



Editorial

As the world's population increases, the relationships between the economic development, poverty reduction, and the sustainable utilization of natural resources are becoming increasingly complex. Research at ZEF is aimed at improving (our and your) understanding of these relationships and, in the light of this research, ZEF teaching and policy advice. In 1998 the Center started a set of flagship research projects dealing for example with EU development policy, trade policy, and multi-disciplinary work on water management and on biodiversity. Future priorities will be influenced much by ZEF's distinguished International Advisory Board, which is introduced in this first issue of ZEFnews. ZEF has initiated an innovative doctoral studies program; the first class will start in summer '99. Also scheduled for this year are numerous research and policy workshops. ZEF researchers and their partners are increasingly involved in debate concerning policies of international and national, governmental and non-governmental organizations such as the World Bank, the EU, and Germany's federal ministries, and by the business sector.

Given the convenience of modern communications, you can easily find out about our activities simply by visiting our web page (www.zef.de). Nonetheless, we think a 'conventional' newsletter will help to keep our partners up-to-date on ZEF and its activities and hope it will prompt an even more 'traditional' reaction, namely that you visit us in person at our Center in Bonn, let us know your views, and assist us in building ZEF's intellectually stimulating research environment. Welcome!


Joachim von Braun
Director at ZEF

Controversial WTO Issues under Study at ZEF

Ulrike Grote and Susanna Wolf

While the World Trade Organization (WTO) has made substantial progress in liberalizing trade, doubts have been voiced concerning the social and environmental consequences of trade liberalization and their impact on developing countries. ZEF has focused its research on the two key issues currently under intense debate at the WTO, namely 'trade and development', which includes the integration of the least-developed countries, and 'trade and standards'.

Lomé Convention and the WTO

Lomé is not just a convention relating to bananas, but an agreement between the EU and its partners in Africa, the Caribbean and the Pacific (ACP) covering financial aid, preferential trade relationships and political dialogue. In the current renegotiations, one of the aims of the EU is to make the trade provisions compatible with WTO rules. It is therefore proposing regional economic partnership agreements (REPAs) on the basis of reciprocal free-trade areas. These agreements should replace the non-reciprocal preferential access to the EU market currently enjoyed by ACP

severe loss of tariff revenues. If trade diversion is high, the reduction of tariffs vis-à-vis the EU could lead to a transfer of rents to EU producers, instead of cheaper inputs for the ACP countries.

In March, a policy-management brief entitled *Looking beyond Lomé IV: towards practice oriented policies* was published by ZEF, Bonn, together with the *European Centre for Development Policy Management (ECDPM)*, Maastricht, and the *Groupement Économie Mondiale, Tiers-Monde, Développement (GEMDEV)*, Paris. In contrast to current EU policy proposals, the three think tanks propose shifting the trade negotiations from the Lomé framework to the upcoming millennium round of the WTO. This proposal foresees ACP governments being



Participants of a workshop about the future of EU-ACP relations, organised by ZEF together with ECDPM and the Friedrich-Ebert-Foundation.

products. Such free-trade agreements may be seen as a step towards greater trade liberalization in the ACP, but also entail disadvantages such as drastic reductions in

given adequate assurances that the EU trade-policy negotiations in the WTO will be in line with ACP interests and promote ACP membership in the WTO.

Within the new framework of liberalized trade, there is strong pressure from industrialized countries to impose trade sanctions against developing countries that neglect the environment. There is also fear in the West of losing competitiveness, based on the assumption that adherence to relatively high environmental standards entails higher production costs. Farmers are therefore calling for the protection of their domestic markets. Developing countries, on the other hand, are afraid of losing their access to developed countries' markets as a result of increasing 'green' protectionism, meaning that environmental standards are used as non-tariff barriers. To tackle this conflict, a one-year study entitled "Environmental standards and international competitiveness in the context of WTO" and financed by the Federal Ministry of Agriculture was launched in December 1998. Case studies in Brazil, Indonesia and Germany will compare production/processing costs and the impact of domestic environmental standards on the respective countries' cost structure for selected agricultural products. Based on the empirical results, the study will offer policy suggestions.

Child Labor

Should trade sanctions be imposed against countries that can produce at low cost thanks to low labor standards and the use of child labor? An international research group at ZEF looked into the effectiveness of imposing trade sanctions within the context of WTO to combat child labor. Its findings have been published in ZEF's Discussion Paper No.1: "Child Labor and the International Policy Debate". This paper provides an overview of the current debate on child labor and argues that, while trade sanctions may improve the working conditions of a small percentage of child laborers in developing countries, this approach might ultimately do more harm than good. The underlying economic conditions that lead poorer families to send their children to work must be addressed directly in the context of overall economic development policy if comprehensive solutions to the phenomenon of child labor are to be found. Also to be taken into account is the interrelationship between the market for schooling and that for child labor.



