

Seedling



Biodiversity, Rights and Livelihood

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GRAIN is an international non-profit organisation which promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge. To find out more about GRAIN, visit our website at www.grain.org.

Seedling

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Front cover picture: © Alvaro Leiva/PANOS: Indian farmers chopping wood near Andahuaylas, on the altiplano of the Peruvian Andes.

Back cover picture: © Jan Banning/PANOS: Rice farmers working tiny plots of fertile land in the Red River delta in Vietnam.

A new report from GRAIN follows up on the fate of hybrid rice in Asia. An earlier study in 2000 saw the push for hybrid rice coming from the seed industry as a stepping-stone to genetically modified (GM) rice. The report looks at how hybrid rice has fared with farmers and the shifting dynamics and ambitions of those pushing hybrid rice in the region. Despite continued enthusiastic support from seed companies and international agencies, hybrid rice continues to be viewed by farmers as a pretty useless technology and the area planted has increased little in the last five years.

Fiasco in the field:

An update on hybrid rice in Asia

GRAIN

In the early 1990s, it looked as if hybrid rice was on the way out. Companies drawn in by dreams of creating a hybrid seed market for rice akin to the North American hybrid maize market, were exasperated by years of investment without any returns. The International Rice Research Institute (IRRI), the agency leading the research effort, had not produced a single successful variety despite years of trying. China was the only country with a significant area planted to hybrid rice, but this too seemed to be in danger of decline as the state started to claw back its direct subsidies and support.

By the end of the decade, hybrid rice was making a comeback. An Asia Development Bank (ADB) financed project, led by the UN Food and Agriculture Organisation (FAO) and IRRI, was resurrecting hybrid rice from the ashes. Hybrid

rice was commercialised in several countries, transnational seed companies renewed their interest, and the area sown to hybrid rice was, according to FAO and IRRI, on the rise across Asia.

But the overall hybrid rice area in Asia has not changed much since 2000.¹ In China, by far the world's biggest producer of hybrid rice, the hybrid rice area has declined since 1997 and remains confined to the southeast and south central parts of the country.² In India, where hybrid rice has been on the market for nearly ten years, hybrid rice cultivation has fallen off in the initial areas where it was introduced and is currently confined to small areas where there are government and seed industry "on-farm demonstration programmes".³ In 2000, it looked like hybrid rice might make inroads in Pakistan, Indonesia, Malaysia and Sri Lanka, but



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¹ Biothai (Thailand), GRAIN et al, *Hybrid Rice in Asia: an unfolding threat*, GRAIN, March 2000. www.grain.org/briefings/?id=136

² Interview with Yuan Longping, 9 November 2004.

³ Email communication from Janaiah Aldas.

at present there is little or no hybrid rice planted in these countries. There is no market for hybrid rice in Thailand either, one of Asia's leading rice producers. FAO's efforts to develop hybrid rice for Burma have faltered, with only small pockets of land being sown with hybrid rice seeds imported from China. The same appears to be happening in Laos. In Bangladesh, the hybrid rice seed market has not lived up to expectations. It remains small and dominated by imported Chinese and Indian varieties, not adapted to local conditions.⁴

Vietnam and the Philippines are the only countries with major increases in hybrid rice production since 2000. Yet hybrid rice production in Vietnam is confined to the North of the country and still dominated by seed imported from China. There may be more local hybrid rice seed production in the Philippines, but it survives on state subsidies and support, and the 170,000 ha planted in 2004 falls far short of the 400,000 ha the government was aiming for.⁵

The push continues

The slow, and at times negative, growth rate of the hybrid rice area in Asian rice-producing countries hasn't deterred its proponents. The FAO still promotes hybrid rice and gave it special attention during the 2004 "Year of Rice". IRRI, with support from the ADB, also continues to be a central actor, providing new parental lines, technical assistance and help to the industry in getting governments to adopt favourable regulations.⁶ IRRI recently considered a proposal from the Asia Pacific Seed Association (APSA) to adopt a consortium model of partnership with private companies, where each company pays a membership fee to get exclusive rights to IRRI's hybrid rice lines for a certain period of time.⁷ IRRI's management rejected the

industry's proposal, but is now developing an alternative arrangement.⁸

Meanwhile, the private sector is more determined than ever to get hybrid rice off the ground. More seed companies and more NGOs are now involved, even though many of them are either distributing imported seeds or producing hybrid seeds with imported parental lines that they've licensed from foreign companies, particularly from China. Only a handful of companies are involved in breeding work, and they are aggressively building up their regional presence. Most of these are US and European transnationals, but there are a couple of Chinese and Indian companies with a significant presence as well.

India and China are shaping up as the main hubs for the hybrid rice seed industry in Asia. These countries have the best conditions for the production of hybrid rice seed: big potential markets, a suitable climate, lax seed regulations, strong public research programmes open to partnership with the private sector, and cheap labour. India is home to the main hybrid rice seed operations for Bayer, DuPont, Monsanto, Shriram Bioseed and Syngenta. They are eager to tap into the country's large potential market and to use it as a base to export seeds to Bangladesh, Indonesia and Vietnam. DuPont, which already derives nearly half of its seed revenues in India from rice, told the Times of India:

"Our calculations are simple. Paddy farmers today are buying just 1,900 tonnes of hybrid seed annually. This translates into just 0.3% hybridisation in India. In the 12 million ha we'd like to initially focus on, this means just 1% of the area under rice. In comparison,

⁴ UBINIG, *Undesired promotion of hybrid rice in Bangladesh*, Dhaka, Bangladesh, forthcoming.

⁵ Figures from the Philippines Department of Agriculture.

⁶ Minutes of the meeting of the Asia Pacific Seed Association's Special Interest Group on Hybrid Rice, 19 November 2003, Bangkok.

⁷ *Ibid.*

⁸ Interview with SS Virmani, IRRI, 1 September 2004.



Area planted to hybrid rice in various Asian countries

Country	Area cultivated with hybrid rice (ha)			Hybrid rice as % of rice area (2003)
	1997	2001	2003	
China	17,708,000	15,821,000	15,210,000	52%
Vietnam	187,000	480,000	600,000	8%
India	120,000	200,000*	< 200,000*	<1%
Philippines	500	90,000	107,000	3%
Bangladesh	0	20,000	49,655	<1%
Burma	0	10,000	unknown	-
Pakistan	0	0	field trials	-

Source: Data from 1997 and 2002 are from the FAO; data from 2003 is based on official national figures except where indicated.

* The figures circulated by IRRI are 200,000 ha and 280,000 in 2001 and 2003 respectively and are based on the figures given by hybrid rice seed breeders. However, there are no official figures for 2003 and, according to one of India's leading researchers on hybrid rice adoption, Aldas Janaiah, hybrid rice production is currently confined to small areas where there are on-farm demonstrations.

Major hybrid seed companies in Asia

Company	Subsidiaries and joint ventures
Bayer (Germany)	Hybrid Rice International (India)
Dupont/Pioneer (USA)	SPIC (India)
East-West Seeds (Netherlands)	HyRice Corporation (Philippines)
Monsanto (USA)	MAHYCO (India)
Shriram Bioseed Genetics (India)	
Syngenta (Switzerland)	
Yuan Longping High-Tech Agriculture (China)	SLAC (Philippines) Guard Rice (Pakistan) PT Bangun Pusaka (Indonesia) Aftab Bahumukhi Farm/Islam Group (Bangladesh)

Sources: company websites, reports and press releases.

China has more than half its paddy fields under hybrid rice. Helping India move into that direction is a tremendous opportunity for us.”⁹

Yet DuPont and the other seed giants are experiencing many bumps along the way. So far they have not produced a hybrid rice variety that Indian farmers will pay for. The hybrid rice area in India is shrinking because farmers that try it once are not interested in trying it again.¹⁰ They also face public hostility to their efforts to move in and control the market. Syngenta had to back away from a controversial deal with the Indira Gandhi Agricultural University in Raipur that would have given the company commercial rights to over 19,000 rice varieties held by the university that were collected from local farmers in the 1970s. Syngenta had planned to draw on the collection for its hybrid rice breeding programme and would have marketed new hybrids developed under the collaboration upon payment of royalties to the university. But widespread public protest broke out when news of the deal was leaked in November 2002 and the deal eventually collapsed.¹¹

The Philippines is trying to fashion itself as a player in the hybrid rice seed industry as well. Monsanto has breeding operations that it purchased from Cargill, as does East West Seed Company's subsidiary HyRice Corporation, which works with parental lines from IRRI. Nevertheless, seed production conditions in the country are so deficient that the government is basically bribing farmers to produce seed. The government is buying seeds at a subsidised rate and offering farmers US\$180 in cash and freebies like bacterial leaf blight stoppers or organic fertilisers. This is on top of the subsidies, credit packages and other promotions it already provides to the farmers buying the seed. Despite all of this government support, hybrid rice seed donations continue to come in from China.

China remains the heavyweight of the hybrid rice seed industry and in recent years it has changed from a completely domestic industry to a global player, with activities spread across the Americas and Asia. The Chinese companies differ from their American and European counterparts, in that they are tightly linked to the state and most of their international activities are limited to licensing arrangements, joint ventures or even donations. But the situation in China is changing, as China begins to let foreign seed multinationals in and as it builds up seed multinationals of its own.

Hybrid rice on the farm

The beautiful photos of scientists standing in fields of hybrid rice that circulate in the media can't hide the fact that, on the farm, hybrid rice just isn't working in Asia and farmers are rejecting it (see box over page). The seed is expensive to produce (up to US\$2,000 per ha), so heavy subsidies are needed for farmers to be able to afford it. Hybrid

⁹ Nidhi Nath Srinivas, "Hybrid rice potential has MNCs drooling," *Times of India*, 2 October 2003.

¹⁰ PG Chengappa et al, Profitability of Hybrid Rice: Karnataka Evidence, *Economic and Political Weekly*, 21 June 2003, 38(25), 2531-2534; Aldas Janaiah, "Hybrid Rice in Andhra Pradesh", *Economic and Political Weekly*, 21 June 2003, 38(25), 2513-2516; C Ramasamy et al, "Hybrid Rice in Tamil Nadu", *Economic and Political Weekly*, 38(25), 2509-2512 21 June 2003.

¹¹ Walter Smolders, Access and benefit sharing: Analysis of some case studies, 11 August 2004, Syngenta, New Delhi; GRAIN, "Trouble in the Rice Bowl", *Seedling*, April 2003: www.grain.org/seedling/?id=235.



IRRI scientists show hybrid rice panicles from a test plot to World Bank Senior Vice President Joseph Stiglitz.



Bangladeshi farmers unimpressed

Unlike some other Asian countries, in Bangladesh the government's role in supporting hybrid rice has been limited to assuring a conducive regulatory environment, participating in the occasional promotional programme and carrying out some breeding work. The main protagonists are large NGOs like BRAC that collaborate with multinational seed companies. But despite heavy promotion at the local level — in the form of leaflets, posters, publicity banners, village meetings, broadcasts through megaphones and advertisements on radio and TV — sales of hybrid rice seeds remain low. In 2003, less than 50,000 ha were planted to hybrid rice in the country. As one BRAC official admitted, "We have never received a farmer who came to us through their own interest of receiving hybrid seeds."

The performance of hybrid rice in Bangladesh has been lacklustre at best. A 1999 study of 173 farmers growing both hybrid rice and "high-yielding varieties" on their farms found that, while the hybrids were higher yielding, the costs of inputs were 23 percent higher. The farmers surveyed described high seed costs, the need for more crop care and management time, low yield gains, high pest and disease attack, low profits and lack of suitability for home consumption. Three-quarters of the farmers surveyed said that it was unpalatable.

