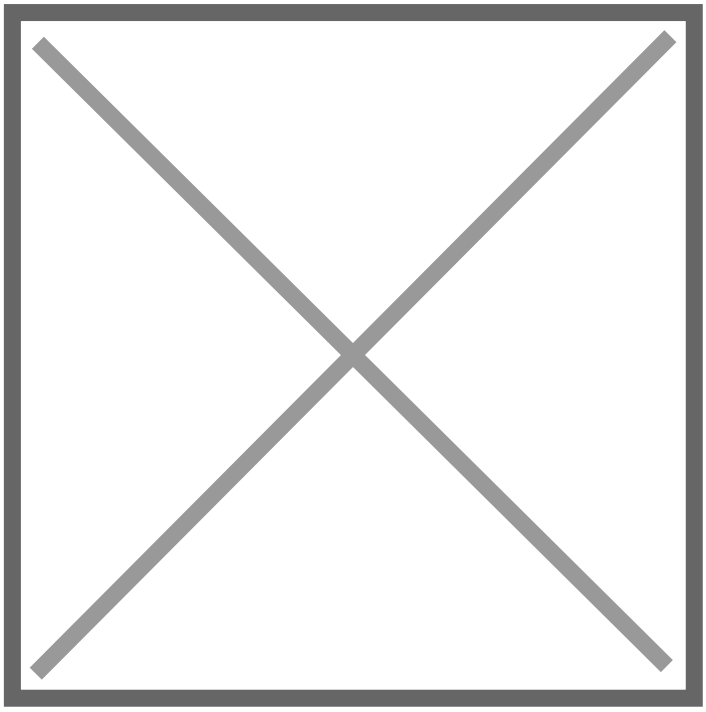
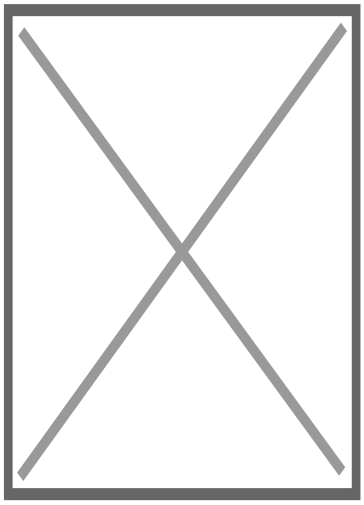
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"It's about not doing new things, but doing the same things differently"

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"It's about not doing new things, but doing the same things differently"



-Dr MK Bhan, secretary, DBT

The National Biotech Development Strategy, unveiled recently by the government, is expected to set new precedents for the biotech industry, as the aim now is to focus on innovation, technology transfer, and development of an effective scientific pool amongst others. The sector is clearly poised to take a huge leap forward in the future with the successful implementation of the strategy. In an exclusive interview, Dr MK Bhan, secretary, DBT, talks about the strategy and how it proposes to make a difference to the promising biotech sector.

What would you say is the core idea behind this policy?

It is about not doing new things, but doing the same things differently. It is about looking at an institution and transforming its capacity with an integrated package. UICT Mumbai, for example, has an excellent bioprocess engineering department and we created an integrated capacity for molecular biology there through molecular biology positions and new labs. It has started the biofuels program now. We plan to create a couple of such centers. The idea is to bring an institutional change in the institutions, create successful public-private partnerships, and enable smooth functioning of the facilities, movement of

biologicals, and streamline the regulations. The whole idea is to create institutions with a difference so that they are facilitators. We need more younger and mid-level people in the system which is what we shall be achieving by attracting scientists from abroad.

How do you see the policy impacting the biotech industry in the next five years?

Our biotech industry is largely manufacturing and services based. So what we need is to remove all bottlenecks. We also have to develop the innovation potential. That is a long- term strategy. I would like to see development in areas such as translational science, clinical and field research, product development, and R&D in the industry, all at the same pace. I would like to see a large expansion of the scientist pool and science activity in industry (small, medium, and large) and through government labs and a smooth flow of ideas, people and knowledge so that more and more new ideas come forward producing novel products. The purpose of the strategy is to head towards innovation and produce novel products, while capitalizing on the current opportunities in clinical research and biosimilars.

