



# ZEF news

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## Editorial

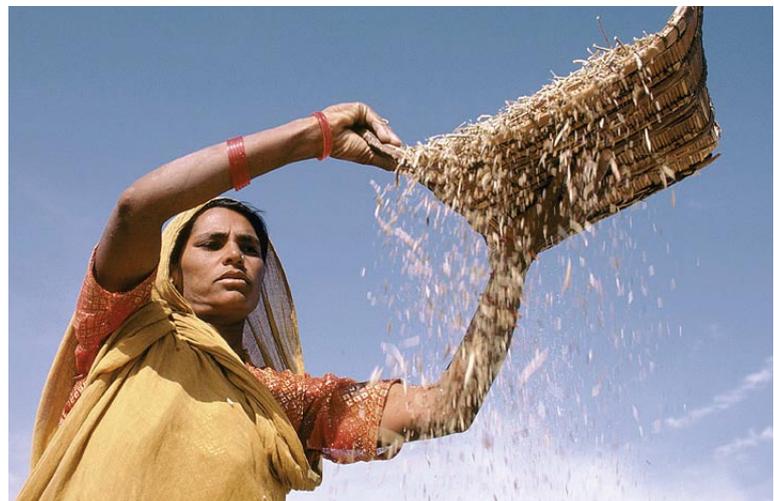
Just a few years ago, bio-energy appeared to offer a panacea to boost the slow growing agricultural sector in developing countries. The production of energy crops was thought to expand export revenues, promote income growth, and reduce the incidence of poverty in rural areas. In the meantime, this optimistic vision has vanished and made room for a much more sober assessment of the potential contribution of bio-energy to development. It has turned out that only a few, mostly middle-income countries will benefit from the increasing global demand for energy and that energy crops compete with food crops, thus pushing food prices up. However, this is not the end of the bio-energy story. Past experience has shown access to energy and infrastructure to be instrumental in unleashing the development potential of rural areas. Yet many areas, especially remote areas in developing countries, will not become connected to the national grid in the foreseeable future. For these regions, bio-energy can provide a sustainable source of energy supply based on the use of non-agricultural land and locally adapted energy crops. A secure energy supply offers chances to upgrade production technologies, establish agricultural support and processing facilities, and increase revenues through access to information and marketing channels. Longer-term effects also include the improved health of the rural population, better educational achievements, and higher standards of living.

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## The demand for biofuels and its impact on food prices: What kind of numbers are we talking about?

The debate over the impact of increased demand for biofuels on global food prices reached unprecedented levels in 2008. Global real food prices were already at a decade-high in 2007 and several more increases were observed in 2008. Riots erupted in several developing countries as a result of high food prices and the international community struggles to provide adequate food aid as prices have soared.



*Global grain prices increased in 2008.*

In that context, ambitious fossil fuel replacement targets, primarily in the US and the EU, have become obvious objects for criticism. Yet, when it comes to quantifying the impact of biofuels on food prices in the recent past, or to projecting this impact over the next decade, the figures cited in the media have been rather confusing. Two articles in the German daily newspaper "Die Tageszeitung", April 16<sup>th</sup> and 17<sup>th</sup> 2008, illustrate this point. In the former, Federal Development Minister Wiczeorek-Zeul cites IFPRI's figures on the impact of biofuels on food prices as being up to +70%. In the latter, the journalists cite the contribution of biofuels to agricultural prices as being a maximum of +15%.

To get a clear picture of the situation, it makes sense to review the results of the several original sources which have been (mis?)quoted in the press.

### Impacts to date

IFPRI has produced a study comparing the real prices of a number of grains over the period 2000 to 2007. The actual price data for rice, wheat and maize is compared to a simulated 2000–2007 evolution of prices *had biofuel growth continued along the 1990–2000 trends*. The comparison reveals that the sharp change in biofuel production accounted for 30% of the *actual increase* in the aggregate real price of grains (39% for maize, 21% for rice and 22% for wheat) over the seven-year period. Alternatively, the expanding biofuel sector increased the aggregate real grain price by approximately 12% over that period.

A report to the US food industry has shown that even if the US ethanol sector had increased the US corn price by 60% (usual figures are 25 to 50%) between 2006/07 and 2008/09, the final impact on the annual growth of the US food Consumer Price Index (CPI) would be about +0.6 to +0.9%. This is an increase of 25 to 35% on the recent annual US food CPI growth rate of +2.5%. The effect of such an impact on the consumers' food bill is certainly not to be underestimated, but is not dramatic either.