A more recent study paints a similar picture. These farmers talked about pest problems, the "technical" management practices required, high seed costs and poor eating quality. Overall, most of the farmers consulted felt manipulated by the promotional tactics of the seed dealers and few planned to plant hybrid rice seeds again. According to Mohammed Imamuddin, an agricultural extension officer from Noakhali who was interviewed for the study, "Although we talk about higher yields, hybrid rice has many problems. The price of seeds is very high, beyond the purchasing power of small farmers. It cannot be sold in the market and the government does not purchase it either."

Sources: M Hossain *et al*, "Hybrid Rice in Bangladesh: Farm-level Performance," *Economic and Political Weekly*, June 21, 2003: p 2518; UBINIG, "Undesired promotion of hybrid rice in Bangladesh", Dhaka, Bangladesh, forthcoming.



Bangladesh has the highest population density in the world owing to its rich agricultural land. In many areas, two rice crops are grown each year.

rice remains susceptible to disease, and eating quality is still a big problem in many countries. Farmers regularly receive lower prices for hybrid rice than their traditional varieties. In China, the market price for hybrid rice can be a third of the price for conventional rice, and many farmers are now shifting back to traditional rice varieties that are of higher quality and higher market value.¹² One recent study even suggests that if yield is the objective then there's no need for the headaches involved in producing hybrid seeds. Researchers in Greece were able to continuously select from an F1 generation of hybrid rice and produce a variety that was equally high-yielding but of better grain quality and, most importantly, that farmers could save from year to year without problem (see box on opposite page).¹³

Wrong solutions to the wrong problem

There's no mystery to the seed industry's interest in hybrid rice. Hybrid rice grains can't be replanted, so farmers have to buy seed every year. But this is hardly a justification for the involvement of governments and agencies like IRRI or the FAO that are supposed to be working in the interests of the poor and poor farmers in particular. Instead, they talk about how hybrid rice will increase yields and, therefore, feed more people, as if the complex problem of hunger can be reduced to the genetics of the rice plant.

Techno-fixes for hunger like hybrid rice address the wrong problem: production, measured through a narrow prism of rice grain yields per hectare. The real problems are poverty and distribution. In the US, more than a quarter of the 160 billion kilos of edible food produced each year for human consumption is lost to waste by retailers, restaurants and consumers.¹⁴ In India, where some 320 million people suffer from hunger, the country has a food surplus of 65 million tonnes.¹⁵

Hybrid rice only perpetuates and exacerbates poverty. It shifts control off the farm, to scientists and corporations, as it displaces local varieties and prevents farmer seed practices of saving, exchange and plant breeding that are the foundation of agricultural systems that serve the needs of rural communities. In China, state support for hybrid rice over the past few decades has helped fuel a 46-fold reduction in local rice varieties and undermined the sustainability of farms.¹⁶ "The paddy field seems to have got addicted to heroin," says researcher Li Qibo. "The more rice output you want from it, the more chemicals you have to give it."¹⁷ Similarly, if the Vietnamese government is really interested in supporting agriculture and food security in



the North, it has better options rooted in local farming practices. Instead of putting the bulk of its resources into the development of hybrid varieties, the government could look at supporting farmer seed selection, saving and exchange practices, since these continue to be the main source of seeds for rice farmers in northern Vietnam.¹⁸

Hybrid rice will only make farmers more vulnerable to outside actors that can manipulate conditions to enhance their own profits. If it ever does increase production, these powerful actors will capture all of the benefits. Not that the consequences for small farmers have ever been at the forefront of research into hybrid rice. For China's "Father of Hybrid Rice", Yuan Longping, "The fewer peasants, the better. With so many peasants, the country won't be well-off . . . If I increase the unit output of rice dramatically, one part of rural labour will be liberated while ensuring the total output of grain. I hope that at least 50% of them can walk away from the field."¹⁹

The seed industry is not about to abandon its efforts to develop a hybrid rice seed market. APSA's Special Interest Group on Hybrid Rice recently declared India to be a hybrid rice "success story". This takes a bit of imagination! Wherever hybrid rice has been introduced in India, farmers have rejected it. Seed companies are forced to move from area to area looking for new markets where farmers have not had enough experience with hybrid rice to chase them away. But APSA points out that seed production yields in India are high (meaning they can produce seed for cheap) and, in India, they have "the freedom to commercialise the hybrids without any government testing [which] has helped many companies to come up with a large array of hybrids" – i.e. hybrids that otherwise wouldn't be allowed on the market!²⁰

The seed industry's success is in developing a base of hybrid varieties that they can use to launch their genetically modified (GM) varieties. Hybrid rice actually serves as a justification for GM. Conventional breeding practices are more difficult with hybrid rice, making it more difficult to breed for qualities like disease or pest resistance. Hybrid rice is thus susceptible to several diseases and efforts are now underway to develop hybrid varieties genetically engineered for resistance to bacterial leaf blight and rice stem borers.²¹ Hybrid rice scientists also say that they need GM in order to meet their much-hyped yield targets for "super rice". One techno-fix becomes the justification for another, and each time farmers have to shoulder the costs and consequences.

Hybrid rice is also likely to be a major source of GM contamination. The institutions working on hybrid rice, whether IRRI or Monsanto or the Hunan Hybrid Rice Research Centre, are also experimenting with GM hybrid rice, most likely in the same fields or laboratories where they work with conventional varieties. The risk of contamination is therefore already present and concerns the entire region, because these institutions regularly send hybrid seeds and parental lines across borders.

Careful selection sustains hybrid yield

Hybrids are produced by crossing two inbred – genetically fixed – varieties of a particular crop. Hybrids are special because they express what is called "heterosis" or hybrid vigour. The idea is that if you cross two parents that are genetically distant from each other, the offspring will be "superior", particularly in terms of yield. However, the so-called heterosis effect disappears after the first (F1) generation, so it is pointless for farmers to save seeds produced from a hybrid crop. This makes it very profitable to go into the seed business, since farmers need to purchase new F1 seeds every season to get the heterosis effect (high yield) each time.

Between 1989 and 1995, two researchers with Greece's National Agricultural Research Foundation and the Aristotelian University of Thessaloniki undertook an experiment to see if they could generate high-yielding varieties from the progeny of hybrid rice seeds purchased in the local market. Through the use of two well-known selection methods, the researchers had no problems developing a number of lines with yields equal to or higher than the original hybrid and with superior quality as far as total milling yield, grain vitreosity, grain length, and grain length/width ratio. According to their report, "It was concluded that application of combined selection for yield and quality could lead to the isolation of recombinant inbred lines with equal yielding ability and quality equal to or higher than the F1 hybrids." In other words, the heterosis of hybrid rice is "fixable" and there's no need to go through the elaborate practice of hybrid rice seed production or of forcing farmers to purchase seed every year. The researchers' concluded that "hybrid breeding in rice is not justified either genetically or economically."

Source: DA Ntanos and DG Roupakias, "Rice F1 hybrids: the breeding goal or a costly solution?" *Australian Journal of Agricultural Research*, 54: 1005-1011, 2003.

¹² "Rice price being monitored closely," *China Daily*, March 05, 2004: http://english.peopledaily.com.cn/200403/05/eng20040305_136575.shtml PLEC China Cluster, *Final Cluster Report: Summary of results and achievements from 1998-2001*: www.unu.edu/env/plec/country/china/index.htm#contactchina.

¹³ DA Ntanos and DG Roupakias, "Rice F1 hybrids: the breeding goal or a costly solution?" *Australian Journal of Agricultural Research*, 54: 1005-1011, 2003.

¹⁴ Haider Rizve, "Food waste and hunger exist side by side", *IPS*, 28 September 2004. www.ipsnews.net/print.asp?idnews=25343

¹⁵ Devinder Sharma, "Food for Future: Trade, Biotechnology and Hunger," Talk delivered at an international conference on Trade and Hunger in Oslo, Norway, 7-8 June 2004.

¹⁶ Pei Yanlong et al, "What is Happening to the Diversity of Rice Genetic Resources in China", in T Partap and B Sthapit (eds), *Managing Agrobiodiversity - Farmers' changing perspectives and institutional responses in the Hindu Kush-Himalayan Region*, 1998.

¹⁷ "Challenges planted in the rice industry," *China Daily*, 29 October 2004: http://news.xinhuanet.com/english/2004-10/29/content_2152331.htm

¹⁸ Le Thu Anh and Elise Pinners, *Good Seed From The Informal Rice Seed Sector: A study on the local rice seed sector in northern Vietnam*, VECO Vietnam, January 2003. [www.mekonginfo.org/mrc_en/doclib.nsf/0/56CE0002CAB35/\\$FILE/FULLTEXT.html](http://www.mekonginfo.org/mrc_en/doclib.nsf/0/56CE0002CAB35/$FILE/FULLTEXT.html)

¹⁹ Huang Yikun Loudan, "Yuan Longping Harvest Again," *Economic Observer*: www.eobserver.com.cn/english/readnews.asp?id=55.

²⁰ Minutes of the meeting of the Asia Pacific Seed Association's Special Interest Group on Hybrid Rice, 19 November 2003, Bangkok.

²¹ Swapna Datta, "First IRRI-PhilRice Field Evaluation of Transgenic Rice Held at Muñoz, Philippines", *IRRI Bulletin*, 12 September 2002; Wenxue Zhai, "National Transgenic Plant Program in China is supporting the development of GM hybrid rice modified with Xa 21 transgenic material": www.genetics.ac.cn/xywz/Faculty/ZhaiWenxue.htm.



Conclusion

Resistance to hybrid rice is progressively building in Asia. From militant landless peasants to moderate farmers testing and advocating ecological and sustainable agriculture, people are organising to increase public awareness, share information, strategise actions, and continue developing farmers' alternatives. They've seen hybrid rice fail in their fields or those of their neighbours and they don't buy the government propaganda that says hybrid rice will trigger rice self-sufficiency and reduce incidence of hunger and poverty. For them hybrid rice merely displaces productive farmers' varieties and sustainable farm practices that serve as bases of food security and sovereignty.

Yet, despite the failure of hybrid rice to improve conditions for the vast majority of farmers, many of them continue to be lured into producing hybrid rice through government programmes and subsidies or micro-credit schemes. Awareness is therefore critical. There is a need for more national

and regional sharing of experiences combined with clear positions on hybrid rice. Hybrid rice is an expensive technology that undermines local efforts at food security and sustainable agriculture. It serves the interests of big business, not small farmers, and will provide transnational seed companies with an entry point for their GM rice. Government support for hybrid rice must therefore be denounced as an effort to facilitate corporate control of the rice seed supply and production systems and an attack on small farmers. Public resources would be much better spent addressing the structural problems affecting agriculture in Asia, looking for political solutions rather than technical ones, and pursuing policy reforms that create space for farmers to strengthen their alternatives, instead of going big and quick along the path of GM rice and corporate control.

GRAIN's full report "Fiasco in the Field: An update on hybrid rice in Asia", is available from our website at www.grain.org/briefings/?id=190.

Via Campesina launches tsunami relief campaign

Via Campesina, the global alliance of peasant, family farmer, farm worker, indigenous and landless peoples organisations, and other rural movements, is calling for solidarity with the millions of people affected by the tsunami disaster has launched a global fundraising campaign to channel assistance to affected communities of fisherfolk and peasants, for their own relief and reconstruction efforts. The rehabilitation efforts will be channelled through grassroots organisations.