Dr. Ulrike Grote and Dr. Susanna Wolf are fellows at ZEF, department "Economics and Technological Change".

Information Technology for Economic Development

Arjun S. Bedi

A new research program at ZEF examines potentials and risks of information and communication technologies for low income countries.

Views on the role that may be played by information and communication technologies (ICTs) in the development process range from optimism about the opportunities they create to pessimism about the capabilities of developing countries to exploit these technologies to their benefit. The former view stresses the importance of "knowledge or information gaps" as a development constraint and asserts that the provision of these new technologies will help bridge the North-South gap. On a more sceptical note, it is pointed out that access to the new technologies is largely a function of the existing education, income and wealth distributions, and unequal access to ICTs may increase income inequality. More importantly, developing countries may have other, more pressing investment priorities. Devoting limited resources to ICTs, especially if there is only scanty evidence of investment returns, would be difficult to justify. Recognizing this need, ZEF has launched a research program that aims at examining the role of ICTs in economic development.

The completed first phase of the ZEF program provides an overview of current access to these technologies and a review of the existing empirical research findings.

Seibel et al. (1999) review current trends in ICT use and point out that the use of ICTs in developing countries is lagging far behind that in industrialized countries. They identify various potential uses of these technologies and finally, speculate on the nature of a regulatory environment which would be appropriate to encourage the diffusion of ICTs. Bedi (1999) provides a survey of the empirical literature on the effects of ICTs on various outcomes. A few notable points emerge:

- Studies that calculate consumer surplus usually find substantial welfare effects associated with the use of ICTs.
- Studies conducted at firm level indicate that there might be substantial time lags between ICT investments and their positive effects.
- Regarding the impact of ICTs on wages and employment, it appears that it is unwarranted, at least at present, to assume that ICTs have negative distributional consequences.

In the second phase, empirical studies that examine the effects of ICTs on rural incomes, productivity and welfare, are being carried out in Bangladesh (see box next page), China, India, Ghana and Peru.

A key outreach activity of the research program is a conference of ZEF with DETECOM and German Watch scheduled from 31 May to 1 June 1999. More details on the conference are available at ZEF's home page (<http://www.zef.de>).



Dr. Arjun S. Bedi is an economist and a fellow at ZEF.



*"What would you pay for my tomatoes?"
ZEF research on village phones in Bangladesh*

Photo: Abdul Bayes, Bangladesh

Village Pay Phones in Bangladesh

In a recent project conducted by the Grameen Bank, 100 cellular mobile phones were leased to women. ZEF and its partners in Bangladesh have carried out an initial socio-economic assessment of this pioneering program at the grass root level. On the basis of a survey of 50 phone owners and 400 users of these village pay phones (VPP), Bayes and von Braun¹ (1999) report that there are considerable economic and social benefits associated with the use of these phones. Salient features of the research are:

- On average, the VPP owners earn a net profit of about 7 US\$/week. The net profit constitutes from one-fifth to one-fourth of the total household income of the poor.
- The use of VPPs reduces the cost of communication. Surveyed users reaped a surplus of 1.4 US\$ from each call, and the benefit for the poor was greater than that for the non-poor (poor: 2 US\$; non-poor: 1.2 US\$).
- Market efficiency is raised: The selling prices of paddy in target villages were observed to be 6-7% higher than those in control villages, and the prices of foreign currencies from workers' remittances are also higher in target villages.
- The telephones also have a discernible social impact, enhancing the importance and status of the women phone owners.

¹ Bayes, A. and von Braun, J.: *Village Pay Phones and Poverty Reduction: Insights from a Grameen Bank Initiative in Bangladesh. ZEF Discussion Papers on Development Policy, forthcoming (1999).*

Enhancing the Potential for Carbon Sinks on Agricultural Land

ZEF's involvement in Amazonia

Manfred Denich and
Paul L. G. Vlek

Global warming is the most damaging environmental consequence of anthropogenic greenhouse gases (GHG) emissions into the atmosphere. These gases are produced from the burning of fossil fuels and aggravated by widespread deforestation. The most important GHG is carbon dioxide (CO₂), which is now emitted at a rate of 24 Gt per year worldwide, seventy times greater than that in pre-industrial times. Biological fixing of carbon on agricultural land in the tropics may help stabilize atmospheric CO₂ concentrations and simultaneously stimulate development activities through global environmental markets.

