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2009

ASHGATE

Chapter 8

Implications of the Transatlantic Biotech Dispute for Developing Countries

Thomas Bernauer and Philipp Aerni

In September 2006, the final report of the WTO's dispute settlement panel for "EC-Measures Affecting the Approval and Marketing of Biotech Products" was released. The panel ruled that the EU's de facto moratorium on the approval of GMOs from 1998 to 2003 as well as unilateral bans by some Member States of GMOs already approved by the EU were inconsistent with the WTO Sanitary and Phytosanitary (SPS) Agreement. The US government, the main plaintiff against the EU in this case, was triumphant, claiming that the verdict favored "science-based policymaking over the unjustified, anti-biotech policies adopted in the EU." Large, international NGOs, such as Friends of the Earth and Greenpeace, on the other hand cried foul, arguing that the verdict was undermining international environmental law and the precautionary principle in particular. They demanded that environmental disputes be removed from the WTO because the WTO was not equipped to deal with these cases effectively.¹

Despite heavy political pressure by NGOs, the EU decided not to appeal. Two considerations influenced this decision. First, the principal demand as set forth in the WTO verdict is that the EU effectively implement its own GMO approval regulations, both at the EU and the Member State level. The verdict thus backs the EU Commission in implementing the EU's new GMO regulations. Since the end of the approval moratorium in 2003, 23 new GM varieties have been approved by the EU, all designed for animal feed. Yet, the backlog in the approval process continues to be large and the few that were approved met resistance by Member States, such as Austria and Poland, that continue to invoke the safety clause to justify their national ban on GMOs. Efforts by the EU to pressure these countries to comply with WTO as well as EU law have been undermined by the decision of France in February 2008 to impose a one-year moratorium on GM crops. Even though the extended time to comply with the WTO verdict expired on January 11, 2008 the plaintiffs in the WTO case are unlikely to impose any trade sanctions on Europe for the time being. This shows that the WTO verdict is unable to change much in the way

1 <http://www.trade-environment.org/page/theme/tewto/biotechcase.html>.

EU regulations for GMOs are implemented. The influence of Member State governments in supranational decisions of the EU and the general reluctance of retailers to sell GM food will continue to hamper the adoption of GMOs in Europe. In other words, why should the EU appeal a verdict that has little effect on its policy choices and may even help the Commission come to terms with a minority of GMO-adverse member countries that are reluctant to implement the EU's GMO regulations and approval decisions?

The second consideration is more ambiguous than the first and concerns the precautionary principle. The WTO panel did not question the role the precautionary principle plays in the EU's new GMO regulations, but it concluded that unilateral bans by some Member States above and beyond the EU-wide rules and justified as safeguards measures were not supported by scientific evidence. This implies that such unilateral bans must be abandoned or justified by a scientific risk assessment. Moreover, the panel argued that in the present case it did not need to take into account international environmental treaties subscribing to the precautionary principle, notably the Cartagena Protocol of the UN Biodiversity Convention, because not all parties to the GMO dispute were parties to the Protocol (the EU is a party, the US not).

The Cartagena Protocol, which has more than 130 parties, has been the most important success of the EU in its efforts to enshrine its own precautionary approach in GMO regulation at the global level. This agreement constitutes a key vehicle for "exporting" the EU policy-approach for GMOs to other countries, notably developing countries. The decision of the EU not to appeal the WTO verdict suggests that the EU prioritized the first consideration over the second. It may also signal that the EU does not believe that the WTO verdict undermines the Cartagena Protocol—quite in contrast to the assertions of anti-biotech NGOs and legal scholars (Conrad 2007).

The EU's decision not to appeal does not mean that the transatlantic dispute is resolved. While GM crops are being cultivated and their products marketed at an increasing scale in North America, the market for imported GM crops and GM crop production in the EU remains marginal. Transatlantic differences in regulatory policy and in markets are growing unabated. While the US has won the particular legal case in the WTO, the verdict has no obvious effect in terms of removing regulatory (non-tariff) barriers that impose opportunity costs in the order of hundreds of millions of US dollars per year on US crop and technology exporters. It is only a matter of time until the US and the EU clash again over GMOs in the WTO or elsewhere.

This chapter examines the implications of the transatlantic biotech dispute for developing countries, thus complementing Chapter 7 by Keilbach on the transatlantic dispute in this book. We are primarily interested in the question why stakeholders in the transatlantic GMO dispute are concerned with shaping the global environmental policy agenda, as witnessed by the debate about the Cartagena Protocol, and introducing their preferred regulatory approach in developing countries. We are also interested in whether the EU will be able to

restrict the use of GMOs in food and agriculture in developing countries in the long run.

