a depreciated dollar, extreme climatic events, trade shocks from export restrictions and panic purchases, in addition to the long-term neglect of agriculture (Fan, Torero and Headey 2011). World biofuel production has continued to expand since the 2007–08 food crisis, growing by 70 percent in the United States and Europe (see Box on page 14). During this time, the US dollar value has continued to tumble against the euro, falling by 13 percent between October 2008 and September 2011 (European Central Bank 2011). Also, a number of extreme weather events such as the severe droughts in Russia, China and the Horn of Africa have contributed to higher international prices since the 2007–08 crisis.

■ Regional variations

From region to region, the relative importance of these factors varies. In **Latin America**, the price of maize has been rising due to the ever-expanding biofuel demand in the United States, as well as low maize stocks in the region. In **Eastern and Southern Asia**, both rice and wheat prices have been on the rise now for over a year because of the region's growing food demand and increased production costs. In China, wheat prices have gone up by 40 per-

cent and rice prices by 50 percent since June 2009. In the same period, wheat prices have increased by 30 percent, and rice prices by 35 percent in India (FAO 2011). This is attributable to strong economic growth in China, India and other parts of Asia, and to rising food production costs due to higher wages and input prices. In **Africa**, the historic drought in Somalia has pushed southern parts of the country into a state of famine, where the price of sorghum and cowpea has more than doubled, exceeding levels reached during the 2007–08 crisis (FAO 2011).

■ The poor are the hardest hit

High food prices and sustained price volatility have seriously undermined the food security of the world's poorest consumers, who spend 50 to 70 percent of their income on food and have a limited capacity to adjust to rapid price increases. More than 44 million people fell below the 1.25 US dollar a day pov-

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erty line between June and December 2010 (World Bank Food Price Watch 2011). Women are more exposed to food price hikes than men. A study by the International Food Policy Research Institute (IFPRI) found that in Ethiopia, female-headed households were up to 15 percent more likely than men to lose their income or assets due to food hikes or shocks. During the 2007–08 food crisis, these households were not able to meet their food needs for two months longer than male-headed households. The current drought in East Africa is putting the food security of poor people across the entire region at risk, instantly threatening the lives of more than 10 million people (UN 2011) and jeopardising livelihoods, incomes and health in the long term.

Thriving economic growth has not shielded developing and emerging economies from high food prices. In contrast to the 2007–08 price hike, high food inflation is affecting large middle-income developing economies such as India and China. In India, food

inflation has risen by about 10 percent and in China by 13 percent over the year since September 2010. This inflation has consequences of great magnitude, because the two countries are home to millions of undernourished and poor people. Furthermore, the trend could potentially derail progress achieved in economic and social development.

■ What are the donors and developing countries doing?

Donors as well as developing countries have taken various measures to cope with high food prices and volatility. In April 2009, via their L'Aquila Joint Statement on Global Food Security, G-8 countries committed 22 billion US dollars for improving global food security within three years. To this date, however, about three-quarters of the commitments have not been disbursed. When food prices began to rise again in June 2010, the French government put food price volatility prevention at the top of this year's G-20 agenda. The G-20 meeting of agriculture ministers in Paris launched the global **Agriculture Market Information System** as part of the efforts to reduce food price volatility. Other initiatives include the recent partnership between the World

Bank Group and JPMorgan Chase setting up the **Agriculture Price Risk Management Facility** to make price-risk management products available to small-scale clients who might not usually have access to financial hedging tools due to high up-front costs and other requirements. These are all significant steps forward, but it is critical that donors and international development agencies urgently move from commitments to actions.

Developing countries have used a wide range of social protection measures, from food vouchers to school feeding programmes, to help poor and vulnerable people cope with rising prices, and investment programmes to increase long term food production. Tunisia and other countries in North Africa and the Middle East have used cash transfers to offer compensation for and facilitate access to expensive food. In China, releases of grain supplies as well as subsidies to agricultural input costs have helped stimulate food production and tame domestic prices. Ethiopia has been particularly successful at implementing food-for-work schemes to guarantee poor people's access to food, as cash is not always enough. Under the Comprehensive Africa Agricultural Development Programme (CAADP) framework, many African countries have increased their long-term investment in agricultural growth and food security. More than eight countries are now spending the targeted ten percent of their national budgets in support to agriculture.

In comparison with the 2007–08 food crisis, fewer export restrictions or price subsidies have been imposed. But the few countries that have resorted to market-distorting policies have severely impacted food prices across their region. The food export ban currently imposed by Tanzania is pushing maize prices up in Kenya, where food prices were skyrocketing over the summer of 2011. In Asia, another type of distortionary policy is affecting food



Photo: ©FAO/Giulio Napolitano

Food price hikes and shocks affect women more than men.



Photo: ©FAO/Roberto Faidutti

Export restrictions can quickly lead to higher food prices.

prices. The rice price support subsidies announced in Thailand, the largest rice exporter, have encouraged farmers to hold on to supply in view of guaranteed higher prices, pushing rice prices up in the region (FAO 2011). Instead, countries should opt for measures that promote social protection, access to food and agricultural production without distorting markets and controlling prices.

■ What does the future hold?

By 2050, the world population will rise to more than nine billion people. Along with increased urbanisation and industrialisation, growth in developing countries will also require more and better food. Projections by FAO, Organization for Economic Cooperation and Development (OECD) and IFPRI note that, in order for the world to cope with this need, food production will have to increase by 70 percent across the world, and actually double in developing countries. As energy prices remain high, demand for biofuel will continue to grow and compete with food. Climate change will further threaten food production, leading to crop yield declines of up to

12 percent for both rainfed maize and irrigated rice by 2050. All in all, these factors will keep global food prices high and volatile. The IFPRI IMPACT model projects that world food prices will increase by 87, 31 and 43 percent respectively for maize, rice and wheat by 2050. The first to suffer from these high prices will be poor people, children and women in particular. Under a pessimistic scenario, higher prices could lead to an increase in the number of malnourished children of almost 17 million by 2050.

■ Actions needed to prevent food crises

In order to prevent food crises from happening again and again, a comprehensive approach that includes both short- and long-term policies and investments in agriculture, food security and social protection is needed. This approach should comprise the following actions:

- **Social protection, especially social safety nets, to protect the most vulnerable groups, including women and young children, in developing countries:** In countries lacking

established safety net programmes, governments should develop these programmes immediately, focusing on the areas with extreme hunger, and should draw on best practices from other countries, such as Ethiopia. Safety nets should be gender-sensitive and be effectively combined with interventions that increase the productive capacity and improve the health and nutrition of vulnerable households. Although safety nets tend to focus on chronically poor groups, it is important that they also respond to non-poor vulnerable groups during price or income shocks (De Janvry 2010).

- **A global, emergency, physical grain reserve to address food price crises:**

Such a global reserve could respond to food supply emergencies and also help to calm markets (Fan, Torero and Headey 2011). The reserve should be owned and managed by an institution like the World Food Programme, which already has a global food management system in place. The reserve should be strategically positioned in or near food-importing and poor countries or regions, such as Bangladesh or the Horn of Africa, to allow easy and fast access. Due to the challenges of implementing such a system, it should be started on an experimental scale with relatively small reserves. The ASEAN+3 emergency rice reserve, currently under discussion, is a good example.

- **Policies and investments to promote agricultural growth, in particular, smallholder productivity:**

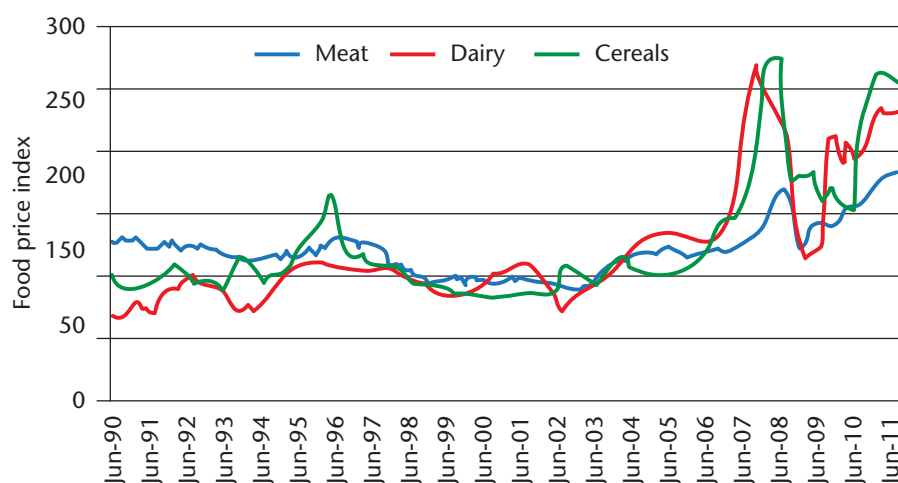
Public policies should ensure that smallholder farmers have opportunities to increase their productivity and incomes. Investments made by national governments as well

as global and regional institutions should focus on improving smallholder farmers' access to inputs such as seed and fertiliser as well as financial and extension services and weather-based crop insurance. New agricultural technologies suitable for smallholder farmers should also be strongly promoted, and rural infrastructure should be strengthened to increase their capacity to sell their food in local, regional and international food markets.

■ **Investments by national governments in climate change adaptation and mitigation for agriculture:**

If nothing is done to prevent it, climate change will threaten agricultural productivity and human welfare. Recent research shows that at least 7 billion US dollars in additional investments in agriculture would be needed each year in order to raise calorie consumption and prevent the adverse effects of climate change on the health and well-being of children through increases in agricultural productivity (Nelson et al. 2009). Agriculture has a great adaptation and mitigation potential that governments should tap into by adjusting their policies and investments to a changing climate and by investing in cutting-edge mitigation technologies and readily applicable practices. Policies that offer incentives for farmers to adapt to and mitigate climate change are

Food price indices for cereals, meat and dairy, 1990–2011



Source: FAO, June 2011 (100 = 2002–04)

needed, as are capacity-building investments.

■ **Effective policies and technology investments to minimise food-fuel competition:**

The environmental benefits that biofuels may have in comparison with fossil fuels should not overshadow their negative impact on food security. Instead, public policies and private investments should opt for using energy efficient inputs that do not compete with food production and curtail the use of grain feedstock to produce biofuels. Alternative options such as second-generation biofuels from non-food inputs should be further investigated and scaled up. Such policies that minimise grain demand would curtail the ongoing food-fuel competition and calm the

currently tight international food markets (see the box on biofuels and food prices on page 14).

■ **Improving food market regulation and information transparency.**

Markets will benefit from better regulation and supervision of agricultural futures and derivative markets, as well as enhanced transparency in both cash and derivatives markets. Food market transparency will benefit the entire global food system, from farmers in developing countries to consumers across the world. In order for agriculture stakeholders to fully understand and manage the links between financial and commercial agricultural markets, transparent, timely and accurate information should be made available publicly.

Zusammenfassung

Nur drei Jahre nach der Nahrungsmittelkrise 2007–08 steigen die weltweiten Lebensmittelpreise wieder an, wodurch die Ernährungssicherung der Armen in den Entwicklungsländern erneut gefährdet ist. Wie in der Krise 2007–08 ist der aktuelle Anstieg der Lebensmittelpreise durch steigende Ölpreise, die wachsende Nachfrage nach Biokraftstoffen, Exportverbote und Panikkäufe, extreme Wetterbedingungen und die fortgesetzte Vernachlässigung einer zukunftsfähigen Landwirtschaft bedingt. Als Folge davon sind Millionen Menschen noch hungriger und ärmer geworden. Um künftigen Lebensmittelkri-

sen vorzubeugen, werden Investitionen in Landwirtschaft, Ernährungssicherung und soziale Sicherungssysteme ebenso dringend benötigt wie politische Reformen auf den Gebieten Handel, Biokraftstoffe und Finanzspekulation.

Resumen

Los precios internacionales de los alimentos han vuelto a aumentar tan sólo tres años después de la crisis alimentaria de 2007–08, generando nuevas inquietudes sobre la seguridad alimentaria y nutricional de las personas pobres en todos los países en desarrollo. De manera similar a la crisis de 2007–08, el actual

encarecimiento de los alimentos se debe al incremento de los precios del petróleo, una mayor demanda de biocombustibles, prohibiciones a la exportación y una tendencia a compras generadas por el pánico, eventos climáticos extremos y el estado de abandono de la agricultura, que data de muchos años atrás. Como resultado, millones de personas padecerán mayor hambre y mayor pobreza. Para prevenir las futuras crisis de alimentos, se requieren con urgencia inversiones en la agricultura, la seguridad alimentaria y la protección social, al igual que reformas de las políticas de comercio, biocombustibles y especulación financiera.

Growing biofuel demand and international food prices

Biofuel production has been one of the factors behind the 2007–08 food crisis (Headey and Fan 2010). Between 2000 and 2007, 30 percent of cereal price increases were due to biofuel expansion (Rosegrant, 2008). Rising global prices for fossil fuel have led countries to search for alternative energy sources, especially over the past decade. Developing and developed countries alike have invested massively in biofuel production in the hopes of enhancing their energy independence and reducing carbon emissions of the transport sector. The United States and Europe have supported biofuel production through policy tools known as mandates (which require a minimum percentage of biofuels consumption and in some cases production increases) and financial incentives such as subsidies and tariffs. This has encouraged competition between biofuel and food production at the farm level, which is threatening global food security in a context of high food price volatility. Led by the United States, Europe, Australia and Brazil, global biofuel production has doubled in less than six years, reaching 140 billion litres in 2011. In the United States and Europe alone, biofuel production has continued to increase, growing by 70 percent since the 2007–08 food crisis. This has led to more land being used to produce biofuels, which has significant impacts on the agricultural landscape as well as the food and feed markets (Al-Riffai et al. 2010).

In the United States, ethanol production has increased at an average rate of 21 percent a year since 2000. The 2005 Energy Policy Act, followed by the 2007 Energy Independence and Security Act set minimum renewable energy standards for major oil producers and refiners. This resulted in striking peaks in biofuel production, maize prices and arable land: between 2005 and 2007, the area used to harvest maize increased by 15 percent, maize production rose by 17 percent and biofuel production grew by 80 percent, and then more than doubled during the following year (OECD Stats 2011). This has had a considerable impact on international food prices, especially for maize, which rose by 90 percent during this period. With both the U.S. and European production mandates in place, biofuel production will continue to grow. In fact, it is estimated that total biofuel production will reach 197 billion litres a year by 2020 (OECD Stats 2011). Moreover, if the expansion of biofuels continues, 13 percent of global grain, 15 percent of vegetable oil and 30 percent of sugarcane production will go towards biofuel production by 2020 (OECD-FAO 2011).

At this moment in time, the environmental and food security costs of biofuels far outweigh their potential benefits. According to the International Energy Agency, biofuel from maize requires high energy inputs and results in small

(15 percent) carbon emission reductions, in comparison with traditional fuel. In contrast, sugarcane biofuel is more energy efficient and can save up to 90 percent of carbon emissions. Moreover, biofuel made from grain feedstock is both water and fertiliser intensive, which can damage soil fertility, posing additional threats to food production and food security. Research and development efforts should focus on second-generation biofuels made from cellulose, hemicellulose or lignin. In the long run, the benefits and threats of crop-based biofuel production for food security and environmental sustainability need to be carefully evaluated in terms of their absolute contribution to lowering greenhouse gas emissions and transport fuels' carbon intensity.

As the G-20 agriculture ministers recognised in 2011, the relationships between biofuels and food production, price volatility and environmental sustainability should be further investigated. Although biofuels have a role to play, they cannot be the single solution for reducing greenhouse gases and promoting energy security and rural development in Europe and the United States. As an alternative, the United States and Europe should develop new renewable energy technologies that avoid the competition for land and water between biofuel and food crops. National and regional policies must curtail the use of grain feedstock to produce biofuels and support biofuel production from energy efficient inputs that do not compete with food production. The focus should be on advanced biofuels, alternative feedstocks for biofuels and energy efficiency. Such policies will help lower the grain demand for biofuel and therefore curb the ongoing food-fuel competition. This should relieve some of the pressures that are pushing maize prices up. In the meantime, the expansion of biofuel production should continue to be carefully monitored in order to ensure that it does not divert farmers from producing food crops and that it does not lead to higher food prices.



Photo: laif

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A mere question of supply and demand

For more than a century, world agriculture has produced ever more food for ever more humans at ever declining prices. The turn of the millennium marks a mega-trend reversal in international agricultural markets. Since the beginning of the new millennium, agricultural commodity prices have tended to increase and, as in the past, with huge fluctuations. Why is it that a new era has begun for world food and agriculture, and what are the reasons for the continued high volatility of agricultural commodity prices?

