



सत्यमेव जयते  
GOVERNMENT OF GUJARAT

## Annual Report 2008-09

*Innovation, the basis of technology, is the 'incentive' for change & improvement.  
Those who initiate change will have a better opportunity to manage the change  
that is inevitable...*

*Anonymous*

॥ जीवो ब्रह्मैव नापरः ॥



**GUJARAT STATE BIOTECHNOLOGY MISSION**  
Department of Science & Technology  
Government of Gujarat









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## Annual Report 2008-09

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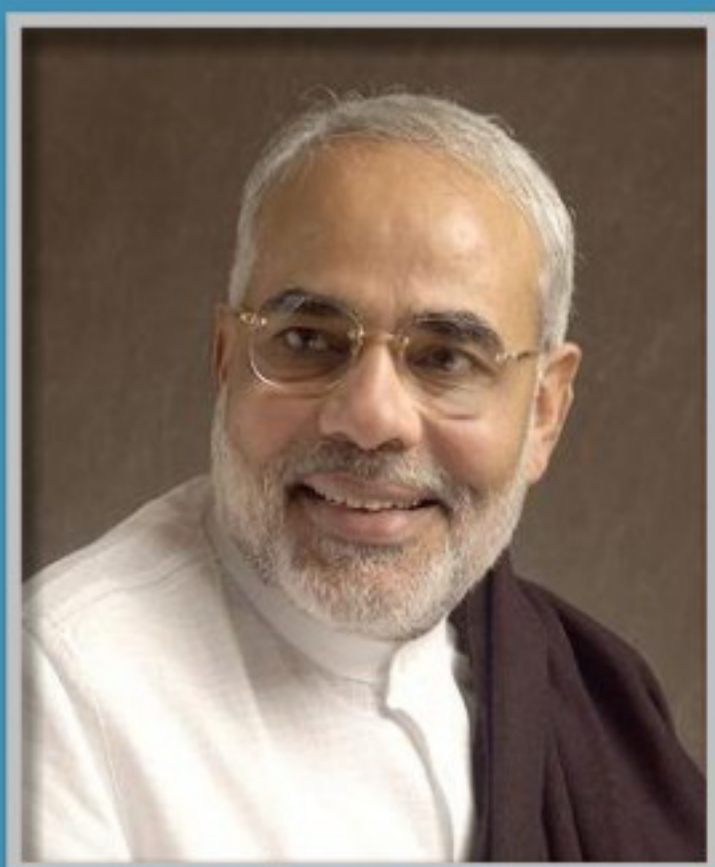
**GSBTM**  
TRANSCRIPTING  
BRIGHTER **BIO** FUTURE

**GUJARAT STATE BIOTECHNOLOGY MISSION**









**Shri. Narendra Modi**

H'ble Chief Minister of Gujarat State &  
Chairman of Gujarat Council of Biotechnology



**Dr. Manjula Subramaniam, I.A.S.**

Chief Secretary, Government of Gujarat &  
Chairman of Governing Body



**Shri D. Rajagopalan, I.A.S.**

Chief Secretary, Government of Gujarat &  
Chairman of Governing Body



**Shri. Raj Kumar, I.A.S.**

Secretary, Department of Science & Technology, GoG &  
Chairman of Executive Committee



**Shri. Akshay Kumar Saxena, I.F.S.**

Mission Director, Gujarat State Biotechnology Mission,  
Department of Science & Technology, GoG &  
Member Secretary



# INDEX INDEX

## Message of The Secretary

	Foreword	01
01	Constitution	02
02	Organizational Structure	03
03	Approach and Strategy	04
04	Policy planning and related Initiatives	07
05	Biotechnology Infrastructure Development in Gujarat	09
06	Biotechnology Research, Innovation support and Development	17
07	Biotechnology Human Resource Development	19
08	Development of Biotechnology Entrepreneurship	23
09	Encouraging Biotech Business and Networking	27
10	Promotion of Biotechnology sector in Gujarat	31
11	Budget	38
12	Audit	38
13	Staff	38
14	Office Facility	38
15	Annexure	39
	Annexure 1: Audited Accounts 2008-09	40
	Annexure 2: Composition of Biotechnology Council	50
	Annexure 3: Composition of Governing Body	51
	Annexure 4: Composition of Executive Committee	51
	Annexure 5: Vibrant Gujarat Global Investor's Summit Glimpse	52





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**Shri Raj Kumar, I.A.S.**

Secretary, Department of Science & Technology

Government of Gujarat

### **Message of Secretary**

Department of Science & Technology

Government of Gujarat has taken concerted efforts to encourage biotechnology development in the state. Conceptualization of overall framework, elaborate development blueprint, Specific strategies, focused action and programs, have been the salient features of state's endeavor in the field of biotechnology.

Right from its formation in 2004-04, Gujarat State Biotechnology Mission has been slowly and steadily developing a strong platform. The key issues of policy, infrastructure, research, human resource development, entrepreneurship, business and coordination, are being addressed.

GSBTM is playing both the role of catalyst and facilitator. For instance, to provide an enabling environment for growth of Biotechnology, new initiatives have been taken for developing Biotech industrial clusters. To provide encouraging environment for high end application based research, sector specific facilities are being developed. To ensure the availability of skilled manpower, skill development initiatives are being taken and supported. Intensive actions have been taken to push the growth of biotech business and industries.

Gujarat is being recognized as one of the biotechnology destinations of the country. The high level of investment interest by biotechnology industries continues. Increasing investment, new entrepreneurs, new companies, diversification into biotechnology, are the reflections of right steps and right pace.

With every passing year, GSBTM has been consolidating the efforts of previous years. The annual report of GSBTM for the year 2008-09, provides a brief account of the activities undertaken during the year. The report is a reflection of last five years of GSBTM's endeavors, achievement and commitment towards this knowledge based sector.

It is a pleasure to be a part of such team spirit and scientific efforts. I hope that GSBTM will keep on working with the same spirit, commitment and enthusiasm.

I wish GSBTM team all the best in their future efforts and goals.

**Raj Kumar, I.A.S.**  
Secretary-DST,GoG



## FOREWORD

Constitution of GSBTM as state nodal agency for Biotechnology has provided an organizational and institutional mechanism to coordinate the Biotechnology development activities.

Running into its fifth year of existence, GSBTM is consolidating the platform for enabling the growth of biotechnology in the state, by undertaking appropriate actions / programs, in conformity with framework of goals conceptualized and strategy developed. GSBTM, is carefully treading the path by playing both the role of facilitator and catalyst. Hence focus is more on encouragement, stakeholder participation, co-ordination than of implementation.

During the current year, definite actions were taken in the areas of policy planning biotech business infrastructure, research infrastructure, human resource development, promoting biotech entrepreneurship, biotech business, information dissemination and awareness development.

Finalizing the modalities for developing agro & marine Biotech park, Selection of Project management consultants for developing incubator, establishment of facilities of Biodiversity gene bank, DNA fingerprinting and genomics, setting and operationalizing Bio-informatics Virtual institute with 24 M.Phil students, were the key activities.

Developing a state level mechanism for implementation of bio-safety guidelines, in accordance with proposed National Bio-safety Act, was significant and important exercise undertaken. Action for establishing Genetic diagnostic centre, skill development program in stem cell area in the state, Pro-active role in Biotech commercialization, program for facilitating industry –Academia interaction, were the new activities undertaken. Developing institutional mechanism for providing a common platform for Biotech industries in the state was another milestone task, initiated by GSBTM. Supporting Biotech seminar, workshops, guidance for dissertations, information dissemination, were other regular activities. Documentation included analysis of genetic disorders in the state and status report on global stem cell research. Active marketing, networking, facilitation has been reflected in increasing investment interest by biotechnology players, new biotech entrepreneurs, diversification in biotechnology sector, observed in the state and reflected during Global Investor summit – Vibrant Gujarat 2009.

Critical constraints stand to decrease, as Biotechnology stakeholders, join hands in this team effort. With every passing year, GSBTM looks forward to consolidate its efforts. The unflinching support of department of Science & technology and all stakeholders of state strengthens the spirit and resolve of GSBTM, to strive and deliver.

I extend my heartiest gratitude to entire team of GSBTM who, are growing in experience and have displayed highest level of commitment. GSBTM also extends its gratitude to all biotechnology stakeholders of Gujarat, who have been responding positively to this organization.

GSBTM looks forward to join and walk together as the state aims and endeavors for –  
"A brighter bio-future".

Shri A. K. Saxena, *I.F.S.*  
Mission Director,  
GSBTM



## 1. CONSTITUTION

The science of Biotechnology is emerging as potential tool for development and technology of hope for the society. The state Government of Gujarat, in its resolve and continued efforts for socio-economic upliftment of society, has identified Biotechnology as single most potential tool of development. To facilitate overall development of Biotechnology, state has constituted Gujarat State Biotechnology Mission [GSBTM], under the Department of Science & Technology.