*Terraced rice paddies near a Red Zao village; outside of Sapa, Lao Cai province, northern Vietnam.*

A working paper by the World Bank, leaked to the media in July 2008, created havoc. The World Bank index for food prices rose by 140% between 2002 and 2008. Minus the contributions from increased energy prices and a weak dollar, the report attributes three quarters of the increase (an increase in the price index of 105%) to biofuel expansion on the (disputable) account that supply shocks averaged out over the period, "non-biofuel" structural changes in demand were hardly noticeable and speculation, export restrictions and stocks effects would not have taken place without the increase in feedstock demand from the biofuel sector. However, the "methodology" employed is largely *ad hoc* and the results are questionable.

### Projections

A crucial aspect of projection studies lies in their modeling of the biofuel sector and its interactions with the other sectors of the economy, which varies critically with the type of model. Further, in practice, the extent of the price variations will depend on the assumptions used in the construction of the economic and "regional" sectors of each model. A crucial example in the case of biofuels is the inclusion or exclusion of the most recent policies such as the EU Directive on Renewable Energy. Other determining factors affecting the projections include the assumptions on future economic and demographic trends. Evidently, a direct comparison between studies is difficult and the different projections of prices and biofuel impacts are probably better looked at as a whole to extract the common global trends. These are presented in the qualitative analysis of several commodity markets experts.



*Men and women harvesting crops in Madagascar.*

## The experts' opinions

Most experts concur in naming the main factors behind the current food price crisis. These factors are interlinked and thus opinions differ in the prevalence of specific factors or in the sequence in which they may have aggravated each others' impacts on food commodity prices.

The longer term trends affecting agricultural markets from the demand side in recent times have been recognized as the structural change in the demand for food commodities – stemming mostly from population and economic growth in developing countries as well as biomass demand from the energy sector. On the supply side, the prospect of a decreasing growth in agricultural production – its causes range from technological limits to high energy costs and global environmental factors – also impedes the stabilization of the agricultural markets. In a few cases, governments' responses have further aggravated the speculative bubble around food prices by setting price ceilings or export limitations and bans for different crops in a number of countries.

Authors disagree about the pre-eminence of the biofuel sector in the crisis. As of 2007, the biofuel sector still represented the smaller part of the total demand for feedstocks. Fodder, food and seeds accounted for over 90% of the total demand. Yet, the *increase* in demand over 2006 to 2008 can be largely attributed

to the biofuel sector. If the biofuel sector has no doubt proved to be an aggravating factor, the fact that several international commodity stocks have been at long term lows in the same period – either because of a stream of supply shocks, the lack of market responsiveness to sustained supply shortages, or agricultural policies – made for an unprecedented circumstantial mix leading to the recent food price crisis.

This is widely viewed as a short term, transitional crisis. Yet the general consensus is that the more lasting demand and supply trends will slow down the adjustment process and ensure that agricultural commodity prices will stabilize above their pre-crisis levels. Prices started to decrease in the last quarter of 2008, receding to 2007 levels by January 2009.

## What to note from the comparison?

The unique combination of factors that recently affected the agricultural commodity markets led to a short term crisis, whose impacts will be felt over the mid-term. Meanwhile, the impacts of higher food commodity prices are not distributed evenly. Serious consequences will continue to burden specific regions and segments of the world population (net food buyers and importers), mostly in developing countries. While price impacts to date were shown to increase the food CPI's annual growth rates by a couple of percent in industrialised countries, there are no known figures on their specific impacts on food CPIs in developing countries. There, given the lower share of processed food in household food expenditure, high commodity prices are likely to be passed onto the consumers more directly.

With this in mind, the CGIAR Science Council points to the need for more research in next generation technologies for the large-scale production of bioethanol and biodiesel, while holding back on the implementation of current mandates for biofuel blends in the transport sector. Current technologies should be targeting small-scale production both in and for rural economies in developing countries, focusing on all potential applications for biofuels. This has been at the heart of the bioenergy research strategy at ZEF over the last couple of years.



*In a few cases, governments' interventions led to more price increases.*

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## China's balancing act between economic growth and environmental policy

China's economic rise epitomizes the incipient 21<sup>st</sup> century: In just thirty years, the Chinese leadership has pushed ahead with modernizing the economy, making the country the world's fourth largest economic power.

