

The debate on biotechnology in agriculture

Since 1995, genetically modified plants are commercially cultivated. Their production worldwide has increased continuously over the past years. Today, 99% of the acreage cultivated with genetically modified crops is concentrated in the following countries (listed by size of acreage): USA, Argentina, Canada, Brazil, China, South Africa, India, Australia, Romania, and Uruguay. Currently, the main genetically modified species cultivated are soybean, maize, cotton, and rape. Already 25% of the global acreage of these four plants is cultivated with genetically modified varieties. Most of them are herbicide-tolerant or resistant against insect pests.

Introduction of this new technology instantly spurred a debate on its benefits and dangers. An increasing polarisation has taken place between the EU, who has a critical attitude towards genetic engineering and, correspondingly, restrictive admission regulations, and the USA, who advocate a contrary position. Environmental, consumer, and development organisations support the critical attitude, whereas biotechnology companies argue in favour of genetic engineering. A book entitled "Genes, Trade, and Regulation" analyses the causes and the global consequences of this polarisation and discusses potential solutions. Regarding the consequences, the author is relatively pessimistic. The chances for a voluntary reconciliation are scant.

*Is biotechnology the right means to fight serious insect pests like the pod borer (*Helicoverpa armigera*)? Photo: G. Schachermayr, ISCB*



On the contrary, there are many signs indicating that international controversies in trade issues are becoming increasingly harsh. While EU regulations make it practically impossible to import products containing genetically modified plants, the USA are trying to obtain by force the right to import such products freely to all countries.

Developing countries are caught in the midst of these tensions. Many of them are reluctant to adopt the new technology first of all because the first generation of genetically modified crops has not brought any clear benefits neither for farmers nor for consumers. Secondly, developing countries fear that income on exports will drop if markets with a critical attitude towards biotechnology continue to grow. Thirdly, they are intimidated by the considerable costs involved in separation and labelling. On the other hand, particularly biotechnology companies and

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SPECIAL FEATURE

research institutions make optimistic predictions, claiming that biotechnology in agriculture can significantly increase yields under difficult conditions and thus help combat malnutrition. An article recently published in "Nature" describes how private and public funds from both supporters and opponents are used to influence African states in either direction. Among others, funds flow into biotechnology research promotion, support for certain states in elaborating effective biosecurity regulations, and campaigns with the aim of influencing the public opinion and the positions taken by politicians. An important bone of contention in this fight for influence is the Cartagena Protocol, which regulates international trade in living modified organisms. Each of the opposing parties has its own idea of how these regulations should be implemented in the different countries.

Africa is under pressure. Most African countries are only just beginning to seriously look into biotechnology. So far, only Egypt, South Africa, and Zimbabwe have laws regulating this sphere. Financial and technical support in developing know-how on the new technology certainly makes sense. The decision on whether and how biotechnology is to be implemented is a difficult one, but nevertheless it should be made by the developing countries themselves.

SOURCES

Global Status of Commercialized Transgenic Crops: 2003. Executive Summary. Clive James. ISAAA Briefs No.30, 2003. 8 p.

www.isaaa.org/Press_release/Briefs30-2003/es_b30.pdf

Genes, Trade, and Regulation. The Seeds of Conflict in Food Biotechnology. Thomas Bernauer. Princeton University Press, 2003. 229p. <http://pup.princeton.edu/titles/7665.html>

GM crops: A continent divided. Ehsan Masood in: *Nature* 426, 224 – 226 (20 November 2003). 3p. www.nature.com/login/scidev_login.taf?=/nature/journal/v426/n6964/full/426224a_fs.html

The trade and environment debate in the WTO

Although in the preamble to the 1994 Marrakesh Agreement the WTO committed itself to the objectives of sustainable development, trade and environment issues will presumably be discussed only during the next negotiation round. The urgently needed integration of environmental and trade policies is still far from realisation.

Impacts of trade on the environment are manifold and complex. Their assessment requires taking into account a wide range of factors, and the ultimate question of whether the expansion of trade has a positive or a negative effect on the environment lacks any conclusive answer. Trade liberalisation urgently needs to be accompanied by an effective and consistent environmental policy framework. Today, 250 multilateral environmental agreements (MEA) exist side by side with the WTO agreements, without being able to take much influence on them. This concise article describes where the international community stands in the trade and environment debate, and indicates which issues call for action.

