Effective and legitimate systems of governance are a basic condition of any meaningful development process. September 11 raised the territorial and/or institutional breakdown of states onto the agenda of the international community, but so far, policy-makers have failed to identify efficient responses to address the problem. Afghanistan and the de-constructed state of Iraq are only the most prominent examples to illustrate the challenges of supporting – or imposing? – a new state structure from outside, which usually happens top-down.

In the Horn of Africa, varying degrees and forms of state failure are a common phenomenon. In Somalia, the most extreme case, more than a dozen internationally sponsored peace conferences during 13 consecutive years have failed to bring about a central government. Since the coalition of clan-based militia, which toppled the dictatorship of Siad Barre, fell apart in 1991, most of the country has been in the hands of regional faction leaders ("warlords"). Yet while the international community clings to bringing these elements together and forming a new central government from top-down, locally managed peace has been reestablished in the North-West of the former Somali Republic. The bottom-up creation and adaptation of a system of governance in the "Republic of Somaliland" that has been working reasonably therefore drew the attention of Tobias Debiel and Ulf Terlinden of ZEF’s Department of Political and Cultural Development Research.

A Somali fighter aircraft now serves as a downtown memorial.

Editorial

Few among us would not recognise these and various other cities that have given their names to documents of good intentions that make world leaders feel good and, they hope, their citizens as well. But do the poor or hungry of this world share in this sense of accomplishment? We regularly set ourselves new goals to lift them out of their misery. However, when it comes to making real sacrifices we are timid at best. Agriculture-dependent economies have no chance of growing out of poverty as long as we subsidise agriculture on a production basis in the North and consequently lower prices in international commodity markets, the main foreign income source of many developing countries. And although some of our leaders favour a shift to subsidising the maintenance of agro-ecosystems to eliminate this unfair competition, others are tied to interest groups that stand to lose with such a shift. To make matters worse, we insist on free trade when we wish to sell at dump prices, but we mount unfair trade barriers to prevent the import of agricultural products from the South. The result has been that we missed target after target of what we promised and still have 800 million citizens of our world going to bed hungry every day. We still do not spend 0.7 % of GDP on ODA. We could do better and should if we want to reach our latest target … the Millennium Goals.

Paul Vlek
The author is Director at ZEF
tural Change who recently visited the area.

After the collapse of the Somali government, Somaliland's main militia movement announced the region's independence. Yet divisions over the control of government and other resources soon developed among the dominant Issaq clan. A four-month all-clan conference of traditional elders established a “Security and Peace Charter”, and reconciliation began not only among the Issaq, but also among minority clans which had supported the government during the war. Incorporating traditional law, the new legislative structure of Somaliland included an Assembly of Elders (“Guurti”) as the Upper House and an elected Assembly of Representatives as the Lower House.

Ever since, Somaliland’s government has continuously expanded its capacity. In combination with the traditional system and the Guurti, the new system of governance has resolved conflicts with little or no resort to violence. A new currency has been introduced, small business is booming, and the reconstruction of the capital Hargeisa – once reduced to rubble by Somalia’s own air force – is almost complete. The democratic process included a vote on independence and a new constitution as well as recent local and presidential elections.

Strikingly, all of this has been achieved despite – or due to? – limited support, involvement and, above all, recognition from the outside world. UNOSOM, the huge UN intervention in Somalia (1993-95) never set foot in the North-West, international recognition of the new de-facto state failed to arrive, and direct assistance to the government thus remained very limited. These circumstances entailed the need and opportunity to sort things out by local means. The relative homogeneity of the country’s clan composition, a distinct (British) colonial rule, the Issaq’s common experience of persecution by Siad Barre’s forces and millions of dollars sent home from Somaliland’s diaspora strongly facilitated this process.

However, Somaliland might now be at a turning point where continuous limiting of international support is jeopardising the overall “peace project”. The need for greater, yet cautious, outside help derives from three fundamental challenges:

• The appeal for international recognition and the desire to safeguard Somaliland's achievements brought about an ambitious constitution. Its implementation replaces a regime that relied heavily on the informal management of political crises, a rather inclusive balance of power (especially between the clans) and a careful accommodation of potential troublemakers. The new system strengthens the role of the yet to be elected parliament, narrows the power base of the government to its electoral constituency and, above all, introduces a multi-party system, with all the accompanying potential for internal division. Although the process has so far been remarkably stable, it extends beyond the current technical and financial capacity of the government and therefore requires greater international involvement.