Agricultural commodity prices will be higher in the future than in the past. The reason is simply that agricultural demand growth is outstripping growth in supply. Agricultural demand will at least double in the first half of the 21st century because of continued rapid population growth and income growth in developing and newly industrialising countries. The rapid growth in the demand for food can be met by expanding the acreage or by producing more on the land that is being farmed already. Expanding the acreage is not really an option because the land available for agricultural production is limited. In addition, water is increasingly constraining productivity growth. Estimates suggest that about 90 percent of future production growth must come from productivity growth.

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Realising such a productivity growth will, however, be difficult. Since the times of the Green Revolution of the 1960s and 1970s, annual productivity growth around the globe has declined from about four to one percent. In the European Union, productivity growth is now at 0.6 percent annually. One of the reasons for this has been the neglect of agricultural research – in particular of research that is focused on generating productivity growth.

■ Who is the one to blame?

The growth in biofuel production is frequently mentioned as a prime driver of increasing commodity prices (see also Box on page 14). Its relative importance is overrated, however. Since the turn of the millennium, the acreage for biofuel production has been expanded to about two percent. This suggests that it has contributed to an overall increase in commodity prices of about seven percent only.

Also, it is frequently argued that it is speculators who have driven up the prices of agricultural commodities. How-

ever, this argument does not hold much water. Speculators want to make money. They can only be successful when they predict future prices correctly. If they don't, they lose money and will quickly be driven out of the market. Another aspect is that speculators are active in the futures markets and not in the spot markets, where actual commodities are traded (see also article on pages 17–21). In addition, it is important to keep in mind that futures markets also serve as a hedge for market participants against the price risk. They can perform that function only if there are speculators who are willing to carry the risk.

One might argue that this is correct when it comes to long-term trends in international agricultural commodity markets, and still ask if speculators are a major cause of short-term price volatility. To answer that question, it is helpful to look at historic price fluctuations. Time series of agricultural commodities show limited monthly price fluctuations with occasional spikes as in 1973–74, 1996 or 2007–08, but no deep troughs. The reason for this asymmetry in price fluctuations over time is that there is ample storage capacity around the globe such that high production in one period is absorbed by growing stocks. The same

How to bridge the import gap?

The poor countries of the world were once net food exporters to the rich countries. They have now become net food importers. The FAO expects the food import gap to quintuple between 2000 and 2030. This food import gap can only be closed if the rich countries and newly industrialising countries produce and export more food. Much would be gained if the European Union were to stop being the world's single most important net importer. In 2008, the European Union used around 35 million hectares outside its territory to meet its demands for food, feed, fibre and biofuel. This is about the territory of Germany.

Determinants of the price spike of 2007–08: Contribution of each variable to the price spike

(in percent, ceteris paribus and in total, multiplicative; monthly data; January 2007 – June 2008)

Crop	Wheat
Oil price change	29.3
Freight rate change	29.6
Population growth	2.3
Income growth	2.0
USD/SDR* exchange rate	7.6
Export restrictions	6.1
Production change	-10.7
Change in bioenergy crop production	0.1
Total price spike, explained, multiplicative	78.3
Total price spike, observed	77.8

* USD = US dollar; SDR = special drawing right
Source: von Witzke and Noleppa, 2011.

holds true for periods of low production which lead to a decline in stocks but have little impact on prices. However, when depleted stocks coincide with low production, prices rise rapidly, and speculators amplify the price increase.

The conventional wisdom is that exactly this happened during the price spike of 2007–08. In seven of the preceding eight years global production had exceeded consumption, and global stocks were at low levels (although surely, if production exceeds consumption, there ought to be high levels of stocks!). In this situation, there were crop failures in Russia, South East Europe and Australia – in particular in wheat. In addition, export restrictions by major exporting countries reduced global

supply further which, together with speculators, drove up prices even more.

■ Surveys present a different picture

Whether this common explanation is actually correct was to be shown by an examination of the factors influencing the 2007–08 price spike (see Table). It was revealed that the story had to be changed significantly and that speculators did not play a major role in the 2007–08 price spike. Rather, it was supply and demand changes that drove prices. This is exemplified for wheat here. The table depicts the contribution of each variable to the price spike with all other variables unchanged and the combined effect of all variables included. Note that the sum of all individual variable effects does not add up to the combined effect of all variables, as the variables are linked to each other multiplicatively.

During the period analysed, the price of wheat went up 99.28 US dollars/tonne. That is a price increase of 77.8 percent. The combined effect of all variables included in the analysis is 78.4 percent. This is almost exactly the observed price increase during the period of analysis.

■ Main factors: Energy price and freight rates

The somewhat surprising result is that the two by far most important variables explaining the price spike are the price of energy and the freight

rates. The price of energy is an important determinant of production cost. It determines variables such as the price of fertiliser and the freight rates. Freight rates determine transportation cost and, in turn, are a function of the price of energy.

Export restrictions and the devaluation of the US dollar also contributed significantly to the price spike. None of the other variables had a major impact – with one exception, the volume of production. Contrary to conventional wisdom, crop failures in some important production areas did not contribute to the price spike. In fact, poor crops in some parts of the world were more than compensated for by increasing production such that increasing global wheat production during our period of analysis actually acted to limit the price increase.

Our analysis suggests that there is no reason to assume that speculation drove the price spike of 2007–08. In fact, based on monthly data, it is possible to explain the price spike entirely by traditional supply and demand determining variables – in particular by the price of energy and the freight rates. We have demonstrated elsewhere that similar results hold for corn and soybeans as well.

In sum, the price of energy has not only become the single most important determinant of the longer term increases in international agricultural commodity prices. It also contributed far more than any other variable to the price spike of 2007–08, suggesting that this is likely to be the case for the present price spike that started in 2010.

Zusammenfassung

Seit der Jahrtausendwende steigen die Preise auf den internationalen Agrarmärkten tendenziell an. Für die extremen Preissteigerungen der Jahre 2007–08 werden in jüngster Zeit verstärkt Spekulanten verantwortlich gemacht. Eine aktuelle Untersuchung der Humboldt-Universität Berlin zeigt jedoch ein anderes Bild: Das Preishoch kann vollständig durch traditionelle Faktoren von Angebot und Nachfrage erklärt werden – und zwar vor

allem durch den Energiepreis und Transportkosten. Es ist sehr wahrscheinlich, dass der Anstieg der Energiepreise auch für das aktuelle Preishoch an den Agrarmärkten verantwortlich ist.

Resumen

Desde que se inició el siglo XXI, los precios de los mercados agrícolas internacionales tienden a incrementarse. En el caso de las últimas alzas drásticas de los años 2007–08, se viene culpando en mayor

medida a los especuladores. Sin embargo, una investigación actual de la Universidad Humboldt de Berlín muestra otro panorama: el aumento de precios puede explicarse por completo en base a los factores tradicionales de oferta y demanda – en este caso, sobre todo debido a los precios de la energía y los costos de transporte. Es muy probable que el alza de los precios de la energía también sea responsable del actual incremento de precios en los mercados agrícolas.

The relevance of speculation

Food speculation is ubiquitous. Systemic benefits from risk sharing between farmers and financial speculators have to be weighed against the resulting high price volatility and the possible emergence of price bubbles. A new speculative strategy of index-oriented investments seems to be exacerbating recent upward price trends on the global food market. Adverse currency developments and local food speculation in the developing world are aggravating the plight of the poor.

Food speculation is by no means a new phenomenon. Already in biblical times, there was mention of the speculator who withholds corn – obviously in the hope of rising prices but much to the indignation of his fellow human beings (Proverbs 11.26). Furthermore, as harvest results are not predictable at the point of sowing, all participants in the grain trade have always been looking for ways and means to reduce the risk of adverse price changes. The most viable option is to agree upon guaranteed prices for future deliveries. This is the very essence of trading on the forward market – a commercial invention ascribed to ancient Greek mathematician Thales of Miletus. The institution of grain futures exchanges was introduced in Japan as early as in the seventeenth century. Since today's farmers, wholesalers, manufacturers, and financial institutions alike endeavour to anticipate price movements in their economic activities, speculating is not only a very old, but also a ubiquitous phenomenon on the food market – at least if we understand it in the way defined by John Maynard Keynes, one of the great economists of the twentieth century: as “forecasting the psychology of the market” (J. M. Keynes 1936: 161).

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Most recently, however, new participants from the finance industry have entered the grain futures market and their speculative activities seem to explain part of the current upward price trend on the global commodity market. This is the topic, which the present article focuses on.

■ Forwards and futures

While trade on spot markets is in physically existing commodities with immediate delivery of and payment for the product, trade on forward markets

is in rights to deliver or take delivery of commodities at guaranteed prices at a later point in time. Deals on the forward market may be either standardised or non-standardised. Contracts tailored to the volume and date of delivery (“forwards”) are agreed upon directly or via intermediaries between sellers and buyers and may be resold at any time before maturity. In this segment of the market – the “over the counter” trade (OTC) – the actual delivery of a

The Chicago Board of Trade, founded in 1848, is the world's most important commodities futures exchange (now part of the CEM group).



Photo: laif

commodity at a contract's maturity is no exception. In contrast, none of the market participants trading standardised contracts ("futures") on commodity futures exchanges is interested in the actual delivery of the commodity. Financial settlement is only required to make up for the difference between the price previously agreed upon and the actual spot market price at the time of the contract's maturity.

If a trader expects spot-market prices to rise, he will buy contracts today that guarantee him at the contract's maturity a supply at a lower price than the price he is expecting – he is entering a "long position". Vice versa, if he is expecting falling spot market prices, he will enter contracts guaranteeing him a higher than expected purchasing price for what he agrees to supply. He is entering a "short position". Whoever better predicts the "psychology of the market" can pocket a profit. This is why we may call these deals betting. If, for instance, Trader A has purchased the right to be supplied with a ton of wheat at 100 dollars while the actual spot market price at the contract's maturity turns out to be 110 dollars, Trader A is entitled to receive a payment of 10 dollars from the contract partner Trader B. For in order to really deliver, Trader B would have to purchase the wheat at 110 dollars on the spot market and sell it to Trader A at 100 dollars, which results in Trader B's loss of 10 dollars – equivalent to Trader B's cash settlement obligation. In this example, Trader A has won his bet.

Based on the motives for their transactions, three broad categories of market participants can be distinguished today: hedgers (rooted in the food industry, thus also called commercial traders), conventional financial speculators including arbitrageurs, and a relatively new type of index-oriented investors (both rooted in the finance industry). Data collected in Chicago, the world's largest food commodity futures exchange, offer some insight

into the size of the transactions of the different groups of traders – even if the data collection still exhibits methodological shortcomings and has only recently become reasonably comprehensive. According to these data, each of the three groups accounts for roughly one third of the market volume in grain futures.

■ Conventional players

Market participants from the food industry, either large producers or manufacturers, want to hedge risks from adverse spot-market price movements for their future physical deliveries and purchases. Conventional financial speculators, on the other hand, are attracted to the futures market by the prospects of profits in a game based on information, rumours, and calculations. Participants from both groups may hold net long positions or net short positions, based on their respective hopes and fears. However, as a group the hedgers usually hold net short positions, while the conventional speculators as a group usually hold net long positions. The conventional finance-industry speculators thus usually contribute to the functioning of the market by providing the necessary liquidity when taking the counter-positions to the hedgers. If, for instance, a farmer seeks to enter a short position at a given price, the deal will only work if someone else, no matter whether a manufacturer or a finance institution, enters a long position.

A particular sub-group within the conventional speculators are the arbitrageurs. Their strategy is to take advantage of minute price differentials between different futures exchanges (such as between Chicago and exchanges in Kansas City, Paris, or Dalian) or between futures of different maturities. As such, arbitrageurs perform the important role of integrating different markets, thus contributing to the efficiency of the system as a whole. In addition, however, it is this strategy



which transmits developments on the futures exchange to the spot markets.

■ Price fluctuations and bubbles

It is self-evident that gambling as well as herd behaviour among these market participants can trigger strong fluctuations of prices, including extreme peaks. Even price bubbles are possible, i. e. market situations in which "the price of an asset rises [for some time] above what appears to be its fundamental value" (N. G. Mankiw 2008: 194) – the latter usually understood to be a sort of average or normal value derived from "real" demand and supply factors. Both price bubbles and a high volatility can result in high profits for the traders – but also in high losses!

The development of a price bubble has to be understood as a self-enforcing process: For whatever reason, contracts are increasingly bought, which results in price increases and hence in potential profits from futures that have



Photo: J. Boethling

*The backdrop to speculations:
forecasting the psychology of the market.*

of pushing the upward trend among world food prices, which has now persisted for ten years. Readers of crime novels know that once a new suspect appears on the stage, his motive and opportunities have to be investigated. So what drives the index speculators to engage in activities on the grain futures markets? And are they capable of influencing food prices?

■ A new dimension of speculation

Index-oriented financial investors distribute their investment among different classes of assets that are weighted in analogy to a price index. The construction of indices is a common method in economics. For instance, in order to describe price developments for a group of commodities, an average price is synthesised which considers the prices for copper, mineral oil or wheat with certain weights (often according to their relevance in world trade). Index investors keep futures on different commodities in their portfolio according to the weights used in the index. When contracts reach maturity, they are sold in order to avoid actual delivery, but new contracts are then purchased in roughly the same volume to be represented in the portfolio according to the pre-defined proportion – insensitive to prices or market rumours. The process of swapping near-to-mature contracts for contracts due to be settled later is called rolling.

■ Motives for index-oriented investment

What are the motives of the index-oriented investors? *First*, demand for grain is growing worldwide, and the expansion of production can hardly keep pace with the increase in demand. Since the middle of the 1990s, the

world-market prices have therefore been increasing. This trend is set to continue over the next few years. Thus, it makes sense for investors to have assets in their portfolio that are going to increase in value in the medium term. However, since no financial investors wish to store grain, they do not engage on the spot markets but on the futures exchanges with rolling contracts (while in the case of precious metals financial investors may wish to own warehouse stocks). *Second*, the principle applies that you should not put all your eggs into one basket. It can be shown mathematically that the total profit is maximised if assets are diversified and the profits and losses from the individual asset classes develop independently of one another. In empirical studies, it has been demonstrated that this applies to commodities in relation to stocks or government bonds. *Third*, in the long run, nobody is smarter than the collective intelligence of all market participants – “the market”. This means that no fund manager will be able to outperform the average performance of an asset class by investing in particularly promising assets. Therefore, instead of an active fund management or *stock picking*, a passive replication of the market developments is recommended – such as always keeping shares in one’s portfolio according to their weight in an index. Owing to its non-selective behaviour, this investment strategy is referred to as the *random-walk strategy* (B. Malkiel).

■ Impacts of index-oriented investment

Because of the rolling process, index investors have virtually no impact on the liquidity on the futures exchange. Whenever the contracts in their portfolio reach maturity, they purchase new ones. This is, of course, beneficial to the commercial trader, since he has better chances to hedge against falling prices. If prices on the spot market fall, the hedger will nevertheless receive the

already been taken into a trader’s portfolio – which in turn attracts further buyers. As long as buyers can be found to join the bandwagon, the price of the future will continue to increase – until suspicion arises and somebody begins to sell. Then the crash sets in.

Such developments are probably the price that an economic system has to pay for the provision of financial-market based insurance against possible losses among the farmers. The participation of financial speculators in this market ensures the readiness of commercial farmers to produce food under essentially unpredictable conditions. The alternative would be a planned economy with price guarantees for the producers given by the state, as was the case in the European Economic Community (EEC) grain market regulations of the 1960s.

Very recently, however, a third category of market participants has emerged on the futures exchange – the index investors. They are suspected

higher guarantee price, while the index trader takes a loss. On the other hand, if the spot market price rises, the index trader will have won the bet, and the hedger will pay the insurance premium equivalent. Obviously, the index investor's strategy can only work if commodity prices continue to rise more often than they fall, i.e. if they are following an upward trend – as they have done over the last ten years.

In sum: The conventional speculators enter both short and long positions and can thus reinforce both price *fluctuations* and price bubbles on the futures market. Leaving aside portfolio corrections, the index speculators only enter long positions and enforce an already existing upward *trend* in prices, as regardless of the price a large demand for futures exists. The higher the commodities prices rise and the longer lasting the trend is, the more investors will join the bandwagon.