Via Campesina is asking for donations for direct emergency support to provide basic needs of food, clean drinking water, shelter and health care to affected fisherfolk and peasant families, as well as to help them initiate the long term work of reconstructing their communities and livelihoods.

The relief philosophy of Via Campesina is that these communities should participate actively and be the key actors in the reconstruction process, and that their fisherfolk and peasant organisations should play a key mobilising and supporting role. Via Campesina wants to give these communities and their organisations the political support they need in this process, and to help get them the funds they need for reconstruction. The funds raised in this campaign will be used to strengthen local communities as the key actors in this process. The success of local, self-organised, civil society disaster relief efforts in previous disasters in Latin America, Asia, and Africa, contrasted with government inefficiency and top-down, demobilising programmes, has often marked a key stage in the empowerment and growth of large, popular,

grassroots, civil society social movements by which previously marginalised people take control of their own lives.

In addition to the millions who have been displaced or affected, many tens of thousands have lost their homes and fishing equipment or farming tools. Fisherfolk have lost their boats, and the land of peasant families has been contaminated, their crops destroyed and their farm animals lost.

Via Campesina has a number of member organisations in the tsunami-affected region that are active in relief work and will be part of the reconstruction process. These include the Indonesian National Peasant Federation (FSPI), MONLAR in Sri Lanka, the Assembly of the Poor in Thailand, and others. Via Campesina is also working closely with two fisherfolk organisations that are members of the World Forum of Fisherfolk People, with whom it has been collaborating for several years in different ways at the international level. These are the National Organisation of Fisherfolk in Sri Lanka and the National Fishworkers Forum in India. At the moment the funds are being equally distributed in Indonesia, Sri Lanka, Thailand and India. As the emphasis moves from emergency relief to reconstruction, more countries and organisations may be added.

Donations can be made on line, by mail or wire transfer.

For more information, contact Via Campesina:

<http://www.viacampesina.org>

Email Nico Verhagen, coordinator: nico.verhagen@t-online.de



Since the breakdown of World Trade Organisation talks in Cancun in September 2003, there has been much talk of the rise of bilateralism. But bilateral trade and investment agreements aren't so much replacing the multilateral agreements that have foreshadowed them in the last decade as working *with* them to create a ratcheting system to increase the levels of intellectual property protection worldwide. Interestingly, and perhaps more significantly, bilateral trade and investment agreements are also proving to be quite effective in pushing the foreign policy goals of the US and EU.

Corporate conquest Global geopolitics

Intellectual property rights and bilateral investment agreements

AZIZ CHOUDRY

With World Trade Organisation (WTO) negotiations failing to deliver as much as many corporations want, the US and other governments, urged on by big business lobbies, are increasingly turning to bilateral free trade and investment agreements. These negotiations are – by design – much less visible and can easily slip beneath the radar of NGOs and popular movements that oppose the WTO and regional deals like NAFTA (North American Free Trade Agreement) or the Free Trade Area of the Americas (FTAA).

With President Bush elected for four more years, we can expect more aggressive US free trade and investment bilateralism. These negotiations are being used strategically to advance not only US corporate interests, but also the US administration's broader foreign policy and geopolitical goals. While Iraq and Afghanistan are being bombed and

occupied into 'liberty' and free market economics, US allies in the war on Iraq and the 'war on terror' like Australia and Thailand are being rewarded with promises of enhanced access to US markets through comprehensive bilateral free trade and investment agreements. The US uses these agreements to signal the policies that it expects from other countries economically, militarily and politically. As US Trade Representative Robert Zoellick stated just after the September 11, 2001 attacks: "America's light and might emanate from our political, military and economic vitality. Our counteroffensive must advance US leadership across all these fronts."¹ George Bush's January 2005 inauguration speech² shows that the US government still sees itself as a global policeman, and the preeminence of its military and corporate/economic interests remain as closely aligned as ever.



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¹ "Countering Terror With Trade", Robert Zoellick, *Washington Post*, 20 September 2001.

² www.whitehouse.gov/news/releases/2005/01/20050120-1.html

³ See European Union website: http://europa.eu.int/comm/trade/bilateral/acp/index_en.htm and www.epawatch.org for analysis on EPAs.

⁴ Argentina, Brazil, Paraguay and Uruguay.

⁵ BITs are instruments which regulate conditions for the entry, treatment, protection and exit of investments between two countries.

⁶ Ruth Okediji, "Interpreting TRIPs Flexibilities & Priorities for Regional Bodies", *South Bulletin* 63, South Centre, 30 August 2003

⁷ Acting USAID Director Anne Aarnes' Remarks at the Intellectual Property Rights Conference, Cairo, 7 July 2002. www.usaid-eg.org/detail.asp?id=136

⁸ The WTO's Trade Related Intellectual Property Rights Agreement (TRIPS) obliges all WTO members to provide patents (or something like them) on all forms of technology – including biotechnology.

⁹ "Singapore issues' part of EU's trade agenda: Lamy", *Jakarta Post*, 9 September 2004. www.bilaterals.org/article.php3?id_article=610

¹⁰ "Expanding Intellectual Property's Empire: The Role of FTAs." November 2003. www.grain.org/rights/tripsplus.cfm?id=28

Meanwhile the EU is pushing ahead with a range of bilateral and regional trade and investment initiatives, notably the comprehensive Economic Partnership Agreements (EPAs) with the 77 African-Caribbean-Pacific (ACP) countries. The EPAs will replace existing preferential trade/aid arrangements with "reciprocal" ones under the Cotonou Agreement.³ The EU is also trying to counter US market advantages from an eventual FTAA in Latin America by clinching its own deal with the power economies of MERCOSUR.⁴ Closer to home, the EU is tightening up its bilateral economic and political links with Middle East and North Africa, concluding talks with Syria and now trying to work out something with Iran.

But it's not just the US and EU pushing bilateralism forward. Other countries, from Japan to Chile, are also engaging in bilateral free trade and investment negotiations. Some governments, such as Thailand and South Korea, are trying to position themselves as regional "hubs" for investment and trade by concluding a series of bilateral free trade and investment deals with other governments both within and outside of their particular region.

Regional groupings such as the FTAA, Asia-Pacific Economic Cooperation (APEC), Association of South East Asia Nations (ASEAN) and South Asian Association for Regional Cooperation (SAARC) provide potentially fertile breeding grounds for bilateral deals, even as the regional processes themselves have failed to deliver on much. While the outbreak of bilateralism continues to draw criticism from many ardent advocates of multilateralism and the WTO, there is no sign of

this drive losing momentum. In any case, some of the bilateral agreements are viewed as stepping stones towards new regional and subregional agreements involving the US, such as the Middle East Free Trade Area (MEFTA) which is supposed to come into effect by 2013 and the Enterprise for ASEAN Initiative which aims to build a network of US-ASEAN bilateral agreements.

Here we examine how bilateral investment treaties (BITs)⁵ and free trade agreements (FTAs) which contain specific investment provisions reflect geopolitical concerns as well as economic ones. We also look at how these agreements help to redefine rights and privileges for transnational corporations today, including with respect to commercial control over biodiversity through intellectual property rights (IPR).

But while examining these particular agreements in detail, it is important to keep an eye on the bigger picture. In the same way that investment and intellectual property rights intersect in these agreements (since IPR are treated as a form of investment), so too do many other issues. IPR, services, agriculture, the environment, competition policy and so on all crosscut and impact one another in these treaties. Other agreements and other pressures also come to bear from bilateral and multilateral aid and development assistance, from the lobbying efforts of corporations and chambers of commerce, and from bilateral intellectual property agreements, to name a few.

Further complicating factors include contracts signed between governments and major pharmaceutical corporations, for example, to limit the ability of domestic distributors, licensees and collaborative ventures in developing countries to distribute drugs at reasonable cost.⁶ Meanwhile, 'development' agencies such as USAID work directly with governments to rewrite and "strengthen" countries' IPR laws to bring them into line with – and in many cases going beyond – WTO requirements and to appease demands of foreign investors.⁷

We must be aware of the interplay of such actors, forces and processes, and the continual 'forum-shopping' that characterises the ways in which governments and corporations go from forum to forum seeking the best deal, the right moment or the weakest link, for use as leverage in other negotiations.



IPR: the one-size-fits-all approach

The privatisation of information – including genetic information – through intellectual property regimes is crucial to capitalism today. And the US and EU share a common agenda to globalise intellectual property protection through both bilateral and multilateral means.

In the 1980s, the US expanded the boundaries of trade law to include intellectual property and linked its BIT programme to protecting intellectual property as an investment activity. BITs may not contain extensive sections on IPR but instead rely on standards set in other agreements, if not on sheer ambiguity. Through its bilateral agreements, the US secures commitments that overcome the deficiencies – from the point of view of its corporations – of WTO's TRIPS agreement⁸. The EU is right behind. As Pascal Lamy, the EU's Trade Commissioner until late 2004, put it, "We always use bilateral free trade agreements to move things beyond WTO standards. By definition, a bilateral trade agreement is 'WTO plus'." In this way, as Peter Drahos argues, a "global ratchet for IP" has been set up, consisting of "waves of bilaterals (beginning in the 1980s) followed by occasional multilateral standard setting (such as TRIPS or the WIPO Copyright Treaty)".¹⁰

Intellectual property provisions in free trade agreements go explicitly further than TRIPS. Typically, they severely limit the grounds for allowing the use of compulsory licensing of medicines, and effectively extend 20-year drug patent monopolies for an additional five years, threatening access to affordable medicines, including HIV/AIDS drugs. Moreover, this "TRIPS-plus" approach does not allow for plants and animals to be excluded from the patent laws of signatory countries. While TRIPS sets a minimum standard for intellectual property protection, these bilateral agreements are imposing an industry-driven agenda through the backdoor, locking countries into even more stringent intellectual property standards.

BITs contain broad definitions of investment, which throw the door wide open for disgruntled corporations based in one signatory country to take a case against the other signatory government to a dispute tribunal. Nevertheless, the degree of detail varies from agreement to agreement. In the Netherlands-Bolivia BIT¹¹, the term "investment" includes "rights in the field of intellectual property, technical process and know-how". In the Canada-Costa Rica BIT, IPR include "copyright and related rights, trademark rights, patent rights, rights in layout designs of semiconductor integrated circuits,



trade secret rights, plant breeders' rights, rights in geographical indications and industrial design rights."¹² In the US-Morocco FTA, "investment" is defined as "every asset that an investor owns or controls, directly or indirectly, that has the characteristics of an investment, including such characteristics as the commitment of capital or other resources, the expectation of gain or profit, or the assumption of risk"¹³.

When the US negotiates a bilateral agreement with a WTO developing country member, the most-favoured-nation principle of the WTO – whereby any privilege granted to one WTO member has to apply to all others – assures the EU that *it* gains the benefit of the standards that the *US* obtains. For all practical purposes then, these TRIPS-plus standards, whether with respect to IPR or investment, may become the "new minimum standards from which any future WTO trade round will have to proceed"¹⁴.