SOURCE

Trade and Environment in the WTO: after Cancun. Duncan Brack, Thomas Branczik. Briefing paper No. 9. The Royal Institute of International Affairs, Sustainable Development Programme. February 2004. 11p
www.riia.org/pdf/research/sdp/T&EFeb04.pdf

Decentralisation of forest management in Latin America

The emergence, whether planned or not, of local governments characterises the political trends at work in Latin America since 1990. The publication in question analyses the repercussions of the move towards decentralised forest management (permits, taxes, wood cutting, slash-and-burn techniques, conservation, reforestation, conflicts, non-forest related activities), based on studies of Costa Rica, Guatemala, Honduras, Nicaragua, Brazil and Bolivia. Three questions run through each country study.

- What powers have been given to local governments and why?
- What initiatives have they taken with regard to the forests under their responsibility?
- What is the outcome and what were the influencing factors?

To answer these questions, the authors examined the different standpoints of the main stakeholders (central governments, national institutions, legislators, municipal governments, local communities and NGOs). The Nicaragua case study, for example, shows the contradictions between forest and environmental legislation which promotes centralised management and its Municipalities Law which assigns the management of natural resources to local governments. As a result, the municipalities feel that they have been given only the burden of responsibility for environmental management and not the necessary allocation of resources, rights or benefits.

This publication reveals comparative aspects which cannot be ignored in any consideration of the stakeholders involved in a democratic decentralisation process and thus promotes dialogue between them.

SOURCE

Municipal forest management in Latin America. Ed. L. Ferroukhi. CIFOR/CIID, 2003. 236 p.
www.cifor.cgiar.org/publications/pdf_files/Books/municipal_forest.pdf

The Adaptation Policy Framework

While the international community shows concern about climate change at the global level, there is a lack of practical experience in how developing countries can cope with impacts of climate change at the national and regional level and how they can reduce the vulnerability of society and ecosystems.

The "Adaptation Policy Framework" (APF) is designed to provide guidance to national teams for developing climate change adaptation policies. Unlike other approaches, the framework does not attempt to assess impact but encourages governments to develop adaptation policies.

The framework is designed more like a roadmap than like a cookbook. It represents a structured approach to putting in place effective adaptation strategies, policies, and measures, in accordance with overall development goals such as poverty alleviation. However, the formulation of adaptation policies requires proactive policy decisions in critical issues across all government institutions and administration levels.

Achievements made in the process will critically depend on whether the adaptive capacity of a given country can be successfully strengthened. The involvement of both national and international finance and development agencies appears to be a further essential factor.

The "User's Guidebook," in combination with the accompanying "Technical Papers," provides users with practical advice, as well as, in some instances, with methodological and technical support. The objective is to produce the following distinct outputs: Policy development, integrated assessments, project formulation.

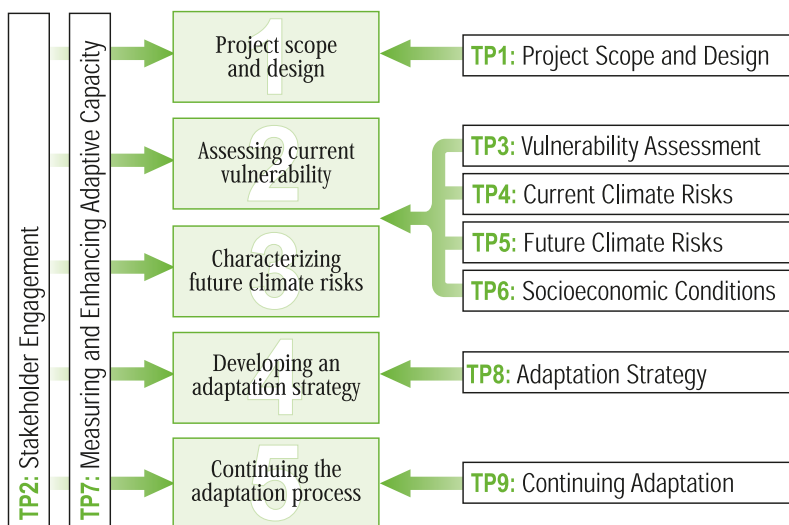
The "Guidebook" begins with a user's guide and a presentation of the rationale underlying the APF. Then the user is advised to work on five core components (see figure). While working through these components, the

user is assigned tasks and invited to make use of the technical and methodological support provided in the accompanying 7 "Technical Papers" (TP).

The APF presents an opportunity for climate researchers, policy makers and other stakeholders to work in an interdisciplinary and participative manner. However, the document demands a high level of methodological discipline, as well as the ability to adapt general recommendations to the conditions of a given country.

