

THE EMERGENCE OF BIOTECHNOLOGY BUSINESS SECTOR IN INDIA: OPPORTUNITIES AND CHALLENGES

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ABSTRACT

The Indian biotechnology sector has become one of the most influential sectors in India and at the same time it started getting acceptance from the entire world and it has become a pathway for growing investment prospects as well. As a significant proportion of global population stays in India naturally the Indian market started showing lots of promises and at the same time multiple challenges at various industrial scales. At this moment we can mention that the requirement of human capital could be the key driver for gaining global competitiveness with overall strategic dimension at various industry levels. In many cases it has observed that developed countries like USA, Germany, Japan, France etc has already shown significant investment towards biotechnology sector and developing countries like India is also not too far behind this developed economies. Biotechnology research is getting a huge shape in Indian market and simultaneously it has shown mammoth potential up to a great extent. The government and various other private agencies have realised that with the help of continuous biotech research they would able to revolutionize lots of processes related to biotech research and would able to monetise the result. Now with the help of various technological upgradations, biotechnology sector transforms its industrial processes and able to create long-term environmental sustainability which will help them in the development of inclusive growth strategies.

KEYWORDS: Biotechnology, Biotechnology sector, Development strategy, Public Private Partnerships (PPP)

I. INTRODUCTION

From last two decades Indian biotechnology sector has shown enormous growth in multiple fields and with the help of that it has taken a shape through a number of initiatives related to regular academic curriculum and industrial initiatives. Now we need to concentrate on more systematic attention to make a serious move and integrate all this efforts through pragmatic and normative National Biotechnology Development strategy. It is important that the primary requirement of the sector is different stakeholders those are playing a rigorous role in creating many strategic policies and with many other fabrications the sector is trying to generate global leadership. The sector has shown a lot of potential in Indian market and various scopes in the field of biotechnology industrialisation. The central government started taking lot of initiations and accountability for different policies which is directly related to higher education in the same field in India. The administrative body and several organisational establishment of the government agencies has shown a different types of in-depth seriousness towards the same. Under the ministry of Science and Technology the national biotechnology board functions as one of the peak coordinating and controlling body. These different government bodies are responsible for recognising and categorising prices of functioning and at the same time keep a watch on operational mechanism and planning for the required human capital integrated and incorporated industrial development and large scale usage of biotechnology products and processes in the nation. University Grant Commission is also dedicated to biotechnology and related subject development in India. The basic role played by UGC is to co-ordinate and determined the scalability of any science project and grants required for the same and release those grants. However it is not only the responsibility of the central government but also the state government of different states to established various Institutions and colleges to promote the research culture which is required among students and at the same time provide grants for the development of various projects and its maintenance.

Government support towards growth is like oxygen supply for Biotech research in Indian market. The sector has given enormous boost and different types of advancements the industry. In today's market to cope up with the international marketers and competition the Indian government has decided to apply a few new policies and making some amendments to the existing ones which is not supporting for the biotic sector. With the help of

notable policy changes significant amount of discussions and scopes has increased the areas like stem cell research, pharmaceutical policies, seed policies, foreign trade policies etc.

Broadly the initiative of the governments is remarkable and they are trying to create a very thought provoking business atmosphere towards the multidimensional growth of applied biotechnology sector. In recent times various development strategies has been made public to invite multiple feedback from different parts of the countries (Kumar, 1998). If one goes through the policy then we will able to understand there is a clear cut indications of industrial friendly policies comprised of major demands of the industry. It endeavors formulate process is easier faster and friendly for the public and for industrial people as well. Whatever policies are made by the government and implemented are basically focusing on sufficient sustainability to fundamental translational and quantifiable clinical research work. Various companies are concentrating on budget allocation and fund raising through public private partnerships and related models. While we are looking at public private partnership model then we should understand the strategic development of the business model is coming form the development of human resources and various other investment plans. There is no chance of any restrictions on the fund generated from foreign direct investments from biotech companies or foreign investment promotion board. There is a lot of equity investments is happening in biotech companies and investors are working towards the development of the sector and they are trying to generate revenue at the same time. Ultimately all the strategic dimensions will help to develop sustainable policies towards research and development in the biotechnology sector and with the help of that the industrial growth would happen. During this time we need to concentrate on nurturing the available resources besides looking for the international investments.