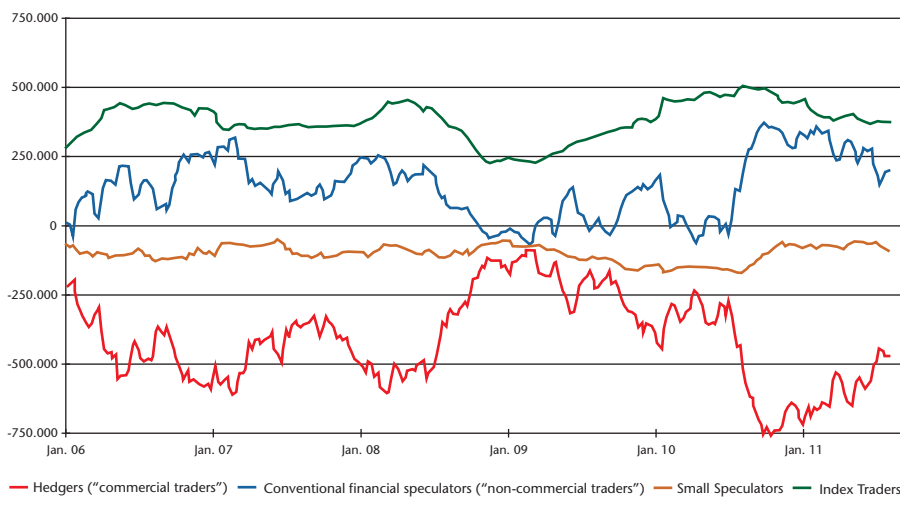
■ A global saving glut

Index-oriented investor behaviour has been made possible through the creation of new investment instruments in the course of the worldwide liberalisation of the financial markets: Exchange Traded Commodities (since 2006), Exchange Traded Funds (since 1993), and commodities-based Investment Certificates (since the 1990s). With these instruments, capital can be accumulated and invested in commodities markets – either by the funds themselves or by the financial market actors who have specialised in trading risks of different classes – the swap traders (another sub-category of conventional speculators).

As a *saving glut* (B. Bernanke) has emerged in recent years in both the high-income countries and the emerging economies, such as China, yields of low-risk government bonds are now

hardly above the rate of inflation. Large and small investors alike look for more profitable investment options, and an increasing amount of money is directed to index speculation. Moreover, in the wake of the 2009 financial crisis, the global market has been flooded by central-bank money available virtually free of charge – mainly to restore inter-bank lending. Financial investors, however, have been seeking profitable investments for this easily available money. In addition to nourishing a new bubble on the stock market (the bursting of which we experienced in late summer 2011), a flight into tangible assets such as metals and real estate had set in. This again constitutes a self-fulfilling prophecy: For not only can rising commodity prices result in a monetary inflation, but they can also lead to deteriorating profits from commodity-processing manufacturing industries. Thus, incentives arise to redeploy capital to financial investment in commodities (futures or, in the case of metals: real stocks), the price of which in turn continues to rise.

Net positions in corn futures (à 5,000 bushel) held by different groups of traders, Chicago Board of Trade, January 2006 to August 2011 (weekly data)



Positive values: long positions, negative values: short positions.
 Data source: CFTC, <http://www.cftc.gov/MarketReports/CommitmentsofTraders/HistoricalCompressed/index.htm>
 [01. September 2011]. Diagram: author's own design.

This diagram shows:

- 1) By definition, the net values of all groups cancel each other out since there is a corresponding short position on the market for each long position that has been entered.
- 2) The counter-position to the hedgers (who, by definition, also hold physical stocks or wish to purchase them, the price of which they are hedging by trading in futures) is assumed by traditional speculators *and* index speculators.
- 3) While the hedgers and the traditional speculators are mirror images of one another (and both sides could trade with reversed signs in net values, see early 2009) and their positions are also subject to severe fluctuations, the index speculators maintain a virtually constant, high net long position.

■ Transmission mechanisms: From futures to spot markets

Finally, an upward trend on the futures market is transmitted to the spot market by the activity of the arbitrageurs. The reason is obvious: With a high price for the next due wheat contract and a low price on the wheat spot market, an arbitrageur could stock up on cheap wheat from the spot market and offer to fulfil his future contract with this delivery. The spot market suppliers will anticipate this rising demand and for their part increase prices.

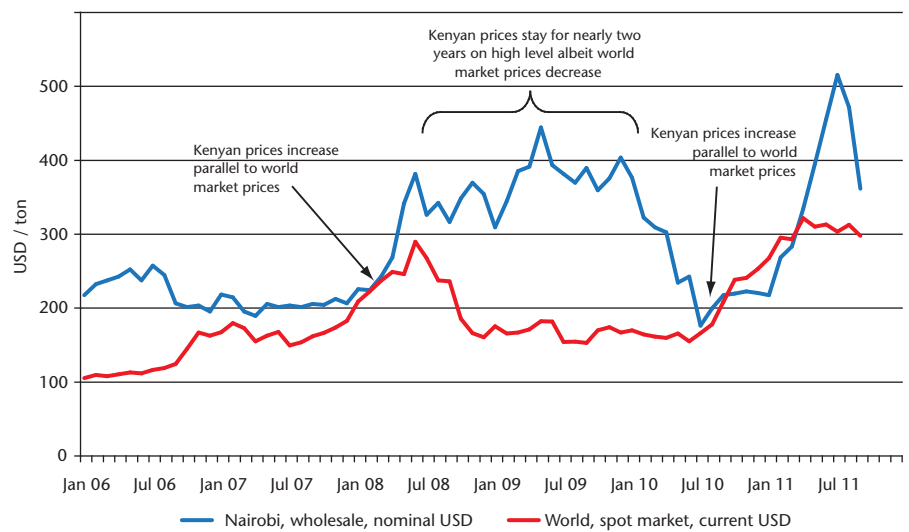
It is this international spot market for grain where food-importing countries replenish their supplies. With increasing international spot market prices, import prices will usually also increase. As, however, price quotation on the world market for grain is in US-dollars, import price changes may be cushioned or amplified by the develop-

ment of the value of a country's currency. An upvaluation vis-à-vis the US dollar – such as that experienced by the Euro-linked West and Central African CFA-Franc during the recent global food price bubble – helps, while other countries – such as Haiti – also had to accept adverse developments from the foreign exchange market.

■ Speculation in the developing world

Food import quantities in many developing countries are still relatively small in comparison to overall consumption – due to a high degree of subsistence farming and a still low degree of urbanisation. Nevertheless, increases in import prices are often rapidly transferred across the board to the national markets – quite contrary to high-income countries, where the vicissitudes of the world market prices for grain are seldom really felt by the consumers. One reason for this is that price elasticity of demand for food in developing countries is very low: A day-labourer's family in Africa that even in normal times has to spend two thirds and more of its meagre income on *mealie pap* (the common maize porridge) cannot reduce its food consumption further without going hungry. If market prices increase, the family will therefore attempt to acquire the usual amount of food at literally any cost and save elsewhere – on medicine or on school fees – or run into debt. The low price sensitivity of demand on

Maize: World market prices and wholesale prices in Nairobi / Kenya, US dollar (USD) per ton, 2006–2011



Data sources: <http://www.fao.org/giews/pricetool2/> (for Nairobi wholesale prices) and <http://databank.worldbank.org/ddp/> (for world market prices) [17. October 2011].
Diagram: author's own design.

the border between malnutrition and outright hunger enables suppliers to enforce price increases on local markets.

This effect is aggravated by three factors. *First*, peasants in developing countries usually have a low marketing rate. Supply cannot be rapidly enlarged; it is rather price-insensitive. In addition, peasants often have to sell their surpluses immediately after harvest in order to allow for their monetary expenditures – they usually cannot speculate and wait for higher prices. *Secondly*, there are just a small number of importers and wholesalers in most developing countries, i.e. the market is oligopolistic at this stage of the supply chain. Not only do whole-

salers have the opportunity to purchase at cheap prices immediately after harvest and sell later at much higher prices, agreements between the few wholesalers are easy to arrive at, too. This leads to asymmetric local price reactions to the international market developments: An increase in import prices is immediately passed on to the end consumer while decreases are delayed (example: see diagram above). *Thirdly*, local food markets are poorly integrated. Neither goods nor price information flows easily between various locations. Transport bottlenecks and unfavourable storage facilities result in considerable price differences between markets but also allow for large profits from arbitrage.

Zusammenfassung

An den Getreideterminbörsen werden Garantieprieße für fiktive künftige Lieferungen vereinbart – als Wettgeschäfte. Auf Terminbörsen werden aber auch Kapitalanlagen getätigt – das indexorientierte Investment. Dieses reagiert auf einen steigenden Preistrend bei Nahrungsmitteln – und verstärkt diesen. Intensive Preisschwankungen sowie Preisblasen sind weitere mögliche Auswirkungen eines individuell durchaus rationalen spekulativen Verhaltens von Marktakteuren. Preisentwicklungen an den Terminbörsen werden häufig auf die realen Märkte übertragen, nicht zuletzt über die

Importpreise auch auf nahrungsmittelimportierende Niedrigeinkommensländer. Verschärfend kommen hier Auswirkungen lokaler Spekulation hinzu.

Resumen

En las transacciones a futuro de las bolsas de cereales, se acuerdan precios garantizados para suministros ficticios a futuro... como si se tratara de apuestas. Pero en los mercados de futuros, se comercian también activos de capital, lo cual se conoce como inversiones basadas en índices. Estas últimas reaccionan frente a la tendencia al alza en los niveles de los precios de

alimentos – y actúan como refuerzo de la corriente. Las fuertes fluctuaciones y las burbujas de precios constituyen otros posibles impactos de lo que individualmente podría considerarse como un comportamiento especulativo perfectamente racional por parte de los actores individuales del mercado. La evolución de los precios en los mercados de futuros a menudo se extiende luego a los mercados reales, también a través de los precios de las importaciones y las compras de alimentos que efectúan los países de bajos ingresos en el extranjero. Los efectos de la especulación local agravan la situación.

Internal factors are prevalent

The price hike of 2010/2011 is now the second one to have severely affected African countries and their many poor people since the global food price increases of 2007/2008. The following article looks at its extent and impact and points to necessary countermeasures.

Africa already spends more than 50 billion US dollars annually on food imports, and with the global food price increases, the total value of imports is set to further escalate. It is widely held that global food price increases have drastic effects on the macro-economy of African countries, via food price inflation, increasing current account imbalances, and further budget imbalances associated with public food subsidies. They are also believed to strongly impact on private households in African countries, via price increases of the staple food crops and of other food items like sugar and vegetable oils, thereby negatively affecting nutrition and poverty levels.

■ A closer look at the trade balance

The specific situation in some groups of countries has to be tested in order to verify this hypothesis.

Only 12 of the 47 Sub-Saharan African (SSA) countries are net exporters of "raw" food (unprocessed food). Middle-income SSA countries are food surplus countries, while low-income SSA countries are net food importers. But taking cash crops and agricultural raw materials into account, SSA countries are significant agricultural exporters,

while they mainly import grain. Most of the SSA countries and most of the low-income countries in Africa are therefore net agricultural exporters when all the important food and agricultural products are considered (Ng/Aksoy 2008). This means that the net food imports are not that high in relation to total imports. Only Benin, Guinea-Bissau and Senegal are vulnerable in terms of "raw" food, measuring the share of net imports to total imports. However, the first two countries have other export items, and Senegal has considerable processed food exports.

■ Oil exporters and fragile states are particularly affected

Oil exporters are a special case given that oil industry expansion has affected

the competitiveness of food and agriculture production. Countries like Algeria and Nigeria, but also Angola and Sudan, have neglected all branches of agriculture, not only food. The three SSA oil-producing countries, especially Sudan (North and South), have been intensively affected by global food price increases. Like other North African economies, Algeria will be able to use its foreign exchange reserves for some time to import and subsidise food, but there are limits to such policies, so that people will eventually suffer and then protest. From February 2010 to February 2011, Egypt experienced a food price inflation of 19 percent (World

Egypt experienced a food price inflation of 19 percent between February 2010 and February 2011 and therefore enacted subsidies on basic food items.

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Photo: Bilderbox.com

Cereal balance

Cereal balance can be defined as cereal production minus cereal requirements; or as cereal availability minus cereal requirements. Cereal availability measures cereal production, but also includes cereal imports, possible cereal stock drawdowns, and cereal exports. These are simple definitions, but the data and methodological problems for projecting the cereal balance are severe, especially in conflict and fragile countries. This gives room for speculation.

Bank, April 2011), and it has subsidised basic food items for around 85 percent of its population; an unsustainable position has emerged. This is creating fatal macro-economic policy problems and severe adjustment problems at household level. Being oil exporters and post-conflict countries (with disrupted infrastructure, weak institutions and neglected agricultural and industrial sub-sectors), the worst cases are countries like Sudan (Republic of Sudan and Republic of South Sudan). Global food price increases impact heavily on such countries as they have to reduce the very high amount of fuel and food subsidies to maintain macroeconomic stability; such a move is also considered necessary in order to finance social safety nets targeting the poorest segments of the population.

Fragile states such as Sierra Leone, Eritrea, Cote d'Ivoire, Liberia, Chad, Guinea, and Sudan, defined by the African Development Bank as countries after conflict which have already undertaken first steps of reform and reconstruction (see Barungi et al. 2011), have specific problems. These are low human development, weak institutions, negative twin balance positions for the budget and the current account, and also negative cereal trade balances (see Box above). Especially with regard to these countries, measuring the cereal trade balance suffers from serious data, information and projection problems

and methodological gaps, but such measures impact quite heavily on domestic food price changes and on the build-up of inflationary expectations.

Food insecurity. According to FAO March 2011 assessments, Africa has 21 out of 29 food insecure countries in the world. These countries need external food assistance, as they lack the resources to deal with reported critical problems of food insecurity. However, the types of food insecurity differ (FAO 2011, Barungi et al. 2011). There are countries with an exceptional shortfall in aggregate food production/supplies like Zimbabwe in March 2011. Countries such as Eritrea, Sierra Leone, Niger, and Somalia have a widespread lack of access to food. And countries like Ethiopia, Malawi, Democratic Republic of the Congo, Benin, Guinea, Kenya, Sudan, Uganda, and others are suffering from severe localised food insecurity. Some of these countries are fragile states. Besides conflicts prevalent in the country and/or in the region, causes that matter are political instability, bad governance, policy and institutional weaknesses, and lack of adaptation to drought and climate change. But for countries that are landlocked, export bans of neighbouring countries and high import dependencies regarding fuel and food play a role, too.

For fragile and food insecure states, the impact of global food price increases is severe, but the different causes of affectedness clearly matter. Increasing production, planning for necessary imports and stocking levels, redirecting production and consumption towards local grains, and developing targeted social safety nets for the benefit of the poorest (so that they can afford to buy grains) are feasible response strategies in coping with global food price increases through longer-term action.

■ Transmission effects and impacts

A lot can be learnt from the 2007/2008 global food price increases for understanding the effects and impacts of the current food price surge. When comparing the international and domestic prices across 83 food prices in 12 African countries (see Box below), the average increase in domestic prices between June 2007 and June 2008 was 63 percent in US dollar terms, which amounts on average to 71 percent of the international market price increase. Domestic food prices only increased in the range of 25 to 39 percent in South Africa, Ghana and Cameroon, but by over 150 percent in Ethiopia and

Two studies explore price trends and transmission effects

In an IFPRI (International Food Policy Research Institute) study (see Minot 2010) the relation between international and domestic food prices is studied for the period from June 2007 to June 2008. The analysis includes 12 countries (Cameroon, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Rwanda, Senegal, South Africa, Tanzania and Zambia) using 83 price series for eight commodities (beans, cassava, maize, millet, plantains, rice, sorghum and wheat). The results show quite different outcomes for these countries with regard to increases in domestic prices as a percentage of the increase in world prices. From these commodities, the internationally traded commodities such as maize and wheat show high domestic price increases relative to the increase in world prices. Domestic price increases are especially high in landlocked countries.

In another exercise with food price data over a period of 5 – 10 years, the relation of domestic to international prices is studied for nine countries (the list above excluding Cameroon, Mali and Uganda) and four staple food commodities (maize, rice, sorghum and wheat) on the basis of 63 staple food price series. The relation of domestic and international prices is very much impacted by the role of the import share of the staple crop in domestic consumption.



