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ZEF Directors with members of ZEF's International Advisory Board in June 2004.



ZEF in the Academic and International Landscape

The idea to create a “Center for Development Research” at the University of Bonn was born at a special symposium on “Science in intercultural dialogue” in December 1993. At this symposium it was concluded that “the proposed Center for Development Research would be a great focal point for the concentration of competent researchers, for an interchange of scholars and teachers, for a great deal of networking not only with other research centers but also with action-oriented institutions of the world. Such a center, if run imaginatively, will make an impact on policies of the governments and on action programmes of the people”. It was also said that “this will be an opportunity to enhance the scientific and educational density of the Bonn region, and increase its role as an international center”. A further goal of founding the center was that “future development research would have to be interdisciplinary, forward-looking and global in perspective. In addition, it must not be just academic research but must be aimed at guiding developmental policy-making, because development today requires more than just ‘more of the same’. It requires innovation-bold, new but well-founded and thought-through policy action.”

The first concept paper for the new research center, which I drafted in 1994, was based on three pillars: political, socio-economic and cultural issues, environmental potentials and ecology and technological change and sustainable development.

Today, we can say that ZEF is on the right track, by focusing accordingly, and with acknowledged international competence, on three research areas:

- Political and Cultural Change, with research groups on democracy, rule of law and governance, human rights and development, state formation and violent conflict and culture, and knowledge and development,
- Economic Development and Technological Change, with research groups on poverty reduction, human resources and public goods, trade and macroeconomic issues and technologies for development, and
- Ecology and Natural Resource Management, with research groups on management of water resources, managing land use systems and biodiversity management.

ZEF has recognized that development is rarely constrained by a single problem within a single discipline. The program therefore builds on methods of interdisciplinary research. The cross-cutting themes form a major part of ZEF’s research activities. The interdisciplinary program of development-related issues on the basis of sound disciplinary research distinguishes ZEF from other German and also from many international research institutes. The linkage between research in natural sciences and social and economic sciences is an innovative approach in Germany.

ZEF’s comparative advantage is found not only in its interdisciplinary program and the wide range of themes covered, but also in its international character. In addition, ZEF especially proves its uniqueness in the German academic landscape with its international doctoral program.



The author is a member of the International Advisory Board and Representative of the German Federal Ministry for Economic Cooperation and Development (BMZ) for the new EU Member States.

ZEF has in the past focused on knowledge transfer at international level (UN organisations and the World Bank, for example) and on knowledge transfer to and exchange with developing countries. Therefore, ZEF's Evaluation Commission, represented by leading experts, gave ZEF excellent marks for its innovative research program and international profile in its 1999 report. Nevertheless, it recommended a stronger and a more offensive dissemination of research results and knowledge transfer in the German landscape.

There is also a future challenge to strengthen ZEF's capacity of dealing with global governance issues, like the Rio Conventions and their future role. With this in mind, cooperation between ZEF and other development-related research institutes in Germany has been intensified during the last few years, e.g. in the fields of water-related research and governance.

Thus, ZEF has taken up the challenge to strengthen local and national networking. At the end of the process, Bonn is certainly going to emerge as the leading center of development research and the most important think-tank for development-oriented issues in Germany. So it has put into practice what was called for at the 1993 symposium, which provided the basis for creating ZEF: "Future development research would have to be interdisciplinary, forward-looking and global in perspective. In addition, it must not be just academic research but must aim at guiding developmental policy-making."



Michael Bohnet



Introduction

The year 2003/2004: Stability and Progress

In comparison to the previous years, 2003 and 2004 has been a rather stable period for ZEF. Hans-Dieter Evers of the University of Bonn succeeded Tobias Debiel as acting director of ZEF's Department of Cultural and Political Change. Hans-Dieter Evers will be in charge until the position is filled permanently, hopefully by the end of the year. Again, ZEF has proven to be a stepping-stone for quite some careers, and several staff members have left, accepting positions as professors in Germany and abroad. On the other hand, promising and outstanding researchers have joined ZEF as staff members or fellows.

ZEF is in the process of expanding its cooperation with several scientific and non-scientific partners, not only in the framework of its projects, but also in the local context. Close cooperation is envisaged with the newly established United Nations University Institute for the Environment and Human Security (UNU/EHS) in Bonn, and joint workshops and conferences have taken place with BICC (Bonn International Center for Conversion) and the German Development Institute (DIE).

ZEF also took a successful lead in organizing one of the official side-events of the international conference on "Renewables" in Bonn, June 2004, on the issue of Capacity Building regarding renewable energy options in developing countries, in cooperation with the German Academic Exchange Service (DAAD). Furthermore, ZEF participated as an academic consultant in the editorial committee of the German Federal Government's official "Action Plan on Civilian Crisis Prevention", which was published in May 2004.

ZEF has endorsed its profile as an internationally operating research institute, and therefore succeeded in attracting cooperating and funding partners, especially for its major interdisciplinary projects. Thus, the German Federal Ministry for Education and Science (BMBF) has approved the second research phase of the project on ecological and economic restructuring of the Khorezm Region in Uzbekistan, and is continuing the funding of the GLOWA project on water resources in the Volta Basin, which has been expanded toward Burkina Faso as well as the project on Coffea Arabica in Ethiopia. The Dreyer Foundation, a private initiative in the field of development cooperation, is supporting ZEF'S GLOWA extended project in Burkina Faso, aiming at synergy effects of development and research projects.

ZEF is proud of being one of the 16 co-leading institutes selected out of 98 full proposals of the CGIAR (Consultative Group on International Agricultural Research) Challenge Program on Water and Food with projects on Modeling and Governance as well as on Small Dams. In addition, ZEF entered into a partnership with the Institute for Meteorology and Climate Research (IMK-IFU) and the University of Kiel on Sustainable Use of near-natural Landscapes, part of it taking place in the Volta Basin and part in Mongolia, sponsored by the Helmholtz Association.

ZEF is in the fortunate position of having a highly qualified and motivated staff and excellent support from its home University in Bonn as well as the Land and Federal governments. We are therefore optimistic about ZEF's future after funding under the Bonn-Berlin compensation Fund will have come to an end in 2005.



Paul Vlek



Hans-Dieter Evers



Klaus Froberg

A handwritten signature in black ink, appearing to read "Paul Vlek".

A handwritten signature in black ink, appearing to read "Hans-Dieter Evers".

A handwritten signature in black ink, appearing to read "Klaus Froberg".

ZEF's Research Approach

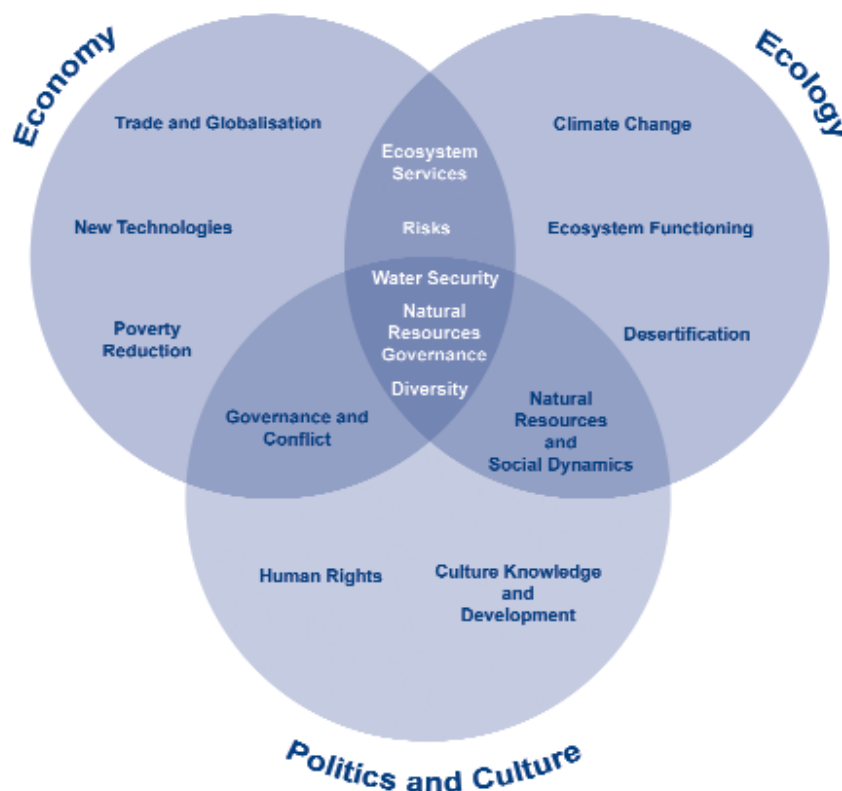
The Center for Development Research (ZEF) is an international and interdisciplinary scientific research institute of the "Rheinische-Friedrich-Wilhelms" University in Bonn. It was founded in 1995 and started its actual research activities in 1997. ZEF's research aims at contributing to solutions to global development issues. ZEF's approach is built on three pillars:

- **Research:** By covering three main research areas, which are interrelated through interdisciplinary research projects, ZEF offers a broad and integrated perspective on development. Since development is rarely constrained by a single problem within a single discipline, ZEF works on crosscutting themes of central importance for the developing world. The research programs build on the methods and analytical styles of the disciplinary research areas and link and integrate knowledge and capacities from different ZEF's departments.

ZEF's major three research areas are: Political and Cultural Change; Economic and Technological Change; Ecology and Natural Resources Management. Results of ZEF's research are published in its own series, the ZEF Discussion Papers on Development Policy, in books, and renowned scientific journals.

- **Teaching and Training / Capacity Building:** Through its International Doctoral Studies Program for Development Research, ZEF intends to strengthen the international development research community in Germany, Europe and the developing world. The program aims at educating highly qualified scientific staff, advisers and managers for both the private and public sectors. In its size and concept, the program is unique, and ZEF has already become an institution of high and worldwide reputation.

- **Policy Dialogue:** ZEF's research and other activities are carried out in close cooperation with national and international partners. In addition, ZEF maintains an active dialogue with representatives from governmental and non-governmental bodies, with national and international organizations for development cooperation as well as the private and business sector. To support its objectives and tasks, ZEF organizes international workshops and conferences, expert rounds and its Public Lectures on development issues. In addition, ZEF publishes Policy Briefs which are relevant for policy-makers, and, for a broader audience, a newsletter called ZEF news as well as its Annual Report. The ZEF homepage (www.zef.de) provides up-to-date information on ZEF's activities and staff.



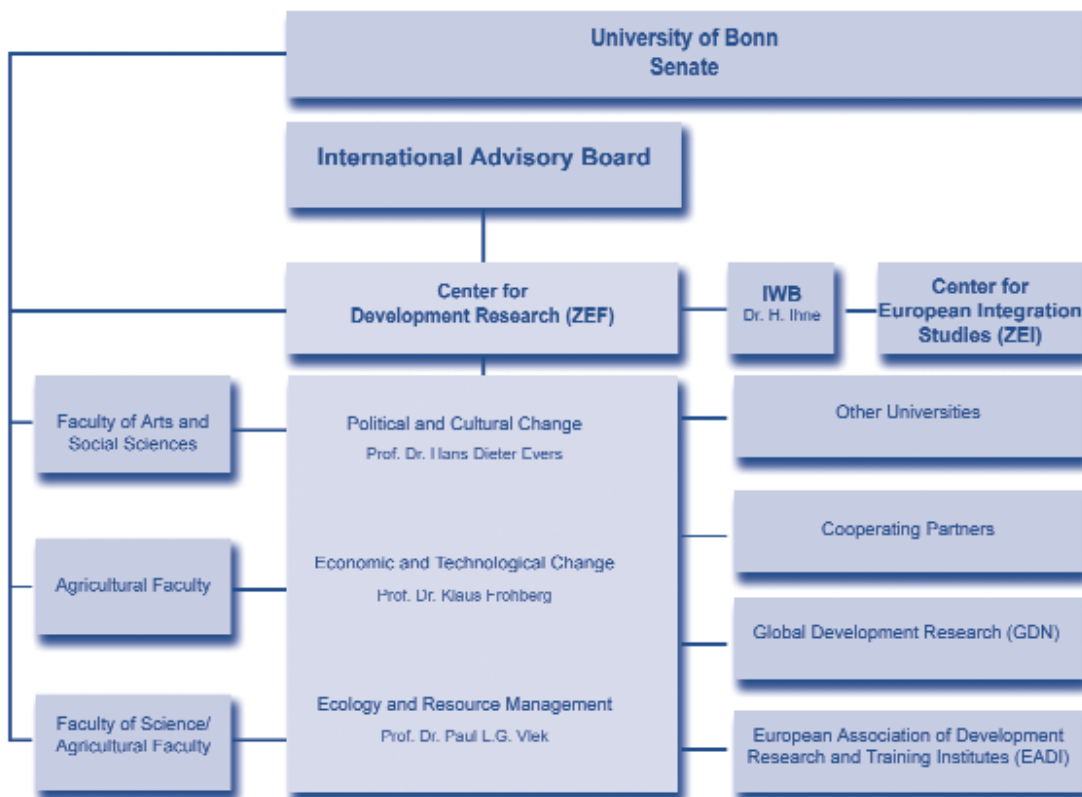
ZEF's Organisational Structure

ZEF has, in accordance with its three major research areas, three departments, which work conjointly. The three departmental heads form the ZEF Board of Directors. ZEF is an institute affiliated to the University of Bonn by being directly subordinated to the University's senate. The three departments cooperate closely with the University's respective faculties.

The work of the Center is supported by an external, international Advisory Board, which was inaugurated in 1999. On the strength of its members' professional competence and reputation, the Board has the task and responsibility to monitor and evaluate ZEF's activities as well as to advise and support the Center in its current work and future strategy.

Since building networks is an integral part of ZEF's way of working, all departments and staff members are closely connected to external cooperation partners (see also "ZEF's Research Approach").

Together with ZEI (Center for European Integration Studies), ZEF forms the International Science Forum Bonn (IWB). The IWB Management supports the two centers in central administrative and budgetary affairs, as well as in coordination, acquisition and communications. The IWB central facilities offer a library and three conference rooms, fitted with modern communications technology.



Lead Article: Governance Matters

by Tobias Debiel, Stefanie Engel, Hans-Dieter Evers, Klaus Froberg, Hartmut Ihne, Conrad Schetter, and Paul Vlek

This year's annual report is devoted to governance, a topic that academic scholars as well as policy-makers attach considerable importance to. Empirical evidence shows that all efforts to improve the living conditions of the poor and to contribute to sustainable development are bound to fail as long as inefficient governance systems exist.

Over the last decade, the concept of governance, and in particular good governance, has become a crucial pillar in national as well as international development policy.

Governance has been at the heart of ZEF's interdisciplinary research agenda ever since it was founded. In our Lead Article, we shed light on the position of governance on the axis between the central and the local levels, a crucial part of ZEF's research agenda on governance. In the core of this research, we critically assess the recent trends of decentralization, conflict resolution and the management of natural resources. We start by reviewing the governance debate as seen from the perspective of major development agencies. We will conclude with an outlook on further research questions that are going to play an important role in ZEF's future agenda.

Governance – a 'Leitmotiv' for achieving development

The exact meaning of the terms 'governance' and 'good governance' is a subject of continuous debate. The term 'governance' is a topic with a wide range of meanings and of the highest complexity. It may be used in different contexts such as global governance, national governance, corporate governance, and sector-specific governance, like governance of natural resources. The World Bank took the lead in putting the topic on the agenda when it defined governance as "the manner in which power is exercised in the management of a country's economic and social resources" (World Bank 1992). In recent years, the World Bank Institute has further operationalized the concept of governance – defining it as the institutions through which authority in a country is exercised for the common good. This includes (a) the process by which those in authority are selected, monitored and replaced (voice and accountability, political stability and absence of violence), (b) the capacity of the government to effectively manage its resources and implement sound policies (government effectiveness, regulatory burden), and (c) the respect of

citizens and the state for the institutions that govern economic and social interactions among them (rule of law, graft).

The United Nations Development Programme (UNDP) has broadened the view of governance by adding the dimension of empowerment and defining governance as "the mechanisms, processes, and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences" (UNDP, 1997).

Over time, a broad consensus emerged to use criteria of good governance as a reference point for technical and financial cooperation with developing countries. The OECD's Development Assistance Committee (DAC) marked the breakthrough in concretizing the concept of good governance for its member countries by establishing the "Orientations on Participatory Development and Good Governance" as a guideline for development cooperation in 1995. By committing themselves



The deadly legacy of violent conflict.

to the EU-ACP Cotonou Convention of 2000, developing countries turned good governance into a reality for themselves as well, while it became one of the guiding principles for development cooperation in general.

The German Federal Ministry for Economic Cooperation and Development (BMZ) pioneered in putting governance on the agenda in 1991¹. In a recent position paper (BMZ, 2002), the BMZ reviewed its ten-year experience in integrating good governance into cooperation strategies and emphasized the further need for developing promotion strategies, a problem analysis and an advisory service. This is an important interface of development policy with governance research at ZEF.