BITs: commitments and disputes

It is hard to keep up with the pace and spread of bilateral free trade and investment agreements. By late 2002, there were more than 2,200 BITs.¹⁵ UNCTAD calls BITs "the most important protection of international foreign investment" to date.¹⁶ Others describe them as "arms of massive destruction" to national and international public law and human rights law; the "result of tactics by the centers of planetary economic and political power, particularly of the US, which consists of negotiating one by one with weak and/or corrupted governments ready to give up."¹⁷

One aggressive goal of the US BIT programme is to "support the development of international law

¹¹ This agreement is the basis for the investor-state dispute involving Bechtel/Agua del Tunari following the reversal of the privatisation of Cochabamba's water supply www.bilaterals.org/IMG/pdf/NL-BO_BIT.pdf

¹² www.sice.oas.org/bits/cancos_e.asp

¹³ Final text of the US-Morocco Free Trade Agreement. www.ustr.gov/assets/Trade_Agreements/Bilateral/Morocco_FTA/Final_Text/asset_upload_file651_3838.pdf

¹⁴ Peter Drahos, "The Future of TRIPS at the WTO", Paper at Symposium *A New Feudalism of Ideas?* Centre for Intellectual Property Policy & Management Bournemouth University, UK, 26 June 2001. www.cippm.org.uk/pdfs/drahos.pdf; Carlos Correa, *Bilateral investment agreements: Agents of new global standards for the protection of intellectual property rights?*, GRAIN, August 2004. www.grain.org/briefings/?id=186.

¹⁵ UNCTAD, *Making Investment Work for Development*, 2004. www.unctad.org/en/docs/issmisc200412_en.pdf

¹⁶ UNCTAD website. <http://www.unctad.org/Templates/webflyer.asp?docid=3131&intitemID=2021&lang>

¹⁷ United Nations Economic and Social Council, Commission on Human Rights, Sub-Commission on the Promotion and Protection of Human Rights, 54th Session, *Written statement submitted by Europe Centre - Third World, E/CN.4/Sub.2/2004/NGO/10*, 12 July 2004. <http://www.urfig.org/Declaration%20critique%20traite%20commerce%20et%20droit%20anglais.doc>



¹⁸ US Bilateral Investment Treaty Program. www.state.gov/e/eb/rls/fs/22422.htm

¹⁹ See Organisation for Economic Co-operation and Development, *Regionalism and the Multilateral Trading System*, Paris, 2003. See also Carlos Correa, *op cit*.

²⁰ Carlos Correa, *Bilateral investment agreements: Agents of new global standards for the protection of intellectual property rights?*, GRAIN, August 2004. www.grain.org/briefings/?id=186.

²¹ Zachary Elkins et al, "Competing for Capital: The Diffusion of Bilateral Investment Treaties, 1960-2000" (August 2004). UC Berkeley Public Law Research Paper No. 578961.

²² *ibid*.

²³ www.worldbank.org/icsid

²⁴ www.uncitral.org

²⁵ William Rogers, "Emergence of the International Center for Settlement of Investment Disputes (ICSID) as the Most Significant Forum for Submission of Bilateral Investment Treaty Disputes", Presentation to Inter-American Development Bank Conference, October 26-27, 2000.

standards"¹⁸. This is important because many BITs and FTAs pushed by the US and the EU refer to "the highest international standards" of intellectual property protection. But these standards do not exist in international law.¹⁹ In the absence of any benchmark, the inference is that the US (and EU) standards are the world's standards. With respect to biological diversity – from sacred plants to human DNA – that means heading towards "no limits" on what can be patented by corporations.

The newer bilateral agreements now typically limit a signatory government's right to impose performance requirements, such as technology transfer, on foreign investments. And they include clauses protecting foreign investors from "indirect expropriation" and measures "tantamount to expropriation" which allow for a very broad range of policies to be potentially targeted by an unhappy investor.

Thus far, investor-state disputes are often related to conflicts after the privatisation of state-owned enterprises and public utilities such as water. But with the inclusion of intellectual property in the sweeping definitions of "investment" in BITs, and its explicit application to biodiversity, it may not be long before an investor launches a dispute around IPR issues, be it a pharmaceutical corporation, an agrochemical firm, or a biotech seed company. One legal review of possible interpretations of BITs in terms of intellectual property claims on biodiversity found quite a number of "grey areas" that leave national measures to prevent biopiracy or promote public health open to potential dispute.²⁰ For example, compulsory licenses on drugs or the

enforcement of disclosure of origin rules on plant patent holders could become grounds for legal action by investors under these treaties, even if the host country's law is WTO-compliant.

US policy stipulates the establishment of a Trade and Investment Facilitation Agreement (TIFA) prior to negotiations on a BIT or FTA. TIFAs set up a joint council to identify and discuss ways to remove regulatory barriers to trade and foreign investment.

Developing countries typically face trading sovereignty for economic clout when they surrender to BITs. As some US academics point out, "The diffusion of BITs is propelled in good part by the competition for credible property rights protections that direct investors require."²¹ BITs are a credible commitment device, because they provide a meaningful signal to investors. To violate or be accused of violating a treaty would risk serious damage to a government's reputation and its foreign policy interests. But the costs of complying are heavy: "governments agree to give up the use of a broad range of policy instruments (taxation, regulation, currency and capital restrictions) they might have legitimately wanted to use to achieve domestic political, social or economic purposes."²²

In many BITs, where a dispute cannot be settled amicably and procedures for settlement have not been agreed on within a specified period, they can be referred, for example, to the World Bank's International Centre for Settlement of Investment Disputes (ICSID)²³ or the UN Commission on International Trade Law (UNCITRAL)²⁴. NAFTA lets unhappy investors choose between the two. Both recourses represent the privatisation of commercial justice.

In a speech to the Inter-American Development Bank in October 2000, US lawyer William Rogers argued that investment treaties are "an open invitation to unhappy investors, tempted to complain that a financial or business failure was due to improper regulation, misguided macroeconomic policy, or discriminatory treatment by the host government and delighted by the opportunity to threaten the national government with a tedious expensive arbitration."²⁵ The mere existence of such agreements likely has a chilling effect on governments as they consider policy amendments or new legislation.



Bullying, leverage and trade-offs

One thing that upsets the balance at the negotiating table is negotiating fatigue. This is especially acute for smaller or poorer governments in talks with powerful countries like the US. Keeping on top of technical, complex and arcane legalistic negotiations, especially when a government may be working on a number of different deals at different levels at any one time, puts an enormous strain on under-resourced officials and ministries, who often have little access to sources of critical analysis about these deals. Spreading another country's negotiating capacity even thinner may be a negotiating tactic for the US and the EU – after all, it encourages compliance, rather than challenges.

By stitching together an incomplete global web of bilaterals, issues, sectors and countries are played off against each other. The US/EU pursuit of bilateral negotiations is thus another example of classic divide and rule tactics – a strategy of weakening the actual or potential resistance to the EU/US positions being advanced in the WTO or in other venues.

For example, Washington insists on both intellectual property laws and outstanding investment disputes being sorted before negotiating a BIT. Progress on negotiations for a US-Pakistan bilateral investment treaty is being stalled by the US until it sees “the introduction and better enforcement of IPR and the resolution of investment disputes, particularly in the energy sector.”²⁶

Yet even more egregiously, in the draft US-Pakistan BIT, the US has been insisting that Pakistan pay damages to US companies for their *future* investment in case of the infringement of IPR and unilateral cancellation of licenses. According to an official in Pakistan's Law Ministry, US negotiators insist that unless Islamabad pays immediate compensation to affected US firms, the World Bank's ICSID will pay the compensation and treat the amount as a loan to Pakistan.²⁷

Similarly, dissatisfaction with Taiwanese intellectual property violations is also a sticking point in the launch of negotiations for a US-Taiwan FTA.²⁸ But in the cases of both Pakistan and Taiwan, there is also a sense that, despite its pressure on alleged intellectual property violations, broader US foreign policy interests could well tip the balance towards signing FTAs or BITs with these countries.

The ratchet at work

The US is using bilateral and subregional free trade and investment agreements to set tougher standards for future trade and investment negotiations. It wants maximum concessions from developing countries, because this will make it harder for governments to oppose US demands at the WTO. Once a number of countries are already committed to tougher trade and investment rules through a bilateral agreement, it will be more difficult to mount the kind of concerted opposition to US proposals which Brazil helped to lead at the WTO Ministerial in September 2003 in Cancun, Mexico. What impact will these bilateral deals have on opposition to the introduction of the “new issues” such as investment at the WTO, or critical positions taken with regard to the implementation and review of the TRIPS agreement?

Patrick Cronin, senior vice president of Washington-based Center for Strategic and International Studies told the Daily Yomiuri: “With the setback to WTO reform at Cancun, the [Bush] administration is now focused like a laser beam on regional and especially bilateral trade accords.”²⁹ Zoellick has divided the WTO members into “can-do” and “won't-do”³⁰ countries – those who are serious about trade liberalisation and those who are not. Right after Cancun, he abrasively announced that the US would push ahead with free trade and investment agreements with “can-do” countries on a subregional or bilateral basis. Earlier that year Zoellick had explained that, “By pursuing multiple free trade initiatives, the US

²⁶ Shaukat Piracha, “IPR laws can expedite investment pact with US”, *Daily Times*, Lahore, 30 September, 2004.

²⁷ Khalid Mustafa, “US to claim damages against IPR abuses”, *Daily Times*, Lahore, 3 February 2005.

²⁸ Nicholas Lardy and Daniel Rosen, “US-Taiwan Free Trade Agreement Prospects”, in JJ Schott (ed), *Free Trade Agreements: US Strategies and Priorities*, Institute for International Economics, Washington, DC, April 2004.

²⁹ *Daily Yomiuri* (Japan), 1 January 2004.

³⁰ Robert Zoellick, “America will not wait for the won't do countries”, *Financial Times*, London, 22 September 2003. www.bilaterals.org/article.php3?id_article=261



Cancun, 14 Sept 2003: “There were ‘can do’ and ‘won't do’ countries here. The rhetoric of the ‘won't do’ overwhelmed the concerted efforts of the ‘can do.’”



³¹ Statement of Robert B Zoellick, US Trade Representative, before the Committee on Finance of the US Senate, 5 March 2003. www.ustr.gov/assets/Document_Library/USTR_Zoellick_Testimony/2003/asset_upload_file96_4330.pdf

is creating a 'competition for liberalisation' that provides leverage for openness in all negotiations, establishes models of success that can be used on many fronts, and develops a fresh political dynamic that puts free trade on the offensive."³¹

In the Americas, laser-guided liberalisation – bilateralism – allows the US to single out selected

countries and restrict the potential for alliances like the G21 to stand up to US bullying and double standards at the WTO. Many US business lobbies want bilateral agreements with Latin American countries like Chile, because they feel that they are missing out on export and investment opportunities in the region to the EU and Canada, which have already secured duty-free access for many goods through bilateral trade agreements.

US to Thailand: "No GM, no FTA"

Under pressure from farmers and consumer groups, the Thai government banned the import of genetically modified (GM) seeds for commercial planting in 1999. In April 2001 it also called a halt to GM field trials, including Monsanto's ongoing cotton and corn experiments. But the US wasn't going to let the country off the hook that easily. Monsanto sees Thailand as "an important window to serve the growing Southeast Asian market for both conventional and agricultural biotechnology crops." In November 2003, Monsanto announced that it wanted to make Thailand its regional base for GM RoundUp-Ready corn and Bt corn by 2006, urging the government to lift its ban. Zoellick was immediately on the case and called on Thailand to eliminate "unjustified trade restrictions that affect new US technologies."

Monsanto urged US trade negotiators to seek an end to Thailand's moratorium on large-scale field trials of GM crops either "in a parallel fashion with the FTA negotiations or directly within the context of the negotiations." Monsanto says that "In the context of free trade ... it is imperative that the US work with Thailand to eliminate the current barriers to biotechnology-improved crops and establish a science-based regulatory system – including field trials of new crops – consistent with their international trade obligations in order to bring the benefits of these products to market in Thailand and to further promote consistent access to American agricultural technologies and products."