Environmental policy was not an element of China's growth ideology, however. The country's natural resources – soil, water, air – have been exploited and polluted to a critical level and industrialization is now destroying the basis for life of 1.3 billion Chinese.

It was only in 2005 that the Chinese government announced its intention to build a resource-efficient and environmentally friendly society, coupled with the ideal of a socialist harmonious society.

Environmental conditions in China are depressing: 31 of the world's 50 cities most affected by air pollution are in China. A third of China's territory is affected by acid rain as a result of emissions of sulphur dioxide and nitrogen oxide. As far as CO<sub>2</sub> emissions are concerned, China is second only to the United States. In addition, the country is suffering from a water crisis: 300 million people do not have access to clean drinking water.

Five factors in particular contribute to this environmental pollution: China's industrial growth, which is rapid but hardly resource-efficient; demographic pressure with an annual population increase of 13 million people; the speed of urbanization with a rural exodus of 300 million people; the country's "westernized" consumption pattern; and its inadequate environmental policy.

There are increasing signs that China is willing to make use of the environmental policy instruments that have proved successful in other countries. China has joined most international environmental agreements, ranging

from the Framework Convention on Climate Change to the Montreal Protocol on the protection of the ozone layer. China's ecological modernization has long begun – largely unheeded by the world public.

The Chinese government is endeavouring to increase energy efficiency against the

background of the country's great dependence on oil imports and the environmental problems connected with the use of coal. Key importance is being given to a technology and innovation policy that helps Chinese companies to promote research and development. Regulations governing foreign direct investments ensure the transfer of cutting-edge technologies, thus skipping earlier stages of development.



*Rush hour in Peking.*

China has great potential in the field of exploitable, renewable energies. The opportunities for wind energy, biomass and solar energy are tremendous. The aim is to derive around 16% of energy from renewable sources by 2020.

The Chinese government is pursuing an ambitious programme to expand nuclear energy as a "clean" alternative to coal. The country's nine current nuclear reactors are to be joined by 32 new reactors over the next twelve years.

In 2007, the Chinese government presented its first Climate Protection Plan, the first official document on climate change in China. In this document, it reiterated its aim of reducing 20% of energy consumption per unit of GDP by 2010, logically linked with a reduction in CO<sub>2</sub> emissions. China has come to realize that it shares responsibility for global climate protection, even though it emphasizes that it is not mainly to blame for climate change.

Although China still has a lot of ground to make up with regard to ecological modernization, the country seems destined to become a pioneer in the sustainable use of resources. It already holds second place worldwide behind the United States as far as expenditure on research and development is concerned.

However, environmental successes will not depend on inventions alone but also on the will to actually implement the plans for a resource-efficient and environmentally friendly price and taxation policy. Premier Wen Jiabao for one is demanding that China clears its thinking of all obstacles in order to ensure that the next generation still has access to "green mountains and clean water".

This article is a summary of an article in the *Frankfurter Allgemeine Zeitung* of 26 May 2008, No. 120, P. 8 (DIE GEGENWART).

### Michael Bohnet

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## A question of fertilizers: Research on fields and farms in Uzbekistan

**H**ow much fertilizer does a field need? This is one of the questions addressed by researchers within the framework of the ZEF/UNESCO project on sustainable land and water use in Khorezm, Uzbekistan. One of the project case studies deals with adapting the old Soviet fertilizer management system to the changed agro-political conditions, making it more environmentally sustainable and efficient. To achieve this target, close cooperation with local farmers is required. The ZEF/UNESCO project has therefore been conducting scientific fertilizer experiments together with 16 farmers in the entire Khorezm region since 2004. ZEFnews reports on the research results achieved so far.

One of the farmers actively involved in the fertilizer experiments is Farkhod Abdullaev. He provided 10 hectares of his agricultural land for the project and his farm turned into a real research station. Today, Farkhod Abdullaev is quite a successful farmer in Khorezm. However, the path to this success was long and bumpy. Directly after national independence, the Uzbek government started a series of economic reforms, essentially restructuring the Soviet agricultural system. The *kolkhozes* and *sovkhozes* that shaped Farkhod's youth were by and by dissolved completely. Instead, smaller agricultural units of between 10 and 100 hectares were established. Each farmer can rent these parcels from the government for a period of 50 years.