We argue that an important motivation for extending the battleground to developing countries has been competition for public trust as a source of political influence within the countries involved in the transatlantic dispute. The EU and other GMO-adverse stakeholders have been more successful in exporting their preferences and regulatory approaches to developing countries in the past decade. It appears, however, that the tide is turning because many developing countries are experiencing strong incentives to pursue a more pragmatic approach to GMOs in response to the looming world food crisis. In the long run, this development may undermine the influence of anti-biotech stakeholders in advanced industrialized countries: these stakeholders have, in recent years, increasingly positioned themselves as protectors of poor developing countries against powerful multinational biotech companies and their host countries (notably, the US). But what will happen if those poor countries that supposedly need to be protected from the technology do not wish to be protected?

Channels of EU and US Influence on Developing Countries

Developing countries have become an important issue in the transatlantic agri-biotechnology debate over the past few years. This prominence is rather surprising given that most of them are not (or at least not yet) important developers, importers or users of the technology. It reflects, at least in part, a series of efforts by advanced industrialized countries to influence poorer countries' choices in this area. Influence on developing countries' agri-biotech policies has been exercised through a variety of mechanisms.

The EU and the US have sought to influence the position of developing countries in the context of the 2000 Cartagena Protocol on Biosafety, a protocol to the 1992 UN CBD. This protocol governs transboundary movements, handling, transit, and use of living GMOs that may have adverse effects on biological diversity. It addresses primarily environmental effects of trade in GM-products, but also takes into account public health aspects. The EU supports the protocol. The US opposes it because the protocol endorses the application of the precautionary principle in international trade with GM products (Falkner 2000, 2002).

The Cartagena Protocol has established an important multilateral legal justification for EU assistance to developing countries in the biosafety area. Its capacity building component includes scientific and technical training, help in establishing institutional and regulatory mechanisms for risk assessment and risk management, access to relevant information, and financial assistance for these purposes. These activities are supported by the UN Environment Programme

and the Global Environment Facility.² Most of these efforts have the effect of constraining rather than promoting agri-biotechnology applications.

The US, which has not joined the Protocol, has established bilateral networks of cooperation in agricultural biotechnology research and development. It has also sought to influence GMO policies of developing countries in the context of bilateral negotiations on preferential trade agreements and development assistance. European development assistance, in turn, is promoting “citizen juries” in developing countries that put GMOs “on trial.” In 2005 Germany’s agency for technical assistance (GTZ) launched a €2 million project to advertise its “Model Law” on biosafety to the African Union. Norway supported Zambia with a grant of \$400,000 to ensure a GMO-free policy. And many other European development agencies directly or indirectly fund anti-GMO activities in Africa. In addition to foreign assistance programs, a second formal channel for exporting European-style GMO regulation to Africa operates via the United Nations Environmental Programme (UNEP). UNEP has developed a global program on biosafety regulation that is largely funded by the Global Environmental Facility (GEF). Considering that the EU and its member countries are the main sponsors of UNEP and GEF activities it is not surprising that UNEP has advised developing countries to take the European approach (Paarlberg 2008).

The US, for its part, has sought to encourage developing countries to adopt more permissive regulations that allow for agri-biotech R&D activities beyond the laboratory. For example, the USAID Biotechnology Initiatives were launched in 2001 “to use the benefits of agricultural biotechnology throughout Africa to enhance food safety and security” (Kellerhals 2001). Other initiatives include the Collaborative Agricultural Biotechnology Initiative (USAID 2003a), the Collaborative Research Support Programs (CRSPs) (USAID 2003b), the USAID-supported African Agricultural Technology Foundation (AATF), the Bean/Cowpea Collaborative Research Support Program, USDA technical assistance for the cotton growing industry in West Africa, the regional African Center of Excellence for Biotechnology,³ and so on.

Furthermore, NGOs, business associations, and firms from advanced industrialized countries have sought to influence state and non-state actors in developing countries in several ways (Paarlberg 2001, 2003; Cohen and Paarlberg 2004; Kremer and Zwane 2005). Examples on the proponents side include corporate donations of technology to developing country research institutes, education/instruction of stakeholders from poor countries in advanced industrialized countries, and funding for biotechnology and biosafety research. In 2006, the Alliance for a Green Revolution in Africa (the Alliance, or AGRA) was established by the Rockefeller Foundation and the Bill and Melinda Gates Foundation (with funding in the order of US\$ 150 million).