### 1.1 Vision

“To realize and harness the potential of Biotechnology as a human endeavor for the highest intellectual pursuit and as an effective future delivery system for creating a disease free, nutritionally secure society living in safe, clean environment, leading to overall socio-economic growth, welfare and progress of humanity”

### 1.2 Objectives

- To implement the biotech policy and programs
- To liaise between the Central and State Government, international institutions, organizations, academia, research and industry for the promotion of biotechnology sector in Gujarat
- To conduct studies and promote research in the field of biotechnology
- To promote and develop the human capacity and infrastructure support in the field of biotechnology
- To facilitate the monitoring, execution, implementation and evaluation of State Government programs in the area of biotechnology

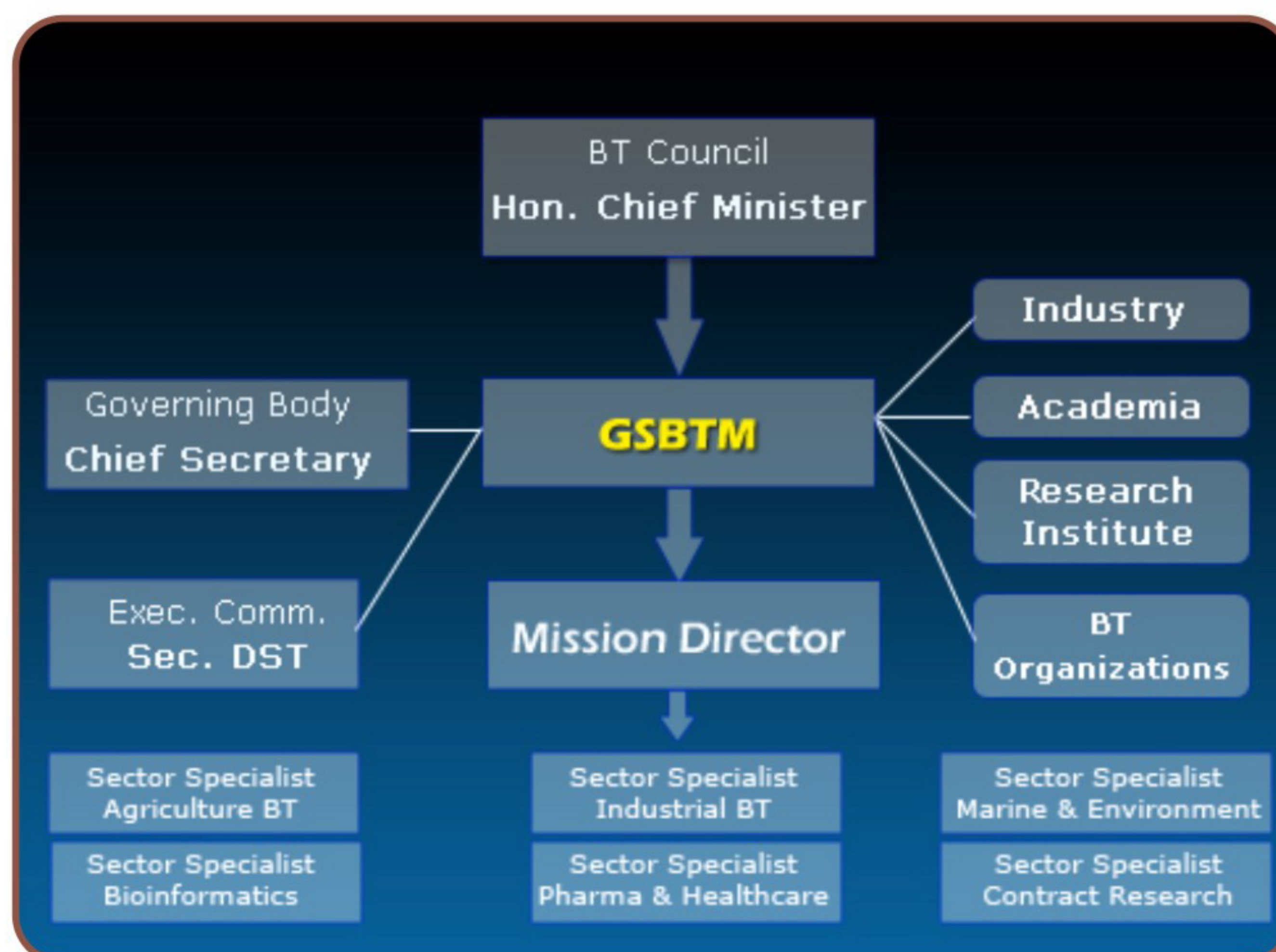
### 1.3 Activities

- Awareness generation and knowledge up gradation programmes and information dissemination programs, like seminars, workshops, lecture series
- Network and coordination like participation in fairs and exhibitions
- Supporting and developing Centers of Excellence in various sectors of biotechnology
- Supporting and facilitating Human Resource Development in biotechnology
- Promoting biotechnology research
- Supporting infrastructure development
- Developing institutional framework for the implementation and regulation of biotechnology programmes



## 2. ORGANIZATIONAL STRUCTURE

**Gujarat State Biotechnology Mission**, a dedicated organizational structure under Department of Science & Technology, has been visualized as nodal agency for coordinating the Biotechnology programs and activities in the state. It's been functional as mission since April, 2004, with the appointment of two sector specialists and later on with the appointment of Mission Director. GSBTM has been visualized as an autonomous body and registered as Society during the very first year on 19<sup>th</sup> October 2004. The Memorandum of Association (MoA) incorporates the scope, duties, responsibilities and functioning of GSBTM.



As an autonomous body under Department of Science & Technology, Government of Gujarat, **Gujarat State Biotechnology Mission** has formulated the Governing Body of GSBTM, headed by Chief Secretary, Gujarat, state and includes representatives of DBT, GoI, and Secretaries of key departments, industry representatives and academicians. Executive Committee of GSBTM is headed by Secretary, Department of Science & Technology and includes representatives of industry, technical experts and interfacing departments. State government has also appointed technical experts as Principal Advisor and Advisor. The state has constituted **Gujarat Council of Biotechnology**, headed by H'ble Chief Minister of Gujarat and consists of experts & professionals of national & international repute.

**The GSBTM, headed by a Mission Director, supported by sector specialists and administrative staff has following mandate:**

- To promote, support and facilitate the overall development of Biotechnology in the state.
- To provide institutional, legal, financial and policy support.
- To facilitate networking among stakeholders at Regional, National and International level.
- To facilitate the infrastructure development and R & D activities.
- To create scientific awareness, sensitization, socio-ethical acceptance and adoption to the potentials and application of biotechnology.

To achieve the above said objectives, GSBTM has planned following:

- Policy Planning Support and Strategic Initiatives,
- Biotechnology Infrastructure Development,
- Biotechnology Research, Innovation and Development Support,
- Biotechnology Human Resource Development,
- Promoting Biotechnology Entrepreneurship,
- Encouraging Biotech Business,
- Coordination and Networking,
- Information Dissemination and Awareness Generation,



### 3. APPROACH & STRATEGY

The provincial government of Gujarat was first to establish a nodal agency for Biotechnology Development in the state – Gujarat State Biotechnology Mission (GSBTM); the proactive efforts of the government have made Gujarat as the fore runner and the “Best Bio State” of India in 2007. Gujarat State Biotechnology Mission (GSBTM) is the nodal agency constituted to encourage biotechnology in the State. To develop Gujarat as the next Biotech destination of India, definite and accelerated efforts have been taken by GSBTM in last five years.

The landscape of Gujarat biotech industry consist of more than 100 biotechnology companies and nearly 80 support organizations with present annual turnover of more than USD 195-245 million. Driven by new enterprises and innovation in recent years, the Biotechnology industries in Gujarat are witnessing accelerated growth. The strong established base of traditional industries – pharmaceutical, chemicals, food, beverages etc, has provided ideal environment and tremendous opportunities for Gujarat to foray into the Biotechnology field. The convergence of traditional industries towards Biotechnology has witnessed significant growth & expansion of Biotechnology industries & market in Gujarat. The major stakeholders of the industry in Gujarat consist of Healthcare, Agriculture, Industrial, Environment and others. The thrust areas in Gujarat biotech industry include healthcare and pharmaceuticals, agriculture, industrial enzymes, bioinformatics, contract research, marine and environmental biotechnology.

The State has developed biotech clusters in Ahmedabad and Vadodara housing manufacturing organization, R & D organization & academic institutions. There are around 30 contract research organizations in the State. The Biotech SEZ located in Vadodara district is being developed in an area of 700 acres – biggest in India.

State government has prime focus on generating newer opportunities in the biotech industry, in the areas like biopharmaceuticals, agriculture biotechnology, clinical and contract research, setting up of centers of excellence, Incubation centers, animal house, etc. Some of the emerging biotech players in Gujarat include Concord biotech, Sterling Biotech, Span diagnostics, Torrent, Zydus Cadila, Bayer Cropscience, to name a few. The State produces morethan 5000 manpower trained in biotechnology which includes Ph.D, Undergraduate, Post graduate and Diploma courses. The State also houses leading Research & Training Institutes like Gujarat Cancer Research Institute (GCRI), Bioarc Research Solutions, National Research Center for Medicinal & Aromatic plants - Anand, Central Salt & Marine Chemicals Research Institute, Bhavnagar among others.

#### 3.1 Events of the Year

##### Vibrant Gujarat Global Investors' Summit 2009, 12-13 Jan 2009, Science City, Ahmedabad



Government of Gujarat, in conformity with national efforts, has been organizing **Vibrant Gujarat Global Investor Summit** every two years, for bringing fore the enormous investment potential in Gujarat and to accelerate the rate of FDI and domestic investment in Gujarat and there by in India. Starting with 2003, the three previous summits have been quite successful and have seen investment agreements worth over 300 billion USD. The Summit of 2007 alone saw the investments to the tune of 150 billion USD. It was with this background that the state had organized the Vibrant Gujarat Global Investors' Summit- 2009. The event had covered the sectors like Biotech & Pharma, Chemicals & Petrochemicals, Engineering & Auto, Gas, Oil & Power, Information Technology & Port, Ship Building & Related Activities etc. The Summit had participation of



dignitaries from leading companies, reputed academic organizations, business schools, media houses, financial institutions and several Government and political leaders. (Website: [www.Vibrantgujarat.com](http://www.Vibrantgujarat.com))

Gujarat with its, very strong Pharma, & Healthcare, Agriculture, Animal Husbandry sector, offers ideal platform for this fast growing economy. The vast application of Biotechnology, in these sectors and potential application in marine, environment sectors provide exciting area for business and investment. In this perspective, Biotechnology was one of the prospective sector for investment in Gujarat during Vibrant Gujarat, 2009, Global Investor Summit-2009.

With this perspective, a *Seminar on Biotechnology & Pharmaceutical* was organized based on the theme of 'Bio-partnering Gujarat', on 13<sup>th</sup> January, 2009 at Science city, Ahmedabad.

**A Seminar on Biotechnology: Global investor's Summit: Vibrant Gujarat, 2009**  
13<sup>th</sup> Jan.2009, IFA Hall-2, Science City



The main purpose of seminar was to provide a platform for experience sharing of professionals, industries and investors, from state, national and international level and seek their inputs, views and perceptions of Gujarat as destination for future BT investment.