The three-year experiment carried out by the project on Farkhod's land was divided into two parts: On one part of the cotton and wheat fields provided to the project, fertilizer only was applied according to agricultural research methods, and Farkhod and his workers remained responsible for all agricultural management interventions such as seeding, irrigation and weed control. On the other part of the research station, project members controlled and measured seeding, irrigation and other activities, while Farkhod merely allocated his workers and machines. The ZEF/UNESCO project purchased the fertilizer and reimbursed all of Farkhod's costs, including those resulting from crop failure arising in the course of the research work.



*Cotton harvest in Khorezm.*

The fertilizer experiments consisted of giving the cotton and wheat plants fixed amounts of fertilizer, and subsequently monitoring their growth during the vegetation season. From the differences in yields, the researchers determined what amount of fertilizer is required for which specific yield volume and quality of cotton and wheat. The harvest products, i.e. the cotton fiber and wheat kernels, were analyzed in laboratories to determine their quality.



*After independence, small agricultural units replaced the Soviet system.*

The experiments showed that Farkhod was able to generate very good wheat yields with his current fertilizer and irrigation management. Nevertheless, the quality of his wheat and therefore the baking quality of the flour remained low. Here, additional fertilizer, applied later in the vegetation season, showed great effects. In the future, it will also be important to experiment with different wheat varieties which can give high yields of high quality under irrigated conditions.

In the case of cotton, we were also able to provide some recommendations on the basis of our research experiments. The research showed that when farmers apply fertilizer too early in the season, when the plants are still small, a large amount of fertilizer is lost to the air in the form of greenhouse gases or is leached into the groundwater. These losses subsequently harm the environment and increase the costs of fertilizer for the farmer unnecessarily.

The research results will now be communicated to the respective scientific and political institutions and to all farmers in the region interested in the experiments – such as Farkhod. Our recommendations can thus be implemented at the appropriate decision-making levels.

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## At a glance

### First students start in ZEF-led Program for Development Studies at DAAD-initiated "Centre of Excellence" in Ghana

On January 19, 2009, the first batch of students started their doctoral courses in the Program for Development Studies at the new Ghanaian-German Centre for Development Studies and Health Research in Accra, Ghana.



The Program was set up jointly by ZEF and the Institute for Statistical and Economic Research (ISSER) at the University of Ghana, Legon. It is one of the five Centres of Excellence in Development Studies in Africa, initiated in 2008 by the German Academic Exchange Service (DAAD), who selected seven proposals out of 70 applications for further funding. The Program for Development Studies will be funded for a five year period with a total sum of 1.5 million Euro.  
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ZEF is collaborating with "The Economics of Ecosystems and Biodiversity" (TEEB) study, led by Pavan Sukhdev. In this context, ZEF hosted a meeting of a group of 30 leading international scientists contributing to the scientific part of the study from January 12–14, 2009. The scientists in the fields of environmental and ecological economics as well as ecology came together to discuss the study on the value of biodiversity which is due to be published at the next Conference of the Parties (COP) to the Convention on Biological Diversity in Aichi-Nagoya, Japan, in 2010.  
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### A piece of prize: ZEF part of a prize-winning CGIAR research consortium



The 2008 winner of the CGIAR's King Baudouin "Science Award for Outstanding Partnership" is the CGIAR Program for Sustainable Agricultural Development in

Central Asia and the Caucasus (CAC). The Consultative Group on International Agricultural Research awards this prize biennially. ZEF is among the partners running the Program in Central Asia. Christopher Martius, a ZEF Senior Researcher and Associate Professor at Bonn University, is currently Head of the CAC Program's Facilitation Unit (PFU) based in Tashkent, Uzbekistan.  
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## Facts & news

### Afghanistan Symposium at ZEF: "Beyond the State – Local Politics in Afghanistan"

From 26–28 February 2009, ZEF hosted a symposium entitled "Beyond the State – Local Politics in Afghanistan", funded by the German Foundation for Peace Research (DSF), the German Technical Cooperation (GTZ) and the German Foreign Office. Around 50 experts from Afghanistan, Europe, the US and Australia participated in this workshop.

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### Workshop on Water Policy under authoritarian Regimes at ZEF in Bonn, March 24–25, 2009

This workshop aims at analyzing and making sense of processes in authoritarian regimes with respect to water reforms, drawing from a broad set of cases. In discussing such cases and the questions they present, the workshop aims at embarking on developing an innovative set of ideas concerning how an analysis of water policy dynamics can be undertaken in state-centric water policy regimes.