Photo: J. Boethling

Countries that are both oil exporters and post office countries – like Sudan – severely suffer from global food price increases.

exercises for much longer periods (5–10 years) rather than simply looking at the period from June 2007 to June 2008, quite different results occur (Minot 2010). In this long-term analysis, 62 domestic price series for maize, rice and wheat for nine SSA countries were compared and tested against the respective international prices (see Box on page 23). Only 13 out of 62 prices show a long-run relationship to the extent that domestic prices were influenced by the international prices. Only 6 out of these 13 prices had a significant long-term elasticity of transmission, implying that on average only a share of 0.54 of a one-percentage change of

international prices was transmitted to domestic prices. Even countries like Ethiopia, Malawi, and Mozambique, with the highest proportion of prices linked to international prices, showed that the share of linked prices was less than 40 percent. For Zambia, Uganda and Kenya, there are no prices with a proven long-run relationship to international prices/markets. With regard to the particular commodities, just 10 percent of the maize prices were significantly related to the international maize prices, but almost half of the domestic rice prices were related to the international rice prices (Minot 2010). The simple explanation for this is that the African countries are close to self-sufficient in maize but are highly import-dependent on rice (especially some West African countries). Maize imports have a share of only 5 percent in relation to Africa's domestic con-

Imported food/local food. Price increases were highest for maize, at 87 percent, wheat at 65 percent and rice at 62 percent. Local food, like plantains and cassava, showed much lower price increases in the range of 9 percent and 12 percent respectively. This demonstrates that the transmission effects are much stronger for internationally traded grains. However, when conducting econometric

Malawi. For the countries with very high price increases, domestic factors, like supply shortages and policy failures, must have played a considerable role. Landlocked countries in Africa show much higher increases of domestic prices than coastal states, which is obviously caused by severe transport and marketing problems and by export bans in the region. Domestic speculation may also play a role.

sumption, while the share is somewhat higher in Mozambique. The situation for rice is different as imports represent more than 50 percent of the domestic consumption in Ghana and Mozambique (Minot 2010).

■ Reasons for trend price increases

The fact that considerable trend price increases were prevalent for all domestic food prices from June 2007 to June 2008 but international price increases were only transmitted to Africa to a relatively small extent in the long run can be explained by a number of factors. First, food price increases coincided with fuel price increases. Second, grain export restrictions were at work in SSA (in East, South and West Africa). Third, policy factors were creating foreign exchange shortages – by fuel subsidies and by interventions into foreign exchange markets and private trading. Fourth, poor harvests in some countries affected the cereals balance. Fifth, so-called threshold effects seem to have worked because of the rather considerable price increases that were now becoming recognised and measurable in Africa (Minot 2010). Sixth, a single conflict country like Cote d'Ivoire can severely disrupt supply and distribution channels in a whole region, leading to higher prices in Burkina Faso, Mali, and Niger (World Bank, April 2011). As a consequence, landlocked countries in Africa show consistently higher domestic price increases than coastal ones.

■ Adjustments and policy changes are requested

The divergence between local and international prices is one problem. There is however also the problem of widely diverging local prices in one particular country. In Tamale (Northern Ghana), the mean price of local rice per ton (between June 2007 and

June 2008) was 438 US dollars (USD), but it was as high as 734 USD in Kumasi (Central Ghana); this difference cannot be explained by transportation costs, administration costs and importation costs alone. Among other factors, it may have to do with marketing channels, marketing structures and marketing power. Local taxes could also play a role.

The main question is now how to act, how to react, and how the adjustments are ultimately made. The countries affected, their governments, their farmers, exporters and importers, farms and firms, the humanitarian organisations, and the households and consumers will respond to these price developments in the short term, in the medium term and in the long term – by modifying economic and sector policies, by changing the production mix, by adapting the household budgets and the consumption preferences, and by reorienting the trading patterns. Regrettably however, not enough evidence is yet available of the responses and reactions of these actors in African countries. There is no data on the reallocation of land and resources to food crops since 2007/2008, or on changes in consumer preferences

in urban and rural areas. There is not enough information on policy changes after global food price increases.

■ Poverty and nutrition effects

Evidence shows that the number of households in extreme poverty grows in times of such price surges, although this appears to vary greatly between countries. Through the 2010/2011 food price increases, South Sudan can lose a poverty reduction potential of 9 percent to 18 percent compared to the 2009 level (see Barungi et al. 2011). World Bank estimates show that the higher food prices have negative net effects, raising the number of net consumers living below the poverty level of 1.25 US dollars much more than benefiting the net producers by lifting them above this poverty level (World Bank, February 2011). The number of the poor increases sharply.

Besides the poverty impacts, the nutritional implications of the higher food prices are severe. There are negative effects on the health of infants and pregnant women, on child school enrolment rates and on the working time and workload of children as well

as severe repercussions on the productivity of workers in rural areas. Also, negative social, cultural and environmental effects may result. The case of Nigeria, a country with sharply increasing food imports, shows that the nutritional consequences of the food price increases may be quite severe, leading to reduced nutritional intake, more consumption of carbohydrate food and neglect of protein, and more use of food products leading to obesity. However, pulling out children from school for work and selling productive assets by households like livestock are also consequences of the food price increases in the country and elsewhere in Africa (Elijah 2010; World Bank, February 2011). Good harvests of domestic crops (maize, sorghum, millet, cassava), policy support for domestic crops and stable market conditions and supply frameworks for rice can, however, limit poverty impacts.

Public interventions needed

At national level, pro-active agricultural and agro-industrial development strategies are a first priority; the related policy issues are infrastructure, stocking, value addition and process-

Higher food prices mean not just less meals a day, but also replacing protein-rich ingredients with (cheaper) carbohydrates.



Photo: J. Boethling

ing, and trade policies. This strategy concept may also timely and effectively help redirect land and other resources towards food crops. In order to improve on the factors raising domestic food prices, strategies to improve the production and marketing conditions for local grains and strategies for installing social safety nets and reducing fuel and wheat subsidies are recommended. Infrastructure, taxation and local trade and marketing policies are important as domestic prices are so divergent within countries. Global food price increases often have very localised impacts; factors such as geography, transport systems and connectivity of markets play a role. Internal market connectivity is a major problem, and therefore ICT (Information and communications technology) improvements can do a lot. Macro-policy measures are requested to ensure that food price inflation does not accelerate inflationary expectations in a country.

Regional trade in grain is important, especially for Africa. Production and supply conditions can vary considerably between coastal and landlocked countries. The latter were severely affected by export bans in West Africa, East Africa and South Africa. At regional

African level, governmental commitments are needed towards establishing regional infrastructure, regional market information systems for key cereal markets and regional marketing structures for core commodities.

Trade commitments and trade rules for countries at regional African level are important to avoid export bans by food surplus countries in times of price surges and local supply shortages. The efforts of realising the CAADP (Comprehensive Africa Agriculture Development Programme) should also be intensified; regional African initiatives to accelerate agro-industries and to scale up related R&D activities are important as long-term strategies (Yumkella et al. 2011; Wohlmuth 2011). African grains may be promoted in this context.

As African conflict countries, fragile countries, food-insecure countries and mineral and oil exporting countries have their own problems to provide food at reasonable prices to their citizens, specific initiatives for these groups of countries are requested. In all of them, there is an urgent need for social safety, poverty reduction and nutrition support programmes.

These programmes are relevant for net food importing and net food exporting countries. Targeted income increases for the poor – by cash payments or in kind – are important to address the problems of sharp food price increases.

Also, Regional Centres for Humanitarian Relief may be envisaged for drought-affected, disaster-prone and infrastructure-poor areas in Africa. STI (Science, Technology and Innovation) policies are important at national and regional level and along the agriculture-agroindustry value chains in order to improve on productivity and the food security situation (Wohlmuth 2011). National and regional approaches to adapt to climate change impacts are urgently requested. Short-term, medium-term and long-term objectives, targets and policy measures are required at national and regional African levels to overcome structural weaknesses responsible for the domestic food price increases.

A full list of references can be obtained from the author and is available at www.rural21.com

Zusammenfassung

In diesem Beitrag werden die Auswirkungen des weltweiten Anstiegs der Lebensmittelpreise in Afrika in den Jahren 2010/2011 betrachtet. Die Auswirkungen sind gravierend, es gibt jedoch Unterschiede nach Ländern, sozialen Gruppen und Subregionen. Fragile Staaten und Konfliktländer, Länder mit unsicherer Ernährungslage und Öl exportierende Länder sind durch die globalen Preisanstiege für Lebensmittel, vor allem für die Hauptgetreidesorten, am stärksten betroffen. Aber auch die Armen in den Nettoexportländern für Lebensmittel können betroffen sein. Die afrikanischen Länder exportieren Lebensmittel und Agrarerzeugnisse; Weizen und Reis sind dagegen wichtige Einfuhrgüter. In vielen Fällen besteht keine langfristige Beziehung zwischen Veränderungen der internationalen und der inländischen Lebensmittelpreise, so dass lokale, nationale und subregionale strukturelle

Faktoren eine große Rolle für die hohen und steigenden Inlandspreise spielen. Nötig sind öffentliche Interventionen auf nationaler, regionaler und globaler Ebene, um die Auswirkungen des weltweiten Anstiegs der Lebensmittelpreise zu dämpfen und die strukturellen Schwächen, die für steigende Lebensmittelpreise verantwortlich sind, zu beseitigen.

Resumen

En este artículo se evalúan los impactos del encarecimiento mundial de los alimentos de 2010/2011 en África. Estos impactos son severos, pero existen diferencias entre los grupos de países, los segmentos sociales y las subregiones. Los Estados frágiles y afectados por conflictos, los países con inseguridad alimentaria y aquéllos que exportan petróleo se ven más perjudicados por el incremento en los precios mundiales de los alimentos, sobre todo de los cultivos básicos. Pero

también es posible que se vean afectados los pobres en los países que son netos exportadores de alimentos. Los países africanos son exportadores de alimentos y productos agrícolas, pero el trigo y el arroz constituyen importantes productos de importación. La evidencia empírica muestra que en los países africanos a menudo no existe una relación de largo plazo entre las variaciones internacionales de precios y las fluctuaciones internas de los mismos, de modo que los factores estructurales de tipo local, nacional y subregional son importantes para poder explicar el hecho del alto y creciente nivel de los precios internos. Se requieren intervenciones gubernamentales a nivel nacional, regional y global para formular estrategias viables que podrían ayudar a contrarrestar los impactos de los aumentos globales de precios y para superar las debilidades estructurales que son responsables del encarecimiento de los alimentos.

Village granaries – insurance against food insecurity

The UN World Food Programme (WFP) in Cameroon, in co-operation with the Government, the European Union and local NGOs, has developed a system of village granaries to minimise the effects of high prices, droughts and other disasters on food security and nutrition.

Village granaries are small warehouses used to store farm produce with the aim of making food available all the year round. Most of the 410 WFP-supported granaries are founded and managed by women. They are a tool for local development that allows for effective responsibility and participation of local communities in securing food access for the most vulnerable people during the lean season. In this manner, more than 2.7 million people were provided with 3,711 tons of grain from 2008 to 2010.

A village granary is a cereal reserve in the form of a revolving fund constituted in the harvest period and kept in stock to be sold at affordable prices to community members when cereals get scarce and expensive on the local market. The villagers avoid falling into the hands of unscrupulous traders who put up prices when commodities are in short supply.

Family strategies of conservation, planning and use of food crops originate from ancient times in almost all African regions with a fragile ecology. Community granaries have been tried elsewhere in West Africa and are well suited to regions of northern Cameroon, part of which lies in the dry Sahel zone.

Villagers can access the granary in three ways. They can withdraw stocks from the granary as a food loan during the lean season (generally July – September) and “pay them back” later with their own crops during harvest time. They can buy stocks from the granary during the lean season at affordable prices. Or they can deposit a portion of their harvest into the granary in order to access a small cash loan; once it is repaid (plus interest in the form of a small amount of cash or cereal), they get the commodities they deposited back. Families who do not have crops to



Photo: J. Howard, WFP

Most of the 410 WFP-supported granaries are founded and managed by women.

deposit can provide other forms of collateral, such as goats, sheep or chickens.

The management committee determine when to open the granary, the sales prices and conditions for loans. They also identify the members of the community who could buy or benefit from loans. Two or three well-respected members of the community are selected as key-holders, and they act as storekeepers. Both – or sometimes all three – key-holders need to be present to unlock the granary. WFP provides an initial stock of 10 metric tons of cereal, and the capacity of most village granaries is 20 to 40 metric tons. On average, granary groups consist of around 30 members, with women comprising 89 percent of the management committees.

The type of food crop stored depends on the populations' preferences and habits. In general, in northern Cameroon it is either millet/sorghum or maize. Revenue collected from the sales is secured in local microfinance institutions. During the harvest period, when cereal prices are low, the management committee withdraws

money and embarks on purchases to reconstitute the stocks. This cyclic process allows households to have cereal stocks available all the year round and avoid having to buy at extortionate prices. Local NGOs provide technical, organisational and managerial capacity-building to the management committee members, training them in food storage, book-keeping, etc.

The benefits derived from this seasonal process – of buying, storing, conserving, selling and saving – contribute on the one hand to increasing village food security, and on the other to realising communal, social and economic micro-investments such as grain mills, water pumps or school supplies and creating an income-generating activity for the group.

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To watch a short video on the project, please visit: www.wfp.org/countries/Cameroon/Media/Saving-Up-For-A-Grainy-Day

No uniform picture

In Asia, grain prices continue to reach high levels. However, the impact of international trends varies from country to country. Limited supply response to the price hike points to structural weaknesses in the food system. Scarcity of natural resources and the effects of climate change could further aggravate long-term price developments.

The global food price level in July 2011, as measured by the World Bank Food Price Index, remains at the high value that is close to its peak in 2008, and international wheat and maize prices in August 2011 are roughly double the levels in June 2010. In contrast, the international price of rice stays at a high level but is still well below its historic peak in 2008. This current price development is quite different from the episode of the 2008 food price crisis, when the rice price hike was leading the global food price increase, fuelled by trade restrictions imposed by major Asian exporters.

Looking at domestic markets in Asia, the prices of staple crops in many countries are staying at much higher levels than a year earlier, and have recently started increasing again, following the upward trend of international prices. However, the extents of global grain price transmission to domestic prices significantly vary across countries, and rice price movements in particular show more variance than wheat prices in the region (see Figures on page 29). This is not surprising, given that the

internationally traded rice accounts for only seven percent of global production.

Substantial differences in the local grain price changes are observed even within the same country. For instance, the year-on-year increase in retail prices of rice in India ranges from 7.9 percent in Chennai (state of Tamil Nadu, in the country's Southeast) to 18.9 percent in Patna (state of Bihar, in north-eastern India). Similar ranges of price divergence are also observed for rice and wheat in other countries. This reflects, other than quality difference and potential time lag in price transmission, the state of fragmented domestic markets and disconnections among marketing channels within a country. Moreover, the local food price does not constitute the price of raw produce alone but also reflects inefficiency in distribution logistics and marketing channels. For example, a recent study commissioned by the Asian Development Bank (ADB) in Bangladesh, China and India shows that a half or more percentage of a retail price of food in urban areas comprises the costs of wholesale logistics, processing and retail marketing. With investments in the value chain to increase its efficiency and the establishment of a conducive environment for service providers to ensure healthy competition, these transaction costs could be substantially reduced, which,



in turn could provide downward pressure on domestic food prices.

■ Impacts on food security

As food bears a large weight in the consumer price index in many of Asia's economies, the food price increase induced food price inflation of about ten percent within the first seven months in 2011, and directly imposed additional financial burdens on food buyers and wage earners for their basic needs. The impact is severe for poor households in Bangladesh, Indonesia, and the Philippines, for example, who spend as much as 63 to 69 percent of their income on food. What people eat defines the extent of impacts from global food price increases. While the current global wheat price has directly affected Central and West Asia, the dominance of rice consumption is shielding other regions in Asia from harsh impacts that the ongoing global food price increase would otherwise impose: Based on

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Photo: ADB

A women gathering dried reeds to feed animals in a farm in Bangladesh. To help poor households the country has set up food-based safety-net programmes.

Simulations of the impacts of food price hikes on poverty in the latter half of 2010 predict that the adverse impact on poor households significantly outweighs the benefit of higher prices for producers. The World Bank has estimated that 44 million more people fell into poverty due to the price hike. In reality, though, the balance between adverse impacts on food buyers and what food producers gain may be quite diverse, particularly in populous countries like China, where a variety of net producers/buyers of various scale co-exist. Hence the impact of high food prices is subject to empirical research based on expenditure and nutrition data in each country.

