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Preface

During the 2000/2001 academic year, ZEF was operating for the first time at full strength. The job of creating ZEF's three departments—natural science, economics, and politics and culture—and recruiting about 150 staff and collaborators was largely completed.

The boat is built, equipped with three masts, and ready to sail into the future. But setting a course for the next decade remained one of the major tasks of the past year. This effort included discussions with the International Board, the University leadership, and with senior staff of ZEF. Two priorities emerged from these discussions: further integration of the three departments and greater thematic cohesion. Both goals are served by priority crosscutting research, which facilitates integration across disciplines and thematic coherence.

In support of these goals, all three departments in the past year were engaged in designing a new research project on the ecological problems of the Aral Sea basin in Uzbekistan. During this process, many important lessons were learned about designing large-scale crosscutting projects.

Also during the past year, ZEF organized two large international conferences. Both events were meant to bridge the gap between the policymaking and research communities. In August, ZEF organized one of ten Global Dialogues of the Expo2000 in Hanover. In December, the international conference "Facing Ethnic Conflicts" took place in Bonn.

ZEF's International Doctoral Program now includes over 70 students from 27 different countries. Increasingly, doctoral research is related to ZEF's major research programs on crosscutting themes and is carefully integrated into its overall research agenda.

Research, teaching, and linking policy and research are the three pillars of ZEF's activities. This third annual report provides an overview of our activities.

This report illustrates the rich variety of activities and research topics, of approaches and methodologies that will continue to make ZEF a diverse and inspiring place to work and an important source of innovation and creativity.

To all those who have contributed with their energy and enthusiasm to make the past year a successful one, to our staff and to ZEF's international and German partners and donors, we wish to express our sincerest thanks.

Joachim von Braun

Paul L.G. Vlek

Andreas Wimmer



ZEF board members and directors at their meeting in August 2000.

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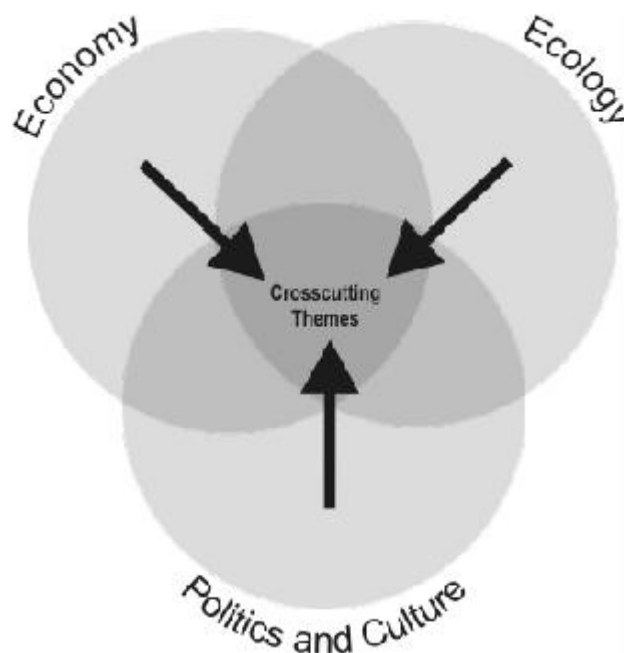
Research

ZEF's Research Strategy

Like other major issues facing the contemporary world, development is rarely encapsulated by a single problem fitting nicely into one of the disciplinary boxes that have emerged from the academic division of labor. Three examples illustrate this well-known problem. First, technological innovations require functioning markets and a favorable legal and political environment. Second, introducing new forms of governance, such as a democratic regime responsible to local constituencies, may create subtle economic and budgetary consequences or lead to long-term natural resource degradation. Third, an economically efficient mode of allocating natural resources through carefully introduced market mechanisms may entail political costs too high to make the option feasible, while at the same time having unintended ecological effects.

Thanks to its combination of ecological, economics, and social science knowledge, ZEF is in a unique position to address such complex linkages. This approach can improve our understanding of development and help formulate better recommendations to policymakers. ZEF's potential to deal with issues cutting across disciplines represents one of its major competitive advantages.

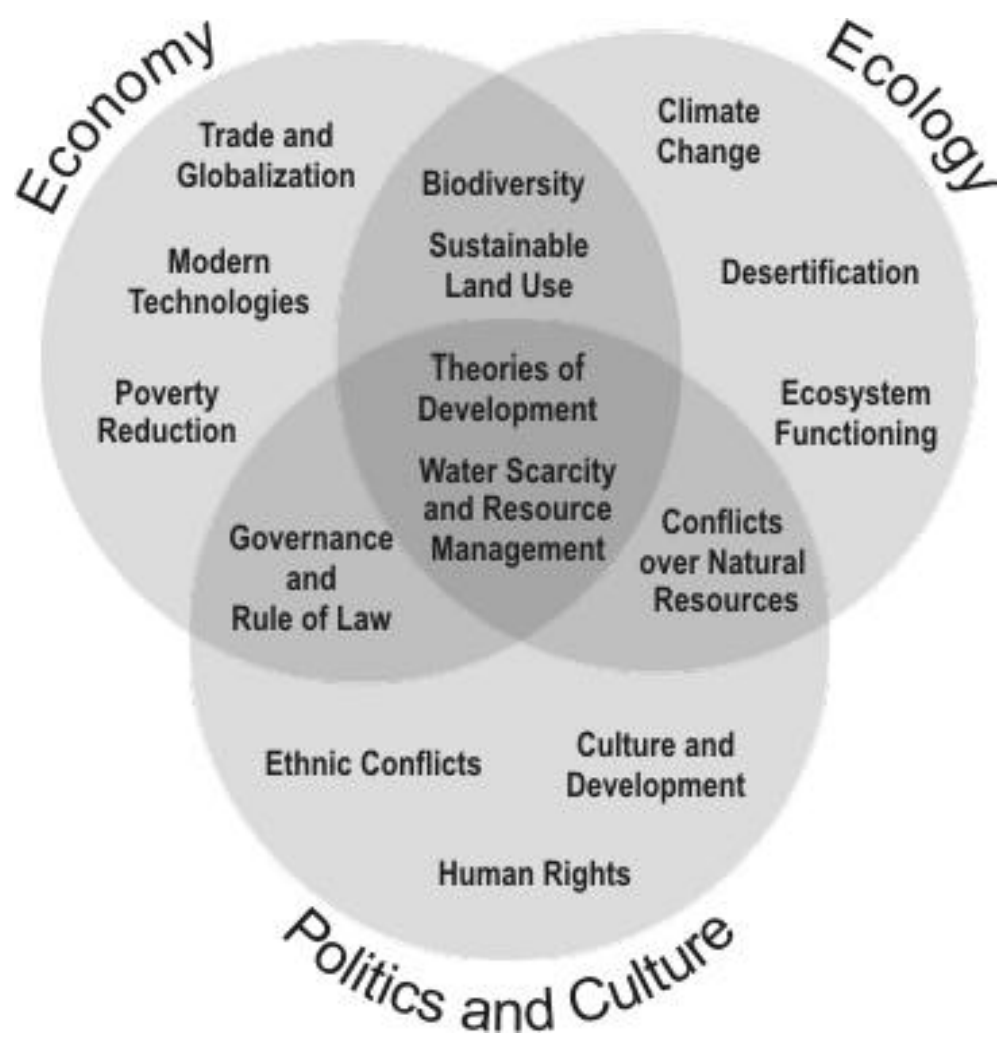
Accordingly, one of ZEF's main strategic goals is to move a substantial part of its departmental research activities toward crosscutting themes, as the following graph shows. We have identified four crosscutting research themes: theories of development and change; natural resource scarcity; poverty and equity; and governance and governability.





ZEF has already developed five research programs on crosscutting themes that link and integrate knowledge and capacities from different departments. They deal with biodiversity; sustainable land use; water scarcity and resource management; governance and the rule of law; and theories of development. Some of these programs, such as the GLOWA project on water scarcity, comprise several projects and are complex and differentiated endeavors; others, such as our current projects on theories of development, are much smaller. Some programs build on the knowledge of all major disciplines represented at ZEF, while others have somewhat less disciplinary overlap. Some programs show a strong but not yet fully realized potential for integrating different projects, while others have already achieved a high degree of integration. Finally, the projects are more or less related to the four large issues that were chosen as points of thematic convergence. Some fully correspond to one of these topics, while others are more loosely connected.

The following graph shows where the five crosscutting projects are situated in the disciplinary fields and which departments actively cooperate (or will cooperate) in implementing the programs. The graphic provides a snapshot of a process: some elements have accomplished our strategic goals, others are moving in the expected direction, while still others are not yet related to the strategic goals but are meant to move in that direction.





ZEF does not intend to focus its research activities exclusively on crosscutting themes. For many relevant research topics, a cross-disciplinary approach does not make much sense. The three circles thus are not meant to merge completely in the future. We have defined three thematic research programs in each disciplinary field. Some, such as the research on poverty reduction, have the potential to become part of larger, crosscutting, integrated research programs, while others will remain rooted in their current disciplinary field. There are four main criteria that have guided and will continue to guide the choice of such research programmes: excellence, relevance, coherence, and efficiency.

- *Excellence.* The project is innovative and original either in terms of its theory, methodology, or empirical outcomes. The project promises to yield new knowledge and innovative answers to important development questions.
- *Relevance.* The project is relevant to policymakers and promises to have long-term significance and policy impact.
- *Coherence.* The project fits into the existing research agenda or even directly contributes to a better understanding of one of the crosscutting research themes, or builds on the research priorities of ZEF's main stakeholders.
- *Efficiency.* The cost of the project is reasonable relative to its expected findings, and in view of ZEF's emerging comparative advantage.

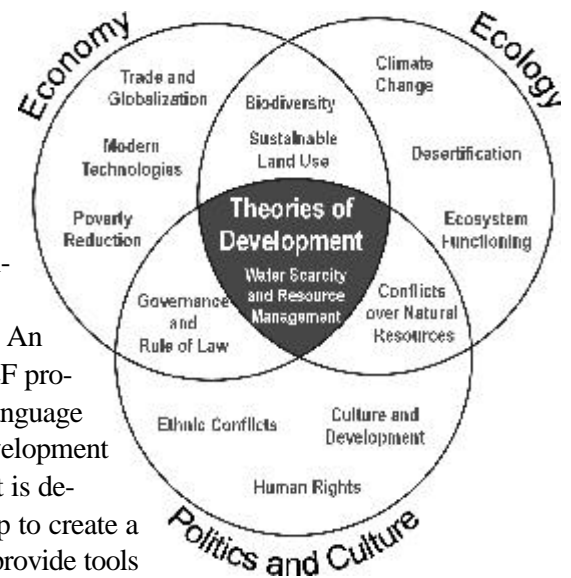
The following section on ZEF's research activities during the 2000/2001 academic year describes the different projects undertaken by our collaborators and staff, including our doctoral students. It is structured according to the logic outlined in this introduction: We first describe the five crosscutting research programs, and then the nine programmes in ZEF's three disciplinary fields.



Crosscutting Research

Theories of Development and Change

The concept of development is ambiguous. It is often used interchangeably with „process,“ „change,“ and „evolution.“ Different disciplines underline different aspects of the development concept and use different theoretical models to describe development and change. An interdisciplinary research institute such as ZEF provides an ideal setting to develop a common language and a minimum basic agreement on what development is about, how it is best understood, and how it is described. Asking such basic questions will help to create a shared scientific culture and will, eventually, provide tools for cross-disciplinary integration in common research projects. Theories of development and change are therefore an important crosscutting theme for ZEF, which is particularly well-positioned to address these issues, since it includes natural sciences, economics, and social sciences in one institution.



“Paradigms of Change,” a workshop expected to take place in 2001, is intended to focus on these issues. The workshop has been prepared by an interdisciplinary working group at ZEF during the past year. It will review some of the major new models on development and change that have been developed in the natural sciences, in economics, and in the non-economic social sciences over the last two decades.

Many of the most promising models originate in one disciplinary field and then are applied to other areas of research, thus “migrating” across disciplinary boundaries. Six such paradigms will be reviewed in the workshop: two from the natural sciences, two from economics, and two from the social sciences:

- The analysis of *non-linear systems* (such as in chaos theory) was first developed in mathematics and then in the natural sciences in order to understand climate change. Later, it spread to the economics of financial markets and other apparently non-linear phenomena and to the study of political revolutions.
- *Evolutionary theory*, the cornerstone of biological models of change, has made enormous progress in the past two decades, thanks to new modeling and simulation techniques. It has given rise to fast-growing branches of research in economics and the social sciences as well.
- The *economic theory of path dependency*, connected to the concept of increasing returns, is gaining ground in the social sciences as well and shows interesting parallels to evolutionary theory.

Wimmer, A: “Modernization as a Case of Transformation”, in: Elwert, G., Kohli, M., Krauth, W.-H. and W. Schelkle (eds.): *Paradigms of Social Change: Modernization, Development, Transformation, Evolution*. Campus Verlag, Frankfurt, 2001, pp. 77–89.



- *New institutional economics* approaches are closely related to social sciences approaches such as “neo-institutional” political science, and show similarities with some branches of evolutionary theory.
- In the social sciences, various *models of multiple modernization* have been generated and applied to the study of the developing world, mostly from a sociological and anthropological point of view. A second trend is the rediscovery of chance-driven events as major forces shaping the history of human societies.
- The comparative study of *constellations of contingency* has become an important field of inquiry in the past decades—not only in the social sciences, but in economics and the natural sciences as well.

All six paradigms share a common *modus operandi*. They go beyond older teleological theories of development and change, modeling process rather than evolutionary or developmental stages. They leave behind notions of equilibrium, reversibility, and certainty, to introduce disequilibria, irreversibility, and contingency. However, there are important differences in terms of methodological precision, theoretical style, and techniques of analysis.

The workshop aims to a) explore these commonalities and differences; b) discuss the possibilities and the limits of an extra-disciplinary use of each model; and c) foster cross-paradigmatic exchange and learning in an open, dialogic process.

The workshop builds on prior research at ZEF that has addressed, since its foundation, several theoretical problems of fundamental importance in understanding development and change. These projects have started from a clearly defined disciplinary basis and aimed at integrating new variables that usually are the focus of other disciplines. Please refer to the side bar for a selection of interesting results.

Stark, O.: "On a Variation in the Economic Performance of Migrants by their Home Country's Wage", ZEF-Discussion Papers on Development Policy, No. 34, Bonn, 2000.

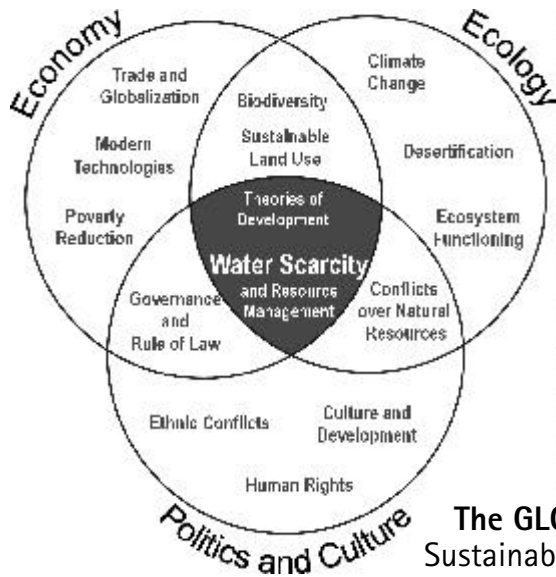
López, R.: "Growth, Poverty and Asset Allocation: The Role of the State", ZEF-Discussion Papers on Development Policy, No. 35, Bonn, 2001.

Vlek, P.L.G., D. Hillel, J.C. Katyal, W. Seiler: "Water Deficiency and Desertification", In: Ehlers E. and T. Krafft (eds.), *Understanding the Earth System: Compartments, Process and Interaction*. Springer Verlag, 2001, pp. 275 – 279.

Wimmer, A. „Cultura con o concertación”, *Revista Mexicana de Sociología* 62(4):127-157, 2001.



Water Scarcity and Resource Management



In the past year ZEF has started several research projects that try out interdisciplinary integration “on the ground” by answering concrete empirical questions from different disciplinary points of view. Two of the largest ZEF projects deal with natural resource scarcity. Both were designed during the past year, and one was launched. The project that is already under way focuses on the Volta River system; the other focuses on the Aral Sea in Uzbekistan.

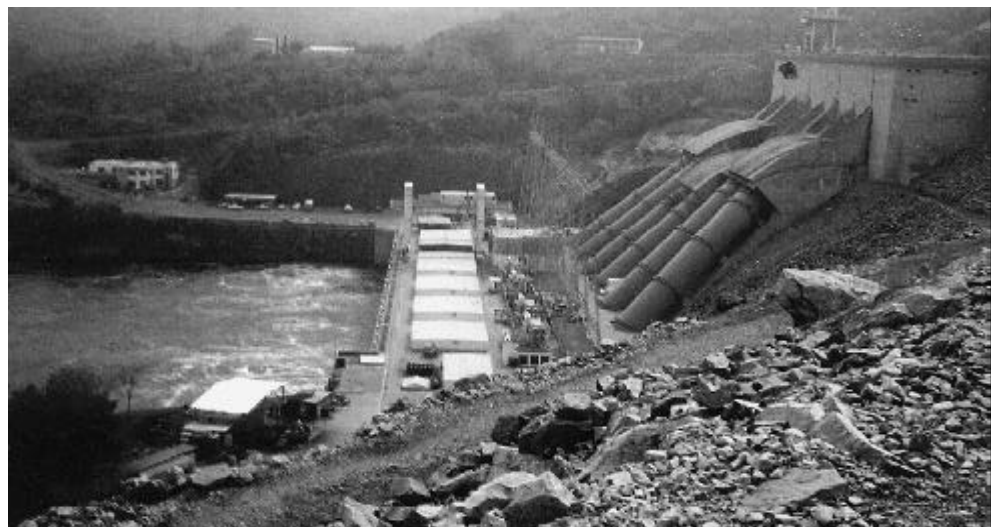
The GLOWA Volta Project Sustainable Water Use under Changing Land Use, Rainfall Reliability, and Water Demands in the Volta Basin

The GLOWA Volta project addresses the effects of global change on water use and water availability in the Volta River Basin of West Africa. The basin has an area of 400,000 km² and a rapidly expanding population of twenty-one million people. The objective of the project is to develop a scientifically sound decision support system for the optimal management of water resources. A central question is whether water should be used for hydropower generation in the urbanized south or for irrigation development in the rural north. The project will use river basin modeling to help answer this question.