The pressure had an effect. Even before an FTA has been signed, the Thai Prime Minister Thaksin Shinawatra announced his intention to reverse the moratorium. While he and his Cabinet were forced to uphold the moratorium after Thai farmers, Buddhist organisations, consumers and anti-GMO activists protested, US and Monsanto officials still have the moratorium in their sights in the context of the FTA talks.

Attempts to patent Thailand's fragrant jasmine rice met outrage and stiff opposition from farmers and others concerned at the apparent ease with which Thai biodiversity and traditional knowledge is being appropriated by others. The US-Thai FTA would require Thailand to allow patents on animals and plants, further facilitating biopiracy by US companies and researchers.

Sources: Written Comments Concerning the US-Thailand FTA submitted by Monsanto to the office of the US Trade Representative, www.us-asean.org/us-thai-fta/Monsanto_Comments.pdf; Robert Zoellick. Letter to Senate on Intent to Negotiate FTA with Thailand, 2 December 2003, www.ustr.gov/Document_Library/Letters_to_Congress/2004/Letter_to_Senate_on_Intent_to_Negotiate_FTA_with_Thail.html; Monsanto Press Release, *Thailand to Reverse Three-Year Moratorium on Cultivation of Genetically Modified Crops*, www.monsanto.co.uk/news/ukshowlib.phtml?uid=8071; Witoon Liamchamroon, *Speech on GMOs & Food Safety in the context of Thailand society*, 16 October 2004, Global Forum of Food Safety Regulators, WHO/FAO, Bangkok, www.biothai.org/cgi-bin/content/gmo/show.pl?0006; GRAIN, *Protecting Asia's Most Valuable Resource, Seedling*, December 2001, www.grain.org/seedling/?id=59

Corporations turning the screws

The business coalitions that are the biggest driving force behind bilateral free trade and investment negotiations are quite open about their self-interest and eager to keep upping the stakes. In a letter of support for the US-Chile FTA, the International Intellectual Property Alliance states that the agreement "builds on the standards currently in force in the WTO TRIPS Agreement and in NAFTA, with the goal to update and clarify those standards to take into account not only the experiences gained since those agreements entered into force, but also the significant and rapid technological and legal developments that have occurred since that time."³²

The report of the US Industry Trade Advisory Committee on Intellectual Property Rights (ITAC-15) on the US-Bahrain FTA states that: "Our goal in the negotiation of an FTA is to set a new baseline for all future FTAs, including the FTAA. This baseline is continually reflected in the model FTA agreements, which are constantly changing based on what we learn through negotiating each of the FTAs."³³

Industry places extremely high demands on BITs and FTAs. Corporations are demanding full national treatment without exception in the intellectual property field³⁴, and they are pushing for extreme patenting requirements. The US-Morocco FTA already provides for patent protection for animals as well as plants and the US-Singapore FTA requires patenting of both transgenic plants and animals. Meanwhile ITAC-15 "urges US negotiators to insist in all future FTAs that patent protection be made available to both plants and animals."³⁵

Bilaterals are seen by the agricultural biotechnology industry as an important conduit for spreading genetically modified organisms around the world (see box). Corporations are looking to bilateral and regional trade agreements "to expand foreign understanding and acceptance of US regulations and standards, particularly with respect to agricultural biotechnology." As the Thailand case illustrates,



trade associations are correct in asserting that “free trade agreements can serve as an important vehicle for advancing US global interests in the field of agricultural biotechnology.”³⁶

Bilaterals as foreign policy tools

Notwithstanding corporate goals that lurk behind bilateral free trade and investment deals, in many cases, it is clear that foreign policy objectives far outweigh economic ones, especially given the size of the economies with which larger players like the US and EU have been negotiating such deals. Sometimes it is hard to separate these objectives, especially given the revolving door that exists between the US corporate and public sector, particularly in the area of commerce, trade and investment policy.

Early US bilateral deals with Israel (1985) and Jordan (2001) had much more to do with broader US foreign policy interests in the Middle East than economic concerns.³⁷ So too in today's world. Announcing the start of talks on a US-Pakistan bilateral investment agreement in September 2004, Zoellick said: “Pakistan and the United States are partners in combating global terrorism. A BIT based on the high standards contained in our model text can play an important role in strengthening Pakistan's economy, so as to create new opportunities for exporters and investors in both economies and assist in meeting the economic conditions to counter terrorism.”³⁸

Likewise, in March 2004, Zoellick claimed that the bilateral TIFA with the United Arab Emirates, “solidifies the relationship between our two countries on an economic level which complements our strong partnership in our fight against terrorism”.³⁹ In justifying a TIFA with Qatar, Zoellick proclaimed that “Qatar played a valuable role in hosting and facilitating the launch of the Doha negotiations, the global trade negotiations to open markets and promote economic development. Furthermore, Qatar has been a steadfast friend of the United States in the war against terrorism, and I am pleased that we are working to expand our relationship on the economic front.”⁴⁰ The EU uses trade policy for the same goals. Its recently concluded FTA with Syria stumbled for a long time over the EU's insistence on a “weapons of mass destruction” clause.⁴¹ The EU also secured a halt – at

Going further...

bilaterals.org is a collaborative effort to share information and stimulate cooperation against bilateral trade and investment agreements that are opening countries to the deepest forms of penetration by transnational corporations. It is an open publishing website where researchers, activists, NGOs and others can share news, analysis and strategy discussions about free trade agreements and bilateral investment treaties worldwide.

bilaterals.org weekly is an electronic mailout of the latest additions to the site, released each Friday. More information about bilaterals.org and how to get involved is available at www.bilaterals.org

Bilateral Investment Agreements: Agents of new global standards for the protection of IPR?

This GRAIN-commissioned study by Carlos Correa examines whether and how bilateral and regional investment instruments increase the scope and availability of IPR protection beyond current standards, reduce the flexibility available to countries under international treaties, and can be used to expand the application of IPR over biodiversity. See www.grain.org/briefings/?id=186

least a temporary one – in Iran's uranium enrichment programme as a basis for renewed FTA talks.⁴²

The swirl of political and economic interests, the language of fighting terrorism and the talk of upholding democracy which surrounds the current wave of bilateral trade and investment agreements is a potent reminder that neoliberalism⁴³ and the brute force of imperialism are marching hand in hand into the 21st century.



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³² www.iipa.com/rbi/2003_May8_ChileFTA_ITC.pdf

³³ 14 July 2004. www.ustr.gov/Trade_Agreements/Bilateral/Bahrain_FTA/Reports/Section_Index.html

³⁴ In its submission on the US-Chile FTA the IIPA asserts: “No bilateral agreement entered into by the US should have any other rule than full national treatment”. www.iipa.com/rbi/2003_May8_ChileFTA_ITC.pdf

³⁵ www.ustr.gov/assets/Trade_Agreements/Bilateral/Bahrain_FTA/Reports/asset_upload_file822_5528.pdf

³⁶ Letter to Robert Zoellick on May 21, 2003, from seven food and agriculture trade associations: www.soygrowers.com/library/timelynews/zoellick-biotech-052303.htm

³⁷ Howard Rosen, “Free Trade Agreements as Foreign Policy Tools: The US-Israel and US-Jordan FTAs”, in JJ Schott (ed), *Free Trade Agreements: US Strategies and Priorities, Institute for International Economics*, Washington DC, 2004.

³⁸ USTR Press statement, 28 September 2004, *United States, Pakistan Begin Bilateral Investment Treaty Negotiations*. www.state.gov/e/eb/rls/prsr/2004/36573.htm

³⁹ USTR Press statement, 15 March 2004. *United States and United Arab Emirates Sign TIFA*. www.ustr.gov/Document_Library/Press_Releases/2004/March/United_States_United_Arab_Emirates_Sign_TIFA.html

⁴⁰ USTR Press statement, 19 March 2004. *United States and Qatar Sign Trade and Investment Framework Agreement*. www.ustr.gov/Document_Library/Press_Releases/2004/March/United_States_Qatar_Sign_Trade_Investment_Framework_Agreement.html?ht=qatar%20

⁴¹ Lin Noueihed, “EU insists on WMD clause in Syria accord - Fischer”, *Reuters*, 28 August 2004. www.bilaterals.org/article.php3?id_article=514

⁴² Dilip Hiro, “No Carrots, All Stick”, *Mother Jones*, 8 November 2004. www.bilaterals.org/article.php3?id_article=941

⁴³ The term ‘neoliberalism’ describes both the ideology and strategy behind free-market policies and economic “globalisation”. It advocates total freedom of movement for capital, goods and services, views everything as a tradeable commodity, and argues that market forces must rule, free from government interference.



Aldo Gonzalez is an indigenous person from the Mexican state of Oaxaca, where community organisations are leading a major resistance movement against the contamination of native maize by transgenic seeds. The movement is guided by the ancestral relationships between people and their natural surroundings. Politically, the resistance movement is linked to the struggle for autonomy by and for local communities, and is rooted in a particular indigenous vision of the world. In Oaxaca and in other Mexican states, defending maize is a cornerstone of defending a community's autonomy.

Territory, autonomy and defending maize



14

Biodiversidad: Tell us about the Oaxaca region and what it means to be Zapoteca in addition to being Mexican.

Aldo: The Zapoteca people are more admired today for what they once were rather than what they are now, because in the central valleys of Oaxaca there are many impressive pyramids that evoke the remote past of the Zapoteca people. But we Zapotecas are still alive in many Oaxaca communities, and our culture is expressed in many ways. Oaxaca is one of the country's richest States in cultural – as well as biological – diversity. There is a great diversity of climates, plants and animals which can only exist because of the cultural diversity. One of those cultures is our Zapoteca culture. We Zapotecas live in different micro-regions and we speak 17 different dialects.

When I visit different places, the first thing I like to do is to taste the food. When I arrived in Uruguay I asked what people eat here, to get to know the flavour of the place, and they told me people eat beef. I have also danced some of the music here. This is always an attraction, when you come in and taste the flavors and enjoy the culture and the way people have fun. In Oaxaca, our main dishes are made with maize. We eat *tortillas* every day, but always with different things. For example, in Oaxaca you can go to the market and eat *chapulines*, which are like grasshoppers, but smaller. They taste good and are full of protein. Probably in the future big transnationals will want to feed us insects, but we won't let them patent the *chapulines* because this is very much our food. Depending on where they live, Zapotecas prepare different dishes with maize, they make *tortillas*, *tamales*¹, *pozole*², *atole*³ and

¹ Tamales consist of seasoned chopped meats or vegetables enclosed in masa (maize dough) and wrapped in a softened maize husk. The savory packages are steamed and the maize husks are peeled away before eating.

² Maize and pork soup

³ A warm, porridge-like drink made thick with masa (maize dough).

many regional specialities. The typical food along the coast is maize with iguanas or with shrimp.

But of course the Zapoteca culture is not just food, although this is something that outsiders like very much in the Zapoteca culture. Our villages also have their own forms of organisation, which have not been respected by the Mexican state. Most of our communities hold their land communally, and all of us who live in a community feel something like ownership over the legally-held land which has been recognised by the Mexican government as belonging to that community. But we believe that instead of splitting the land into individual plots, we should build larger territorial spaces covering more communities. We don't want to move towards individualism; we want to build bigger and bigger collective territories.

In each territorial space, the resistance arises from the communities. We have our own governments with relative autonomy – “relative” because there are always pressures to implement programmes mandated by Mexico's federal or state governments. The government of Oaxaca has even recognised our right to elect our authorities without the intervention of political parties, which is recognition not of us but of our peoples' cultural heritage. So we do have our own forms of organisation, we have our own means of electing our leaders and we have been putting them into practice. Today the Mexican state has no choice but to recognise the existence of these differences. We work collectively and when the whole community is needed, our authorities are able to summon us all to make our physical contribution to work for the common good.