In principle, the food price increase should also benefit food producers by increasing their revenues. However, the fact that the food price has recorded a new spike just three years after the 2008 food price crisis indicates that supply response to price has not been elastic enough. The limited response can be explained by binding structural constraints in the food production system. Small farmers are dominant pro-

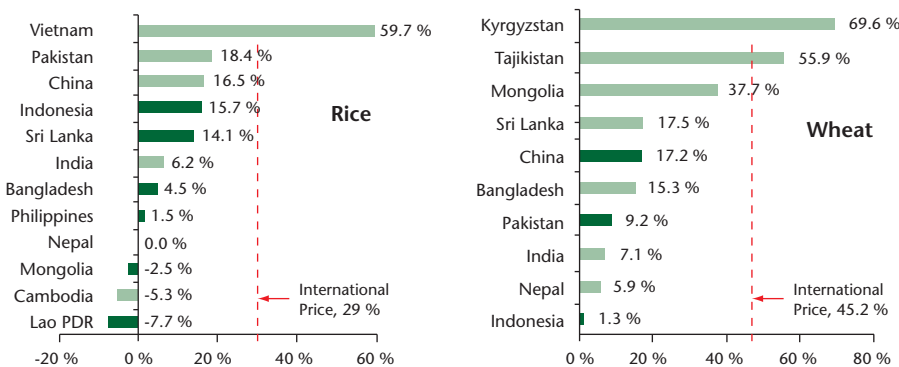
ducers in Asia, and many of them lack adequate access to inputs and produce markets, irrigation, financing means, information and knowledge on farming and resource management. At the household level, land size is typically small and fragmented due to population pressure, and not many small farmers generate excess produce for sale. Many farmers are also net food buyers who are directly exposed to food price volatility: Without access to a storage facility, farmers typically sell their food crops right after harvest at low prices, and buy the food crops for their consumption at the peak price right before the next harvest.

■ Domestic policy responses

In an attempt to shield domestic markets from a transfer of the international food price hike, governments in Asia have largely provided self-sufficiency measures. An internal survey on domestic policy responses of ADB's developing member countries to the food price hike conducted in early 2011 confirmed that many developing countries in Asia had increased grain stock piles, consumer and producer subsidies, and investments and incentives for stimulating staple production. Some countries (e.g. Bangladesh, India, Indonesia and Philippines) are also running food-based safety net programmes, for many of which, however, the effectiveness in targeting the poor and the fiscal burden over the longer term are of major concern. Some countries where food spikes have fuelled inflation, such as China, India, Indonesia, Korea, Malaysia, Taipei, China and Thailand, have introduced a tighter monetary policy. As a measure to stimulate domestic production, a number of countries (e.g. China, India, Indonesia, Pakistan, Philippines and Thailand) have raised government procurement prices for major food produce. The recent procurement price increase for rice in Thailand has set a higher ground for international prices of rice.

the compositions of average daily caloric intake, rice is the major staple food in Southeast Asia, and wheat in Central and West Asia, while the two crops are equally important in South and East Asia. Countries with high dependency on imported food are immediately affected by rising import bills and a worsening of the current account balance.

Increase in domestic retail prices of rice and wheat (% , year-on-year, as of July 2011)



Note: lighter shade indicates exporters (with self-sufficiency ratio of at least 100), and darker shade marks importers (with self-sufficiency ratio of less than 100)

Source: author's calculation based on FAO, Global Food Price Monitor, www.fao.org/giews/pricetool (accessed 5 September 2011)



Photo: ADB

Many small farmers in Asia have no access to storage facilities. They have to sell their food crops right after harvest at low prices.

■ The food security challenge over the long term

Apart from food price volatility, food security in Asia faces grave challenges over the long term. Prevalence of malnourishment among children in South Asia is the highest in the world, and household expenditure data suggests that addressing malnutrition requires not only income increase but also enforcement of better nutrition intake for poor households. For example, household expenditure data of populations that earn one US dollar a day in Indonesia, Bangladesh, and

India shows that in addition to purchasing food, the poor families spend substantial portions of their income on festivals, alcohol and cigarettes. With extra income, they would not necessarily be buying extra food, and their tendency to spend more on tasty food that is not necessarily nutritious is well-documented. Although increase in global demand for food crops over the last five decades has been met largely by growth of crop yield, not by expansion of acreage, the pace of productivity growth has become stagnant lately. While existing production gaps within Asia present potential for

productivity enhancement with existing technologies, their dissemination is difficult under diverse agro-economic conditions, and empirical evidence informs that some incentive mechanisms need to be in place to nudge farmers to adopt better farming practices. Moreover, in the absence of large investments for transformational productivity improvement, its effective dissemination and supporting infrastructure, growing scarcity of land and water is likely to stretch

the demand-supply gap of food over the long term, causing the food price to rise. And food price volatility is likely to remain as series of shocks are expected from frequent extreme weather events, such as floods, droughts, and pests, which in turn might also trigger trade restrictions of large market-players.

**The views expressed in this article are those of the author and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.*

Zusammenfassung

Die Getreidepreise in Asien sind im Juli 2011 im Vorjahresvergleich immer noch hoch und spiegeln damit den weltweiten Trend der Getreidepreise wider. Der Einfluss der globalen Preisentwicklung auf die Inlandspreise schwankt je nach Land. Nach Schätzung der Weltbank ist die Zahl der Armen als Folge der jüngsten Erhöhung der Lebensmittelpreise um 44 Millionen gestiegen. Die Angebotsreaktion ist begrenzt, was die strukturellen Schwächen des Ernährungssystems noch unterstreicht. Die erwartete Verknappung der natürlichen Ressourcen

und die Auswirkungen des Klimawandels auf die Landwirtschaft stellen die weltweite Ernährungssicherung vor große Herausforderungen und werden langfristig die Lebensmittelpreise weiter steigen lassen.

Resumen

En el mes de julio de 2011, los precios de los cereales en Asia siguen siendo altos en comparación con las cifras de doce meses atrás, lo cual refleja la tendencia internacional en los precios de los cereales. El grado de replicación de los precios internacionales varía significativamente de

un país a otro. Una estimación del Banco Mundial indica que 44 millones adicionales de personas han caído en la pobreza como efecto neto del reciente encarecimiento de los alimentos. La respuesta por el lado de la oferta ha sido limitada, lo cual es indicativo de las restricciones estructurales del sistema alimentario. Las perspectivas de escasez de recursos naturales e impactos del cambio climático en la agricultura plantean enormes exigencias que agravan el desafío mundial de la alimentación, causando un encarecimiento de los alimentos de largo plazo.

What about small farmers? – The example of Tajikistan

In response to structural food insecurity in Tajikistan, in May and June 2011 Welthungerhilfe and the local Advisory Information Network surveyed 300 households in that country's major wheat growing area. The aim was to find out how small-scale producers are coping with the rising prices.

Not long after food prices around the world surged to new historic peaks in February 2011, prices also began to skyrocket in Tajikistan. In July 2011 they were the highest recorded since price monitoring began in the late 1990s.

Tajikistan's markets were also hit hard by the first global food price crisis in 2007–08. However, unlike international markets, the prices did not drop again between 2008 and 2010, but remained at a high level (see Figure). The rise in prices impacts on all types of food, including wheat and wheat flour, the main staple food in Tajikistan. Bread is eaten at all meals and accounts for approximately 60 percent of the daily caloric intake of the region's population.

■ Dependency on a few trading partners

The main reason that the markets in Tajikistan are so vulnerable to global market prices is on the one hand their dependency on world food markets (the country imports

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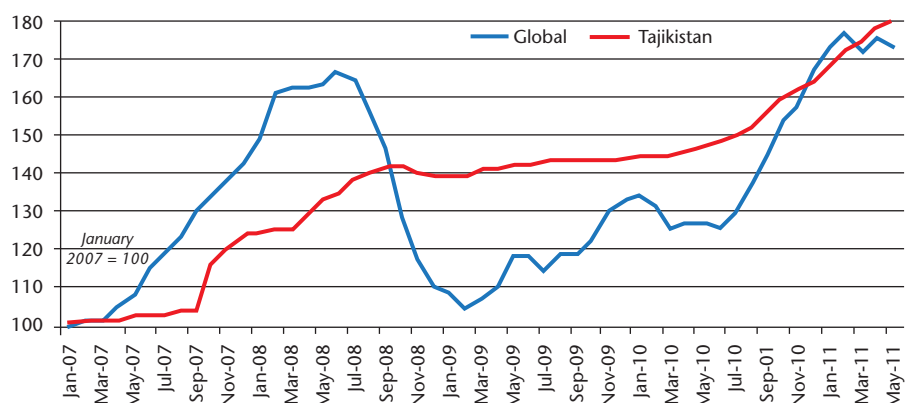
about 60 percent of its food needs). On the other hand, Tajikistan is not well diversified in terms of trading partners: almost all its wheat – the staple food – comes from Kazakhstan and must be transported overland through neighbouring Uzbekistan. Relations to Uzbekistan, at one time a major trading partner, have become increasingly tense in recent years. In early 2011 Uzbekistan raised its tariffs on the transit of Tajik goods by up to 74 percent. Tajikistan is also forced to import its fuel from elsewhere – almost all from Russia. When Russia forced up its already increased prices even further by introducing an export tariff, the cost of fuel in Tajikistan spiked dramatically. The infrastructure in this mountainous country is so poor that high prices for petrol and diesel have a disproportionate impact on transport costs and thus food prices.

■ Small farmers benefit very little from higher prices

Small-scale wheat growers reported that price fluctuations are common and tend to follow seasonal patterns. They are usually low at harvest time, but steadily rise during the following months as stocks become depleted. Everybody is used to the small price spikes which typically occur at times of special festivals such as Ramadan. Three quarters of the farmers surveyed, however, said that they have never before experienced such increases as those in the spring of 2011.

It could be assumed that rising food prices are of benefit to small-scale producers, who can sell their produce at better prices. In Tajikistan, however, few smallholders are actually involved in the market: most of

Food price trends in Tajikistan, globally (2007–2010)



Sources: State Statistical Office of Tajikistan, FAO; UNDP calculations.



Small-scale farmer Safarali Murodov is selling his produce – potatoes, carrots and onions – on the regional market in Baljovan, Khatlon Province.

Photo: C. von Oppeln, Welthungerhilfe

their crops are for their own use. For their other needs they depend heavily on other sources of income such as overseas remittances (Tajikistan has the world's highest rate of migration), social transfers, irregular work or any combination of these. Lacking transportation options, long distances and inadequate infrastructure mean that the farmers who do have excess wheat for sale have only limited access to markets. Potential purchasers are few, leaving farmers little chance to negotiate better prices. Although they are usually well-informed about market prices, half the surveyed farmers indicated that the selling prices they

can achieve are not profitable. A third stated they have no room at all for price negotiation. Half the farmers said that they have storage facilities available for winter stocks. However, very little of their production is retained for later sale when prices are high. Almost all is sold soon after harvesting, mainly to pay off debt and purchase the other provisions they need but do not produce themselves (such as sugar and oil). In May and June 2011, when the interviews were conducted, none of the farmers had any surplus to sell at the record prices prevailing at the time.

At the same time as food prices escalated, so too did those for fertilisers, seeds and fuel. The outcome is that small-scale farmers now have to invest more before they can grow any crops at all. Profit margins do not increase, therefore – despite the rising consumer prices.

Most of the farmers (83 percent) believed that commodity prices would stay high or rise even further, but only 3.3 percent saw the situation as an opportunity. Only a small minority is in a position to balance out the high prices of other foodstuffs and external agricultural inputs by selling its wheat at record prices.

■ The serious implications of increased prices, particularly in rural areas

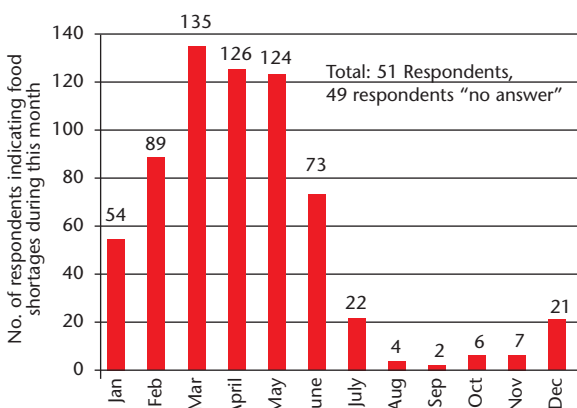
In reality many of the farmers interviewed must purchase more food than they can produce themselves. They experience food shortages even in times of "normal" seasonal price fluctuations. For many the lean months begin in February and March when their reserves are depleted, and end with the arrival of the new harvest at the end of June (see figure below).

The latest food price hikes in the spring and summer of 2011 occurred during the lean season between two harvests in rural Tajikistan. For this reason the impact on poor rural households was particularly hard. More than half the respondents admitted that they had depleted all their food reserves, nearly all households (94 percent) had spent their cash incomes, and over half were already in debt. This situation forced them to purchase the food they needed at record high prices. "Escalating food prices" were identified as second only to "lack of money" as the most significant cause of the current food insecurity at household level.

To compensate for their economic losses and to deal with worsening food insecurity, households are resorting to a variety of coping strategies (see figure on page 33).

Many small-scale farmers reported that they are buying more food on credit and that their debts are steadily increasing. Others said that they eat less and buy food of lower quality. Nearly half the respondents said that they and their families had eaten no meat over the past week. A study carried out in the same regions in March 2011 revealed that more than 40 percent of children are already showing signs of acute malnourishment: a clear indication of the serious implications of high prices.

Months of food shortages at household level



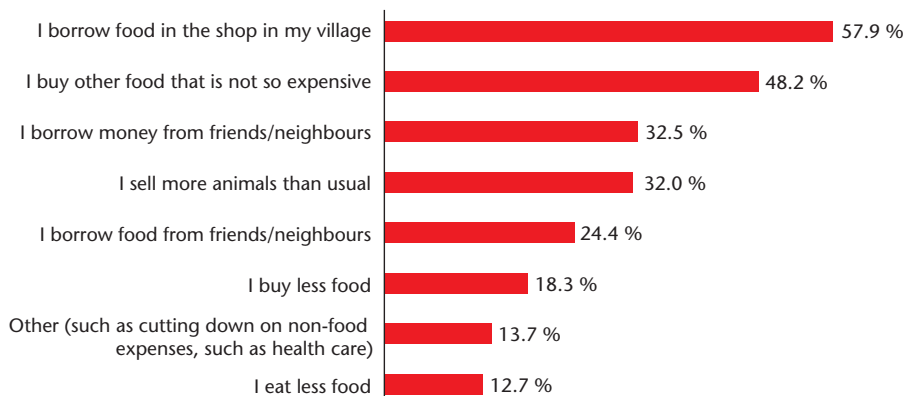
Sources: Data collected by the Tajik NGO Advisory Information Network (AIN) in collaboration with Welthungerhilfe.
Note: Multiple choice answers possible.

Asked for their opinions on the reason behind the inflated prices, many farmers thought that they had been triggered by increased fuel costs. Almost the same number, however, suspected that “agreements between traders and monopolies” were to blame. The rural areas of Tajikistan are supplied by mobile traders – middlemen – who purchase the farmers’ products and at the same time bring the goods they need to the villages. The weak market position of the farmers (none of those surveyed was a member of a producers’ association) enables the traders to set the prices they are willing to pay. Smallholders are doubly disadvantaged by such market structures: they receive a lower price for their crops but are forced to pay inflated prices for the goods they need. As producers, therefore, they do not necessarily benefit from record prices; but as consumers they feel the full pain – often even worse than others – of high prices. It is hardly surprising that the respondents considered increased



Photo: S. Koop, Welthungerhilfe

Coping strategies in view of increasing food prices



Sources: Data collected by the Tajik NGO Advisory Information Network (AIN) in collaboration with Welthungerhilfe.
Note: Multiple choice answers possible.

regulation of traders to be the most effective way of stabilising prices.

Specifically target small farmers!

The interview results suggest that the higher wheat prices offer small-scale producers in southern Tajikistan few market opportunities and scant profit potential. On the contrary, they exacerbate structural food insecurity. If we wish

to enable rural households in Tajikistan to shake off poverty and hunger, we need the political will and clear social consensus to promote small-scale farming. We must support small-scale producers in their efforts to professionalise their operations, and to increase productivity in an environmentally sustainable manner. The provision of appropriate agricultural advice and dissemination of the latest farming practices in particular play a key role here. At the same time broad-based rural development processes should be initiated to develop earning potential, also outside the farming sector.

Further information:

The study (in German) is ready for download at: http://www.welthungerhilfe.de/fileadmin/media/pdf/WHI/WHI2011/Welthungerhilfe_Studie_Nahrungsmittelpreise_in_Tadschikistan.pdf

Zusammenfassung

Vor dem Hintergrund strukturell bedingter Ernährungsunsicherheit und steigender Nahrungsmittelpreise befragten die Welthungerhilfe und die tadschikische Organisation Advisory Information Network 300 ländliche Haushalte dazu, wie sie mit den steigenden und schwankenden Preisen für Agrargüter und Lebensmittel umgehen. Bauern sind Preisschwankungen gewohnt; häufig können sie jedoch aus steigenden Preisen keinen Nutzen

ziehen. Im Gegenteil: Die Ernährungssituation kleinbäuerlicher Haushalte wird durch hohe Preise noch prekärer.

