

# Connecting the Dots



P. N. Tandon

Biotechnology is linked to most of the major advances in clinical approaches and tools that today are of critical importance for treatment of a variety of diseases. The noted neurosurgeon Tandon has helped DBT to design its medical biotechnology program over the years.

Let me first congratulate the Department of Biotechnology, its past and present Secretaries, the scientific officers and staff for completing 25 years of spearheading development of biotechnology in the country from an humble beginning to its present status of multibillion rupees venture. Nearly a decade ago, Mr. Tony Blair, the then Prime Minister of the United Kingdom, addressing the Royal Society London, commented on the rapid strides India was taking in the field of biotechnology and urged the British Scientists that if steps were not taken urgently, like Information technology (IT), India may also take the lead in Biotechnology (BT). During the last decade India

has continued to strengthen its position in the field due to bold steps initiated by the Department and handsomely supported by the Government of India.

Before I mention about my personal interactions with DBT, let me share a not well-known fact about its creation. The erstwhile SAC(C) took an unanimous decision to appraise the then Prime Minister Mrs. Indira Gandhi about the urgency to initiate a major programme in the emerging field of Biotechnology and seek her support. Dr. M.L. Dhar a member of the SAC(C) was charged with this responsibility. He approached Mrs. Gandhi and briefed her on the subject and requested for a grant of a modest sum of Rs. 20 crores. She

expressed her difficulty in finding such money in the face of the prevailing financial constraints. On persistent pleading by Dr. Dhar, she asked him to see her after a couple of weeks. The request was granted on the next visit and thus the National Biotechnology Board came into existence.

I have been privileged to be associated with the DBT from its inception as the National Biotechnology Board. My first pleasant interaction was when I approached Dr. S. Ramachandran then heading the Board with a request for a grant to organize a National Handson Workshop on Foetal Neural Transplant with the help of an NRI scientist Dr. Gopal Das. I could not believe my good-



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► luck at the enthusiastic response and prompt action received from Dr. Ramachandran, so completely different from the usual bureaucratic approach one was used to face in such matters. In less than half an hour I walked out of his office with a much bigger grant than I had expected. In return this led to a major research initiative involving a host of scientists and a large number of publications. In addition it led to my increasing interaction, both personally with Dr. Ramachandran and in formal committees of the Department. This interaction kept on increasing with Dr (Mrs.) Manju Sharma joining as Sr. Advisor (who later as Secretary of the Department promoted many other innovative programmes) and the initiation of the Medical Biotechnology Task Force on one hand and the JWG was Indian component as Apex Committee of the Indo-US Vaccine Action Programme (VAP) on the other. I had the unique opportunity to steer the former and be a member of the latter for nearly two decades. In addition I served on a number of other committees like the Bioethics Committee, the Committee on Vaccine and Diagnostics, the Review Committee for Umbrella Support to Indian Institute of Science, Bangalore (Bengaluru) etc.

Much can be written on the basis of this long, still continuing, association but for the moment I will restrict myself to just a few observations which reflect some of unconventional approaches for governance adopted by the Department. From its inception the Department initiated:-

- Involvement of large number of active scientists in formulating plans and programs, screening

proposals for research grants, laying down guidelines, for specific areas like bioethics, genome research, stem cell research etc, providing inputs for developing successive five year plans and successive vision documents, and for regular monitoring of the programmes.

- The scientists serving on various committees were given a virtual autonomy to function and their recommendations seldom turned down or modified by the officers.
- Besides formal committees the Department has developed a tradition to informally consult a wide variety of individuals belonging to the scientific community, industry and others.
- The successive Secretaries and the scientific staff of the Department have maintained a tradition of easy approachability, openness for suggestions from outside and minimizing the traditional bureaucratic approaches of a government department.

On one hand the department catalysed the establishment of a number of national laboratories – now numbering 14. On the other hand it developed international collaborating programmes starting with Indo-US VAP to now with many other countries including UK, Germany, Switzerland, Finland, Australia, Norway, Denmark, Canada in diverse fields. In addition it took a bold step to initiate major grants to groups of scientists in well known institutions and establish centres of excellence. More recently, under the imaginative leadership of Dr. M.K. Bhan, it opened its door to encourage academia-industry interaction and support for industry R&D.