• The death of President Egal and his integrative personality in May 2002 removed a pillar of Somaliland’s day-to-day stability. The severe political crisis that followed the subsequent presidential elections and growing discontent with parts of the new government underline that the country remains fragile and that the international community cannot take a smooth development for granted.

• A series of deliberate killings of three elderly expatriate aid workers in October 2003 severely damaged Somaliland’s image in the international sphere. An organised structure with a Somali unitary agenda is suspected to be behind these crimes. The government by and large lacks the means to investigate these cases effectively and has little in its hands to address the continuing threat. International expertise as well as political action are needed to protect Somaliland from this fundamental, probably external threat.

Although it is unique in many ways, the example of Somaliland underlines the need for the international community to develop innovative mechanisms to deal with “non-state actors”, or perhaps more properly in this case: “emerging state entities”. First and foremost, the problem of national sovereignty and the reluctance to recognise yet another state hinders co-operation with otherwise legitimate institutions. However, the available space below – and perhaps leading up to – international recognition is vastly unexplored. Encouraging and supporting the formation of structures of governance from below where national governments have obviously failed or collapsed would involve the development of adequate interfaces. Without such connections to “the rest of the world”, vital basic services such as import/export certificates or official foreign currency exchange cannot be made available. But technical assistance is not enough to safeguard Somaliland’s peace against those forces wishing to pull it back into Somalia’s war. Only a stronger political recognition of Somaliland’s achievements, somewhere between more formalised bi-lateral cooperation and e.g. an “apprentice membership” in international bodies, will express that the international community accepts Somaliland’s government as part of a solution for Somalia. Calling such mechanisms provisory would keep the door open for confederative state models or the “building-blocks approach” which most scholars see as the only viable solutions for the war-torn country. It would provide an incentive for other regions of Somalia to get their act together rather than to stimulate their wish to destabilise Somaliland to maintain the prospect of a united Somalia.

ZEF is increasingly addressing questions of governance in crisis regions. A recent 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 on November 20/21 applied the concepts of Human Security, Good Governance and Structural Stability to case studies from Africa and Asia. ZEF’s research in that field focuses in particular on modern and traditionally-based structures of governance and violent conflict – with specific regional expertise on the Horn of Africa, Southern Africa and Central Asia. Ulf Terlinden is a Junior Researcher, Tobias Debiel is Acting Director at ZEF
Targeting land management strategies in Uganda

For the majority of farmers in sub-Saharan Africa, maintaining and improving soil quality to produce enough food is a daily struggle. This is especially true in the humid tropics of East Africa. In these areas, with high levels of rainfall on hillsides, the soils have been tremendously depleted due to erosion. To meet the food demand of the ever-increasing population, capital-poor small-scale farmers have mainly been harvesting crops without replenishing nutrients, thus reducing soil quality.

Need for spatial soil quality information

In order to advise farmers on how to stop soil degradation, policy-makers and local agricultural extension services need precise information on soil quality. Policy-makers ask how soil quality is spatially distributed within a country in order to design improved land management strategies for targeted locations, while agricultural extension services want to know how soil quality is distributed in a watershed and focus on hillsides where farmers cultivate many small fields. These urgent requests can be summarised in two crucial questions: What is the spatial distribution of soil quality? What are the chief factors influencing soil quality changes over space?

National soil quality survey

A study conducted by ZEF in the central, eastern and western region of Uganda gives answers to these questions. In close collaboration with the International Food Policy Research Institute (IFPRI) and the National Agricultural Research Organization (NARO) of Uganda, about 2,000 soil samples were extracted. Additionally, environmental information, such as on geology, geomorphology, climate, terrain, land use and land management was collected.

Spatial distribution of soil organic matter in Uganda

The complete soils database constructed using these soils includes many soil quality indicators such as soil structure, acidity and a range of different nutrients. Figure 1 shows the spatial distribution of soil organic matter (SOM), which mainly determines soil quality in Uganda. The national spatial distribution of SOM reveals clear contrasting patterns between the lowlands in central and western Uganda, often with less than 3% SOM, which include mainly sandy soils derived from former lake deposits, and the eastern and south-western highlands. The overall spatial distribution pattern indicates that SOM further decreases to the northern and eastern part of the country, where granite is the dominant parent material. The maximum values of SOM are found in the montane farming systems comprising the south western and eastern highlands, where SOM levels reach high levels of more than 11%.