Resumen

Para afrontar los problemas de la inseguridad alimentaria estructural y el alza de los precios de los alimentos, la organización alemana Welthungerhilfe (antes Agro Acción Alemana) y la red de asesoría Advisory Information Network de Tayikistán han llevado a cabo una encuesta a

300 hogares rurales sobre la manera en que hacían frente a los incrementos y la fluctuación en los precios de los productos agrícolas y los alimentos. Los agricultores están acostumbrados a la fluctuación de precios, pero en la mayoría de los casos no logran beneficiarse con el alza de precios. En realidad, la situación es más bien la contraria: los altos precios agravan aun más la precariedad de la situación alimentaria de los hogares de los pequeños agricultores.

What does the future hold?

Food price volatility is both multi-causal and multi-impact. Severe as the 2007–2008 spike was, the 1970s were a period of much greater volatility – yet the future holds new uncertainties that call for novel policy responses.

Volatility in food prices is an entirely natural characteristic of agricultural markets, given that demand is relatively inelastic and that supply is both variable (for example dependent on meteorological factors) and cannot respond in the very short term due to the production cycle of agricultural commodities, and longer-term decisions on investment and R&D. As for any market-traded commodity, food prices exhibit volatility on different temporal scales, for example from day to day, reflecting transaction flows and changes in sentiment, and in the longer term (month to month, year to year) as market conditions and expectations change, or because of the effects of unpredictable events, or ‘shocks’, affecting the system.

High levels of volatility in global agricultural markets have adverse effects on both consumers and producers, through the disruption they cause to the global food system, and, when particularly severe, through the general economic, political and social instability that can occur. These effects will be most severe for low-income countries and the poor, and spikes in food prices can be a major cause of increased hunger (see also article on pages 10–13) They may also distort investment decisions by making returns harder to gauge and incurring costs in hedging risk, with the potential to exacerbate

problems of macroeconomic and fiscal management.

■ Looking back

The pattern of fluctuations in the price of five major food commodities (wheat, rice, sugar, beef and palm) over the last 50 years shows that food prices can be strongly affected by shocks from outside the food system, such as the oil crises of the early 1970s (see Figure). It also shows that the last 20 years have been a period of relatively low volatility compared with the previous three decades in particular, the spike in food prices of 2007/2008, while receiving considerable political and media attention, was relatively small compared with the fluctuations in the 1970s.

■ Volatility in the future

The number of factors affecting volatility and the levels of uncertainty associated with each make it very difficult to predict whether the magnitude of fluctuations in food prices will fall or rise in the coming decades. Although predicting future volatility is complex, there are several arguments suggesting that volatility may well increase in the future. Also, at least some food price spikes are inevitable. Work commissioned by the Foresight Project *The Future of Food and Farming: Challenges and Choices for Global Sustainability* analysed the different drivers that will affect volatility in the future (HMG, 2010; Foresight, 2011) and found no strong evidence for either greater or lesser future volatility, but others conclude that although there are factors

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Photo: laif

pulling in both directions, volatility may well increase in the future. Some of the factors include:

Non-economic factors. Droughts, floods, hurricanes and other extreme weather events can lead to sharp fluctuations in food production in particular regions and are very likely to increase in frequency as one of the first manifestations of climate change.

Wars, major civil strife and breakdown of governance not only affect the nations concerned but also have consequences on the global food system. Although such shocks have declined in frequency in recent decades this trend may reverse due to rising population pressure and greater competition for limiting resources (especially water).

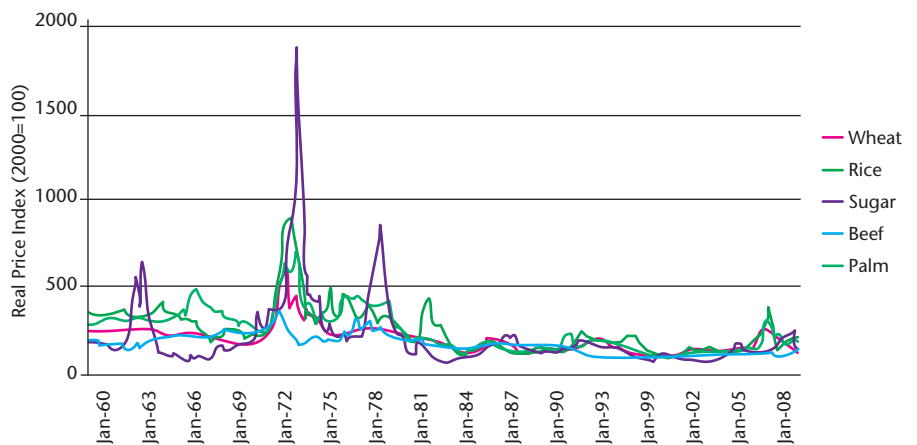
General economic factors. In general, food price volatility will be influenced both by fluctuations in general economic activity and the governance regimes concerning national and international commodity markets. International trade can compensate for regional production shocks and linked financial and capital markets can transmit economic shocks rapidly throughout the world.

Shocks in some other commodity markets are often correlated with price fluctuations in agricultural markets, as price movements are transmitted from one sector to another. For example, oil prices

Extreme weather events such as floods, hurricanes and droughts can lead to sharp fluctuations in food production in particular regions. They will become more frequent in the wake of climate change.



Global real price indices for major agricultural products since 1960



Source: HMG (2010) and Defira (2009)

affect food production through changes in the costs of energy, petrochemicals and fertilisers used in agriculture. Where market forces are driving biofuel production, this could lead to an additional link between agricultural commodities markets and the oil market, amplifying the impact of oil prices on agricultural markets. Where biofuel production is a function of renewable energy policy, inflexible biofuel mandates may exacerbate volatility in grain prices, while flexible mandates could have the opposite effect (the potential to switch production from biofuels to food at times of scarcity has the potential to reduce the fluctuation in food prices). Oil prices also affect transport costs, and hence the degree of international market integration and price transmission.

Factors within the food system. The level of food stocks held by the private and public sector has declined in recent years, in part as a response to reduced volatility, changes in agricultural support policies, a more efficient food system, and increased levels of international trade. Stocks held by governments have fallen relative to those held by private agents, which potentially affects how they are managed in response to changes in market conditions. If stocks are low, agents are less able to cushion the market when supply unexpectedly falls rela-

tive to demand, pushing more of the response onto prices. Therefore, levels of future stocks within the global food system will have a significant effect on volatility.

As consumers enjoy higher incomes, they tend to consume food that is more processed and where basic agricultural commodities account for a smaller share of the retail price. This means even large changes in world prices may only have small effects on retail prices.

Continuing improvements in crop protection and biotechnology may increase yield stability, for example through resistance to new emerging pests and diseases, and through the development of varieties of crops that are resilient to extreme conditions such as drought and flooding. Globalisation and intensification, on the other hand, increase the risk of the emergence and rapid spread of these biotic challenges.

Commodity-specific factors. The 'depth' of the relevant markets – the volume of transactions in relation to the scale of the shocks hitting the system – affects the extent to which international trade can dampen volatility. Some international markets, such as rice, are particularly shallow, and volatility in such commodities will be affected by changes in future levels of trade.



Photo: K. Desmarowitz

Oil prices affect transport costs, and hence the degree of international market integration and price transmission.

Certain staple food prices are politically sensitive, leading governments to take steps to reduce domestic price volatility, which can sometimes have the opposite effect on the rest of the world. Rice in South East Asia is a classic example.

■ Decisions for policy-makers

Interventions to reduce volatility can be expensive and require resources that could be used elsewhere, and also have a potential risk of both distorting markets, or of interventions being hijacked for political reasons. They may also fail to be effective or make problems worse through unintended consequences. Key issues for policy-makers are therefore:

- What levels of volatility are considered 'acceptable', and should governments intervene to attempt to keep volatility within defined bounds?
- How can the negative consequences of volatility be mitigated (and price risk management be facilitated), and which interventions would be most effective?
- Is it better to develop mechanisms to protect producers or consumers

from the effects of volatility and, if so, how? and

- To what extent should collective action and planning at the international level (for example the G20) occur to protect the poorest from the worst effects of volatility?

Determination of acceptable levels of volatility in food prices is a political judgement that needs to consider the negative effects of volatility, but also the costs of intervention. Policies to address volatility may take various forms:

Working markets. Adoption of more market-oriented agricultural policies in individual countries and further liberalisation of agricultural trade would both strengthen the market mechanisms that help reduce price fluctuations in the face of shocks to the food system and improve food security by increasing potential sources of supply. The decline in protectionist agricultural policies seen over the past two decades might be expected to continue in normal circumstances, given the role of the WTO and perceptions of the welfare benefits that could be expected. However, it is in more difficult times, when supply falls well short of demand and strong upward pressure on prices

emerges, that market-oriented policies and liberalisation are likely to come under threat. This has been illustrated very recently in the wheat market, with the poor 2010 wheat harvest from drought and fires, and rising prices, which led Russia to ban wheat exports.

Information on stocks of food and agricultural commodities is relatively poor in most countries. This inhibits the efficient functioning of agricultural markets and the provision of early warning of impending difficulties in supply and increases the potential damage due to ill-informed price formation. The recent proposal by the International Organisations to the G-20 Agriculture Ministers included the creation of an international database of agricultural production, consumption, and inventories to enhance the quality of global food balance sheets. This is to be welcomed.

More action is needed to promote domestic policies that could increase supply responsiveness and encourage market flexibility. Such policies include technical assistance to farmers and measures to improve regulation of land, labour and capital markets, which would enable food production to respond more efficiently and quickly to changing conditions (HMG, 2010).

It is essential that mechanisms are put in place to give governments the confidence in the global trade system to resist what will often be intense political pressures to impose export restrictions at times of high food prices. Improving the functioning of commodity markets can reduce the element of volatility that does not reflect underlying market fundamentals.

Market intervention. There have been calls for a global system of virtual

or actual international grain reserves to help dampen price fluctuations on global markets. The Foresight Project did not find the arguments in favour of this strategy to be sufficiently strong to suggest that it be given priority. Indeed, there are grounds for concern that the proposal would be both very expensive and counter-productive. In most circumstances the costs and policy risks of using international food reserves, virtual or real, to dampen volatility (as opposed to protecting the poor directly) will tend to outweigh the benefits. Past experience with international agreements, such as those for coffee and sugar following the 1970s price spikes, were not successful; they broke down when divergent interests of the participants emerged as markets recovered. There is sometimes a case, however, for higher public stock holding at the national or regional level if there are likely to be long lags between the import requirements of a country becoming apparent, and the arrival of such imports (whether because of a poorly functioning private sector, and/or poor infrastructure, and/or because a country is land-locked).

Mandates from governments to increase the production of biofuels in some countries has the potential to affect market stability for certain grains and oils. Despite being seen by some as

destabilising, it could in principle act as a stabiliser of food prices to some degree if production can be diverted to the food supply at times of shortage. Attention should be paid to how biofuel mandates can best be specified in a way that helps to dampen fluctuations in food prices, for example through appropriate linkages to fluctuations in oil prices and avoidance of very long lock-in contracts that reduce flexibility.

Limiting harmful effects. Problems faced by farmers as a result of fluctuations in food prices can be very damaging, and mechanisms are needed for the management of risk, especially covariate risks affecting whole regions rather than just individual farmers. Market mechanisms are readily available in high-income countries, including insurance, options and futures trading, but these are generally not available in low-income countries. As in high-income countries, social safety nets will be needed to prevent the worst effects of temporary spikes in food prices from having severe effects on poor people in low-income countries. Particular problems are likely to occur among the urban poor, who cannot grow their own food or who do not have access to 'wild food'. Failure to address these problems may lead to social strife and political instability, as

seen in 2008. Although social safety nets are the responsibility of national governments, where countries are unwilling or unable to provide safety nets relating to food, it will be important for international bodies, such as the World Food Programme or major NGOs with public support, to continue to provide the safety net of emergency food resources. This would be an essential function of the rapid response international forum for dealing urgently with emerging food crises proposed by the International Organisations.

Area-based index insurance, written against specific perils or events (such as drought, hurricane or flood) and recorded at regional levels, may also have a useful role to play in helping individual farmers. However, challenges include the need to generate sufficient demand for a sustainable insurance market to develop, and a requirement for sufficient weather stations to capture adequately the spatial variation in climatic conditions. A distinction also needs to be made between policies designed to protect poor people from catastrophic losses (which generally require public subsidy) and those designed primarily to promote agricultural development (which are best channelled through private sector intermediaries).

Zusammenfassung

Da zahlreiche, zudem oft mit Unsicherheit behaftete, Faktoren die Volatilität beeinflussen, sind Aussagen darüber, ob und in welchem Ausmaß die Lebensmittelpreise in den kommenden Jahrzehnten steigen oder fallen werden, überaus schwierig. Strategien zur Begrenzung der negativen Folgen dieser Preisschwankungen erfordern sowohl verbesserte soziale Schutzmechanismen und Agrarpolitiken auf nationaler Ebene als auch einen gewissen Grad an institutionellen Reformen auf internationaler Ebene. Voraussetzung dafür sind mehr produktbezogene und institutionelle Neuerungen und eine stärkere Einbindung des öffentlichen Sektors – sowohl bei nationalen Regierungen als auch bei multinationalen Organisationen – in die Förderung neuer Programme, die Entwicklung der Inf-

rastruktur und die Einführung geeigneter Liefermechanismen. Auch die Regierungen sind gefordert, durch bessere Bildung im Agrarsektor das Wissen über vorhandene Optionen für ein besseres Risikomanagement zu stärken. Zudem müssen sie nach neuen Möglichkeiten für die Entwicklung von Terminmärkten suchen und den Zugang zu diesen erleichtern.

Resumen

El número de factores que afectan la volatilidad – y los niveles de incertidumbre que se asocian con cada uno de ellos – dificultan en gran medida la posibilidad de predecir si las fluctuaciones de los precios de los alimentos disminuirán o aumentarán en magnitud durante las décadas venideras. Las políticas para limitar los efectos nocivos de las fluctuaciones podrían requerir

mejores mecanismos de protección social, políticas agrícolas más acertadas a nivel nacional y un grado de reforma institucional internacional. Esto demandaría mayores innovaciones institucionales y relacionadas con los productos, así como un papel más importante del sector público – tanto de los gobiernos nacionales como de las agencias multinacionales – para ayudar a iniciar nuevos programas, desarrollar la infraestructura y establecer mecanismos apropiados de suministro. Asimismo, resulta claro que los gobiernos deberían asumir el rol de ayudar al sector agrícola en la capacitación y creación de conciencia sobre las opciones disponibles para una mejor gestión de riesgos. También es necesario explorar las alternativas para desarrollar los mercados de futuros y de opciones, y obtener acceso a los mismos.

Speculation with agricultural com

No hedging: no protection

Price volatility is increasing on the global agricultural commodity markets. There are a number of reasons for this: the political deregulation of these markets is just as significant as the volatile interplay of severe crop failures or huge record harvests. As well as climate disasters, political crises and trade policy measures such as export bans and subsidies have a considerable influence. Severe price fluctuations hit developing countries hardest. Images like those from East Africa at the moment make it clear that, as industrial nations, we have a responsibility to the people of those countries. Where emotionally charged issues are concerned, our public media are soon on the trail of “the culprits”. This time the image of evil speculators is being conjured up, blaming them for hunger and poverty; but this scapegoat rhetoric is no help to anyone. In fact, the media are pillorying a market mechanism that helps the traditional players in the agricultural commodity market to hedge their risks.

Take a quick look back: before the Argus eye of public opinion was drawn to speculation on the agricultural markets, it was biofuels which took the blame for high food prices and increasing price volatility. A wave of emotional outrage was unleashed and led to a hasty policy U-turn. Installations that only a short time before had been given political support and funding were abandoned. When respected studies eventually proved that the influence of biofuels on price development and the price spikes of 2007/2008 was in fact minimal, the economic and political damage had already been done. This spiral is threatening to repeat itself.