A brief mention of some of the programmes with which I was intimately involved will illustrate, the progressive thinking of the Department.

### MEDICAL BIOTECHNOLOGY

Biotechnology from its inception promised to revolutionise the health – care market. It was therefore only



25 YEARS OF DBT

► natural to constitute a major task-force on Medical Biotechnology. Initially chaired by Prof. B.K. Bachhawat soon he passed on the responsibility to me. Along with a galaxy of outstanding colleagues representing diverse disciplines I had the privilege to lead this group for nearly two decades. While evaluating individual research projects and actively seeking these the task-force on its own decided to develop focused programs relevant for the need of the country like those on Rotavirus, HIV, tuberculosis, malaria, cholera, Japanese Encephalitis (JE) etc. This led to development of some immunodiagnostics, candidate vaccines and exploration of disease biology. Unlike other grant giving agencies DBT did not hesitate to fund major infrastructure facilities, and relatively larger grants towards this end. Besides other gains this approach resulted a spurt of research activities in biological sciences and a quantum jump in high quality research publications in the field.

The following is just one example of a successful story.

**DEVELOPMENT OF HIV – DIAGNOSTIC KIT**

In the face of rapidly spreading epidemic of HIV, the country was importing all its diagnostic kits from abroad. It was decided to invite a group of scientists to challenge them with the task of producing reliable, affordable kits indigenously. A rapid screening test and a Western Blot test were developed in record time. These today serve a major part of national need and are also being exported.

This catalysed the development of several other diagnostic kits in the country.

**INDO – US VACCINE ACTION PROGRAMME**

On the initiative of Prof. V. Ramalingaswami the then DG, ICMR, and Prof. Fredrick Robbins, the Government of India approved a bilateral collaboration with US to promote R&D for vaccine development. The recently established Department of Biotechnology was assigned the responsibility to steer this programme. A national Apex committee was constituted and notwithstanding a lot of media and public hue and cry against this programme the Department pursued this vigorously. It provided an opportunity to get a sizeable manpower trained in modern vaccinology, developed infrastructure in several institutes in the country. The Rotavirus vaccine which is now in Phase III trial is one of the outcome of this programme. But more important than this it led to a resurgence of activity in the whole field of vaccinology both among the scientists and the Industry. India today produces and even exports a variety of state of art vaccines.

**NATIONAL BRAIN RESEARCH CENTRE**

1990s were declared a “Decade of the Brain”. While clinical neuroscience services had achieved a high standard during the 1970s and 1980s, the basic neuroscience activity had not taken roots in the country. An appeal to Prof. MGK Menon the then Minister of Science & Technology resulted in a national brainstorming session in August 1990 under the aegis of the Department of Biotechnology. A unanimous recommendation of this meeting to establish a National Brain Research Centre was approved by the Department.

Following deliberations of a number of advisory committees over next several years ultimately the then Secretary of the Department Dr. (Mrs.) Manju Sharma got it approved by the Planning Commission and the Government of India. It now exists as a vibrant, though still small, national centre, which, besides its intramural activities has catalysed the development of this discipline in several other institutions in the country. Further details about the development of this centre and its current programmes can be obtained from its website and a paper by the author “National Brain Research Centre: Ann. Indian Acad. Neurol: 2, 119-121, 1999. As mentioned earlier the Department in its brief existence has established a large number of national research laboratories after detailed discussions with the scientific community.

Before I close let me express my sincere gratitude to the Department, its successive Secretaries and very friendly and cooperative scientific staff for giving me the privilege to be a part of this outstanding venture.

It will be no exaggeration to say that after the visionary efforts of our first Prime Minister, Pandit Jawaharlal Nehru in establishing a large number of science laboratories, the benefit of which the country is reaping today, no other Government Department has created so many institutions in the field of life sciences which have already started to pay rich dividends both in terms of scientific output and product development and would undoubtedly enrich our capabilities to become a major power in the field of biotechnology. I take this opportunity to wish the Department a very bright future. ■