II. OBJECTIVES

Objectives of the research paper are mentioned below:

- To study the growth potential of biotechnology sector in India
- To understand the importance of biotechnology as sustainable business model
- To study the implementation of Public Private Partnership model

III. LITERATURE REVIEW

Biotechnology is a field which comprised of two different subject areas viz. Molecular biology and cellular Biology. Biotechnology is a field recognised as one of the most swiftly budding and comprehensive sectors in the world. The sector has shown specific promises for food health and environmental stability and sustainability in different parts of the world. There are large number of Agri-biotech and industrial biotech products which have extremely helped different industries and the mankind at large. The most essential discussion regarding the sector is the per capita consumption and utilisation of staple grains has become one of the driving forces for the development of the sector (Ghosh, 1997). As the earnings of the customer increases the consumer naturally shifts from comparatively lower quality food grains to high quality food grains at different marketplaces. By looking at the present food market situations the marketer realised that the additional and supplementary food grains will have to be produced in a comparatively lesser land area and with the help of lesser water liver and fewer chemical usage. In this way we can say that what are the major challenges is facing by the world in the 21st century is the process of achieving food security without disturbing or degrading the resource base for the same (Hettel, 1997).

In short it can be said that there is a sufficient amount of expertise proficiency in the technological upgradations and where you other risk appraisal of genetically modified plants and products which could be useful for the human body and animal health as well. Genetically modified products detection and analytical food safety Laboratories have been already established by various professionals and scientists to to make it possible the generation and monitoring of the scientific data and with the help of that they are trying to explore the Marketplace in a different way. The main objectives of the national seed policy are the conception of the best suited weather for the seed industry to make the most of available and forthcoming openings and at the same time they are trying to make sure that Indian farmers should get the maximum benefits out of that and parallel they should able to to maintain the Agro Biodiversity in India. Different types of fundamental and translational

research helping in various genetic developments which will help to sustain the industry. Proper understanding of the societal associations among stakeholders those are directly or indirectly connected with the industry, their skill sets can be used or exchanged if there is a requirement of increasing productivity at any place (Nelson, 1993). With the help of these biogenetic products and various other processes can be optimised by different companies. Requirement of various research works to encourage frugal innovation and original ATI should be tested at different levels. Frugal innovations or any other frugal Investments can be implemented to increase the competitiveness of the company in the Marketplace. It helps to accommodate different strategic dimensions that companies are trying to implement with the help of their strategic business units. We need to encourage various public Investments various private assets and seed funds to promote the biotechnology sector. At the same time you need to make sure that these available funds should be channelized well improve the expertise proficiencies infrastructural development those are required to grow in the Marketplace. Accessibility of the labour is also important with respect to various phases of product life cycle, the way it has strategised by the company for the further growth. The companies dozer involved in marketing biotechnology products are extremely research exhaustive among many other major industries. From various research papers that is observed that on an average the biotechnology sector invest approximately 30 to 35% of its operating costs towards research and development Technology usage Technology upgradation or Technology outsourcing (Bhargava, 1995). The government also holds a specific physical monetary policy and various other tax reimbursements for the sector. Such interventions of the government also help these companies to utilise intrinsic costs effectively while they are involved in any new Biotech Ventures. Now it is various public and private banks are also interested to provide loans to young Biotech companies. In order to encourage various Bankers to provide loans on any other banking services to the Biotech startups a significant amount of push has already come from the government with the help of appropriate policy implementation and various focused guidelines from the Reserve Bank of India. Investments in these small scale sectors has become one of the top most priorities of major banks and they are trying to help those start ups in different parts of India. Government is trying to remove custom duty on raw materials dozer imported to India where the finished product is imported duty free as well. So with the help of such things government had shown a clear cut intent towards the agribusiness and biotic sector (Dosi et al., 1990). Rationalisation of various import and export of biological material those are considered as extremely crucial material for any clinical research or any other business process outsourcing has become top priorities of many governing bodies. Extremely effective regulatory mechanism has established to strengthen the entire process of investments and monitoring of the investments. The approval of Foreign Investment Promotional Board is not necessary to raise the equity investments. Different types of research and development collaborations and international partnerships are encouraged to fasten the growth of the sector. With the help of foreign company inclusions lots of sharing of knowledge started happening between these companies which include technology sharing, various process outsourcing etc. Such processes started promoting easy access of the information without affecting rules and regulations for cross border businesses in any part of the world (Mehra, 2000). Whatever standards are followed now would be enhanced up to a great extent and at the same time the safety measures also would be evaluated with minute details and these measures could be related to various products or services. Different types of research work, biotech based trade and industrial partnerships would be functional well at regional and sub-regional level. The industry is basically depending on the contracting and outsourcing at a large scale, due to this there is always a requirement of licensing agreements and co-marketing agreements. There is a requirement of collaborative networking and with the help of B2B model the industry could be grown at faster pace. Collaborative knowledge network would be beneficial not only for knowledge sharing but also for doing the business in more systematic and effective manner. There is a requirement of pervasive communication system which will ultimately help in flowing information effortlessly within and between contracting organizations.