The seminar had speakers on Biotechnology and covering various sectors –Health, food and agriculture, Clinical research, contract manufacturing, futuristic technologies including Nano-biotechnology. The speakers included **Dr. Ram kaundiniya, MD, Advanta India Ltd**, a Indian MNC working in Agriculture Biotechnology, **Dr GS Krishnan, MD, Novozymes Pvt Ltd**- MNC in Agriculture & industrial Biotechnology, **Dr John Mcgrath, technical director, Lonza Biologicals**- Switzerland based MNC and one of the topmost company in contract manufacturing. The program was chaired by **Mr Pankaj Patel, CMD, Zydus Cadila**. **Mr Sven Henrichwark, GM, Asia pacific, GE Life Science** and **Shri I. A. Modi, chairman Cadilla Pharma** were special invitee. Hon'ble minister of Health & family welfare, **Shri Jaynarayan Vyas** and **Shri Jaisingh Chauhan**, Minister of State for Primary, Secondary & Adult Education, blessed the program with her opening speech.

Renowned industrialist and chairman of the session **Mr Pankaj Patel**, CMD, Zydus Cadila gave his keynote presentation, outlining the whole gamut of opportunities in Bio-partnering, available for Gujarat. **Dr Jaynarayan Vyas**, Hon ble minister of Health & Family Welfare, Government of Gujarat, highlighted Gujarat's historical and exclusive firsts in traditional biotechnology, pharmaceutical education, research institutes key corporates driving the business, national contribution of Gujarat pharma industries houses and gradual shift and adoption of Biotechnology. **Shri Jaisingh Chauhan**, H'ble Misniter for state for Primary, secondary & Adult education, Government of Gujarat, expressed that increasing interest of business interest and investment, has been shown in Biotech and Pharma sectors. The positive trend is indicative of pro-active business environment offered by the state to all industries and state is geared to play a more business friendly role.

Around **600-700 professionals** –largely from Biotechnology and Pharma Industries, both from Gujarat and outside Gujarat, Association of pharma & drug, researchers, faculty, professionals, Representatives from nearly 100 pharma & biotech industry, participated in the seminar. Other participants included faculty and researchers from South Gujarat University, Gujarat university, Nirma, University, Sardar Patel University, Mark



Patent cell, GETCO, IIAR, Zydus research centre, GCRI, PERD, CSMCRI, NRCMAP, etc. The program was attended by **many investors** in Biotechnology who affirmed their investments through many MoUs.

The glaring fact was interest shown by Nanobiosym, A US based company which has expressed interest for developing creating ecosystem of Nano-biotechnology research education, manufacturing related services etc. The company has expressed its commitment for developing nano-biotech park and incubator facilities and venture financing in Biotechnology in Gujarat. The occasion also saw presentation by Lonza biologicals, one of the biggest contract manufacturing company from Switzerland. One to one meeting were also held with Lonza, and other japans companies who are exploring to base themselves in India. **Business and investor friendly environment and pro-active marketing by state government agencies resulted in high investment interest.** A total of 57 MoUs were signed, with committed investment of Rs. 5738 crores. It includes 30 MoUs in Biotechnology sector & 27 MoUs in Pharma sector.

In **Biotech sector, 30 MoUs** were signed for as many projects by 25 companies, **with committed investment of Rs. 2508 crores.** These include 2 International companies, 6 companies outside Gujarat while 17 are Gujarat based companies. The projects include vaccines, Bio-degradable plastic, immunosuppressants, anti cancer drugs, Bio-pharma products, R&D, biotech Bulk drug manufacture, Immuno-boosters, Contract R &D, Bio-catalysts, industrial enzymes, bio-fertilizers, etc, educational and research infrastructure, and nanotechnology. The project pertain to R & D, product development, manufacturing, contract research. The areas include projects in Bio-Pharma, Agriculture, Marine, Environment and Animal biotechnology. The investment is expected to generate estimated employment to 7300 skilled people.

In **Pharma sector, 27 MoUs** were signed by 25 companies, **with committed investment of Rs. 3250 crores.** It included 4 international companies, 4 companies are outside Gujarat while 17are Gujarat based companies. The project include contract manufacturing, bulk drug manufacture, formulations, drug delivery systems etc. The investment is expected to generate employment to around 14000 skilled people.

MoUs include financial investment as well as knowledge partnership. Infra structure, as well as R&D, manufacture as well as services. The investment is distributed allover the state in Vapi-Surat cluster, Ankleshwar-Bharuch cluster, Anand- Vadodra cluster, Ahmedabad cluster and Bhavnagar. Considering that investment of around Rs. 300 crores have been done upto year 2000, investment of around Rs. 200 crores, has been done in the period between 2000 to 2006, investment commitment to the tune of Rs. 1559 during 2009, the present **investment represents steady climb.**

During VGGIS-2009, Bio-spectrum ABLE- had conducted survey of BT industries of India, with reference to number of companies, revenue, turn over etc. **Gujarat, with around 100-105 companies having presence in biotech space, is gradually figuring in the top three states of the country.** Gujarat state Biotechnology Mission, the newly created organization has been silently but very actively marketing the state through one to one meeting. It is for the credit to the state that Bio-spectrum, top most leading biotechnology magazine of the country, had voted **Gujarat as Best bio-State of the country for the year 2007-08.** This year Gujarat state Biotechnology mission, along with bio-spectrum, brought exclusive Gujarat supplement on the occasion of Global investor summit and is **making efforts to project Gujarat as BT destination.**



## 4. POLICY PLANNING AND RELATED INITIATIVES

Biotechnology Policy of the State was released on 17<sup>th</sup> April, 2007. The State Biotech policy is an instrument which not only gives direction to biotechnology growth in state but also reflects a declared commitment of state government for the sector. While policy provides broad guidelines and macro-level approach, enabling implementation, needs developing specific strategies and action plans. Based on this policy document, Strategic Roadmaps have been developed; key sub-sectors have been identified; thrust areas within each and specific subsector has been focus and appropriate interventions will be taken for further development by state government. Infrastructure development, Research development, Human Resource development, Entrepreneurship support, Business development, Networking, Coordination and Awareness generation etc, have been identified as the key pillars of Biotechnology development for Gujarat. The policy derives its strength from Industrial Policy and other existing policies of the state. State has revised its industrial policy which provides additional financial and incentive support on infrastructure development and innovative projects. This benefit becomes available to Biotech industries as well.

### 4.1 2<sup>nd</sup> Meeting of Gujarat Biotech Council

The 2<sup>nd</sup> meeting of Gujarat Biotech Council was held in on 16th September 2008, under the Chairmanship of Shri Narendra Modi, H'ble Chief Minister of Gujarat state, at Gandhinagar. The other members who were present for the meeting were Dr Manjula Subramaniam, IAS, Chief Secretary, GOG, Mrs Gauri Kumar, IAS, Principal Secretary, Industries & Mines, GOG, Shri P.N Raichaudhary, IAS, Principal Secretary, Agriculture & Co-operation, Mrs Rita Teoatia, IAS, Principal Secretary, Health, GOG, Shri Raj Kumar, IAS, Secretary, DST, GOG, Member, Dr. S.K. Nanda, IAS, Principal Secretary, Forest & environment, GoG, Shri Hasmukh Adia, IAS, Principal Secretary, higher technical Education, GoG, Shri Arvind Aggarwal, IAS, Finance department, GoG, Shri M.T. Joshi, IAS, Joint secretary, Biotechnology, DST, GoG, Dr. Manju Sharma, Principal Advisor Biotechnology, Gujarat state, Shri S.L Govindwar, Advisor, Representative of DBT, GOI, Dr. Amit Ghosh, Director, IIR, Gandhinagar, Dr. M.C. Varshney, Vice Chancellor, Anand Agriculture University, Dr. Bharat Chattoo, Professor, MS Univesrity, Vadodra, Dr. Datta Madamwar, Head, Dept. of Biosciences, S. P. University, Vallabh Vidyanagar, Dr. V. P. Kamboj, Ex-President, National Academy of Sciences, (NAOS), Allahabad, Prof. Subhash Chand, Dept. of Biochemical Engineering and Biotechnology, Indian Institute of Technology (I.I.T), New Delhi, Dr. Farzaan Engineer, MD, Quintiles, Ltd., Shri Sudhir Vaid, M. D., Concord Biotech Ltd., Dr. P. K. Desai, Chairman & M. D., Span Diagnostic Ltd., Dr. Vijai Chauthaiwala, General Manager, Torrent Ltd, Shri Ashok shah, MD, Prasad biotech, Valsad Special invitee, Dr. Devyani R. Tipre, School of Science, Ahmedabad, Shri Akshay kumar Saxena, IFS, Mission Director, GSBTM, Member Secretary along with GSBTM officials and Prof A.K.Singh, representing Director IIT Mumbai, Dr. Bhavnath Jha, representing Director, CSMCRI, Bhavnagar.

Through out the council meeting proceedings, committee was informed that key sectors like Agriculture, Pharma-Healthcare, Marine Bio-Informatics, etc, have been addressed. Detailed information on various actions that have been taken were provided, including the Biotech park, incubator, being planned and developed, financial support provided in Biotechnology research to institutions technical manpower supported, blueprint for HRD development, new programs of MB Teach, GeneDiot, Biotech Venture fund, project supported, technology databases, reports, projects, prepared, promotion activities undertaken including participation in international , national events seminars conducted and supported, popular lecture series, Industry- academia interactive programs, web site etc. Council was also informed about the new initiative of Bio-Diversity Genebank, Gujarat Genomic Initiative, BIT Virtual, Marine Resource Centre, and the status thereof. The council was appraised about the impact of last three years functioning of GSBTM. It included increase in investments, new start up BT companies, diversification of phrama companies into biotech sector, and the award of Best Bio-State Award, received by Gujarat. During the meeting members made various suggestions regarding development of Sector in the state. Chairman & Chief Minister also made valuable suggestions for undertaking works in marine biotechnology, awareness and education.