ZEF has a particular focus on analyzing, modeling, and critically reflecting how governance systems work, how their efficiency can be improved, and how they can become more legitimate. As such, its research is both descriptive and prescriptive. While governance can be analyzed on different scales - global, national, and local - most current research at ZEF deals with local and national governance and the inter-linkages between the two levels. Governance research, in one way or another, is an important component of nearly all projects at ZEF. It also cuts across disciplinary boundaries. For example, all large interdisciplinary projects at ZEF have a governance component. It would go beyond the scope of this contribution to review all areas of governance research at ZEF. Chapters 1 and 2 provide some recent examples. In what follows we focus on one issue at the core of governance: the relationship between the state and its citizens, and between different levels of the state - from municipalities to central government. Good governance essentially requires a balancing of competencies and responsibilities between these different actors and levels of state. Within the last decade, an overall shift of powers from the central to the local level and from the state to the citizens has been observed. While we face the reality of weak or even failing states in some parts of the developing world, a global trend has emerged towards decentralization of state competencies and the devolution of rights and responsibilities over the management of natural resources to local communities. ZEF's research reflects such trends by focusing on the following themes:

- decentralization and local governance
- governance and post-conflict reconstruction
- efficient governance of the commons
- knowledge governance

ZEF investigates the advantages and disadvantages of allocating powers at the different levels of state and civil society and derives recommendations on the adequate assignment of competencies between these levels and actors.

Decentralization and local governance

A particular focus of ZEF's research on governance lies on the design of the state as the principal agent of development and change and on its role in providing structural stability and human security in order to facilitate peaceful transformation of political and socio-economic structures. In this context, the concept of decentralization opens up opportunities for the state's functions to address problems to a greater degree. Thus a well-functioning and balanced overall system with different vertical levels of exercising power and decision-making can deal most appropriately with the challenge of political and socio-economic change.

Over the last two decades, many countries around the world have enthusiastically embarked on the path of decentralization, which has been advocated as a powerful means to improve the provision of public goods. Has it fulfilled this expectation? Decentralization as such seems not to have been able to do so (Box 1), even if evidence



German Provincial Reconstruction Team in Afghanistan.

¹ In 1991, the BMZ defined five criteria for good governance: respect for human rights, guarantee of legal certainty, popular participation in the political process, creation of a market-friendly and socially oriented economic order, development orientation of state action (BMZ 2002: 7).

from India shows that fiscal decentralization had a positive impact on the reduction of the rural infant mortality rate. However, decentralization has to be seen in the wider context of institutional settings. Thus, efforts towards decentralization in Russia were doomed to fail because of the persistence of informal institutions that stand in the way of any shift within the political framework.

Box 1: Decentralization, health care service provision, and health outcomes

A project funded by the Volkswagen Foundation examined the impact of rural fiscal decentralization on rural infant mortality rates in India between 1990 and 1997. The results show that fiscal decentralization has played a significant role in reducing the rural infant mortality rate. However, they also demonstrate that a high level of fiscal decentralization alone may not guarantee a reduction in infant mortality rate in areas where the level of political decentralization is low.

Part of the project "Liberalisation cum Decentralization in the Russian Federation", also financed by the Volkswagen Foundation, analysed what impact the trend towards a decentralized provision of public goods has on the access of the rural population to these goods. Fiscal transfers from central to regional and local governments have continuously declined in the transition period. This has also affected the provision of social services such as education and health services. It was expected that income would be an important determinant of access to such services. Empirical results based on household surveys conducted in three Russian regions did not, however, support this hypothesis. In supplementary focus group interviews conducted in 2002, ZEF found that institutional arrangements that are legacies from the socialist past could explain why income has not played the expected role yet. For instance, informal reciprocity networks are still essential in rural communities and prevent former public servants from levying additional fees when providing services, which used to be free of charge. The persistence of such behaviour could lead private investments being crowded out in the area of rural health care.

Furthermore, a potential argument for decentralization lies in the possibility to defuse competition between elitist groups, if power issues are decided not only in the national arena but, rather at the regional and local levels, where counterbalances can be formed. Here again, however, decentralization processes are not without risks. The division of power through decentralization means shifting political decision-making from the centralised state to the regional and local levels. Normally, this happens in the form of a federal state structure, and by strengthening municipal self-administration. Thus decentralization processes may exacerbate conflicts (Mehler 2002). High expectations that decentralization results in greater participation and the rule of law per se may not be justified. It is not only the centralized state that abuses power; 'local despotism' exists as well. Furthermore, shifts of power resulting from a transfer of competencies or municipal elections can lead to disturbances and unrest – especially where there is an atmosphere of distrust and enmity – thus intensifying existing conflicts between majorities and minorities, or between locals (first-comers) and strangers (late-comers) in a region. Finally, a central power may lose its previous function of mitigating or settling conflicts if competence is transferred on a top-down basis.

An automatic decentralization of power can be observed especially in countries in which protracted civil wars lead to the complete collapse of state structures. Often enough the functionality of the central state has been substituted by manifold governances at sub-national and local level.

The harbour of Berbera, Somaliland.



These sub-national levels of governance constitute a hybrid of state and private/traditional structures (Box 2). Actually, local or sub-national governance sometimes meets the needs of the local population in a better way than the central state. In Somaliland, for instance, new systems of governance have emerged. Conflicts could thus be resolved by combining the traditional systems (such as the Guurti) with modern governance structures. However, as the case of Afghanistan shows, local governance is frequently linked to illegitimate sources of power such as warlords and illicit economic activities such as an arbitrary taxation, drug production and trafficking in human beings.

Box 2: Governance in post-war societies – the examples of Afghanistan and Somalia/Somaliland

ZEF's research group "Conflict and state formation" is increasingly addressing questions of governance in crisis regions of the Horn of Africa, Southern Africa, and Central and Southeast Asia, with special expertise on Somalia and Afghanistan. Research focuses in particular on the efficiency and modes of interaction between modern and traditionally based structures of governance, with special attention being given to contexts of violent conflict. At the conceptual level, a study on 'Good governance in post-conflict societies' assessed the specific challenges that this concept faces in the fragile transition periods following war. A workshop applied the concepts of human security, good governance and structural stability to case studies from Africa and Asia.

A major focus of ZEF's research on governance structures in post-conflict societies lies on Afghanistan and Somalia. State structures of both countries are affected by serious erosion as a legacy of protracted civil wars. In Afghanistan as well as Somalia the national governance structures, which emerged in the course of the 20th century, remained weak and merely concentrated on the urban centres. From the 1970s on, both countries went through decades of civil war, lawlessness and instability, and experienced foreign intervention. A UN Mission was established in Somalia in the beginning of the 1990s, while Afghanistan went through Soviet occupation from 1979 to 1989 and has been a battlefield of the 'war on terror' since autumn 2001. Today, both countries are characterised by a centrifugal distribution of power, the lack of a (state) monopoly of force, and the absence of basic standards of governance. The level of insecurity and political fragmentation therefore remains high, while the nationwide level of administration and socio-economic indicators is very low.

Despite these similarities, differences can be observed in the self-governing structures that have emerged in response to lawlessness and war. While the former Italian part of Somalia has splintered into countless local fiefdoms, mostly controlled by so-called warlords, the failure of countrywide Somali nation-building has also led to the establishment of the quasi-state of Somaliland in the former British part of the country, a self-governing and functioning entity in which public security is guaranteed and economic prosperity can be secured. Whereas Somaliland has succeeded in fulfilling the basic functions of governance, the international community still refuses to recognize the country as a state, preferring to abide by the integrity of the state of Somalia.

In contrast to Somalia, the strong identification of the Afghan people with their nation and the international interest in the country safeguard the statehood of Afghanistan, even though this is often on a rather formal note. The inability of the Afghan government to rule the country beyond Kabul goes hand in hand with strengthening self-governance at the communal level. Thus, security issues, administration, and political decision-making are usually organised by the communities, which are often enough influenced or determined by political hierarchies and warlords. The Afghan government's recent effort to strengthen local governance structures entails the peril of boosting the legitimacy of warlords and the position of the ruling local elites.

In times of state failure and the absence of a central state power, it may make sense to promote local institutions in a first phase – even if this is often enough bound on illegal performance, but later on, in a second phase, cross-linking with the central level becomes essential. This strategy can be illustrated by a few examples. At some point, locally promoted schools need a common curriculum at the level of the federal states or the national level;



Children playing on a tank between Taluqan and Kunduz, Afghanistan.

the success of project-oriented support of the rural economy at local-regional level depends on the national regulation of property and land rights in the long run. Furthermore, questions of taxation and the distribution of national resources have to be clarified on a reliable basis. Otherwise, it will be difficult for small and central entrepreneurs as well as foreign investors to develop any trust. Administrative decentralization also has substantial socio-economic consequences. If municipal administrations can retain taxes and decide on expenditures, purchasing power shifts from the larger cities to towns and rural areas. However, integrating institutions designed for local conditions at a super-ordinate level into a broader national or regional framework still remains an unresolved problem. Here, research at ZEF will have a future focal point.

Decentralization brings about added value only if procedures of accountability and control are established and if the state at the local level does not become the 'booty' of the local ruling power. In readjusting authority and securing the balance of power, central government must have authority and be willing and able to actively support the decentralization process. As the OECD Development Assistance Committee (OECD/DAC 1997c: 24) has emphasized, decentralization "without top level commitment (...) tends to remain 'fake'".

Efficient governance of 'the commons' – a prerequisite for sustainable human development

Many of the natural resources at societies' disposal enable the provision of services ranging from private to local to world-wide. Whereas the private and local benefits have long been recognized and valued, some of the world-wide benefits of these natural resources have only recently been identified (Lovelock, 1991) and have hardly been quantified. In this complex system, it is becoming increasingly difficult to design governance institutions that take the multiple stakeholders' interests into account and effectively coordinate local and national resource management. The distribution of rights and responsibilities over the world's 'commons' between the state and the people who depend on these resources for their livelihood has become a crucial question. Moreover, the global importance of these resources raises the issue how local communities can be given the right incentives to achieve outcomes that are desirable from a global perspective. ZEF addresses these issues, for example, in its research groups on 'Alternative institutions for natural resource management in developing countries' and 'Natural resources and social issues'.

A large proportion of natural resources in developing countries is still state property. An advantage is that the state is more likely to internalise local and regional externalities as compared to individual households or communities. Governments may also have better access to scientific and technological knowledge to design programs for the effective management of natural resources. In practice, however, state control has often failed to prevent the degradation of natural resources because of the very high transaction costs and information problems associated with the design of effective usage rules, and with monitoring and enforcement at local level. For example, state-owned forests frequently degenerate into open access resources, particularly in frontier areas that are located far from markets and government administrative centers (Hotte, 2001). The failure of governments to enforce property rights may also be due to political pressure and undue practices, i.e. to bad governance. For instance, recent evidence shows that illegal logging activities have not decreased (and may even have increased) in the aftermath of decentralization reforms in Indonesia (Casson and Obidzinski, 2002), although the transfer of forest management responsibilities to local governments should have reduced monitoring and enforcement costs. This highlights that the study of culture and local knowledge is essential in assessing policy failure at the local level.

Recently, many countries have started to at least partially devolve the rights and responsibilities over the management of the commons to local communities or user groups. Examples are changes in forest management

in India, and Nepal or irrigation management transfer in Ghana and Uzbekistan. A potential advantage is that the collective management rules, informal courts and sanctions established by user groups can provide a cost-effective alternative to government control. Moreover, local communities may have better information about local conditions. For example, the policy of devolving forests to local user groups in Nepal seems to have been successful in reducing resource extraction significantly (Edmonds, 2002).

Box 3: 'Tragedy of the commons'?

Hardin's famous 1968 article "Tragedy of the commons" highlighted two important human factors driving the exploitation of natural resources and environmental change: (i) population growth, and (ii) institutional arrangements. In particular, he argued that unrestricted access to resources is at the heart of overexploitation because the individual does not take impacts of his own actions on the availability of the resource to others into account. Open access continues to be an important cause of overexploitation and degradation world-wide. Excellent examples have been discussed recently by Young (2003), including marine, terrestrial, and atmospheric systems (e.g., climate, forests, open ocean fishery, water resources, etc.).

Hardin concluded that the problem of resource overexploitation could be solved only through either state ownership and regulation or privatization. Others have also advocated that private property rights with little or no public interference will solve all problems related to human/environment interactions (Anderson and Leal, 1991). Yet others consider private property arrangements as the cause of the problem in the first place (Dryzek, 1997). Moreover, it was pointed out that Hardin's argument was ignoring the potential for resource users to develop effective self-governing institutions, including the potential for common property regimes to induce effective resource management (Dietz et al., 2003). It is important to note that many natural resources in developing countries exhibit characteristics of common-pool resources (e.g., forests for non-timber products) and public goods (e.g., open oceans, clean air, forest services for CO₂ retention, biodiversity). Thus, the difficulty and costliness of exclusion is an inherent characteristic of the resources and also poses problems under state management or private property. It is now widely agreed that the 'tragedy of the commons' is really a misnomer and that it should rather be called 'tragedy of open access'. State, private, and common property regimes may or may not all degenerate into de facto open access. The important point raised by Hardin is, as Dietz et al. (2003) state: 'In the absence of effective governance institutions at the appropriate scale, natural resources and the environment are in peril from increasing human population, consumption, and deployment of advanced technologies for resource use.'

Conceptual modeling and empirical evidence, however, clearly indicate that community-based forest management is not without problems and risks. First, efficient resource management requires collective action on the part of individual community members, i.e. their ability to agree on and enforce a co-operative and efficient set of rules for access and use. Small group size, social and cultural homogeneity, problem severity, high existing social capital, low discount rates, and low transaction costs are among the factors seen as conducive to collective action (Agrawal, 2001). On the other hand, the state often retains some rights over the natural resource or share of the benefits, leaving communities with reduced or uncertain incentives to consider the long-term effects of their actions. For example, evidence from ZEF's "Economic and ecological restructuring" project of the Khorezm Oasis in Uzbekistan, where a highly centralised and inefficient irrigation command system is being transformed by devolution, showed that the absence of the necessary institutions (including land property rights) led to a poor fit between the wish to devolve and the willingness of farmers' communities to take charge. Third, devolution may lead to rent-seeking activities by community elites and prevent the state from exercising an important role in assuring the inclusion of marginalised groups. For example, empirical evidence from India shows that, given a share in total

benefits from state timber extraction, community rules now often favour long-term timber benefits through forest closure and plantations of high-value species, thereby marginalising poor households dependent on traditional non-timber forest products (Kumar, 2002). In Nepal, on the other hand, some communities have been successful in creating specific pro-poor rules (Karmacharya et al., 2003). The more favourable equity outcomes in the Nepalese case may be due to the fact that timber production for revenue plays less of a role there. Where community-based resource management involves financial transfers from donor agencies, NGOs, or government, sequential and conditional release of funds has been suggested as a useful approach to discipline local leaders (Platteau, 2003). However, for this approach to be effective, funding or implementing agencies need to cooperate to avoid competition among themselves to the benefit of local leaders. Among other things, this would require a systematic reporting of cases of failure, which stands in contrast to current practice by funding agencies.

Box 4: Community-Industry Interactions following Institutional Reforms in Indonesia

Recent political and institutional reforms in Indonesia have resulted in newly empowered forest-dependent communities exerting property rights over customary forests, although they still do not have formal legal titles to the land upon which many of their livelihoods depend. From 1999 to 2003, many communities engaged in direct negotiations and made agreements with logging companies in exchange for access to financial and social benefits. Thus, for the first time since the early 1970s, communities took advantage of the opportunity to trade in their assets and claim a share of local timber rents. As part of the research group 'Alternative institutions for natural resource management in developing countries', funded by the Robert Bosch Foundation, ZEF conducted a major study of 60 communities in the province of East Kalimantan. Preliminary results suggest that the process of community-industry negotiations and the outcomes from these are highly variable. Where brokers or middlemen are more involved in the process, communities seem to obtain significantly lower logging fees than where community members apply for and own harvesting permits, giving them stronger rights over the forest. In general, the financial benefits are often distributed unevenly within the communities and may be offset by three other effects. First, community rights to the forest remain poorly defined and government enforcement is weak. To achieve firm compliance with contract provisions, communities often get involved in costly conflicts, of which there seems to be a higher incidence where communities have less control over the negotiation process. Second, weak property rights and competing land claims among communities have led to a higher incidence of conflict among villages in the aftermath of making logging deals. Again, this seems to be more frequently the case where the communities had less control over the negotiation process. Third, the sudden influx of large amounts of cash into materially poor villages has led to rent-seeking activities by individual members of the community and other problems. This undermines the community's cohesiveness and its ability to monitor and enforce contracts. How can these negative impacts be reduced and fair deals be achieved? The study points to an important role of increased government enforcement of community rights, reducing tenure insecurity, providing information to local communities, and establishing financial incentives for the provision of environmental benefits, e.g., through approaches like conservation concessions or carbon credits.