Availability of financial support is always very important at any stage of the business. While any biotech company would go for the new product development, at that point of time monetary flow is extremely crucial. There are lots of discussion is going on regarding the widespread of public private sector partnerships especially whenever there is a requirement of heavy investments related to infrastructure development or heavy engineering development etc. With the help of this model the agriculture based industry can grow rapidly, it does help in developing capacity of agriculture based innovation systems (Chaturvedi, 1997). Various private

sectors investors are also showing good interest towards the development of agriculture based industry and agriculture research. But while marketers are trying to implement public private relationship model in the marketplace, they found it more difficult than what they already think. The main challenges faced by the company while they are trying to implement it are related to organizational culture, business style, research orientations, investment related issues, Fund raising etc. So, one very effective reason due to which organizations are facing problems is the research orientation towards public private partnerships, and deep rooted implications are also being overlooked (Dhar et.al., 1998). There had been lots of changes private sector investors are going through and due to that there is a lack of confidence in the market and lack of certainty as well. Companies are reluctant to invest well in the volatile situation in any market. Despite of all these challenges there is a significant growth in investments from private players. Private players are trying to boost the industry demand at a large scale and with the help of that they are bringing opportunities for many other private players (Lall, 1992). The public sector in India reacted quite quickly and they are also expecting funding from the private players those are showing interest towards the biotech industry in India. Private sector investments can be defined as the local or multinational investments and various other farmers those had shown interest towards the funding. With the help of public private partnerships, fund pooling is happening from various sources with the aim of value addition for the customer and at the same time win-win situation for both the party. Both parties are responsible for bringing some kind of resources and contribute to the partnerships quite positively (Brenner, 1994). There is actually a sharing of common interest is happening. These common interests could be related to information sharing, specialized human capital, fund management, fund for research facilities etc. So, companies are involved in sharing resource activities to achieve a common goal that had already set by the industry. It does not mean that the goal or output should be same for each sector, in many cases it has observed that they are having their personal achievements as well. One of the conflict areas which is quite prominent in Indian market that in many cases, private companies would be focusing on the market share as their core area of attention but on the contrary, public sector might be focusing on the rural development based sustainable growth plan. Both parties would be expecting some kind of personal gain from the entire journey. While they would be working together, they will definitely try to grow at a pace that they have not experienced yet in the market. So, broadly it can be said that the partnerships can be based on the resource based or skill based synergies, risk sharing in a competitive marketplace etc. Both the party would eventually try to gain the best possible competitive advantage that they failed to gain when they were doing it independently. There are multiple generic issues faced by different organizations but with the help of this synergistic model they are trying to overcome those issues for the long run. Formations of public private partnerships are creating lots of issues but working together is regarded as the biggest challenge. In many cases it is observed that the business related incentives structure is also entirely different. This incentive structure could be very impactful while they will try to distribute their products and the decision related to tier system or the members involved in the tier system could be one of the most challenging calls. There could be an issue related to the perception about the other sector or the company. Persistent negative impression or the perceptions would be affecting the overall business in a great way. There could be a possibility related to conflicts over financial competitiveness and intellectual resources. The effective third party inclusion would manage the collaborations among the companies and reduce competitions between players. In many times it is observed that the public private partnerships are functioning in a marketplace without much knowledge, information about the other party. They are also not aware about the partnerships experiences and the lessons required for the growth of the business model.

IV. CONCLUSION

The research paper is based on the scope of biotech sector in Indian market. It is observed that with the help of public private partnerships the sector is also trying to grow at a good pace despite of lots of challenges related to the marketplace or players those are involved in the business. There are significant numbers of entries happened as far as global biotech companies are concerned. Due to the inclusion of private players, there are lots of investments happened towards research and development. Private players are trying to increase their capacity towards the growth of the sector. Extremely, minimum attention has given while players are not showing interest towards investments on research work. The research paper is also talking about the growth potential of

agriculture based industry at the same time. The future of agro businesses are also trying to find out and the opportunities can be created with the help of public private partnerships. The role of various domestic and international players towards the growth of the sector is also discussed. The research paper has also explained that the way capacity of agriculture innovations systems are increased, different institutional changes has reformed the sector to a large extent. The interventions of the public sectors are always fruitful for the development of the new business model. The success of this model greatly depends on the interactive relationships between the parties and efficient utilization of the operation of innovation system. The public private relationship model is related to the strengthening the business networks, building trust, formulating and evaluating the information flows. It does involve in development of new skills among the people, new business grouping and developing various business related tools towards the changing nature of organizational culture for two or multiple companies.

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