### 4.2 5<sup>th</sup> & 6<sup>th</sup> Governing Body Meetings

During the financial year 2008-09 two Governing body meetings of Gujarat State Biotechnology Mission, were held, fifth governing body on 16<sup>th</sup> October, 2008 and sixth governing body on 16<sup>th</sup> March, 2009; both under the Chairmanship of Chief Secretary, Gujarat state. The meeting was attended by **Shri P.N.Roychaudhari**, IAS, Principal Secretary, Agriculture & Cooperation, GoG, **Dr. S.K Nanda**, IAS, Principal Secretary, Forest & environment, GoG, **Shri G.P Joshi**, IAS, Principal Secretary, Expenditure, finance, GOG, **Mrs Anita Karval**, IAS, I/c Principal Secretary, Higher Education, GoG, **Shri. Raj Kumar**, IAS, Secretary, DST, GOG, **Shri S.L Govindwar**, Advisor, DBT, Gol, representing Secretary, DBT, Gol **Dr. P.K. Ghosh**, Advisor, BT, GOG **Mr. M.T Joshi**, IAS, Joint secretary, BT, GoG, **Dr. Dutta Madamwar**, SP University, V.Vidyanagar, **Dr. Harish Padh**, Director, PERD, Ahmedabad, **Dr. Bharat chattoo**, MS University, Vadodra, **Dr Jha**, CSMCRI,



representing, Director CSMCRI, **Shri T.P.Singh**, Director, BISAG, GOG **Dr. A.M.Prabhakar**, Director, GUJCOST, **Dr Rasik Italiya**, MD, Italiya Biotech Ltd and **shri Akshay K.Saxena**, IFS, MD, GSBTM.

Major decision taken in meeting dtdt 16<sup>th</sup> Oct.2008, included , appointment of auditor for 2008-09, approval of draft report of Annual Administrative Report of GSBTM for 2007-08, approval of Share Holder Agreement and project development Agreement for Private developer for Biotech Park, Savli, and approval of appointment of M/s Multi-Media Consultants Pvt Ltd, as Project management consultants, for developing Biotech incubator at Biotech Park, Savli and their financial price bid.

Major decision s taken during meeting dtd 16<sup>th</sup> march, 2009, included, strengthening of corpus of Biotech venture fund, approval of establishing genetic Diagnostic centre, technical strengthening of GSBTM.

### 4.3 Brain Storming Session on Stem Cell Research

Stem cell: potential for present, Hope for Future, developing a Blueprint for Gujarat,



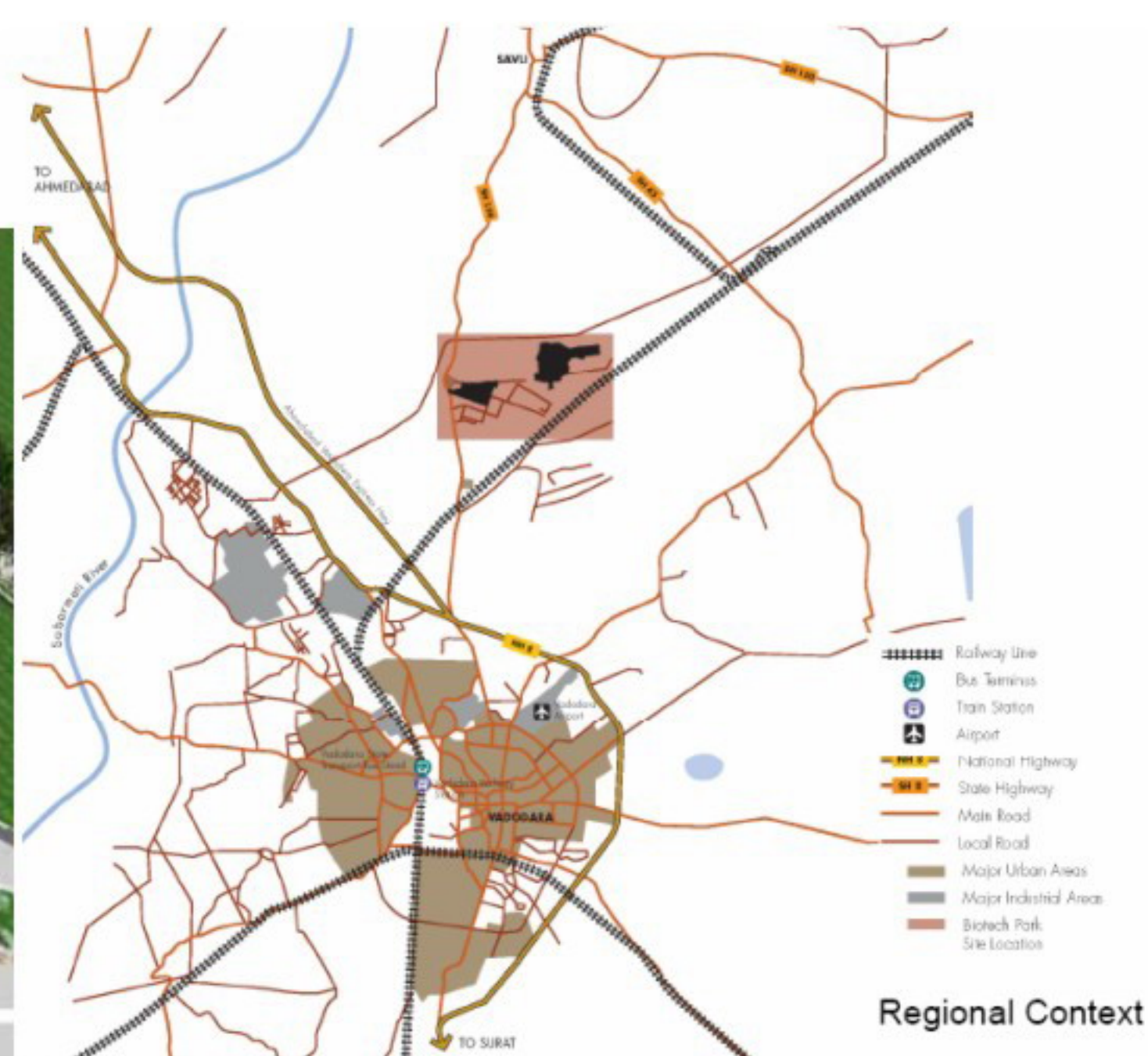
Stem Cell Biology or Stem cell research is one of the cutting edge revolutionary hope for the treatment of many incurable disorders including heart diseases, cancer, HIV etc. In view of the healthcare solutions offered by stem cells, and its relevance to state of Gujarat, GSBTM has visualized to develop a platform to enable research, application and use of stem cell technology. On 25<sup>th</sup> September 2008, GSBTM, DST, GoG organized a Brain Storming Session on Stem Cell Research, to identify thrust areas and priorities in stem cell research, skilled human resource, infrastructure and develop strategies and action points for the same, including implementation of Bio-ethics.

The brain storming session was held under the Chairpersonship of Dr Manju Sharma, Advisor, GSBTM and guidance of Prof. D. Balasubramanian, Director Research, IVPEI, Hyderabad. The session was attended by national level scientists like Dr Alka Sharma, Joint Director, Stem Cell Biology, DBT, Dr Amit Ghosh, Director, IAR, Dr Shyamala Mani, **Associate Professor**, NBRC, Gurgoun, **Dr M. R. Wani**, **Scientist**, NCCS, Pune, **Dr P. N. Nagpal**, **Director**, Retina Foundation, Ahmedabad; special state invitees were **Dr Vijay Shah**, **Director**, IHRF, Baroda, **Mr Himanshu Patel**, **Director**, Stemcure, **Dr Jayesh Sheth**, **Director**, FRIGE, **Mr Ravi Dalal**, **Project Manager**, Stemcyte, **Dr Shalin Thakor**, **Heart Surgeon**, Krishna Heart Hospital, Purvi Shah, Stemcyte, **Dr Bhaskar Vyas**, chairman, Total Potential Cell, Baroda, **Dr Chirag Shah** and GSBTM officials. Dr Manju Sharma elaborated the scope and need of stem cell research in the fast developing world and its relevance for the state of Gujarat. Post technical presentation and discussions, recommendations of the brain storming session provided by the experts have been documented in report form.