This three-year project, which started in April 2000, is funded by the German Federal Ministry of Education and Research (BMBF). ZEF is the lead institute, but conducts the studies in cooperation with many partners. The research is divided into three clusters: atmosphere, land use, and water use. Each cluster is divided into several sub-projects undertaken by doctoral students.

River basin modeling is one of the competencies developed at ZEF. For the Mekong River, ZEF developed a model measuring the upstream-downstream, the intersectoral and the off-stream – in-stream water use and competition. The model and the results will be highly relevant for the GLOWA project and the Aral Sea project in Uzbekistan.

Ringler, C.: “Optimal Water Allocation in the Mekong River Basin”, ZEF Discussion Papers on Development Policy, No. 38. Bonn, 2001.



Hydropower generation in the south of Ghana.



Land use changes affect the hydrological cycle in three major ways. First, they alter weather and rainfall patterns due to changes in the mass and heat exchange between surface and atmosphere. Second, land use determines how much rainfall evaporates and how much becomes available as groundwater and in the rivers. Third, when land is brought under irrigation, land use directly affects downstream water availability. Modeling land use change and its impacts will play a central role in the project.

Availability of Water Resources

In the south of the basin, rainfall follows a pseudo-bimodal regime with a humid period during May-October and reduced rainfall in July and August. In the north, a monomodal regime provides rainfall from May/June through September. Average rainfall varies from 1250 mm/year around Lake Volta to 750 mm/year in the Sahel zone of Northern Burkina Faso. At the basin level, rainfall seems to have a rather even distribution from year to year; varying from -10 percent to +17 percent from the mean for the 1936-63 period. At the single station of Ouagadougou and for the same period, an average rainfall of 870 mm/year was found to have a large variation from -43 percent to +31 percent from the mean. Not only is the inter-annual variability high for any given location, but also the variability within a rainy season is very large due to the convective nature of most rainfall events. In West Africa, the onset of the rainy season is totally unpredictable, and this translates into a high risk for any agronomic activity.

Riverflow still varies much more from year-to-year than rainfall, and relatively small changes in yearly rainfall cause large changes in riverflow. For example, an average rainfall year of 1025 mm produces 93 mm of riverflow. A 10 percent decrease in rain causes the runoff to plunge to 38 mm, a reduction of 60 percent. Clearly, surface water resources in the basin are highly vulnerable to droughts. Changes in land use and land cover may, therefore, have an important impact on water resources.

Land Use Change

Data on land use and land cover in the Volta Basin are of crucial importance for the decision support system to be developed in the project. Changes in vegetation have effects on hydrological processes like evapotranspiration and regeneration of groundwater. The spatial and temporal distribution of land cover change therefore influences (directly or indirectly) the water balance of the Volta Basin. As water availability and demand is closely linked with economic development, the integration of socioeconomic processes affecting land use in the analysis and modeling of global change and hydrological processes is of great importance.

A methodology has been developed to scale detailed observations concerning land and water use, obtained through interviews at household level, up to the watershed level. Through an overlapping of socio-economic and natural sciences research sites, the data exchange between the subprojects is guaranteed. The actual modeling follows two methodologically new approaches:

- Land use modeling supported by remote sensing and geographic information systems, which allows large-scale assessments of how land use depends on

Research Partners in the GLOWA project:

- *Germany*: Remote Sensing Research Group and the Institute of Land and Water Management at the University of Bonn, the Fraunhofer Institute for Environmental Atmospheric Research (IFU) and the Institute for Tropical Medicine at Heidelberg University.
- *Ghana*: Remote Sensing Application Unit (RSAU), the Population Impact Project (PIP), the Institute of Statistical, Social and Economic Research (ISSER), all at the University of Ghana, Legon, and the Savanna Agricultural Research Institute (SARI), the Water Research Institute (WRI), Accra.
- *Burkina Faso*: Institut de L'Environnement et de Recherche Agricole, Ouagadougou.

van de Giesen, N., Kunstmann, H., Jung, G., Liebe, J. Andreini, M., Vlek, P.: "The GLOWA Volta Project: Integrated Assessment of Feedback Mechanisms Between Climate, Land Use, and Hydrology", in: *Advances in Global Change Research*, 2001 (in press).



Water shortage in the rural north of Ghana.



available land resources. Availability of water and nutrients will be assessed through the use of terrain analysis.

- Multi-agent programs, which help to simulate reactions of economic actors toward political and environmental changes, as well as toward social interactions (trades on markets, technological diffusion, migration).

Field research to quantify the parameters needed in both approaches is presently underway in Ghana.

Institutional Analysis

The main water-use sectors in Ghana at the national level are energy, household water, mining, and agriculture. At least in the dry season, when the level of the Akosombo dam is falling, competition between the water-use sectors is rising. The same holds true for the energy sector, where hydropower provides more than 95 percent of the nation's energy. One reason for this situation certainly is the low performance of all institutions involved in these sectors.

The institutional analysis has three goals: first, it will provide an "institutional mapping" of the different administrative levels, from international to local. Second, the institutional analysis will identify constraints for the planned water use optimization model that will be integrated into the decision support system. Third, it will help develop relationships with the relevant institutional policymakers, who could implement parts of the decision support system.

Cooperation between the riparian countries on questions of water use does exist, although only on technical issues and through informal channels. Cooperation in the field of water use lacks any formal agreement. This creates the potential for conflict, as Burkina Faso plans to extend its agricultural activities and therefore raise its water use through irrigation projects. At the same time, Ghana plans to extend the hydro-energy sector, as a result of the severe energy crisis that Ghanaians suffered in recent years. An extension of hydro-energy in Ghana would rely mainly on water coming from Burkina Faso. By integrating studies of different sectors in an interdisciplinary way, the GLOWA Volta project hopes to be able to contribute to a solution for these questions in future years.

The Aral Sea Dilemma

Ecological, Institutional and Economic Restructuring
of Land and Water Use in the Khorezm Region (Uzbekistan):
A Pilot Project in Development Research

Contrary to the situation in the Ghana river system, Uzbekistan's water shortage in general and the Aral Sea drama in particular have received an enormous amount of international attention during the last decade. The quantity of water flowing into the Aral Sea has drastically decreased since the 1960s, due to an ever-increasing demand for water from the tributaries for the irrigation of crops, as well as an inefficient and poorly managed irrigation system. High soil salinity, dust storms from the dried floor of the Aral Sea, and pesticide contamination negatively affect both agricultural production and public health in the region. Moreover, undefined exploitation

The results of ZEF's research on household water security in Jordan will also be relevant for the GLOWA Project. The study provides interesting new insights for policies of water (de-) regulation, which can be used for the decision support model that will be developed for the Volta basin.

Iskandarani, M.: "Economics of Household Water Security in Jordan", Peter Lang Verlag, Frankfurt, 2001.



Aral Sea

rights and maintenance obligations are compounded by a lack of incentives for investment in soil quality.

Focusing on causes rather than on symptoms of the Aral Sea dilemma, ZEF's three departments have jointly developed an integrated research approach together with partners in Uzbekistan. The German Federal Ministry of Education and Research (BMBF) provided the funding for a project-development phase from April 2000 to March 2001.

The outlines of the proposal were defined during three missions to Uzbekistan and a workshop held at ZEF in October 2000. As the Amu Darya is the largest river in the region, it was chosen as the central area of investigation. The base of the project will be located in Khorezm, an ancient agricultural district on the lower Amu Darya that is known as an "oasis" and has been a cultural center on the edge of the Silk Road for centuries. Preliminary assessments by ZEF and its partners—including UNESCO, researchers from the State University Urgench, and scientists from different institutes in Tashkent and Nukus—revealed, for example, that improving efficiency in the use of water for irrigation could probably increase the availability of water by a factor of four or more, to the benefit of both humans and nature.

As a result of this pre-project phase, a project proposal was developed that has already been approved by the government of Uzbekistan. The proposal was submitted in April 2001 to BMBF for funding.

The proposed project aims at a medium- and long-term improvement of the ecological and economic sustainability of land and water use in the region, taking into account both legal-administrative and institutional constraints. Due to the complex nature of these problems, much emphasis has been put on the coherent integration of natural resource management and economic and legal-administrative analysis into a shared project frame. The project will address the efficiency of soil and water utilization through landscape restructuring and the improvement of agricultural efficiency; the reduction of contamination of soil and water with salts and pesticides; the control of pollution with airborne salt and dust transports; and the purification of drinking water supplies. At the same time, an economic analysis of agricultural production, water and air quality, and health, as well as legal-administrative analyses of land tenure, *de jure* and *de facto* competences and procedures in water allocation, and the agricultural producers' position will provide strategies for improving human well-being and alleviating poverty.

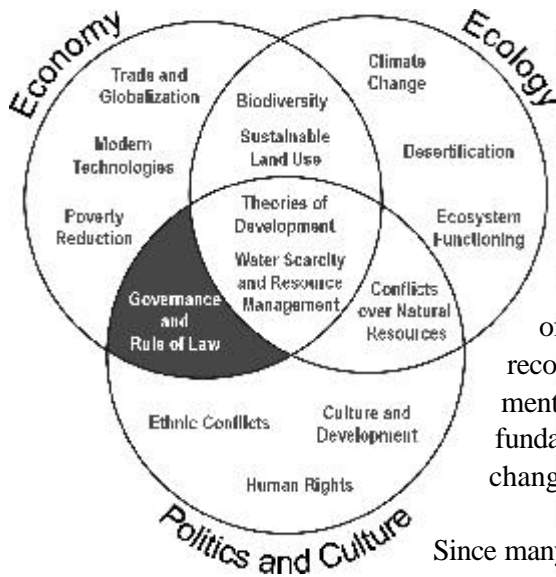
In this context another new ZEF research project promises to provide interesting results. The project deals with the determinants and effects of alternative institutions on natural resource management in developing countries. The project, funded by the Robert Bosch Foundation, will analyze the conditions fostering or hindering the success of community-based resource management initiatives, which are gaining popularity worldwide.



Agriculture in the district of Khorezm.



Governance and Rule of Law



Reforming the agricultural system of former Soviet states, such as Uzbekistan, and the improvement of water management in the GLOWA Volta project in Ghana (see above) raise interesting questions about institutional design and public policymaking, providing the opportunity for conducting systematic research on state-society interaction and the institutionalization of the rule of law. “Rule of law” and “governance” have, in general, by now been recognized as central factors in achieving “sustainable development.” Institutional settings and decision-making structures are fundamental for understanding socioeconomic and political change.

Since many developing countries are grappling with the task of building institutions and reforming administrative functions to reflect more liberal polities and economies, better understanding of what form and structure public institutions should take is crucial for formulating development policy. Questions such as the relation between public law and governance, democracy and economic development, decentralized authority and intergovernmental fiscal issues, between legal systems and economic efficiency, and issues of governance and the provision of local public goods are being addressed in ZEF’s crosscutting research on governance.

Law and Governance

Schoeller-Schletter, A.: „Verfassungstradition und Demokratieverständnis, Paradigmenwechsel und Reform: Die Verfassung der Republik Paraguay von 1992“, Nomos-Verlag, Baden-Baden, 2001.

The project *Public Law and Governance* has focused on regulatory reform, especially with respect to the organization, competencies, and procedures of public insti-



Government building in La Paz, Bolivia.



tutions, and evaluated the possibilities and limits of achieving politically set goals. How can public law respond to the task of ensuring that political decisions within the legislative, executive, and judicial branches of government do not end up being manipulated by narrow entrenched interests of powerful groups? In what ways do legal and political traditions affect the conceptualization and implementation of laws? What conclusions are to be drawn for the future design of institutional organization and procedures? Based on a field trip to Latin America, ZEF investigated the organizational structure of the highest courts for effectively guaranteeing the independence of the judiciary with respect to its function of interpreting and upholding the law. Research also addressed institutional and regulatory reforms in several Latin American countries, which are in the process of addressing civil-military relations with respect to the political arena.

Effective law-making is a function of information and capacities in government, the legislative branch, and civil society. *Egypt* is the setting for an investigation on the *relationship between legal systems and economic efficiency*. An analysis of the legislature and the public and private promotion agencies, carried out on the basis of a survey of the private sector, public officials and interest group representatives, has shown the importance of institutional reforms. The private sector underlined the weak legislative process and stressed the need for administrative reform in tax, tariff, investment, and export promotion agencies. State officials stressed the lack of trained personnel, the shortcomings of recruitment/reward policies, and the poor information/knowledge base. The latter was found to be partially due to the fact that interest groups are not strongly developed.

Good laws on paper do not necessarily mean “rule of law.” For instance, in India about 20 million court cases are pending. A project at ZEF analyzed the *impact of a weak judiciary on the economic and social development of India*. Empirical results from an analysis of government data in India have shown that a weak judiciary has a significant negative impact on per capita income and poverty ratios.

An ongoing ZEF project on India examines the constraints determining why the poor do not use the courts. The analysis is based on a survey of those calling on the judiciary on all three state levels, namely High Court, District Court and Lok Adalat, as well as a control group of non-users randomly selected in rural areas. The research was done in cooperation with the Rajiv Ghandi Foundation.

■ Democratic Governance

The research on *Democratic Governance* has produced some preliminary findings on democracy and economic growth as a prelude to launching a comprehensive research project that will look at the institutional bases of “democratic governance,” which produces “good” developmental outcomes. This research indicates that it is indeed insufficient to use regime types dichotomously as either authoritarian or democratic (as most studies have done), because there are substantial differences with regard to economic outcomes if a democracy is “consensual” as opposed to “majoritarian.” Apparently, not all democracy is the same—as some have suggested—and important information on democratic design is possibly lost in empirical analyses that operationalize regime type by aggregating states according to one or

El-Mikawy, N., Hashem, A., Kassem, M., El-Sawi, A., Hafez, A., El-Sawy and Showman, M.: “Institutional Reform of Economic Legislation in Egypt”, ZEF-Discussion Papers on Development Policy No. 30, Bonn, 2000.

Köhling, W.: “Implications of India’s Judicial System for Economic and Agricultural Growth and Poverty Reduction”, Dissertation, Bonn, 2001.

ZEF research shows that “democracy is not democracy” – there are substantial differences with regard to economic outcomes.



another democratic feature. The preliminary research suggests there can be significant improvement in our understanding of democracy and development by mixing and synthesizing the insights from economics and comparative politics and by utilizing a more detailed understanding of democratic governance over an ideal-type characterization of “democracy.” The research gathers fresh insight as to what forms of institutional settings will yield “democratic inputs” for gaining desired socioeconomic outcomes.

■ Decentralization and Development

What is the relationship between *decentralization and development*? Decentralization allocates more responsibility and ownership to local agents. Participatory local governments are generally better informed about the needs and preferences of the poor, and local information can often identify cheaper and more appropriate ways of providing public goods. However, there are also dangers: decentralization can imply diseconomies of scale in the provision of public goods, and can lead to exclusion of the poor in the presence of a local elite, which may “capture” public resources at the local level. A comprehensive review of the issues, including international comparative studies, was completed by ZEF in 2000.

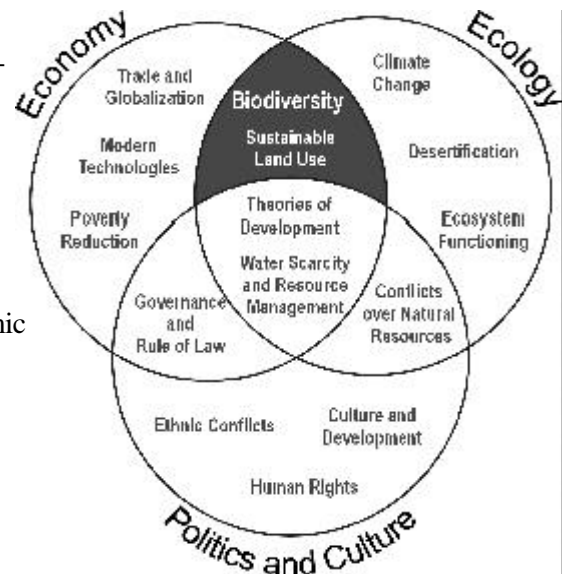
Decentralization can imply diseconomies of scale in the provision of public goods.

In order to investigate the impact of decentralization on the poor in rural areas, two projects have been initiated at ZEF. First, an in-depth study of the nature of social service provision (education and health services) at the local level has been carried out in two rural regions of *Russia*. A second project assesses the outcome of decentralization on public goods and service delivery (education, health, and water), and its impact on poverty reduction in *Ghana*.



Biodiversity

Governance and law influence all aspects of society, including the environment. Particularly in developing countries, the question arises as to whether a government can and should afford environmental interventions. For example, what sort of economic benefits occur as a result of preserving biodiversity? To help answer these questions, ZEF is developing two crosscutting projects about plant genetic diversity and animal species migration that combine economic and ecological issues.



Conserving Genetic Resources for World Food Security

The conservation of plant genetic resources for food and agriculture (PGRFA) is one important component in the effort to increase agricultural production and improve food security in low-income countries. Many centers of genetic resources are situated in poor countries. Although the long-term conservation of genetic resources is accepted as a priority by almost all countries, conservation competes with other development activities for financial resources.

A research project at ZEF, funded by the German Research Council (DFG), analyzed the cost effectiveness of PGRFA conservation and examined the socio-economic implications as well as the institutional limitations for national conservation efforts.

A great number of potential conservation methods exist, but genetic resources are predominantly conserved by those conservation methods with the lowest costs. Conventionally, seed and field gene banks are the most frequently used conservation measures, whereas cryoconservation, a modern technique with a high potential to be the most effective conservation method in the future, is rarely applied. The high intensity of capital and labor input of the conventional conservation measures, however, requires alternatives in the long run.

Country studies have shown that cost effectiveness depends mainly on the capital and labor intensity of the conservation methods, on the genetic resources to be conserved, on achievable economies of scale, and on conservation quality. The studies also show that cost effectiveness is highest in seed gene banks with high conservation quality and low conservation costs. In field gene banks and in-vitro conservation facilities, lower rates of effectiveness are achieved due to lower conservation quality and simultaneously higher conservation costs.

One major policy implication of this research project is the need for a sustainable international financing mechanism for PGRFA conservation. Furthermore, the biotechnological research capacities in developing countries with high agro-biodiversity should be improved to benefit from the added value to genetic resources through

Gole, T.W., M. Denich, D. Teketay and P.L.G. Vlek: "Human Impact on the *Coffea Arabica* Gene pool in Ethiopia and the Need for its in situ Conservation" In: J.M.M. Engels, A.H.D. Brown and M.T. Jackson (eds.), *Managing Plant Genetic Resources*. CAB International, 2002, pp. 237-247.