In a subsequent investigation, the dominant factors determining SOM spatial distribution at a national scale were identified. This investigation revealed that geomorphology, climate, land use and land management explain 54% of SOM spatial variation by different interacting processes. Uganda’s geomorphology comprises different erosion surfaces. Hence a varying intensity and duration of erosion and weathering processes produced gently rolling to steep hillsides on a local scale. On these hillsides, where farmers cultivate their fields, soil organic matter is spatially distributed in distinct patterns differing from the patterns at national level. The hillside distribution of SOM produced spatial patterns that are arranged largely as contour bands along the elevation gradients stretching from upslope to footslope. Generally, there are higher SOM values (> 4% SOM content) on the lower hillside and lower values (< 2.5% SOM content) on the upper hillside sections. The lower sections receive more run-off water, leading to higher water saturation of soil and reduced microbiological decomposition activity, and hence higher SOM levels than in the drier upper sections, where microbiological decomposition activity is significantly reduced due to less water availability and possibly lower temperatures.

The national spatial distribution of SOM reveals important insights into the potential for land management strategies to improve soil quality. By targeting specific regions with different SOM levels, farmers and policy-makers can develop targeted interventions to enhance soil fertility and productivity. This information can be used to design improved land management strategies, local agricultural extension services can use this data to advise farmers on how to improve soil quality, and policy-makers can use this information to develop effective policies to support sustainable agriculture.

The national spatial distribution of SOM reveals the potential for land management strategies to improve soil quality. By targeting specific regions with different SOM levels, farmers and policy-makers can develop targeted interventions to enhance soil fertility and productivity. This information can be used to design improved land management strategies, local agricultural extension services can use this data to advise farmers on how to improve soil quality, and policy-makers can use this information to develop effective policies to support sustainable agriculture.

Publications

higher. Scattered patterns with higher SOM values are located in front of and partly within steeper slope sections that are covered by bush and tree vegetation. This vegetation may both reduce SOM loss by soil erosion and provide input to SOM by litter decomposition. The most dominant factors that determine SOM at a hillside level are land management, especially bush and tree structures along field boundaries or within fields, land use and terrain factors, which could explain 42% of SOM distribution. The general SOM patterns thus seem erosion-related and reflect a downslope redistribution of C-rich topsoil, while locally, bush and tree vegetation influences SOM patterns.

Stakeholders in Uganda use spatial soil quality information
The established soil database will help policymakers and agricultural extension services to better target development strategies to the prevailing soil quality, especially with regard to taking soil organic matter distribution into account. The national scale soil maps of this research are presently being used by policy-advisers, regional development planners and agronomists in designing national and regional development policies and soil fertility improvement programmes. These uses include, for example, soil fertility research on soil resources of different production potential in East Uganda to develop appropriate organic and inorganic fertiliser strategies (see ZEF-News, No. 11, 2002).

Up-scaling soil quality
This research is presently being extended and focuses on up-scaling the spatial soil variability from the hillside to the catchment scale. These new spatially distributed soil maps and up-scaling functions will be used as input into a bio-economic multi-agent model that is being developed at ZEF. In this model, the impact of different management and policy strategies, such as fertiliser inputs and market reforms on the change of soil resources, is simulated to identify and geographically reference those strategies that best maintain or improve soils while ensuring highest economic returns for sustainable land management in Uganda.

Gerd R. Rücker, Soojin Park and Paul L. G. Vlek
Gerd Rücker did his PhD at ZEF and is presently working at the German Aerospace Center (DLR), Germany. Soojin Park is Assistant Professor at Seoul National University (SNU). Prof. Paul Vlek is Director at ZEF.

Can decentralisation benefit people and forests? – Evidence from Indonesia
Over the last decade, about 60 countries worldwide have decentralised at least some aspects of the management of their natural resources, often leading to a degree of control over natural resources by local communities. For example, in countries like Indonesia, India, South Africa, and Mexico, companies that want to exploit forest products may now have to negotiate with local communities that have some rights over forest resources. Has this decentralisation process benefited local communities and the environment? What are the outcomes of such negotiations and why do they vary across communities? In cooperation with the Center for International Forestry Research (CIFOR), ZEF is addressing these issues by studying community-industry logging contracts in Indonesia.