It indicates that US philanthropy may also become influential in promoting agricultural biotechnology in Africa (Kleckner 2006). However, AGRA has, thus far, avoided commitments to the promotion of GM crops in Africa.

On the opponents side, activities include funding for protest campaigns, capacity building activities, and organic agriculture initiatives (e.g. Paarlberg 2001; Bob 2002; Paarlberg 2003; Cohen and Paarlberg 2004). Survey research by Aerni (2001, 2002) has shown, moreover, that stakeholders from advanced industrialized countries exert substantial influence on the most vocal participants in public debates on agricultural biotechnology in developing countries. A network analysis of stakeholders involved in the public biotech debate in the Philippines showed, for example, that domestic NGOs campaigning against agri-biotechnology were largely financed by foreign stakeholders.⁴

What is Puzzling about EU and US Behavior?

A straightforward interpretation of the extension of the transatlantic battleground to poorer countries could be that of a struggle for markets and influence on international regulatory processes. The US, in this perspective, is primarily pursuing a strategy of opening markets for its agricultural and agri-biotechnology products. The EU, in turn, is trying to block such attempts and “export” its own, more restrictive, regulatory approach. Both sides are trying to coerce and/or entice poorer countries into supporting their respective policy position in the WTO, the Cartagena Protocol, and other important international fora. To the extent they are able to win more allies in these international bodies their influence on international standard setting grows.

US efforts to “export” its regulatory approach to developing countries obviously reflect to a considerable degree economic reasoning—i.e., an interest in opening new markets for US GM technology and GM farm products. To some extent, it may also reflect a conventional modernization ideology that emphasizes new technologies as key tools for overcoming poverty, hunger, disease, and underdevelopment more generally.

Why EU countries are interested in exporting their regulatory model to developing countries is not so clear. To a very limited extent, stricter standards in developing countries may create business and employment opportunities for European firms that can cope with such regulation and/or provide assistance to developing countries in implementing such regulation. Yet, by regulating GMOs similar to toxic waste (e.g., with an equally strong application of the precautionary principle and strict liability laws), Europe is also turning against its commitment to promote biotechnology research and development (Cantley

2 <http://www.biodiv.org/welcome.aspx>; www.unep.ch/biosafety/.

3 <http://www.usda.gov/Newsroom/0398.04.html>.

4 Large multinational agribusiness companies did not feature as prominently as NGOs in the financial network. Yet they were supporting local research institutes and local companies through technology transfers and public-private partnerships.

2004). After all, biotechnology is not just a source of risk but also has the potential to generate benefits for society and the environment.

One might also reason that the EU is concerned that imports of non-GM produce may become increasingly difficult (and products more expensive) as the proportion of GM crop production grows in other countries. This argument is not very convincing. It is hard to see why a market of 300 million people with rather high purchasing power should not be able to simply set its market-access rules and impose the compliance costs on the plethora of smaller, poorer countries that heavily depend on the EU. In other words, variation in straightforward economic interests offers only a very limited explanation for variation in US and EU behavior in GMO policy *vis-à-vis* developing countries.

Why do the EU and the US invest so much effort in trying to influence the agri-biotech policies of developing countries? One possible answer lies in the link between the transatlantic trade dispute and domestic politics. US decision-makers appear to have been driven in part by fear of an uncontrollable spill-over process reminiscent of the "domino effect" associated with the much-feared spread of Communism during the Cold War. They may have thought that the European regulatory model would, in the absence of countervailing US action, first be emulated by developing countries with strong trade ties to the EU and, from there, would spread to other countries as well, notably those with strong trade ties to the US.

Eventually, as much of the world was moving towards stronger legal constraints on agri-biotechnology, domestic and international pressure for stricter regulation in the US would mount. That is, if most other countries imposed strong restrictions on agri-biotechnology, voters and consumers in the US would begin questioning the legitimacy of their domestic regulations. Trust in government and regulatory authorities would suffer as a result. Patricia Keilbach in fact points to this possibility in her chapter.⁵ Also this explanation raises more questions than it answers. Why have the EU and the US been fighting so acrimoniously over Africa in particular?⁶ Why should we

5 Currently, the public attitude toward GM food in the United States is far from being decisively positive. Even though 89 percent of total soybean production, 83 percent of total cotton production and 61 percent of total corn production in the United States is genetically modified and Americans consume food products derived from these crops since 1996, they seem to still have an ambiguous attitude toward GMOs according to a recent report of the Pew Initiative on Food and Biotechnology (2006). Moreover, as Patricia Keilbach points out in her contribution, many counties on the US East and West coast have declared themselves GMO free and states such as Vermont have debated legislation to ensure consumer choice through labeling of GMOs.