What are the objectives of the Biotechnology Industry Partnership Program (BIPP)?

The goal is to generate IPR in advanced technology areas. We don't expect to develop products early on as these partnerships are in radically new fields such as stem cell therapy and nanoscience. The goal is to enter the advanced technology area, when the potential is uncertain rather than when the potential is established. The trend so far has been that the West collects IPR and establishes an area in a period of few years and it is then that we venture into it. By that time our freedom to operate is restricted by the IPR generated by the West. Last year 7,000 patents were filed for stem cell research, not one from India. Suddenly if we decide to enter into stem cell research, there is no trigger left to operate because by that time the West is way ahead and they hold critical patents. Hence we should accumulate worthwhile patents by entering into new areas earlier.

This is the concern the BIPP addresses. This will ensure that the industry partner gets 30-50 percent of the project cost on a shared cost basis with some reasonable royalty arrangement for the government. The IPR thus would be exclusively with the industry.

The whole concept is centered on entering new opportunities at a nascent stage and hence immediate product development is not something that we are looking for.

The program also takes into consideration the major unmet needs of the country, where industry will not venture easily, like Tuberculosis drugs or vaccine, AIDS vaccine or a dengue vaccine. These are unchartered territories basically because of the high levels of uncertainty. Government's commitment to invest in such ventures would encourage the industry to move into an area which is relatively more risky than the safer option that they have. The third area under BIPP is shared animal facilities like for transgenic animal facilities, and large animal facilities. We have not explored the space of shared facilities till now and we would like to do more in the area of expensive shared facilities like toxicology centers, animal facilities, transgenics, and jointly managed technology incubators amongst others.

What is your expectation from the industry in nurturing public-private partnership?

The industry will also have to come up with novel ideas on the areas where they need help to be able to do more innovation. So the challenge is as much for DBT as the industry to come up with ideas. There is a point at which there has to be a demand. I am sure BIPP would do well, more so it being a grants scheme. We have already done some trials to understand how it can be done. We would open up our partnership program with the industry. We will only fund very challenging projects and the industry needs to take the risks to attract our investments. Hence we would want the industry to think about more challenging areas, get into them and more research foundations have to come up.

Could you elaborate on funding research programs through BIRAC?

Promotion of R&D is a priority under the biotech development strategy. The government is investing in a new organization, the Biotechnology Industry Research Assistance council (BIRAC), which will manage SBIRI and BIPP. In addition to that it will provide patenting services, technology transfer services and in turn fund innovation. This is akin to having a science organization and an innovation organization where the latter funds the former to generate interesting innovation projects. Hence BIRAC will serve as the funding agency for the industry and charge some royalty for the investment. BIRAC as an organization will be available to service the industry with analysis, technology forecasting, and IPR generation.

The Biotechnology Industry Research Assistance council aims at creating more novel and interesting public-private partnership models. I have always believed no one scheme is sufficient. We need half a dozen novel schemes that address different niches through public private partnerships. We have put our foot in our mouth by saying that we will invest 30 percent

of DBT's budget in public private partnership, but we depend on the industry to come up with novel ideas. For that some high class science meetings with the industry will be needed. It is towards this end that we have made an arrangement with FICCI on the lines of the European technology program, called the industry partnership platform. So we will set aside some money from the 30 percent, for funding novel ideas that emerge from the industry partnerships.

Could you tell us more on the scheme for joint research chair?

We have been working on a scheme for joint chairs, where DBT and the industry will work together to create research chairs which would be kept in academic institutions or industry or industry sponsored not-for-profit research foundations. Such not-for-profit research foundations can take more risks and we would fund them as if they were public sector. However, the research foundation and the industry should have a relationship wherein if the foundation produces some technology which is transferred to the main company, some royalty is also given to the foundation to mobilize its research goal. With the government funding these research foundations, they need to hire some good scientists.