Preliminary results from case studies conducted in East Kalimantan suggest that local communities tend to benefit financially from decentralisation. Although they frequently obtain ‘poor deals’ and firms often do not fully comply with negotiated agreements, communities at least obtain some compensation for logging where before decentralisation they did not. The financial benefits are, however, 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 therefore often get involved in costly conflicts. Second, the availability of ‘money falling from the sky’ has led to rent-seeking activities by individual members of the community. This undermines the community’s cohesiveness and its ability to monitor and enforce contracts. Third, negotiations in some communities have resulted in uncontrolled immigration by people from other communities wanting to share in the benefits. Case study results show that some communities have been able to obtain better deals and prevent undesirable migration by co-ordinating their negotiations and enforcing activities with others.

The environmental impacts of logging appear to be fairly unchanged with decentralisation. Given the uncertain nature of community rights and the migratory tradition of many tribal communities in East Kalimantan, it is not surprising that most of the environmental impacts of logging are not represented by any party in the negotiations. How can the negative impacts of decentralisation be reduced and fair deals be achieved that benefit communities and the environment? 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 new approaches like conservation concessions or carbon credits.

ZEF is currently conducting surveys in 50 communities in East Kalimantan to test whether case study evidence can be generalised and gain a deeper insight into the above issues.

Stefanie Engel and Charles Palmer
Stefanie Engel and Charles Palmer are, respectively, a Senior Researcher and a Junior Researcher at ZEF.
Islamists in Sudan: Their way to and in power

The manifestations of political Islam are varied and contradictory, and no single expression can be taken as evidence of the nature of political Islam as a whole. Even the extreme form of political Islam consists not of a single movement but of a plethora of groups divided above all by national origins. Also, within the different countries the most extreme forms differ widely. Moreover, when particular groups successfully seize power, the governments they build hardly resemble each other.

A PhD study at ZEF examines the phenomenon of political Islam in Sudan by analysing how the National Islamic Front (NIF) succeeded in gaining influence and finally seizing power in 1989. In addition, the study investigates if NIF was able to achieve its ultimate goal of establishing an Islamic state in Sudan.

Two strategies or opportunities helped the NIF on its way to political power: First, during the phase of National Reconciliation (1977-1985), NIF was part of the opposition that co-operated with President Numeiri’s military regime. This enabled the movement to gain governance experience and to diversify its mobilising structures by expanding its support base beyond the students’ domain, particularly into the urban populace and notably in the army. Second, shortly before and after the coup of 1989, the movement succeeded in seizing full control of the state. In fact, NIF adopted many strategies and methods of organisation that had originally been implemented by the communists, such as organising itself in a broad front and implementing populist policies. Thus, NIF introduced the Popular Defence Force and Popular Neighbourhood Committees, which were actually intended to counter popular support for the major dissident groups (Ansar and Khatmiyya) that NIF sought to eliminate and replace.

The concept of an Islamic state that NIF tried to establish was based on the (classical) pillars of applying the Shari’a (Islamic Law) and introducing an economic and a political system in accordance with Islamic principles. For society as a whole, bridging the gap between rich and poor was another key element of NIF’s ideals. The question to what extent NIF has succeeded in establishing an Islamic state so far is difficult to answer and should be validated with political, social and economic realities. Within the political realm, NIF seems to follow a rather pragmatic approach by restricting any political opposition and not even allowing “shura” (consultation) in the political decision making process. From an economic point of view, some progress has been made. The establishment of Islamic banks consolidated the movement’s economic base considerably. Nevertheless, although credit facilities for farmers under the Islamic modes of loss- and profit-sharing have been extended considerably, evidence suggests that both lenders and borrowers are governed by economic considerations rather than religious norms. The employment of ruses by the banks, used to craftily circumvent the prohibition of usury when contracting the credits, reflects some flexibility to accommodate both. Surveys among the population have shown that the movement is losing support, obviously because too little improvement for daily social and economic reality has been realised. The low number of the movement’s participants and sympathisers among the population reflects this dwindling support.