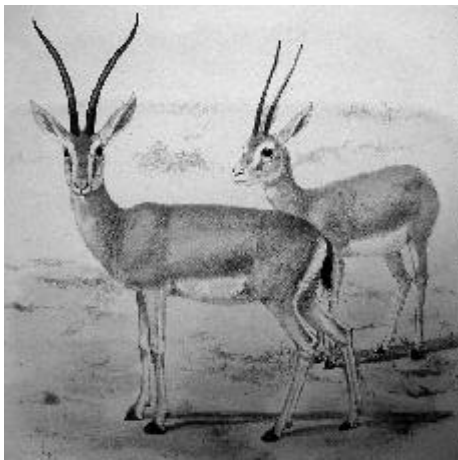
Arabica coffee land races in Ethiopia.

Qaim, M., Virchow, D.: "The Role of Biotechnology for Global Food Security", in: *Agrarwirtschaft*, Vol. 49, Nos. 9/10, 2000, pp. 348-356.



the processing of raw (genetic) material to high-value breeding material. Prerequisites for a sustainable international financing of PGRFA conservation are improvements in the quality of PGRFA conservation facilities and a reduction in average conservation costs. Normally this requires additional funding. The efficiency of PGRFA conservation varies widely between countries. Consequently, the allocation of financial resources for PGRFA conservation through multi- or bilateral channels as part of benefit sharing should be driven by an attempt to close efficiency deficits in the countries' PGRFA conservation systems. Without sufficient and long-term secured financial resources at national and international levels, the will to conserve PGRFA expressed by all governments will remain largely rhetorical, thus threatening all conservation efforts.

Global Register of Migratory Species



The slender-horned gazelle (Gazella leptoceros) is one of the endangered migratory antelopes of North Africa protected by the Bonn Convention. The antlers of the male (left) are a highly prized trophy, and illegal hunting is still the major threat. Drawing by J. Smit in Sclater & Oldfield, 1899.

Many migratory species cover huge ranges, but sometimes concentrate temporarily within certain areas. This is a challenge for conservation policy, which has to combine local approaches (e.g., protection of aggregation sites) with landscape approaches that protect whole areas, including different ecosystems and vast areas of agrarian landscapes. Conflicts in land use between migratory species and man often exist but are not identified.

The "Global Register of Migratory Species" (GROMS), which has been developed at ZEF, summarizes our knowledge about migratory species in digital format within a database in combination with a geographical information system (GIS). GROMS should help decision-makers to identify threatened migratory species and to develop action plans in order to conserve biological diversity.

GROMS now contains GIS maps for 545 species, which can be exported into any other GIS, covering further aspects relevant to conservation (e.g., land use). In addition, important aggregation areas have been linked with species lists. Where possible, geographic information has been provided with a time code, to reflect the tremendous seasonal variation of migrants within certain areas. Time codes and meta-information about maps are administered within the database.

GROMS (www.groms.de) is accessible on the Internet. A book and a CD-ROM, presenting an overview on threats to and recommendations for conservation, will be available in the second half of 2001.

Riede, K.: "The Global Register of Migratory Species (GROMS)". Landwirtschaftsverlag Münster, 2001 (in press).

The database provides basic information for 2,880 migratory vertebrate species. It contains scientific names, common names (English, French, German, and Spanish); threat status according to the International Red List, and protection status based on listings in the Convention on the Conservation of Migratory Species of Wild Animals (CMS) and appendices of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). All information is fully referenced by a literature module with more than two thousand entries, including a considerable number of full-text digital documents. Additional features include references to web sites and projects, addresses of organizations and experts, and species lists for countries or specific sites. GROMS links with or even uses data extracts from several other bio-informatics initiatives, such as the Global Biodiversity Information Facility (www.gbif.org).



thorities. This phase includes on-farm research with deliberate participation of the farmers for its economic evaluation.

During the past year, an assessment of the on- and off-farm environmental consequences of the newly proposed land clearing technique and cropping practices at the watershed level has been started. In July 2000, a study on the impacts of slash-and-burn versus chop-and-mulch agriculture on the water and nutrient dynamics of the farmland has been initiated. Within a small watershed (16 km²), the research objective is to identify changes in water and nutrient dynamics at various spatial levels when farmers move from slash-and-burn to chop-and-mulch fallow clearing techniques. The main aims are to obtain a closed water balance for a set of experimental watersheds with different fallow clearing techniques; to measure total nutrient and sediment outflow; and to measure and model the main water and nutrient flow paths. The final step will consist of a modeling effort of the entire water and nutrient balance of the study region.

■ Small Farmers in the Eastern Amazon Region

Interrelations between ecosystem and social system in using and protecting the tropical forest

ZEF, in cooperation with the Center for Superior Amazon Studies (NAEA) of the Federal University of Pará, Belém, is also engaged in a socioeconomic evaluation of the above-mentioned chop-and-mulch technology and related innovations for sustainable small-scale farming, including the analysis and design of public policies for the promotion of sustainable technologies. This project started in April 2001 under the auspices of ZEF and encompasses:

- Analysis of the private profitability of the chop-and-mulch technology compared to traditional technologies.
- Elaboration of a basic bioeconomic model of decision-making in small-scale farming, considering inter-relations between production practices and soil quality, the long-term impact of technologies used, and external restrictions.
- Analysis and evaluation of social costs and benefits of maintaining cropping systems based on fallow vegetation without burning.
- Analysis of institutions and public policies necessary for promoting sustainable technological innovations for small farmers.

■ Policies for Improved Land Management in Uganda

The long-term goal of this project is to contribute to improved land management in Uganda in order to increase agricultural productivity, reduce poverty, and ensure sustainable use of natural resources. The immediate purpose is to help policymakers identify and assess policy and institutional and technological strategies to improve land management in Uganda.

To date, project activities include characterization of land degradation problems, market surveys, community surveys, and household and plot surveys. ZEF re-



Measuring water dynamics in a small watershed in the Eastern Amazon region.



searchers are focusing on an assessment of technology options for sustainable land use; development of landscape-scale nutrient management systems; and agent-based bioeconomic modeling. The technology experiments with different soil fertility management options have been completed for the second cropping season of 2000 in several districts of Eastern Uganda and are being initiated for the first season of 2001. A new methodological framework of Nutrient Response Units (NRU) is being developed to assess the spatial distribution of soil nutrient stocks and flows as well as soil fertility problems within a landscape.

For the bioeconomic modeling, detailed household surveys will be used as the basis for a multi-agent programming model, which in turn will allow analyzing likely household responses under different policy and environmental scenarios. Both model approaches will be integrated to capture the site-specific feedback mechanisms of economic and ecological factors influencing the livelihood strategies of rural households in Uganda.

A National Advisory Committee, which includes representatives of the national government, district governments, the national research system, and the national farmers' organization, will help disseminate results

Projects partners:

- IFPRI (International Food Policy Research Institute),
- NARO (the Ugandan National Agricultural Research Organization),
- MUK (Makerere University, Kampala) and
- APSEC (Agricultural Policy Secretariat).



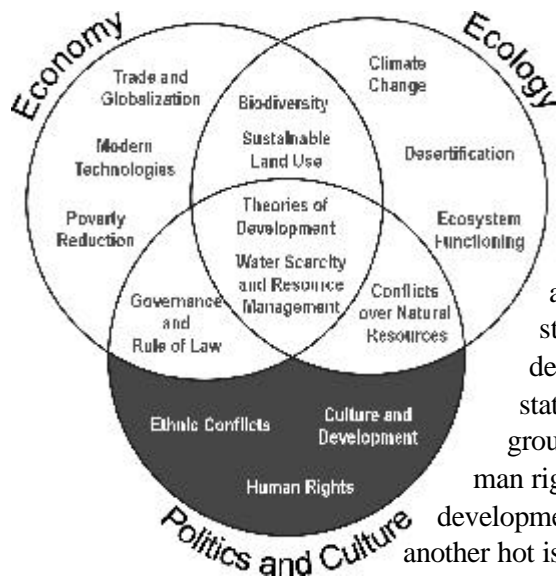
Peeling cassava.



Specific Research Areas

Theories of development, water scarcity and resource management, governance and rule of law, biodiversity and sustainable land use are the five crosscutting research themes that are currently being addressed by interdisciplinary research at ZEF. Much of this research is related to and supported by more focused research programs in ZEF's three major disciplinary fields, dealing with political, cultural, economic, technological, and ecological aspects of development.

Department of Political and Cultural Change



Research in the Department of Political and Cultural Change is most closely related to the crosscutting theme of governance and rule of law. There are three research groups that enlarge and differentiate the research on governance. They all ask about the role of a transforming state for sustainable development. The first group, State Building and Ethnic Conflict, aims at understanding the many instances of “failed states” that have appeared over the last decade—a major obstacle to development not only for these states and their populations, but for entire regions. A second group asks how the state’s legal system is responding to the human rights agenda and what effects this may have on sustainable development. The third group on Culture and Development addresses another hot issue in the development debate: how far the cultural traditions of a country limit or enhance the prospects for democratization, rule of law, and “good” governance.

■ State Building and Ethnic Conflicts

Wimmer, A.: “Ethnizität”, in Streck, B. (ed.): Wörterbuch der Ethnologie, Dumont, Köln, 2000, pp. 53 – 55.

Pfaff-Czarnecka, J.: “Distanzen und Hierarchie. Kampf um ethnische Symbole in Nepals Öffentlichkeiten”, in: Horstmann, A. and G. Schlee (eds.): Integration durch Verschiedenheit. Verlag transcript, Bielefeld, 2001, pp. 235-267.

Since the end of the Cold War, ethnic conflicts have replaced interstate wars as major security threats. At the same time, ethnic violence challenges the foundation of nation states in many developing countries. ZEF’s research group *State Building and Ethnic Conflicts* concentrates on three topics. The first deals with the relationship between government policies and the mobilization of ethnicity. Constraints of national development often lead to unequal access to economic, political, and symbolic resources, which are thought to be the main reasons for the politicization of ethnicity. Secondly, protracted ethnic conflicts undermine basic characteristics of modern statehood, like legitimate use of force or concepts of territoriality. The increase of so-called “failed states” that threaten neighboring countries and the international community illustrates this tendency. Finally, the research group focuses on the management of ethnic conflicts. Attempts to settle conflicts cover dialogue projects, including state and non-state actors as well as institutional arrangements



for power sharing ranging from constitutional rights and electoral systems to various forms of autonomy and federalism. These issues were the subject of a ZEF conference entitled *Facing Ethnic Conflicts – Perspectives from Research and Policy-Making* in Bonn (14 – 16 December 2000). The conference is described in the chapter on “Policy Dialogue and Public Awareness.” The current projects of the research group cover several aspects of the topics mentioned above.

State Building, Nationalism, and Ethnic Conflict

This project examines the systematic link between modern state formation and the politicization of ethnicity. After reviewing the literature on ethnic conflict, xenophobia, racism, and nationalism, the empirical part compares the process of nation building in Mexico, Switzerland, and Iraq. The cases show that with the introduction of modern principles like democracy, citizenship, and sovereignty of the people, large sections of the population previously confined to the status of subjects and subordinates could be integrated into the modern state. But at the same time, these policies resulted in new forms of political, legal, and social exclusion based on ethno-national criteria—the distinction between Swiss nationals and foreign immigrants in the case of Switzerland, between the Sunni-Arab ethnocentric elite and the rest of the Kurdish-speaking or Shiite population in Iraq, and between the majority of the Mestizo nation and “indigenous minorities” in Mexico. The project will be concluded in autumn 2001.

Wimmer, A.: “Nationalist Exclusion and Ethnic Conflict”, Cambridge University Press, Cambridge, 2001 (in print).

Afghanistan – Ethnicization of a Conflict

The relationship between nation-state and ethnicity is also the starting point for the project *Afghanistan – Ethnicization of a Conflict*. It reveals how the Afghan state used ethnicity for the distribution of political and economic resources since its birth at the end of the 19th century. This state policy has been reflected in an ethnic stratification of society and in the strengthening of ethnic myths and stereotypes. Secondly, the study shows how an “ethnic climate” emerged in the Afghan War after 1979. The belligerent factions picked up ethnic grievances deriving from governmental policies as major arguments for mobilizing combatants. Especially after the end of the Cold War, the ideological antagonisms between Islam and Communism were replaced by ethnicity as the main source of political legitimacy.

Schetter, C.: „Der Krieg in Afghanistan und seine regionale Dimension“, in: Wagner, W., Gräfin Dönhoff, M., Kaiser, K., Link, W., Maull, H. and K.-W. Schatz: Jahrbuch Internationale Politik 1997-1998, München, Oldenbourg, 2000, pp. 211-221.

Ethno-Nationalist Mobilization and Conflict Prevention in South Africa

In the investigation on *Ethno-Nationalist Mobilization and Conflict Prevention in South Africa*, the focus is on the role of “non-elites” in ethno-nationalist movements. Moreover, various preventive measures and their capability of impeding ethnic conflicts in a sustainable way will be evaluated at the local level. A theoretical concept has been elaborated; field research started in January 2001.

Privatizing Peace?

The project *Privatizing Peace?* is a response to the increasing demand of international organizations (e.g. UN, International Alert) for corporate intervention in conflict transformation. The intention of the project is to investigate the prospects and constraints of private sector interventions. Guatemala offers an appropriate exam-



ple due to the outstanding involvement of private business in the peace negotiations leading to the peace accord in 1996. In preparation for field research, a theoretical framework was formulated in 2000/2001.

■ Human Rights

Kössler, R.: „Globalization and Human Rights: Some Development Reflections“, in: Schuurman, F., (ed.): *Globalization and Development Studies: challenges for the 21st Century*, Thela, Sage, Amsterdam, London, 2001, pp. 83-98.

At the beginning of the twenty-first century, there is a growing consensus that the realization of human rights is an important goal of development endeavors across the globe. As more nation-states install democratic political systems and establish the rule of law, human rights tend to become strengthened in manifold ways. Increasingly, people and organizations express interests and grievances in the language of human rights, whether in the form of entitlements or obligations. The international human rights regime has been continually enlarged and refined. Human rights arbitration has been established in a growing number of countries. Increasingly, development policies, national and international, mirror the enhanced weight of the rights' approach. However, in view of an ongoing expansion and proliferation of the human rights regime and the increased call for incorporating human rights in development strategies, it is intriguing that rather little is yet known about the mechanisms through which human rights become part of legal and political systems or of everyday life. Using legal, political, and social analysis, the program *Human Rights and Development* aims to understand the dynamics through which human rights become implemented and institutionalized in developing countries.

Putting Human Rights First

On 9 and 10 November 2000, ZEF organized the workshop *Putting Human Rights First: Rethinking Development and Trade Policies*. Some fifty representatives



Participants of the workshop „Putting Human Rights First“ in November 2000 at ZEF.

from multilateral organizations, governments, non-governmental organizations, and the business and academic communities came to ZEF to discuss the place of human rights within development and trade policies. On the policy level, discussants inquired into how human rights concerns can be promoted in global trade activities and through which means human rights could serve as a guiding norm. Concerning the relationship between human rights and growth, the discussion concluded that human rights protec-

tion and growth strategies should be better coordinated. A general concern shared by many participants was that market interests tend to overrun human rights endeavors. Discussions on the implementation of human rights through donor aid brought forward a frequent use of double standards. Donors often demand aid recipients to comply with international human rights standards without making sure that donor development programs themselves comply with these standards. The dis-



ussions on the realization of human rights showed that NGOs increasingly force the business community, international organizations, and governments to abide by international human rights standards. Although it is often thought that multilateral organizations, governments, NGOs and the business community have different priorities regarding human rights, development and trade, the workshop showed that despite manifold differences, the different interest groups are aware of the necessity to promote human rights.

Mitigating Human Rights Risks

In cooperation with the Centre for Socio-Legal Studies of the University of Oxford, ZEF launched the project *Mitigating Human Rights Risks: Negotiations Among Governments and Non-State Actors in the Context of Infrastructure Provision*. This project explores the role of governments, private companies, international organizations, and transnational banks and insurance companies in assessing and mitigating human rights risks in the course of infrastructure project provision. Particular attention will be paid to the extent to which non-state actors influence state assessment and mitigation processes. The project will be carried out through a comparative analysis of infrastructure projects in four countries.

Trick or Trickle: Human Rights Norms and Development

Another project is *Trick or Trickle: Human Rights Norms and Development Practices in Guatemala*. Since official peace talks started in Guatemala in the early 1990s, human rights are promoted and protected by means of development initiatives. These practices follow the general trend that donor countries, international organizations, and aid-recipient states are increasingly including human rights norms in development policy. Central to this research project is the attempt to understand why, and with what effects, this is occurring. This project seeks to answer the question: What national and international political changes have taken place enabling actors concerned with development issues to engage in human rights initiatives in Guatemala? Through an analysis of policy documents and an examination of selected development projects, we will gain new insight into the extent to which human rights are implemented when human rights norms are integrated in development policy. In relation to this component of the project, discussions on the right to development were held with Guatemalan government officials, representatives from national and international NGOs, and officials from the Office of the High Commissioner for Human Rights. Their deliberations were followed during the 57th session of the Commission on Human Rights in Geneva in March 2001.



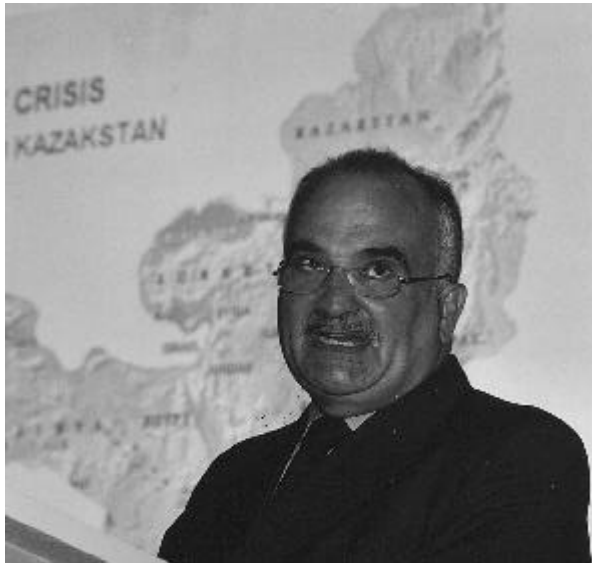
Human rights initiatives in Guatemala are objects of research at ZEF.

ZEF is a member of the International Consortium for Human Rights and Human Welfare, an Internet-based journal launched in January 2001 (www.du.edu/gsis/hrhw).



Wimmer, A.: "Globalisations avant la lettre. A Comparative View on Isomorphization and Heteromorphization in an Interconnecting World", in: *Comparative Studies in Society and History*, 43 (3), 2001.