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### "Habilitation" at ZEF

Peter Mollinga, senior researcher in ZEF's Department of Political and Cultural Change, finished his "Habilitation" procedure with a public lecture on "The sociology of coffee drinking in south India". He received the title of Professor from the Agricultural Faculty of the University of Bonn and is now, as an Associate Professor at the Faculty, entitled to confer PhD degrees.

Hartmut Ihne, former Director of ZEF Consult, was elected President of the Bonn-Rhein-Sieg University of Applied Sciences by the University Council and the Senate. He started his new position on November 3, 2008.

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If you want to receive regular invitations and information on our publications and events, please contact us at [presse.zef@uni-bonn.de](mailto:presse.zef@uni-bonn.de)

## About farmers, cotton fields and field-research in Southern Uzbekistan

What has independence from the Soviet Union brought local people in the Central Asian region? This is one of the questions addressed by researchers involved in the ZEF project 'Local Governance and Statehood in the Amu Darya Border Region'. They are searching for answers by conducting comparative social-science research on the political processes and decision-making structures in the border region between Uzbekistan, Tajikistan and Afghanistan since independence. In pre-Soviet times, the region bordering the Amu Darya River formed a culturally coherent area. ZEF news reports on a case study conducted in the southern Uzbek province of Surkhondarya, dealing with processes of local governance and socio-economic structures at the local level since national independence in 1991.



*Uzbekistan's rural population saw several rounds of institutional restructuring.*

### Post-Soviet developments

The years since independence brought several rounds of restructuring to Uzbekistan's agrarian sector. Thus, the rural population saw the dissolution of their collective farms, a privatization of their agricultural lands and a reform of local administration structures. In Soviet times, the *kolkhozes* and the *sovkhoses* were institutions with comprehensive functions in the rural areas, guaranteeing the population a certain level of social security. After independence, this organizational framework with its intrinsic institutional and social infrastructure disintegrated and was replaced by new local administrative units, the *mahallas*.

On the one hand, many observers describe the current Uzbek regime as authoritarian, controlling and penetrating the whole of society. On the other hand, the Uzbek state in fact lacks the necessary resources to do so and can only maintain a rudimentary social system, providing a minimal degree of social security. Moreover, very distinct regional organizational structures have emerged due to geographical conditions. The field research for this study was therefore conducted in two different regions: in village communities in the mountainous areas of Surkhondarya, where cotton cultivation is not possible, and in a typical cotton-producing area in the province.

### About mountains and cotton

On the one hand, we have the mountainous area of Surkhondarya as an economically peripheral region where central state influence is low. Economic as well as political self-regulation therefore prevails, allowing the development of a relatively liberal economy since independence.

Agricultural production is characterized by individual family enterprises, which are quite independent of the central state. There is a high employment rate – due to a high degree of labor division and a wide range of options for wage labor.

Additional sources of income such as labor migration – predominantly by young men – and extensive subsistence agriculture offer families in the region a sufficient standard of living. Natural resources such as land, water and pastures are also available for individual use to a much wider extent than in the cotton-producing region, where they are part of the state-regulated production system. Therefore, the population in the mountainous region has far-reaching autonomy, on the one hand with regard to the local farmers, on the other hand with regard to the local administration unit, the *mahalla*. The latter is neither involved in agricultural production, nor in the allocation and distribution of local natural resources and the regulation of communal issues.

On the other hand, the cotton-producing area in the province of Surkhondarya is highly controlled by the central state, which still dominates the economic organization of these areas of national economic importance. Despite an official policy of privatization, local farmers here are much more closely connected with the central state and bound to production targets than those in the economically peripheral mountainous areas, where no strict production targets and resource control prevail.

The state-controlled agricultural industry still forms the major source of income for most of the local households in this region. And despite wide-spread labor migration, individual families are still dependent on the central state to a large extent.



*Subsistence agriculture is widely spread in Surkhondarya.*

### A mixture: Traditional and new structures

Traditional institutional and governance structures apparently survived under a thin Soviet institutional facade. This was due either to the fact that the Soviet system was too weak to really penetrate society permanently



*Traditional social institutions barely play a role in the region.*

— especially on the local level — or that it consciously aimed to build up the process of the collectivization of traditional social institutions and structures.

But following the dissolution of the collective state enterprises, no revival of traditional or pre-Soviet structures and institutions can be observed either in the cotton-growing or the mountainous region. The institutional vacuum in the mountains, where the state

has withdrawn from local decision-making due to a lack of interest, is barely filled by traditional communal institutions. Moreover, a quite liberal economic system has developed here, characterized by individual economic actors as local decision-makers and mediators between the population and state organizations.