The Framework

In 1992, the UN Framework Convention on Climate Change was adopted with the aim of stabilizing atmospheric concentrations of GHG at a level that would prevent dangerous changes in the world climate. The Kyoto Protocol (1997) to the Convention sets legally binding GHG emission targets and

timetables to be met by industrialized countries. One instrument, the Clean Development Mechanism (CDM), allows industrialized countries to benefit from certified emission reductions by arranging emission reductions in developing countries and counting them towards their own reduction commitments. Afforestation and reforestation might be taken into account as CO₂ concentrations sink, but there is still dispute about how carbon bookkeeping should be handled.

Carbon Stocks of Fallow Systems

In cooperation with the Brazilian research institution EMBRAPA and the University of Göttingen, ZEF examined the potential of tropical land-use as potential sinks for GHG, in particular for carbon (C). In the eastern Amazon region of Brazil, researchers determined the C stocks (almost 50% of the plant biomass) of the traditional small-farmer fallow system involving 1-2 years of cropping, followed by 3-7 years of

Doctoral Studies

OBJECTIVES

ZEF has now started its *International Doctoral Studies Program for Development*. The program is an initiative on the part of ZEF to provide top-quality doctoral courses to striving young scientists engaged in various aspects of development research. The program is open to students from around the world, especially from developing countries, with outstanding Master or equivalent degrees in Economics, Political Science, Agricultural and Resource Economics, Engineering, Geography, Mathematics, Natural Science or Agriculture. In consultation with ZEF, students' doctoral theses may be submitted to any co-operating faculty in Germany or abroad (as sandwich models), and doctoral degrees may be awarded in any of the disciplines mentioned.

STRUCTURE

ZEF's doctoral program is multi-facultative and interdisciplinary, and is conducted exclusively in English. The overall duration of the doctoral program is fixed at 36 months. During the first year, candidates participate in a tightly-organized course program. Following successful participation in the course program, doctoral candidates conduct their research at a location abroad, in developing countries or in association with an international organization or national institute. In the third year candidates return to ZEF to write their theses. With intense study counseling and academic support services by tutors and mentors, the program is designed to take into consideration the academic needs of students from developing countries. ZEF research grants may be made available to successful candidates. Tuition for the entire program (3 years) is DM 25,000 or for the complete course program (first year) DM 10,000. Scholarships provided by DAAD and other donors are available for students from developing countries. ZEF also admits qualified candidates who are able to finance their doctoral studies themselves or have obtained a scholarship from other sponsors.

For detailed information about the entry requirements and course program contact the co-ordinator of the program, Dr. Günther Manske (Tel.: +49-(0)228-73-1794; e-mail: docp.zef@uni-bonn.de) or visit our homepage (<http://www.zef.de>).

fallow. Fields are prepared for each new cropping period by slash & burn. The C stocks of this crop-fallow system change rapidly due to the accumulation of biomass in crops and fallow vegetation, followed by carbon and biomass losses during field preparation and harvesting. The contribution of annual crops (maize, beans, cassava) to C storage is low, due to their limited stay in the field. More significant as a C sink is the fallow vegetation, which temporarily ties up between 2 and 40 t/ha above ground, compared with the 160 t/ha tied up by a primary forest in the region. Soil C stocks (in our case humus and root C down to a depth of 6 m) of both fallow systems and primary forest, range from 170 to 210 t/ha. Thus, the conversion of forest to agricultural land involves considerable loss of above-ground C stocks; on the other hand, C stocks in the soil may be conserved, provided the land-use system includes a fallow period.

Fallow Management

With the aim of increasing the C stocks in the fallow system, we tested two ways of stimulating the system's function as a C sink: (i) during the cropping period, we tried to raise the soil's C content by supplying plant material as mulch to the top soil and (ii) during the fallow period, we increased the above-ground C stocks by introducing fast-growing trees. Mulching in fallow systems is possible only with fire-free field preparation, a substitute for slash & burn preparation. The most important technical constraint on the first approach is the transformation of the woody fallow vegetation into a manageable mulch. Since manual chopping of the vegetation is impractical, the Institute of Agricultural Engineering of the University of Göttingen developed a tractor-driven bush chopper, which cuts and chops the fallow vegetation and spreads the chips homogeneously over the field. Initial trials have shown the system to be functional, and improvements have now been made to optimize the equipment.