Perhaps most importantly, local communities are not the only actors interested in the fate of natural resources. Globalization has increased pressure on resources for commercial interests. Thus, the fate of tropical forest ecosystems has become increasingly dependent on forces at the national and even international level treating these local natural resources as commodities (Humphreys, 1996), and overriding the fundamental interests of local users. ZEF research in Indonesia also shows that communities willingly sell off forest resources to logging companies for short-term financial benefits, partly due to weak and uncertain property rights and lack of information, but also because communities have no incentive to consider global ecosystem functions of the forest (see Box 4). Com-

munities have even less incentives than the state to internalise regional or international externalities. The solution may lie in balancing supply and demand for ecosystem services world-wide through the introduction of international markets for these services. However, slow progress in implementing pledges to address such issues (e.g. the development of a global forestry regime or the adoption of the Kyoto Protocol to deal with greenhouse gas emissions – both pledged in Rio in 1992) reflects the difficulty of dealing with scales in governing natural resources.

The evidence highlights the fact that actors at the local, national, and international level differ in their ability to reduce transaction costs (such as monitoring, enforcement, and information costs), to internalise externalities, and to deal with market imperfections. They also differ in their susceptibility to policy failure. Research over the past decade, much of it under the umbrella of the IHDP Project 'Institutional Dimensions of Global Environmental Change', has provided clear evidence that there is no one size fits all solution to the wide range of environmental problems associated with the governance of natural resources (Young, 2003). The success of the stratospheric ozone regime through the Montreal Protocol did not provide a model that was easily transferred to the problem of climate change. Therefore, a deeper understanding of the underlying processes and incentives is needed. For example, ZEF is contributing to the literature on government-initiated community institutions by going beyond the examination of individual case studies towards more systematic, large-sample studies in Ghana, India, and Indonesia. Ongoing research at ZEF on Costa Rica's system of payments for ecosystem services will also help to contribute to improve the design of international markets for such services. Designing successful governance structures requires diagnostic studies of institutional fit, interplay and scale. For instance, research conducted at ZEF and elsewhere shows that well-defined and secure property rights are a crucial precondition for regulating access to natural resources, particularly at the local level. On the other hand, higher-level governance affects property rights. If properly designed, co-management regimes could benefit from the comparative advantages of both governments and local communities in managing natural resources. The optimal mix in allocating competencies between the two levels will depend on ecological conditions, user characteristics, dominant extractive activities, and political economy considerations.



Involvement of local experts is indispensable to successful research.

Outlook

In this article, we highlighted one crucial dimension of governance that is a cross-cutting theme in the ZEF research agenda. Nonetheless, research at ZEF is devoted to other important aspects of governance such as the rule of law as well as legal processes and systems (see Chapter 2). One upcoming field of research within the governance debate is the significance of information and knowledge in achieving good governance. A project recently launched at ZEF aims to develop integrated decision-support systems and evaluate their impact on actual decision-making processes. Knowledge governance is another new field of development research in which ZEF hopes to play a leading role (see Chapter 1). It focuses on the design of appropriate institutions for the regulation of knowledge flows and the establishment of a knowledge society (Evers 2003).

As the above-mentioned projects illustrate, ZEF puts a strong emphasis on applied research and intends to offer practical solutions for tackling problems of governance. By targeting its research to policy needs and channelling its results to the relevant policy-makers, ZEF strives to contribute to the evolution and agenda setting of development policy. ■

* A selected bibliography of this article is included in the appendices, p. 54.

Chapter 1. ZEF Projects with a Focus on Governance

Good Governance and Economic Reform in Selected Arab Countries

Project title:

“Good governance and the law-making process for economic reform of selected Arab countries”

Research fields/Issues:

Inclusiveness of the law-making process, information content of economic regulatory reform, interaction between parliaments, executive branch and civil society

ZEF staff involved:

Noha El-Mikawy
Christian von Drachenfels

Timetable:

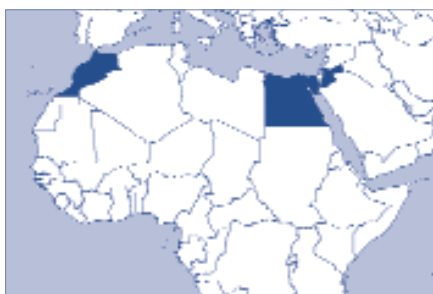
December 2001 – December 2004

Research Partners:

Economic Research Forum for the Middle East, North Africa, Iran and Turkey (Cairo, Egypt)

Funding Partners:

The German Federal Ministry for Economic Cooperation and Development (BMZ)



The Arab region's comparative deficit in economic and political freedom has been revealed in several Governance Indicators like the Freedom House Index, the Fraser Institute's Economic Freedom of the World Index, the POLITY indicators, and the political constraints index (POLCON). The two Arab Human Development Reports and the Arab Competitiveness Report reflect the same shortfalls. Yet social scientists have to carefully examine the record within specific Arab countries.

This on-going study of Morocco, Egypt and Jordan focuses on accountability and inclusiveness - two cardinal principles of good governance (World Bank “Better Governance for Development in the Middle East and North Africa” 2003). Accountability signifies a transparent process by which rulers govern and an equal opportunity for those ruled to correct rulers' decisions. Accountability requires institutions within government, which make policy-making liable to correction (e.g. parliamentary process) and institutions external to government, which allow those ruled to contest policy and to replace policy-makers (e.g. fair and competitive elections). Inclusiveness signifies the system's openness to citizens' expression and organisations. This requires rights to expression and organization and an equal opportunity to claim those rights and to protect them if violated (World Bank, 2003). Inclusiveness rests upon internal norms of fairness that are embedded in the functioning of government and external norms of tolerance and free flow of information.

General governance trends

One trend shows the Arab region trailing the rest of the world on political rights of contestation and civic liberties. While this indicator generally improves with increases in national income, this is not the case in the Arab region. The performance of the three countries of this study (which belong to the Arab middle income and world lower middle income groups) varies. Egypt does worst of the three and Jordan does best. Another trend on the administrative ability to implement policy and societal respect thereof shows the region trailing the world in bureaucratic efficiency, rule of law, protection of property rights, and control of corruption with a smaller gap than that in the area of political and civic liberties. Indeed, if we compare Arab countries to their respective world income group, we find four countries whose record slightly surpasses the world income group's average, among which are Jordan and Morocco. Egypt corresponds to the average of its income group. (World Bank Report 2003, pp. 7, 218, 222 & 228).

In other words, the two Monarchies perform similarly with respect to administrative ability / societal respect, although they perform differently with respect to political rights and civic liberties. The Presidential Republic has an

average performance on the administrative ability / societal respect and a bad performance on political and civil liberties. This mixture highlights one feature of the Arab region, namely the lack of persistent correlations, with liberties appearing to be more problematic.

Existing explanations

It is often argued that economic crisis triggers reform. Since the mid 1980s, Morocco, Egypt and Jordan have suffered from high budget deficits, high debt service ratios, low investment rates, high levels of poverty and unemployment, and high population growth rates. This situation has been exacerbated by non-competitive manufacturing and service sectors, weak export revenues, a weak ability to mobilise private investment into productive and job-creating sectors, and a weak capacity for regional integration. Provoked by economic crises, pressure from international financial institutions, and the prospect of regional free trade agreements with the EU, the three countries have begun a process of economic liberalisation. Yet they manifest different governance performance.

The cultural thesis relates the gap in governance to authoritarian social structures and absolutist ideas. However, the complex mosaic of social structures and of legal and political codes on the ground weakens this thesis. Of the three countries under study, Jordan seems to have a pervasive tribal social structure and a Monarchy with prophetic lineage. Nevertheless, it scores better on political and civic liberties and administrative quality. Egypt, in contrast, is a presidential republic with a more modern social structure, more homogeneous population, an older liberal experiment (1920s-1950s) and a legacy of secular socialist ideology (1960s). Nevertheless, it performs worse.

Theses on superpower involvement, oil dependency and the middle class bring forth the specificity of the Arab region. It is claimed that no other region of the world has been under continuous superpower involvement for so long. This resulted in superpower support for conservative authoritarian rule and superpower sabotaging of modernisers with anti-superpower stances. This argument does not explain the variation in governance performance, for the three countries of the study were similarly affected by superpower intervention.

The region's enormous oil wealth has created a rent mentality, which has extended to Arab countries sending surplus labor to the oil economies. Oil wealth generated rent-based (as opposed to investment-based) growth covered up poor governance performance and fostered a rent mentality among the ruled which weakened society's resolve to push for good governance. Finally, the Arab middle class is said to have remained commercial (not industrial), state-dependent and based on the military and state bureaucracy; hence the difficulty of reforming administration and the lack of economically independent liberals. The theses on rent and the middle class seem to be plausible yet do not explain the variation among the three countries. Egypt has a diverse yet rent-dependent economy and a middle class, which fits the theory. But forms of rent and similar weaknesses of the middle class exist in Jordan and Morocco, yet their governance record appears to be better than Egypt's.



A view of Amman, Jordan.



The Hassan Mosque in Cairo, Egypt.



In Egypt, security concerns prevail.

The study's approach and results

As none of the theses mentioned above can explain governance variation on its own, this study set out to understand accountability and inclusiveness during one specific phase of economic reform, namely the law-making phase which overhauls laws of investment, private property, competition, trade, etc. This process is more than technical; it is a political re-allocation of resources away from public sector managers and employees who are not used to scrutiny or competition and to the advantage of private firms (sometimes private monopolies).

The study used structured interviews, focus groups and expert opinion to understand the interface of ministerial units, parliaments, and civil society organisations and to identify the factors which determine the incentive to initiate inclusive and accountable reform and the technical and political resources required for such reform. Incoming results show the following tendencies:

The Executive as the initiator of laws is guided by externally determined recipes for market openness. Redressing of market failures which result from high transaction costs does not seem to be a pivotal reason for reform because of the weak and ad hoc mechanism of transmission of market information to decision-makers. However, the presence of global indicators has helped business associations and individual entrepreneurs to impress rulers with arguments for change. Ministries are increasingly searching for best practices using local and international consultancy services. Nevertheless, the capability of the Executive to design laws and regulations is spread among various units in several ministries that are hampered by lack of co-ordination and unclear mandates and chains of authority.

Parliamentarians' (MPs) incentive to hammer out law bills and consult other stakeholders is affected by career considerations as much as by perception of economic need for reform. Constitutional frameworks that privilege the head of state in legislation make MPs generally responsive to his legislative priorities. These priorities are often expressed in direct addresses to Parliament or transmitted through royal economic councils or the Policy Committee of the Ruling Party in Egypt. In the case of Morocco and Jordan, professional and tribal affiliations (respectively) are important; however, a consensus on the direction of economic reform seems to exist, thanks to the Monarch's support thereof and his ability to foster consensus for reform in these small economies. An election system in which service deliveries to the constituency are most important reduces the incentive of MPs to pay attention to their legislative role (Egypt). Ideological persuasions are important during deliberation on laws. However, the domination of the ruling party (Egypt) does not allow opposition inside parliament to affect legislation. To increase the incentive of parliaments, one needs to pay attention to the internal parliamentary operating procedures (two-chamber system, committees, blocs), which may hinder inclusive deliberation and a free flow of information.

Increasing Civil Society lobbying activity has been noticed. Interest groups in Egypt and Jordan have been using seminars, position and policy papers, and



Hillside of Amman, Jordan.

media campaigns. This is particularly clear in cases when the group clearly assesses its gains and losses from the law in deliberation. However, the general atmosphere, on the part of civil society, is one of mistrust. This is often based on accounts of inability to sway the opinion of policy-makers or to understand who is responsible for what and which one of several floating drafts will eventually be the one to enter parliament.

This mistrust is often combined with a perception of a high opportunity cost for collective action. This is particularly so in Egypt, where lack of good information and the supremacy of security concerns over freedoms of expression and organization prevail. In Egypt as well as in Jordan, individual lobbying by big entrepreneurs who combine membership of parliament, a business association and a royal or presidential advisory council pays off. In Morocco, where employers' and employees' representatives indirectly influence legislation by determining the candidacy of MPs in the upper house, there is a corporate structure of social dialogue that brings representatives of capital and labor together. It is, however, less clear what happens to smaller interest groups. All in all, a problem of political capital has been noticed. Any actor who gets involved in a process of drafting laws is engaged in an act of conflict management and bridging of differences. Only seldom have Civil Society organisations been successful in doing so.

A critical requirement is the free flow of information. In a general atmosphere of economic and political siege (pressure to reform and many problems to handle), it is not easy for those who have information (often the government) to share it with those who don't (often the people). Although an infrastructure of information (census organisations, central data banks, public and private think tanks) does exist, there is general dissatisfaction with data availability, quality and methodologies of analysis (Egypt). Another requirement is human resources. Especially in parliaments, resources are eaten up by salaries and administrative positions to the detriment of the legislative function (Egypt, Morocco).

Staff and set-up

Three multi-disciplinary teams with a total of nine persons in Morocco, Jordan, and Egypt are conducting the study. The three teams include university professors of economics, law and political science. Some team members either had a former career inside the Executive or worked as advisors to ministers and to parliamentarians. The insights of the study are likely to be followed-up upon by some team members who have created an organizational infrastructure such as university study programs and policy analysis centers, to focus on the study of good governance in the law-making and policy-making processes. ■



Transmitting market information to decision-makers is weak in the Arab world.

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Water Governance in the Context of the GLOWA Volta Project

Project title:

"GLOWA Volta: Sustainable water use under changing land use, rainfall reliability and water demands in the Volta Basin"

Research fields/issues:

Global climate change, water and land use

Staff involved:

Paul Vlek, Nick van der Giesen, Charles Rodgers, Veronika Fuest, Maria Plotnikova, Luna Bharati, Harald Kunstmann, Michael Schmidt, Bianca Arendt, Eva Youkhana

Timetable:

Phase I: 2000-2003

Phase II: 2003-2006

Phase III: 2006-2008 (to be approved)

Research Partners:

See GLOWA homepage (www.glowa-volta.de)

Funding Partners:

German Federal Ministry of Education and Research (BMBF)
Ministry for Schools, Science and Research of North Rhine-Westphalia, Germany

Other projects linked to this project:

BIOTA W2, Vinal, ADAPT



Water plays a pivotal role for sustainable development, including poverty reduction. The use and abuse of and competition for increasingly precious water resources have intensified over the past decades. They have reached a point where water shortages, water quality degradation and aquatic ecosystem destruction are seriously affecting prospects for economic and social well-being, political stability, as well as ecological stability. A global consensus is emerging that water problems cannot be solved by technical approaches alone. Effective governance is considered to be the key to sustainable water management and poverty eradication. Since the Second World Water Forum at The Hague, the Netherlands, in 2000, issues of governance have attracted international attention within the water community, and water governance has become a buzzword in many international policy papers. Water governance refers to the range of political, social, economic and administrative systems that are in place to regulate the development and management of water resources and the provision of water services at different levels of society. However, empirical research on governance at both the national and the local levels of political action is lacking.

Integrated water resources management

The GLOWA Volta Research Project (www.glowa-volta.de) seeks to develop a 'decision support system' for the sustainable development of water resources in West Africa's Volta Basin. This 'decision support system' will not only be based on physical and economic analysis, but will also take studies on effective water governance into consideration. This will be achieved by analysing the institutions pertaining to water resources management at the local, national and international levels in the most important riparian countries of the Volta River.

Governance in general and water governance in particular depends on the relationships of power and the distribution of resources at different levels of authority. These levels do not consist of sets of actors with homogeneous interests. The appropriation of reform processes in the water sector by powerful actors and groups is an important object of study, since improving governance means reform. Water sector reform has been in progress both in Ghana and Burkina Faso since the mid-nineties. Reform is easy in theory but in practice water is subject to political manoeuvring and vested interests. The results of the research done so far on the cases of the two countries show that a sound governance of water resources, which actually is part of the 'integrated water resources management' approach pursued by both governments, seems to be very hard to achieve.

Two conditions considered to be crucial to good water governance are fitting legislation and the establishment of apex bodies, i.e. national water commissions, which are meant to co-ordinate and regulate the use of the national water resources. These conditions have been fulfilled in both countries.

However, it seems that other conditions have been neglected. For example, local stakeholders have been only partially involved in decision-making processes and are not always informed about the new regulations. Apparently, transparency and accountability are not easy to establish among the major actors in the water sector in these countries. Another problem is that new laws have not yet been turned into working rules, and effective enforcement is often missing. Emerging evidence shows that there is a mismatch between the central government's objectives and policies, which are also influenced by the donor community, and the means to actually achieve these objectives. While this can certainly be ascribed to a large extent to a lack of funds and technical capacities, there may also be a lack of political will among some of the policy-makers, albeit to different degrees in different contexts. Obviously, the national water commission in Ghana is facing enormous difficulties in dealing with the rather fragmented management structures in the country. The research findings so far identified that co-ordination mechanisms are still inadequate and that jurisdictional gaps or overlaps exist.