It's not all work though; we also have festivals. Visitors say, “These Oaxaca people are real partiers,” because there are many festivals. Every community – there are about 10,000 in all – has at least one festival per year, but they are on different dates, so it looks from the outside like Oaxaca has festivals every day. These festivals are our space for sharing, a space for being together with our brothers and sisters, and also with all the people who visit us.

How did your communities become concerned about biopiracy?

The problems began with the bioprospecting contract signed by the defunct Sandoz company – which became Novartis and then Syngenta – with certain communities that belong to the Union of Zapoteca Chinanteca Communities, aided by the Rural Studies and Peasant Consultants. We found

problems with the agreement. We said then that no community could claim ownership over the natural resources on offer to be carried away to Switzerland, because of the arbitrary lines drawn to demarcate the place of origin of the plants and animals in question. The decision to sign the bioprospecting agreement was taken by only four communities and was not discussed thoroughly enough to make that kind of decision.

Was it simply a matter of not involving enough communities in the decision, or are there other issues at stake too?

I believe that no single community – or two, three or four communities – can decide for themselves whether to offer certain resources, because they do not own them. Indigenous peoples are stewards of the diversity of living beings and also of beings we can't even see, which are supernatural and who live in our forests and in our communities. We must respect both nature and these other beings, otherwise we are granting ourselves a right that isn't really ours. No one can say they own diversity.

No one can say “I'll sell you this because it is on communal land the Mexican government has recognised for me.” Taking that kind of decision necessarily means that all the communities of the

Aldo Gonzalez is a Zapotec indigenous and community leader from Guelatao in the Sierra Juarez mountain range of northern Oaxaca, Mexico. Aldo is director of UNOSJO, a grassroots campesino organisation in the Sierra Juarez. UNOSJO provides technical assistance and consultation to small farmers with the goal of promoting sustainable rural economies that are based on respect for indigenous culture. It plays a vital role in educating local communities and collaborating with national and international organisations about the threat of GM maize.

“We are heirs to a great treasure that is not measured in money and that they want to take away from us. This is no time to beg for alms from the aggressor. Every Indian and every peasant knows about the transgenic contamination of our maize and we proudly declare: I plant and will continue to plant the seeds that our grandparents bequeathed to us, and I will assure that my children, their children and the children of their children continue to grow them. I will not allow them to kill the maize, because our maize will only die the day the sun dies.”





Festivals and celebrations are as important today for Mexico's indigenous people as they were for their Aztec ancestors

Sierra Juarez have to be informed and enabled to decide, either for or against. But it has to be *all* the communities. For us, that means there has to be some other kind of government. We cannot sit back and wait for the federal government or the Oaxaca State government to decide. It has to be a regional government, an autonomous government of the indigenous communities. But this kind of government doesn't exist and the federal government doesn't want it to exist. Today, we are fighting to exercise the rights of the Zapoteca people to self determination, for autonomous authority within the Mexican state.

As a result, our communities would have the right to decide on what kind of development – if we can call it that – our communities want to achieve. There is no need for transnational corporations or government programs to tell us which resources they need from our communities, but rather we should be able to decide for ourselves how and what we will use, as well as what we do not wish to use, and knowing full well why not.

How do these concerns tie in with the contamination with transgenic maize in Mexico?

We never imagined that communities surrounded by mountains, out of touch with modern technology, would be contaminated by transgenic plants – especially since transgenic plants have been on the planet for less than ten years. We felt deeply hurt by this because maize is sacred for us – it is the foundation for the resistance of indigenous peoples. If we had no maize we could not exist; we are made of maize, we depend on it as it depends on us. We complement each other: neither can exist alone, which is why this contamination hurts *us*.

We don't want to eat or plant just any old maize. In some communities people have planted hybrid maize, which may have higher yields of up to eight tons per hectare, but we feel that our native maize varieties – even when we harvest just one ton per hectare – are more satisfying and superior to other kinds of maize. Our communities may not have the biggest harvests, but it is enough to last a whole year, meaning we'll have enough to eat and no worries. Native maize varieties hold up to the bad storms that our communities experience, but the hybrid and transgenic maize can't last a whole year. Some communities have harvested up to eight tons of hybrid maize per hectare, but three months later the kernels have all turned to dust. That maize is designed to be sold, while our communities' maize is for us to eat, and to last long enough for us to be able to eat it.

We have no interest in hybrid and transgenic seeds because they have nothing to do with our culture. They were made to be sold, and our maize is not for sale.

How are other indigenous communities responding to the contamination of maize?

Transgenic contamination has occurred in eight Mexican States, and there is growing concern, particularly amongst indigenous peoples. We have held various ceremonies to defend maize, including holding traditional rites together with indigenous brothers and sisters in many Mexican villages. It's not that we have simply agreed to work together: the maize itself is asking us to do something. We are making offerings of maize to our Mother Earth, and offerings to the fire as well, so they will help us defend our maize.

We believe that decontaminating our maize requires more than it just showing up negative in a laboratory test. The problem of contamination is taking our indigenous peoples back to our roots, because we know that the cure our peoples will provide for this problem will come out of our culture, of our people's ancestral knowledge about maize.

You say there is a difference between maize made for sale and the maize made or adapted from nature for a very specific culture, which is the same culture for which you are now demanding autonomy from the Mexican state.

This will be a long struggle for us. The timing of governments and transnational corporations are not the same as the timing of indigenous peoples.



We believe the time has come for our peoples to start building organisations which not only ensure survival but also achieve higher goals for this planet, in harmony with nature. The day is coming when our communities will begin making their own way down a different path.

But this path also has a different time frame. We have committed to building autonomy and we shall achieve it, no matter how much time we have to spend for this to happen. It may be ten years, twenty or even a whole century, but the decision has been made by our peoples and when our communities and our villages make this kind of decisions, they are decisions that must be carried out. I think it will be easier to put an end to capitalism than to put an end to the existence of Mexico's indigenous peoples.

How does this history of resistance and building autonomy come together in the context of trade liberalisation, particularly the North American Free Trade Agreement?

The Zapotecas in the State of Oaxaca are facing very serious problems. The economic situation for our communities has driven many young people to migrate, mainly to the United States, looking

for money to buy things, to build their homes. This is breaking down our communities' form of organisation, as many of those young people no longer pay attention to the elders, and because when they come back from the United States they bring new technologies and no longer want to work the land like people have always worked it. They believe that technology will solve the problems, but after a few years they realise that it may not be so.

I think that even though gaps have been opened through which many young people have left their communities, today people are coming back to the value of the traditional knowledge of our elders. It may have been neglected for many years, but now the need is clear for the knowledge of our communities' elders to be recovered and put into practice.

This interview was given to Carlos Santos in May 2004, when Aldo was participating in the seminar on "Food Sovereignty and Biodiversity," in Montevideo, to mark Biodiversidad's tenth anniversary. Biodiversidad (www.grain.org/biodiversidad) is GRAIN's sister magazine. It is published in Spanish and has a Latin American focus.



Sprouting Up...

Diversa dominates global search for blockbuster microbes

GRAIN

In the last decade the US' Diversa corporation has expanded its bioprospecting activities all over the globe, placing it very high – if not top – of the list of the world's bioprospectors. Diversa is one of an increasing number of companies hoping to make blockbuster biotech products from the estimated 99% of the earth's microbial diversity that cannot be cultured in the laboratory and that has thereby eluded previous scientific study. Its particular interest is in finding enzymes from what it calls extreme environments, which seems to include anything from ice glaciers and geysers to coral reefs and paddy fields.

Diversa bypasses the traditional step of culturing out micro-organisms from samples and jumps right to the DNA. It runs samples of soil, seawater or tissue through its DNA sequencing technologies to get the DNA fragments of all the micro-organisms present in the sample. It then takes this mess of DNA, chops it up into gene fragments and genetically engineers them into easy-to-culture micro-organisms that express the proteins encoded by the genes and screens the proteins for promising enzymes. The company says it has collected the genes for over 3 million micro-organisms and claims to be able to screen a billion genes per day. Diversa's large DNA collection is matched by a large patent collection, now standing at 192 patents, with over 500 patents pending.



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Diversa's patented DNA is sourced from around the world. The company has bioprospecting agreements on every continent, with access to at least nine of the world's biodiversity hotspots. The company generally does not negotiate with local communities. It signs agreements with local institutions that have access to sites that it is interested in and then gets them to collect and provide samples for the company in exchange for "training" and a small share of "undisclosed" potential royalties.

Diversa's research offers few practical benefits for local communities. Its agreement with Mexico's National Autonomous University, one of the few to come to light, opened the country's diversity up to the company and in exchange the University was promised only equipment valued at \$5,000, technical training in bioprospecting, \$50 for each sample collected, royalties of 0.5% on pharmaceuticals derived from the samples and 0.3% royalties for any other products.¹

The agreements are often portrayed as supporting scientific research but Diversa's activities do little to increase understanding of the ecosystems where it bioprospects because it simply extracts the DNA from samples and screens it for

useful compounds. It generates no information about the actual organisms that the DNA belongs to.² The other downside of this method is that it leaves bioprospectors searching around in the dark for potential blockbuster molecules. Diversa can work with small samples but finding a valuable molecule can take a lot of samples when you don't know what you're looking for and this mass sampling can put the fragile ecosystems where Diversa often goes hunting at risk. There's also the worry that a successful find can ignite a bioprospecting gold rush for the mysterious DNA.

The real beneficiaries of Diversa's research and bioprospecting are its corporate clients in the pharmaceutical, chemical and agricultural industries. Diversa is working on feed additives for Danisco, pharmaceuticals enzymes for Dow and biocatalysts for the production of fuel ethanol from corn for DuPont. It's also one of the main recipients of funding from the US Department of Defence's BioDefense research program, having received well over US\$ 10 million to date.

But Diversa's closest partner is Syngenta. Early in 1999, Syngenta purchased over 5.5 million shares of Diversa stock and the two began a strategic alliance that led, later that year, to the formation of Zymetrics, a joint venture to develop products for animal feed and agricultural product processing. Zymetrics' first product was an enzyme for animal feed that it introduced in Mexico in 2003 and it plans to launch transgenic corn phytase and amylase products for the feed industry between 2006-2007 through Syngenta Seeds. In February 2003, Syngenta shut the doors on one of its most important research centres in the US and shifted 71 of its researchers over to Diversa as part of a 7-year US\$118 million transaction. Syngenta also upped its ownership stake in Diversa to around 20%.³

Footnotes

¹ GRAIN, "Sprouting Up: Diversa Deals Revealed," *Seedling*, December 1999. www.grain.org/seedling/?id=164

² Colin Deeney, "How scientists are persuading the oceans to give up their secrets," *The Pharmaceutical Journal*, Vol 268 No 7197, 11 May 2002, pp655-656.

³ Penni Crabtree, "Diversa, No. 1 crop chemical firm in deal," *The San Diego Union Tribune*, December 5, 2002.