The second option is based on fallow management. We enriched the natural fallow vegetation with fast-growing trees. After 2 years of fallow, the enriched vegetation had an above-ground C stock that was two to three times greater than a fallow without enrichment planting and was as high as that of 7-year-old fallow vegeta-

tion. This gain in C stock carries a price tag for the planting material and labor. We estimate the yearly costs for enrichment plantings to be US\$ 25 per hectare and additional tonne of stored C. One benefit of this management option is the possibility of shortening of the fallow period without diminishing C storage. With increasing pressure on farm land, this method becomes more important. Shorter fallow periods allow more land-use cycles within a given time span, thus increasing the agricultural productivity of the land. We estimate that enrichment plantings on Amazonian smallholder land could increase the land's C-sink potential by 0.2 to 0.3 Gt CO₂, equivalent to 3% of Germany's CO₂ emissions over a period of ten years.

Environmental Markets

Global trading in credits for the reduction of CO₂ emissions may be a poor substitute for actual reductions in emissions, but does constitute a new instrument in the development process. If stable CO₂ levels in the atmosphere are a desirable common good, C storage in tropical agriculture may play a role in future global environmental markets. In that case, farmers would be asked to provide land and labor as a contribution to a global environmental service, which regions with an



Field experiments on fallow management in eastern Amazonia: Traditional (right) and enriched fallow with fast-growing trees (left) after 2 years of fallow
Photo: M. Denich

over-production of CO₂ could use to their advantage. To ensure that fallow management works as a tool in C storage, it may be necessary to offer farmers incentives based on internationally accepted agreements and rules. Land-use planning would be needed for contractual fallow management in order to monitor whether contracts are fulfilled.

Dr. Manfred Denich is a fellow at ZEF; Prof. Paul L. G. Vlek is director at ZEF and head of the department "Ecology and Natural Resource Management".

ZEI recently co-sponsored a workshop on „International Trade, Labour Markets, and Integration" with Tartu University, Estland. In all, 20 participants (representing academic institutions from ten different countries) gave lectures or presented papers. ZEI hopes to hold a similar workshop in one of the other two Baltic states next year and perhaps make it an annual event.

New research at ZEI emphasizes the importance of labor market flexibility for a country's rate of employment. First results show empirically that countries with more flexible labor markets have higher employment rates and higher rates of participation in the labor force. The estimated employment effects seem to be large. A conservative estimate is: if Germany were to increase the flexibility of its labor markets to US levels, the employment rate would increase by 1.7%, almost 24% of the actual difference in employment rates between the two countries. In terms of income, this employment gain could bring about a 2.7% increase in German GDP per capita.

ZEI has launched a Parliaments' Forum on EU-Accession by organizing a high level conference on April 6 and 7, 1999. Keynote speaker was Nikolaus van der Pas, head of the EU's delegation for accession negotiations with the Central European states and Cyprus. These events offer a forum for discussion between leading MPs from the applicant states and high ranking representatives from the CEC and the EU member states.

On March 4, 1999 ZEI hosted a conference on „The Future of Euro-Atlantic relations" which brought together high level policy makers, diplomats, economists, and academic experts from the U.S. and Europe. The conference discussed recent developments and forthcoming issues in foreign and security policy, economic relations and cultural ties.

The Center for European Integration Studies (ZEI) closely cooperates with ZEF. The two centers together constitute the International Academic Forum Bonn (IWB). Research at ZEI contributes to resolving problems of European integration. Further information: <http://www.zei.de>

Desertification, Soils and Cities

Since the United Nations Secretariat for the Convention to Combat Desertification (UNCCD) moved to Bonn from its temporary seat in Geneva in January of this year, combating desertification has been one of the most frequently discussed topics in Bonn. ZEF has responded by initiating research on desertification in cooperation with Professor Nasr, ZEF Senior Fellow from Ain Shams University, Cairo, who has meanwhile reviewed the concepts of desertification and expanded on his ongoing research on water harvesting and desert cultivation in the Middle East and North Africa.

The Office of the Mayor of Bonn, ZEF and UNCCD have organized a series of events which are to take place in June: The International Week of Combating Desertification will start with an international scientific workshop on the management of

tropical soils, which will be held at ZEF on June 7 – 10, 1999. On June 7, the distinguished Dr. Daniel Hillel of Israel will set the stage for the workshop in a plenary lecture entitled "Terra Aqua Vitae - The Role of Soil and Water in Supporting Civilization" on the role of land degradation in the breakdown of civilizations from ancient Sumer and Babylon to modern times. At the meeting, about 30 renowned scientists will debate the ecological, agricultural, economical and political constraints and the possibilities of managing the level of organic matter (humus) in tropical soils. "Organic matter is for soils, what blood is for the body", explains Professor Paul Vlek, Head of the Department Resource Management at ZEF. "It is here, where all the physical, chemical and biological processes that conserve soils occur". Finding adequate techniques for conserving soil humus is therefore a prerequisite for restoring fertile, self-sustaining soils in tropical areas,

particularly in drylands threatened by desertification.