The role of committees

Our further research will highlight the conditions in which new regulations may help to manage water resources effectively or just become meaningless or, even worse, counterproductive. New institutions increase the legal complexity in any given local situation and provide new resources to those who are in power unless additional institutions exist, or are put in place, that counterbalance such capture processes. In Ghana, for example, development organisations active in the sub-sector of drinking-water supply have introduced new institutions at local level, such as water management committees. Such committees are equipped with constitutions to ensure women's participation. The committees are also responsible for collecting financial contributions to set up an infrastructure and for maintenance by the water users. Furthermore, decentralised political decision-making bodies such as District Assemblies and Water User Associations have the right to create their own bye-laws pertaining to natural resources management, which may include local rules and norms.

The GLOWA Volta Project is investigating in what ways these institutions are created and who partakes in them. One of the main questions is under what circumstances these new institutions are appropriated or captured by local elites and under what circumstances they achieve the stated goals of giving better access to water to the poor. ■



Better access to water for the poor is a major goal of ZEF's research in Ghana.



Children at the Veia Dam, Ghana.

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Tono Dam, Ghana

Knowledge Governance

Project title:

"Knowledge and development"

Research fields/Issues:

The globalization of knowledge, knowledge governance in ASEAN countries, local and global knowledge in social science research, science parks in Southeast and East Asia, knowledge sharing in large organisations

ZEF staff involved:

Hans-Dieter Evers, Solvay Gerke, Noha El-Mikawy, Markus Kaiser, Rebecca Schweißhelm

Timetable:

Since 2001

Research Partners:

Department of Southeast Asian Studies
University of Bonn
Singapore Management University
Science University of Malaysia
Bielefeld Institute for Global Society Studies

Funding Partners:

German Research Foundation (Deutsche Forschungsgemeinschaft, DFG)
Wharton-SMU Research Center



Land, labor and capital are, in classical economics, regarded as the three factors of production. Development policies have been very much oriented towards improving the total and relative allocation of resources to these factors. Agricultural development, increasing income generating activities and rural credit schemes are just some examples of a rich arsenal of development programs that can be directly related to the conventional wisdom that inputs into factors of production produce development. More recently a new factor of production has been added to the development debate, a factor that supposedly has overtaken the other factors in importance: knowledge is now regarded as the main driving force of innovation and development. A by now famous example is cited in the World Development Report of 1998/98. Ghana and the Republic of Korea started off with almost the same GNP/cap in 1960. Thirty years later the Korean GNP/cap had risen more than six times, while the Ghanaian was still hovering at the same level (in 1985 prices). Half the gap could be explained in terms of the traditional factor inputs, but the other half, according to World Bank experts, was attributed to knowledge as a factor of production (World Bank 1999).

Knowledge is like light

Knowledge has since been identified as one of the major factors, if not *the* crucial factor of development. The idea is indeed fascinating. If natural resources are scarce, if FDI (foreign direct investment) does not flow into the country as expected, and if land is not fertile or scarce, knowledge can be introduced and put to effective use. In the almost poetic words of the World Development Report 1998/1999, "knowledge is like light. Weightless and tangible, it can easily travel the world, enlightening the lives of people everywhere." Knowledge increasingly explains the gap between developed and underdeveloped, between poor and rich countries. Many countries have thus planned and carried out strategies to close the knowledge gap between them and the OECD countries and invented a framework to produce and utilize knowledge for economic and social development.

Knowledge governance in the developing world

Knowledge governance is about to become a major field of development cooperation, which has attracted the attention of ZEF researchers for some time. Knowledge governance is closely related to good governance on one side and governance of natural resources on the other. An interdisciplinary approach to solve problems of governance, as advocated by ZEF, is therefore mandatory. While governance is basically about how to govern a country or an organisation through laws, rules and regulations and through instilling values and beliefs in the procedure and legitimacy of governing, knowledge governance refers to (i) enacting and creating the institutions necessary for the development of a knowledge society, (ii) facilitating the development of an epistemic culture of knowledge production and (iii) regulating the flow of knowledge, as well as safeguarding intellectual property rights.



Science Hub in the Science Park, Singapore. Information technology as the backbone of a knowledge society.

Most industrialised countries have embarked on policies to help the growth of their knowledge-based economies. In the developing world, the idea that knowledge is a major factor of production has been gaining ground particularly in Asian countries, which have so far been titled “NICs” – newly industrializing countries. ZEF studies have focused on the new architecture of knowledge, the ASEAN countries, especially on Singapore and Malaysia that have embarked on decisive strategies to support their emerging knowledge-based economies and societies. The mainstay of these strategies is heavy investment in ICT (information and communication technology) infrastructure, training programmes to increase computer literacy, government support of R&D (research and development) and R&D personnel, creation of research institutes in selected fields, like bio-technology, ICT and informatics, but also in the social sciences, gearing the education systems towards elite education and the creation of centers of excellence.

In addition to comparative macro-studies we have focused on knowledge management of companies and large organizations, science parks and universities. In comparing the output of local Southeast Asian universities and research institutes with the rest of the world we were able to measure the increasing relevance of local knowledge.

We have noticed that poverty reduction is regarded rather as a side-effect, mainly targeted rather by NGOs than by governments. Nevertheless, studies by ZEF on West Africa have shown that a rural IT structure can help to reduce poverty levels. ■



A ZEF Director exchanging knowledge with colleagues in Malaysia.



Project Coordinator/Contact:

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Fire-Free Technologies for Smallholders in the Amazon Region

Project title:

"Smallholders in the Amazon: Interactions between the ecosystem and the social system in the use and protection of tropical forests". This is a project of the SHIFT Program (Studies on the Human Impact on Floodplains and Forests in the Tropics) of the German Federal Ministry of Education and Science (BMBF)

Research fields/Issues:

Economic analysis of technological and institutional innovations for sustainable smallholder development in the eastern Amazon region

Staff involved:

Thomas Hurtienne, Bettina Hedden-Dunkhorst, Arisbe Mendoza-Escalante, Jan Börner, Rui Pedrosa

Timetable: February 2001 – July 2004

Research Partners:

Núcleo de Altos Estudos Amazônicos, Universidade Federal do Pará, Belém, Brasil (Francisco de Assis Costa) and the Embrapa Amazonia Oriental, Belém (Tatiana Deane de Abreu Sá, Osvaldo Kato, Socorro Kato)

Funding Partners:

BMBF, CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico)



Technological innovations have been considered as a driving force for development for many decades. However, over the last 15 years, institutional innovations have rightfully been gaining increasing recognition. Nevertheless, new technologies still have an important role to play. In fact, both need to go hand in hand, and good governance of this interaction is a crucial precondition for the adoption of innovations.

After taking over from the University of Göttingen in 1998, ZEF has been developing alternative agricultural technologies for the intensification of smallholders' production in the Brazilian Eastern Amazon in collaboration with Embrapa Amazônia Oriental. The project has been progressing over the last twelve years and is part of the SHIFT Program ("Studies on Human Impact on Forests and Floodplains in the Tropics") of the German Federal Ministry of Education and Research (BMBF). The agricultural technologies developed so far offer alternatives to the slash-and-burn technique, a widely applied practice in the prevailing fallow-based system. With the shortening of fallow periods and high nutrient losses in the burning process, nutrient balances became negative, which, in combination with other factors, resulted in declining yields and revenues. The newly developed technologies include fast-growing trees to enrich the fallow vegetation and a mulching technology that, instead of burning, transfers the fallow vegetation into a mulch layer on the field by using a mobile tractor-driven bush chopper.

Economic profitability and potential for adoption

After testing the technical feasibility of the new technologies in researcher-managed on-farm trials, ZEF is now analysing their economic profitability and their potential for adoption, in cooperation with the Institute for Advanced Amazonian Studies (NAEA) of the Federal University of Pará. First, it was assumed that technologies are not equally profitable for smallholders that operate under different socio-economic and bio-physical conditions. To substantiate this assumption, we selected a sample of smallholders that reflects farmers' heterogeneity within the study region of Bragantina in north-eastern Pará, east of Belém. Subsequently, on the basis of these findings, sample households were classified into representative groups considering regional and farm-household variables. To reduce correlation between variables and heterogeneity within groups, a combination of principle component analysis and cluster analysis was used to identify representative groups of households. This analysis showed that the intensification of land use is a strategy implemented by comparatively wealthy farmers; yet, type and performance of the technology adopted depend on regional factors, e.g. institutional performance at the district level, market access and dry season intensity.

Further analyses based on production function estimations show that soil quality is only part of the explanation of why there is variation in crop produc-

tivity, whereas labor inputs and technology levels (degree of mechanisation and fertiliser use) seem to have more impact on yield differences. However, it can also be shown that poorer farmers are more dependent on soil quality, whereas better-off farmers are in a position to substitute natural capital for physical capital in the form of mechanisation and the use of fertilisers. Furthermore, a dynamic financial analysis of different land-use scenarios shows that the mulch technology becomes profitable at yield levels that are, on average, 50% higher than yields derived from using slash-and-burn. Such yield levels can be achieved with appropriate fertiliser applications. Under current technology costs, these findings reflect the predicament that, whereas technologies that improve soil quality are specifically important for poorer farmers, this group is lacking the means to push yields to such higher levels where technology application becomes profitable.

Devolution of responsibilities

These indications were confirmed by a willingness to pay (WTP) ex ante analysis that aimed ex-ante at identifying the determinants of potential technology adoption. We found that socio-economic and biophysical factors as well as institutional factors determine WTP. Specifically, this applies to income, farm size, fertiliser use, and access to information. Thereby, wealthier smallholders who are already using yield-increasing inputs, smallholders of larger farms and farmers who are better informed are more willing to pay for new technologies.

In conclusion, findings point to private profitability of fire-free technologies and to a potential for adoption, provided certain on-farm conditions hold. But technology transfer and dissemination at a larger scale will happen only if the institutional environment is supportive. This involves a set-up that not only guarantees its operationalisation through private, co-operative or public enterprises, but also includes the existence of support services for farmers, the availability of input and output markets and, last but not least, a favourable policy environment. An analysis of the institutional set-up that affects smallholders' technology adoption and its changes is also part of the ongoing ZEF project.

Selected findings show that national and state policies are relatively favourable to both smallholders' agriculture and environmental protection. Yet the scope of instruments effectively applied is limited and their enforcement and implementation often lags behind expectations. The devolution of responsibilities to local levels that is manifested in Brazil's Constitution of 1988 proved to be successful in the areas of education and health, but showed mixed results in terms of improving smallholders' welfare. The latter is also reflected in the project's study area, where smallholders in more urbanized and industrialized districts, which provide better off-farm income and market opportunities, tend to be better off. In these areas, the degree of smallholders' commercialisation and mechanisation is much higher. Moreover, district administrations may offer tractor services to farmers. The financial endowment of a district and its management govern the performance of these services and thus a farmer's ability to intensify his production. In decentralised systems, the functioning of local



Mechanization is mainly an option for better-off farmers.



Enforcing environmental protection often lags behind expectations.





Applying mulching technology is not only a farmers' decision.

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structures plays an important role, since this primarily affects the two major support services for farmers: extension and credit. We heard earlier on that access to information is important for technology adoption, whereas extension agents are often the major source of information for farmers. Extension and access to credit are usually linked in Pará; hence a malfunctioning extension service limits smallholders' access to credit. Besides, smallholders need to be organised in associations to be entitled to receive credit. So the local potential for cooperation or the social capital available within a community determine access to credit.

Institutional innovations

ZEF and NAEA study the institutional set-up that affects smallholders and develop scenarios of the outcomes of alternative set-ups in bioeconomic models. This is important, because the application of the mulching technology has implications that go far beyond the farmers' decisions. It involves mechanisation that has to be provided off-farm, either through private, co-operative or public entities. It allows a modification of the current crop rotation and cropping calendar, which has implications for markets. And it involves additional costs, for the mulching service and for commercial inputs (like fertilisers) that could be accessed through new credit lines.

The potential for adopting technical innovations requires, but also stimulates, institutional innovations. These interactions can be co-ordinated and governed, both at district and higher levels. Yet, the provision and exchange of information are crucial in this regard. ■

Land and Water Use in the Khorezm Region in Uzbekistan



In 2003, the project finished its first phase, which had focused on establishing close cooperation with the partner institutions in Uzbekistan, on a critical assessment of data available at Uzbek research institutions and authorities, and on field research on land and water use and economic performance of farm households in Khorezm. Also, initial institutional analyses were undertaken. In this phase, setting up of the project labs and offices on the premises of the University of Urgench including a fully functional laboratory for Geographical Information Systems (GIS) and Remote Sensing was completed. The results of the first phase are manifold and ranging from the translation and analysis of the regulatory framework to the elaboration of complete and quality-checked maps of biophysical and economic conditions in Khorezm that have already found their way into the hands of our Uzbek partners who use them intensively, for example for the establishment of the newly installed Water User Associations. The first PhD study of the project, an assessment of groundwater dynamics and salinity, has been completed (Ibrakhimov 2004) and revealed hot



Research results will be tested on a pilot farm in Uzbekistan.

spots of high groundwater dynamics, which will be used for the selection of the pilot farms of Phase III. Details can be found on the project's homepage under www.uni-bonn.de/khorezm.

A proposal for the second phase (2004-2006) was submitted to the BMBF in 2003, which was critically reviewed by a scientific committee in October 2003 and approved in December of the same year. The second phase foresees a tight integration of the multidisciplinary studies into a central "Khorezm Economic and Ecological Optimization Model" (KEOM). A kick-off workshop under very active participation of research partners from Uzbekistan was held in February 2004, during which a plan of activities for the next three years was jointly agreed upon.

Later in 2004, the process of setting up the KEOM model began using advanced tools of software integration such as the "Unified Modeling Language" (UML). The emphasis is, however, not on software development but on team integration; a series of meetings will be held during which the selection of the most important data and their integration into a model will be carried out in a team-oriented process. This model will be used to deepen, through the simulation of different scenarios, the understanding of crucial processes that control land and water use in Khorezm, and of their often complex interactions. We expect this to be developed into a decision support model for land use and water management at farm level later on.

Research of another PhD gave insights into how the complex bundle of measures called privatization in land use privatizes risks and responsibilities without granting the corresponding choices. ■

Project title:

"Economic and ecological restructuring of land- and water use in the Khorezm Region (Uzbekistan): Field research and development of a pilot farm concept"

Research fields/Issues:

Ecological sustainability and economic efficiency of land and water management in the Aral Sea Basin

ZEF staff involved:

Christopher Martius, John Lamers, Anja Schoeller-Schletter, Peter Wehrheim, Peter Mollinga

Timetable:

Phase I: 2001-2003 (finished)
Phase II: 2004-2006 (started)
Phase III: 2007-2010 (planned)
Phase IV: 2011-2012 (planned)

Research Partners:

See Khorezm homepage (www.uni-bonn.de/khorezm)

Funding Partners:

German Federal Ministry of Education and Research (BMBF)
Ministry for Schools, Science and Research of North Rhine-Westphalia, Germany
German Academic Exchange Service (DAAD)

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Governing Land Use in Uganda

Project title:

"Targeting land management strategies in Uganda"

Research fields/Issues:

Policies for improved land management in Uganda

Staff involved:

Kaizzi Crammer Kayuki, Johannes Woelcke, Almut Brunner, Gerd Rucker

Timetable: 1999 -mid 2003

Research Partners:

International Food Policy Research Institute (IFPRI), Washington; National Agricultural Research Organization (NARO), Uganda

Funding Partners:

German Federal Ministry for Economic Cooperation and Development (BMZ)

Soil resources are the vital assets for small-scale farmers in Uganda for producing sufficient crops to achieve food security and income. However, rapid population growth and an unfavourable economy have exerted great pressures on these resources. Thus farmers who cultivate fragile lands such as steep hillslopes with high levels of rainfall have experienced tremendous soil degradation during the last decades.

Halting and reversing this severe soil degradation has been one of the greatest challenges for policy-makers, regional planners, extension services and farmers in Uganda. As soil resources vary considerable on different spatial scales, it is especially difficult to take up this challenge. On the national scale, policy-makers and regional planners are confronted with the enormous complexity of natural resources as composites of climate, terrain and vegetation that may influence the soil resources within larger regions of Uganda. Also, the density of the population and markets may influence soil quality through the intensity of cultivation and fertiliser inputs, which vary within a region. At hillslope level, the farmer communities and the agricultural extension services have difficulties in assessing spatial variability of soils and quantifying soil-degradation processes, a prerequisite for targeted soil conservation and nutrient management strategies within the landscape. This paucity of information has up to now severely impeded policy-making and a sustainable tailoring of land use by local stakeholders.