SOURCE

The Adaptation Policy Framework: Users' Guidebook. UNDP, GEF 2003. pp 36
www.undp.org/cc/pdf/APF/TP%20final/APF_UGB_final%20draft_compiled.pdf



The structure of the APF document. (UNDP 2003:4)

Integrated participatory forest management in Pakistan

Participatory management of natural resources, particularly of forests, is now becoming a reality in Pakistan's North West Frontier Province (NWFP). After decades of traditional management geared towards maximisation of profit through commercialisation of timber, the Forest Department has begun to explore new approaches, with the aim of reducing pressure on, and the depletion of natural resources – especially the remaining natural forests in the mountainous areas of the Province. In two case studies the authors document the development of a new planning approach, involving both the Forest Department and the communities in a participatory and integrated manner. Based on a detailed understanding of the population's livelihood strategies, multi-purpose development plans are being prepared at the village level. The Forest Department provides support in the preparation of the plans, as well as technical assistance, to the communities. Wherever possible, this happens through local NGOs. The approach developed could serve as a model among others for sustainable forest management in the region.



Use of non-timber forest products (NTFP): fodder is collected by the local communities. FMC/NWFP Project, 2003.

Photo by Ms. Bushra Khan

The following are some keywords involved in this new concept in Pakistan:

- *A holistic approach*
- *stakeholder participation*
- *capacity building*
- *responsibility of the communities*
- *the changing role of the Forest Department in connection with the process of decentralisation (devolution and deconcentration)*
- *the new role of the elected bodies at the regional level*
- *poverty alleviation*

SOURCE

Integrated participatory forest management in a densely populated mountain region, NWFP, Pakistan. Jan Willem Nibbering & Jean-Marie Samyn. In: Proceedings of the International Research Course "The formulation of Integrated Management Plans (IMPs) for mountain forests".

Grugliasco, Dipartimento di Economia e Ingegneria Agraria, Forestale e Ambientale, 2003. 11 p. www.personalweb.unito.it/filippo.brun/Imps/IMPs.htm

EU supports exporters from developing countries

Developing countries benefit from the trade preferences of the European Union. This is one of the reasons why around 40% of the imports to the EU originate from developing countries. In order to facilitate import for these countries, the European Commission has created an online helpdesk. In a first phase, this facility offers free information on tariffs, customs documents, rules of origin, and trade statistics for a great number of agricultural products. Furthermore, there is a trade forum for suppliers from developing countries and buyers from the EU. In a later phase, the helpdesk plans to extend its information services to product-specific import, health, and plant protection regulations. Currently, the helpdesk is still under construction. Users are asked to actively participate in its further development and improvement.

SOURCES

Expanding Exports Helpdesk. Advice for Developing Countries Exporting to the EU
<http://export-help.cec.eu.int/>

Trade and development: Developing countries: EU launches on-line helpdesk to foster developing country access to EU markets. Brussels, 2 February 2004
http://europa.eu.int/comm/trade/issues/global/development/pr020204_en.htm

The cashew market liberalisation and its negative consequences

Jointly with partners in Mozambique and southern India, the International Institute for Environment and Development (IIED) has developed a research programme investigating the influence of economic liberalisation on the relationship between men and women, on their respective income, and on the agricultural markets. Two case studies focus on the cashew trade in Mozambique and India.

India is the largest importer of raw cashew nuts and the largest exporter of processed cashew nuts. In Mozambique, cashew cultivation traditionally contributes to securing food and income for small-scale farmers. The price was supported by the Government of Mozambique to protect the domestic processing industry. Due to pressure from the World Bank, Mozambique was forced to give up this policy. The World Bank hoped that the change would boost export-oriented cashew production and thus improve the income of small-scale farmers.

However, the World Bank's intervention had negative consequences. Although cashew cultivation in Mozambique has been intensified, the income of small-scale farmers has only slightly risen. Especially women have lost employment opportunities in the processing sector. Employment conditions have become worse. Moreover, although women cultivate cashew trees, support intended for this purpose does not reach them.

In India the demand of the processing industry for raw nuts has increased due to the growing domestic market. The cashew trade contributes considerably to income security for both sexes. But in India, like in Mozambique, cashew processing has shifted from industrial large-scale companies to small-scale operations, leading to worsening employment conditions.