In its goal to remain in power, NIF seems to have been driven more by political pragmatism, defined by the rules of power play, than by religious principles. Besides, the movement was restricted by the usual political factors such as coalition dependencies, links to other organisations, and the global political and economic situation and order. Although NIF has been willing to make compromises and concessions for the purpose of consolidating or expanding its political power, its members have generally believed that the Front can only maintain its grip on power by coercive and repressive means. Whereas incentives were originally of a purposive and idealistic nature, material incentives have become the order of the day now. The movement has lost its romantic idealism and thus appears to have failed to establish a state based on the principles of freedom and equality.

Khalid Y. Khalafalla

The author is a Junior Researcher at ZEF’s Department of Political and Cultural Change. His study was conducted in co-operation with the University of Bonn’s Seminar for Oriental Studies.

ZEF Discussion Papers on Development Policy (DP):


Publications

Viewpoint

Interview with Professor Andreas Wimmer, University of California, Los Angeles (UCLA), Department of Sociology, on democracy and ethno-religious conflict in Iraq.

In your Discussion Paper “Democracy and Ethno-Religious Conflict in Iraq” (ZEF Discussion Paper on Development Policy No. 72), you presume that holding premature elections and introducing democratic institutions might quickly stir up ethno-religious conflicts in Iraq. But both aims are part of the US agenda and – even more – milestones for UN Secretary General Kofi Annan. What could a road map to a self-governed and secure Iraq look like?

Andreas Wimmer: We should distinguish between handing over sovereignty to the Iraqi citizens and the democratisation process as such, since they can follow different time lines. Sovereignty could be handed over to the Iraqi Governing Council immediately. For democratisation to be successful, however, more time than currently foreseen is needed for non-religious and non-communal civil society organisations to emerge and for parties that cross ethno-religious boundaries, such as the former Communists, the Nationalists, or perhaps also a reformed secular Arabist party such as the former Baath Party, to re-organise. A quick race to the polls would cement the ethno-religious fragmentation of the country, give an enormous advantage to the clergy as the only large-scale organisation that has survived Baathism, and perhaps even unleash spiralling demands for regional autonomy and self-rule that will make the question of control over the oil resources more difficult to resolve.

Oil richness could turn out to be a burden rather than a benefit for Iraqi society. How should the allocation of resources be managed to avoid widespread corruption and rent-seeking?

A central control mechanism – i.e. by federal institutions rather than provincial ones – and a fixed formula of redistribution to the regions in the framework of fiscal federalism may help contain political competition for the oil resources. A strong external supervision, perhaps by the World Bank, of these resources and their re-allocation will certainly be needed as long as auditing and controlling mechanisms are weak and the judiciary is not sufficiently empowered and independent to fight corruption effectively.

You plead for an alternative vote system. What makes you believe that this electoral system can pool voters across ethnic lines rather than creating structural minorities excluded from power?

The system should be connected with other mechanisms, such as certain rules for party registration (e.g. that they should have a basis of support in more than one region) or for the election of a president (who should be elected with a majority of votes in a majority of provinces) and a tough minority rights regime. All these mechanisms together might help to foster moderation and cross-ethnic accommodation. However, you mention correctly that an alternative vote system could produce losers, since there is no ex-ante power-sharing arrangement. As long as the losers are spread across ethnic groups, as they should be when parties are not entirely based on ethnicity, this may be a price worth paying for moderation.

You opt for territorial federalism to mitigate ethnic and political tensions. Accordingly, you also propose that the Kurdish area be divided into two federal entities, as both Kurdish leaders, Talabani and Barzani, seem to be unable to overcome their rivalry. But both of them claim Kirkuk as an integral part of a Kurdish autonomic region. This would be only one problem for a territorial design of Iraqi federalism. How could these problems be solved?

Like everything else we are discussing here, it is up to the Iraqi politicians to solve these thorny issues. I believe that central control over oil resources combined with fiscal federalism could make a solution of the territorial issues, especially the Kirkuk question, more feasible since they reduce the prize to fight for. The political scientists Adee D. Dawisha and Karen Dawisha (Miami University, Ohio) have advocated maintaining the existing 18 provinces, which are not defined on the basis of ethnicity, while proponents of ethnic federalism such as political scientist Brendan O’Leary (University of Pennsylvania) recommend creating two Shii provinces, one Sunni-dominated central province, the Kurdish North and Baghdad. It seems to me that the 18 provinces are too many and too little rooted in actual political divisions. Among other things, they ignore the de-facto autonomy of the North since 1992. Ethnic federalism, on the other hand, is problematic because it may foster centrifugal tendencies, as we know from many examples across the developing world. If we advocate two Kurdish-dominated provinces, we could create two Sunni-dominated plus four Shii-dominated provinces as well. Ideally, these entities should be drawn in such a way as to include large minorities, which will give each group good reasons to advocate a strong minority rights regime for the whole country.