Field surveys

A national- and landscape-scale survey was undertaken by ZEF in close collaboration with the International Food Policy Research Institute (IFPRI) in Washington, and the National Agricultural Research Organization (NARO) in Uganda. About 2,000 soil samples were extracted from 107 communities and analysed for key soil-quality parameters. Additionally, environmental information such as geomorphology, climate, terrain, land use and land management, population density and market access was collected. All this information was integrated in a Geographic Information System (GIS), which allowed performing different spatial analyses.

Small-scale farmers growing maize in the Eastern Highlands of Uganda.



On a local scale, erosion patterns were investigated by Caesium-137 (¹³⁷Cs) modeling. This method relies on the assumption that the present redistribution of ¹³⁷Cs in the soil of agricultural land is a reflection of soil erosion and sedimentation as a function of cultivation processes that occurred since the global ¹³⁷Cs fallouts in the 1960s. Such an approach had not yet been used in the humid tropics of Africa and was found to be a suitable technique to estimate the soil erosion and sedimentation rates of soil on hillslopes of Uganda. This technique is very efficient, because only one field trip for sample collection is necessary, compared to long-term observations of traditional erosion assessments.

National-scale information

Population density, market access, agricultural potential and elevation were integrated in a GIS-based stratification resulting in 18 spatial development domains covering the whole territory of Uganda. Spatial explicit analysis of soil quality parameter distributions across Uganda revealed larger and rather homogenous patterns for soil organic matter (SOM), available phosphorus (P), exchangeable potassium (K), and exchangeable calcium (Ca). In contrast, soil pH and soil texture have finer spatial patterns changing within shorter distances. The patterns of these soil parameters were mapped for central, southern and western Uganda. Geology and geomorphology-related processes appear to primarily explain the national-scale spatial variability of soils in Uganda. Land use and land management as well as climatic conditions contributed to this variability but possibly have their strongest influence on the hillslope scale.

Hillslope-scale information

On a hillslope scale two study sites were selected, one in the highland and the other one in the lowland area. The hillslope zonation procedure revealed that the patterns of most soil quality parameters were largely arranged as contour bands along the elevation gradients. The maps of soil organic matter and potassium showed a more scattered spatial pattern, with clearly different arrangements of the different landscape elements. This overriding influence of terrain on spatial variability of soils is related to slope gradient, upslope contributing area and geometric shapes of landscape elements that in turn influence hydrological processes in the soils. In places where stonelines and vegetation structures are missing, soil organic matter is most likely eroded together with fine earth material.

From science towards wise governing of land use

Policy-makers in Uganda can use the national-scale land quality information for targeting investment programs on soil improvement on specific regions, e.g. improvements of fertiliser markets in areas with better lands where investments pay off as found in a ZEF doctoral study (Kaizzi, 2003). This new spatial soil quality information can be directly integrated with other GIS information and should provide a sound basis for the formulation of national policies for soil improvement and land conservation and use in Uganda. For the land users themselves, the demarcation of the hillslopes into landscape elements is relatively straightforward. It can be done directly by farmers and/or agricultural extension services in the field as has been tested in one village. It is reliable, as was proven with the 137Cs modeling technique. These hillslope delineation tools can help farmers in tailoring land use systems that are targeted to different units within the landscape. ■



Harvesting maize from high productive soils in the Eastern Highlands.



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Chapter 2. Disciplinary Research Areas

Governance and Conflict



Research on governance and conflict concentrates on countries that have either been ridden by protracted civil wars, state failure and political disintegration or which are facing a high risk of political conflict. These countries have gained an increasing significance for development research and policy, as, for example, the LICUS debate initiated by the World Bank illustrates.

On one hand, research at ZEF focuses on the structures, characteristics and courses of protracted violent conflicts and state collapse. Such conflicts undermine basic characteristics of modern statehood and governance such as the legitimate monopoly of force, concepts of territoriality or welfare systems. The increase of so-called failed states threatening neighbouring countries and the international community illustrates this point. Furthermore, state crisis or 'bad governance' is often a major structural cause of violent conflict in developing countries. On the other hand, processes that lead to the escalation vs. de-escalation of violent conflict are part of the ZEF research agenda. In this context, concepts of intervention and conflict resolution are assessed as well as institutional arrangements for power sharing ranging from rule of law and constitutional settings to proportional representation, electoral systems and various forms of autonomy, federalism and local governance.

Structural Stability and Human Security in Eastern Africa

Project title:

"Structural stability and human security in Eastern Africa"

Research fields/Issues:

Structural stability, human security, civil war, crisis prevention, development policy

Staff involved:

Tobias Debiel, Ulf Terlinden

Timetable: Since spring 2003**Project Coordinator/Contact:**

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Eastern Africa has been one of the most fragile crisis regions in the world over the past decades, displaying a chronic mixture of war, breakdown of states, poverty, hunger and human misery. It is characterised by regionalised civil wars as well as by lower-intensity types of conflict, such as cattle rustling, often spread beyond national borders. A crucial cause of war and an obstacle to development in Eastern Africa is the crisis of the state, which proves to be both strong and weak at the same time. While it is quite capable of temporarily keeping social relations under control and appropriating resources in selected areas, indispensable public functions are not or only partly fulfilled.

This research project conceptualises an analytical framework to grasp the unfavourable conditions of political transformation in Eastern Africa. Furthermore, it evaluates different concepts that have been developed by Western donors and international agencies as leitmotifs for crisis prevention and development policy. Of particular interest is how the concepts of structural stability and human security are adaptable to the conflict situation in Eastern Africa. Eventually, the project will adapt an empirical concept of governance to the local and national level, which explicitly includes non-governmental actors who fulfil quasi-state functions.

From War to Peace in Afghanistan

ZEF's interest in research on Afghanistan started already in 1999 with a project on the "Ethnicization of the Afghan conflict". In accordance with the global significance of the peace process in Afghanistan, ZEF extended its original research interest to the political transformation from war to peace. Here, the implications of the lack of a monopoly of power, the collapse of the state, the rule of warlords, the dominance of war economies (e.g. opium) and the high significance of ethnicity and patronage remain the main obstacles to the political reconstruction of Afghanistan. Besides analysing the state-building processes in general, research at ZEF emphasized that strategies for the political reconstruction should strongly apply to the local conditions because the political situation in Afghanistan varies from region to region. This is why research at ZEF increasingly concentrated on local politics in Afghanistan to find out meaningful insights into the needs and livelihood of the people, the interplay between political and economic actors and institutions and the relationship between central state and local community.

Project title:

"From war to peace in Afghanistan"

Research fields/Issues:

Local governance, ethnicity, nationalism, peace-building, political reconstruction, security, violence, war economy

Staff involved:

Conrad Schetter, Bernd Kuzmits, Manija Gardizi

Timetable: Since autumn 1999

Project Coordinator/Contact:

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Civilian Crisis Prevention and Conflict Resolution

The prevention of violent conflict has become a central aim of German foreign policy. The government's concept for "Civilian crisis prevention, conflict resolution and peace building" has established the basic principles and strategies of Germany's conflict prevention policy. Among others the Federal Foreign Office and the Ministry for Economic Cooperation and Development are involved in conflict prevention activities and fall under this basic concept.

In this context ZEF was invited to provide academic counselling to the editorial committee preparing the official "Action plan on civilian crisis prevention" of the German Federal Government. The role of the committee is to collect, evaluate and assess the various efforts of the German government departments and to compile and develop a set of actions to enhance German civilian crisis prevention. Thus the Action Plan aims to develop concepts for and academic counselling to actors in the domain of civilian crisis prevention, conflict resolution and peace building. The Action Plan was endorsed by the Federal Cabinet in May 2004.

Project title:

"Civilian crisis prevention and conflict resolution"

Research fields/Issues:

Civil crisis prevention, conflict resolution, peace building

Staff involved:

Tobias Debiel, Conrad Schetter, Ulf Terlinden, Ulrike Joras, Monika Sticht

Timetable: February 2003 to May 2004

Funding Partners:

German Federal Foreign Office (AA)

Project Coordinator/Contact:

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A UN helicopter in action.

Rule of Law and Legal Systems



Development policies, national as well as international, increasingly take the significance of establishing the rule of law as a precondition for successful development endeavours into consideration. In particular, the establishment of accountable and transparent legal institutions and organs is a basic requirement for economic investment as well as social and political development. The design of a constitution, the law-making processes, the performance of the judiciary and the capacity to adopt and implement legal reforms are central aspects of political systems and legal reform. However, most countries are characterised by legal pluralism, in which different perceptions of law collide and, often enough, adjudications deviate.

Legal Reform and Institutional Change

Project title:

“Legal reform and institutional change”

Research fields/Issues:

Legal reform, Latin America, institutional change, armed forces and politics, democratisation, rule of law

Staff involved:

Anja Schoeller-Schletter, Kerstin Henke, Claudia Ruger

Timetable: Completed December 2003

Project Coordinator/Contact:

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This research focused on the changing role of the armed forces in the Latin Americas as an example of how far legal instruments had been able to achieve the goal politically set of restraining their political power. The investigation has shown that, given its long history, the influence of the military on the political process cannot simply be outlawed. Nevertheless, certain regulations have indeed helped controlling this influence by shaping conditions that can foster or impede certain types of behaviour. An important finding was that initiating and performing reforms may solve some problems but frequently creates new ones. In Peru, for example, the separation of the military forces from politics led to a schism between the military and civil society, thus making the armed -forces under President Fujimori prone to an instrumentalisation by authoritarian powers. In Paraguay, the restriction of the political activity of members of the military established by the constitution of 1992 – in itself a positive and even necessary step – created incompatibilities with the civil rights of the members of the military to be sorted out by the constitutional jurisdiction. In addition, lifting the automatic affiliation by members of the military to the ruling party broadened divisions within the army according to differing party support and might have a destabilising effect in the long term.

Presidential Palace in La Paz, Bolivia.



Determinants of Court Congestion: Evidence from Indian Lower Court

The research done so far concludes that the Indian state judiciaries differ with respect to the nature and level of congestion they face. It also identifies the reasons why some judiciaries are more congested than others. A large number of judges per capita is negatively related to congestion rates, while judgeship vacancies have a significantly positive effect on caseloads per judge. Court productivity captured by the clearance rates has a significant and negative effect on both caseloads and congestion rates and seems to be crucial for the effectiveness of congestion-reduction programs. Finally, judiciaries with lower litigation rates show a relatively better performance regarding current caseloads, but are not efficient in addressing the real backlogs of cases pending for more than a year.

Project title:

“Determinants of court congestion: Evidence from Indian Lower Courts”

Research fields/Issues:

Law and economics

Staff involved: Maja Micevska

Timetable: Since 2002

Project Coordinator/Contact:

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Gender, Legal Pluralism, and Development

The core question in this project is whether a universal legal system is more compatible with promoting women's human rights and their access to resources for development than pluralistic systems. Most legal systems in the developing world are pluralistic, meaning that a multitude of laws are applicable – state, customary, and religious, not always in a hierarchical arrangement. In Europe too, pluralism and informal adjudication are making inroads into the universalistic system, as religious law is the basis of the identity of many minorities from developing countries. Pluralistic systems can include pluralistic adjudicatory tribunals or adjudication in universally available tribunals. At the same time, in poorer agrarian societies, women's access to personal resources for economic development depends on such social systems as inheritance, marriage and maintenance within an extended family context. As these traditional systems break down and provide less protection for women's rights, case studies (India, South Africa, and Tanzania) are showing that a universalised judiciary can offer more protection within a pluralistic system than a pluralistic judiciary, as long as the legislative branch does not have an opposite tendency to curtail women's rights. For example, Indian legislature attempts to undercut judicial corrections of traditional rules of maintenance. The Tanzanian legislator, however, reformed spousal property laws in accord with court decisions modifying traditional laws. South African courts still have an uneven record as the legislature is undecided on achieving gender equality in traditional laws.

Project title:

“Gender, legal pluralism, and development”

Research fields/Issues:

Implementation of human rights, judicial institutionalism, gender and development

Staff involved: Chris Jones-Pauly

Timetable: Since 2003

Project Coordinator/Contact:

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Women in Kashmir.

Poverty and Institutions



Contributing to poverty reduction is an essential aim of ZEF. Therefore, poverty is a theme that cuts across nearly all research areas. The research area on poverty and institutions described below focuses on two specific institutions that have significant impacts on the poor: health insurance and labor markets. The effect of institutional changes such as decentralization is another important aspect being considered in this research.

Health Insurance for the Poor in India

Project title:

"New institutional and economic approaches to health insurance for the poor in India"

Staff involved:

Abay Asfaw

Timetable: 2002-2004

Funding Partners:

Volkswagen Foundation, Germany

Project Coordinator/Contact:

Abay Asfaw

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The objective of this project is to model mutual health insurance and the impact of decentralization on existing health insurance schemes and health outcomes. Moreover, the prospect of health insurance for the poor in India is being assessed.

To design incentives in community-based health insurance schemes and to test the impact of decentralization on health and other outcomes, empirical models have been developed. The research done so far concludes that institutional rigidities such as credit constraints impinge on the demand for health insurance. Thus, the appropriate public intervention in boosting demand for insurance is not only to subsidise premia but also to remove such institutional rigidities. Furthermore, the results show that in the diverse settings of India, all forms of community health insurance schemes have a role to play and therefore need to be encouraged by the government through appropriate interventions. Formal insurance providers can also be involved in serving low income population. Finally, fiscal decentralization plays a significant role in reducing infant mortality rates, especially if it is combined with political decentralization.

Unemployment and Labor Market Rigidities in Southeast Europe

Project title:

"Unemployment and labor market rigidities in southeast Europe"

Staff involved:

Maja Micevska

Timetable: July 2003 – February 2004

Funding Partners:

Vienna Institute for International Economic Studies, Austria

Project Co-ordinator/Contact:

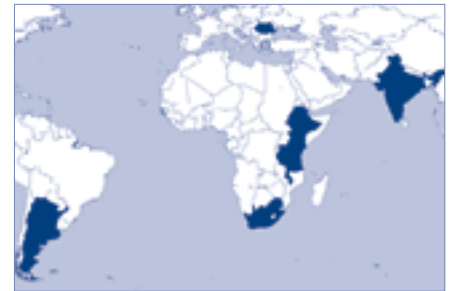
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This project has explored new data that describe employment protection legislation (EPL) and other labor market institutions and policies prevailing in seven Southeast European (SEE) countries in the late 1990s and the early 2000s. An important contribution lies in the construction of EPL indices for the SEE countries. The results indicate that, despite significant liberalisation efforts, the SEE countries still stand out for having relatively strict EPL. However, this rigidity mainly stems from their strict legislation on temporary employment and collective dismissals, while the SEE legislation on regular employment is quite flexible. Empirical results indicate that stricter temporary employment legislation is associated with higher unemployment for women and youths as well as with lower employment and labor force participation rates.

Agricultural Technologies and Modeling

Development policies often promote specific technologies or change market conditions, both of which have a significant impact on the rural economy in developing and transition countries. To improve our understanding of policy impacts, ZEF conducts research aimed at assessing the impacts and determinants of technological and structural change in rural economies. Moreover, emphasis is placed on the development of innovative and integrated models that can be used to simulate impacts of technological and structural change and related policies, and that can serve as decision-making tools for policy-makers.



Agent-Based Simulation of Sustainable Resource Use

This project bundles methodological and empirical issues of multi-agent research at ZEF. An agent-based simulation package is being developed which incorporates the following elements:

- guidelines for defining research questions and designing model components;
- methods for empirical data collection and processing;
- simulation software including tools for linking desktop computers to perform simulation experiments;
- guidelines for planning the simulation experiments;
- methods for validating the simulation results;
- communication and interpretation of results;
- development of teaching modules.

Expected quantitative findings are ex ante assessments of possible development paths and policy options. The project aims at providing policy-relevant information for a wide range of empirical questions in which heterogeneity and interactions between actors and their environment are decisive. Examples are technical and structural change in rural economies, sustainable resource use policies, community-based resource management, and yield gap analyses.

Project title:

“Agent-based simulation of sustainable resource use in agriculture and forestry”

Staff involved:

Thomas Berger, Jan Börner, Stefanie Engel, Soojin Park, Pepijn Schreinemachers, Christian Sebaly, Tsegaye Yilma

Timetable: May 2003 – April 2006

Funding Partners:

Robert Bosch Foundation, Germany

Project Coordinator/Contact:

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left: Children irrigating fields in Ghana.

right: Sweet potatoes are often produced by small-scale female farmers in Kenya.



Policy Analysis for Sustainable Agricultural Development

Project title:

"Policy analysis for sustainable agricultural development in Central and Eastern Europe and Southern Africa (PASAD)"

Staff involved:

Peter Wobst, Borbala Balint, John Mduma, Hardwick Tchale, Holger Seebens, Franklin Simtowe, Benjamin Schraven

Timetable: July 2002 - June 2005

Funding Partners:

Robert Bosch Foundation, Germany

Project Coordinator/Contact:

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The major objective of the PASAD project is to draw a more comprehensive picture of the rural economy through integrating various determinants of rural development and several analytical methods.