6 In the words of US Senator Chuck Grassley: "The European Union's lack of science-based biotech laws is unacceptable, and it is threatening the health of millions of Africans ... some EU Member States have warned that their relations with poorer countries, including those in Africa, could be harmed if those countries accept US

expect a strong spill-over effect emanating from Africa, given that exports and imports of agricultural products from/to Africa and its potential market for the technology are small? While we do not deny that straightforward economic arguments offer some insights into EU and US behavior, we submit that the following theoretical argument, centering on competition for public trust, sheds some new light on European and US behavior.

Competition for Public Trust

Virtually all advanced democracies, and notably the EU, its member countries, and the US, are characterized by pluralist interest group politics and substantial influence of the mass media on political processes and outcomes. That is, policies tend to be strongly shaped by "intermediary" politics, in which interest groups influence political agendas and policymakers' choices not just through behind-the-scenes lobbying (rent-seeking) but, increasingly, also through the mobilization of public pressure via public attention-seeking activities (Aerni 2003; Caduff 2005). Under such conditions public trust is a valuable political asset, particularly for non-elected non-state actors, such as firms and NGOs. Their capacity to create a supra-national public through organized synchronicity of protest events and issue convergence across national publics has in fact been quite successful in creating political resonance on the part of national and supranational decision-making in Europe in a variety of policy-areas (Seifert 2006). Their subsequent popularity as defenders of the public interest enables them to obtain continued access to media coverage. The mass media with its persistent self-referentiality of mass-publics and its need to embed events into personal dramas in sequels need media-savvy protest NGOs as much as NGOs need the mass media (Luhmann 1993).

Frequent media coverage of NGOs that act in public campaigns as the defenders of the rights of the poor and the environment and against powerful corporate interests, has enabled them to gain considerable public trust. Public trust can be defined in terms of the belief among political constituencies that

biotech food aid. Any such threats are unacceptable ..." (March 5, 2003, United States Mission to the European Union). The EU responded in an equally provocative fashion. For example, a commentary by the EU's delegation to the US was: "Neither of us can reasonably present GMO use by Africa as a miracle option ... EU bashing on the GMO case is mainly inspired by the will of the US farm lobby to find new outlets for exports. That's where the concept of food aid kicks in ... contrary to US practice, we do not export our surpluses to the needy in the developing countries ... when farm commodity prices are high on the world market, 'made in the US' food aid shrinks drastically. When prices are low—and developing countries can afford to pay—US food aid rises spectacularly! ... the European Union is by far the biggest importer of farm products from the developing countries ... The European Union spends three times more on what is called 'official development' aid than the US in terms of GDP ..." (June 13, 2003, EU Newsweb)

a particular actor or group is acting in the public interest rather than self-interest. In agri-biotech policy it also refers to the belief that a particular actor or group is telling the truth about the benefits and risks of the technology and its applications (Eurobarometer 2003).

Public trust equips interest groups with legitimacy in the public arena, which they otherwise may find hard to obtain because they are not elected in a formal democratic process. Such legitimacy, in turn, equips them with political influence, primarily in the form of discursive power: policymakers depending on election or re-election can usually expect to attract more votes, or public support in general, if they side with those non-state actors who enjoy a high degree of trust among the electorate. (Non-elected) public officials (e.g., decision-makers in regulatory agencies) can expect more political support if they side with those who enjoy high degrees of public trust. They are usually appointed by elected politicians and receive budgets from those. Moreover, firms that are very concerned about their image with consumers can also benefit from siding with interest groups that enjoy a high degree of public trust because this signals to consumers that they care about their interests and values (e.g., with respect to healthy food from sustainable agriculture).