⁴ BioMedNet profile on Arctos Pharmaceuticals: www.siliconinvestor.com/readmsg.aspx?msgid=16702219

Partner	Date	Terms
Bermuda Biological Station for Research (BBSR)	October 1999	Three-year agreement for bioprospecting collaboration between BBSR and Diversa to collect samples from the shallow and deep waters of the Sargasso Sea, the ocean floor, and the inshore environments of Bermuda's coral reefs. Diversa provides training and equipment to BBSR scientists plus undisclosed royalties on commercial products derived from the samples.
Arctos Pharmaceuticals, Alaska, USA	August 2000	Diversa obtains access to environments covered by agreements Arctos has signed over the previous five years with Alaskan landholding Native corporations, individuals, and other entities. The Arctos access agreements provide local communities with a share of royalties on commercialised products for "passive" access to land, profit sharing arrangements for "guided" access to land and profit sharing and shared intellectual property rights for "contributing" access, which could mean sharing specific ethnobotanic knowledge. ⁴
Rutgers University, USA	2000	3-year contract giving Diversa access to samples collected by the University at the Meadowlands toxic Superfund Site in New Jersey. In exchange for collecting the samples and providing them to Diversa, Rutgers gets undisclosed royalties on commercial products derived from the samples.
Russian government	November 2000	Agreement is part of US Department of Energy's (DOE) Proliferation Prevention program that takes Russian scientists out of nuclear weapons research. Diversa collaborates with Bechtel Corp's Idaho National Engineering and Environmental Laboratory. Diversa gets sampling rights to 4-6 sites in Russia in exchange for an undisclosed contribution towards the building of a Russian Ecological Biotrade Centre and undisclosed royalties on commercial products derived from the samples.
Council for Scientific and Industrial Research (CSIR), South Africa	December 2000	Diversa obtains rights to discover genes and commercialise products from environmental samples provided by CSIR. In exchange, Diversa "supports" CSIR bioprospecting activities and pay undisclosed royalties on commercial products derived from the samples.
The Department of Biochemistry, University of Ghana	October 2001	Diversa obtains rights to discover genes and commercialise products from environmental samples in exchange for scientific training, annual research support, and royalties on Diversa's revenues from products derived from sales.
The Kenya Wildlife Service and the International Centre for Insect Physiology and Ecology, Kenya	October 2001	Diversa obtains rights to discover genes and commercialise products from environmental samples in exchange for scientific training, annual research support, and royalties on Diversa's revenues from products derived from the samples.
Marine Bioproducts Engineering Centre (MarBEC), University of Hawaii	June 2002	Diversa obtains right to discover genes from existing material collections and from environmental samples collected by MarBEC researchers in and around Hawaii in exchange for undisclosed percentage of royalties on commercial products derived from the samples. In November 2004, MarBec licenses the right to a Diversa patent covering DNA sequencing. The license gives Diversa commercial access to new genes identified by MarBEC.
BioProspect, Australia	December 2002	Diversa obtains the right to test over 100 purified samples of BioProspect's library of plant samples collected from Western Australia and Queensland for an undisclosed initial sum and a percentage of royalties from commercial products derived from the samples.
Center for Reproduction of Endangered Species, San Diego Zoo (CRES), USA	November 2003	Diversa and CRES to collect samples of microbial communities from endangered species at the San Diego Zoo. Diversa will identify potential product candidates from the samples. No royalty agreement with CRES is mentioned.

Sources: company websites and press releases.



The presence of uncultivated food in the food systems of South Asia is a survival issue for many of the poorest families, some of whom rely on uncultivated food for 100% of their dietary needs. This article underlines the critical connection between the conservation of the local diversity of food sources and the broader social goals of poverty alleviation, livelihood enhancement and sustainable development.

Forgotten food

Food that money can't buy

SANFEC



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¹ Binayak Sen, "Politics of Poverty Alleviation", in R Sobhan (ed.), *Growth or Stagnation: A Review of Bangladesh's Development*, 1997, UPL.

² ASA, *Dropout in Micro-Credit*, Dhaka, April 1996; BRAC, *BRAC Programmes 1990-1995: A Status Report*; October 1997; AAH Dewan, "Review of Current Interventions for Hardcore Poor in Bangladesh and How to Reach Them with Financial Services", paper presented at the *Workshop on Drop-out Features, Extending Outreach and How to Reach the Hardcore Poor*, held at BIDS, Dhaka, November, 1997; M Rahman and A Razzaque, "On Reaching the Hardcore Poor: Some Evidence on Social Exclusion in NGO Programmes", *The Bangladesh Development Studies* Vol. XXVI, March 2000, No.1.

Recent research on poverty programmes shows that by and large they are abject failures, especially in relation to the poorest of the poor. The failures are twofold. Economists have noted the mismatch between micro-level claims of poverty programmes and national or macro-level performance, raising serious doubts about the result of large development investments and national strategies for poverty alleviation.¹ There is also a serious problem of "social exclusion" in poverty programs. In Bangladesh, the poorest of the poor (the so-called "hard core poor") cannot be reached by existing anti-poverty and micro-credit programmes.²

Green Revolution-style agricultural production and trade in food, the two pillars of government food and agriculture policies over the last few decades, have also failed to address the problem of access to food by the poor. It is now apparent

that food insecurity amongst the very poor is not due to inadequate food supply, but rather to the problem of what Sen has called "entitlements"; bumper yields of grain in the Punjab remain out of reach of people with too little money to purchase food on the market and too few other entitlements to access food locally. Genetic engineering and biotechnology in the food system are equally irrelevant to the problem of poverty and food insecurity because they do not address access and entitlement to food, while at the same time raising many safety and ethical issues.

A lack of understanding in policy circles of the meaning of agriculture and its relationship to food, ecology and culture is a major hindrance when dealing not only with poverty but also with other policy matters such as sustainable development both at the conceptual and programme design

levels. Understanding agriculture simply as the production of food as a commodity, and poverty as an absence of income in a narrow sense, reduces the range of policy options to an equally narrow set of interventions that have already failed and can never be sustainable.

Survival issues must be addressed

Poverty and livelihood schemes are based on an understanding of economics that emphasise the income and employment dimensions in community life. Pure income-generating schemes inevitably undermine the role of expenditure-saving activities and non-economic livelihood strategies such as food collection. But the collection and gathering of uncultivated food has great influence in determining the well-being and survival capacity of the poor. Even in conventional economic analyses it has become evident that in a context such as Bangladesh "expenditure-saving activities contribute as much as a fifth to the annual household welfare of the rural poor"³.

We argue that poverty is a crisis in livelihoods, driven by the complex interactions between economic and non-economic activities, and the displacement of the people from the ecological basis of life. The new direction in rural South Asia is to create an enabling policy environment for the conservation, promotion and enhancement of local biodiversity, including both cultivated and uncultivated foods used in the diverse food systems of the region. This direction involves defending the integrity and health of local ecosystems that generate cultivated and uncultivated biodiversity. It also involves recognising and rebuilding the customary rights of the poor in communities and common property which enable access to food and related sources of livelihood.

Cultivated and uncultivated food

The critical relation between poverty and the customary rights of the poor to collect and gather food from their surroundings is not obvious. But research results from Bangladesh and the Deccan Plateau of South India, two contrasting physical environments with a common heritage rich in agricultural traditions and biological diversity, demonstrate the kinds of connections that exist.

In Bangladesh, uncultivated foods such as leafy greens, tubers, small fish and small animals collected from agricultural fields, water bodies and forested areas constitute nearly 40% of the diet in communities where local biodiversity has been conserved.⁴ Amongst the very poor, landless members of these communities (comprising some

15% of the rural population, many of whom are women-headed households) dependence on uncultivated sources of food and fodder is nearly 100%. Throughout the year, their daily survival and well-being is ensured through the collection of uncultivated foods directly, and through systems of exchange with rice farmers and the sale of goats and chickens in the local market to enable the purchase of oil and other food items they need but cannot collect directly.

More than 100 different leafy vegetables (commonly known as *shak* or *saag* in different South Asian languages) are used for food and fodder. They are collected while weeding fields and gathered from plants cultivated for other purposes (for example, the tender leaves of jute). These leafy vegetables are part of the historical cuisine system of Bengal described in epic stories and poems, and remain important food sources wherever they are available. As is widely recognised in Bangladesh, the most tasty and nutritious fish are not cultured but rather collected in the open water systems of the rivers, rice fields and mixed crop fields. This biologically rich open water fishery includes between 260 and 500 species of inland fish, more than in all of Europe. Some 75 of these species are consumed regularly by poor rural communities.⁵

The high proportion of uncultivated food in the diets of people living in communities where local biodiversity has been conserved is significant, especially considering the nutritional contribution of micro-nutrients supplied by these food sources, in contrast to the carbohydrates provided by rice alone. Leafy greens, tubers and small fish are the main sources of nutrition that keep the rural

³ Mujeri et al, *Macroeconomic programme, structural Adjustments and equity: a framework for analysis of macro-micro transmission mechanisms in Bangladesh in Monitoring Adjustment and Poverty in Bangladesh*. CIRDAP, Dhaka 1993.

⁴ UBINIG, *Uncultivated food: summaries of preliminary data compiled from field reports*, UBINIG 2002.

⁵ SF Minkin, *Flood Control and the Nutritional Consequences of Biodiversity of Fisheries, Bangladesh Flood Action Plan (FAP 16)*, ISPAN, Dhaka 1993; SF Minkin et al, "Fish Biodiversity, Human Nutrition and Environmental Restoration in Bangladesh" in Eds. Chu-fa Tsai and M Youssef Ali, *Open Water Fisheries of Bangladesh*, University Press Limited, Dhaka 1997.



Boys fishing in a pond in Bangladesh. Ponds such as these are becoming more and more polluted, threatening this important food source, particularly for poorer families.





This Bangladeshi farmer intercrops his aubergine crop with onions and garlic to keep nematode pests at bay

population active, productive, and relatively disease free. The contribution of uncultivated food is not merely a matter of satisfying hunger or overcoming stress conditions, it is an essential part of the diet that must be ensured, along with community relations linking fishers, farmers and tradespeople in a web of economic and social transactions.

Agriculture is not only crop production

Production of monocropped and pesticide-laden crops has destroyed uncultivated food sources in many areas of South Asia. When these losses are considered, increases in rice production reported as an increase in 'food' production are in fact directly responsible for severe declines in the abundance and availability of the overall food sources.

The policy implication of this finding is profound. Simply halting the environmental destruction caused by pesticide use and enhancing the local biodiversity of cultivated and uncultivated plants would ensure some 40% of the food needs of the rural population. For the very poor, the effect would be even greater. Alternative policies protecting and enhancing local biodiversity would act as a social safety net, providing local access to health-giving foods, medicine and numerous livelihood options, including opportunities for livestock management and local agro-industry based on handicrafts, non-timber forest products and the professions of midwives and informal home-based work.

The significance of the erosion of access to uncultivated foods is also apparent if we examine

what happens to livestock when they are integrated into a farming system that is not supportive of uncultivated foods. Wherever pesticides are used, the seed and cropping system has to alter. The normal sorghum-pigeon pea-cowpea mixed cropping system on the Deccan Plateau in India cannot tolerate herbicide use: herbicides applied when one species needs weeding negatively affect the growth of the other intercropped plants. Furthermore, farmers do not feel that use of herbicides in this kind of cropping system is economic. The use of herbicides automatically requires a shift to monocrops like cotton or potato.

This has two implications for fodder production. On the one hand, herbicide use makes it impossible to get any fodder from uncultivated plants. On the other hand, the crop itself, whether it is potato or cotton, does not produce residues which can be used as fodder. Therefore fodder availability from the main crop is reduced to zero.

Compare this with a field that supports uncultivated foods. The crops of the Deccan plateau produce significant amounts of fodder. Two acres (0.8 hectares) of sorghum can support three head of cattle all year round. Besides sorghum, the vines of the lablab (hyacinth) bean and cowpea make excellent fodder while the husk of pigeon pea, cowpea and lablab bean are much sought after for cattle feed. When the cropping system that supports uncultivated foods is altered, the fodder needs of one to two head of cattle per acre (0.4 hectares) are also lost.