The conference was organized in cooperation with the Center for European Integration Studies (ZEI).



Prince Hassan of Jordan and President of the Club of Rome at the conference "Does Culture Matter?"

Evers, H.-D.: "Epistemic Cultures: Towards a New Sociology of Knowledge", WP Nr. 330, Sociology of Development Research Centre, University of Bielefeld, 2000.

■ Culture and Development

During the past decade, there has been a renewed interest in the concept of culture as a crucial determining factor in political and economic life. One major area where the question of culture has gained significance is within new institutional economics and new growth theories, which see processes within societies playing an influential role in matters of governance and the advance of technological and human capacities. Institutional and social factors interact in important ways to form "social technologies" that promote development. More narrowly, "social capital" has gained favor as a crucial concept for interpreting political and economic outcomes. Some scholars see culture as the "software" for building the salutary development outcomes traditionally viewed in terms of the application of "hardware,"—such as land, labor, and capital—to productive use. Moreover, understanding modes of thought, regularized patterns of behavior, and formal and informal institutional factors are salient to issues of how knowledge transfer occurs across cultures.

Does Culture Matter?

The conference, *Does Culture Matter? Politics and Governance in the Mediterranean* (19-20 June 2001) examined the degree to which patterns of politics and governance in the Mediterranean region are shaped by cultural factors. The Mediterranean region is geographically well placed for exploring this issue because a

number of different world religions (Christianity, Judaism, and Islam) are located in the immediate vicinity. Moreover, this region is made up of distinct political systems, such as democracy of varying degrees, monarchies, and authoritarian regimes, and shares a geographic space that overlaps with the European Union. The Mediterranean region is the most proximate physical boundary demarcating the Western hemisphere and the rest of the World, or the historical fault line between the Byzantine and Ottoman empires and the Holy Roman empire. Culture and governance are also important because the export of institutions (e.g. democracy, human rights) from the EU and its successful adoption is a hallmark of EU policy, which is reflected in the Barcelona Process. The studies explored the implications of cultural factors that may or may not influence governance outcomes, which are crucial issues for the proper formulation of policy. The scholars examined concepts and concrete manifestations of cultural phenomena and sought to clarify useful working definitions of "culture" and "tradition" for understanding political life.

Globalization of Knowledge

How societies approach, process, and utilize "knowledge" can have a crucial impact on how cultural values, norms, and tradition-determined aspects of life affect social outcomes. The project *Globalization of Knowledge: Development Experts* focuses on knowledge production and its dissemination. The project seeks to understand the processes behind the cultural exchange of knowledge and its effects on societal transformation. Development experts and their organizations develop concepts and strategies of development, combine them with past experiences, and



translate them into advisory services for their partners in the developing world. The translation of concepts and strategies takes place within the global discourse of epistemic communities of experts and consultants, but also within the social and cultural context of developing countries. Development experts have to put global concepts into practice in a local cultural context that is complex and difficult to understand. Cultural values have to be negotiated and concepts have to be translated. From February to May 2001, field studies were carried out in Indonesia, Singapore, Kazakhstan, and Uzbekistan. The data analysis will proceed and additional case studies will be carried out in the Philippines and Malaysia.

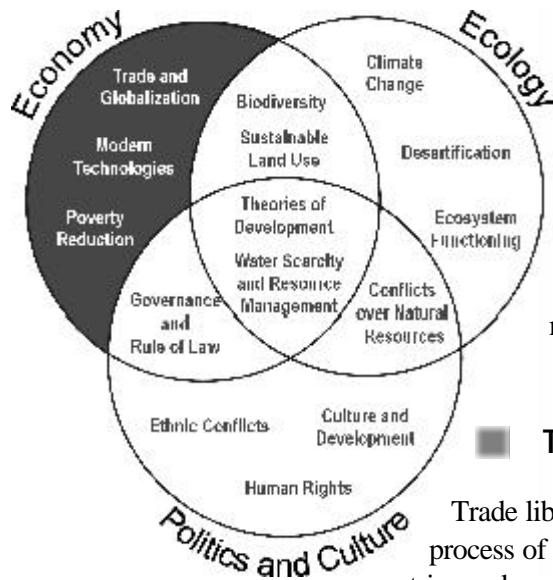
The project is supported financially by the Deutsche Forschungsgemeinschaft (DFG) and carried out in cooperation with the Sociology of Development Research Centre and the Institute for the Study of World Society, University of Bielefeld.



Knowledge exchange between different cultures.



Department of Economics and Technological Change



Political and sociocultural conditions play a central role in the work of the Department of Economics and Technological Change, studies studies of the economics of good governance. Besides economic for instance in s research on crosscutting themes, including theory, biodiversity, water and resource management, research in this department is focused on trade and globalization, modern technologies, and poverty reduction.

Trade and Globalization

Trade liberalization under the World Trade Organization and the process of globalization result in new challenges for developing countries and countries in transition. To support these countries in their efforts to face these challenges, ZEF is focusing on four priority research areas:

Impacts of Globalization

In Asia, the experience with globalization reflects both the benefits and costs of opening up an economy. Benefits of liberalization have become obvious within the Asian miracle, while costs occurred with the Asian financial crisis.

Three research projects analyze the impact of liberalization in Asia. The first one focuses on the banking sector in Thailand, trying to identify the determinants of bank lending decisions that resulted in the financial crisis. The second project looks at foreign direct investment and its contributions to economic growth and poverty reduction in Vietnam. A third project looks at the effects of liberalization strategies on gender welfare in rural areas in Indonesia.

Economic Reform in Russia

During the past year, a major research project at ZEF on the economic reforms in Russia was completed. The research, funded by Volkswagen Foundation, studied the causes of the enormous interregional price differences on poorly integrated agricultural markets. It has been found that transaction costs increase and transport costs decrease together with the value of the analyzed product (grain, potatoes, milk products, beef). Therefore, in order to improve food security in remote and agriculturally disadvantaged regions of Russia, measures that reduce transaction costs are much more promising than transport subsidies. A strengthening of the legal system and the improvement of market information systems should have high priority.

To analyze various potential integration strategies for Russia's agro-food sector, a one-country and multi-regional computable general equilibrium model for Russia has

Gaston, N., Nelson, D.: "Multinational Location Decisions and the Impact on Labor Markets", ZEF-Discussion Papers on Development Policy No. 37, Bonn, 2001.

Wehrheim, P.: "An Economy-wide Model for the Analysis of Russia's Agro-Food Sector in Transition". Habilitationsschrift, Bonn, 2001.



been developed. The analysis supports the theory that a strategy of *both* inter-regional and inter-national integration would be optimal. However, cross-sectional analyses showed that Russia's regions are pursuing strategies of either self-sufficiency or integration on the level of so-called macro-regions instead of fostering inter-regional trade per se. ZEF developed and applied an innovative economy-wide model for Russia and used it for scenarios of trade and investment as well as institutional reform strategies that highlight the importance of long-run incentives. The results were widely shared with policy advisors in Russia.

East African SMEs in the Process of Globalization and the Cotonou Agreement

Small- and medium-scale enterprises (SMEs) contribute significantly to the economies of developing countries. Especially in poor countries, they employ a big share of the workforce. Even more than large enterprises, their operations are often restricted by limited access to capital, inadequate infrastructure, and bureaucratic red tape. The question arises whether SMEs are able to cope with the challenges of globalization and the spread of new technologies such as information and communication technologies (ICT). While globalization increases competition, it may also open new markets to SMEs through lower transaction costs because of improved information exchange. To analyze these issues, ZEF in collaboration with four East African universities conducted a survey of 450 SMEs from the textile, food processing, and tourism sectors in Kenya, Uganda, and Tanzania. Results for Tanzania show that investment in ICT is positively correlated with the export performance of enterprises, provided that public infrastructure such as electricity and transport is adequate. This positive impact of investments in ICT equipment on productivity was even stronger in Kenya, where ICT use is more widespread because a certain threshold of users is needed to create the expected benefits.

SME support also plays an increasing role in the private sector development programs of international donors such as the EU. On 23 June 2000, a new partnership agreement was signed between the European Union (EU) and its associated states from Africa, the Caribbean, and the Pacific (ACP) in Cotonou, Gabon. The Cotonou Agreement follows the Lomé Convention, which governed the EU-ACP cooperation between 1975 and 2000. ZEF research focuses on the question of how to make the new EU-ACP trade regime compatible with WTO.

Environmental and Food Safety Standards and Labeling

With the continuing reduction of traditional trade barriers such as tariffs, the importance of non-tariff barriers, especially sanitary and phytosanitary (SPS) measures as well as environmental and social standards, has grown. This is based on the increasing concerns of consumers, especially in developed countries, about the health risks of food, the working conditions in developing countries, and the risks posed by environmental degradation. As a result, there is a call for certified higher quality and more differentiated food products and higher environmental and social standards.

Higher levels of environmental standards are perceived as competitive disadvantages to developed countries and as protectionist measures to developing countries. For selected agricultural products from Brazil, Germany, and Indonesia, there is

Matambalya, F. and Wolf S.: "The Cotonou Agreement and the Challenges of Making the New EU-ACP Trade Regime WTO Compatible", in: Kluwer Law International, *Journal of World Trade* 35(1), 2001, pp.123-144.

Grote, U., Deblitz, C., Reichert, T. and Stegmann, S.: „Umweltstandards und internationale Wettbewerbsfähigkeit: Analyse und Bedeutung –insbesondere im Rahmen der WTO“, Wissenschaftsverlag Vauk, Kiel, 2001.



Grote, U. and Kirchoff, S.: "Environmental and Food Safty Standards in the Context of Trade Liberalization: Issues and Options", ZEF Discussion Papers on Development Policy No. 39, Bonn, 2001.

some evidence that at the production level, the cost of compliance with environmental standards is relatively small and insignificant. The results for the processing level were ambiguous. Total cost differences between the three countries are considerable and thus determine the competitiveness of countries to a much larger extent than environmental standards. It has also been shown that environmental standards are often well adjusted to the respective environments in the different countries and regions. However, enforcement needs to be improved in Brazil and Indonesia to avoid possibly significant adverse environmental costs.

■ Modern Technologies

Information and Communication Technology

The promotion of information and communication technology (ICT) in developing countries has become an important part of development strategies. For example, the 2000 G-8 summit in Okinawa launched a Charter on the Global Information Society.

Despite the mounting optimism about the positive impact of ICT on economic activities and societies, there is little empirical evidence about the impact of ICT in developing countries. Can ICT help bridge the gap between the global economy and the village in the hinterland? Or is it going to be the fastest accelerator for the marginalization of the "left-outs?" These questions have been discussed at the *Global Dialogue* at the Expo in Hanover (see chapter "Policy Dialogue and Public Awareness") and are one impetus for ZEF's research. The geographical range of ZEF's ICT program was expanded in the last year, and now covers Bangladesh, China, Ghana, India, Kenya, Laos, Peru, Tanzania, Uganda, and Central Asia.

In a study of small-scale enterprises from an industrial estate in Chennai, India, the major determinants of ICT adoption were analyzed with regard to personal, organizational, environmental, and technological dimensions. The main results show that the probability of using ICTs is strongly positively influenced by the size of the enterprises. Another important factor is the proportion of business relations outside the local area indicating the cost and time-saving potential of ICT with a greater relative advantage for long-distance communication. The use of fax communication had

a particularly positive impact on competitiveness. The use of cellular phones, which is growing fastest, is more intense with younger business owners who might be more open to new communication patterns.

An assessment report evaluated the economic and social effects of a rural telecommunication project in Laos, funded by the Kreditanstalt für Wiederaufbau (KfW). First results show that telephone users are likely to be more literate and to belong to more skilled occupational groups. However, usage rates are also quite substantial among low-income groups (21 percent). The study found a positive effect of tel-



Telecommunication infrastructure in Laos.



ephone expenditure on household income, as well as business sales. In the next step of the project, a comparison of villages before and after the introduction of the telephone will be made.

In addition to its research activities, ZEF is a member of the G8 Dot Force of the Okinawa Charter and coordinated the input of think tanks and non-profit organizations (NPOs) in Germany. In this context, ZEF developed a position paper, which was discussed at a workshop in February 2001. One of the outcomes was the need for public, private, and NPO partnerships to provide core ICT-related infrastructure and local contents to make the Internet beneficial for rural communities. Research in Bangladesh showed that a business-NPO partnership (Grameen Telecom as commercial partner and Grameen Bank as NPO) is one option to increase access to telecommunication for the rural poor and come closer to universal service provision on a sustainable basis even without subsidies. The revised position paper was presented at the G8 Dot Force Meeting in March 2001.

Agricultural Biotechnology

Another modern technology for which the usefulness for developing countries is hotly debated is crop biotechnology, which could enhance global food production in a sustainable way. However, the economic repercussions of biotechnology for developing countries and smallholders were largely unknown. In the ZEF project dealing with that issue, an analytic framework for the *ex ante* evaluation of biotechnology in small-scale agriculture is developed, which is then used in case studies in Kenya and Mexico. The studies found that biotechnology holds great potential for poor agricultural producers and consumers. Yet appropriate institutional adjustments are required to capitalize on these potentials. The agricultural biotechnology research at ZEF continues within a growing international research network financially supported by DFG and Eiselen Foundation. New research focuses on product qualities and consumer benefits.

Energy and Pollution Abatement Policies

Since there are other strong research centers in Germany dealing with emerging environmental policy issues, ZEF in this area concentrates on activities linked to other ZEF research activities such as land and water use. In this context, ZEF prepared an assessment of the non-technical barriers to extension and improvement of bioenergy applications in developing countries. The study concludes that only those political measures that make renewable energy sources look more attractive to the energy users themselves can contribute to taking advantage of the technical potential for the reduction of carbon dioxide. Accordingly, preliminary recommendations are made on four different levels:

- General promotion of bioenergy use, such as technological development, information dissemination, and improvement of education.
- Recommendations for the structure of national policies, especially incentives for bioenergy and biomass applications.
- Recommendations for the conceptual set-up of projects in the energy sector.
- Special references to the structure of the "Clean Development Mechanism."

ZEF participates in the G8 Digital Opportunity Task Force and coordinates ICT ideas of German NPOs.

Qaim, M., Krattiger, A., von Braun, J: "Agricultural Biotechnology in Developing Countries: Towards Optimizing the Benefits for the Poor", Kluwer Academic Publishers, Boston/Dordrecht, 2000.

Wittmer, H. and T. Berger: "Non-technical constraints for improved utilization of bioenergy in developing countries. A study for the Federal Parliament, Bonn, 2000.



Taketoshi, K.: "Environmental Pollution and Policies in China's Township and Village Industrial Enterprises." ZEF-Discussion Papers on Development Policy, No.36, Bonn, 2001.

Pollution abatement technologies are further important means to make economic growth environmentally sustainable. A study of township and village enterprises in China found that environmentally beneficial investments in wastewater treatment facilities and more efficient technologies are hindered by a lack of external funding and insufficient enforcement of pollution levies.

■ Poverty Reduction

Large parts of the population in developing countries face a series of problems ranging from poor health and malnutrition to limited access to resources, poor education, and social exclusion. These factors constrain the quality of life, economic efficiency, and growth, as well as the overall sustainability of development efforts. ZEF's research agenda places emphasis on health and nutrition, social security and risk management, child labor, volunteering, and participation. ZEF's work in this area is largely micro-based, integrating micro-economic techniques with household- and individual-level data. Increasingly, poverty is treated as a crosscutting research theme at ZEF, especially in the context of governance research (see above).



Child labor is widespread in many developing countries.

Social Security and Health Insurance

Within its research program on social security systems, ZEF analyzes the prospects and limitations of innovative insurance schemes in rural areas. Insurance is believed to be a viable method to reduce individuals' and households' exposure to risks, such as illness, disability, natural disasters, etc. It does so in two ways: first, insurance schemes can help to protect people against a serious decline in their well-being when a shock has hit. Access to insurance allows at least some compensation for the financial

loss incurred. Secondly, and perhaps more importantly, access to insurance allows people to reallocate their resources to higher risk—but also higher return—activities.

In its research projects, ZEF focuses largely on the health care sector and has begun empirical studies in Ethiopia, China, Ghana, India, Senegal, and Tanzania in close collaboration with national research institutes. The aim of these projects is to properly assess the economic costs of illness, to analyze costs and benefits of existing rural risk-sharing schemes, to estimate the demand for health care and health insurance, and to assess the impact of institutional innovations such as community-based health insurance schemes. The studies focus on rural areas where the need for insurance is especially high, but private insurance markets do not exist and public measures often fail to reach their target population.

In May 2000, ZEF conducted a household survey in Senegal to estimate the impact of the community-based health insurance schemes (*mutuelles*) on health care demand, costs, and health outcomes. Roughly 350 households in four selected communities were interviewed, of which 60 percent were members and 40 percent non-members of a *mutuelle*. The study revealed that members pay roughly one-third less than non-members in cases of hospitalization, and they recover three weeks earlier. Furthermore, during interviews members stressed that joining a *mutuelle*

Jütting, J.: "Social security systems in low income countries: concepts, constraints, and the need for cooperation", in: *International Social Security Review*, Vol. 53, No. 4, 2000, pp. 3-25.



has led to a reduction in their worries. In cases of serious illness, they are no longer dependent on assistance from their social network, or money from the local money-lender. Another important result of the study is that the poorest of the poor do not participate in the *mutuelles*. They lack the financial resources to pay regular membership contributions. Therefore, the *mutuelles* cannot provide a form of health insurance for the very poorest segments of society without subsidies. These results largely confirm earlier ZEF research findings on the determinants of participation of women in local organizations and development groups.



In Senegal community-based health insurance schemes cooperate with the local hospital.

Incidence and Determinants of Child Labor in Africa

The incidence of child labor continues to be a serious problem, particularly in the developing countries of Africa, Asia, and Latin America. Estimates show that Africa has the highest child labor participation rate. Child labor in Sub-Saharan Africa is mostly a rural phenomenon, in which children are forced to undertake household and farm activities. However, empirical work on the topic has focused disproportionately on visible forms of child labor, as those observed in the labor-intensive manufacturing sector. However, all forms of work that accentuate poverty and require too many hours have a detrimental effect on children, not just labor in the manufacturing sector.

There is a need for a more holistic approach to the problem of child labor, considering schooling in conjunction with labor force participation, child care, and other household responsibilities in order to formulate policies that will encourage greater educational attainment.