First results from Tanzania indicate that the evolution of labor markets is connected to spatial characteristics of the respective sites. For example, the distance to all-weather roads or to other social service facilities influences the number of households participating in wage employment in a village.

A study conducted in Kenya shows that after building several categories of female-headed households these differ in their behaviour regarding demand for inputs or investments towards land improvement.

In Romania, data show that commercial orientation of farm production is positively influenced by high factor endowments of the households and input markets that imply low or no transaction costs. Also, the aging rural population represents a severe problem. This poses a constraint on rural labor endowment. Poor farmers cannot afford to buy fertilisers or they tend to buy the cheapest one. They are not aware of the condition of soil on their plots either and therefore do not undertake any measures against soil degradation.

Finally, preliminary results from the bio-economic analysis in Malawi indicate that crop technology, input intensity and soil quality significantly influence the yields of both maize and tobacco. The results also indicate a higher correlation between soil quality and investments in soil fertility as well as soil conservation technologies. Thus, policies that affect farmers' investment in soil quality are likely to influence their productivity.

Economics of Agricultural Biotechnology

Project title:

"Economics of agricultural biotechnology"

Staff involved:

Matin Qaim, Roukayatou Zimmermann, Alexander Stein, Ira Matuschke, Arjunan Subramanian

Timetable:

Overall project started in 2000
Current phase: February 2003-October 2004

Funding Partners:

German Research Foundation (DFG)
Eiselen Foundation, Ulm, Germany

Project Coordinator/Contact:

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This project aims at analysing the adoption of genetically modified (GM) crops in smallholder agriculture and assessing the associated agronomic, economic, social, environmental, and health impacts. Issues like monopolistic pricing, technology access, and benefit distribution are also addressed.

The results indicate that suitable GM crops can bring about sizeable agronomic and economic benefits in developing countries. Studies of insect-resistant cotton in Argentina and India show that productivity gains are often larger than in developed countries, especially for smallholder farmers who use less chemical pesticides. Technology-related pesticide reductions lead to environmental and health advantages, and biological simulations suggest that these positive outcomes are sustainable. Staple crops that have been genetically modified to contain higher amounts of micronutrients can reduce hidden hunger among the poor, as a study of "Golden Rice" in the Philippines demonstrates. The type of technology supplier (i.e., public versus commercial sector), the degree of intellectual property protection at national levels, and seed pricing strategies have important implications for technology access and benefit distribution.

Institutions for Sustainable Natural Resources Management

The sustainable use of natural resources and the conservation of biodiversity still belong to the most pressing issues in development research. It has become clear that institutional arrangements are often at the heart of understanding human-nature interactions. Within the research area on institutions for sustainable natural resources management, ZEF broadly analyzes the determinants and effects of such institutions for forest and water management as well as biodiversity conservation. One particular emphasis is on the role of the state and local user groups in natural resource management. A second issue being emphasized is the design of incentive mechanisms for biodiversity conservation. Finally, to adequately assess the desirability of alternative institutions, an evaluation of the associated benefits and costs is required. Thus, a third research issue addressed is the valuation of such benefits and costs, focusing on the conservation of agricultural biodiversity.



Alternative Institutions for Natural Resources Management in Developing Countries

The aim of this research group is to identify the key factors and policies that affect the outcomes and dynamics of alternative institutions in natural resource management, particularly those resulting from recent trends of decentralization and devolution.

Study results highlight the fact that the traditional approach where the state owns and manages forest and water resources often causes difficulties in developing countries. Reducing resource pressure through providing alternative income sources alone may also be counterproductive, as it may draw more

people into an area, increase the possibility to bribe forest officials and extract resources in more pristine areas, or permit a more destructive extraction technology. To be effective, the provision of alternative income opportunities needs to be complemented with increased monitoring and enforcement.

Empirical results from studies in Ghana, India, and Indonesia show that the economic, social, and environmental outcomes of recent trends to devolve rights and respon-

sibilities over natural resources from the state to local communities are mixed and vary even within small geographic areas. Devolution has often been incomplete, resulting in insufficient community incentives to manage the resource

Project title:

"Determinants and effects of alternative institutions for natural resource management in developing countries"

Staff involved:

Stefanie Engel, Ramón López, Puja Sawhney, Osman Gyasi, Charles Palmer, Bhagirath Behera, Tobias Wünscher, Benedikt Korf, Le Quang Bao, Melanie Zimmermann

Timetable:

Phase I: April 2001 - March 2004
Phase II: April 2004 - March 2006

Funding Partners:

Robert Bosch Foundation
International Water Management Institute (IWMI), DAAD

Project Coordinator/Contact:

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www.zef.de/research_activities/bosch_pages/bosch.htm



The effects of devolving rights over natural resources are mixed.

sustainably as well as conflicts with other actors (e.g., industry). It also carries the risk of enhancing intra-community inequalities. Moreover, devolution by itself does not resolve externality issues. An interesting approach to achieve sustainable resource management is to combine devolution with direct payments to local communities for environmental services provided by them.

Conceptual modelling conducted within the research group highlights the potential of policies to have counterproductive effects. First, the participatory approach underlying most devolution programs implies that many factors that have been hypothesised in the literature to be important in explaining differences in success of devolution are endogenous. Ignoring these endogeneities can lead to unexpected policy impacts. Considering endogeneities has important consequences for the sequencing of reforms. Second, where communities bargain with outsiders (e.g., industry) over natural resource use, third-party interventions to improve the community's bargaining position can have adverse effects on the environment.

Economic Evaluation of Conserving Animal Genetic Resources

Project title:

"Economic evaluation of conserving animal genetic resources of indigenous breeds in East Africa"

Research fields/Issues:

Costs and benefits, animal genetic resources, discrete choice modelling, farmers' preferences, Borana cattle, pro-poor conservation strategies

Staff involved: John Mburu, Kerstin Zander

Timetable:

Submission of PhD thesis in September 2005

Funding Partners:

Robert Bosch Foundation

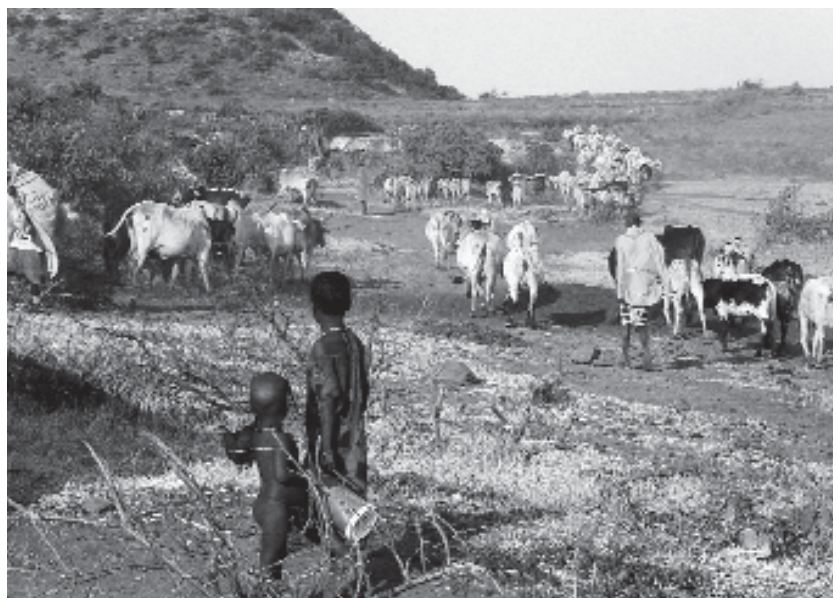
Project Coordinator/Contact:

John Mburu
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The overall objective of this study is to assess conservation strategies of the Borana cattle in East Africa and the economic value of their genetic resources as well to calculate the costs of conservation. In the course of data collection in Kenya and Ethiopia it became clear that there are considerable regional differences in farmers' attitudes towards conservation of the traditional Borana breed in these two countries. These differences are mainly due to the prevailing market situation and the degree of rivalry with other breeds.

Preliminary results show that only 40% of the 370 farmers interviewed would like to have compensation for maintaining the Borana cattle in their farming systems. The amount of compensation is low, too, ranging between 13 and 531 euros for each adult animal per year.

Borana cattle herd in East Africa.



Biodiversity and Economics for Conservation (BioECON)

The main objective of this project was to assess different incentive mechanisms of in situ conservation of crop genetic resources (CGRs) in India, Ethiopia and Kenya, in order to aid development of an institutional approach to maintain plant genetic resources for food and agriculture at farm level.

In Ethiopia studies targeted traditional cereals (mainly sorghum and wheat) and coffee genetic resources. Empirical research in areas where cereals are grown showed that local arrangements within community seed banks and exchange networks create important incentives that provide a unique opportunity to integrate farmers' knowledge, decision-making power, rights, and responsibilities in conserving crop diversity. As a prerequisite for placing sound incentives and designing contracts with farmers, the opportunity costs that farmers face when they are expected to use local varieties of interest were assessed and calculated. The average opportunity costs calculated suggest not only the range of policy incentives required for farmers to maintain local varieties of wheat and sorghum on-farm but are also useful in estimating the ex ante costs for the on-farm conservation of crop diversity in Ethiopia. Research on the conservation of coffee genetic resources has shown that the intensification of forest extraction is associated with exposure to coffee income risk, subjective discount rate, current coffee income shock and household size. Moreover, it has been demonstrated that indigenous households engage more intensively in forest extraction activities than migrant households.

In Kenya, research has focused on on-farm conservation of traditional leafy vegetables. It has been demonstrated that market access and price incentives favour conservation of these vegetables. Further, farmers' experiences and their traditional knowledge, social cohesion and availability of land for cultivation are key 'in-built' incentives that enhance farmers' derived demand for the traditional vegetables.

In India, it was investigated how 'controlled in-situ' conservation can be designed and implemented as an incentive mechanism to facilitate decision making in on-farm conservation of traditional rice varieties. It has also been shown that due to farmers' preferences, both marketable traits (e.g. yield) and non-marketable (qualitative) attributes have to be considered in developing 'controlled in-situ' conservation strategies.

Project title:

"Biodiversity and economics for conservation (BioECON)"

Staff involved:

John Mburu, T. Nagaraja Rao Prakash, Edilegnaw Wale, Degnet Abebaw Ejigie, Jones Abrefa Danquah

Timetable:

March 2001-February 2004

Funding Partners:

European Union (EU)

Project Coordinator/Contact:

John Mburu
jmburu@uni-bonn.de



Coffee plant in Ethiopia.

Trade and Economic Growth



Macroeconomic policies, such as trade and fiscal policies, have important effects on economic growth and the sustainability of development processes. Therefore, ZEF's recent research in the area of trade and economic growth has focused on three main issues. The first emphasis is on the relationship between trade, environmental and social standards, and labelling policies. A second research topic is the analysis of the degree and economic impacts of trade and agricultural policy distortions. Finally, the impacts of fiscal policies on economic growth, particularly in transition countries, are assessed.

Trade and Agricultural Policy Distortions in Developing Countries

Project title:

"Trade and agricultural policy distortions in developing countries"

Staff involved: Ulrike Grote, Hoa Ngyuen

Timetable: 2003 - end of 2004

Funding Partners: GTZ

Project Coordinator/Contact:

Ulrike Grote
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Trade and agricultural policies have been distorted not only in developed countries but also in several developing countries. However, one does not really know how much support developing country governments are providing to their agriculture and what impact this has on their own agriculture and on world agriculture more generally. In the context of a larger program of the International Food Policy Research Institute (IFPRI), the objective of this project is to estimate "producer support estimates" and to give a detailed picture on agricultural policy in Vietnam. The study has implications for how Vietnam might view possible outcomes of the WTO Doha Round negotiations on agriculture.

Examining the Role of Governments in the Growth of Transition Economies

Project title:

"Comparison of government revenue structure and major spending targets in Russia and Hungary: Examining the role of governments in the growth of transition economies"

Research fields/Issues:

Economics of transition, fiscal policy

Staff involved: Maja Micevska

Timetable: July 2003 – June 2004

Funding Partners: University Research Corporation International (USA)

Project Coordinator/Contact:

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The project is implemented within the framework of the "Think Tanks Partnership Program" (TTPP), as one of its partnership projects. It is designed to carry out a collaborative analysis of the influences that tax and public spending policies have on economic growth in Hungary and Russia. Besides adding to the current knowledge on the subject, the project aims at offering policy recommendations as well as raising awareness among the general public on fiscal issues as part of its outreach and dissemination component.



Markets are expanding in the former Soviet Union.

Trade, Environmental and Social Standards, and Labelling

The main objectives of this research program are to contribute to an understanding of the economics of labelling and the determinants of environmental and social standards and their impacts on trade, environmental quality, and social aspects, with a particular impact on developing countries. The specific issues addressed and some recent results are discussed next.



Chicken farm in Brazil.

Why do some countries establish their own national eco-labelling programs -whereas others do not? One study in the framework of this project shows that a country's decision to adopt eco-labelling programs is systematically related to a country's: (i) stage of economic development, (ii) existing environmental performance in the absence of eco-labelling initiatives, (iii) scale of production, (iv) comparative cost advantage and net export orientation, and (v) extent of peer or strategic interactions between export competitors (Basu, Chau and Grote, 2003).

The theoretical and empirical literature on the polarised debate on environmental standards in the context of trade liberalisation in agriculture has focused largely on a protectionist argument for the so-called race to the bottom. Engel and Grote (2004) examine an additional argument for a race to the bottom that is sometimes made in the popular discussion and which has not been formalised, namely that a race to the bottom may not only be justified by protectionist, but also by environmental reasons.

Why do some countries favour a mandatory labelling system for genetically modified organisms and others a voluntary system? Engel and Zago (2004) show that this can be explained by differences in consumer preferences and prevalent technologies across countries.

Why do some countries establish their own national eco-labelling programs -whereas others do not? One study in the framework of this project shows that a country's decision to adopt eco-labelling programs is systematically related to a country's: (i) stage of economic development, (ii) existing environmental performance in

Project title:

"Trade, environmental and social standards, and labelling"

Staff involved:

Arnab Basu, Nancy Chau, Stefanie Engel, Ulrike Grote, Cristina Carambas, Sayan Chakrabart, Dina Mandour

Timetable:

Started in 1998
 Completion of several articles in 2003
 Completion of a study on social standards and child labor in Egypt in 2004
 Completion of three PhD theses in 2005 and 2006

Funding Partners:

GTZ, DAAD

Project Coordinator/Contact:

Ulrike Grote
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A country's decision to adopt eco-labelling is also related to its scale of production.

Research on Biodiversity



Understanding and maintaining natural biodiversity is a challenge to science and society. ZEF's research in this field is based on the United Nations Convention on Biodiversity (UNCBD). In cooperation with its partner institutions as well as in the framework of umbrella research programs like SHIFT, BioTEAM and BIOLOG, initiated by the Federal German Ministry of Education and Science (BMBF), ZEF is involved in projects in Brazil, Ethiopia and West Africa. A better understanding of the ecological role of biodiversity and its economic valuation shall help to develop concepts for a scientifically sound conservation and use of biodiversity as well as to fulfill the criteria for a sustainable management of natural resources.

The Wild Population of *Coffea Arabica* in Ethiopia

Project title:

"Conservation and use of the wild population of *Coffea arabica* in the montane rainforests of Ethiopia"

Research fields/Issues:

Biodiversity, Afro-montane rainforests, wild coffee populations

Staff involved:

Manfred Denich, Franz Gatzweiler, Tadesse Woldemariam Gole, John Mburu, Peter Mollinga, Christine Schmitt, Feyera Senbeta Wakjira, Kassahun Tesfaye, Alice Beining, Taye Kufa, Anke Rojahn, Admassu Shibru, Till Stellmacher, Teklu Tesfaye

Timetable: August 2002 - June 2006

Funding Partners:

BMBF - BioTeam
Kraft Food Deutschland
"Geo schützt den Regenwald e.V."

Project Coordinator/Contact:

Manfred Denich
Franz W. Gatzweiler
coffee@uni-bonn.de
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Vegetation surveys have been carried out in three montane rainforests to describe vegetation structure, species composition and distribution of wild coffee populations. Coffee is most abundant where human influence is significant due to the removal of competing undergrowth. In the undisturbed forest, coffee is patchily distributed at higher densities on southerly to westerly exposed slopes and in areas with a relatively dense canopy cover and few competing shrubs and small trees.

First results include the characterization of several chloroplast microsatellite loci in *C. arabica*, which are currently being screened for polymorphism in a wider geographical range. Highly variable chloroplast regions were found that indicate a very recent differentiation of *C. arabica* and *C. eugenioides* chloroplast genomes, and hint at *C. eugenioides* as the maternal parent.

