

US–Indian agbiotech deal under scrutiny

When US President George Bush visited India in March this year the media focus was on a nuclear agreement that he and Prime Minister Manmohan Singh had signed. But another landmark deal on agriculture and biotech that went virtually unnoticed is now at the center of a controversy. Opponents fear that the deal could open the door for US agbiotech companies to take control of India's homegrown agbiotech research and expose the local companies to more direct US competition than before while opening the door to allow US genetically modified (GM) products into India.

Although only a broad framework of the agreement called the "Indo-US Knowledge Initiative on Agricultural Research and Education" is available, a Delhi-based nongovernmental organization (NGO), Gene Campaign, has sought more details under the newly enacted Right to Information Act. So far it's known that the deal requires the Indian Council of Agricultural Research (ICAR) to provide free access to its entire network of 47 agricultural laboratories and universities so that US companies and research institutes can carry out joint research with ICAR in biotech areas "that have the potential for rapid commercialization." India expects transfer of transgenic crop technology to grow high yielding, drought- and pest-resistant crops, and improve cattle and fish according to the ICAR draft proposal. India has already committed \$100 million over the next three years for this particular initiative with 75% of it for genetic engineering and biotech products. Meanwhile, the US Department of Agriculture (USDA) has committed \$24 million over the same period, as well as in-kind resources.

ICAR's official draft sees the Indo-US deal as a perfectly rational solution for breaking out of the low-productivity trap. Indian farmers produce about three metric tons of rice on one hectare of land whereas China grows 50% more. The wheat yield is 29% lower than in China. Most Indian crops also depend on the fickle monsoon rains. That's where Bush's offer of introducing a public-private partnership on biotech research—that can potentially help develop drought- and pest-resistant crops—would become crucial. Mangla Rai, director general of ICAR says: "the conventional research approaches need to be supplemented by the cutting edge technologies [available in US companies and institutions]."

So far, the Indian public sector has not commercialized a single transgenic technology as



Protestors beat a burning effigy of US President George W. Bush as one holds a poster of Osama bin Laden, during a demonstration against Bush's visit in Hyderabad, India, on Friday, March 3, 2006.

they lack resources and infrastructure. In addition, Indian public sector scientists, who have been attempting to develop their homegrown transgenic technology, still rely heavily on genes that are owned by foreign companies. For example, a previous attempt to develop homegrown *Bacillus thuringiensis* (*Bt*) cotton has been constrained by Monsanto's ownership of the key genes (see *Nat. Biotechnol.* **22**, 255–256, 2004). One typical case is that of Dharwar University near Bangalore, which was ready after four years of research to release a *Bt* rice variety containing a *Bt* gene donated by the Rockefeller Foundation. Monsanto stopped the release by saying that it owns the *Bt* gene.

Some in the country's agbiotech industry are worried that the deal will pave the way for takeover of public sector research by US multinationals because the agreement is between unequal partners. Krishan Bir Chaudhary, chairman of Bharat Krishak Samaj, a farmers' body, fears that ICAR scientists who have been working for the interests of the country's farmers "will now be forced to work for the US agriculture and dance to the tune of multinationals."

What critics resent most is the presence of Monsanto, the second largest GM seed producer in the world, and Wal-Mart, the world's largest retailer, on the board of the new initiative. "With them on the board, the US multinationals are all set to determine the Indian agricultural research agenda," warns Devinder Sharma, a food policy analyst. In the name of the new initiative, the US partner companies can intervene in the entire gamut of the Indian agricultural sector including education, R&D, intellectual property rights, biosafety and food safety.

Indeed, the initiative is steered by a 14-member board, seven from each side—cochaired by Ellen Terpstra, administrator at the foreign

agricultural service of the USDA, and Mangla Rai, chief of ICAR—that will set the agenda for collaborative farm research. "[Monsanto's inclusion on the board] is indeed a matter of concern to us," says Sateesh Kumar, managing director of Prabhat Agribiotech, an Indian seed company located in Hyderabad. "This deal is the beginning of the process for killing the local agri-biotech industry," comments Kumar. He expects to see a replay of the 'cola war' of the 1970s when Indian soft drink makers lost ground with the entry of giants Coca-Cola and Pepsi.

Though ICAR claims that the views of all stakeholders were considered before launching the initiative, Kumar retorts that "it is not a fact." He adds, "Monsanto came to India as a technology provider gradually becoming a seed supplier." Now, "the new deal will help it further consolidate its hold on farmers."

Monsanto, who has joint ventures in India, attributes its strong presence in the country to the licenses that it has been giving out to Indian agbiotech companies to conduct their own research trials. Finally, under the guise of collaborative research, Wal-Mart and Monsanto have been accused by opponents in NGOs of using the universities and their extension centers to take their products directly to farmers, Sharma says. That's because the US partner companies have asked for removal of all import restrictions, which Sharma says will open the doors for entry of GM crops and foods into India, as part of the deal. NGOs think this will lead to dumping of GM foods on Indian consumers. On March 15, hundreds of farmers held a protest rally in the capital led by none other than Vishwanath Pratap Singh, a former prime minister.

Announcing the deal in Hyderabad on March 2, Bush said that "by working together, the United States and India will develop better ways to grow crops and get them to market and lead a second green revolution." Clearly, not everyone agrees. "The technology for green revolution in 1960s was publicly owned and freely available," Suman Sahai a geneticist who heads the Gene Campaign, a Delhi-based NGO, points out. The second green revolution is all about transgenic technology owned and controlled by just six corporations, according to Sahai. She believes this technology creates private goods that can be accessed only at significant cost.

K.S. Jayaraman, Hyderabad