## 5. BIOTECHNOLOGY INFRASTRUCTURE DEVELOPMENT IN GUJARAT

### 5.1 Gujarat Bio-Tech Park and Biotech Incubator, at Savli, Vadodara

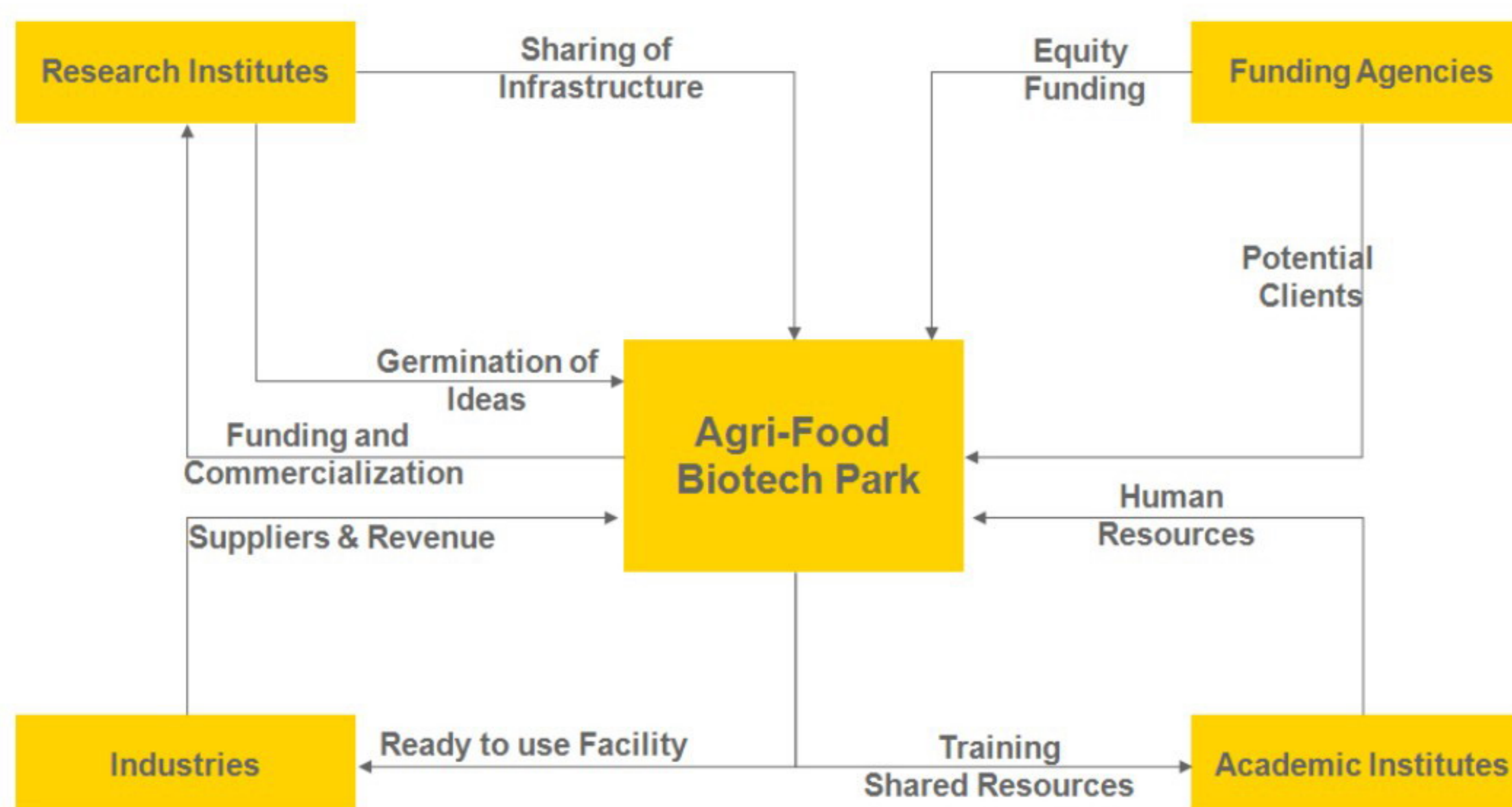


Biotechnology Incubator is a common facility Centre at Biotech Park, Savli, developed by state Government and the same has been provided in RFP document, approved by the state government. Biotechnology incubator includes, wet laboratories, modular laboratories, common equipment library, pilot plant facility, training centre which are to be established in the phase I land of 100 acres. Experts' technical guidance was undertaken by forming an Incubator Overseer Committee and the technical design of the incubator has been finalized. Estimated construction cost of proposed incubator was expected to be Rs 49.23 crores. In accordance with decision undertaken, PMC has also been appointed from GIDB empanelled consultants, for providing supervising, monitoring, quality control, tender preparation.

### 5.2 Agriculture Biotechnology Park and Agri-Business Incubator

To capture the advantage offered by biotechnology in agriculture sector, to leverage the agriculture strengths of Gujarat for increasing yields, value added products, better productivity and to provide ecosystem of infrastructure, product development, production and services, State of Gujarat is developing Agro Biotechnology park.

#### Concept of Agri-Food Biotech Cluster





## Layout of the Proposed Park (125 Acres)

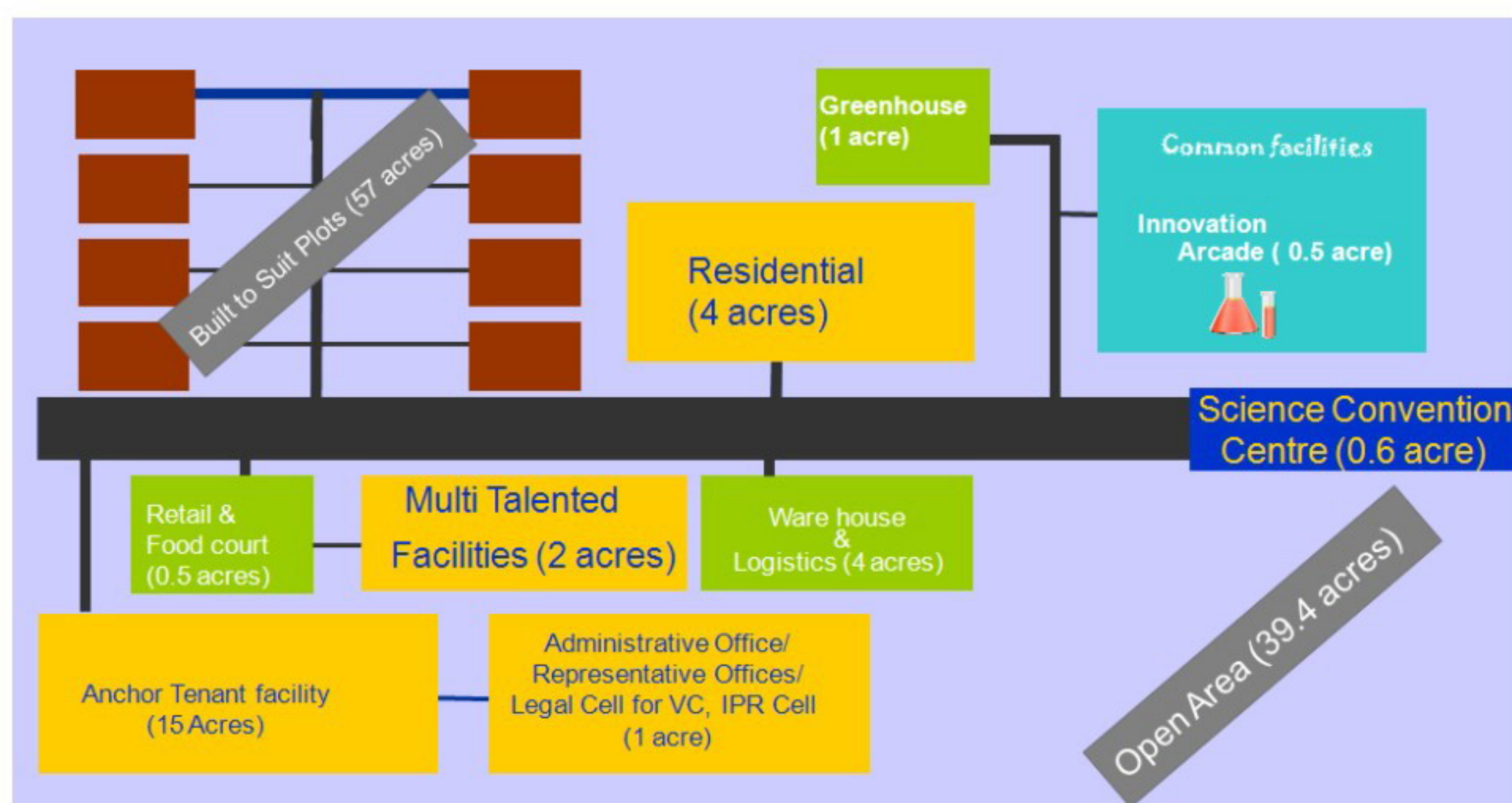


Diagram is purely illustrative in nature  
The size of the boxes in the chart do NOT reflect the size of the building  
Actual layout will be based so as to comply with the local byelaws  
No Incubator in the other 3 proposed parks

2

**ERNST & YOUNG**  
Quality In Everything We Do

Location and feasibility study, stakeholder inputs, have been completed and identification of land, has been done. During the year efforts were undertaken to identify the land for the park. The same has been done and area of 125 acres in Vijapur taluka in district Mehsana, has been reserved for developing the park. Governing body has approved the project and it has been decided to develop the park in collaboration with GIDC. Coordination is being done with office of Collector Mehsana, for allotting the land to GIDC. After detailed discussion, with GIDC, modalities for developing the park and action plan for the same will be developed.

### 5.3 Marine Biotechnology Park

Stakeholder Consultation Meeting for Marine Biotech Incubator & Park in Gujarat

Date: 9<sup>th</sup> May, 2008, Time: 10:00 a.m

Venue: Board Room, Gujarat State Biotechnology Mission, Gandhinagar.





The field of biotechnology has made a mark in the global as well as national economy, over last two decades. Application of the tools of biotechnology on to various terrestrial bioresources has given birth to many life saving solutions. But, with the exhausting and limiting terrestrial resources, mankind is now looking towards the oceanic resources for an answer for the newly evolving health and environmental problems. The state of Gujarat has been blessed with one of the longest coastlines, which generally plays a vital role in promoting commercial projects in Marine Biotechnology. GSBTM hence envisages thrust over the development of the sector of Marine Biotechnology and intends to bring in commercialization of some of the technologies developed by the leading research institutes of the nation and the State. Consequent to technical; expert committee meeting, concept and project of developing Marine Biotech Park has been submitted to DBT, GoI. Based upon the requirement of the project, the location and land, for the proposed Marine Biotech Park, has been identified. In view of the same, a Stakeholder consultation meeting was held in the 1st week of May, 2008, to assess 1. the available technologies viable and feasible to be commercialized in Gujarat, 2. the specific needs of the marine biotechnology sector, 3. state's intervention and support for Marine Biotechnology, 4. need for establishment of a Marine Biotech Incubator and Park.

The meeting was chaired by Dr. P. K. Ghosh, **Director, CSMCRI, Bhavnagar**, which also had received technical presentations of renowned scientists of marine biotech research like, Dr. Indrani Karunasagar, **Karnataka Veterinary, Animal & Fisheries Sciences University**, Dr. I. S. Bright Singh, **Coordinator, National Centre for Aquatic Animal Health and Director, School of Environmental Studies, Dean, Faculty of Environmental Studies, Cochin University of Science and Technology**, Dr. Usha Goswami, **Emeritus Scientist, NIO, Goa**, Dr. A. S. Mehta, **Head, Business Development Group, CSMCRI, Bhavnagar**, Dr. Shanmugam, **Center of Advanced Studies in Marine Biology, Annamalai University**, Dr. K. O. Issac, **MD, ABL Biotechnologies**; state representatives Dr. Rajiv Gandhi, **Hester Pharma**, Mr. Prasanta Biswal, **TCG**, Dr. Piyush Palkhiwala, **MAPS India Pvt. Ltd.**, and Dr. S. L. Govindwar, **state advisor from DBT, GoI**. Marine Biotech Park has its unique potential for developing marine biotechnology and attracting investments over the longest coast line of India.