The main aim of a ZEF research project on child labor in Ethiopia is to identify and discuss the incidence of child labor and the social, economic, and cultural factors determining child labor force participation and school attendance within the context of a subsistence rural economy. The results show that rural children, even those below the legal working age or those supposed to be in school, are required to perform work activities either in the house or on the farm. The study identified several economic and social factors that affect the household's decision to allocate children's time endowment among the competing activities. The age and gender of the child, cultural factors, the education status of the household head, the distance to school, the quality of education, the physical and financial assets owned by the household, and the use of improved agricultural practices were important determinants of the choice between school attendance and work participation. The results also show in general that economic and social policies aimed at combating child labor could simultaneously encourage schooling and vice versa.

Admassie, A.: "The Incidence of Child labor in Africa with Empirical Evidences from Rural Ethiopia", ZEF Discussion Paper 32, Bonn, 2000.



Children in rural Ethiopia often do not have time to attend a school.



Food Security and Food Consumption

A further important project in the area of food security focuses on food consumption and its trends in China. The background of the research project in China lies in the observed changes in income distribution and prices, as well as structural developments in rural food markets. These changes have important consequences for consumption patterns among different socioeconomic groups. The results of the study show that generally speaking the level of food consumption remains very low for the rural poor in China and did not increase in the 1990s. The study projects food demand of different income groups in urban and rural areas for the years 2005, 2010, and 2020. It is shown that the middle- and high-income consumers will still consume more meat products than the low-income consumers because of perpetual income disparities. The predicted total grain demand for the years 2005, 2010, and 2020 is 401, 440, and 519 million tons, respectively, which is somewhat lower than other studies have predicted.



Food markets and consumption in China change.

The effect of varying income assumptions is comparatively small. Finally, the study estimates the impact of hypothetical increases in the retail price of pork on urban consumers' food budget and welfare. Such an increase is one conceivable policy instrument, for example, to lower the demand for feed grain. The results, however, show that an increase in the retail price of pork would not have a significant effect on the total demand for grain, but would only reduce the food consumption

of low-income households. The research was done in cooperation with the State Statistical Bureau (SSB) of China.

Crisis and Emergencies

A recently finished research project on the national level has analyzed the economics of emergency food relief management in developing countries. The study underlines the need for a thorough analysis of causes, costs, and trends of disasters and violent conflicts. Against the widespread practice of not taking economic criteria adequately into account in the management of a crisis, the study develops a conceptual framework on the role of information that integrates economic aspects into the decision process. To illustrate the range of informational problems and potentials for improvement of relief aid provision, two studies on food emergencies have been conducted in Angola (conflict and drought) and Mozambique (flood). Both studies clearly show that sound information and knowledge of the external conditions of crises, their perception by the population affected and the relief agency, and their causes are crucial for effective emergency relief.

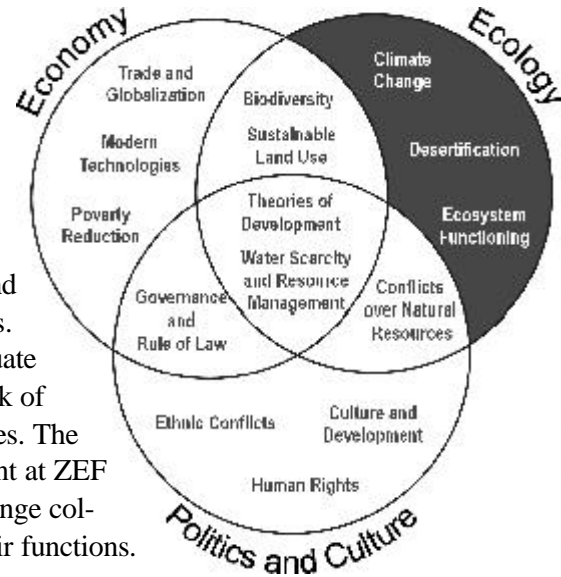
Violent conflicts are another phenomenon with detrimental impacts in developing countries. A recent study analyzed the determinants and consequences of displacement due to violence in Colombia at the household level. The results highlight the need for assistance programs that go beyond the provision of basic necessities at the time of arrival at receptor locations. Employment programs, improved information provision and a strategy of government protection focused on individuals most threatened by violent groups are needed.

Feldbrügge, T.: "Economics of Emergency Relief Management in Developing Countries. With Case Studies on Food Relief in Angola and Mozambique", Peter-Lang Verlag, Frankfurt, 2001.



Department of Ecology and Natural Resource Management

Crises and conflicts, the widening gap between rich and poor, and economic and technological changes are phenomena that are not limited to the developing world. At the same time, the whole world is facing dramatic ecological changes, produced or influenced by these phenomena. Understanding these changes is not only a major challenge for science, but also a prerequisite for designing policies and actions to alter the course of events or temper their effects. In many areas of environmental change, solutions or adequate strategic responses are still lacking; in others, there is a lack of societal awareness and political will for corrective measures. The Department of Ecology and Natural Resource Management at ZEF therefore focuses on topics where development-driven change collides with the need to preserve natural ecosystems and their functions. Three such thematic areas have been identified: climate change, ecosystem functioning, and desertification.



Climate Change

Climate change is one of the major threats to human survival on earth. During the past months, the Intergovernmental Panel on Climate Change (IPCC) has finalized three comprehensive assessments, one on observed and projected changes in climate; a second one on climate change impacts, vulnerability, and adaptation; and a third assessment that reviewed the technologies and policies available for reducing or limiting greenhouse emissions in order to minimize future climate change. The findings of these assessments represent current scientific understanding. IPCC concludes that a rise of global average surface temperatures is measurable. These conclusions are well known and have been widely and hotly discussed in the public. The snow vanishing on Mount Kilimanjaro has become a metaphor for the speed with which global warming is presently occurring.

ZEF participated in the Task Group on Climate Scenarios for Impact Assessment (TGICIA). The TGICIA produces and provides guidelines on the use of Scenario Data for Climate Impact and Adaptation Assessment.

ZEF has participated in the development of the IPCC assessments throughout and was particularly involved in the development of the so-called Third Assessment Report (to be published in summer 2001 by Cambridge University Press) through contributions by ZEF scientists to the chapters "Impacts and Adaptation to Climate Change in Latin America" and "Advancing our Understanding on Climate Change." These two chapters state that the adaptive capacity of the human system in Latin America is low, particularly with respect to extreme climate events, and that further research is required to improve the ability to detect, attribute, and understand climate change.



Global warming is speeding

One study at ZEF analyzes climate change extremes, specifically related to impacts in South America. Since Brazil is the world's largest coffee producer and exporter,



Project partners:

- CPTEC (Centro de Previsão de Tempo e Estudos Climáticos), San José dos Campos, Brazil;
- INTA (Instituto Nacional de Tecnología Agropecuaria), Buenos Aires, Argentina;
- IFDC (International Fertilizer Development Center), Muscle Shoals, Alabama, USA.

monitoring the effects of extreme climatic events (e.g., freezing or floods) on the coffee-growing areas is extremely important. The best-documented freezes in 1975 and 1994, as well as the drought in 1981, have been analyzed. The effect of La Nina years in some regions of Argentina and Uruguay has been analyzed in relation to the freezing period and its impact on winter crops such as corn and cotton.

Establishment of a new research program on wetland development

Since tropical wetlands store enormous amounts of carbon in the soil, the destruction of wetlands would imply a further addition of carbon dioxide to the atmosphere, and thus an acceleration of the greenhouse gas effect. Wetlands are also important centers of diversity for both flora and fauna and regulate the water balance in the landscape. Sound concepts for a “wise use” of wetlands are needed to comply with the Ramsar Convention in maintaining the ecological character of wetlands for nature conservation and sustainable development.

The initiated ZEF project is conceived as an exploratory effort to provide baseline data on carbon dynamics under different scenarios of wise use of wetlands. The point of departure is a selection of regional case studies in regions with abundant wetlands in developing countries. One of the case studies comprises the Yala swamp in the Kenyan part of the Victoria Basin. First contacts to local scientists were made during a preparatory visit. Another case study was started on wetlands in Botswana.

Ecosystem Functioning

Ecosystems are the underlying functional units of land. They provide the complex biophysical phenomena, developed over thousands of years, on which all human land use is based. Preserving ecosystem function is a major challenge to development. An intelligent, adaptive utilization of “ecosystem services” will not only provide ecological but also economic sustainability. Some—and here modern and old cultures meet—consider it an ethical *sine qua non* not to subject everything to economic utilization. Some 800 million hungry people in the world might think differently. However, the recent history of natural resource use is full of examples where the change of paradigm from working against nature to working with nature has led to better harvests, preservation of wildlife and game, clean water and air, improved human livelihoods, and savings of financial resources otherwise necessary “to clean the mess up.”

Nutrient-enhancing mechanisms

A study on the nutrient balance of the traditional slash-and-burn land use in the Eastern Amazon was carried out by ZEF together with its partner, the Brazilian Agricultural Research Institute EMBRAPA-CPATU, and within the German-Brazilian research program SHIFT. The conventional slash-and-burn practice was compared with slash-and-mulch, which is favored to save the nutrients that are otherwise volatilized by burning. However, it remained unclear whether the nutrient-saving would be lost by leaching of nutrients from the decomposing mulched biomass. The study revealed that this was not the case. Moreover, leaching losses—especially the nitrogen budget— could even be diminished with the new technique. This is of ma-

Sommer, R.: “Water and nutrient balance in deep soils under shifting cultivation with and without burning in the Eastern Amazon”, Cuvillier Verlag, Göttingen, 2001, pp 226.



major importance, as nitrogen is a key element for plant nutrition. It is cycling in large quantities in forest ecosystems, but its concentrations rapidly decrease during cultivation on nutrient-poor soils, causing considerable reduction in plant growth, which is a major reason for the farmers to abandon their land. It is predominantly the biological fixation of nitrogen from the atmosphere (biological nitrogen fixation, BNF) that is responsible for the capacity of the natural system (secondary forest/fallow) to recharge its nitrogen stocks. In a ZEF study using the ^{15}N Isotope dilution method, this potential was investigated on several indigenous Eastern-Amazonian leguminous trees. Between 69 and 92 percent of the nitrogen accumulated by the legumes had been biologically fixed, i.e., were derived from the atmosphere. A chronosequence study on BNF conducted by ZEF researchers showed that N_2 -fixation gradually loses importance in older secondary forests and is down to zero in primary forests.



Traditional slash-and-burn practice and modern slash-and-mulch technique.

BNF also plays an important role in rice cropping systems that integrate the small, floating water fern *Azolla*. In association with blue-green algae (*Anabaena*), this fern provides considerable amounts of atmospheric nitrogen to the system and thus has been sustaining rice yields in large parts of China and Southeast Asia over millennia. Nowadays, however, *Azolla* has been largely displaced by chemical N-fertilizer (urea). ZEF explored the potential and interaction of a simultaneous application of both *Azolla* and urea. Keeping the flood-water-pH low, *Azolla* reduced the gaseous losses of ammonia by half. Thus, recovery of nitrogen from urea in rice could be increased substantially. Due to the additional supply with biologically fixed nitrogen by *Azolla*, rice yield also could be improved by up to 125 percent. Thus, synergy effects that are explored when urea and *Azolla* are combined translate into savings in fertilizer use and a boost in rice yields. A field program carried out in the Philippines seems to confirm these results.

ZEF research shows that introducing *Azolla*, using improved urea forms, and fertilizing "on demand" are new intelligent management options for farmers that can help improve their nutrition and livelihoods.

The introduction of *Azolla* into land use practice is not the only promising way to improve rice production. The form of the urea fertilizer used and the method of application both are means to enhance input efficiency.

In a series of field trials carried out in collaboration with the International Rice Research Institute (IRRI) in the Philippines, controlled-release urea (CRU) significantly improved grain yield compared to the commonly used prilled urea form. Furthermore, around 30 percent of prilled urea fertilizer could be saved without any yield loss compared to normal, when urea application was scheduled according to plant needs. The rice-leaf color was assessed with the help of leaf-color charts to time the urea application. This system led to substantial N savings compared to the farmers' common practice.

Management of Soil Ecology

Soils come to life through soil organisms. These effectively transform organic debris (e.g. dead leaves, carcasses of animal) on the soil surface into soil organic matter (SOM). SOM or humus and its association with soil minerals, in turn, is essential to soil function: it keeps plant nutrients and water in the upper soil, where roots can access them, and provides tilth—making the soils easier to work with. Also, SOM-



rich soils generally retain more water than non-organic soils. Therefore, soil organic matter is seen as a centrally important element for sustaining soil productivity.



Soil survey in the Amazon region.

Martius, C., Tiessen, H., P.L.G. Vlek (eds): "Managing Organic Matter in Tropical Soils: Scope and Limitations". Kluwer Academic Publishers, Dordrecht, 2001 (forthcoming).

ZEF dedicates considerable research activity to the ecology of soils and the management of soil organisms. After a project on the role of soil fauna in Amazonian rain forests and agroforestry systems was concluded in 1999, a follow-up to this study was initiated in 2000. Both projects were developed together with the State Museum for Natural History in Karlsruhe and the Embrapa Amazônia Ocidental in Manaus. They were funded by the German Ministry of Education and Research (BMBF) as part of the Brazilian-German cooperative research program SHIFT (Studies of Human Impact on Floodplains and Forests in the Tropics). The principal outcome of the first project was that in rainforest areas it is particularly the macrofauna—large soil animals like termites or earthworms—that help plant litter decompose faster. Termites, for example, are a dominant element of the soil fauna communities, and a detailed study of their role in the carbon cycle has shown that up to 30 percent of an ecosystem's carbon can be mineralized through the termite community. In the studied rain forest, dead leaves in the litter layer lost 80 percent of their original weight during one year when macrofauna was present, but only 50 percent when it was excluded. In the studied adjacent agroforestry systems, the overall decomposition was slower, but large arthropods still could speed it up. Thus, without macrofauna, plant

debris would accumulate and their turnover rate would be reduced. Therefore, the aim of the follow-up study is to determine how soil macrofauna can be manipulated in agricultural fields. The possibility of manipulating the food resource (leaf or wood litter) is a principal research goal of this study.

Findings from a joint research project between ZEF, Embrapa, and the University of Bayreuth have shown that the role of this fauna is rather complex. Termites accumulate lignin in their mounds. Lignin, the complex molecules that make up the woody structure of plants, is the precursor of humus. But the pathways of lignin decomposition in the nest material of different termite genera seem to be highly variable, each nest showing a different "lignin signature." Termites have thus found a way to stabilize organic matter in their nests, and it is likely that active and diverse termite communities contribute to the stability of organic matter in tropical soils.



Weeding of upland rice.

Managing the macrofauna could play an important role in low-input systems, e.g. mulching systems based on organic matter inputs. However, the findings also show that it is imperative to be able to manage soil organisms in a way that they deliver the benefits without destroying the crop. If this can be sorted out, then for farmers struggling on marginal land, "feeding the soil fauna" might ultimately become part of their strategy to conserve and enhance the soil, while making use of the "ecosystem services" natural biota provide.



■ Desertification

Desertification is not, as the term might suggest, the spread of deserts but the degradation of drylands. This process, which is generally induced by human activities, leads to a persistent decline in economic productivity of land use systems.

Desertification or dryland degradation is characterized by an often drastic reduction of vegetation cover and soil fertility, and reduced food production. As the degradation process affects rural livelihoods in drylands in general, desertification is equally an ecological, an economic, and a social phenomenon. Dryland ecosystems may be as rich in animal and plant biodiversity as tropical rainforests. Important food crops (barley, sorghum, wheat) originated in drylands. Combating desertification therefore helps preserving biodiversity. Drought and desertification also affect quantity and quality of freshwater supply. Desertification may become increasingly threatening, given the trend of global warming that will disproportionately affect the worlds' drylands.

Drylands susceptible to desertification correspond to about 40 percent of the global land area, and two-thirds of these drylands actually suffer from land degradation. However, most of this land is reclaimable with proper adaptive management, unlike the 78 million ha that are irreversibly degraded.

ZEF therefore dedicates a large part of its resources to study sustainable land use as an approach to combating desertification. The underlying assumption is that natural ecosystems perform environmental regulatory (ecological) functions (carbon sequestration, nutrient cycles, filtration of water, retention of dust and pollutants, to name only a few) that have been fine-tuned in a millennia-long evolutionary process.

These functions, if properly managed, could provide long-lasting ecological sustainability and economic recovery of land use in drylands.

One research activity is dedicated to the restoration of vegetation cover in drylands. In a study carried out in Niger, the "zai" system that was originally invented by farmers in Burkina Faso to restore degraded land is further developed and fine-tuned. Other research explores the possibilities of sustainable management of beneficial soil organisms, e.g. in Amazonian land use systems (see Ecosystem Functioning), and in rice fields of Indonesia.

ZEF is participating in the German national competence network of institutions researching desertification (German Desert*Net) and in international initiatives (e.g., by cooperation with the UN Convention to Combat Desertification (UNCCD)).



Dryland degradation.

Katyal, J.C. and Vlek, P.L.G.: "Desertification - Concept, Causes and Amelioration", ZEF Discussion Papers on Development Policy No. 33, Bonn, 2000, 65 pp.



Teaching

The International Doctoral Studies Program for Development Research

ZEF's research is closely integrated with its teaching activities. The students of the International Doctoral Program are usually part of one of the research groups. This ensures overall thematic coherence within ZEF, and at the same time provides doctoral students with an adequate training environment. On the other hand, doctoral research also stimulates and advances ZEF's general research agenda.

The Program in brief:

The Doctoral Program has a clearly defined duration (36 months). After an initial phase of six to twelve months for preparation with a tightly organized course program, the doctoral candidates conduct their empirical research at their specific location abroad, in an environment with quality advisors and supervisors (normally one to two years). A final period of six-twelve months for synthesis and writing should complete the program. Key to the program is the research phase that is to be carried out in developing countries or institutions related to development. The entire program is in English. A two-month conversational German language course is offered to all incoming foreign students at the beginning of the study program.

Students may pursue their doctoral study under direct supervision of ZEF professors but may also be associated with ZEF while supervised elsewhere. The degree may be obtained from a German institution or within sandwich programs at qualified universities overseas. In consultation with ZEF, the doctoral thesis may be submitted to any co-operating faculty in Germany or abroad (as sandwich-models). Doctoral degrees may be in sociology, political science, agriculture, economics, mathematics or natural science.

Application Deadlines

Application deadlines are 30 September for non-German citizens and 31 May for German and EU citizens.

Candidates of ZEF's Doctoral Program are mainly from developing countries, but also include Germans and citizens from other developed countries that plan a career in international development. The program offers doctoral degrees of a top academic standard for young scientists engaged in policy analysis, economics, ecology, and management of natural resources. The scholars of this program are exposed to an integrated interdisciplinary development philosophy.