Immediately after this workshop, the 2nd Forum of Mayors on Cities and Desertification will be held in Bonn on June 11 - 12, 1999. The first Mayors' Forum was held in 1997 on the occasion of the ratification of the UNCCD in Rome in the belief that even cities situated far away from drylands are often affected by the outcomes of desertification processes, e.g. by the migration of rural poor who can no longer subsist on their degraded land. About 100 mayors from cities all over the world will come together in Bonn to discuss the role and responsibilities of cities and municipalities in land management and initiate project partnerships aimed at stopping land degradation in rural areas. Last, but not least, the International Day for Combating Desertification will be held at the UNCCD in Bonn on June 17, 1999.



Whether to invest in Marginal or Favorable Lands: Uganda

Soil-nutrient depletion is one of the most critical land-degradation problems in Africa. Declining soil fertility is accompanied by diminishing yields and represents a major cause of rural poverty. Since poor farmers lack the means to counteract nutrient depletion, they are compelled to exploit available natural resources in a non-sustainable manner, thereby exacerbating the problem of land degradation.

A new research project conducted jointly by the International Food Policy Research Institute (IFPRI) and ZEF will assess the impact of various factors and identify effective policy strategies for combating the vicious cycle of soil degradation now occurring in Uganda.

This research will utilize household, community, and market surveys to quantify the effects of past and present policies on soil-nutrient management along different 'pathways of development'. Market and household-level models will be developed to evaluate the impact of alternative policy scenarios on land management and their implications for soil quality, agricultural production and poverty.

The project will be carried out by an interdisciplinary team of researchers from IFPRI, ZEF and the Ugandan organizations NARO (National Agricultural Research Organization), Makerere University and MPED (Ministry of Planning and Economic Development).



New Publications from ZEF

The Poor pay most for Water



The number of countries facing problems of water scarcity and an inadequate water supply is rising. Already, there are 1.2 billion people without access to clean water, many of whom live in

20 developing countries classified as 'water-scarce'. In these countries, it is typically found that the poor pay particularly high prices for water, yet have the least water security. Water is not merely a natural resource, but also an economic commodity *and* a human consumption good or entitlement. The problems of water insecurity can be grouped under three main headings: availability, access and usage. Within the framework of a multidisciplinary approach to the analysis of water problems, a recent ZEF paper elaborates on these three elements, and points out sectoral and cross-sectoral gaps in knowledge. The paper by Patrick Webb and Maria Iskandarani, "Water Insecurity and the Poor: Issues and Research Needs" (ZEF Discussion Paper No. 2), concludes with a research agenda in support of improved policy design and action.

Grote, U., Basu, A., Weinhold, D.: Child Labor and the International Policy Debate. ZEF Discussion Papers on Development Policy No.1, Bonn, 1998.

Qaim, M., von Braun, J.: Crop Biotechnology in Developing Countries: A Conceptual Framework for Ex Ante Economic Analyses. ZEF Discussion Papers on Development Policy No.3, Bonn, 1998.

Seibel, S., Müller-Falcke, D., Bertolini, R.: Informations- und Kommunikationstechnologien in Entwicklungsländern. Trends und Potentiale. ZEF Discussion Papers on Development Policy No. 4, Bonn, 1999.

Dethier, J.: Governance and Economic Performance: A Survey. ZEF Discussion Papers on Development Policy No.5, Bonn, 1999.

Virchow, D.: Conservation of Genetic Resources – Costs and Implications for a Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, Springer Verlag, Berlin – Heidelberg, 1999.

von Braun, J., Teklu, T. and Webb, P.: Famine in Africa: Causes, Responses, and Prevention, Johns Hopkins University Press, 1999.

van Edig, A.: Wasserkonflikte im Nahen Osten; in: Blätter für deutsche und internationale Politik 8/1998.

Margarita Marino de Botero, Columbia, ZEF Board Member



Photo: Expo GmbH/J.Giesel

ZEF: You have been a member of the famous Brundtland Commission ten years ago, which called for sustainable development. How do you assess the policy actions for sustainable development since the messages of the Commission?