SOURCE

Sustainable Agriculture and Rural Livelihoods (SARL) project summary: Project name: Liberalisation, Gender, and Livelihoods: the cashew nut case in Mozambique and India.
www.iied.org/sarl/research/projects/t3proj01.html

Prevention and mitigation of environmental risks

Damage from environmental disasters is continually increasing. So far, both assessment and mitigation of dangers have predominantly been approached from a technological point of view, and measures have only partially been successful. New approaches must take account of interplay and interdependence between natural and socio-economic processes and call for rethinking concepts of risk management. This in turn requires sound knowledge of local circumstances and vulnerable areas.

Hazard maps are becoming more and more important as tools to integrate physio-geographic and socio-economic information on a given region and thus form an entry point to mitigate natural and human-induced dangers and develop prevention measures. The handbook entitled "Sistema Integrado de Gestión Ambiental" offers a methodological tool for developing integrative hazard maps for catchments in South America. Comprehensive bibliographical listings refer to useful data sources for these countries.

SOURCES

Sistema Integrado de Gestión Ambiental Municipal para mitigación y prevención de riesgos ambientales. Manual de aplicación. G.F.L, A.G. Gervasio, N.E. Ortiz, EMS-SEMA, IDRC 2003.
<http://www.ems-sema.org/siga/index.html>

Hazard Management and Resilience in Mountains. Mountain Research and Development Vol. 24, No. 1. IMS 2004.
www.mrd-journal.org

The SAMBA Role Play Game

Ten representatives of a local community in a northern Vietnam province gather round a board with 625 wooden cubes, each face of which represents a different land use type. During six game rounds, the farmers try to develop land use in this virtual landscape for six consecutive years. This board game is the main focus of a one-week intense exchange programme between scientists and farmers. In addition to the simulation game, interviews are conducted both with the whole group and with individual participants.

The SAMBA week has three objectives. First, to gain qualitative and quantitative information on natural resource use in a participatory process; secondly, to investigate into how collective institutions develop from individual actions; and thirdly, to create a communication platform based on an improved and common understanding of the complex matter of resource use. This platform can later be used for developing sustainable agriculture. Within a short time, this simulation game enables scientists to understand the complex agricultural dynamics in a northern Vietnam province characterised by a great social, economic and geographic diversity. A foundation for improved resource management is thus laid.

SOURCES

Constructing a Common Representation of Local Institutions and Land Use Systems through Simulation-Gaming and Multi-agent Modeling in Rural Areas of Northern Vietnam: The SAMBA-Week Methodology. S. Boissau; J.C. Castella in: *Simulation & Gaming*, September 2003, vol. 34, no. 3, pp. 342-357(16). Sage Publications

The SAMBA Role Play Game in Northern Vietnam: An Innovative Approach to Participatory Natural Resource Management. Stanislas Boissau, et al. In: *Mountain Research and Development*, Vol 24, No 2: p 101 – 105.



*A simulation-gaming session:
The SAMBA game board and players
taking turns.*

Photo by J.C. Castella

Deforestation and agricultural systems in Madagascar

Tavy, rain-fed rice cultivation using the slash-and-burn method, is at the very heart of society on the East Coast of Madagascar. Although blamed for deforestation, tavy is still widely practiced by the local farmers, because its production is not subject to climate changes, is less labour intensive and more likely to guarantee food security.

The work examines the distinguishing features of the various types of tavy, describes their cultural characteristics which differ according to ethnic group, and outlines the economic aspects. The analysis of the social relations linked to fire and deforestation is informative and convincing, though sometimes to the detriment of the ecological processes which are examined more superficially.

The research proves to be less exhaustive than expected and – as in the case of the discussion on the contractual opportunities of community management – is clearly based on a certain "school". Nevertheless, this book will make very interesting reading for those interested in crop cultivation using the slash-and-burn method, and in particular project managers and decision makers who may come to exert an influence on deforestation practices in Eastern Madagascar.

SOURCE

Déforestation et systèmes agraires à Madagascar: les dynamiques des tavy sur la côte orientale. Ed. B. Aubert [et al.]. Cirad, Fofifa, Cite, 2003. 220 p.

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Gender and Forestry Symposium

From 1–10 August 2004, the second International Symposium on Gender and Forestry will be held in Arusha, Tanzania. It will examine the access of women and men to forest resources and attempt to pinpoint the resulting improvement in the livelihoods of the most disadvantaged, and how this access moves sustainable forestry management forward.

The sub-themes dealing with health, ecotourism, migration and on specific geographical regions are promising. The event, organised by IUFRO (International Union of Forestry Research Organizations), will certainly produce interesting contributions, both at the global and the local level. The target public are researchers, grassroots communities, development partners and private sector operators.

INFORMATION

www.envirocaetz.org/symposium.asp#b