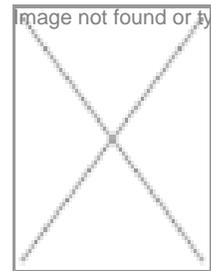
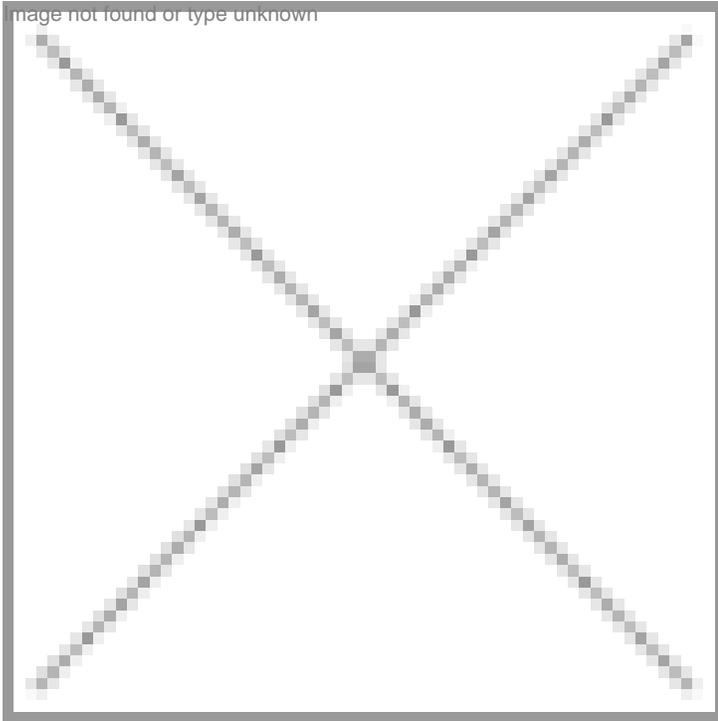


## GMOs and the Politics (Perils) of Precautionary Principle

04 October 2004 | News



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The precautionary principle as applied to GMOs today in Europe under duress from the Greens is a classic case of the choicest abuse of a well-intentioned scientific approach to managing known risks. Asian anti-GMO groups are borrowing this same tactic to keep GM crops out of bounds in their countries much to the peril of their own agricultural development. Which sane person can argue against age old nuggets of wisdom like "be safe", "better be safe than sorry", "take caution", and "be careful". We all give these gems of advice to each other all the time whether one listens to them or not. The opponents of GM crops would have you believe that we really know next to nothing about the effects of GM crops on human health and the environment as they have not been tested sufficiently or properly by their purveyors. Unless all uncertainties are answered in the affirmative they say that GM crops should not be allowed into the market place. Luddites will never tell the public that world scientific and medical community has wholeheartedly endorsed the technology and GM crops as safe or that GM crops have undergone hundreds and thousands of tests the world over. Even in India, the Bt-cotton underwent almost seven years of testing before it was approved for commercialization. Ordinary (read gullible!) public would get certainly alarmed and will immediately agree to the proposition to ban or carry out more tests until one is sure that GMOs are absolutely and unequivocally safe. Little does the public know that this "scare mongering" by the anti-GMO lobby is just a diversionary tactic to block the development of biotechnology applications and a mere proxy for the Luddite mentality that has been largely imported from the European Greens into Asian countries by their local compatriots. It is really appalling how these kinds of

scare tactics are delaying biotechnology transfer to developing countries of Asia and Africa to the peril of honest and good agriculture development.

The 1992 Rio Declaration defines Precautionary Principle thus: where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. But, what is being pushed in the GMO arena is to use highly speculative risks of GMOs to ban them and stop new developments in the area of agricultural biotechnology. Despite having no meaningful scientific evidence of unmitigated or irreversible harm by GMOs and despite the safe use of GMOs since 1996, the activists groups led by the European Greens are demanding a complete ban as they are not convinced that they are or can be safe. Anti-GM activists are totally dishonest as they refuse to recognize that all human activities carry certain degree of inherent risks and that if we can identify them and manage them far more benefits can be derived by the society.