M. de Botero: Much less than we expected, but our expectations were very high. The message of the Brundtland Commission - the call for sustainable development policy - is being taken slowly and cautiously by governments. May be after Rio (1992) we needed a much more organized presentation to policy leaders about what we intended. The follow up and implementation of the message is vital and we hope that the United Nations will play a more substantive role in continuing and developing mechanisms with which governments will feel comfortable in following the suggestions.

ZEF: Your own actions express deep concern for sustainable development. What role does education and technology play in that context?

M. de Botero: I think education is the most important issue in both, understanding the dimension of the environmental crisis and solving it. Technology is an instrument and it needs to accompany the process of edu-

cation but as an instrument it should also be developed on the ground in the locality amidst other developments. There is a need to develop a technological culture that does not harm the environment, and that would not adversely impinge on social, cultural and institutional developments. So I feel technology is instrumental, while education is fundamental for sustainable development.

ZEF: You play a key role in one of the most exciting initiatives related to EXPO 2000 in Hannover, the 'Global Dialogues'. What is your vision of these Global Dialogues?

M. de Botero: The International Advisory Board of EXPO always thought, we would lack a substantive contribution in the whole

process of an EXPO at the end of this century without a reflection on the kind of society we have built. EXPO actually is a demonstration of the kind of wisdom, technology, artifacts, culture, that society has produced. We should use this opportunity to think over and reflect: is that the kind of society we will foster in the future, or can we derive from all this knowledge a more humane society? Can we introduce certain corrections in the way we have all contributed to modernization? Can we leverage other kinds of thinking, can we open spaces for other opinions, other visions? We are convinced with the ten heads of the dialogues, one of which ZEF is principally in charge of, that there is no way out but to install a society that learns and exercises dialogue.



ZEF's Distinguished International Advisory Board

ZEF is grateful that so far the following distinguished persons have accepted invitations from the Rector of Bonn University, Prof. Dr. Klaus Borchard - who himself is ex-officio member of the board - to join ZEF's International Advisory Board.

Dr. Jürgen ABhauer

Member of the Board, Research and Development, Hoechst Schering Agrevo GmbH, Frankfurt, Germany.

Dr. Margarita Marino de Botero

Former member of the Brundtland Commission; member of the Club of Rom; former Minister of the Environment, Columbia; Vice-President, EXPO 2000 International Advisory Board.

Prof. Dong Fu-Reng

Former Vice President of the Economic and Financial Committee of the Peoples Congress; senior research fellow of the Chinese Academy of Social Science; Professor of Economics, Wuhan University, China.

Dr. Robert D. Havener

Former Director General of the International Rice Research Institute (IRRI); member of numerous international boards and US foundations, USA.

Dr. Volkmar Köhler

President of Africa Foundation, Germany; former Under-Secretary (Parlamentarischer Staatssekretär), Ministry of Economic Cooperation and Development, Germany.

Prof. Monkombu S. Swaminathan

Former President of the International Union for the Conservation of Nature and Natural Resources; UNESCO-Cousteau Professor of Ecotechnology for Asia and a leading advisor in Indian policy-making, India.

Prof. Dr. Klaus Töpfer

Director General of the United Nations Environment Program, Kenya; former Minister of the Environment, Federal Republic of Germany.

Dr. Willi A. Wapenhans

Former Senior Vice President of the World Bank; economist; member of International Board of the Overseas Development Council (ODC), Washington D.C.

Professor Dr. Andreas Wimmer, University of Zürich and Director of the Swiss Forum for Migrationstudies at University of Neuchâtel accepted the Position as Professor for Cultural and Political Change at ZEF and will join as a Director of this Department in October 1999.

Professor Holm Tiessen, Senior Fellow in the Ecology/Natural Resources Program of ZEF, was awarded the prestigious Humboldt Prize in March in recognition of his work on nutrient cycling in tropical soils. Working from his current base at the University of Saskatchewan, Professor Tiessen maintains a strong research program in Latin America, collaborating with a host of national partners to elucidate ways to protect soil organic matter, one of the sources of life. Professor

Tiessen will use his prize to work at ZEF for several months in each of the coming years in order to strengthen the ties between the two research groups. He will co-host the upcoming workshop on organic matter in tropical soils, which is to be held from June 7-10, 1999. Professor Tiessen can be reached by e-mail (h.tiessen@uni-bonn.de).

Dr. Francis Matambalya from the University of Daressalam, Tanzania, received a prestigious Georg Forster scholarship from the Alexander von Humboldt Foundation in March 1999. He will join ZEF's Economics and Technical Change Program to conduct his planned research on the development of small and medium-sized enterprises in Africa in collaboration with ZEF.