The relationship between a farming system that hosts uncultivated foods and the needs of the village cattle and other livestock is symbiotic. Cattle supply all the nutrition that the system needs in the form of urine spilled on the soil and dung laid on the land by farmers before ploughing the field. The cattle also supply all the draught power for transportation done from and to the field. Produce comes out of the field, manure goes into the field. This is a unique system of energy recycling which mechanised and chemical-based farming cannot reproduce.

In return, the farming system provides all that the cattle need: a continuous supply of green fodder during the cropping cycle, dry fodder from the crop residues (such as paddy straw, sorghum and pearl millet stalk, and little millet straw), feed from the husk of the grains and pulses (such as paddy, pigeon pea and mung dal), and a host of creepers which are central to the farming system (such as cowpea and beans).



Destruction of food sources disempowers women. The strategic role of uncultivated food and fodder in rural areas has important implications for land policies. The negative consequences of the privatisation of common areas is particularly experienced by women who rely on their surroundings for food and access to life-enhancing spaces and raw materials. Many of the productive activities of women in these communities are not mediated by the market or related directly to employment and income. Women are concerned about the privatisation of common lands and transformation of public spaces such as roadsides and ponds as these have a direct impact on the livelihood options of people who depend on public spaces to graze animals or collect items for food or sale. Common areas and customary rights to these areas have been completely ignored in the policy context.

Ensuring the maintenance of uncultivated food sources in and around the immediate environment as common resources accessible when necessary is not only a food security issue for the community. It is the missing link for poverty programs. The degree of control over local food sources, as opposed to uncertain access to uncertain markets, is the measure by which development programs can ensure the capacity of the poor communities to participate in the market. Rather than supplying food through state distribution systems and corporate subsidies, governments should protect and enhance local cultivated and uncultivated biodiversity, including the uncultivated food sources.

Biodiversity is a development issue

Research on ecological agriculture now shows that mixed farms and community forests, grazing areas and water bodies provide individuals, households and communities with more equitable and sustainable livelihoods than production systems such as mono-cropping and tree plantations that reduce biodiversity or rely on a small range of exotic biodiversity. This is because rural livelihoods involve not just the production of crops (which are sold or eaten) and the sale of family labour (on farms and in cities) but also a wide range of livelihood-enhancing activities that bring people into constant interaction with many interrelated natural and social resources. Rural people collect medicinal plants in common and private spaces to address health problems, use crop residues to feed their animals, exchange services with trades people and crafts people in the community, collect forage from uncultivated lands and forests, collect fish in open and closed access water bodies, collect food while weeding crops for neighbours, and

so on. Livelihoods of this nature rely to a high degree on the biodiversity of local spaces: fields, field boundaries, seed stores, household patios and common areas. They also rely on the social and institutional relationships that regulate access to biodiversity: gender relations, community membership, kinship, specific legal provisions, etc. The development of equitable and sustainable livelihoods in communities therefore needs to support and enhance both the biodiversity in the ecosystem and the social relationships that enable people to access and use the biodiversity in the ecosystem.

Thinking of policies in relation to uncultivated foods is a way to link between food, ecology and livelihood. An understanding of the role of uncultivated foods in the food systems of the poor reveals the multiplicity and richness of life-affirming agricultural practices and community relations which support livelihoods. Why should we accept the idea that the object of agricultural science is the production of a few selected crops in narrowly defined spaces? Why exclude the spaces around and between ploughed fields, the water bodies, the grazing areas, forested areas and the homesteads? Is “food production” synonymous with “cultivation”? Why has the concept of cultivation lost its ecological and cultural connotations and fallen into the maw of the factory model?

The idea that “food” must be supplied by “farms” operating as industrial factories and only available on the shelves of supermarkets is a strange phenomenon in human history, rejected by agricultural traditions grounded



This mandala celebrates diversity by including its many elements - grains, pulses, pest traps, wild plants, and botanical sprays

Masangari Yesu, DDS



in the continuity of the knowledge created in relation to food sources. These knowledge systems developed over thousands of years and are being discarded almost overnight. Under the pressure of modernising policies, food production and food consumption have drifted apart, leaving rural people with no sustaining link to their homes and their communities. This separation is inherently conflicting and destabilising.

Agriculture is a way of life

For food producing communities in South Asia, as in many other societies as well, food is not merely an object of consumption. Food is a joy of life. We eat not only to satisfy our hunger, but also to savour food, to share it with our family and friends, neighbours and kin. Human beings are not machines with big holes in their stomachs. We are social beings, and food makes our social relations possible. Sharing food is deeply ethical and cultural. Food does not merely provide physiological and nutritional need. It is the premise upon which ethical, cultural and social institutions are built. This is the reason why food must not be reduced to a mere commodity, a consumer item to buy and sell in the market. Once this notion is understood, the spiritual, cultural and social role of uncultivated food also becomes strikingly visible. Erosion of food culture deepens the erosion of ethical, cultural or social institutions and human bonds. The political notion that "hunger" is only a biological phenomenon that can be resolved by relying mainly on world trade and the capacities of transnational corporations to produce food for the hungry ignores this reality altogether.

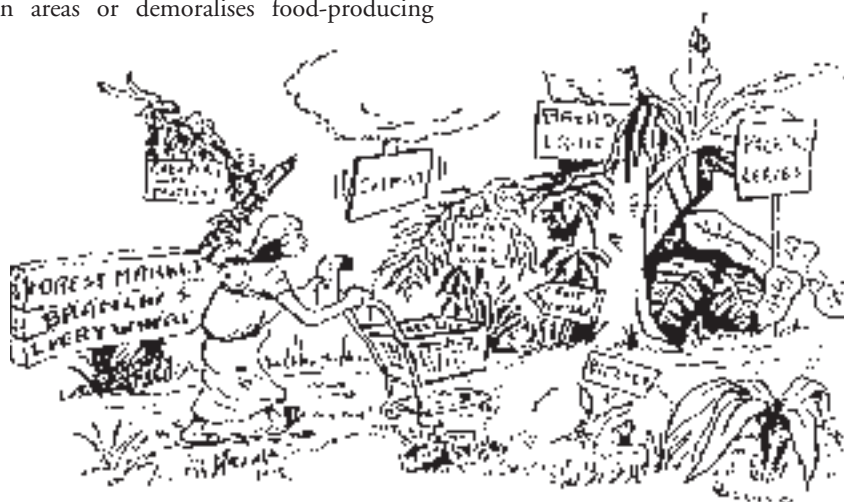
The survival and availability of local cultivated and uncultivated food is a political issue for security reasons as well. Food insecurity is a major cause of social and political instability in South Asia because it leaves people vulnerable to injustice and violence. Whether it drives people from rural to urban areas or demoralises food-producing

communities, the link to regional tensions is direct and immediate. Moving out from the community in the absence of the availability of food is the most obvious indication of the breakdown of cohesion and social fabric within a community. Trafficking of women and children displaced from their homes has emerged as a major issue jeopardising regional harmony. Migration within and between nations of the region has also become a significant source of conflict, leading to border clashes between India and Bangladesh and between India and Nepal. Never before in history has the significance of local food security been so paramount in redefining strategies for peace and poverty alleviation.

Protecting biodiversity is the missing link

The underlying problem is that governments and donors have lost touch with the idea and meaning of agriculture and its capacity to feed people where they live and work. On the other hand, the vision of agriculture is clear from the point of view of farmers and food-producing communities: the protection and enhancement of local biodiversity creates and sustains livelihoods for a wide range of people, not just farmers. Unless governments can guarantee significant new rural and urban livelihoods, there is no reason to sideline existing biodiversity-based livelihoods created by farming communities and promoted by many grassroots organisations. The policy challenge is to defend the food sources of rural communities by defending the principle of local and ecological food production, and governance of the social relations of food by the food-producing communities themselves. 2

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Glancing back and looking forward...

GM crops in 2004

Contamination by genetically modified (GM) crops was at the centre of the push for and resistance to GM crops last year. There's little doubt that industry is deliberately pursuing contamination to make the global acceptance of GM a *fait accompli*. It wants people to believe that the only option left is to 'manage' the co-existence of GM and non-GM agriculture – turning non-GM agriculture into a tightly regulated system governed by onerous contracts that leaves farmers more vulnerable to the power of agribusiness. But the inevitability of GM contamination is clarifying things for the resistance against GM crops. We've seen how GM canola has wreaked havoc in western Canada. We've seen what's happened to the maize of the indigenous peoples and peasants of Mexico. We've seen how GM soya has devastated Argentina and forced the GM door open to neighboring countries. We've seen GM cotton spread out of control in India and we shudder at the looming introduction of GM rice. We increasingly understand where the biotech industry is taking us: to a two-stream system of global food and agriculture - a GM-free niche market for the very rich and a GM polluted supply for the rest of us - with the same small number of corporations controlling both streams, from seed to supermarket.

But the good news is that in the face of mounting aggression from the biotech lobby and the complicity of national governments and international agriculture organisations, people are organising to reject GM. In 2004, GM-free zones continued to expand across Europe and around the world. Small farmers in Kenya and Mali took clear stands against the heavy GM push in their countries. Indigenous peoples in Mexico have taken matters into their own hands and are building long-term strategies for decontamination and the survival of their traditional agriculture. More than 650 civil society organisations and 800 individuals from more than 80 countries denounced the FAO for its "war on farmers not on hunger" in its pro-GM annual report on the state of food and agriculture. The past year made it clear that there is very little 'middle of the road' left between those pushing GM and those opposing it. The emperor has no clothes: co-existence isn't possible; the costs of the technology vastly outweigh the benefits; and the only way to get it accepted is by force. 2005 will see more of this, and the challenge to all of us is to further strengthen resistance from the bottom up.

Abridged from GRAIN's contribution to GM Watch's 'Reviews of the Year': www.gmwatch.org

Gearing up for 2005

In November 2004, we were extremely fortunate to hold GRAIN's annual planning meeting at one of the centres run by a Bangladeshi NGO, UBINIG, in Tangail, a little north of the country's capital, Dhaka. Surrounded by a living gene bank of rice, pulses, other vegetables and useful plants carefully nurtured by farming families all around us, we contemplated the year ahead.

The rights team will continue to monitor activities at the World Intellectual Property Organisation, the Convention of Biological Diversity and other international fora, with an emphasis on following the Access and Benefit Sharing debate. Work on bilateral and regional trade agreements will focus around the bilaterals.org website, monitoring key negotiations and further research on environmental services. Research and analysis of the impact of new seed legislation being adopted across the world will culminate in a special issue of *Seedling* in July. The team will also move forward on looking at ways in which communities and groups can come together and move beyond or work outside the ever-more suffocating environment of privatisation. This will include continuing to explore the new territory of 'convergence'; looking for links and synergies between our work on seeds and various other movements – software, health, information and music to name but a few – that are now largely working independently of each other to resist the pervasive privatisation of the commons.

The agresearch team will continue to focus on the contamination of our food supply and genetic heritage by genetically modified organisms, with a particular emphasis on farmer- and community-driven strategies for decontamination. Research topics will include organic seed production and certification, the US Agency for International Development's Agricultural Biotechnology Support Programme, and farmers' alternatives. Networking activities will include supporting Via Campesina's Seed Campaign, the African Biodiversity Network, GM resistance strategies and groups working on farmers' research alternatives.



GRAIN in 2005: 11 countries, 14 staff members (and one consultant and old friend)