Major recommendations made include, focus on Algae based bio-fuel, bio-prospecting for new marine enzymes, screening for new molecules, identification of 10 products or opportunities in Marine Biotech over 18 months, for evaluation by experts and to be supported by state government, reduction in size and number of modular labs and pilot scale plants in proposed incubator, de-linking of incubator (Modular Labs & Pilot Scale Plant), considering its establishment in premises of an institute or centre, developing park on the coast for biomass production or downstream industries.

#### 5.4 Gujarat Genomic Initiative

GSBTM established Gujarat Genomic initiative (GGI) jointly with FSL, Gandhinagar to initiate the DNA finger printing and sequencing related work. During the year, renovation work has been undertaken in the space allocated by FSL and modular laboratory is established. Following are the facilities developed as a part of GGI

1. DNA Sequencing Laboratory
2. PCR Laboratory
3. Sample Preparation and DNA Extraction Laboratory

GGI Focus areas are:

- AFLP of some of the socio-economically important plants of Gujarat
- Genotyping of Wild life animals
- 16s / 18s Sequencing for Bacterial and fungal species
- DNA sequencing and related services to industries and academia

During the Instruments like DNA Sequencer [4 Capillary], Real-time PCR, PCR, Gel Electrophoresis Units [Horizontal/ Vertical], Mili-Q Water Purification system, High Speed Refrigerated Centrifuge, Micro Centrifuge, Ovens, Autoclave, Micro plate spectrophotometer, Moisture analyzer, Micro balances, Laminar Air Flow, Hybridization oven, have been procured and installed while LN<sub>2</sub> Containers of various capacities, Freezers (-20 Deg C), Freezers (-80 Deg C) will also be installed shortly.

While Interviews were conducted for appointment of the manpower, however due to election code, further processing could not be done. Manpower shall be appointed shortly and centre will become operational.





This initiative generated great interest in some of the biotechnology industries and these industries had requested to provide services in various areas such as

- Mutation Detection
- Genotyping
- 16s Sequencing
- 18s Sequencing

Few of the procedures are optimized and services are rendered to BT Industries of Gujarat.

### 5.5 Gujarat Seed Gene Bank

GSBTM has established Gujarat Seed Gene Bank for Ex-situ conservation of Forest Biodiversity of Gujarat. Seed Gene Bank collates and compliments the efforts undertaken by the state by different department for screening, characterizing and development of genomic database of biodiversity of Gujarat. Activities focus is on developing inventory, collection and germplasm storage from key locations throughout different agro-climatic zones of Gujarat, Developing and operating a database and information network system on forest genetic resources, and operations including specialized research laboratories, training activities, infrastructure and equipment for the biotechnology community of Gujarat.

During the year work on establishing Molecular Biology Laboratory, Cryo-preservation Laboratory, Embryo-Rescue Laboratory, Seed Bank, Bioinformatics and Database Unit laboratories was started in space allotted by forest department. Laboratory renovation was completed and laboratory is established with modular units. Instruments like Real-time PCR, PCR, Mili-Q Water Purification system, High Speed Refrigerated Centrifuge, Micro Centrifuge, Ovens, Seed Dryer with dehumidifier, Seed Germinator, Autoclave, Micro plate spectrophotometer, Moisture analyzer, Micro balances, Laminar Air Flow have been procured and installed while LN<sub>2</sub> Containers of various capacities, Freezers (-20 Deg C), Freezers (-80 Deg C) will also be installed shortly.



Balance



Moisture Balance





Laminar Air Flow



Vegetable Seed Dryer



Modular Laboratory Facility



Ultra Centrifuge

While Interviews were conducted for appointment of the manpower, however due to election code, further processing could not be done. Manpower shall be appointed shortly and centre will become operational. Germplasm collection is being coordinated with forest department.

## 5.6 Clinical Research Center

Shivrath Center of Clinical Research is collaboration between Industry-Academia and State government. Consequently to the recommendation by technical advisory committee, the proposal was approved by Governing body of GSBTM. The centre is unique of its own kind of center run as public private partnership between Government of Gujarat (Gujarat State Biotechnology Mission) and a private company, Synchron Research Services Pvt. Ltd. Gujarat State Biotechnology Mission where acts as Nodal Agency for Coordination with other government agency and it will have grants over period of 3 years in public private partnership with overall quality control and financial implications sharing maximum up to 11% cost of the total project or 20 lack whichever is lesser. Shivrath Center in Clinical Research is providing all technical expertise, building infrastructure, major financial component and overall coordination of the COE.

Shivrath Centre for Excellence in Clinical Research aims to enhance the capability, competency and expertise of the professionals engaged in supervising, conducting, monitoring and developing clinical trials in India and other countries of world by the way of specialized training programs. From the current fiscal year centre has started with the training of some short term certificate courses in clinical research like One Year Full Time Course - Post Graduate Diploma in Clinical Research (PGDCR), One Year Part Time Course - Post Graduate Diploma in Advance Clinical Research (PGDACR), One Year Part Time Course - Post Graduate Diploma in Clinical Trial Management (PGDCTM). Admissions for the first batch were accepted in 2008-09, admissions are open for 2009-10 batches. Salient Features of the training include, theoretical sessions delivered by dedicated faculty, Guest lectures and case studies taken by experts from industry, simultaneous on site practical training at CROs, BA/BE centers and Hospitals, projects & application oriented studies at station industry sites, etc. Eligibility criteria decided for PG course requires, Graduates and Post Graduates in Pharmacy, M.Sc. / B.Sc. (Microbiology, Chemistry, Botany, Zoology, Biochemistry, Biotechnology, Life sciences), MBBS, BAMS, BHMS, BDS, Physiotherapy, Para-medical, BPNA, GNM, B.Sc. (Nursing).



Major activities done during the first year by Shivrath centre of excellence in clinical research (a joint venture with GSBTM, Govt of Gujarat) include,

- **38 seminars organized on Clinical Research Awareness** at various science/pharmacy/medical colleges of Gujarat in 2008-09. Detailed program chart is as given below.
- 1<sup>st</sup> international workshop on BABEPK and beyond on 1-3 December 2008 at The Pride Hotel Ahmedabad was organised by Shivrath COE in clinical research. Total 32 top professionals from the pharmaceutical and CRO industry were present. Thermo fisher, Pharsight, Hucklin and Synchron research have supported the events.
- Clinical Carnival 2009 was organised by DDU, Nadiad on 28<sup>th</sup> February 2009. The programme was technically supported by Shivrath COE in clinical research.
- Applied and very much hopeful to be recognized research centre for doctoral programmes in pharmacy by M S University, Baroda.
- The center is in process to get affiliation with CCD of Saurashtra University, Rajkot.

Sr No	Date	Place
1	8/9/08	M G Science College, Ahmedabad
2	8/9/08	Dept of Microbiology, Gujarat University
3	12/9/08	Dept of Botany, Gujarat University
4	16/9/08	Akhandanand Ayurvedic college, Ahmedabad
5	27/9/08	Homeopathic college, Ahmedabad
6	24/9/08	R G Shah Science college. Ahmedabad
7	17/9/08	SAL Hospital, Ahmedabad
8	11/9/08	Sterling Hospital, Ahmedabad
9	12/9/08	Medisurge Hospital, Ahmedabad
10	16/9/09	Nagri Hospital. Ahmedabad
11	20/9/08	V S Hospital, Ahmedabad
12	17/9/08	Shalbey Hospital, Ahmedabad
13	19/9/08	B J Medical College, Ahmedabad
14	29/12/08	M N College . Visnagar
15	29/12/08	Nootan Sarva Vidhvalav. Visnagar
16	29/12/08	L H Science college, Mansa
17	30/12/08	Umedbhai Panchal Science college, Pilwai
18	30/12/08	Nootan Dental College. Visnagar
19	6/1/09	L B Rao Pharmacy college. Khambhat
20	6/1/09	Science college, Khambhat
21	6/1/09	M N College of Pharmacy, Khambhat
22	7/1/09	R K Parikh Science College. Petlad
23	9/1/09	K B Institute of Pharmacy. Gandhinagar
24	9/1/09	Govt Science college. Gandhinagar
25	10/1/09	Municipal Science college, Mehasana
26	11/1/09	Sarvaenic Pharmacy college. Mehasana
27	11/1/09	J D K Science college
28	18/1/09	BT Utsav. Pramaukh Swami Science college. Kadi
29	11/2/09	Anand Homeopathic . Anand
30	11/2/09	M B Patel Science college, Anand
31	12/2/09	Anand Mercantile college. Anand
32	12/2/09	Dr V H Dave Homeopathic college. Anand
33	12/2/09	Shri P M Patel Science college. Anand
34	13/2/09	N V P Science college. V V Nagar
35	13/2/09	VP and RPTP college. V V Nagar
36	14/2/09	A R College of Pharmacy. V V Nagar
37	28/2/09	J and J Science College. Nadiad
38	28/2/09	Ayurvedic College. Nadiad





### 5.7 Genetic Diagnostic Centre [GenDiCe]

Modern Biotechnology has strong application in healthcare. Dedicated facilities, enabling genetic diagnostic for human population is one such preventive application of biotechnology in human health care. Creating network of genetic diagnostic facilities is also initiative taken by DBT, GoI. Training in the field of diagnosis of genetic disorders using "Cytogenetics and Molecular Genetic Methods" is also being implemented at five centers in the country to train young scientists/ clinicians/technologists as a part of National Strategy by Govt. of India.

Gujarat, with its futuristic and social welfare approach, has taken a pro-active action. The strategic planning would include establishing state wide network, with phased development of state level centre, connected by regional centers and followed by district level centers. It would be required to develop new infrastructure facilities for genetic diagnostics, it would be desirable to expand the existing facilities and extend the benefit to society.

In this respect, Gujarat University has been operating a genetic Diagnostic centre, since 1969. Up till now the centre has provided service to nearly 3000 beneficiaries. With its experience, the centre has been planned to be up graded so as to provide service to wider section of population. The university is contributing infrastructure (building, space, equipments worth Rs. 197.0 lacs.