The presence and relevance of state institutions and actors is by far stronger in the cotton-producing region. The *kolkhoz* institutions still live on in a combination of farmers' enterprises and *mahalla* administration. The *mahalla* and its institutional mechanisms seem to function best when such continuity is given and the state expresses its interests through the local administration. Here, the Soviet structures, whose institutions shaped the political and societal system for decades, are still of high significance in the social order of the people and as a frame of reference for their daily interactions.

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## Recent ZEF Publications

- ▶ Abdullaev, I., Kazbekov, J., Manthritilake, H., Jumaboev, K. 2008. Participatory water management at the main canal: a case from South Ferghana Canal in Uzbekistan. *Journal of agricultural water management*. AGWAT 2668 1–13.
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- ▶ Wünsch, T., Engel, S., Wunder, S., 2008. Spatial targeting of payments for environmental services: A tool for boosting conservation benefits. *Ecological Economics* 65: 822–833.

## On the right track: Capacity building in the GLOWA Volta Project

When Gildas Boko applied for a five-month internship with a doctoral student in the GLOWA Volta Project (GVP) who was doing her field research in Burkina Faso, he did not realize this internship would be the start of a long-term cooperation with the GVP. Gildas is originally from Benin and was, when he started working with the GVP, in his second year at the International Institute for Water and Environmental Engineering (2iE) at the University in Ouagadougou, Burkina Faso. At first, he assisted the doctoral student with looking into the siltation of small dams using surveying technologies and soil sample devices.

Once enthralled by scientific research, Gildas wanted to extend his knowledge even beyond the internship and was taken on by the project as a technical assistant for climate research. Now he looks after the project's climate stations and has successfully completed his Bachelor with the support of the GVP. In July 2008, Gildas was at ZEF in Bonn to attend advanced applied courses. This year he will get his Master's degree in "Water and Sanitation" in Burkina Faso.



*Climate station in Boudtenga, Burkina Faso.*

contribute substantially to the project.

A research and training consortium established under the ZEF-led GVP and executed together with the United Nations University – Institute of Natural Resources in Africa (UNU-INRA) and the International Water Management Institute (IWMI) organizes the local capacity-building activities in Ghana and Burkina Faso to ensure a sustainable follow-up of the newly developed technologies with special regard to a successful knowledge transfer. This enables not only the students but also the already established local partners to make use of the GVP's scientific outcome for decision support. Eight workshops and seven training courses have been organized in Ghana and Burkina Faso and more are at the planning stage.

Gildas attended quite a few of them, sometimes as a student, sometimes as a lecturer. And since his enthusiasm is unstoppable, he is already thinking about a PhD topic.



*Gildas Boko assisting with climate research in Burkina Faso.*

Besides Gildas, another 44 students from West Africa have made essential contributions to GVP research. They were supported by the GVP's research network of Ghanaian and Burkinabé partners. In the framework of the GVP, 81 students have been trained, of whom 57 have graduated so far. Remarkable is the high rate of African students returning to their home countries after graduation: 84%. Many of these students are still affiliated with the project in their new positions and

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## Viewpoint

# "People fail to understand the economic cost of the neglect of nature"

Interview with Pavan Sukhdev (study leader of "The Economics of Ecosystems and Biodiversity" (TEEB))

*TEEB is an international study on the global economic valuation of biodiversity and ecosystems. It is comparable to the "Stern report", which was an economic assessment of the value of climate change impact, published in 2007. One of four parts composing the TEEB is a scientific assessment, written by a group of independent leading international scientists in the fields of environmental and ecological economics. The study is financed by the European Commission and due to be published at the next Conference of the Parties (COP) to the Convention on Biological Diversity in Aichi-Nagoya, Japan, 2010.*

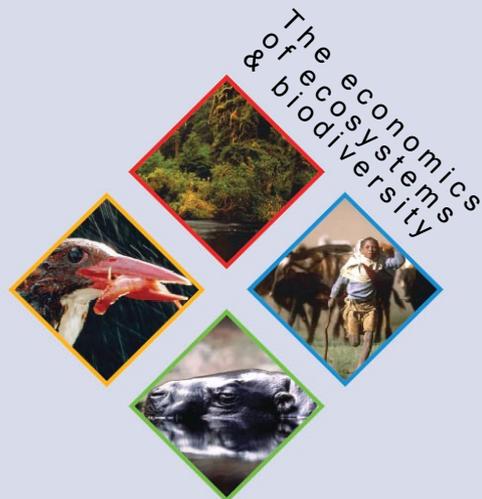
### Mr. Sukhdev, is there really a lack of awareness that biodiversity is important for us?