Public trust and legitimacy are important sources of discursive power. Discursive power refers to the ability to influence norms, values, ideas, political agendas, the framing or definition of solutions to particular societal problems, and the political discourse (or non-discourse) on specific problems more broadly. This form of power is also referred to as the "third face of power" or "soft power" in parts of the political science literature. It differs from two other forms of power, namely instrumental and structural power. The latter two derive primarily from material sources, such as economic or military capabilities, whereas discursive power hinges much more on public trust and legitimacy (Parsons 1967; Lukes 1974; Koller 1991; Fuchs 2004). Many authors have in fact argued that influence on policy-input, and notably power over norms, ideas, political agendas, and rule making, has in many areas of policymaking become more consequential than conventional sources of power over policy-output (Bourdieu 1991; Akerlof and Kranton 2000).

The above notion of public trust ties in more closely with sociological notions of moral legitimacy as a source of authority and discursive power (e.g. Fuchs 2004) than with social-capital related notions of the concept. As to the latter, most authors (e.g. Putnam 1995; Hardin 2002) view public trust quite broadly as the backbone of economically prosperous and stable democratic societies. Others see public trust as a determinant of public support for certain policies or technologies, or as an indicator for success or failure of public policies. Priest et al. (2003), for example, show that "trust gap" variables predict national levels of encouragement for several biotech applications. They argue that this points to "an opinion formation climate in which audiences are actively choosing among competing claims. Differences between European and US reactions to biotechnology appear to be a result of different trust and especially "trust

gap" patterns, rather than differences in knowledge or education." The extent to which a particular stakeholder enjoys public trust affects the extent to which this stakeholder's positions on biotechnology are supported by the public.

We are primarily interested in understanding the role that the quest for public trust and discursive power plays in agri-biotech policy and the geographic expansion of the controversy. Our argument on public trust and discursive power leads to *less* optimistic views on political processes and stakeholder behavior than in some other analyses of this nature. Fuchs (2004) and many other authors assume that NGOs (or civil society) have taken the lead in moralizing many policy issues, and that business has then followed. This has, so they argue, led to many coalitions between NGOs and business, private-public partnerships, the greening of industry, corporate citizenship, and so on.

Our argument views the quest for public trust, moral legitimacy, and discursive power as more conflictual. In fact, we assume that interest groups compete for public trust and try to manage it like a private resource (Aerni and Bernauer 2006). This competitive process tends to breed political polarization and radicalism, in part because competition for public trust, if the latter is treated as a private political resource, is based on exclusion ("trust us, not them"). Moreover, public trust, once appropriated by particular interest groups, is not fungible. If an interest group that enjoys a high degree of public trust is willing to make a political bargain with another interest group that enjoys a lower degree of public trust but more political or economic power, the former group runs the risk of losing public trust entirely. The public is likely to perceive this interest group to be acting in its private rather than the public interest. In other words, it is hard to exchange trust for political power or money and political compromises become difficult to achieve.

Making Sense of the Attention-Shift to Developing Countries

Public trust in science as an arbiter in domestic and international debates over regulatory policy choices has decreased over the past two decades. This has produced a trust gap in the global agri-biotech debate. Non-governmental organizations claiming to speak for public interests against the powerful interests of science, business, and government have, ever since, tried to fill this gap. The private sector and governments have also discovered in recent years that public trust can serve as a powerful political resource because it provides legitimacy and moral authority (Bernauer and Aerni 2006).

The ensuing competition for public trust among NGOs, industry, scientists, and governments has led to a shift in the public agri-biotech debate from risks in a scientific-technical sense towards worldviews and values (Eurobarometer 2003; Gaskell 2004). At the same time the issue of food sovereignty has grown in importance. This shift has been accelerated particularly by the campaigns of very large, globally active advocacy groups, such as Friends of the Earth and

Greenpeace. The trademark of such campaigns has been simple and forceful communication of worldviews and values that reduce complex and ambiguous scientific evidence on risks and benefits of agri-biotechnology to clear-cut and globally applicable good versus bad portrayals of the technology as well as associated stakeholders and their motives.

EU and US stakeholders in the agri-biotech debate have extended their battleground to developing countries. The competition for public trust and the associated shift of the debate from risks to worldviews, motives and moral claims regarding food sovereignty help us in understanding why. Large transnational networks of pro- and anti-biotech interest groups have emerged since the mid-1990s. These networks hardly communicate privately with each other. Their representatives tend to face each other mostly in the public arena where they try to win the hearts and minds of electorates and policymakers. Accusing the other side of being morally indifferent to the fate of the poor has in the past few years become an important discursive instrument to this end.