By invoking the Precautionary Principle *sensu stricto*, its advocates are raising the regulatory standards bar all over the world making it prohibitively expensive to field test and commercialize GM crops. Most of the developing country governments are succumbing to this scare tactic and are indeed raising the regulatory review standards under pressure from the activist groups. This misguided biotechnology regulatory policy in the developing world is going to cost dearly in terms of missed opportunities. It is nobody's case not to have any proper regulatory oversight for introducing GMOs, but it is one that should be commensurate with scientifically assessed risks. The fact that the world has decided to have case-by-case review of GM crops before commercialization is an eminent instance of the application of "Precautionary Approach". One can realistically assess the risks by comparing to an unmodified counterpart of GMO in question and knowledge from centuries of experience growing such crops in different parts of the world. Literally thousands of risk assessment documents have been written for tens and thousands of field tests that have been conducted all over the world to clearly demonstrate that GM crops have no more or less adverse or significant impact on the environment than any other conventional crop. Major scientific academies of the world have come to the same conclusion and have put out long term monitoring advisory to identify any unidentified effects or impacts in the future. European Union spent almost 80 million euros on risk assessment research for more than a decade and a half to come to the same conclusion. There must be at least half a dozen medical associations in North America and Europe that have recommended that GM foods are safe. The Union of German Academies of Science and Humanities (Germany is strongly opposed to GMOs) was the latest to put out a similar scientific advisory that GM crops and foods are as safe as their conventional counterparts and in some instances superior and safer. 350 million Americans are serving as guinea pigs by consuming GM foods for almost a decade now without a single body bag being counted. Yet there is this constant refrain from the anti-GM lobby that all that these respected credible scientific bodies are saying is unbelievable and the regulatory authorities must demand more stringent tests for a long period of time (I have even heard from some NGOs that they should test it for patently absurd period of 50 to 100 years) before allowing it to be commercialized. That is Precautionary Principle for them. They want ironclad guarantee that absolutely nothing happens to the environment and public health by the consumption of GMOs even after 100 years. Can any self-respecting scientist give such a guarantee? I think not. Then they say see science does not know everything which is true, but at least is engaged in its quest to unearth the truth based on experimentally verifiable facts.

Their lobbying efforts are working in ever so many insidious ways to create new non-scientific barriers like ban on releasing GMOs into centers of origin and diversity and creating absurd and impractical "GM free" zones to protect biodiversity sanctuaries. GM free zones are absurd because GMOs have already got mixed up around the world and they do not recognize any sanctuaries and it is not necessary. GMOs are not an epidemic like plague or cholera. If it is impractical to have GM free zones, then they say, don't introduce GM crops at all. That is an indirect way of getting the technology banned. No one has drawn up an even a single plausible scenario of how a transfer of a transgene from GM crops to wild and weedy relatives would destroy biodiversity, yet! But, the relentless scare mongering continues. They cite the infamous Oaxaca, Mexico case where certain Mexican maize land races having been "polluted" or "contaminated" by Bt-Maize. They refuse to acknowledge that Mexican peasants have for centuries preserved those fragile land races by crossing whatever races or lines of maize possible, a method known as "Creolilization", a wanton case of "genetic contamination" (another non-existent scientific term). By the way, the Mexican maize land races have not evaporated due to the out-crossing of the Bt gene. Now this same absurd theory is being invoked in Asia to prevent introduction of GM rice ostensibly to protect rice biodiversity. Surely, ancient and other traditional low yielding varieties of rice and other cultivated crops have disappeared from farmer's fields not because of extinction, but because of simple economics. But, those traditional varieties have all been collected and stored in germplasm collections all over the world both for posterity and for future use. Expert rice breeders and agronomists would tell you that any cross between cultivated rice and rice wild or weedy relatives will result in such unfit hybrids that they have no chance of survival. The common sense question to ask is: how is that in these fifty or more years of introducing high yielding rice and hybrid rice that the rice biodiversity (not to be confused with on-farm agro-biodiversity) has not destroyed or reduced rice biodiversity in the centers of origin and diversity? China has been growing GM soybean for a decade and its soybean diversity has not been affected. Here the point is not to protect biodiversity, but the point is to stop GM technology.