Bernd Kuzmits, a Junior Researcher at ZEF, conducted the interview. Andreas Wimmer is a former Director of ZEF’s Department of Political and Cultural Change.
Too poor to be sick: Can the effective health care demand of the poor be boosted?

Neither the low-level development of science and technology nor the absence of medicines can sufficiently explain the low health outcomes in developing countries and the very low effective access of the poor to basic health services. Studies show that easily preventable and curable diseases such as malaria, tuberculosis and diarrhoea are draining a significant amount of human and financial resources off developing countries. Recent research findings reveal that poor people do not have the means to seek medical care when they are ill. Therefore, one of the main challenges in reversing this situation is to boost the effective health care demand of the poor in developing countries. How improving equity in ‘access to’ and ‘use of’ health care services through boosting the effective demand of the poor can be realised is one of the research focuses at ZEF. Community health insurance schemes are expected to play a significant role in converting the medical needs of the poor into effective demand.

One recently completed research project at ZEF examines the role and scope of rural Cooperative Medical Schemes (RCMS) in the rural areas of China. RCMS are still playing an important role in the country, although their coverage has declined significantly since the economic reform. The results of the study indicate that the capacity of resource mobilisation and risk protection of RCMS varies largely across regions. The eastern rich region has a higher enrolment rate, and RCMS mobilise more resources from governments and local communities and boost the effective health care demand of members. In contrast, middle and western regions, which are much poorer than the eastern ones, have lower enrolment rates, weak capacity of resource mobilisation and less effective risk protection. Results also indicate that, compared to the private insurance, RCMS are pro-poor since they embrace poor households and encourage them to report their sickness on time and to seek health care in the village and town clinics. The analysis of willingness to pay conducted in the poor province of Sichuan also shows that 69% of the respondents are willing to join and pay for well-managed RCMS that cover outpatient and inpatient services with half co-payment. This clearly demonstrates that RCMS can play an important role in enhancing the effective health care demand of the poor by spreading health risks among members and through time. However, the study also shows that income is one of the most important factors that affect membership of the schemes, indicating that the poorest of the poor are still not reached by such schemes.

Doctoral Students at ZEF: “From all over the world …”

Four years ago, the first students came to participate in the international Doctoral Studies Program (DSP) at ZEF. More than 190 participants from over 45 countries have joined the DSP since then. ZEF asked three doctoral students what motivated them to choose this programme and which expectations they have. Welyne Jeffrey Jehom and Phuc To Xuan have both just started their courses, whereas Bart Wickel has nearly finished his PhD at ZEF.

Welyne comes from Malaysia and studied Anthropology. After receiving her MA at the Australian University she wanted to continue her academic career on a broader basis. Among all the programmes that Universities around the world offer, she chose the DSP because of its interdisciplinary character. “Such a broad-based education will certainly offer me a large variety of opportunities regarding my future professional perspectives,” she says enthusiastically. “After finalising my PhD in Bonn in about three years’ time, I would like to work for an NGO or another international organisation.”

Phuc, a Vietnamese student, wrote his Master Thesis on “Forest Land Allocation” in the Philippines. One of the DSP’s aspects that attracted him most was the development-oriented approach of its research, he says. Furthermore, he considers the possibilities to apply results of scientific research to practice and to exchange and to cooperate fruitfully with colleagues from other disciplines as absolute assets of the DSP. Phuc aims to continue a Postdoc in Germany or elsewhere when he has finalised his PhD in Bonn. “One day I will probably return to Vietnam and apply all the things I have learned,” he reflects.