The fact that commodity futures markets have an indispensable role is now undisputed; both politicians and NGOs have realised that they create a safety net in the market, precisely in order to prevent reckless dealings with the raw materials for our food. However, at times there is a lack of sound understanding of the way these markets function. Most of those participating in the market use the futures markets and OTC to minimise their risk – for example, of weather-related crop failures – by hedging prices, and not to drive prices up. Financial investors – who are the ones on whom the criticism centres – fulfil an important function on

the agricultural commodities markets. After all, they provide the commodity futures markets with the necessary liquidity and trading volumes, so that enough buying and selling opportunities can be available; for traditional producers and processors to be able to hedge their transactions, they always need someone else prepared to take the opposite position!

Instead of attacking the supposedly damaging speculation, reinforcing the convergence between the commodity futures exchange and the physical market would be a more constructive way of safeguarding the agricultural commodities markets. That is to say that products traded as futures on the commodity futures markets must also actually be obtainable in that form; that applies to trading units and qualities as well as to the aspect of an adequate number of delivery points. The often quoted distortions on the cocoa market caused by the intervention of an investment fund in trading on the relatively small cocoa stock exchange could not have occurred in that way, had there been convergence of the cocoa futures market and the physical cocoa market.

Frequent but unjustified criticism is also expressed over multiple trading of a crop on the commodity futures market, which is erroneously equated with speculation. The fears underlying this criticism are unfounded. It is not how often a year's crop is traded on the futures markets that is relevant to the price, but how well the conditions integrate the trading with the physical markets. If there is convergence between stock exchange trading and the physical market, no distortions can arise if a crop is traded several times on paper. In this respect some futures markets must make some changes to strengthen the convergence between paper and spot markets. The aim must be to create more transparency through regular reporting and thus raise confidence in stock exchange trading. With restrictions, however, businesses are deprived of the opportunity to hedge their transactions. This has the consequence that the agricultural commodities market might become just more and more of a “speculation business” – because a speculator is someone who doesn't hedge his transactions.

The call for the lowest possible prices is of no help in the fight against poverty and hunger. Instead, higher prices for small-scale farmers in developing countries and emerging economies as well can create an incentive to increase production beyond their own subsistence economy. Low prices, on the other hand, reduce the supply. What is needed is a development policy which rectifies the failings in the development of rural areas and invests in infrastructure.



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Commodities and food – yes or no?

Too much speculating in the system!

For a long time, speculators only played a minor role on the commodities markets. The vast majority of traders made use of the commodity futures exchange to safeguard themselves against price risks in trading grain in the real world – to hedge their bets. This is precisely what the “Chicago Board of Trade” was founded for by producers, buyers and sellers in the USA in 1848. This was the birth of the largest grain exchange in the world. But things have changed. In the early 1990s, the USA started to liberalise financial regulations. The market underwent a fundamental change. Whereas speculators held only 23 percent of ongoing contracts in 1998, they were in possession of a staggering 69 percent by 2008.

Today, it is the logic of the financial market that governs the grain markets. Experts refer to the “financialisation” of the grain and commodities markets. The result is that the intensity and frequency of price spikes and dips is increasing. Banks and pension and hedge funds are speculating with the world’s bread, and in betting on rising prices, they are accepting the hunger that threatens millions of people who are unable to protect themselves. However, the producers, buyers and sellers of grain are also beginning to feel the downside of the “boom” in the USA. It was not without reason that a re-regulation of trading in commodity derivatives was introduced politically for grain and energy in the USA in the summer of 2010, too.

The “danger” of regulation is bringing all those into the arena who are benefiting from liberalised commodities futures exchanges: the banks, which are forever introducing new finance products to the market and luring investors with good prospects of profits; the institutional investors, who want to diversify their portfolio and benefit from rising food prices; the stock exchanges, whose income increases as more and more futures contracts are traded; and the international grain corporations, which are not only safeguarding themselves on the commodities futures exchanges but are also making considerable profits through financial betting.



The finance industry is making an all-out bid to prevent reasonable

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regulation. It warns of the danger of illiquid markets, despite of regulation in the US always having ensured liquidity on the markets and having restricted excessive speculation for 150 years. With an air of innocence, it refers to the speculators merely being the bearers of bad news or anticipating development trends on the markets and claims that price developments may be traced back solely to fundamental market data. And it suggests that betting on rising prices represents an “investment” in the commodities sector.

As can be expected, the need or the dangers of regulating financial markets is the subject of controversial debate. There will most likely never be unanimous agreement among experts or scientists about the link between speculation and price developments in physical markets. However, whereas some reject any link whatsoever, a growing number of serious surveys conducted by distinguished organisations and experts suggest an urgent need for action because of the negative effects of excessive speculation.

Index funds are viewed especially critically. “Investment” in commodities-related index funds grew from 13 billion US dollars in 2003 to 317 billion US dollars in July 2008. The index funds encompass several commodities (metals, energy sources, agricultural produce, etc.), bet on rising prices and therefore mainly hold long positions in commodities futures. In a well-functioning market, increased demand will result in rising prices. So if more and more futures are bought, the prices of futures should really rise. When fixing their prices, grain traders are guided by this futures price. Correspondingly, higher futures prices result in higher grain prices.

Given the far-reaching, life-threatening consequences of fluctuations in food prices for millions of people, action is needed, even if some economic researchers are of the opinion that the causal links between speculation and price volatility have as yet not been exhaustively demonstrated. For the precautionary principle demands preventive action.

For one thing, action means at least establishing transparency. Speculators must be obliged to report all financial transactions to the responsible authorities, so that what is happening on the markets becomes comprehensible. But this is not enough. In order to curb excessive speculating, upper limits have to be set regarding the number of contracts traded by the speculators. There is no way to avoid regulating the commodities futures exchanges. There is simply too much speculating in the system!

Meat for all?

Meat demand is rising, given a growing world population and larger middle-income subpopulations. However, meat production faces challenges such as expensive inputs and animal and human health issues. The author stresses the importance of minimising hazards and threats, and argues for sustainable production systems based on aspects such as smarter food marketing and improved disease intelligence.

As the world population reaches the seven billion mark and subpopulations in emerging market economies start to join the ranks of middle-income households, livestock production systems will be pressed to supply the demand for meat that arises from the adoption of the diverse and rich nutritional diets enjoyed in developed countries. The challenges of this increased demand for animal protein are increasingly felt, and the situation is likely to become more difficult given that inputs for livestock production such as energy, grains, and roughages at inexpensive prices are no longer available, and also because adjustments to meat production lie in the horizon in relation to greenhouse gases emissions and associated climatic change.

Further challenges relate to concerns with animal and human health, as the numbers and concentration of animals increase. It is often suggested that modern industrial livestock production systems that prop up in response to market incentives potentially allow for the rapid selection and amplification of pathogens, some of which have threat-

ened global public health and proved costly to regional trade-based economic growth and livestock-dependent livelihoods (e.g. highly pathogenic avian influenza H5N1 and pandemic H1N1 influenza). This is followed by increasing reservations expressed by environmental and civic action groups about the decoupling of production from the natural resource base which may give rise to substantial externalities. Finally, given that most of the growth in meat demand will occur in nations experiencing a rapid transition from poverty to prosperity, and given that the supply response is expected to occur predominantly in those regions, there is likelihood of ensuing social inequities due to the marginalisation of smallholder livestock farmers by the new sophisticated urban markets.

■ Rethinking has started

In view of the multidimensionality of the challenges faced, the world livestock sector is adapting to changing contexts by addressing some of the core limitations that are withholding its efficacious participation in global markets. In doing so, it has started to improve its environmental performance by recognising the importance of adopting more ecologically-friendly waste management practices and dietary manipulations that reduce the amounts of



Photo: Bilderbox.com

Demand for meat is expected to grow at about five million tons annually. This increase will mostly occur in nations experiencing a rapid transition from poverty to prosperity.

nutrients needed for higher resource use efficiency. These improvements are important since the entire livestock commodity chain is said to contribute 18 percent to total anthropogenic greenhouse gas emissions. While emission mitigation policies play a vital role in preventing climate change, the widespread economic impacts of these policies will strongly influence the viability and opportunities of the livestock sector in global food supply.

With regard to disease risk, two approaches could be followed. First, recognition that food safety ranks high in the perception of consumers and their involvement in the food chain oversight is to be sought. Recurrent cases of *E. coli* and *salmonella* reported in popular media add weight to such trends. Traceability of food items from farm to fork has advanced a feasible

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model to deal with food safety issues, so that failures and risks can be identified and disciplined. Second, emerging infectious pathogens that can also infect humans (in veterinary parlance, these are known as zoonotic pathogens) must be addressed reliably through effective disease surveillance and through the early identification of the drivers of disease emergence and spread. These two approaches require appropriate institutions, research and development, interventions and governance that reflect the heightened importance placed on hazard and threat minimisation.

Sceptics have expressed misgivings about wealth-fuelled meat demand; but the studies conducted so far provide little room for ambiguity. In short, there is a linear positive relationship between per capita income and meat consumption almost regardless of geographical location. There is uncertainty about the increases in demand expected, especially after the 2008–2009 financial meltdown and economic slowdown.

The world's total meat supply was 284 million tons in 2007 and 290 million tons in 2009. The best estimates available indicate that demand for meat is expected to grow at about five million tons annually. The demands for grains to manufacture feedstuffs for animals in confinement will rise, and with it, the need for land and energy inputs (i.e. fuels, fertilisers). As a conse-

quence of increased cropland requirements, encroachment into forests may continue eroding forestry resources, but some African countries stand to benefit from rising grain demand.

Does this mean that the world needs to change the way food is produced? It probably does, but these changes will be gradual, given that culturally-determined consumption behaviours and food handling habits are highly diverse. The rapid spread of mass communication technologies is creating informed, discerning and punctitious audiences that are shaping the ways in which local and international food corporations and their suppliers produce and handle foods: pesticide usage is declining, organic farming is rising, fair trade of sustainable commodities is expanding, animal welfare guidelines are being adopted, and food chain traceability is increasingly demanded.

■ Complicated contexts

The international technical agencies tasked with food safety, animal health and human health are faced with important unknowns. Higher meat intake, for instance, has been linked to an increased risk of chronic illnesses such as cancer and cardiovascular diseases, but no definitive conclusions can be drawn from different diet compositions or variable rates of

physical activities. Also, consumption of meat from animals raised in intensive systems with growth promoters or antimicrobial drug use have been associated with increased antimicrobial resistance. Serious consequences may ensue in humans affected by drug-resistance.

Climatic changes in the form of rising temperatures and changing rainfall patterns are expected to have a substantial effect on the burden of diseases that are transmitted by insect vectors and contaminated waters, and through humid-environment macroparasites and other pathogens, yet the depth and breadth of these burdens will only be known after subsequent changes in agro-ecological landscapes take full force. Furthermore, the higher incidences of natural disasters associated with climate change are also expected to increase the emergence and transmission of communicable diseases (e.g. common cold, dengue, diarrhoea).

In the end, it appears that smarter food market systems, improved disease intelligence and pathogen detection, comprehensive food policies, and creative policymaking that adapts to shifting contexts are among the options to promote sustainable animal food production systems that can provide the desired quantity and quality of livestock products for a growing world.

Zusammenfassung

Mit der zunehmenden Weltbevölkerung geht auch eine zunehmende Nachfrage nach Fleisch einher. Die großen Herausforderungen betreffen hierbei vor allem Fragen der Gesundheit von Mensch und Tier: manche Tierhaltungssysteme begünstigen die schnelle Selektion und Verstärkung von Pathogenen. Auch ist mit deutlichen Auswirkungen des Klimawandels auf die Verbreitung von Krankheiten zu rechnen. Der weltweite Viehsektor arbeitet jetzt an der Verbesserung seiner ökologischen Bilanz durch die Anwendung umweltfreundlicher Abfallmanagementsysteme und Umstellungen für eine effizientere Ressourcennut-

zung. Zu den Optionen für die Förderung nachhaltiger Produktionssysteme gehören intelligente Marktsysteme für Lebensmittel, bessere Krankheits- und Keimkontrolle, eine umfassende Lebensmittelpolitik und kreative politische Maßnahmen.

Resumen

A medida que aumenta la población mundial, los sistemas de producción ganadera se verán muy presionados para atender la mayor demanda de carne. Los desafíos relacionados con este hecho se relacionan con la salud animal y humana: algunos sistemas de producción ganadera permiten una rápida selección y propa-

gación de patógenos. También se prevé que el cambio climático tenga un efecto sustancial sobre la carga que representan las enfermedades. El sector ganadero mundial ha empezado a mejorar su desempeño ambiental adoptando prácticas de manejo de residuos más amigables en términos ecológicos y realizando ajustes para un uso más eficiente de los recursos. Las opciones para promover sistemas sostenibles de producción incluyen sistemas más inteligentes para los mercados de alimentos, más actividades de inteligencia y de detección de patógenos, políticas alimentarias integrales y una formulación creativa de las políticas.

Rural women in Zambia: Light at the end of the tunnel?

With the support of international NGOs, Zambia's government is making an effort to improve the conditions that rural women are living in. However, it is going to take a long time before the well-meant measures take effect – also because of HIV/Aids.

With almost two-thirds of the entire population, women are an important factor in the economic development of Zambia, especially in the agricultural sub-sector. Rural women account for more than 25 percent of the total food produced in the country. For example, of the total 12 million metric tons of maize which is produced every year, female farmers contribute about 3.8 million tons through their small-scale and peasant farming efforts. They are also engaged in horticultural, livestock, food processing and other agro-business activities.

■ Government support – who benefits?

The government has been supporting these activities since 1992. For example, through the government-sponsored Farmers Input Support Programme (FISP), rural women have been benefiting from a credit and subsidised system which assists them with low-priced agricultural inputs such as fertiliser and seeds. All they have to do is to form co-operatives or join existing ones from where they can access the farming inputs. The FISP assistance per individual female farmer is a fertiliser pack of eight 50 kg bags of basal and top-dressing fertiliser plus a 10 kg

bag of maize seed for one hectare of land under cultivation. This support also applies to their male counterparts. The current number of beneficiaries of the government-supported inputs programme throughout the country stands at 987,000; according to the Zambian Minister of agriculture and co-operatives, Dr Eustarko Kazonga, it shall be increased to 1,200,000 in the next two years.

However, of the said number of beneficiaries, rural women account for a paltry 15 percent. Minister Kazonga admits that it will take some time before rural women in his country are fully catered for in the inputs support programme. Despite his ministry's efforts involving wide consultations with gender-based units in the rural areas to see how best female farmers can be helped, he has to admit that there are still some weak points that need to be strengthened. For example, lack of storage facilities, late delivery of agricultural inputs and discrimination in the distribution of the same inputs pit female farmers against their male counterparts, and this tends to frustrate their efforts, while affecting their production levels at the same time. The fact that according to a government directive, in all the rural districts, via the district agricultural and co-oper-

atives (DACOs), female farmers have been given preference for credit and subsidised agricultural inputs has not changed the situation so far.

■ Children of rural women especially hard-hit by malnutrition

With the help of non-governmental organisations (NGOs) working with rural women – e.g. Care International, Oxfam, World Vision – the situation is expected to improve tremendously. For instance, the United States of America Peace Corps has been committed to programmes meant to uplift the living standards of rural women in Zambia through the provision of soft loans, training, extension services and other forms of aid. Around a third of the country's women have benefited from

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Rural women account for more than 25 per cent of the total food produced in Zambia.



the various aid programmes. The Peace Corps is helping rural women to promote food security through increased food production. This is even more important when considering the high rise in maternal malnutrition in the country.

Zambia is faced with chronic malnutrition, especially among children born to rural women. Statistics of the National Food and Nutrition Commission (NFNC) show that 45 percent of rural children aged 0–5 years are malnourished and underweight. Shedding more light on this issue, NFNC deputy executive director Ms Beatrice Kawana said malnourishment statistics prevailing in the country were above the acceptable levels of the World Health Organization threshold. The breakdown is that 53 percent of children born to rural women suffer from Vitamin A deficiency, 46 percent have iron deficiency-related anaemia, while another 13 percent are born with low birth weight.

■ Poverty and disease – a vicious circle

At a Food and Nutrition Consultative Forum held in Livingstone in Southern Province at the beginning of 2011, experts from the United Nations,

USAID, NFNC and other international stakeholders expressed plans to help Zambia improve its investment in nutrition. A road map has been developed for both the short and the long term to intervene on behalf of rural children faced with chronic malnutrition. According to NFNC director Dr Cassim Masi, the forum was an eye-opener on the lack of agricultural development in the rural areas, where the majority of rural women wallow in abject poverty while they are forced to look after their households with few, if any, resources. This has in turn triggered the offshoots of hunger and starvation, whose effect is the high level of malnutrition in most of the rural areas of that country.