The geographic variability of plant ecophysiological properties in wild coffee has been assessed; populations have been compared between different regions (interpopulation comparison) as well as within the different investigation sites (intrapopulation comparison) during the dry and wet season.

Both the financial as well as the economic analysis of the three use systems - sustainable farming, extrac-



Field research in Ethiopia.



tive conservation and semi-forest coffee - find that the transformation of the forest into a protected park is the least profitable option. The cost benefit analysis comes to the conclusion that semi-forest coffee is the best use option. From the farmers' point of view deforestation and production of maize would be most profitable.

State-driven conservation efforts conflict with local livelihood strategies and traditional property rights. Legal and administrative institutional arrangements do not respond to local ecological conditions as well as social needs.

Plant Residues and Soil Biota in Central Amazonia

The goal of this project was to maximise benefits from these 'ecosystem engineers' for small-scale farmers who have little financial resources and cannot rely on external fertiliser inputs. This study concentrated on the application of a cover of wood mulch. Three land use methods were compared: Cassava plantations under traditional slash-and-burn, under slash-no-burn, and under slash-and-mulch.

Particular emphasis was given to soil fauna performance indicators in these systems. Although their biomass and diversity was reduced, and litter decomposition rates were 60% below those in primary forests, soil fauna communities seemed to be functional and reactive to management. Earthworms in particular showed fast positive reactions to mulching in comparison to slash-and-burn. Termite communities were also more active in the mulch. An anticipated pest effect of these wood-feeders on the planted crop was not observed, however. This is an encouraging finding: it seems to be possible to make nutrient supply from natural cycles available to the small-scale farmers who manage these agroecosystems. Coupled with other data from a previous phase of the project, this result allows to design better agroecosystems in the tropical rain forest biome.

Project title:

"Management of plant residues and its effect on soil biota in Central Amazonian Agro-ecosystems: Sub-project termites, mulch systems and litter decomposition"

Research fields/Issues:

Tropical agro-ecosystems, soil fauna, land use systems in the Amazon region

Staff involved:

Christopher Martius, Petra Schmidt, Liliana Ishihata

Timetable: 2000-2003

Funding Partners:

German Federal Ministry of Education and Research (BMBF)

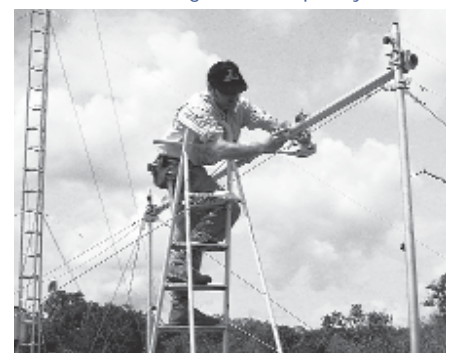
Project Coordinator/Contact:

Christopher Martius
c.martius@uni-bonn.de

BIOTA West Africa Subproject WO2

Understanding and maintaining natural biodiversity is a major challenge to both science and society. The BIOLOG (Biodiversity and Global Change) program funded by the Federal German Ministry for Education and Reserach (BMBF) is the hitherto most significant German contribution to this rapidly developing and highly significant field of applied ecology, which has many repercussions on other fields of science. In the framework of BIOLOG, a set of projects monitoring biodiversity, the BIOTA projects (Biodiversity Monitoring Transect Analysis), has been developed based on requirements laid out in the United Nation Convention on Biodiversity (UNCBD). The BIOTA projects aim to provide data and understanding about ecological values and economic potentials of biodiversity in the tropics. The BIOTA projects are located in South, East and West

Maintaining the climate stations is an essential task for good data quality.



Project title:

"Biophysical and hydro-meteorological parameters in the framework of terrestrial biodiversity research"

Staff involved:

Joerg Szarzynski

Timetable: April 2004 - April 2007

Funding Partners:

German Federal Ministry of Education and Research (BMBF)

Project Coordinator/Contact:

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<http://www.bioklimatologie.de>



Working together in West Africa.
GLOWA Volta project and BIOTA W02.

Africa. One principal goal is to assess biodiversity along a continental climatic and environmental gradient, covering all major biomes. An understanding of the ecological role of biodiversity shall help to develop plans for a scientifically sound management of ecological and economic sustainability in the context of global change and human impact.

In Burkina Faso, scientists from ZEF's GLOWA Volta project and from BIOTA West Africa are working together intensively. Their synergistic work focuses on climate and vegetation parameters. The data will serve as an input to drive hydro-meteorological models and to validate assessments from remote sensing.

Since September 2002, the BIOTA subproject W02 (Biophysical and hydro-meteorological parameters in the frame of terrestrial biodiversity research) has been strongly affiliated to ZEF. This project is responsible for bioclimatological monitoring within the West African countries under research. In 2003, new micro-meteorological field stations were prepared for the permanent installation in Burkina Faso, and data received from the Institut de Recherche pour le Développement (IRD), the World Meteorological organization (WMO) and the Agrometeorology Group, Food and Agriculture Organization (FAO) of the United Nations was analysed and spatially interpolated.



The BIOTA subproject is responsible for bioclimatological monitoring.



Chapter 3. Teaching and Training

The International Doctoral Studies Program for Development Research (IDSP)

Two main goals of the IDSP are to support academic and scientific Capacity Building in developing countries and to educate academics from European countries in the field of development research. In its size and concept, the IDSP is unique, and despite its short existence, it is already an institution of high reputation that is known world-wide.

Scientific standard and concept

The academic goal of the educational program is to offer the students a combination of knowledge, methods and tools to strengthen their specializations, as well as to give them an overview and insight of development-related issues and methods in general. This innovative approach enables our graduates to perform as specialists in their own academic fields and to tackle development-related issues with a broader view and on a multi-disciplinary scientific basis.

The IDSP has a tight schedule for its students. After six to twelve months of study and courses at ZEF they conduct their empirical research, most of them abroad, either in their home countries or, in some cases, at an international institution or organization in the field of development policy or cooperation. After one or two years in the field, they return to ZEF to assess their collected data and knowledge and to complete their thesis. The whole program has to be finished within a time frame of three years.

Since a large number of the students are involved in ZEF's major interdisciplinary projects, one of the criteria for selecting the students is that their research proposals fit in with ZEF's existing research agenda.

During their stay at ZEF, students are especially encouraged to publish their work and participate in international conferences, workshops and congresses in order to train their rhetorical skills, gather experience and establish contacts with international colleagues in their fields, and are supported by the center in doing so.

Courses, teachers and tutors

Courses are held in all of ZEF's research fields. Besides the involvement of ZEF senior staff members, some of the lecturers are professors or teachers from other, often international, universities, so that a high academic standard and a broad perspective on development related issues is ensured. Cooperation with several institutes of the Universities of Bonn, Cologne and Aachen is especially intensive.

The Doctoral Course Program is organized in:

Module I a basic, interdisciplinary course giving a sound theoretical background and providing knowledge and skills to address the complex and inter-linked problems of development

Module II three disciplinary courses (Development economies and politics,



An intensive program ensures a high academic standard.

Students working on a joint project.





Students of the IDSP: batch 2003/2004.

development sociology and politics, natural resources management and ecology) provide specific knowledge separately for each program area about theory and methodology that is essential for the empirical study of the students

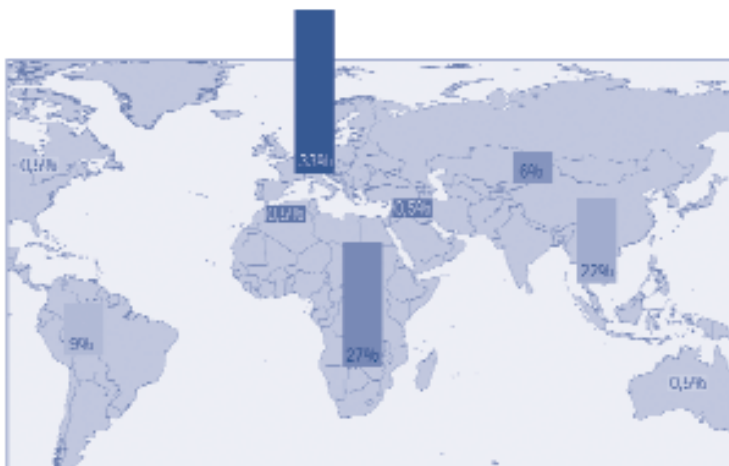
Module III consists of up to three sets of lectures a year on "Contemporary development issues and methods". Invited prominent guest scientists deliver lectures on selected frontier level topics. Each set comprises two to three days of lectures and individual discussions on specific PhD research topics. Module III can also be conducted in the form of a specific training for individual students provided in laboratories at the University of Bonn or other co-operating institutes in Germany or abroad.

Examples of the particular courses held in 2003 are: Theories of development and change, water scarcity and resource management, governance and the rule of law, biodiversity, sustainable land use, human rights, ethnic conflicts, poverty reduction, modern technologies, trade and globalization, desertification, climate change.

The tight time schedule in combination with the high academic standard of the graduates can only be achieved by the intensive tutoring and supervision system ZEF offers. This is unique in the German academic landscape, where the average duration of a PhD is about five years and most of the PhD students work without any intensive feedback on their work.

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Origin of IDSP students 2003/2004



Regions of origin

	Number	in%
■ Europe (Germany: 63)	73	33
■ Africa	59	27
■ Asia	49	22
■ Latin America	20	9
■ Central Asia, Russia	17	6
■ Near East, North Africa	3	1
■ Canada, Australia	2	1
Total: Students from 52 nations	218	

Countries of origin

	Number	in%
■ Developing countries	113	52%
■ Transition economics	32	15%
■ High income nations	73	33%

Selection procedure

Owing to the high academic standard of the IDSP, less than ten percent of the roughly 300 applicants a year can be accepted. University marks so far and the quality of the research proposal are the decisive criteria for selecting students for attendance of the IDSP. Representatives of ZEF and the main funding partners take part in the selection procedure.

Alumni and career perspectives

Since the inception of the IDSP in 1999, 66 students have graduated from ZEF with a PhD degree. Our contact with former PhD students, especially through our Alumni Program, proves that nearly all former students find suitable positions in an academic, NGO, governmental or intergovernmental context, some of them in their home countries.

The following graduates of this year's batch serve as examples of the prospects for former IDSP's participants: Ms. Susanne Ziemek wrote her doctoral thesis on "The economics of volunteer labor supply", supported by research funds of the United Nations Volunteers. After finishing her PhD at ZEF, she found a position as an Officer in the German Federal Ministry of Education and Research (BMBF) where she is responsible for cooperation with India, Indonesia and Korea.

Another successful example is Mr. Yuangsheng Jiang. He started his PhD at ZEF in 2000, after having graduated with a Master in Agri-Economics from the Agricultural University of Sichuan in South West China. He wrote his doctoral thesis on the rural health system in China. Since his doctoral studies in Germany were partly financed by his home university, he committed himself to teaching there after finishing his PhD. On his departure from ZEF, Jiang said that he was looking forward to applying what he had learnt in his field of specialization and to teaching in his home country. And he was confident that his working experience at ZEF would provide a lot of future possibilities for academic cooperation and exchange.



Students at a video conference at ZEF.

Facts & figures on IDSP



Number of PhD students since 1999

	Number
Currently immatriculated	139
External PhD students	24
Alumni	55
Total	218



Gender

	Number	in %
Woman	77	35
Men	141	65



Mr. Steven Duadze from Ghana also regards his career prospects as considerably enhanced following his graduation from ZEF. He has been involved in the GLOWA Volta project, combining his knowledge and working experience from working for the Water Institute in Ghana, before he came to ZEF with his PhD work in the framework of the project. He is especially optimistic about the possibilities of working in a non-academic context as an environment expert, thus applying his skills for more activist purposes.

Application

New applicants for the International Doctoral Studies Program for Development Research should have the following profile:

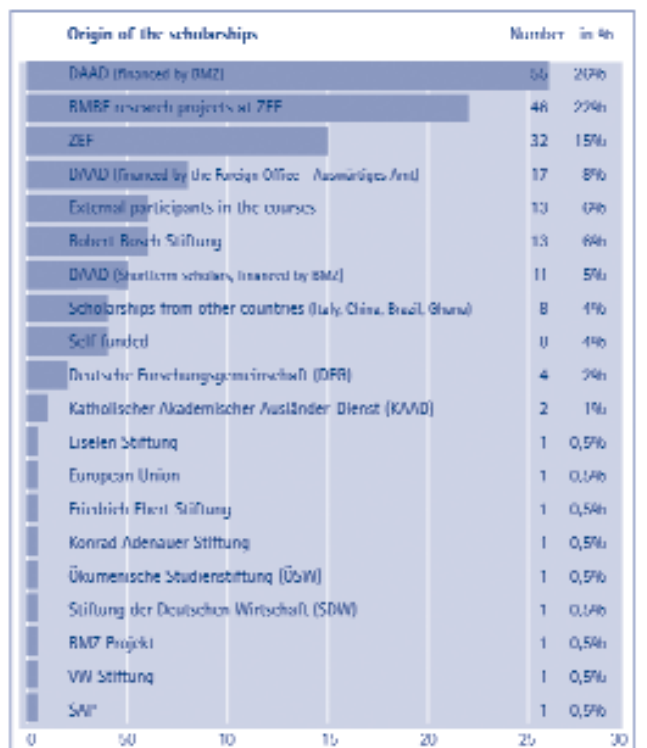
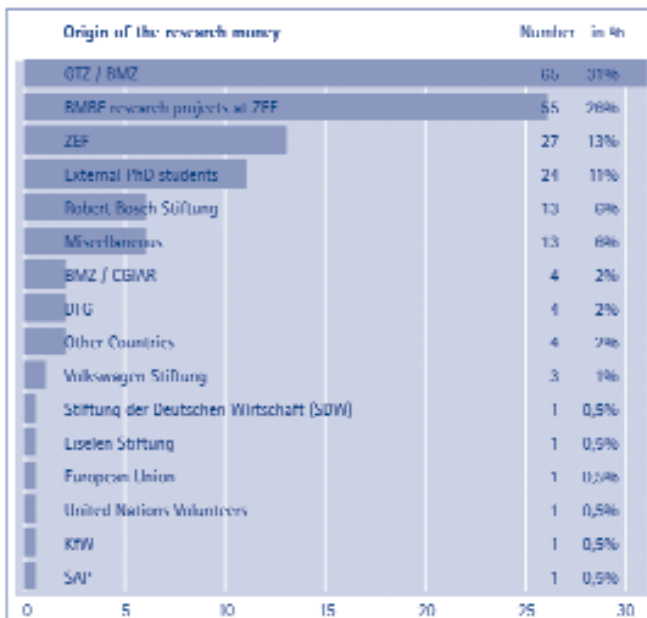
A successful application requires an excellent master or diploma degree in Economics, Political Science, Agricultural and Resource Economics, Engineering Degrees, Geography, Mathematics, Natural Science or Agriculture, and excellent proficiency in English. The applicant should be younger than 32. The application written in English must include: a letter of application, application forms from ZEF, an abstract of the master or diploma thesis, the plan of proposed research, two letters of recommendation, the curriculum vitae and certified copies of all relevant certificates. The application forms can be downloaded from ZEF's website or are mailed on request to interested persons.

The deadline for applications for the doctoral program and scholarships are: September 30, yearly, for non-EU citizens and DAAD scholarships (available only for applicants from developing countries), and May 31, yearly, for EU citizens and scholarship holders of the Robert Bosch Foundation.

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 http://www.zef.de

Funding partners



Selected Doctoral Theses

Gender Employment and Equity – Effects of Foreign Direct Investment in Rural Indonesia

Karin Astrid Siegmann's thesis assesses the impact of globalization on gender equality in rural Indonesia. It thereby focuses on the effects of foreign direct investment (FDI) on gendered labor markets.

Across sectors, it was found that FDI influences female as well as male wages positively and that employment in transnational companies (TNCs) firms always increases female total working time. Beyond these findings, the results show that an assessment depends on the specific sector under consideration. However, two underlying mechanisms have been identified which generate the sectorally differing results. A cost effect associated with TNCs' greater orientation towards the world market is the preferential recruitment of, on average, lower paid female workers. In the light of global competitive cost considerations, this appears as a rational strategy for TNCs. Conversely, foreign firms' advanced technological endowments relative to domestic companies require a well-educated workforce with technical skills. In light of these perspectives, gender gaps in education, which are particularly pronounced in rural Indonesia, and, on average, women's weaker labor market attachment disadvantage female workers' employment. Both effects are mediated by a reproductive constraint. This refers to the asymmetric distribution of reproductive obligations between female and male household members, whereby female input into the domestic economy is more demanding compared to that of males.

These results offer policy intervention entry points for more gender equality in labor markets in rural Indonesia. In the short term, policy approaches include improved female access to technical training, provision of childcare for the workforce, as well as support for women in trade unions in order to strengthen female bargaining power in industrial relations. Long-term approaches would aim at more equal burden-sharing between women and men in reproductive tasks as their asymmetrical distribution is central in generating and perpetuating gender inequality in labor markets.