Currently, more than seventy students from twenty-seven countries, mainly from Africa and Asia, are participating in the International Doctoral Program at ZEF. One third are women. In addition, thirteen external doctoral students from other universities have participated in the courses at ZEF.

In 2000, ZEF received more than six hundred requests from all over the world about information on the program. In the end, ZEF received around three hundred new applications, many of them from candidates with excellent qualifications. Out of those, thirty-six candidates were selected to participate in the academic year 2000/2001 on the basis of criteria that evaluated the applicants' academic grades, their experience, and the research proposal.

The internet now plays an important role for the distribution of the information on the program. More than 30 percent of the interested persons learned about the existence of the program first from the ZEF home page, and 13 percent through e-mails distributed



worldwide to universities and other institutions. ZEF works diligently to update the presentation of the program and the participating students' research work.

Scholarships and Funding

Around 40 percent of the participants received scholarships from the German Academic Exchange Service (DAAD) (only for students from developing countries). The others were supported by the Robert Bosch Foundation (only German citizens), the Catholic Academic Foreign Service (Katholischer Akademischer Ausländerdienst, KAAD), the Eiselen Foundation, the World Bank, the Daimler Benz Foundation, or their home country (students from China, Brazil, Italy). Eight students were funded through the major research projects described in preceding chapters, and ZEF itself supported eight students with scholarships, most of them again linked to one or the other of the crosscutting research programs. In addition, the Federal Ministry of Economic Cooperation and Development (BMZ) via the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) and the Robert Bosch Foundation supported the program with funds for the students' empirical research.



Doctoral students of the academic year 2000/2001.

The Doctoral Courses

In the year 2000, more than one hundred lectures and seminars were conducted in the doctoral program, approximately 40 percent by external lecturers. ZEF invited experts from leading institutions, including Harvard University, the University of Maryland, the University of Oslo, the University of Massachusetts, ISS (Den Hague), ICT (Enschede), WAU (Wageningen), the Potsdam Institute for Climate Impact Research, and others. The Doctoral Course Program was organized in three modules:

■ Course Module I

Reading Exercise (August – September). This reading exercise built a fundamental understanding of the problems and theoretical knowledge in all three disciplines touched by the course: ecology, economics, and social science. A reader was distributed that contained scientific articles and selected chapters from monographs and series, etc. The reading exercise was accompanied by tutorials by ZEF staff.

Mathematics and Statistics Course (September). This course on basic knowledge in mathematics and statistics, which was held during the last two weeks of September, was led by Prof. Alfred Stein of the Wageningen Agricultural University (WAU) in the Netherlands.



An Overview of Ph.D. Candidates and Doc

Last Name	First Name	Country	Research Topic
Agyare	Wilson	Ghana	Sustainable Land Use
Ajayi	Ayodele E.	Nigeria	Water Scarcity and Resource Management
Algieri	Bernardina	Italy	Governance and Rule of Law
Ashour	Sanaa Mohamed Mahmoud	Palestine	Governance and Rule of Law
Braimoh	Ademola Kamoru	Nigeria	Sustainable Land Use
Burose	Dirk	Germany	Sustainable Land Use
Codjoe	Samuel Nii Ardey	Ghana	Sustainable Land Use
Duadze	Stephem Edem	Ghana	Sustainable Land Use
Garcia	Marcos V.B.	Brazil	Ecosystem Functioning
Gunawan	Ketut	Indonesia	Governance and Rule of Law
Ibrakhimov	Mirzakhayot	Uzbekistan	Water Scarcity and Resource Management
Intsiful	Joseph Daniel Kojo	Ghana	Water Scarcity and Resource Management
Jiang	Yuansheng	China	Poverty Reduction
Kassahun	Samson Belachew	Ethiopia	Poverty Reduction
Khalafalla	Khalid Yousif	Sudan	State Building and Ethnic Conflicts
Konseiga	Adama	Burkina Faso	Trade and Globalization
Krämer	Mario	Germany	State Building and Ethnic Conflicts
Kyaw	Kyaw Win	Myanmar	Sustainable Land Use
Le	Thi Thu Huong	Vietnam	Sustainable Land Use
Makhmudov	Nurullo	Uzbekistan	Modern Technologies
Mendoza-Escalante	Ariste	Mexico	Sustainable Land Use
Mussgnug	Frank	Germany	Sustainable Land Use
Naher	Ainoon	Bangladesh	Culture and Development
Nguyen	Thi Phoung Hoa	Vietnam	Trade and Globalization
Obeng-Asiedu	Patrick	Ghana	Water Scarcity and Resource Management
Oguntunde	Philip Gbenro	Nigeria	Sustainable Land Use
Osei-Akoto	Isaac	Ghana	Poverty Reduction
Osei-Asare	Eric	Ghana	Water Scarcity and Resource Management
Romualdo de Sousa Filho	Francisco	Brazil	Sustainable Land Use
Siegmann	Karin Astrid	Germany	Trade and Globalization
Tuladhar	Junoo Kamal	Nepal	Sustainable Land Use
Vela-Eiden	Talia	Peru	Governance and Rule of Law
Wale	Edilegnaw	Ethiopia	Biodiversity
Ziemek	Susanne	Germany	Poverty Reduction



Themes of the Academic Year 2000/2001

Thematic Area

- Soil physical Properties Prediction Model for the Volta Basin
Scaling of Surface-Runoff and Infiltration Processes in the Volta Basin (West-Africa)
- Economic Transition in Russia
Towards an Institutionalized Development Planning Process in the State of Palestine
Modeling of Land Use Change in the Volta Basin of Ghana Using GIS, Remote Sensing, and Geo-Statistical Techniques
Validation and Improvement of SVAT Models for three Landscape Types in Ghana.
Population and Land Use Change / Dynamics in the Volta Basin of Ghana
Land Use and Land Cover of the Volta Basin: Classification Methods and Change Correlation with Land Sustainability
Effects of Pesticides on Soil Fauna and Decomposition of Organic Matter - Development of Ecotoxicological Test Methods for Tropical Regions
The Politics of Indonesian Rainforest: A Study of Forest Conflicts in East Kalimantan
Data Mining as a Tool Towards Improved Water and Land Management in Khorezm - Improving the Efficiency of Monitoring Related to Water and Salinity Balances of Irrigated Lands and Water Bodies
Estimation of SVAT Optimal Parameters by Inverse Modeling
- Insurance in Rural China
Urban Poverty in Ethiopia: The Cultural and Social Perspective
The Rise of Political Islam in Sudan: Economic Transformation and Social Differentiation
Regional Integration in West-Africa
Ethno-Nationalist Mobilization and Conflict Prevention in South Africa
- Managing N-fertilization through Crop Demand-driven Field Specific Application
Biological Control of Root Rot Disease Caused by Pythium Aphanidermatum on Tomato Plant
The Role of Information and Communication Technologies for the Economic Growth of Central Asian Countries
Social cost Benefit Analysis, Alternatives to Shifting Cultivation in Brazil
Sustainable Nutrient Management of Intensive Rice-based Cropping Systems on Degraded Soils in the Red River Delta of Vietnam
Gender, Religion and Development in Rural Bangladesh
Foreign Direct Investment and its Contribution to Economic Growth and Poverty Reduction in Vietnam
Optimal Allocation and Use of Water Resources in the Volta River Basin
- The Dynamics of Evapotranspiration and Complimentary Relations in the Water Balance of the Volta Basin
Risk Sharing and Equity in the Finance and Delivery of Health Care in Ghana
Determinants of Communal and Household Water Demand, Production and Investment Decisions in the Volta Basin
Family agriculture: The historical dynamics of reproduction in an agrarian frontier area in the Eastern Amazon region of Brazil.
Consequences of the South-East Asian Financial Crisis on Women's Labour Supply-The Example of Indonesia
Integrated Nitrogen Management in Rice Wheat System.
The Impact of Structural Adjustment Programmes on the Institutional and Regulatory Framework for the Environment: The Case of the Mining Sector in Peru
Economics of in-situ Conservation of Crops Genetic Resources
Economics of Volunteering



The Interdisciplinary Course in October. A four-week course (full day) was intended to open the minds of the students to other disciplines and to change their working mentality for their future doctoral research.

The course embraced the classical fields of environmental disciplines within natural sciences, and the economic, political, and social-cultural dimensions of development. The themes in the course were: environment, societal organizations and economic growth; democracy and good governance; globalization; change and development;



Learning about development issues in the morning...

sustainability and collective action; knowledge and human capital formation; legal perspectives of development; and human behavior and sustainable development. Another part of the course focused on modeling, including model choices; fundamental modeling approaches in social, economical, and natural sciences; multidisciplinary models; and exercises in ZEF's geographical information system (GIS) lab. Three additional weeks were dedicated to reflective activities (writing, literature research) and writing of a term paper jointly by two students of different disciplines.

Before and after the course, other lectures and seminars were dedicated to improve the generic skills of the students, including managerial skills; technique options; research planning and research economics; literature and web research; and communication, public speaking, and preparation of presentations.

■ Course Module II

Three eight-week disciplinary courses provided specific knowledge on theory and methodology for each program area.

Course on Cultural Change & Development (November - January)

This course covered five areas: (i) concepts of development; (ii) democratization, rule of law, and human rights; (iii) political dynamics of local development; (iv) ethnic conflict and conflict prevention; and (v) globalization, culture, and development.

Course on Development Policy Analysis & Development Economics (February – March)

This half-day course aimed at revisiting some of the mainstream quantitative and economic tools for development policy analysis and was spread over eight weeks. It encompassed four parts: (i) econometrics; (ii) microeconomics; (iii) macroeconomics and international aspects of development; and (iv) environment and development economics. The courses acquainted the students with applied econometric analysis. The focus was on studies of empirically tractable and testable models of individual,



household, and firm behavior, as well as macro and international aspects of development economics.

Course on Ecology, Land Use and Development (February – March)

This full-day course focused on the complexity of natural and agricultural ecosystems. It assessed the impact of human interventions on the natural resource base in the context of sustainable and unsustainable development, and delineated adequate measuring techniques for different scientific questions and scales.

The students acquired 'T'-shaped skills: analyzing an ecological issue in its breadth, focusing on the critical issues, and studying these issues in depth.

The course had four parts: (i) water and nutrient cycles; (ii) ecology of landscapes and ecosystem functions; (iii) symptoms of unsustainable development; and (iv) analysis and management of natural resources



... building cultural bridges in the evening.

■ Course Module III

In Course Module III, various courses on specific topics were offered, including specific training for individual students provided in laboratories at the University of Bonn, or other cooperating institutes in Germany or abroad.



Policy Dialogue and Public Awareness

ZEF's activities are meant to help find new solutions to the most pressing development problems—as through the formation of a new generation of decision-makers as well as through policy-relevant research. The dialogue and exchange with the world of development politics and policy is of strategic importance. It guarantees that ZEF's research agenda remains policy relevant, and it ensures at the same time that ZEF'S research results are communicated to relevant policy circles and the larger informed public. Part of this endeavor is to demonstrate the importance and long-term benefits of development research to the general public.

ZEF disposes of several channels of communication to reach these goals: conferences and workshops that include researchers, policymakers, and representatives of

civil society; public lecture series; regional and global coordination of development research and research-policy linkages; publication of research results in a form accessible to non-experts; classic public relations instruments such as press conferences, the dissemination of newsletters, and the presentation of ZEF to groups of visitors; and, perhaps most importantly, the website.



From left: Klaus Töpfer (UNEP), Margarita de Botero (National Fund for Science and Technology, Colombia), and Joachim von Braun (ZEF) explaining the Global dialogue to the media.

Global Dialogue on the Future of Villages

In August 2000, ZEF organized a three-day “Global Dialogue” on the topic “The Role of the Village in the 21st Century: Crops, Jobs, and Livelihood.” The event took place during the EXPO Exhibition in Hanover and was addressed by Her Majesty, the Queen of Swe-

den. It brought together three hundred participants from fifty-five countries. The aim of the *Global Dialogue* was to facilitate learning from successes and failures in rural development worldwide in order to improve, in the long run, living conditions in rural areas. The discussions focused on identifying new courses of action and learning from past ones, all measured against the dual goals of improving rural livelihoods and of fostering productive, complementary relationships between cities and villages. The search for fair and efficient institutions and for appropriate modern technologies was the major concern. The overall message from participants in this *Dialogue* was unanimous: there is a promising future for rural areas worldwide, provided adequate policies can be enforced and more efficient and fair institutions created.



To improve the quality of rural life, however, it is not enough for experts to discuss the relevant issues in a closed circle. Hence, the *Dialogue* was a broad-based and open debate among representatives from the scientific community, politics, NGOs, the private sector, and selected rural areas. The participants contributed to the *Dialogue* in one of the thirteen sessions or by demonstrating a project. In addition, several hundred EXPO visitors participated in the three public TV talk shows of the *Global Dialogue* and many thousands visited its website, in this way taking part in the *Dialogue*.

The *Global Dialogue* is a process, initiated in 1998, and has so far included dialogues on information technology for the poor, on women farmers, and on biotechnology for the small-holder sector in developing countries. ZEF is going to follow up on the *Global Dialogue* with research and further policy debate forums on the topics of rural development and urban-rural linkages.

To stimulate the dialogue on the future of rural areas ZEF has produced a thirty-minute video on the *Global Dialogue*. The video is available in English and German and can be ordered from ZEF. Furthermore, a volume containing the proceedings of the *Global Dialogue* is currently in press. The enthusiastic response by its many participants and the media verifies that the *Global Dialogue* on the future of the village both meets a need and provides a successful tool to address researchers as well as the public.

The *Global Dialogue* was organized by ZEF in cooperation with numerous partners (see chapter "ZEF – in brief"). Apart from the indispensable cooperation on content and organization, the financial support has been crucial to the *Global Dialogue*. It proved to be a real public-private partnership, with sponsors from the private and public sector.

Video: ZEF/DSE: "Global Dialogue: The Role of the Village in the 21st Century: Crops, Jobs, and Livelihood." 30 minutes, available in German and English.

Virchow, D. and J. von Braun, *Future of Villages: Crops, Jobs and Livelihood*. Springer, Heidelberg, 2001 (in print).

Conference "Facing Ethnic Conflicts"

Since the end of the Cold War ethnic conflicts have gained more and more public attention. Prevention and management of ethnic conflicts have become major tasks of foreign and development policy strategies. Various explanations and concepts for interventions have evolved. However, the policy debate lacks a sound academic basis and research is in need of policy relevance.

For these reasons ZEF organized the conference *Facing Ethnic Conflicts – Perspectives from Research and Policy-Making* in Bonn in mid-December 2000. The conference aimed to provide a platform for policymakers and researchers to discuss methods of prevention and settlement of violent ethnic strife. More than two hundred renowned international researchers and policymakers participated.

The first part of the conference addressed the rise of ethnic conflict and possibilities for its prevention. The lack of political will was stressed as a salient obstacle to pre-



Participants of the conference "Facing Ethnic Conflicts".

The conference on ethnic conflicts was co-financed by the German Federal Foreign Office.



venting the escalation of ethnic conflicts. *Max van der Stoel* (OSCE High Commissioner for Minorities) drew attention to the need for an improved legal basis for minority rights and a stronger international engagement in conflict prevention.



Richard Goldstone, Justice of the Constitutional Court of South Africa.

The conference then concentrated on the dynamics of conflict escalation. Although various strategies and tactics were presented, the contributions revealed that there is no ideal means of intervention in order to achieve a successful transformation of ethnic conflicts. However, most participants agreed that the crucial elements of sustainable conflict resolution are a clear leadership structure and a common position among intervening organizations, as well as consideration of the vital interests of all parties involved.

The final part of the conference dealt with peace maintenance. A major outcome was the consensus that only the inclusion of the entire society in the process of reconciliation could guarantee stable peace. In this context, *Richard Goldstone* (Justice of the Constitutional Court of South Africa and former Prosecutor of the UN

Criminal Tribunal for the Former Yugoslavia) emphasized public acknowledgment of the victims' suffering as an essential part of all reconciliation procedures. Many speakers, including such distinguished researchers as *Michael Hechter* (University of Washington) and *Donald Horowitz* (Duke University), critically reflected upon the establishment of democracy and federalism as general prerequisites for durable peace. These constitutional settings should be implemented cautiously and in accordance with the specific political situation. The introduction of democracy and federalism may contribute to the escalation of conflict if ethnic differences have already been politicized.



Thoraya Ahmed Obaid, director UNFPA.

Bonn Dialogue on Development Policy

Within the framework of the Bonn Dialogue on Development Policy, ZEF was able to host two prominent international guests. On 11 September 2000, Kemal Dervis, Vice President and Head, Poverty Reduction and Economic Management Network (PERM) at the World Bank in Washington and currently Minister of State responsible for the Economy in Turkey, delivered a speech on "Globalization and Equity." On 8 March 2001 – the International World Women's Day - the newly appointed Executive Director of the United Nations Population Fund (UNFPA), Thoraya Ahmed Obaid, gave her views on "Bridging Cultural Values and Women's Reproductive Rights: A Future Priority of UNFPA."

Public Lectures

As part of the Public Lecture Series, in which current topics in development research are addressed, approximately forty guest speakers from all over the world gave lectures between July 2000 and June 2001 at ZEF. A list of all speakers and topics can be found in the chapter "ZEF-in brief."



Other Events

The State Secretary in the Federal Ministry for Economic Co-operation and Development, Erich Stather, visited ZEF with a small delegation in November 2000 and acquainted himself with ZEF's current and projected research and educational activities. Following the presentations, in which various ZEF researchers introduced their work, a lively and very intense discussion took place. The political representatives themselves emphasized that politics needs and desires the support of research.



Joachim von Braun and Erich Stather at ZEF.

On 4 December 2000, the UNIFEM Prize for Women's Self-help Projects was awarded for the second time. The prize, sponsored by the Apfelbaum Foundation, is granted each year by the German Committee of the United Nations Development Fund for Women (UNIFEM). Heidemarie Wiczorek-Zeul, Minister for Economic Co-operation and Development, conferred the awards, which went to Nicaragua, Zimbabwe, and Uzbekistan. Ms. Wiczorek-Zeul gave a keynote address before 150 guests on the importance of women in the development process.



Heidemarie Wiczorek-Zeul (3rd from left) and the UNIFEM prize winners at ZEF.