No one will disagree that modern agriculture has caused enormous environmental impact (some good and some bad, perhaps more good!) because wherever man started to cultivate plants; he had to clear the land (destruction of the habitat!). But, we have come a long way since man started agriculture and there is no going back to being hunters and gatherers and certainly, organic farming is not going to feed the masses that will be equally environmentally disastrous (not to speak of its health impacts) if not more.

A clear distinction must be made between "Precautionary Principle" and "Precautionary Approach". The world has decided to regulate products of agricultural biotechnology and GM crops and is doing so. One can argue about how good or effective these regulations are in different parts of the world. But, to suggest that GM crops are dangerous and untested is being blatantly deceptive and unnecessarily creating scare. It is simply clear that anti-GM activist's sole purpose is to maintain their activism against GM crops for the sake of their own survival by involving a scientific sounding Precautionary Principle, which has nothing to do with either biosafety or environmental safety. It is self-interest, bad science and misuse of good science that are profoundly influencing regulatory policies around the world. "Frankenfood Myth: How Protest and Politics Threaten the Biotech Revolution" by Henry Miller and Greg Conko is a brilliant expose on the politicization (conspiracy!) of technology to kill it in its infancy. The fact of the matter is that the benefits of biotechnology are far greater than the risks that have been identified so far and it would be a crime to deny it to those who need it most. There is something known as excessive caution, which can undermine scientific and technological advancement and derail economies. Already trade restrictions are creeping in the GMO commodities based on restrictive Precautionary Principle and it will hurt both the producers and consumers. Governments must avoid seeking the utopian GMO free world; instead exercise common-sense (which is what science is after all!) approach to risk assessment and management based on best possible scientific evidence to usher in sustainable development and progress.

We all want safety and we all want our environment to be safe more now than ever before. But, by propagating falsehoods and scare mongering, the anti-GM activists are perpetrating the worst possible crime on humanity by denying the most tested of all agricultural technology products. GM crops and foods are safer than adulterated, pesticide laced and vermin infested foods that are sold in many parts of Asia. We all want all foods to be safe, GM or no-GM. If one is fair, precautionary principle must be applied to the existing food supply and then we all know that all of us have to stop eating whatever we are eating. We should thank our stars that the present day anti-GM Luddites were not around when man started using fire. Otherwise, can you imagine being part of a fireless world and a cold civilization!

The venerable Norman Borlaug recently wrote, "Although we must be prudent in assessing new technologies, these assessments must not be based on overly conservative or overtly inaccurate assumptions or be swayed by anti-business, anti-establishment, ant-globalization agendas of a few activists, or by the self interest of bureaucrats. They must be based on good science and good sense. It is easy to forget that science offers more than a body of knowledge and a process for adding a new knowledge. It tells us not only the limits of what we know but also what we don't know. It identifies areas of uncertainty and offers an estimate of how great and critical that uncertainty is likely to be."

Everyone must recognize that the modern day environmental movement for raising global awareness about the state of the air and water quality and destruction of the habitat as the most profound cause of loss of biodiversity. The need of the hour is to adopt technologies that can solve those environmental problems and not give into anti-GM propaganda and save humanity and the environment. The real unfortunate part of this anti-GM movement is that it is being imported into Asia and Africa blindly and sometimes not so blindly by the compatriots of the European greens just for the sake of maintaining their activism without checking the realities of their own situation.

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