In principle, we should expect environmental and consumer NGOs to have been the first movers in pursuing strategies of moralizing agri-biotech issues with reference to poor countries. On average, NGOs have fewer resources than companies to invest in behind the doors lobbying, provide legislative subsidies in the form of expert information, or reward political decision-makers with campaign contributions or other material benefits. Also, unlike firms, NGOs cannot benefit from threatening policymakers with relocation to other jurisdictions (West and Loomis 1999). Hence we should expect NGOs to compensate for these comparative disadvantages in relation to corporate actors by moralizing agri-biotech issues in order to increase their legitimacy, appropriate more public trust, and thus increase their discursive power (Cashore 2002).

Empirical demonstration that competition for public trust has been a major driving force in extending the transatlantic biotech controversy to developing countries is difficult, for intentions are harder to identify than actual behavior. Similar difficulties exist in regard to showing empirically whether the pro- or anti-biotech side was first to carry the "feeding the poor" issue into the controversy. What seems clear, however, is that the uncompromising nature of positions in respect to risks and opportunities of agri-biotechnology in developing countries has made political compromise very difficult if not impossible (Gaskell 2004).

We have found that NGOs have engaged much earlier than industry and government stakeholders in depicting agri-biotechnology in broader moral categories that also include the right to national food sovereignty, whereas industry and government stakeholders have long focused on more differentiated arguments about risks and benefits. For instance, the right to national food sovereignty was invoked as a justification when the Zambian government decided in 2002 to reject food aid by the World Food Programme that contained GM corn, even when facing famine. Zambia's decision to ban the import of

GM food even in an emergency situation triggered a fierce, transatlantic moral debate. Europeans accused the US of using the World Food Programme as a channel to get rid of subsidized US corn and to get Africans used to GM food. The US accused Europe of using trade and aid pressure and spreading scary stories about the risks of GMOs to drive Africans into rejecting GM food. The EU was thus depicted as contributing to starvation in Africa.

Public debate over agri-biotechnology in developing countries has emerged as a popular media topic in Europe and the US. The competition for the moral high-ground in this debate reflects efforts by both sides to appropriate public trust by demonstrating to electorates and consumers that they act in the public interest, including the interest of the poor in other parts of the world, whereas the other side seeks private benefits at the expense of societal (public) welfare or nature. Thus far, anti-biotech groups have been more successful in Europe than in the US in this regard, in part because public confidence in regulatory authorities, business, and science in Europe was lower to start with (Bernauer 2003; Eurobarometer 2003). Superior discursive power of pro-biotech interests in the US has enabled these interests to effectively prevent a wider public debate (and controversy) over the risks and benefits of the technology.

Emerging Pragmatism in Developing Countries

Much of the controversy over risks and benefits of agri-biotechnology in developing countries is based on claims by supporters and opponents of the technology from advanced industrialized countries. How do their positions map onto the positions of stakeholders and consumers from developing countries.

Greenpeace and other large, international NGOs have usually started their opposition campaigns in developing countries by organizing and mobilizing domestic NGOs. Jointly, they have staged media-savvy protest actions that allude to national symbols of sovereignty and independence. In addition, they have sent out position papers to the mass media and politicians. Such papers, often signed by numerous domestic farmer and environmental organizations, call on the respective government agencies to stop serving foreign interests and take into account the concerns of their own citizens about GMOs. Often these papers invoke popular emotional triggers such as negative experiences with the Green Revolution, US and corporate imperialism, the destruction of indigenous knowledge, the potentially unknown risks to biodiversity and human health, and disrespect for national sovereignty. Ministries of trade have been accused of allowing uncontrolled imports of GM seeds and food, ministries of economic development and science and technology have been accused of serving business rather than people's interests, and Heads of State have been asked to show courage and strength in the face of growing foreign pressure to introduce GMOs. Foreign stakeholders such as Greenpeace, Friends of the Earth, Consumer International, and numerous European government agencies

have also actively sponsored civil-society opposition groups that have asked their governments to act against such "foreign interests."

Once the opposition movement against GMOs had gained public trust, many politicians started to take its concerns seriously and have asked for public hearings and strict regulation, partly because of genuine concern, but also partly in the hope of gaining greater popularity. Within developing country governments an increasing divide has developed between those ministries that mainly deal with the potential benefits of agricultural biotechnology (economy, agriculture, science and technology, trade) and those that are mainly concerned with potential risks (environment, public health, indigenous affairs). Policy network analyses of the public debate on agricultural biotechnology in the Philippines, Mexico and South Africa (Aerni and Bernauer 2006) show that the core actors in such networks are represented by non-state actors—mostly an environmental NGO on the contra-side and a business association on the pro-side.