Yes, but I think the TEEB project is doing everything that can be done to bridge this awareness gap. Even climate change is better understood, although we are only just beginning to see its effects on agriculture and on coastal communities. But the effects of ecosystem degradation and biodiversity loss have been hitting us consistently for the last 25 to 50 years, and we have simply been ignoring them – partly because of other problems, partly because most ecosystem services (clean air, fresh water, etc.) are public services. Thus, people do not personally pay for them. It's an easy mistake to believe that if the cost is zero the value is also zero. And what TEEB is showing is that there is a huge value involved and if you lose it there is a huge loss, even if this does not affect markets.

### Compared to the Stern Report on the economic impacts of climate change, you are dealing here with an issue that is much more complex than CO<sub>2</sub> emissions. How do you want to tackle this?

In the case of climate change, the underline is relatively straight forward and easy to understand: it is about green house gases and their effects. What is complex about climate change are the many different effects it has on ecosystems, on species, on geophysical factors, on the planet itself and on human society and economies. What is also complex is our ability to change or prevent that impact and, if we fail to do so, our ability to adapt to the changes.

In the case of ecosystems and biodiversity everything is complex from day one. Firstly, there is no single underline. There are very different concepts of what biodiversity is. We try to eliminate this by providing some consistent definitions and frameworks. There are



also many misconceptions about biodiversity. One big misconception is that only the rich part of the world is concerned about biodiversity. This is wrong since the biggest concern about biodiversity regards those people who depend upon it most – the world's poor. 1.3 to 1.6 billion people depend on biodiversity for most of their needs.

I think we should respect the way that the Stern review and the movie "An Inconvenient Truth" by Al Gore contributed to bringing the topic of climate change onto the global political agenda. We should learn from it, but we should also understand that our challenges are bigger, because our area is more complex.

### You mentioned the significance of biodiversity for the poor. Will the emphasis on poverty impacts convince the rich countries to become active?

It will not be fully convincing. But I think it will add one further argument, one further reason why they should change their behavior. I think the sort of argument that will change their behavior is the decline in the flow of ecosystem benefits and the decline in their opportunities to benefit from the businesses that originate from ecosystem services. There is a whole host of new business opportunities which are coming through in the shape of REDD – the scheme for reduced emissions from deforestation and forest degradation –, bio mimicry, renewable energy and organic and sustainable agriculture.

The question is who will capture these new opportunities? Will it be the rich world or will it be some new emerging countries like India or China? I think the rich world has got to wake up and compete

for these opportunities. I think the lesson that the recent economic crisis has taught us is that there is something wrong with the way that the corporates of today imagine that they can keep making sustainable profits in the future on the basis of today's economic model. They cannot.

**Given the complexity of biodiversity, uncertainties in the reliability of valuation techniques, and also uncertainty about the link between biodiversity and services, how big do you think is the risk that the TEEB report will come up with a figure which is very uncertain and will therefore not be taken seriously.**

We are not talking about a figure. The project provides recognition of our dependencies as a society and as an economy on the flows that come from nature. It shows that these economics are real, that they are quantifiable, and that there is a possibility of future growth at the bottom of the welfare pyramid. The problem is that the economy is like a stool which has four legs: It has financial, human, social and natural capital. But if you only focus on the one leg of the stool called financial capital, well, you should not be surprised that it's unstable.

**The question is how much nature we actually need.**

Yes, the question is how much nature you can trade-off. This is what TEEB is actually about. It's about making people recognize that there are values to the trade-off and that we have been making that trade-off all along without attaching a value to it. We have only looked at the results saying: 'Here is a factory, here is a housing estate, here is some GDP growth' and we keep forgetting: 'Here is a loss of ecosystem services, here is a loss of biodiversity, here is a destruction of forest'. TEEB is saying, well, if you wish to do a trade-off, first of all, please understand that there are values, use them and then you might come to different trade-off choices.

Now, what we are not saying is that this is the only way of understanding it. There is a human, societal and spiritual dimension to biodiversity. But in TEEB we think it's important not to neglect the economic dimension because that neglect is the cause of our problems today. It is not because people have not had a spiritual attachment to nature, not because people have a human disrespect for nature, it is because they fail to understand the economic cost of neglect.