And then there is the onset of the Acquired Immune-deficiency Syndrome (Aids) pandemic, which continues to ravage most of the rural population in Zambia. Unfortunately, rural women are the traditional victims of the dreaded HIV/Aids and other sexually transmitted diseases. For example, out of the estimated 2.1 million people living with Aids in Zambia (total population: 13.5 million), almost one third are women in rural areas. The pandemic continues to be a worrisome socio-economic problem for rural women and has an adverse effect on food production and security. As more and more rural women fall sick, the performance of the agriculture sub-sector is expected to decline and deteriorate. In fact food production in the rural areas has been falling for the past ten years due to neglect and sickness of the female workforce.

■ In the name of tradition

Although Aids has not yet reached distressful levels in rural areas, infection is still on the rise due to poverty, lack of education and other cultural issues. As already stated, women in rural areas are victims of traditional values owing to which most of their men cannot accept the use of safer-sex methods to

avoid both unwanted pregnancy and infection. This is because in some cases, cultural overtones have overplayed the importance of women in home-making, which makes it harder for them to ask their husbands to use condoms even when they suspect unfaithfulness. Customarily, men in Zambia believe they have right of sex with their women and women have an obligation to give them children. This belief alone has resulted in the country having a higher ratio of infected women than men. The statistics of infected women are in the range of six for women for every four men. The number could even be much higher in rural areas.

■ Sensitisation is difficult

Poverty, lack of education, illiteracy, culture and unemployment have all contributed to the rise in infections. Female-led NGOs like The Women for Change are trying hard to reverse the trend through lobbying the government and sensitisation of their womenfolk in the country. But this has worked more successfully in the urban centres, where social interaction and exposure to information is quite high compared to in rural places. In some rural districts, Peace Corps is helping women to combat Aids and fight stigma for those living with the disease. Only recently, the American government gave Zambia 276 million US dollars towards strengthening the prevention, treatment, care and support services for infected and affected people. Aids prevention in both rural and urban areas showed a decline in incidence from 18.6 percent in 1996 to 14.3 percent in 2007. Last year, the decline was put at 13.8 percent, although there are no official statistics to support it. Nevertheless, Zambia is still a hyper-endemic country, as most people continue to die from Aids related cases. The cost of prevention and treatment of the disease accounts for over one percent of Zambia's Gross Domestic Product (GDP).





Photo: J. Boethling

Women in Zambia's "copper belt" collect stones and debris on a mining dump and then sell them as building materials.

■ Fighting for ways out

At least three out of ten women in the rural areas of Zambia have to look after orphaned children from widowed homes of their relatives, mostly due to the Aids pandemic and other circumstances. This has placed an additional heavy burden on the plight of women in rural areas. Many rural women venture into various business activities in order to support themselves. They try to make a living by livestock keeping, food processing, food vending, crop marketing, honey and beeswax processing. Mining, quarrying and charcoal burning are also on top of the list of the occupations that rural women are fond of doing for survival and to earn an income to support their families and themselves. Others are still engaged in other services delivery trades, including acquisition of skills in the construction industry. The food-

for-work programmes in some parts of the country have greatly helped rural women both to earn a living but also to acquire basic skills. Although some quarters have criticised the food-for-work programme as being exploitative, others think it is the best way to keep away women from the street and hanging around at drinking places as prostitutes. "It is more dignified for women to work with their own hands than selling themselves to men," a woman said in Solwezi, a mining town in the North-Western Province.

■ Can the opportunities be made use of?

Thanks to government support and gender sensitisation, the situation has improved for a lot of rural women in the past few years, and they have become an important element in the

development of the country as their contribution is both far-reaching and wide, going beyond agricultural production. In fact, many of government and NGO-sponsored programmes in all the districts focus on rural women. The government-induced girl-child programme, which supports girls from poor parents, has resulted in more rural girls accessing higher education and tertiary training, which has prepared them for the future as they reassert their womanhood. Churches in rural areas have been playing an important role in offering education and skills to women and having youth skills centres run under local councils.

When asked about women's development in general, the minister responsible for women's affairs, Ms Sarah Saifwanda, said more needed to be done before women in rural areas could compete with their counterparts in urban areas. They had to be taught skills that would make them lead an independent life outside marriage. Saifwanada said rural women were no longer being confined to gathering food and firewood for their households but were engaged in various business ventures to support their families. She stated that women in rural areas had the same access to education, health and employment as everyone else in the country. Whether they can make use of these opportunities remains to be seen in the coming years.

Zusammenfassung

Für die Frauen in den ländlichen Regionen Sambias ist das Leben voller Herausforderungen. Sie haben in den vergangenen Jahrzehnten teils durch die staatliche Unterstützung gender-basierter Programme, aber auch durch Eigeninitiative zur Durchsetzung ihrer Rechte Verbesserungen ihrer sozialen Lage erreicht. Die rasche Ausbreitung von HIV/Aids ist jedoch eine große Bedrohung für diese Entwicklung

und verringert vor allem die Lebenserwartung der Frauen auf dem Land. Mit Hilfe internationaler Organisationen versucht die Regierung, der Pandemie Herr zu werden.

Resumen

La vida de las mujeres de las zonas rurales en Zambia está llena de desafíos. A lo largo de las últimas décadas, su nivel de bienestar ha mejorado, en parte debido

al apoyo del gobierno para programas con enfoque de género, pero también gracias a su propia determinación para reafirmar sus derechos humanos. Sin embargo, la rápida propagación del VIH/SIDA ha causado severos reveses y – sobre todo – ha reducido la expectativa de vida de las mujeres en el ámbito rural. Con la ayuda de organizaciones internacionales, el gobierno está intentando poner coto a la pandemia.

Inclusive business models – new prospects for smallholder market integration?

Direct co-operation between small farms and businesses is promising. Trade and processing industries hope for access to resources, while smallholders can dream of stable outlets as well as improved management and negotiating capacities. So is this a win-win model per se?

Not necessarily. There are too many challenges that the successful market integration of smallholders presents, starting with an unfavourable resource base and a lack of knowhow, ranging to an unfavourable negotiating position. However, the conditions for changing this are more favourable today than ever before.

■ Smallholding in great demand

Whereas it used to be the public sector that would care more for smallholder agriculture, it is now international, but also medium-sized, enterprises in the partner countries that are showing a growing interest in smallholding and smallholder trading. Given the latest developments on the food and soft commodity markets, they are attempting to support smallholders in improving productivity over the medium or long term and retain them as clients.

To this end, they are willing to adapt their business models and supplement them with services tailored to requirements, loans and agricultural extension services. This enables smallholders to tap sales channels, enhance their productivity and improve their negotiating position but also creates new demands, such as rising production and quality standards. Businesses, for their part, are faced with considerable logistical challenges given the range of atomised smallholders.

Advice on selection of the cashew apple.

■ An invitation to a change of perspective

Development Co-operation (DC) has addressed the issue of how smallholders can sustainably produce and market their goods for a long time. However, all too often in this context, it has neglected the demands of buyers. Setting out from the requirements of a given business relation between smallholder producers and enterprises, the concept of Inclusive Business Models opens up new perspectives: How can the private sector be supported in establishing reliable and long-term supply relations with smallholder enterprises? And what development tasks can or should it assume in order to qualify the structurally disadvantaged smallholders to the benefit of both sides? What are the roles of government and DC in this context?

Not only do certain values have to be created and maintained for business models to be inclusive, but the distribution of ownership rights, voice, risks and remuneration has to be organised on a partnership basis, too. Building on this insight, Vermeulen & Cotula (2010) provide a simple, but convincing framework for the analysis of the inclusiveness of business models (see Figure). Thus inclusiveness requires a process of all actors approaching each another as well as engagement in terms of economic, agricultural and social policies that really points the way ahead. Only cross-sectoral measures can



Photo: GIZ

create a suitable framework for economic inclusion.

■ The role of Development Co-operation

German DC can play a valuable role as a mediator in this process, for example in the field of export products, but also in the field of soft commodities. This is where the economic incentives for investment are greatest and the structures are most advanced. Projects like the Cotton Made in Africa (CmiA) or the Competitive African Cashew Value Chain (ACI), which have long passed the stage of conventional support for smallholders, have turned out to be trendsetters. By establishing sustainable demand alliances and special promoting of relevant elements in the value-added chain, CmiA has reached around 450,000 smallholders and ACI about 100,000. The approach of the Farmers Business Schools in Ghana and the production of palm oil in Thai smallholdings also have proved to be success stories. Transferring such experience to the field of staple foods continues to be a challenge with a considerable potential. Over the next 20 years, the local and regional food markets are going to experience very dynamic growth. What counts is to take advantage of such dynamics to eliminate existing imbalances of power and qualitatively develop business relationships.

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For further information and a list of references, please visit www.rural21.com.

Analysis framework for Inclusive Business Models

Ownership:	Ownership shares of means of production (land, processing plant) and financial involvement
Voice:	The opportunity to influence relevant business decisions (importance in decision-making process, representation in decision-making committees, access to information)
Risk:	Extent and type of risk share: commercial risk (production and market risk), but also political risk and reputation
Reward:	Remuneration: distribution of costs and profits

Global risk assessment for cassava production

Production of cassava, one of the world's most important food crops, is precarious and could collapse under a combined onslaught of pests and diseases, according to a new study by scientists at the International Center for Tropical Agriculture (CIAT). The study "Threats to cassava production: known and potential geographic distribution of four key biotic constraints", recently published in the journal *Food Security*, identifies hotspots around the cassava-producing world where conditions are right for outbreaks of some of the crop's most formidable enemies: whitefly, green mite, cassava mosaic disease and cassava brown streak disease.

By using a technique known as ecological niche modeling, CIAT scientists conducted a detailed global risk assessment for cassava, in relation to the four pests and diseases. They compared cassava-producing areas where they are already present with areas that have similar environmental conditions, but where specific pest and disease pressure is either absent or low. They found that the conditions are right for combined outbreaks of all four pests and diseases in some of the world's major cassava-producing zones. These



Photo: CIAT

include Africa's Rift Valley region, much of Southeast Asia, southern India, Mato Grosso state in Brazil, and northern South America.

The researchers identify movement of infected propagation material as a major cause of the spread of pests and diseases which could enable a pest or disease to jump continents. They highlight the need to refine and enforce the protocols for the movement of propagation material, and also call for more formal international early

Cassava is the primary staple food in many countries – be it in Africa, Asia or South America.

warning systems for cassava in order to ensure a swift response to any outbreaks. (CIAT/IFPRI/wi)

Further information:

www.springerlink.com/content/x4241w4vv4678175/about/

Global study on water resources: inefficient use must end!

While water-related conflicts and shortages abound throughout the rapidly changing societies of Africa, Asia and Latin America, there is clearly sufficient water to sustain food, energy, industrial and environmental needs during the 21st century, according to a study from the Challenge Program on Water and Food (CPWF) of the Consultative Group on International Agricultural Research (CGIAR). The report finds that the "sleeping giant" of water challenges is not scarcity, but the ineff-

icient use and inequitable distribution of the massive amounts of water that flow through the breadbaskets of key river basins.

Presenting the study at the World Water Congress in Brazil held in late September 2011, CPWF director Alain Vidal concluded that "water scarcity is not affecting our ability to grow enough food today, the problem is rather a failure to make efficient and fair use of the water available in these

river basins. This is ultimately a political challenge, not a resource concern".

While Africa has the biggest potential to increase food production, researchers identified large areas of arable land in Asia and Latin America where production is at least 10 percent below its potential. For example, in the Indus and Ganges, researchers found 23 percent of rice systems are producing about half of what they could sustainably yield.

According to CGIAR, the analysis – which involved five years of research by scientists in 30 countries around the world – is the most comprehensive effort to date to assess how, over vast regions, human societies are coping with the growing need for water to nurture crops and pastures, generate electricity, quench the thirst of rapidly growing urban centres, and sustain our environment. The ten river basins that were studied include: the Andes and São Francisco in South America; the Limpopo, Niger, Nile and Volta basins in Africa; and the Indus-Gan-

ges, Karkheh, Mekong, and Yellow in Asia. The basins cover 13.5 million square kilometers and are home to some 1.5 billion people, 470 million of whom are amongst the world's poorest.

The authors of the study also note that boosting food production in the basins studied requires looking beyond crops to consider more efficient uses of water to improve livestock operations and fisheries. Water policies often ignore the role livestock and fish play in local livelihoods and diets. (CGIAR/wi)

In brief

■ Success of new malaria vaccine

The Swiss Tropical and Public Health Institute in Basel has developed a vaccine that has proved effective and well-tolerated in tackling malaria in children. In a 12-month period the vaccine was tested on 40 children and 10 adults in an area of Tanzania in which malaria is endemic. The vaccine consists of two synthetic peptide components (AMA-1 and CSP-1) that mirror the native structure of important antigens formed during the decisive phases of the life cycle of *Plasmodium falciparum*, the organism that causes tropical malaria. As the University of Basel reported in July 2011, the vaccine triggered strong antibody responses to the two antigens (AMA-1 and CSP-1) in the majority of subjects. It was also effective in preventing clinical malaria in children: in those subjects who had been treated with the new vaccine, cases of malaria occurred half as often as in those who had received a flu vaccine. Apart from RTS,S – another vaccine candidate that is currently being tested at a number of centres in Africa – the new vaccine is the only one so far to have proved so effective in protecting the population against malaria. The research results were published in the July edition of the US journal PLoS ONE. (University of Basel/ile)

■ Six million euros for new project in the Amazon

Methods of improving carbon storage in the soil, reducing greenhouse gases and maintaining important ecosystem functions such as soil fertility and water quality are the focus of a new research programme in the Amazon region of Brazil. The Federal Ministry of Education and Research (BMBF) is providing funding totalling 6.15 million euros over five years for the collaborative project, which goes under the name of «carbicoal». The project, in which numerous Brazilian partners as well as various German universities and research centres are involved, is being coordinated by the Institute of Geography at the University of Göttingen. One of the researchers' aims is to develop a model that will demonstrate to farmers, environmental agencies and research institutions the effects of different land-use scenarios for the Amazon region from the point of view of climate change mitigation. It is also hoped that the model will illustrate the sustainability of different measures. The researchers will be working mainly in the Brazilian states of Mato Grosso and Pará. (University of Göttingen/wi)

More information:
www.uni-goettingen.de

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COMING EVENTS

Date	Place	Event	Web
15–18 November 2011	Nairobi, Kenya	 Innovations in Extension & Advisory Services: Linking Knowledge to Policy and Action for Food and Livelihoods	http://extension-conference2011.cta.int/
15–19 November 2011	Hanover, Germany	 Agritechnica	www.agritechnica.com/home-en.html
16–18 November 2011	Bonn, Germany	 The Water Energy and Food Security Nexus – Solutions for the Green Economy	www.water-energy-food.org/en/conference.html
29 November–1 December 2011	Busan, Korea	 Fourth High Level Forum on Aid Effectiveness	www.aideffectiveness.org/busanhl4/
30 November–1 December 2011	Washington D.C., USA	 Standards in South-South Trade and Opportunities for Advancing the Sustainability	www.tradestandards.org/en/index.aspx
1–3 December 2011	Göttingen, Germany	International Seminar on Sustainable Land Use and the Food Chain	http://issda.de/?page_id=13
5–8 December 2011	Accra, Ghana	 International Conference on Sustainable Management of Africa's Natural Resources	http://inra.unu.edu/
10–12 January 2011	Münster, Germany	 DLG-Wintertagung 2012: Welternährung – Welche Verantwortung hat Europa? (DLG-Conference 2012: Food for the World – What is Europe's obligation?)	www.DLG.org/Wintertagung
19–21 January 2012	Berlin, Germany	 Global Forum for Food and Agriculture	www.gffa-berlin.de/en.html
20–29 January 2012	Berlin, Germany	 International Green Week	www1.messe-berlin.de/vip8_1/website/Internet/Internet/www.gruenewoche/englisch/index.html
8–12 February 2012	Berlin, Germany	 Fruit Logistica	www.fruitlogistica.de/en/
2–4 February 2012	New Delhi, India	 12th Delhi Sustainable Development Summit	http://dsds.teriin.org/2012/index.php
20–23 February 2012	Embu, Kenya	 Workshop on Climatic information predictability for reducing tropical agriculture vulnerability	www.cerege.fr/?masque=inc-perso&id_rubrique=209&lettre=mM&sous_masque=inc-item&id_onglet=-1&id_article=28445
23–25 April 2012	Washington, D.C., USA	 Annual World Bank Conference on Land and Poverty	www.landandpoverty.com/
13–18 May 2012	Dublin, Ireland	 World Congress on Water, Climate and Energy	http://iwa-wcedublin.org/

Further event profiles are at: www.rural21.com