The contra-side network is clearly distinguishable from the pro-side network—and few ties connect the two. The contra-side network mainly consists of environmental organizations, farmer/indigenous rights organizations, organic food producers and manufacturers, green parties, supermarket chains, academic institutes associated with environmental sciences and sociology, national bodies concerned with biosafety, and government agencies related to health and the environment. On the pro-side, the network includes agribusiness organizations, seed companies, some NGOs, academic institutes associated with molecular biology, plant physiology and economics, and government bodies dealing with trade, science and technology, economic development and education. Interestingly, religious, farmer and consumer organizations could not always be attributed to the same camp in each country survey. Sometimes there was even disagreement within the countries themselves between two organizations that represented the same group.

The network analyses of financial cooperation in the surveys revealed that the respective political stakeholders' stance in the public debate strongly correlated with the source of funding. In this context, European governments have become influential indirect stakeholders in public debates on GMOs in developing countries by funding local anti-biotech NGOs to a much larger extent than the US is funding pro-biotech NGOs.

The (still sparse) data on stakeholder attitudes in developing countries indicates that there are significant differences. Evidence from stakeholder surveys is important in this context for two reasons: first, it responds most directly to the question of a potential mismatch between stakeholder positions as put forth in the theoretical argument; second, contingent on the particular political system, stakeholder attitudes may, in many developing countries, have a greater impact on government policy than public perceptions as such. Surveys of stakeholder perceptions and political influence in national public debates on agri-biotechnology in the Philippines, Mexico, and South Africa show that the

majority of participants hold differentiated and pragmatic views on the risks and benefits of genetic engineering in agriculture, depending on the type of crop and key problems in domestic agriculture (Aerni 2002).⁷ Most surveyed stakeholders thought that Europe and the US should assist researchers in developing countries in learning to use agri-biotechnology to address urgent problems in their respective countries.

The surveys also revealed in all three countries that academia remains the most trusted political actor in the public debate on agricultural biotechnology (ahead of NGOs, the media, business and government). This may be related to the fact that academia is considered to be least dependent on foreign donor money and most competent. Although academics in developing countries do not speak with one voice there seems to be an emerging consensus that an exclusive focus on the risks of agricultural biotechnology may prevent a country from developing its own homegrown biotechnology research capacity and to tackle particular domestic challenges in agriculture, public health and environmental management as well as to enable endogenous economic development. The surveys demonstrated a gap between the rather negative views expressed by government and civil society stakeholders that represent developing countries in the Western media and in the negotiations of the Cartagena Protocol on Biosafety, and the more pragmatic views expressed by a majority of stakeholders involved in the domestic debate on agricultural biotechnology in the developing countries themselves (Aerni and Bernauer 2006).

One major reason for this difference is the power of academia in domestic debates. In many developing countries where academia was successful in assuming public leadership in the debate on GMOs, public investment in agricultural biotechnology increased significantly. Countries that were able to create their homegrown capacity in agricultural biotechnology research and development (as a consequence of these investments) also experienced a shift in public attitudes from a hostile and defensive view that emphasized issues such as "food sovereignty" to a more self-confident view of biotechnology as a driver of domestic economic growth and a source of national pride. These observations are most conspicuous in countries such as Cuba, Chile, South Africa and China. Countries like Egypt, the Philippines and Mexico, where academia has only recently become more assertive on the political stage, may well go through the same shift of attitudes.

In contrast, in most countries in Sub-Saharan Africa, where academic institutions are weak and poorly connected, and the dependence on European

⁷ In these surveys the selected stakeholders were political actors who were, via a separate survey with key persons, identified as playing a significant role in national agricultural biotechnology debates. It was assumed that such persons would be well informed and would, therefore, have considerable influence on public opinion. This approach made it possible to conduct a survey on public attitudes in spite of a low level of public awareness of the subject.

market access and foreign aid is high, governments tend to follow more closely the advice of donor countries or well-endowed pressure/interest groups within the country. Further evidence for an increasingly pragmatic approach in many developing countries comes from recent trends in agri-biotech R&D and GM crop cultivation. Several developing countries, notably Colombia, Cuba, Brazil, South Africa, China, and India have invested in agri-biotechnology for several years already. In terms of R&D spending, China, followed by India, have become the leading biotech countries in the developing world; and countries like Mexico and the Philippines who were previously highly reluctant to embrace GMOs due their initial biodiversity-related concerns have taken note of recent risk-assessment studies (Yorobe et al. 2004; Ortiz-García et al. 2005) that were not able to confirm the initial claims (Quist and Chapela 2001) and adjusted their policies accordingly. Both countries have approved the cultivation of GM crops and are investing more in domestic biotechnology research and development (Possani 2003; NNC 2005).⁸