**And what if the TEEB Report comes up with the result that further destruction or loss of biodiversity makes economic sense?**

Well, I'd be very surprised if it does because so far the interim report has come up with answers which suggest exactly the opposite. For example, looking at forest biodiversity only, the interim report suggests that the loss of natural capital has been in the order of two and a half to four trillion dollars every year (1 trillion

= 1,000,000,000,000). This loss has been going on every year for at least the last two decades. If we look at comparable losses, say, if you look at the financial sector, typical estimates of financial capital loss by Wall Street and City firms in 2008 are one to one and a half trillion dollars. Well, that's smaller than the amount of natural capital that was lost in the same year. And yet all the headlines are about financial capital losses. So, clearly, our thinking is a little bit warped.

**If the TEEB Report makes a strong case for the conservation of biodiversity, do you think this is the right moment to actually make change happen like the Stern Report helped to trigger policy changes?**

Well, I think we are already at a point where we have lost a lot of time. I think we should really have been acting on this ten years ago or maybe twenty years ago. Given how much material has been produced by serious economists in the last thirty years, clearly we have been acting slowly. But to answer your question, yes, I think it is a good moment, partly because Stern has given us the precedence that you can work out the economics of things which are not easily translatable into monetary terms, applying good economics, logic and common sense.

**And what are the policies that you are expecting to be developing as a result of TEEB?**

We want to see policy changes in four categories. One is that we want subsidies to be focused on tomorrow's priorities and not yesterday's priorities. So we think, for example, that it is uneconomical that subsidies for trawler fishing contribute to the complete depletion of fish stocks. The second area is that we want the people to reward the benefits of conservation and penalize the cost of destruction. Another area is that we want to ensure that there is adequate funding for conservation areas. At this moment, estimates for the short funding of conservation areas run between 30 billion and 50 billion dollars. And finally, we want new economic performance measures because today's matrix of GDP growth as the main focus of the system of national accounts and the main focus of our policy makers is clearly not something that has worked.

**The last question on a more personal note – what's your personal motivation to be the leader of the study?**

The need to see logic prevail and the right things happen. I think for too long humanity has been in the grip of warped thinking and it offends me to see that. Environmental economics is a passion for me, it's not just a subject, and so I'm just enacting my own passion, hopefully in the best interest of society and humanity – and, of course, nature.

The interview was conducted by Tobias Wünsch from ZEF in January 2009



# News from the Bonn Interdisciplinary Graduate School for Development Research (BIGS-DR)

Since September 2008 a further 26 new students from 19 countries (Benin, Brazil, China, Colombia, Ethiopia, Germany, Ghana, India, Indonesia, Iran, Kenya, Malawi, Malaysia, Pakistan, Philippines, Russia, Taiwan, Uganda, Ukraine, USA) have joined ZEF's doctoral program that enters its tenth academic year. Since its



ZEF Doctoral students of batch 2008.

inception in 1999, more than 400 students from more than 70 countries have participated in this international graduate program, whilst 180 students have graduated with a PhD degree.

Among the new batch of students is Liu Dan, a 26 year old Agricultural Economist from Sichuan Province in China. She is an agricultural economist who will do her doctoral research on the question of how to overcome the income gap between rural and urban areas in her home country of China by improving the rural social security system. "My professor, Yuansheng Jiang, participated in the ZEF Doctoral Program himself and is now Dean of the School of Economics and Management at the Sichuan Agricultural University in China. He strongly supported my coming to ZEF to gather international experience and learn interdisciplinary research methods."



Liu Dan from China.

Another student from batch 2008 is 34 year old Asghar Tahmasebi from Iran. Asghar did his MSc research on desertification and soil salinization and has already gathered a lot of professional research experience on the sustainable management of soil and water resources in the framework of the Desertification Control Project in Cooperation with FAO and UNDP in his home country.

Through his PhD research at ZEF he wants to become better equipped and qualified to contribute to solving his country's problems in these fields. Asghar says, "I'm really looking forward to learning more on how to approach these issues from an interdisciplinary perspective and how to integrate social and ecological aspects of natural resource management – and, of course, to profiting from the exchange with international scientists at ZEF". He will conduct his PhD research on indigenous ecological knowledge and nomadic pastoralists in Iran.



Asghar Tahmasebi from Iran.

More information on the program is available at ZEF's homepage [www.zef.de](http://www.zef.de).

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