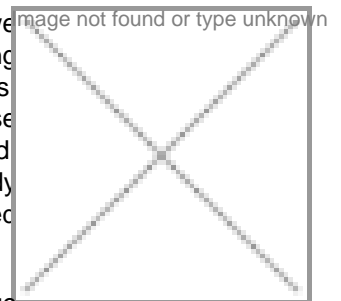


Why and what should be our biotechnology policy?

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Biotechnology is destined to be one of the prime determinants of our life styles and of the way we think and react to situations in the present century and the next. The other such determinants being space science, new sources of energy, new materials, computers, microelectronics, robotics automation and artificial intelligence. Like any such prime determinant in history mankind can use biotechnology either wisely to maximize benefit to the largest number of people around the world. This should be to help secure enduring peace or foolishly for the exclusive benefit of the greedy and the powerful, to create conflicts within a nation or between nations, to exploit the unprivileged and to do damage to large segments of our society.



It is, therefore, essential that our country needs a biotechnology policy. In fact, since ours is a large country with enormous diversity in every respect from state to state, it would be advisable for each state to have a biotechnology policy which would be in consonance with a larger, more flexible national biotechnology policy.

Before I enunciate the components of such a policy it is important to state that biotechnology is a hi-tech area. It requires substantial investment; yet it is labor intensive. It impinges on a variety of other areas, ranging from medicine and health to agriculture and industry. Its implications are many: social, economic, political, moral, ethical and legal. The biotechnology policy of the country defines the framework within which it is stated, areas where emphasis is to be laid, the kind of assistance and support that will be available from the government and how the responsibility for meeting the desired goals is intended to be assigned. The biotechnology policy must also state in detail the mechanism of its implementation and assessment.

Any biotechnology policy should, in addition, also state the following:

- The importance, role and the scope of biotechnology.
- The world scenario and prospects in the various areas of biotechnology and many linkages of biotechnology with other areas of human endeavor.
- Basic requirements that need to be met in the various areas of biotechnology.
- The Indian advantage with special reference to the state concerned.
- What has been done in our country in each area.
- The chosen priorities and the rationale for them.
- The envisaged mechanism (in some detail) for achieving the priorities and how would the problems that may arise be overcome.
- The new institutions such as the biotech park, the new committees and the new funding agencies and their terms of reference.
- The time-frame for accomplishing the objectives.
- The role of the government (for example, the real incentives to the existing and the new biotechnology industries), the institutions, the committees and the organizations involved.
- The mechanism of networking and monitoring.
- An appropriate regulatory mechanism.

An example of what the biotechnology policy should not be is the Andhra Pradesh government's Biotechnology Policy announced in 2001. It didn't even touch upon most of the above-mentioned items; the coverage of the rest without a single exception was either inaccurate or inadequate. The policy document, released with much fanfare, was prepared by a commercial organization, apparently under the guidance of a committee appointed by the state government. Not one practicing biotechnologist—that is a person from the biotechnology industry in the state—was on this committee, nor was anyone else out of the many who have personal experience of biotechnology within the state. It was, therefore, not surprising that the document abounded in incorrect factual (and easily verifiable) statements, cliches, muddled objectives, unclear strategies and erroneous arguments and statements. It gave no blueprint of how the state was going to achieve what has been set out in the policy for whatever it may be worth. There were incentives mentioned for those who would set up biotech industries in the state afresh but not for those who already had set up such industries in the state against innumerable odds.

Pushpa M. Bhargava, one of India's most brilliant scientists, has founded and directed the Centre for Cellular and Molecular Biology (CCMB), Hyderabad. His scientific contributions include the preparation and characterization of primary liver cell suspensions, identification of proteins from the seminal plasma and extensive characterization of one of these proteins and seminalplasmin. He has been awarded with Padma Bhushan, the Legion d' Honneur, the Watumul Memorial Prize and Goyal Prize.

PM Bhargava

Varaprasada Reddy, managing director of Shantha Biotechnics, who pioneered the biotechnology industry in the state and genetic technology in the country, has suggested important incentives that can facilitate and catalyze the development of biotechnology industry in a state. These include land developed infrastructure (such as with water, power, access roads, wide band internet connectivity) to be made available initially at a nominal cost and the balance to be collected when the unit is successful. Then the arrangements of soft loans to pay customs duty on imported capital equipment and consumables could be recovered when the unit goes on stream. A government supported centralized arrangement for obtaining the clearances from central government agencies like the environment ministry, DBT, drugs controller general of India and so on; preference by government departments to biotechnology products from local industries without compromising on quality and competitive prices. Creation of IIT - like institutions to give appropriate training to laboratory assistants, technicians and other service personnel required by the biotechnology industry; sales tax holiday for ten years; and concessional electricity tariff for the first five years. The Biotechnology Policy of Andhra Pradesh has not recognized that these incentives could, in long run, bring substantial revenues to the state and more than compensate for the concessions given initially.

Biotechnology has come to stay and will be a major technology of the future. Therefore, a biotechnology policy must plan for the future and any immediate expenditure on supporting biotechnology industry in a state and in the country must be regarded as an investment for the future which could bring unimaginable returns. The central and the state governments could even consider buying equity in some of the biotechnology industries in the country that show unusual promise; this could be done through the state aided financial institutions. Unfortunately, we only have politicians as leaders who make decisions and not visionaries or statesmen. Let's hope that this is a transient situation and that, hopefully sooner but surely later, our leadership- both present and prospective- both at the center and in the states would recognize what needs to be done in the exciting area of biotechnology.