

Part VI ***Conclusions and Suggestions***

The task of discerning all the relevant issues having a bearing on the conservation and management of genetic resources and then integrating them into consistent policy is extremely complex. With continuing globalization and increased understanding of the world's interdependence on all levels, few important issues can meaningfully be addressed without undertaking the complex process of unweaving and understanding relevant issues and then integrating a policy response.

Most scientists agree that the earth's biodiversity is threatened and that steps should be taken to preserve it. Thus the public debate has focused on the costs versus the benefits of such preservation. In addition, groups and individuals supporting unfettered property rights have increasingly viewed government acts to preserve habitat as efforts by an overly powerful federal bureaucracy to restrict individual freedom. Consequently, biodiversity protection has become increasingly controversial. Widespread recognition and acceptance of the importance and value of conservation and sustainable use of biodiversity is indispensable in order to secure sustainable economic development and to meet public desire for a better environment.

Figure 18: Biodiversity protection has become increasingly controversial.



Commercial pressures have led to regulatory guidelines based largely on untested assumptions, all of which have been invalidated by recent scientific findings. For example, biologically "crippled" laboratory strains of bacteria can often survive in the environment to exchange genes with other organisms. Genetic material (DNA) released from dead and living cells, far from being rapidly broken down, actually persists in the environment and transfer to other organisms.

So far, scientists have identified a number of ways in which genetically engineered organisms could potentially adversely impact both human health and the environment. Once the potential harms are identified, the question becomes how likely are they to occur. The answer to this question falls into the arena of risk assessment. In addition to posing risks of harm that we can envision and attempt to assess, genetic engineering may also pose risks that we simply do not know enough to identify. The recognition of this possibility does not by itself justify stopping the technology, but does put a substantial burden on those who wish to go forward to demonstrate benefits.

For the most part, scientists and policymakers in the relevant agencies (USDA or EPA) do risk assessments with information provided by the companies seeking the approvals. The public often has a brief opportunity to review and comment on the risk assessments. There is no standard set of questions that risk assessments must answer because of the great range of potential impacts of biotechnology products. A risk assessment for a microbial pesticide, for example, would be substantially different from a risk assessment for genetically engineered salmon. Like all efforts at risk evaluation, risk assessments done for regulation depend on the base of scientific knowledge for generation of list of possible harms to be assessed. Therefore, a new set of rules and regulations should be developed, implemented and impartially enforced with respect to all genetically modified products on the basis of a risk–benefit approach.

Better analytical tools are needed to enable policy makers to evaluate the trade–off and consequences of particular decisions. Analysis of recent developments in terms of their objectives, interests and relations to one another is a necessary first step in developing better analytical tools for policy makers. To summarize the existing situation in the words of James Horne, President of the Kerr Center,

New technology should be viewed with one eye towards proper implementation that will bring about public and private good, and the other towards unanticipated events associated with its use. In the area of biotechnology, we should follow the path of caution as we are dealing with new life forms and altered genetic heredity. The unexpected consequences of introducing new species into a community

of plants have been well documented. Often the introduced specie becomes a larger pest than the problem we are attempting to solve. This could very well be the case with genetically modified crops as well.

The benefits and risks associated with biotechnology could be compared to that of nuclear power. The possibility of a runaway process is very real in either case. There are already hints of problems with biotech crops that could threaten biological diversity and impair the proper functioning of ecosystems. We have already seen yield plateaus, resistant pests, pollen drift, and human health problems associated with allergenic reactions. The long-term risks may even be more severe.

It is essential that we closely regulate biotech products and apply brakes to the power of large transnational corporations who are busy patenting the world's food supply and developing chemical triggers in plants that only respond to their proprietary products. Failure to enact and take precautionary steps in biotechnology and industrialized farming methods will result in a loss of more farmers from their land. It will also lead us to an agricultural model that is only a synthetic or biochemical charade of food with unknown risks to the environment and ourselves. Let us choose to keep our food supply in the hands of a large number of farmers and not surrender to the current trends and forces at play.