Technical committee of GSBTM, has recommended the same for development. The project, provides the modern technology tools for disease diagnostics which can prevent the future disease load, it also supports and utilizes the existing infrastructure facilities, aiming to expand and upgrade the existing facilities. The facilities are planned to be developed with project cost of RS. 198.00 lacs, over a period of three years. Governing body in its meeting dtd 16<sup>th</sup> March, 2009 has approved the project.

Operational and managerial responsibilities have been kept on project base mode, with project director or Investigator providing overall supervision and management. Project based staff will provide the overall services, and the coordinating committee, comprising representatives from GSBTM, University & nominated member from health department, would provide overall guidance.

The centre will set the platform for molecular pathology and provide new technologies for monitoring the disease and non disease state in population of Gujarat. It will provide strong base of genetic information for analysis, clinical diagnosis, and development of modern research tools. The centre will be encouraged to submit the proposal to DBT or other GoI and is visualized to develop it into state level institute at later stage.



## 6. BIOTECHNOLOGY RESEARCH, INNOVATION SUPPORT AND DEVELOPMENT

Biotechnology is a knowledge driven sector and needs high level of support to research and development which includes, research prioritization, action plans, research support to ongoing programs and new programs, establishment of research based centre of excellences and facilitation of patenting. With an objective to support Biotechnology Research in Gujarat; educational institutions and agencies, GSBTM conceptualized Biotechnology research support program. It was designed to encourage fundamental research as well as applied research (inclusive of product/process/technology development) with the objectives to facilitate research through Infrastructure and Fundamental Research support, encouraging research culture with knowledge upgradation and exchange of information on recent advances and developments, providing common platform for interaction & knowledge exchange to the experts, creating a new breed and environment for Biotechnology Research and facilitating the conversion of Lab Biotechnologies into transferable products or processes.

The nature of support to be provided, included support to Fundamental Research and Infrastructure, Product / Technology related Research, Research related to Technology Scaling-Up and Research related to Technology Transfer. The various Research Areas supported, included Agriculture Biotechnology, Industrial Biotechnology, Animal Biotechnology, Environmental Biotechnology, Healthcare & Pharmaceutical Biotechnology, Marine Biotechnology, Bioinformatics and any other field (as deemed relevant by the Committee from time to time).

### 6.1 Biotechnology Research Support & Outcomes

GSBTM has been continuously encouraging state level institutes, universities, industries to avail the opportunities from Govt. GSBTM had conceptualized Three Biotechnology Research Support Schemes/Programs, Developing Centre of Excellence, Supporting Major Research Project and Minor Research Project,

Total financial support was to the tune of Rs. 4.5 crores, provided by GSBTM for 16 R&D projects covering various biotechnology sub sectors. 2 Centre of Excellence, CoE in Marine Biotechnology at CSMCRI - Central Salt & Marine Chemicals Research Institute, Bhavnagar and CoE in Agriculture Biotechnology at M. S. University, Vadodara were developed. Financial Support provided by GSBTM for 14 Major & Minor Research Projects covering various biotechnology sub sectors.

GSBTM had been coordinating such research project support, for 16 Research Projects funded, covering various sub sectors like 7 project belong to Agriculture Biotechnology, 3 project belong to Environment Biotechnology, 3 project belong to Industrial Biotechnology, 1 project belong to Bioinformatics, 1 project belong to Pharma Biotechnology and 1 project belong to Animal Biotechnology.

The projects had benefited 15 Faculties/Scientists, working in 14 Laboratories of 6 Universities, 3 Research Institutes and 1 College of the state. Total 37 Junior Research Fellows were appointed for 3 years, resulting to 17 Publications in International Scientific Journals, 7 Publications in National Journals, 37 Research Presentations in National & International Conferences, generating 16 Ph.D and 6 M.Phil. research scholars.

During the year Governing body has decided that on identified research priorities, GSBTM may invite research proposal and provide support.



# GUJARAT

## Biotechnology

### Biotechnology Research Support Details



#### Name of Institute/Department (No. of Projects)

1. Central Salt & Marine Chemicals Research Institute, Bhavnagar
2. Microbiology & Biotechnology Department, MS University, Baroda (3)
3. Gujarat Forest Research Institute, Gandhinagar
4. Gujarat University, School of Science, Ahmedabad
5. Anand Agricultural University, Anand (2)
6. Gujarat Cancer Research Institute, Ahmedabad (2)
7. Bioscience Department, Saurashtra University, Rajkot
8. Hemchandracharya University, Patan
9. Shree M & N Virani Science College, Rajkot
10. Sardar Patel University, Vallabh Vidhyanagar (2)
11. Bio Chemistry Department, MS Uni, Vadodara



## 7. BIOTECHNOLOGY HUMAN RESOURCE DEVELOPMENT

### 7.1 Genetic Diagnostic Training Program [GenDioT]

Genetic diagnosis play important role as far as population genetics is concerned. More than 10,000 genetic disorders prevail in Human population whose diagnosis, study and analysis will be of most important to overcome the major challenges into healthcare and allied areas. Looked in to the facts and with a mandate to promote and develop skilled human resource. GSBTM had conceptualized GenDioT – genetic Diagnostics training for Clinicians & Young Scientists of Gujarat with following objectives. The program was designed to develop specialized skills, knowledge advancement, proficiency, create well trained manpower and resources in Gujarat, encourage research in the priority areas of Human Genetics and genetic diagnosis.

After receiving the approvals from health department, the program had trained 15 participants - 10 researchers and 5 medical fraternities from various universities, institutes and medical colleges of Gujarat, which was conducted first time during 18<sup>th</sup> December, 2007 to 7<sup>th</sup> January, 2008. During the current financial year, second batch of GenDioT was trained. Out of 50 applicants only 15 candidates were selected due to infrastructure limitations. GSBTM appreciated keen interest of remaining participants in getting this training and the preference was given to the earlier non selected applicants for GenDioT-2009.

The training was divided into two phases where in Phase-I participants were trained for 2 weeks in the state institutes utilizing the existing infrastructures and expertise where as in Phase – II selected participants from Phase-I shall be sent to one national facility for further detailed training. Gujarat State Biotechnology Mission was organizing agency and taking care of Overall coordination responsibility. Proposed Training Centers were Dept. of zoology, School of Sciences, Gujarat Uni. And Gujarat Cancer Research Institute, Ahmedabad.

For the second batch of GenDioT about 50 applications were received during 2007. Out of 50 applicants only 15 candidates were selected due to infrastructure limitations. GSBTM appreciated keen interest of remaining participants in getting this training and the preference was given to the earlier non selected applicants for GenDioT-2009.

Training Outcomes were found fascinating at the end of 14 days second GenDioT residential training program, 9 participants were trained for total 2 weeks at two different institutes. Participants were given hands-on training on advanced molecular & genetic diagnostic instruments such as M-FISH (First facility in the country funded by GSBTM), Florescence Microscope, KASA, PCR etc. All together 9 Scientists & experts recognized at national level in the field of molecular & genetic diagnosis delivered their expert talks at GenDioT- 2009 which could benefit participants to be aware about recent developments in the field and helped in developing clinical & research approach.

Experts delivered lectures in all about 12 hours and shared their knowledge and expertise in the field of cytogenetics and molecular diagnosis which helped to add on knowledge and elaborate the concept in the respective field to the candidates. These expert talks helped the participants to open up new directions in future.

Completion of training was followed up by evaluation including the pre-course and post course feedbacks.





## 7.2 GIBioN

The State Government of Gujarat is committed towards overall development of Biotechnology in the state and has realized that world-class manpower trained in Biotechnology is one of the most obligate requirements for the same.

Hence, in order to develop highly inspired & oriented, talented young students skilled in all facets of Biotechnology as well as the soft skills leading to overall personality development; the Gujarat State Biotechnology Mission [GSBTM] – the nodal agency for Biotechnology in the state; under the aegis of Dept. of Science & Technology; has formed a network of all Under-Graduate Colleges/University Departments conducting teaching and research programmes in the field of Biotechnology – **Gujarat Integrate Bio Network [GIBioN]**.

### 20<sup>th</sup> State Level Intercollegiate Competitions at Sarva Vishwavidyalaya, Kadi



Under the aegis of GIBioN, to inspire and induce the values of excellence amongst the biotechnologists of tomorrow (i.e.: Under-Graduate Students); Intra college competitions are held in respective colleges comprising of Seminar Presentations and Scientific Cartoon [BTtoon] Competitions for Second and Third year B.Sc. students, Article Writing and Extempore Speech competitions for Third year B. Sc students every year.

Thereafter, jointly with Microbiology Study Circle – J. J. College of Science, Nadiad; GIBioN conducts State level Inter-Collegiate Competitions wherein the winners of the Intra-Collegiate Competitions compete for a State-level Championship.

The 20<sup>th</sup> State Level Intercollegiate Competition was held at Kadi SarvaVishwavidyalaya on 18<sup>th</sup> January 2009. The Inaugural Session was graced by Hon'ble Minister of Education, Govt. of Gujarat – Shri Ramanlal Vora as the Guest of Honour. He, while recommitting towards the purpose of creating excellent world-class work-force for the planned industrial development in the state; also appraised the gathering about the various initiatives of the state government. The Mission Director, GSBTM, DST, GoG elaborated on the philosophy of GIBioN and appealed the Biotech fraternity to undertake integrated efforts towards the vision of the state towards creating world-class Biotechnology work-force.

State-Level Inter-Collegiate competitions amongst the winners of the Intra-Collegiate competitions followed the Inaugural Session for Seminar Presentations and Scientific Cartoon [BTtoon] Competitions for Second and Third year B.Sc. students, Article Writing and Extempore Speech competitions for Third year B. Sc students.



These competitions saw participation from about 35 to 40 colleges from over 8-10 Universities. A total of about 130 students competed in various competitions and the total audience was about 1200 students with about 120 faculty members, about 150 invited guests.

