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BOOKS/LITERATURE

VANDANA SHIVA

Biotech offers benefits and challenges

Biotechnology and the Environment*By Vandana Shiva, Third World Network, Pulau Pinang, Malaysia, 37 pages.*

BIOTECHNOLOGY

and the

ENVIRONMENT

JAKARTA (JP): Through biotechnology, known as biotech, anything seemingly impossible becomes possible.

Theoretically, genetic engineering allows any gene to be moved from any organism to any other. The recombinant DNA (deoxyribonucleic acid) technology has the potential to transform the genes into a global resource that can be used to shape new life forms.

But, technological innovations and scientific change do not merely bring benefits. They also carry social, ecological and economic costs, writes Vandana Shiva in *Biotechnology and the Environment*, a booklet which presents the impacts of biotech from a critical standpoint.

The contents of *Biotechnology and the Environment* include topics such as biotechnology and biohazards, which reveal some current research on genetically engineered life forms and their negative impacts on social, ecological and economic lives, particularly in Third World countries; as well as biotechnology, patents and

private property rights regarding life forms, which show how potentially harmful the patenting of life forms can be for Third World nations.

The biotechnology referred to in this book consists of two major groups. The first group — genetic engineering — refers to the new technique deriving from advances in molecular biology, biochemistry and genetics. The second is based on new cellular procedures employing the older technology using tissue culture.

Biotech gives humankind the ability to alter the very fabric of life. Biotechnologists are using this knowledge to play God. Anxiety is increasing with the growing awareness that the artificial recombinant DNA molecules could prove biologically hazardous.

The adverse ecological and epidemiological consequences will come true if self-propagating genetically engineered organisms are accidentally or deliberately released into the biosphere. In fact, the scientists closest to genetic engineering were the

ones who first expressed concerns regarding the emergence of the new technology.

In this context, this book includes a statement by scientists regarding the potential biohazards of recombinant DNA molecules, led by Paul Berg, a molecular biologist from Berkeley.

Altering crops

At present, the development of these new technologies is almost entirely controlled by transnational enterprises, although universities and small firms formulate the techniques.

Twenty-seven corporations are working on all major food crops to develop herbicide tolerance.

For the seed-chemical multinationals, this might make commercial sense, since it is cheaper to adopt the plant to the chemical than to adopt the chemical to the plant. The cost of developing a new crop variety rarely reaches US\$2 million, whereas the cost of a new herbicide exceeds \$40 million.

Herbicide and pesticide resistance will also increase the integration of seeds/chemicals and the control of TNC in agriculture. Soybeans have been made resistant to Atrazine herbicides (from Ciba-Geigy), and this has increased

annual sales of the herbicide by \$120 million.

However, strategies for employing more toxic chemicals in pesticide and herbicide resistant crop varieties for Third World farmers has had severe consequences.

Thousands of people die annually as a result of pesticide poisoning. In 1987, more than 60 farmers in India's prime cotton growing area of Prakasham district in Andhra Pradesh committed suicide by consuming pesticide because of debts incurred for pesticide purchases.

The introduction of hybrid cotton in the area created pest problems. Pesticide resistance resulted in epidemics of the white fly boll worm, for which the peasants used more toxic and expensive pesticides, incurring heavy debts.

This is just one example illustrating the devastating impact that new biotech products have on the economies of Third World farmers.

Impact

Shiva examines the applications of biotech in the Third World which, according to her, are worthless and detrimental.

The privatization of biotechnology in terms of patents in agriculture and food

production, the corporate effort to change a common heritage into a commodity and to treat profits generated through this transformation as a property right, will lead to erosion, not just at the ethical and cultural levels, but also at the economic level for Third World farmers, writes Shiva, who has deep concern for Third World problems.

At any rate, Shiva blames, not only blame the North for exporting their sophisticated and environmentally unfriendly technology, but also criticizes the South for their governments' efforts to access the new biotechnologies.

In their haste to acquire the new biotechnologies, the Southern governments could unwittingly offer themselves, their people and the environment as prime guinea pigs for the new technology.

Therefore, she urges the Third World to rapidly evolve a framework to assess biotech on the basis of ecological, social and economic impacts.

This 37-page book gives insights into the consequences of biotech in Third World nations.

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