Global Development Network (GDN)

In October 2000, ZEF became home to the European Development Research Network (EUDN)—the new European hub of the Global Development Network (GDN). EUDN was established by a group of seventeen European development economists in cooperation with the World Bank. GDN—an initiative of the World Bank—is an amalgamation of research institutes from all over the world that address the socioeconomic and political issues associated with sustainable development. The network's objective is to strengthen the research capacity of developing countries by way of exchange of information, support of global research projects, and creation of new initiatives, such as granting stipends and research awards. The worldwide initiative is supported through regional network centers. In addition to the seven networks already existing in developing and transforming economies, three further hubs are now being established in Japan, North America, and Europe.

The primary objective of the EUDN is to promote not only cooperation between researchers from Europe and developing countries, but also between development researchers throughout Europe. It aims at generating knowledge related to development, with special focus on strengthening the research capacity in developing countries.

A further function is to increase transparency by promoting networking between development think tanks and by making the results of research projects more easily available to political decision-makers. A new EUDN homepage is being developed and will be available at www.eudn.org. It provides more detailed information about EUDN and its fellows, as well as news from GDN and the other regional networks.



The EUDN-Secretariat at ZEF is initially funded by the State Government of North Rhine-Westphalia.

EUDN promotes cooperation among development researchers within Europe and between researchers from Europe and developing countries.



Publications

ZEF's research work is documented in its own series of peer-reviewed books and publications, as well as in its contributions to other books and articles in renowned journals. The "ZEF Discussion Papers on Development" publish ZEF's research findings. During the period July 2000-June 2001, eleven discussion papers were published. In addition, ZEF researchers and fellows have published numerous articles in national and international journals. A selected list of publications from 2000/2001 can be found in the chapter "ZEF-in brief."

Academic Awards

The research work of various members of ZEF's academic staff has been honored by a number of academic awards.

- Thomas Berger received the GIL Prize awarded by the German Association for Informatics in Agriculture, Forestry and Nutrition (GIL) in September 2000. He received the prize for his dissertation on multi-agent systems and their application potential in the assessment of technical change, use of resources and political options in the area of agriculture.
- Matin Qaim received the "Josef G. Knoll Research Prize" (DM 10,000), sponsored by the Eiselen Foundation (Ulm), for his doctorate on the impact of biotechnology on agriculture in developing countries.
- Also in October 2000, Katinka Weinberger was conferred the "Developing Countries Prize" of the University of Giessen (DM 3000), endowed by the German Development Bank (Kreditanstalt für Wiederaufbau, KfW), for her thesis on the participation of women in Chad and Pakistan.
- Oded Stark, Professor at the University of Oslo and senior fellow at ZEF, was awarded the renowned "Alexander von Humboldt Research Prize" in recognition of his economic work in the field of migration research.
- Maximo Torrero, ZEF fellow from Peru, together with a colleague- received the prestigious World Bank Global Development Prize 2000 (US\$ 125,000). He was also awarded a Forster-Award of Humboldt Foundation to support his research cooperation with ZEF in 2001/2002.



Andreas Wimmer gives an interview for the science program "nano".

Public Affairs

ZEF's Office for Information and Public Affairs again issued a series of press releases in 2000/2001. Numerous research associates at ZEF gave interviews or placed themselves at the disposal of journalists and editors, in order to furnish background information as needed. Several members of the Association of Foreign Press in Germany visited ZEF in October 2000 to ac-

quaint themselves with the work of the center. On the occasion of the ZEF Conference "Ethnic Conflicts," a ten-minute television broadcast concerning the topics and goals of the conference was produced as part of the science program "nano"



by 3Sat. It was then broadcast at the start of the conference and repeated several times. The ZEF *Pressespiegel*, which can be ordered from ZEF, offers an overview of the press releases for 2000/2001.

Events and Information Materials

Various information materials are written and produced at ZEF in order to inform the general public about the center. “ZEF-in brief,” as well the brochure about the Doctoral Studies Program, were completely rewritten and reprinted in spring 2001.

ZEF News, the newsletter issued free of charge by the Center, was again published three times during the period covered by the annual report. It was published both in English and German, each with three thousand copies. In this newsletter ZEF regularly informs its friends, partners, and sponsors, as well as other interested parties, about new projects, research findings, and current developments at the center.

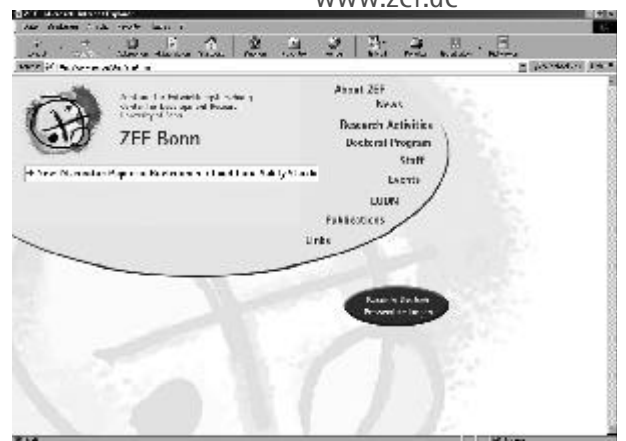
ZEF’s homepage was updated and expanded in 2000/2001. At its website www.zef.de, interested visitors can find information about research and education, staff and guests, special events, and publications. In addition to general information, the website provides links to other institutions in the fields of development research and development cooperation and to ZEF’s partners. On average, more than ten thousand visitors accessed the ZEF site each month, with the figures continually on the rise. The homepage thus constitutes one of ZEF’s most important information media.

ZEF contributed posters, information materials, and publications to the exhibitions held in connection with the congress “North Rhine-Westphalia Shares in Global Responsibility,” held at the beginning of December, as well as to the Fourth Conference of the Parties to the Convention to Combat Desertification, held in Bonn in mid-December. ZEF also participated with a poster display at the Agriculture Faculty at the Second University Conference on 20 February 2001.



More than 10,000 people all over the world visit ZEF’s homepage each month.

www.zef.de





Management and Central Facilities

The Center for Development Research (ZEF) is an interdisciplinary research institution of the Rheinische Friedrich-Wilhelms University in Bonn. Together with its partner institute ZEI (Center for European Integration Studies), it forms the International Academic Forum Bonn (IWB). The two institutes work together, sharing a joint infrastructure and a central management.

The management of IWB provides both institutes with central administrative, fiscal and information services, while facilitating coordination and cooperation between them. Internally, such a model ensures the efficient use of infrastructure and available resources. Externally, IWB's management, particularly through its public relations activities, seeks to promote and maintain an active dialogue with relevant institutions in the fields of science, economy, politics, the media, and administration. It serves as IWB's link, predominantly in financial matters, to the ministries of the Federal Republic and the Federal States.

ZEF is housed, together with ZEI, in an office complex located in the former government district. The offices are modern and well-equipped. Each has direct internet access via a high-capacity in-house computer network connected by 100 MB-cable to the university computer center. Three connecting conference rooms are located on the ground floor of the building, each equipped with up-to-date conference facilities and technical installations. Additional seminar and conference rooms can be found on all floors of the building, used particularly by students in the advanced and continuing education programs. The conference rooms on the ground floor, when not otherwise in use, house a canteen for staff and visitors.

The ZEF/ZEI library is also located on the ground floor. It is still in its developmental phase. By the end of the year 2000, users had 11,550 scholarly monographs at their disposal. Moreover, several data banks and the statistical records of a number of international organizations are available on CD-ROM. In March 2001, ZEF helped found the World Bank Information Kiosk at the German Foundation for International Development, located in close proximity to IWB. Subsequently, ZEF has access to all important World Bank documents and data banks, some of which can also be accessed directly in the ZEF/ZEI library. The library is a reference facility but is open to the general public. Fifty seats in the main reading room, as well as ten computer terminals with internet access, are available to visitors.



ZEF—in Brief

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Financial Crisis in Thailand
 Thailand

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 Japan

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*Information and Communication
 Technologies in Latin America*
 Peru

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*Economics of Biodiversity; EXPO
 2000 Global Dialogue*
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*Economics of In Situ Conserva-
 tion of Crop Genetic Resources in
 Ethiopia*
 Ethiopia

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 Technologies in Rural China*
 China

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 Health Promotion in Low Income
 Countries; Nutrition*
 Germany

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*Bioenergy in Developing Coun-
 tries*
 Germany

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*Policies for Improved Land
 Management in Uganda*
 Germany

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*EU Development Cooperation;
 Regional Integration*
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Social Security Policies in China
 China

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China's Economy
 China

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Economics of Volunteering
 Germany

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*Chances and Constraints of
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 Cameroon



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Azolla and Efficiency of Urea Applied to Rice
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Role of Azolla in Improving Nitrogen Efficiency in Lowland Rice
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Food Resources for Bees
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Genetic Resources of Coffee
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Estimation of SVAT Optimal
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Different Soil Fertility Replenish-
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Carbon and Nutrient Balances in
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Strategies for Green House Gas
Emissions
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Tomatoes
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Arrow Bamboo for Pandas
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Impact of Global Climate Change
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Indigenous People Rights
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Azolla, Nitrogen Management, Rice Wheat Systems
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Mesofauna in Rainfed Rice
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*Sensor Implementation to Monitor
 Volatile Emission in Biofiltration
 Process*
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*Water Management in Irrigated
 Agriculture*
 Uzbekistan

 **Doctoral Studies Program**
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Peters, Hanna

Research Assistant
International Doctoral Program
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Completed Ph.D. by ZEF Scholars

Name

Topic of Ph.D.
ZEF Department
Doctorate received at
Current Position

Attiogbevi-Somado, E.

*The Use of Phosphate Rock in a
 Rice-Legume Rotation System on
 Acid Soil in the Humid Forest
 Zone of West Africa*
**Ecology and Natural Resource
 Management**
University Göttingen
Private Consultant

Hanne, C.

*Die Rolle der Termiten im
 Kohlenstoffkreislauf eines
 amazonischen
 Festlandregenwaldes*
**Ecology and Natural Resource
 Management**
University of Frankfurt
**Post Doctoral Fellow at the
 University of Frankfurt, Main**

Kuhn, Arnim

*Handelskosten und regionale
 (Des-) Integration: Russlands
 Agrarmärkte in der Transforma-
 tion*
**Economics and Technological
 Change**
University of Bonn
**Consultant, GFA-Agrar, Ham-
 burg**

Cissé, M.

*Impact of Azolla on Urea-N
 Cycling in Flooded Rice in
 Comparison to and in Combina-
 tion with Fertilizer Placement,
 Application of Potassium Chloride
 (KCI) and Biocides*
**Ecology and Natural Resource
 Management**
University of Göttingen

Feldbrügge, Torsten

*Economics of Food Security in the
 Context of Disasters and Violent
 Conflicts*
**Economics and Technological
 Change**
University of Kiel
DG Bank, Frankfurt

Le, Phuong Thi

*Seeding and Nitrogen Effects on
 Rice-Weed Competition in Direct-
 Seeded Flooded Rice*
**Ecology and Natural Resource
 Management**
University Göttingen
Research Fellow at ZEF

van Edig, Annette

*Wasser: Rechtsinstrument oder
 Machtanspruch? Die Beispiele des
 Jordanflusses und der israelisch-
 palästinensischen
 Grundwasservorkommen*
Political and Cultural Change
Humboldt University Berlin
Research Fellow at ZEF

Karimuna, L.

*Floristic Composition and Biom-
 ass of Fallow Vegetation in
 Abandoned Agricultural Fields of
 South-East Sulawesi*
**Ecology and Natural Resource
 Management**
University of Göttingen
**Haluoleo University, Kendari,
 SE-Sulawesi, Indonesia**

Qaim, Matin

*Potential Impacts of Crop Biotech-
 nology in Developing Countries.*
**Economics and Technological
 Change**
University of Bonn
**Research Fellow at the Univer-
 sity of California, Berkeley, USA**



Ringler, Claudia

Optimal Allocation and Use of Water Resources in the Mekong River Basin: Multi-Country and Intersectoral Analyses

Economics and Technological Change

University of Bonn

Post Doctoral Fellow at the International Food Policy Research Institute (IFPRI), Washington

Sheng, Mingzhi

Lebensmittelkonsum und – Konsumtrends in China – Eine empirische Analyse auf der Basis ökonomischer Nachfrage- modelle

Economics and Technological Change

University of Bonn

Private Consultant

Sommer, Rolf

Water and Nutrient Balance in Deep Soils under Shifting Cultivation with and without Burning in the Eastern Amazon

Ecology and Natural Resource Management

University of Göttingen

Research Fellow at ZEF

ZEF Events

■ **EXPO Global Dialogue**

15. - 17.08.00

The Role of the Village in the 21st Century: Jobs, Crops and Livelihood

In cooperation with:

- Development Alternatives, India
- FEMNET, African Women's Development and Communication Network, Kenya
- German Agency for Technical Cooperation (GTZ), Germany
- German Bank for Reconstruction and Development (KfW), Germany
- Honeybee Network, India
- International Food Policy Research Institute (IFPRI), USA
- MS Swaminathan Research Foundation, India

- Schleswig-Holstein Agricultural Work Group, Germany
- UNESCO Institute for Education, and Deutsche UNESCO Kommission e.V., Germany
- United Nations Centre for Human Settlements /HABITAT (UNCHS), Kenya
- Wuppertal Institute for Climate, Environment and Energy, Germany

Co-financed by:

- AVENTIS Crop Science, Germany
- German Agency for Technical Cooperation (GTZ), Germany
- German Bank for Reconstruction and Development (KfW), Germany
- AgriExpo, Germany

Date	Topic	Cooperation Partners	Speaker/Sponsors
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- Centre Technique de Coopération Agricole et Rurale (CTA), The Netherlands
- DETECON, Germany
- Deutsche Welle, Germany
- Fischerwerke, Germany
- German Agro Action (DWHH), Germany
- German Cooperative and Raiffeisen Confederation (DGRV), Germany
- German Foundation for International Development (DSE), Germany
- German Foundation for World Population (DSW), Germany
- Kali & Salz AG, Germany
- UNCHS/HABITAT and German Federal Ministry of Economic Cooperation and Development (BMZ), Germany

■ **Workshops / Conferences**

09. – 10.11.00

Workshop: "Putting Human Rights First? Rethinking Development and Trade Policies"
Co-financed by the Volkswagen Foundation

14. – 16.12.00

Conference: "Facing Ethnic Conflicts – Perspectives from Research and Policy-making"
Friedrich Ebert Foundation and Konrad Adenauer Foundation, co-financed by the German Foreign Office

30.04.01

Workshop: "Methods of Institutional Analysis"
Overseas Development Institute (ODI)

10. – 12.05.01

Conference: "Legal Space: Right, Culture and Development"
German Society of Sociology (Sektion der Entwicklungssoziologie und Sozialanthropologie, ESSA)

19. – 20.06.01

Conference "Does Culture Matter? Politics and Governance in the Mediterranean"
Center for European Integration Studies (ZEI)
Co-financed by the Volkswagen Foundation



ZEF Public Lectures

- 03.07.00**
“Virtual water: A Long-term Solution for Water-short Middle East Economics?”
Prof. Tony Allan
School for Oriental and African Studies (SOAS), London
- 10.07.00**
“Information and Communication Technologies, Poverty and Development”
Dr. Richard Heeks
University of Manchester
- 17.07.00**
“Shifting Cultivation and Development in Northern Thailand”
PD Dr. Dietrich Schmidt-Vogt
South Asia Institute, University of Heidelberg
- 21.08.00**
“Reaching the Unreached: Making Science Relevant to the People’s Needs – An Indian Experience”
Prof. Subbiah Arunachalam
M.S. Swaminathan Research Foundation, Chennai, India
- 04.09.00**
“Linking Participation in Technological Development and the Competitiveness of East Africa’s Small and Medium Enterprises (SMEs)”
Dr. Francis A.S.T. Matambalya
University of Dar es Salaam and ZEF, University of Bonn
- 09.10.00**
“Perspectives on Water Resources”
Dr. Jorge A. Ramirez
Associate Professor, Department of Civil Engineering, Colorado State University, Fort Collins
- 16.10.00**
“Lessons from the Asia Crisis”
Prof. Dr. Olle Törnquist
Department of Political Science, University of Oslo
- 23.10.00**
“Information and Communication Technologies and Enterprise Competitiveness in a Liberal Global Economy. A Systemic Review of Small and Medium Scale Enterprises (SMEs) in East Africa”
Dr. Francis A.S.T. Matambalya
University of Dar es Salaam and ZEF, University of Bonn
- 06.11.00**
“Localising Transnational Law”
Prof. Dr. Keebet von Benda-Beckmann
Legal Anthropology, Max Planck Institute for Social Anthropology, Halle
- 13.11.00**
“The Problem of the Commons Revisited: Can Sharing Rules Substitute for Access Rules?”
Dr. Rabindra Chakraborty
University of St. Gallen, Institute for Economy and Ecology, Switzerland
- 27.11.00**
“The Local Indian State, Corruption and the Informal Economy”
Prof. Dr. Barbara Harriss-White
Development Economy, QEH, University of Oxford
- 04.12.00**
“Assessing the Relative Poverty of MFI (Microfinance Institutions) Clients: Synthesis Report Based on Four Case Studies”
Prof. Dr. Manfred Zeller
Institut für Rurale Entwicklung, University of Göttingen
- 11.12.00**
“Poverty, Labor Allocation and Land Degradation with Traditional Shifting Cultivation”
Unai Pascual Garcia de Azilu
Environment Department, University of York
- 18.12.00**
“Growing Township and Village Industrial Enterprises as a New and Major Polluter in China: Current Issues and Policies”
Prof. Kazuki Taketoshi
Faculty of Economics, St. Andrew’s University, Japan
- 08.01.01**
“Conflicts in Africa: Dilemmas of Humanitarian Intervention”
Prof. Tim Shaw
Department of Political Science, Dalhousie University, Canada
- 12.01.01**
“Water Scarcity and Food Security: Alternative Futures for the 21st Century”
Dr. Mark Rosegrant
IFPRI, Washington
- 15.01.01**
“Natural resources, the political state and economic development”
Prof. R.M. Auty
Geography Department, Lancaster University
- 22.01.01**
“Sustainable Forest Management in Amazonian Flood Plains – Exception or Model for Silvicultural Systems in the Tropics?”
PD Dr. Martin Worbes,
Forstbotanisches Institut, Universität of Göttingen
- 05.02.01**
“The Quality of Growth and the Natural Resources: The Role of the State”
Prof. Ramón López
Department of Agricultural and Resource Economics, University of Maryland, College Park
- 12.02.01**
“Environmental Kuznets Curve, Biodiversity, and Sustainability”
Prof. Dr. Renate Schubert
Institut für Wirtschaftsforschung der ETH, Zürich



12.03.01

“Foreign Direct Investment and Labor Markets”