„Bonn Dialogue“: Heidemarie Wieczorek-Zeul, Holger Baum, German Watch and Joachim von Braun, ZEF.

Ms. Heidemarie Wieczorek-Zeul, Germany's Minister of Economic Cooperation and Development,

gave a presentation entitled „The development policy of the German government in the European and international context“ at ZEF's 'Bonn Dialogue on Development Policy' on March 23, 1999. In a packed hall at ZEF, the Minister outlined her strategy for making Germany's EU presidency a success in the development field.

Aral Sea dilemma: In collaboration with Dr. Moustafaev of UNESCO, the long-term partner of BMBF in the Aral Sea region, Professor Paul L. G. Vlek and Dr. Nick van de Giesen of ZEF will conduct a feasibility study in the Khiva-Nukus-Menyak region in Uzbekistan to assess the possibilities of establishing a water-related agricultural project in the Aral Sea region. Rationale: To a large extent, the depletion of the Aral Sea is due to an enormous increase in the agricultural area placed under irrigation.

Diverse Roads to study Biodiversity at ZEF

Klaus Riede, Detlef Virchow, Christopher Martius, Manfred Denich

Recent decades have seen many national and international efforts to protect and conserve biological diversity. Even though international debate on the conservation of genetic resources started as early as the 1950s, it was not until 1992 that the *UN Convention on Biological Diversity* (CBD) was finally signed during the International Conference on Environment and Development in Rio de Janeiro. CBD promotes the conservation and sustainable utilization of genetic resources and the fair sharing of their benefits. Another important agreement relating to biodiversity is the *Bonn Convention on the Protection of Migratory Species* signed in 1979, an internationally binding instrument for the preservation of migratory animals. On the basis of the CBD, the Bonn Convention and Agenda 21, ZEF is conducting applied and interdisciplinary research in several areas relating to the conservation and utilization of biodiversity.

Animals: Migratory Species

Migratory animals travel up to several thousand kilometers during their migration cycle, often crossing many political boundaries in the course of their journeys. These animals depend on distant habitats for breeding, spawning, wintering or as stag-

ing posts during migration. Cranes, for example, use feeding areas in Extremadura, Spain, to rest during the long trips between their north Eurasian breeding grounds and sub-Saharan wintering areas. A great number of fish species migrate all the way down the Mekong river system, and others migrate upstream from the delta, to spawn in Tonle Sap Lake. Conservation of such habitats is crucial for the survival of these species. Scientists' knowledge of migratory animals has increased rapidly, partly due to the use of new technologies such as satellite tracking, but this wealth of scientific data is not readily available. In a joint venture with the Zoological Research Institute and Museum Alexander Koenig of Bonn, ZEF is developing the *Global Register of Migratory Species* (GROMS). Co-financed by the German Federal Ministry of the Environment (BMU), GROMS will collect knowledge from a wide variety of sources in a single database combined with a Geographical Information System (GIS). GROMS will contain fully referenced information on the migratory behavior, habitats, threats, protection status and population estimates of wandering animals. A user-friendly information retrieval system is currently being developed in conjunction with the Department of Geography of Bonn Uni-

versity. The system will allow distribution maps and migratory routes in GIS-format to be exported and combined with other GIS projects (e.g. on land use or population pressure). A prototype graphical user interface, further information and a discussion list on animal migration are accessible at the GROMS website at <http://www.biologie.uni-freiburg.de/data/riede/groms.html>.

Plants: Cost-Efficient Conservation

Plant genetic resources are the basis for the world's food security. Their protection and sustainable utilization is of prime importance for everyone. An institutional framework for the conservation and utilization of plant genetic resources for food and agriculture (PGRFA) is emerging. One key element in this framework is the *Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture* (GPA), which was adopted at an international conference hosted by FAO in Leipzig in 1996. Representatives of over 150 countries and international organizations attending the conference signaled their political will to continue and intensify efforts to conserve PGRFA. Research at ZEF co-funded by the Deutsche Forschungsgemeinschaft contributes to these efforts. Its aim is to provide decision-makers at different levels with information on how to set political priorities for conserving biodiversity as a contribution to sustainable development in the poorest countries. ZEF's concept is to develop more

efficient conservation strategies by focusing on the costs and the quality of conservation in gene banks, on farmers fields and in natural habitats. Investments in improved equipment for the conservation of germ plasm, for instance, will be effective only if care is taken to regenerate the conserved germ plasm at regular intervals. By combining cost-efficiency and quality assessment, the project will yield a powerful mechanism for monitoring implementation of the GPA. Within this project, ZEF fosters international cooperation with agricultural research institutes in Colombia, Uganda, Kenya and India.