Political Islam in Sudan - Political Opportunities and Mobilizing Structures

This research at ZEF analyses the significance of political Islam in regard to the mobilizing of supporters in Sudan. The National Islamic Front (NIF) originally started as a student movement in the 1950s, participated in power in 1977 and took full control of the state in 1989. Since that time the NIF has diversified its mobilizing structures by expanding its support base beyond the students' domain, notably in the army. Also the NIF adopted a populist policy and established Islamic banks to consolidate the movement's economic base. However, research at ZEF found out that this strategy to enlarge the base of the NIF did not strengthen the significance of political Islam.

For instance, both lenders and farmers are governed by economic considera-

Karin Astrid Siegmann, Germany

Center for Development Research (ZEF)
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Khalid Yousif Khalafalla, Sudan

Center for Development Research (ZEF)
Faculty of Arts and Social Sciences,
University of Bonn



Mario Krämer, Germany

Center for Development Research (ZEF)
Faculty of Arts and Social Sciences,
University of Bonn

**Nurullo Makhmudov, Uzbekistan**

Center for Development Research (ZEF)
Faculty of Economic Sciences,
University of Aachen

tions rather than religious norms in most cases, despite the huge advancement of credits for farmers under the Islamic modes of profit-and-loss sharing. Furthermore the movement is losing support among its original stronghold, the students, which is reflected by the very low percentages of the movement's participants and sympathizers. Thus it can be considered that selective incentives remain the only option that the movement can use to gain support.

Collective Violence and Local-level Politics in KwaZulu/Natal, South Africa

The main objectives of this study are to analyse and understand collective violence in the South African province of KwaZulu/Natal after 1994. So far, very few research projects have investigated violent action at local level, and hence there is still a need for in-depth studies on the microcosms of collective violence. In the course of one year of fieldwork, it became evident that despite a decrease in media coverage and public attention, a substantial number of people were killed in the post-apartheid era. Recent figures put the number of casualties at about 2,000 people from 1994 to 2000. This of course casts a shadow on the regional peace process that is generally portrayed as being successful and bringing 'true peace' to the province.

It is not disputed in this project that collective violence has indeed declined in terms of casualties, but the argument is that violent action became routine in the local arena and either continues to be so in these days or is at least an omnipresent option of acting in local-level politics. Processes of revenge are discerned as a key motive in the reproduction and routinization of collective violence. Revenge is a driving force behind most acts of violence following the initial one and became a norm in the local arena in the 1990s. Under conditions of ineffective state institutions, revenge serves as an act of retribution for perceived injustices and thus produces justice from the perspective of the perpetrators. Therefore, processes of revenge result from insecurity and lack of trust in the criminal justice system but are not culturally determined. Although transforming collective violence remains a highly complex issue, one major task for the future is hence to improve the effectiveness as well as the impartiality of the police and judiciary in order to realize the vision of a province at peace.

Adoption Process and Impacts of Information and Communication Technologies in Small and Medium Size Enterprises in Central Asia: Evidence from Uzbekistan

This thesis examines the adoption process and impacts of information and communication technologies in small and medium size enterprises in Uzbekistan. Specific technologies considered include fixed telephone, fax, mobile telephone, computer, email and world-wide-web. The study was motivated by the existence of a large digital divide, gaps in our knowledge of the ICT situation in developing countries, a low level of technology adoption by small businesses, as well as a lack of sufficient knowledge about the impacts occurring in user-firms. The aims of the study were: (i) to identify the determinants, barriers and reasons relating to the technology adoption of small businesses; and (ii) to determine different types of ICT impact occurring in various areas of user-firms'

businesses and to examine those factors that affect their extent. Findings showed that the technology adoption decision of small and medium size firms is not an isolated phenomenon but rather a behaviour explainable by the interplay of a set of manager-, firm-, industry- and location-specific factors faced by the potential adopter. Furthermore, the study could verify the occurrence of a number of diverse impacts in various areas of user-firms' operations. These impacts included geographical diversification of operations, increased flexibility, better business networking relations, product/service improvements, higher operational efficiency, increases in the informational quantity and quality, etc. Finally, the research has identified a number of conditions that help to explain variations in the degree of ICT impacts realised by user-firms. The results of the study could be used in developing more effective ICT promotion strategies by allowing a selection of the locally relevant instruments. Additionally, research findings allow to better target the promotion strategies by helping to identify specific sectors and entities that have a higher adoption potential and as such may deserve a higher priority in provision of support.

Water Accounting and Productivity at Different Spatial Scales in a Rice Irrigation System: A Remote Sensing Approach

As agricultural water resources in Asia are becoming increasingly scarce, irrigation efficiency must be improved. This study quantified water use efficiency and productivity at 10 different spatial scales, in District 1 of UPRIIS, Central Luzon, Philippines. The results show that water re-use on the largest scale is equal to 30% used by the rice crop, which implies that the farmers in downstream areas rely on re-used water captured by check dams or from shallow wells. Of the gross inflow, 74% flows out of the system, which indicates a wide scope to increase water productivity. The study is unique in that, for the first time, it has quantified how water productivity increases with larger scales due to more water re-use opportunities.

The Role of Biological Nitrogen Fixation in Secondary and Primary Forests of Central Amazonia

The study shows biological nitrogen fixation (BNF) by legume-rhizobia symbiosis to be high at all stages of secondary forest succession following slash-and-burn land use in central Amazonia. In contrast, BNF is low or absent in the primary forests, possibly because of physiological limitations of BNF in the dominating tree giants. The ^{15}N natural abundance method fails as a quantitative method for estimating BNF in these forests. Lianas play a so far unrecognised key role for BNF, especially in early succession. Potentially N_2 -fixing legume vegetation is aggregated in clusters and BNF appears to be concentrated in hotspots within the sites.

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Chapter 4. Public Awareness

ZEF is a scientific institution with a strong emphasis on informing a broader public of its work and its impact. The interdisciplinary approach to and the international set-up of its research work enable a wide network of scientific and non-scientific partner institutions and organisations all over the world. Individual staff members of ZEF contribute as experts or as representatives of their projects to evaluating development projects or to writing reports on federal ministries' development-related projects. It is this continuous interaction between political and ministerial actors and representatives of scientific and NGO circles that not only enriches ZEF's work but gives the Center a pivotal role in the development community as well.

Media

Its broad profile offers ZEF several possibilities to approach and communicate with the media. As a scientific partner with development-related projects, ZEF is an interesting partner for general media addressing a non-scientific public, which is, for example, highlighted by the media coverage on the "Tipitamba" project in Brazil. Today, ZEF's experts on Africa and Afghanistan frequently appear on national radio and TV channels, as well as in the print media.

On the occasion of World Water Day on March 23 2004, ZEF held a joint press conference with several local partners in the field of water-related research and activities like UNU/EHS and WHO.

Public events

ZEF staff participated in the Annual German Tropic Day in October 2003 and in other major international conferences with a large number of contributions. On the annual UN Day in October 2003, ZEF presented and communicated its work at a major event in Bonn. The focus lay on its water-related activities, since 2003 was the UN's Year of Freshwater.

Publications and publishing

In addition to its existing series of publications and media (ZEF news, Annual Report, Discussion Papers, and our Homepage under www.zef.de), ZEF launched a new tool to reach an extended target audience: the ZEF Policy Brief, the first of which was published on the occasion of the third Afghanistan Conference in Berlin at the end of March 2004 and received much positive feedback.

ZEF staff published on a regular basis, not only in scientific publications, but also in general magazines like one of Germany's leading journals in the field of development policy, "Development and Cooperation" (D+C).

Networking and cooperation

ZEF's research work, and above all its major interdisciplinary projects are based on networking. As can be seen in the project overviews in this Annual

Report, cooperation with the local scientific and political partners in the host countries is especially important. Activities by the project staff to reach the local media endorse the acceptance of ZEF's work on the spot, making it a well-known research institute in many parts of the world.

ZEF has intensified its cooperation with other partners in the development and scientific scene. In particular, cooperation with its local research partner BICC (Bonn International Center for Conversion) has been intensified in the shape of joint symposiums and conferences such as the ones on "Violent conflicts and their impact on democracy in South Asia", in February 2004, and on "Water, development and cooperation in the regions of the Euphrates/Tigris and South Africa", in March 2004 (www.water-workshop-bonn.de).

Another important cooperation partner is the German Institute for Development Policy (DIE), with which ZEF organised experts' workshops like the one on "Human security, good governance and structural stability" in February 2004.

ZEF also organised experts' rounds of its own to facilitate an exchange about its research agenda with representatives from the NGO and governmental scene. The roundtable discussion with Dr. Fergany, the Lead Author of the Arab Human Development Report, in July 2003 is a good example.

UNU/EHS

A new cooperation partner of ZEF is the Bonn based United Nations University Institute for Human Security and Environment (UNU/EHS). Joint research projects and exchange of staff and doctoral students are planned. To enable a close cooperation, the Director of UNU/EHS, Prof. Janos Bogardi, has become an Ex-Officio member of the ZEF Directorate.

European Development Research Network (EUDN)

The overall goal of the network, funded by GTZ and the Land of North Rhine-Westphalia, is training and capacity building. The activities in 2003 and 2004 concentrated on the:

- organization of workshops for doctoral students in 2003 and 2004
- organization of the annual EUDN conference in cooperation with AfD in November 2003
- development of the EUDN homepage (www.eudnet.net) and PR material
- participation in activities of the Global Development Network (GDN) and other regional networks.

Higher Education Forum on Capacity Building in Renewable Energies

As an official side event of the international conference "Renewables 2004" on June 1-4 in Bonn, ZEF and the German Academic Exchange Service (DAAD) organized a Forum on Higher Education entitled "Capacity building in developing countries - bringing renewable energies to the people". The event was held jointly with the universities of Flensburg, Göttingen and Oldenburg. All of the 140 participating experts who came from 38 different countries had completed their studies at these three universities.



Participants at the Higher Education Forum, June 2004 in Bonn.



Appendices: Selected Publications and Output

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No. 72:

Andreas Wimmer: Democracy and ethno-religious conflict in Iraq, Bonn, June 2003.

No. 73:

Oded Stark: Tales of migration without wage differentials: Individual, family, and community contexts, Bonn, Sep. 2003.

No. 74:

Holger Seebens, Peter Wobst: The impact of increased school enrollment on economic growth in Tanzania, Bonn, Oct. 2003.

No. 75:

Benedikt Korf: Ethnicized entitlements? Property rights and civil war in Sri Lanka, Bonn, Nov. 2003.

No. 76:

Wolfgang Werner: Toasted forests – evergreen rain forests of tropical Asia und drought stress, Bonn, Dec. 2003.

No. 77:

Appukkuttannair Damodaran, Stefanie Engel: Joint

forest management in India: Assessment of performance and evaluation of impacts, Bonn, Oct. 2003.

No. 78:

Eric T. Craswell, Ulrike Grote, Julio Henao, Paul L. G. Vlek: Nutrient flows in agricultural production and international trade: Ecology and Policy Issues, Bonn, Jan. 2004.

No. 79:

Richard Pomfret: Resource abundance, governance and economic performance in Turkmenistan and Uzbekistan, Bonn, Jan. 2004.

No. 80:

Anil Markandya: Gains of Regional Cooperation: Environmental problems and solutions, Bonn, Jan. 2004.

No. 81:

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No. 82:

John M. Msuya, Johannes P. Jütting, Abay Asfaw: Impacts of community health insurance schemes on health care provision in rural Tanzania, Bonn, Jan. 2004.

No. 83:

Bernardina Algieri: The effects of the Dutch disease in Russia, Bonn, Jan. 2004.

No. 84:

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No. 85:

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Workshops and Conferences

Peter Wobst, together with John Mduma, Holger Seebens, Hardwick Tchale, and Borbala Balint, organized four project workshops to present the context of the overall project, highlight ongoing research components, and discuss future complementary research studies. The workshops took place on July 15, 2003 at the Economic and Social Research Foundation (ESRF), Dar es Salaam, Tanzania, on July 17, 2003 at the Faculty of Agriculture Building, Sokoine University of Agriculture, Morogoro, Tanzania, on September 9, 2003 at the Agriculture Policy Research Unit (APRU), University of Malawi, Lilongwe, Malawi, and on March 10, 2004 at the Institute of Agricultural Economics (IAE) in Bucharest, Romania.

21 August 2003:

Workshop: "The Afghan draft constitution and the

situation in Afghanistan", organized by the Center for Development Research (ZEF), the Bonn International Center for Conversion (BICC) and the Evangelische Akademie Iserlohn/IKG, University of Bonn.

10 October 2003:

Roundtable: "Devolution and local participation in resource management", organized by Stefanie Engel (ZEF), together with Thomas Sikor (Humboldt University Berlin) at the German Tropics Day (Deutscher Tropentag), Göttingen.

20 - 21 November 2003:

Workshop: "Menschliche Sicherheit, Good Governance und strukturelle Stabilität: Hilflöse Konzepte in Zeiten des Staatsverfalls? Eine Überprüfung anhand von Nepal, Äthiopien, Afghanistan und Nordkorea", organized by the Center for Development Research (ZEF) and „Deutsches Institut für Entwicklungspolitik“ (DIE), Bonn.

1-4 December 2003:

Manfred Denich was a member of the steering group of the international symposium on "Sustainable use and conservation of biological diversity: A challenge for society", Berlin.

3-4 December 2003:

Manfred Denich participated in the organization of the status seminar of the program "Biosphere Research – Integrative and Application-Oriented Model Projects (BioTEAM)", funded by BMBF, Berlin.

18 February 2004:

Symposium: "Violent conflicts and their impact on democracy in South Asia", organized by the Center for Development Research (ZEF) and the Bonn International Center for Conversion (BICC), ZEF, Bonn.

13-19 February 2004:

Kick-off Workshop on special research program "Landscape restructuring in Khorezm, Uzbekistan", organized by Christopher Martius, ZEF, Bonn.

1-2 March 2004:

Workshop: "Water, Development and cooperation in the regions of the Euphrates, Tigris and Southern Africa" in cooperation with Bonn International Conversion Center (BICC).



12 March 2004:

John Lamers participated in a video conference "Ground water, burden or benefit for the irrigated land in the Aral Sea Basin" of ZEF Bonn, the State University Urgench, Uzbekistan, and UNESCO Almaty, Kazakhstan.

Academic Awards

The following awards were given to ZEF Staff and Directors during 2003/2004:

Paul Vlek was elected as one of five foreign Fellows of the National Academy of Agricultural Sciences of India in November 2003.

Nancy Chau, Arnab K. Basu and Ulrike Grote received the T.W. Schultz Prize for the "best contributed paper" at the 25th International Association of Agricultural Economists (IAAE) Conference in Durban, South Africa, in August 2003.

Matin Qaim was awarded the Nils Westermarck Prize for the "best poster paper" presented at the IAAE Conference in Durban, South Africa, in August 2003.

Habilitations 2003/2004

Grote, Ulrike. (2003): "Umwelt- und Sozialstandards im internationalen Handel - Implementierung, Kosten, Wettbewerbsfähigkeit." Habilitationsschrift, Bonn.

Matin Qaim. (2003): "Grüne Gentechnik in Entwicklungsländern: Ökonomische, ökologische und institutionelle Aspekte." Habilitationsschrift, Bonn.

Christopher Martius (2003): "Termiten als zentrales Faunenelement tropischer Ökosysteme: Diversität, Funktion und Möglichkeiten des Managements." Habilitationsschrift, Bonn.

Funding Partners

(For research projects, stipends, conferences, workshops)

CGIAR Challenge Program on Water and Food (USA)

Concelho Nacional de Desenvolvimento Científico e

Technológico (CNPq), (Brazil)

Eiselen Foundation (Germany)

European Union (EU)

Bundesministerium für Bildung und Forschung (German Federal Ministry of Education and Research) (BMBF)

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development) (BMZ)

Deutscher Akademischer Austauschdienst (German Academic Exchange Service) (DAAD)

Deutsche Gesellschaft für technische Zusammenarbeit (German Agency for Technical Cooperation) (GTZ)

Auswärtiges Amt (AA), German Federal Foreign Office

International Water Management Institute (IMWI), Regional Office (Ghana)

Land Nordrhein-Westfalen (Land of North Rhine-Westphalia), (Germany)

Ministerium für Schule, Wissenschaft und Forschung des Landes Nordrhein-Westfalen (Ministry for Schools, Science and Research of the Land of North Rhine-Westphalia)

Robert Bosch Stiftung (Robert Bosch Foundation) (Germany)

The Vienna Institute for International Economic Studies (Austria)

Volkswagen Stiftung (Volkswagen Foundation), (Germany)

University Research Corporation International (USA)

You can find a complete list of ZEF's funding partners, scientific cooperating partners as well as ZEF staff on our homepage www.zef.de