Most of the worldwide growth of GM crop acreage in recent years has occurred in developing countries, notably China, Argentina, Brazil, and India. Some of these countries have developed a range of transgenic crop varieties and are eager to address problems in domestic agriculture with the new tools of biotechnology. In these countries, agri-biotechnology is on the verge of being perceived by policymakers and electorates no more as an imported US technology but as a homegrown technology that is associated with national scientific reputation and pride.

In stark contrast to these national research efforts in some key developing countries, public investment in international agricultural research has remained very low (e.g. Cohen and Paarlberg 2004). For example, the Consultative Group of International Agricultural Research (CGIAR), which was the driving force of the first Green Revolution in the 1970s, has experienced drastic cuts in funding from Europe and North America (Aerni 2002).

However, the continuing fall of prices for agri-biotech toolkits may soon lead to more rapid diffusion of the technology and make it affordable to many poorly equipped universities in developing countries. This would strengthen domestic agri-biotech research capacities and eventually enable developing countries to use the technology to solve their own particular local problems in agriculture. This trend could be accelerated if combined with an ambitious global open source effort in agricultural biotechnology similar to the Human Genome Project and the Institute for OneWorld Health in health biotechnology ("Open Sesame. Editorial"). If this scenario prevailed an important argument of biotech-opponents from rich and poor countries would collapse—i.e., the argument that the technology is primarily an instrument to make large multinational companies from OECD countries richer and subject poor countries to their control.

⁸ http://www.isaaa.org/Publications/briefs/briefs_26.htm.

Conclusion

The WTO verdict of September 2006 was largely in favor of the US. Yet, it is very unlikely that the WTO ruling will contribute much to solving the transatlantic dispute over approval policies and market access of GMOs. Even before the transatlantic dispute entered its hot phase in the WTO, both the EU and the US had begun to extend the regulatory battleground to developing countries. This chapter describes some mechanisms through which this extension has taken place. Economic arguments leave considerable gaps in our interpretation of why developing countries have become an important element of the transatlantic dispute. Hence, we outlined a complementary argument that focuses on public trust as a political resource. This argument offers a novel view of EU and US behavior in the GMO policy area with respect to developing countries that appears difficult to understand through economic logic alone.

Our analysis suggests that the transatlantic biotech conflict and the associated competition for public trust as a political resource will continue to breed uncompromising behavior of stakeholders from rich countries vis-à-vis developing countries, at least in the short term. Both sides will probably continue to use the mechanisms discussed above to try and pull individual developing countries to their respective side. To varying degrees, poorer countries, and smaller developing countries in particular, will continue to pursue agricultural R&D strategies and regulatory models for agri-biotechnology that are largely imposed on them by advanced industrialized nations.

Yet, a variety of important developing countries (e.g., China, India, Brazil, South Africa, Argentina, and Mexico) have in recent years pursued their own, pragmatic policies. To the extent that bottom-up demand for agri-biotechnology in developing countries grows and successful indigenous applications of the technology emerge, it will become more difficult for anti-biotech interest groups from rich countries to sustain the argument that they are protecting poor countries from the greed of powerful pro-biotech states and multinational companies. Moreover, growing South-South collaboration and its business-oriented pragmatism may also challenge the influence of advanced industrialized countries on developing countries as their bargaining chips, e.g. trade preferences and foreign aid, may lose in value. In 2005, 35 percent of FDI flows into developing countries were from other developing countries. South-South FDI is growing five times faster than conventional North-South investment (Margolis 2006).

In any event, the global regulatory landscape in the agri-biotech realm, which at the beginning of the twenty-first century was still heavily bipolar (Bernauer 2003), is likely to become more heterogeneous in the longer term. The looming food crisis in particular is making developing countries again aware that they need to invest more in the productivity of their domestic agriculture. Turning the principal question of this chapter on its head, it will be interesting to see over the coming decades how the evolution of "home-grown" agri-biotech

applications in developing countries will affect the policies of advanced industrialized nations in that area.

PART III

Governing Carbon: Renewable Energy and Climate Change