Bart Wickel from the Netherlands is just about to finish his PhD thesis on “Water and nutrient dynamics in the Eastern Amazon” in the framework of the “SHIFT Program”. He participated only sporadically in the DSP, because he had applied for this specific post and study area within the research project. Not only did he learn a lot of being part of an international and multi-disciplinary research team, he also learned the Portuguese language fluently during his two-year period of fieldwork. “The well-balanced combination of theory and practice was a very attractive aspect of studying at ZEF,” he says. “So my expectations of the PhD work at ZEF have been fulfilled to a large extent.” Now, he is quite confident that his valuable experiences gathered during these four years of study will enable him to continue his academic career in an international environment.

Heike Gruber of ZEF conducted the interviews.
At a glance

“Water & Security in Southern Africa - Conflict and Co-operation in Trans-boundary River Basins”, was the theme and title of a jointly organized workshop by ZEF and BICC (Bonn International Center for Conversion) on October 22, 2003. The key resource person was Mr. R. M. Tekateka, Commissioner of the Lesotho Highland Water Project and Chief Delegate of the Department of Water Affairs and Forestry, South Africa, who also participated in the panel discussion on “Sprengstoff Wasser” organised by the City of Bonn on the eve of the UN-Day on October 24.

“Human security, Good Governance und Structural Stability: Helpless concepts in times of state collapse?” was the theme and title of a two day workshop organised by ZEF in cooperation with the German Institute for Development Politics (DIE) in November 2003. The concepts were discussed on the basis of case studies in Africa and Asia. A strategy paper in German on “Promotion of good governance in post war societies” is available on request at: zef-workshop@ulf-terlinden.de.

Facts & News

Professor Paul L.G. Vlek, Director at ZEF, has been elected as one of five foreign fellows of the National Academy of Agricultural Sciences of India. The Academy announced that “he was rewarded for his spearheaded research to elucidate N loss pathways in flooded rice and for identifying ammonia volatilisation to be a major loss mechanism contributing to deplorably low use efficiency of fertiliser-N. With India as a leading partner, he launched a global research effort to curtail such losses and satisfy the need for nitrogen during biomass build-up. However, our knowledge on the importance and rates of BNF in tropical forests is still limited and uncertain, due to serious methodological problems in quantifying BNF.

Field study in Central Amazonia

This study investigates the role of BNF in Central Amazonian secondary and primary forests. It is part of the German-Brazilian SHIFT (Studies on the Human Impact on Floodplains in the Tropics) research programme, of the German Federal Ministry of Education and Research (BMBF), and is based at the Embrapa Center for Agroforestry Research (CPAA) in Manaus, Brazil. Field research was conducted in two recent slash-and-burn colonisation areas that represent 2 to 25 years of secondary forest re-growth after slash-and-burn land use and include eight primary forest sites for comparative studies.

High BNF in secondary re-growth, low BNF in the primary forests

BNF is found to be high throughout the first 25 years of secondary re-growth, as opposed to low or almost absent BNF in the primary forests. Species capable of nitrogen fixation dominated the legume community with 88-91% of legume biomass throughout all stages of secondary forest re-growth, as opposed to only 57% in the primary forests. Physiological limitations in the dominating legume tree giants may be one of the factors responsible for low primary forest BNF.

Key role of nitrogen-fixing lianas

Lianas frequently turn dominant after forest disturbance or degradation, and they can suppress tree growth and increase tree mortality in their surroundings. However, results of the present study also point to their key role in BNF, especially for the early stages of forest re-growth, where they combine 40-50% of legume biomass. Also, legume lianas appear to have higher rates of nitrogen fixation than legume trees do. Given their higher share in nitrogen-rich leaves and their fast leaf turnover, nitrogen-fixing legumes are expected to accelerate nitrogen cycling in these forests.

Legume clusters and BNF hotspots

This study is a pioneer in pursuing the spatial patterns of legume BNF in forest re-growth after slash-and-burn land use. The potentially N2-fixing legume vegetation was aggregated in clusters. BNF rates were also irregularly distributed spatially. High BNF estimates appeared to be locally concentrated in ‘BNF hotspots’. Such legume clusters and BNF hotspots are expected to result in the formation of micro-sites with increased N-availability and N-turnover, which play a decisive role as ‘nuclei of regeneration’ in secondary forest re-growth. Clearly, our understanding of the spatial structure of this agro-ecosystem is merely at the beginning.

Christoph Gehring is a Junior Researcher at ZEF and recently published his PhD thesis on the subject.

Additional information can be accessed at www.cgehring.de or from c.gehring@uni-bonn.de

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