*Prof. Noel Gaston
Bond University, Australia*

20.03.01

“The Emerging New Rural Development Strategy of the World Bank”

*Bob Thompson
Director Rural Development and Agriculture Division World Bank*

20.03.01

“On the Economics of Migration: Beyond Wage Differentials”

*Prof. Oded Stark
University of Oslo. Honorary Professor University of Vienna, ZEF Senior Fellow*

26.03.01

“Long Term Changes in African Savanna Wildlife and Land Cover: Pastoralists or Policies? A Case Study from the Serengeti-Eara Ecosystem (Kenia, Tanzania)”

*Prof. Dr. Eric Lambin
Department of Geography, University of Louvain, Chair of Scientific Steering Committee for ‘Land Use and Cover Change’*

26.03.01

“Transboundary Waters and Decision of Transboundary Problems – on the Example of the Aral Sea Basin”

*Prof. Victor A. Dukhovny
Director Scientific Information Center of the Interstate Coordination Water Commission of Central Asia (SIC/ICWC), Tashkent*

16.04.01

“Agriculture and its Impact on Air Quality and Global Climate Change”

*Lowry A. Harper
Agricultural Research Service, United States Department of Agriculture*

02.05.01

“The Role of Postgraduate Education in Development: The Case of Ghana”

*Prof. Francis Kofi Ampenyin Allotey
Chairman Ghana Institute of Information, President Ghana Institute of Physics, Accra*

07.05.01

“Improved Agricultural Practices, Asset Ownership and Child Time Use Decisions in Rural Ethiopia”

*Dr. Assefa Admassie
ZEF, University of Bonn*

14.05.01

“Bio-economic Models and Ecological Development: Policy Instruments for Sustainable Intensification”

*Prof. Ruerd Ruben
Development Economics Group, Wageningen University, Netherlands*

21.05.01

“Collective Action, Property Rights, and Decentralization in Resource Use in India and Nepal”

*Prof. Elinor Ostrom
Co-Director Center for the Study of Institutions, Population, and Environmental Change, Indiana University, USA*

28.05.01

“Land Resources Availability and Future Food Demand: The Case of China”

*Dr. Günther Fischer
International Institute for Applied Systems Analysis, Laxenburg, Austria*

12.06.01

“Wealth and the Environment”

*Prof. Partha Dasgupta
University of Cambridge, UK*

18.06.01

“Origins of Ideas in Management: Interplay of Teality and Social Sciences”

*Ashok V. Desai
Consultant Editor of Business Standard, India*

25.06.01

“Squatter Syndicates, the State, and the Urban Poor: Popular Housing from Turner to de Soto”

*Dr. Erhard Berner
Institute of Social Science Studies, The Netherlands*

■ ZEF Book Launchings

20.11.00

Governance, Decentralization and Reform in China, India and Russia

*by Jean-Jacques Dethier (ed.)
with Dr. Jean-Jacques Dethier, World Bank and Prof. Dr. Joachim von Braun, ZEF*

21.12.00

Agricultural Biotechnology in Developing Countries: Towards Optimizing the Benefits for the Poor

*by Matin Qaim, Anatole Krattiger and Joachim von Braun (eds.)
with Prof. Dr. Ingo Potrykus, ETH Zurich (em.), Prof. Dr. Joachim von Braun and Dr. Matin Qaim.*

■ Bonn Dialogue on Development Policy

11.09.00

“Globalization and Equity”

*Kemal Dervis
Vice President and Head, Poverty Reduction and Economic Management Network at the World Bank*

08.03.01

“Bridging Cultural Values and Women’s Reproductive Rights: A Future Priority of UNFPA”

*Thoraya Ahmed Obaid
Executive Director of the United Nations Population Fund (UNFPA)*



Selected Publications

■ ZEF Discussion Papers on Development Policy

No. 27:

M. Torero: The Access and Welfare Impacts of Telecommunications Technology in Peru, Bonn, June 2000.

No. 28:

T. Hartmann-Wendels, L. Menkhoff: Could Tighter Prudential Regulation Have Saved Thailand's Banks?, Bonn, July 2000.

No. 29:

M. Dev: Economic Liberalisation and Employment in South Asia, Bonn, August 2000.

No. 30:

N. El-Mikawy, A. Hashem, M. Kassem, A. El-Sawi, A. Hafez El-Sawy, M. Showman: Institutional Reform of Economic Legislation in Egypt, Bonn, August 2000.

No. 31:

K. Roy, S. Ziemek: On the Economics of Volunteering, Bonn, August 2000.

No. 32:

A. Admassie: The Incidence of Child Labour in Africa with Empirical Evidence from Rural Ethiopia, Bonn, October 2000.

No. 33:

J. C. Katyal, P. L.G. Vlek: Desertification - Concept, Causes and Amelioration, Bonn, October 2000.

No. 34:

O. Stark: On a Variation in the Economic Performance of Migrants by their Home Country's Wage, Bonn, October 2000.

No. 35:

R. Lopez: Growth, Poverty and Asset Allocation: The Role of the State, Bonn, March 2001.

No. 36:

K. Taketoshi: Environmental Pollution and Policies in China's Township and Village Industrial Enterprises, Bonn, March 2001.

No. 37:

N. Gaston, D. Nelson: Multinational Location Decisions and the Impact on Labour Markets, Bonn, May 2001.

No. 38:

C. Ringler: Optimal Water Allocation in the Mekong River Basin, Bonn, May 2001.

■ Book and Monograph Publications of ZEF-Staff and Collaborators

Dethier, J.-J.: "Governance, Decentralization and Reform in China, India and Russia", Kluwer Academic Publishers, Dordrecht, 2000.

Evers, H.-D., R. Korff: "Southeast Asian Urbanism, the Meaning and Power of Social Space", St. Martin's Press, New York and LIT Verlag, Hamburg, London, 2000.

Feldbrügge, T.: "Economics of Emergency Relief Management in Developing Countries", Peter Lang Verlag, Frankfurt, (Series 'Development Economics and Policy', edited by Franz Heidhues and Joachim von Braun), 2000.

Grote, U., C. Deblitz, T. Reichert, S. Stegmann: "Umweltstandards und internationale Wettbewerbsfähigkeit – Analyse und Bedeutung im Rahmen der WTO", Vauk Verlag, Kiel, 2001.

Qaim, M., A. Krattiger, J. von Braun: "Agricultural Biotechnology in Developing Countries: Towards Optimizing the Benefits for the Poor", Kluwer Academic Publishers, Dordrecht, 2000.

Qaim, M.: "Potential Impacts of Crop Biotechnology in Developing Countries", Peter Lang Verlag, (Series 'Development Economics and Policy', edited by Franz Heidhues and Joachim von Braun), 2000.

Ringler, C.: "Optimal Allocation and Use of Water Resources in the Mekong River Basin: Multi-Country and Intersectoral Analyses", Peter Lang Verlag Frankfurt, (Series 'Development Economics and Policy', edited by Franz Heidhues and Joachim von Braun), 2001.

Schoeller-Schletter, A.: "Verfassungstradition und Demokratieverständnis, Paradigmenwechsel und Reform: Die Verfassung der Republik Paraguay von 1992", Nomos, Baden-Baden, 2001.

Wagner, C.: "Die Bedeutung Südasiens in der Forschungs- und Universitätslandschaft der Bundesrepublik Deutschland: Eine Bestandsaufnahme", Institut für Asienkunde, Hamburg, 2001.

Weinberger, K.: "Women's Participation – An Economic Analysis in Rural Chad and Pakistan, Peter Lang Verlag Frankfurt", (Series 'Development Economics and Policy,' edited by Franz Heidhues and Joachim von Braun), 2000.



■ Selected Published Articles of ZEF Staff

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Projects at ZEF

Shadows of Modernity. State-Building, Nationalism and Ethnic Conflict
10/99 - 06/01
ZEF
Irak, Mexico, Switzerland

Afghanistan - Ethnicization of a Conflict
10/99 - 05/01
ZEF
Afghanistan

Privatizing Peace? A Case Study in Guatemala
09/00 - 09/03
ZEF
Guatemala

Ethno-Nationalist Mobilization and Conflict Prevention in South Africa
03/00 - 03/03
ZEF
South Africa

The Politics of Indonesian Rainforest. A Study of Forest Conflicts in East Kalimantan
10/00 - 09/03
ZEF
Indonesia

Urban Poverty in Ethiopia. Addressing Shelter and Environmental Problems through Partnership. A Case Study of Addis Ababa
10/00 - 09/03
ZEF
Ethiopia

The Rise of Political Islam in Sudan: Economic Transformation and Social Differentiation
10/00 - 09/03
ZEF
Sudan

Name of the Project

Duration of the Project

Funding Organization

Country of Implementation



The Impact of Structural Adjustment Programmes on the Institutional and Regulatory Framework for the Environment: The Case of the Mining Sector in Peru

10/00 - 09/03

ZEF in cooperation with Proterra (Peruvian environmental NGO)

Peru

Trick or Trickle: Human Rights Norms and Development Practices in Guatemala

03/00 - 02/02

ZEF

Guatemala

Mitigating Human Rights Risks

06/00 - 05/04

ZEF in cooperation with the Centre for Socio-Legal Studies of Oxford University

India, Malaysia, Ukraine, Mexico

Towards an Institutionalized Development Planning Process in the State of Palestine

04/01 - 03/04

ZEF

Palestine

Socio-legal and Jurisprudential Aspects of Colonial and Present-day Legal Orders

04/01 - 10/01

ZEF in cooperation with the Centre for Socio-Legal Studies of Oxford University

Globalization of Knowledge: Development Experts

07/00 - 06/02

ZEF in cooperation with the Sociology of Development Research Centre and the Institute for the Study of World Society, University of Bielefeld
Indonesia, Singapore, Kazakhstan, Uzbekistan, Philippines, Malaysia

Paradigms of Change

01/01 - 01/02

ZEF

Global

Does Culture Matter? Politics and Governance in the Mediterranean

01/01 - 06/01

ZEF in cooperation with the Center for European Integration Studies (ZEI)

Mediterranean Region

From Subject to Citizen? Political Anthropology of Development in Nepal/Himalaya

10/99 - 04/01

ZEF

Nepal/Himalaya

Public Law and Governance

06/00 - 02/03

ZEF

Paraguay, Chile

Democratic Governance

06/00 - 05/03

ZEF

Global

Strengthening Social Security Systems in Developing Countries

1997 - 2001

ZEF in cooperation with ILO

Global

Demand and Impact of Community-Based Health Insurance

1999 - 2001

ZEF in cooperation with research partners from the study countries

Ghana, Ethiopia, China, Tanzania, India, Senegal

Analysis of Demand, Access and Usage of Water by Poor Households in Developing Countries

5/1998 - 5/2001

ZEF

Jordan

The Incidence and Determinants of Child Labour in Africa: The Case of Ethiopia

1999- 2001

ZEF

Subsaharan Africa, Ethiopia

Liberalization cum Decentralization within the Transition Process: Regional Disintegration of Russia's Agro-food Sector

1997-2001

Volkswagen Foundation, Germany
Russia

Governance and Economic Development

1998 - 2000

ZEF, The World Bank
China, India, Russia

Role of the State in Political and Economic Development

1998 - 2001

ZEF in cooperation with research organizations in Egypt
Egypt

The Future of EU-ACP Relations

1997-2001

ZEF

ACP countries

Environmental Standards and International Competiveness - An analysis in the Context of WTO

12/98 - 01/2001

Federal Ministry of Food, Agriculture and Forestry (BML), Bonn, Germany
Brazil, Germany, Indonesia

Economic Evaluation of Agricultural Biotechnologies

01/98 - 2000

Federal Ministry of Economic Cooperation and Development (BMZ) through German Agency for Technical Cooperation (GTZ), Eschborn, Germany
Mexico, Kenya

The Economics of Conservation of Plant Genetic Resources and of Biotechnology for Food and Agriculture in Low Income Countries

1998-2000

Deutsche Forschungsgemeinschaft (DFG)
Global



- Information and Communication Technologies in Developing Countries**
1998—2001
ZEF in cooperation with various research partners in study countries
Bangladesh, Peru, China, India, Sub-Saharan Africa (e.g. Ghana)
- Rural Telecommunications in Lao P.D.R. in Co-operation with Lao Telecommunications Corporation**
1999-2002
KfW
Laos
- Global Register of Migratory Species (GROMS)**
11/97 - 10/2002
Federal Ministry of Environment (BMU) through the Federal Agency of Nature Conservation (BfN), Bonn, Germany
Global
- Influence of Land Use on the Spontaneous Vegetation in Abandoned Agricultural Fields of South-East Sulawesi, Indonesia**
until 08/2000
Asian Development Bank (ADB), Manila, Philippines
Indonesia
- Effects of Crop Establishment Techniques and Nutrient Management on Rice-Weed Competition in Direct Wet-Seeded Rice**
04/1998 - 9/2000
ZEF
Philippines
- Organic Fertilizer Decomposition, Nutrient Release and Nutrient Uptake by Millet Crop in a Traditional Land Rehabilitation Technique (Zäi), in the Sahel**
1998 - 2001
International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Sahelian Center in Niamey
Niger
- Policies for Improved Land Management in Uganda**
1999-2002
Federal Ministry of Economic Cooperation and Development (BMZ) with IFPRI
Uganda
- Secondary Forests and Fallow Vegetation in the Eastern Amazon Region - Function and Management**
09/91-08/03
SHIFT Program of BMBF (Bonn) and CNPq (Brazil), (Project 25)
Brazil
- Importance of the N₂-Fixation in Primary and Secondary Vegetation in the Amazonas-Region**
07/98 - 06/2001
SHIFT Program of BMBF (Bonn) and CNPq (Brasília, Brazil)
Brazil
- Soil N Mineralisation Dynamics as Affected by Pure and Mixed Application of Leafy Material from Various Leguminous Trees Used in Planted Fallow in Brazil**
10/98 - 10/01
CNPq/Brazil, DAAD/Germany
Brazil, Göttingen/Germany
- Assessing the Impact of Climate Change on the Hydrology of River Basins and Tropical River-Delta Areas**
1998 - 2001
ZEF
Latin America
- The Aral Sea Dilemma - Improvement of Water and Land Use Practices in the Rural Areas of the Lower Amu Darya River (Uzbekistan)**
04/00 - 03/01
Federal Ministry of Education and Research (BMBF)
Uzbekistan
- Water Rights and Water Use Policy for the Poor**
02/98 - 05/2000
ZEF, VW Foundation, Humboldt University Berlin
Palestine
- Optimal Allocation and Use of Water Resources in the Mekong River Basin: Multi-Country and Intersectoral Analyses**
01/1998 - 1/2001
ZEF in cooperation with Mekong River Commission
Mekong Region
- Modeling Water Use Efficiency in a Large-Scale Irrigation System**
10/99-10/01
ZEF in cooperation with the International Rice Research Institute (IRRI)
Philippines
- Sustainable Water Use under Changing Land Use, Rainfall Reliability, and Water Demands in the Volta Basin (GLOWA-Volta)**
05/00-04/03
German Federal Ministry of Education and Research (BMBF) and Ministry for Schools and Education, Science and Research of North Rhine-Westphalia
Ghana, Burkina Faso
- Global Dialogue Expo 2000**
06/98 - 10/2001
Aventis Crop Science, GTZ, KfW, Expo 2000-GmbH
Global
- Smallholders in the Amazon: Interactions Between the Ecosystem and the Socio-economic System in the Protection and Use of Tropical Rainforests**
02/01 - 01/04
Shift Program of BMBF (Bonn) and NAEA (Belém, Brasil)
Brazil



**Determinants and Effects of
Alternative Institutions for
Natural Resource Management
in Developing Countries**

04/01 – 03/04

Robert Bosch Stiftung

To be decided

**Biodiversity and Economics for
Conservation (Bioecon)**

2001-2003

**ZEF in cooperation with Euro-
pean Commission**

Africa/Asia

**Volume and Economic Value of
Volunteering in Countries of
Different Income Levels**

09/00 – 06/01

**ZEF in cooperation with United
Nations Development**

Programm/United Nations

Volunteers (UNDP/UNV)

*South Korea, Bangladesh, Ghana,
Poland*

**The European Development
Research Network (EUDN) of
the Global Development Net-
work (GDN)**

09/00 – 8/03

State of North Rhine-Westfalia

Global

**Facing Ethnic Conflicts: Perspec-
tives from Research and Policy
Making**

12/2000

Foreign Office , Germany

Germany

Putting Human Rights First?

**Rethinking Development and
Trade Policies**

11/2000

Volkswagen Foundation,

Germany

Germany

**Non-Technical Barriers and
Implement Restrictions with an
Improved and Intensified Use of
Bioenergycarriers in Developing
Countries**

06/00 – 11/00

German Bundestag

Germany

**Trends and Determinants of a
Disaster Suceptibility**

09/00 – 10/00

**German Committee for Disaster
Reduction**

Germany

**Quality Improvement of Food and
Substances Production with
Biotechnology, Its Importance
for Developing Countries and
Economic Valuation. (Study
Grant)**

04/01 – 03/03

Eiselen Foundation

Germany

**Management of Plant Organic
Matter and Its Effects on Litter
Decomposition and Soil
Macrofauna in Central Amazo-
nian Agroecosystems.**

09/00 – 08/03

Shift Program of BMBF (Bonn)

CNPq (Brasilia, Brazil) and

State Museum for Natural

history, Karlsruhe

Brazil

Cooperation Partners

■ National

BEO, Research Centre GmbH, Jülich
Department of Soil Science and Soil
Geography, University of Bay-
reuth

Expo 2000 GmbH, Hanover

Federal Agency for Nature Conserva-
tion (BfN), Bonn

Federal Ministry of Economic Coop-
eration and Development (BMZ),
Bonn

Federal Ministry of Education and
Research (BMBF), Bonn, Berlin

Fraunhofer Institute for Environmen-
tal Atmospheric Research (IFU),
Garmisch-Partenkirchen

Friedrich Ebert Foundation (FES),
Bonn

German Aerospace Center (DLR),
Bonn

German Agency for Technical Coop-
eration (GTZ), Eschborn

German Bank for Reconstruction and
Development (KfW), Frankfurt

German Foundation for International
Development (DSE), Bonn

Global Farm GbR, Braunschweig
Institute for the Study of World Soci-
ety, University of Bielefeld,
Bielefeld

Institute for Tropical Medicine and
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- Center for Research and Advanced Studies (CINVESTAV), Irapuato, Mexico
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Members of the board are Prof. Joachim von Braun, Prof. Paul Vlek, the former ambassador Alexander Graf York, and Hans Hack (manager).