How does the Strategy intend to nurture human capital?

Human resource has to be oriented to the industry or to novelty, things that won't happen with routine education.

Reversing brain drain: The number of good quality PhDs we produce is very small because we have a small pool of scientists in India. The density of scientists as compared to the population is perhaps the smallest. To expand PhD programs we have a new partnership scheme with Wellcome Trust under the NBDS which will allow us to get about 50 scientists every year from abroad. Wellcome Trust is investing ?800 pounds per year into it with DBT investing an equal amount. The scientists will get special fellowships and grants to establish labs and attractive remuneration to attract the best out of them. We thus hope to get around 500 scientists over a period of 10 years and thus quadruple the number of PhDs. With this, we hope to bring mid-career scientists from the US or Europe back to India. That is one critical thing we need. We are also going to expand the Ramanujan Fellowships Scheme which again is a reentry scheme. This would enthuse fresh leadership in new opportunity areas. Between these two schemes we are very hopeful to attract a lot of people.

Fillip to university life science departments: We are also giving grants to the life science departments of key universities. The first successful step in this direction has been with the University of Hyderabad (UoH) and IISc, Bangalore recently. The contract is that while we give them the grant, they need to scale up their capacity in terms of faculty size, labs, representation in disciplines to run a hugely expanded PhD program. So UoH is going to increase its PhDs by 4-5 times than it is producing now. What we are saying is that we will give you what it takes, to increase the number of PhDs and the quality. Through this, we hope to pick up 20 best universities in the country and give a major lift to their life sciences department. We intend to take up five universities each year from this year. We hope to get another 700-800 PhDs out of this.

Setting up of new universities: We are also coming up with eight DBT institutes, which themselves will produce a faculty of 400 that in turn would generate 1,600 PhDs. So we will have extended PhDs. These institutes will not be pure biology institutes but inter-disciplinary and will have strong translation potential while preserving basic science capacity.

Multidisciplinary novel education programs: There are areas in which the training is either insufficient or not available in sufficient places. Or there is a totally novel education program, for example we have got an idea of an integrated MSc program in drug discovery science. It combines structural biology, informatics, biochemistry thus stressing on a multidisciplinary approach. Similarly the bioengineering program that we have is purely focused on engineering. But we are going to start a masters program in bioengineering which reflects on medicine biology as well. We have got a list of 13 such novel education programs that we shall start this year. We are not in favor of starting programs exclusively for biotechnology training. The focus is on integrating all life sciences.

Star colleges and centers of excellence: We want every city to have a star life science college. We are also planning to create facilities for training technicians and teachers through 50 centers of excellence that we propose to set up. This will enable people to upgrade their skills and understanding.

Role definition for DBT institutes: We are very excited by the idea of this new role for DBT institutes wherein they run extramural programs and fund others in the country using their expertise and they will run them without any self interest. They will perform a duty as national institutions to promote academic excellence elsewhere.

What is the strategy for development of clusters?

We are actively building these clusters. We are coming up with agri-food technology cluster at Mohali in Punjab and a health science biotechnology cluster with a vaccine and diagnostics and translational centre at Faridabad along with Phase I and Phase II clinical trial facilities.

There has been a criticism on there being no hospital in the health science cluster. So the translational institute will fund a large number of translational units in medical schools and give them full support. The translational institute will almost become a nucleus for supporting translation research across the country. We hope that there will be centers for neuro medicine and neuro engineering, diabetes and cardiovascular science, endocrinology, bone and cartilage disease, nutrition and food science, in short a wide variety of small research institutes. A large part of the resources will be utilized for upgrading the translational capacity (from science to the market) and will look at regulation, regulatory capacity, standardization, clinical trials, and agricultural field trials amongst others. We are coming up with a center with ICRISAT for agriculture. Then we will have resource units along with NCPGR. The idea there is any small or medium sized company or a public sector scientist who actually wants help with translation can use them.

Shalini Gupta