Forests: Biodiversity in Amazonia

The practical implications of biodiversity conservation are being studied in two projects in Brazil. The projects are part of the SHIFT program financed by the German Ministry of Science (BMBF) in cooperation with the Brazilian Research Council (CNPq). In a traditional agricultural area in the eastern Amazon region, the „Zona Bragantina“ southwest of the city of Belém, fallow vegetation is an integral part of the local smallholder land-use systems. Ecological studies are being carried out in cooperation with the University of Göttingen and EMBRAPA Amazônia Oriental, Belém. The fallow vegetation is the result of slash & burn land-use cycles repeated for more than a century and is thus entirely ‘man-made’. The plant species in this vegetation are not found in primary forests. The diver-

sity of the vegetation depends on the floristic heterogeneity within the region and on soil conditions. However, as local farmers intensify land use and use more and more heavy machinery for soil preparation, common woody fallow vegetation is increasingly being replaced by floristically impoverished grass vegetation which is also undesirable agronomically.

A research project conducted jointly by the agricultural research center EMBRAPA-CPAA in Manaus, the State Museum for Natural History in Karlsruhe and ZEF is investigating the role of soil fauna in the nutrient cycles of natural rain forests and of man-made agroforestry systems in Central Amazonia. It has been found that the rate of litter decomposition - and therefore the speed of nutrient recycling - is determined by the macrofauna (large soil fauna such as earthworms, termites, or diplopods). In forests and various agro-ecosystems, different groups of macrofauna predominate. One goal of the project is to determine whether certain groups play key roles. In that case, the lack of such a key group would affect the efficiency of the decay process and thus the nutrient supply on which crop plants depend.



Dr. Klaus Riede, biologist, is organizing the GROMS database; Dr. Detlef Virchow, agricultural economist, is leading the research project on cost-efficient conservation strategies; Dr. Christopher Martius and Dr. Manfred Denich, biologists, are coordinating the research projects in Brazil.

New ZEF Research on 'Good' Governance

Jean-Jacques Dethier

A new ZEF research program on governance focuses on three critical issues:

- how public institutions and incentives affect efficiency and social welfare;
- how political rules constrain economic activity; and
- how legal systems facilitate market economies.

Governments typically perform much worse than markets because information, commitment, monitoring and enforcement issues are more complex in public than in private organizations. The objectives of governments are defined by a political process, while private firms simply look at the 'bottom line'. Interest groups and political parties have different incentives than voters. Agency problems are more severe in governments.

The governance framework is not supportive of private activity, and governance is a major cause of poor economic performance in developing countries, with cross-country variations. Regulation for rent-seeking purposes is pervasive. In many cases, people cannot rely on public institutions to be supportive of their demands for essential public goods because mechanisms of participation are not in place or democratization is being resisted. The rule of law is weak, and its weakness entails costly economic consequences. These institutional failures are often indicative of social fragmentation and political polarization.

Striving to improve governance involves finding appropriate incentive structures and not simply the right policy instruments, so that credible public commitments are in place and agents can realistically be expected to implement policies that maximize social welfare.



Dr. Jean-Jacques Dethier is a fellow at ZEF on leave from the World Bank

ZEF - Calendar

If not indicated otherwise, all events will take place at ZEF in Bonn. During semesters the ZEF Research Seminar will take place every Monday from 5 to 6:30 pm. For details on the program of the seminar as well as for all other events visit our homepage (www.zef.de).

MAY

3 - 4 May: Workshop „Governance and Development in China, India and Russia“.

31 May - 1 June: Workshop „Information and Communication Technologies and Economic Development“ (mit DETECOM und German Watch).

JUNE

7 June, 6 pm: Dialogue on Development and Ecology. Speaker: Dr. Daniel Hillel, Universität Massachusetts: "Terra Aqua Vitae - The Role of Soil and Water in Supporting Civilization".

7- 10 June: Workshop „Managing Organic Matter in Tropical Soils: Scope and Limitations“.

23 - 26 June: Workshop "New Perspectives for Monitoring Migratory Animals - Improving Knowledge for Conservation".

AUGUST

26 - 27 August: Workshop „Women Farmers: Enhancing Rights and Productivity“ (with Tufts University, Boston, (USA) and the University of Hohenheim).

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