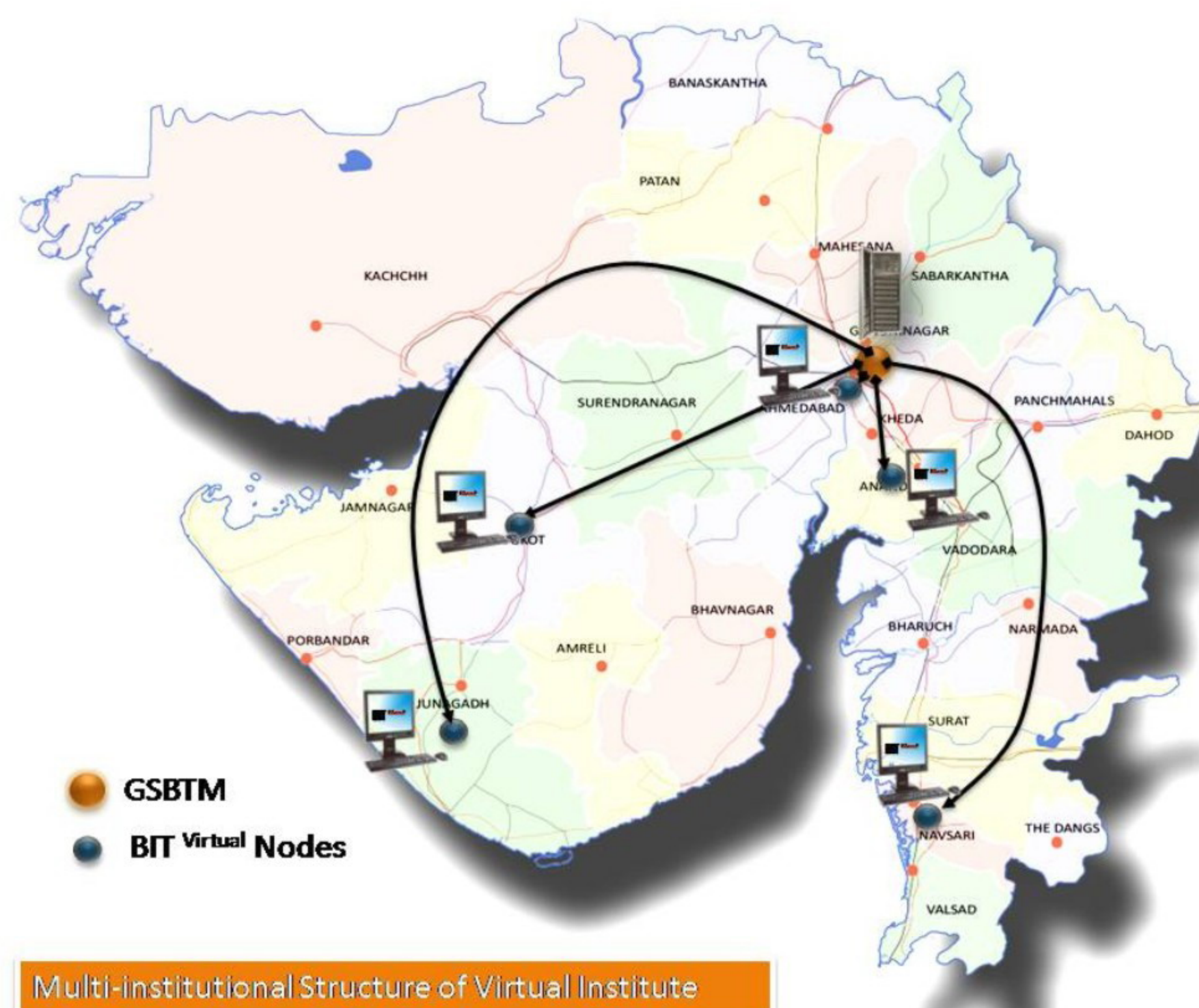
In concurrence to the vision of the state Government and of GIBioN, in the next phase, GIBioN aspires to establish a network with the Post-Graduate Centers of Learning and the Research Fraternity supported by event for the same as well.

GIBioN is now looked at, as a network for excellence, which shall hone the skills of students and thereby aid in awareness related to biotechnology. GIBioN would invoke enthusiasm and inculcate the tenets of competitive excellence in the Gen Next.

### 7.3 BIT<sup>Virtual</sup> – The Virtual Institute of Bioinformatics

To utilize the network infrastructure as a strategy to initiate Bioinformatics Research and Education, Gujarat State Biotechnology Mission, Department of Science and Technology Government of Gujarat envisaged a concept of The Virtual Institute of Bioinformatics [BITVirtual] for the Academic institutes and Industrial sector of Gujarat. The proposal was approved by the Government on 2<sup>nd</sup> November 2007.

During the year efforts were undertaken and BITVirtual [V-BIT] was declared as a recognized institute for M. Phil. And Ph. D. courses in Bioinformatics under the faculty of Science, Saurashtra University for a period of 5 years upto June 2013 vide letter no. PG/1474/2008, dated 8/07/2008. It comprises 6 state Universities as nodal Institutes and GSBTM as Main Nodal center.

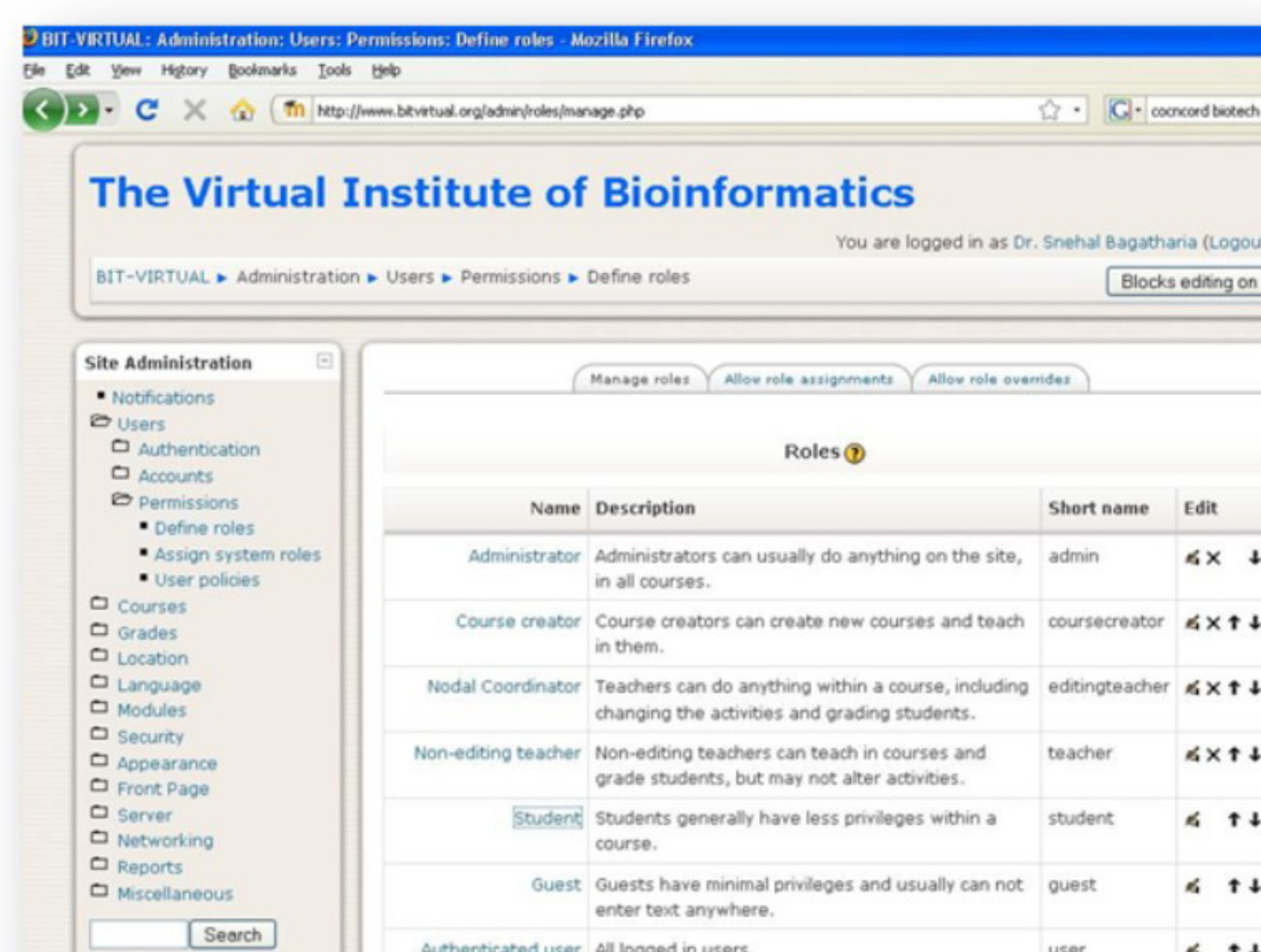




## Activities

BiT Virtual centre aims to Establish networks of local and international bioinformatics resources, centralized databases and data management systems, Develop educational programs, Promote human resource development through training and establishment of post graduate programs in bioinformatics, Undertake and develop projects related to concepts, methodologies, and technologies related to computational biology, genomics, proteomics, structural biology and disease modeling and Develop close collaboration between world-leading Informatics and Biological Sciences specialties, offering a powerful synergistic approach. BiT Virtual is offering M.Phil Bio-Informatics, through multi-institutional coordination. Multi-Institutional M. Phil. Program is recognized by Saurashtra University and 21 students are enrolled in this program. The program has VI modules, covering basic bio-informatics, Advanced & Applied Bio-informatics, assignments, seminars and problem based learning, dry & wet lab practicals and M.Phil Thesis.

Integrated Virtual Learning Environment system (**Moodle [Bit<sup>Virtual</sup> IVLE]** has been developed as a common platform for all the nodes of BIT<sup>Virtual</sup>. Key BIT<sup>Virtual</sup> IVLE Features, are that it is Simple, lightweight, efficient, compatible, low-tech browser interface, Easy to install on almost any platform that supports PHP Suitable for 100% online classes as well as supplementing face-to-face learning, Promotes a social constructionist pedagogy, provides strong security throughout.

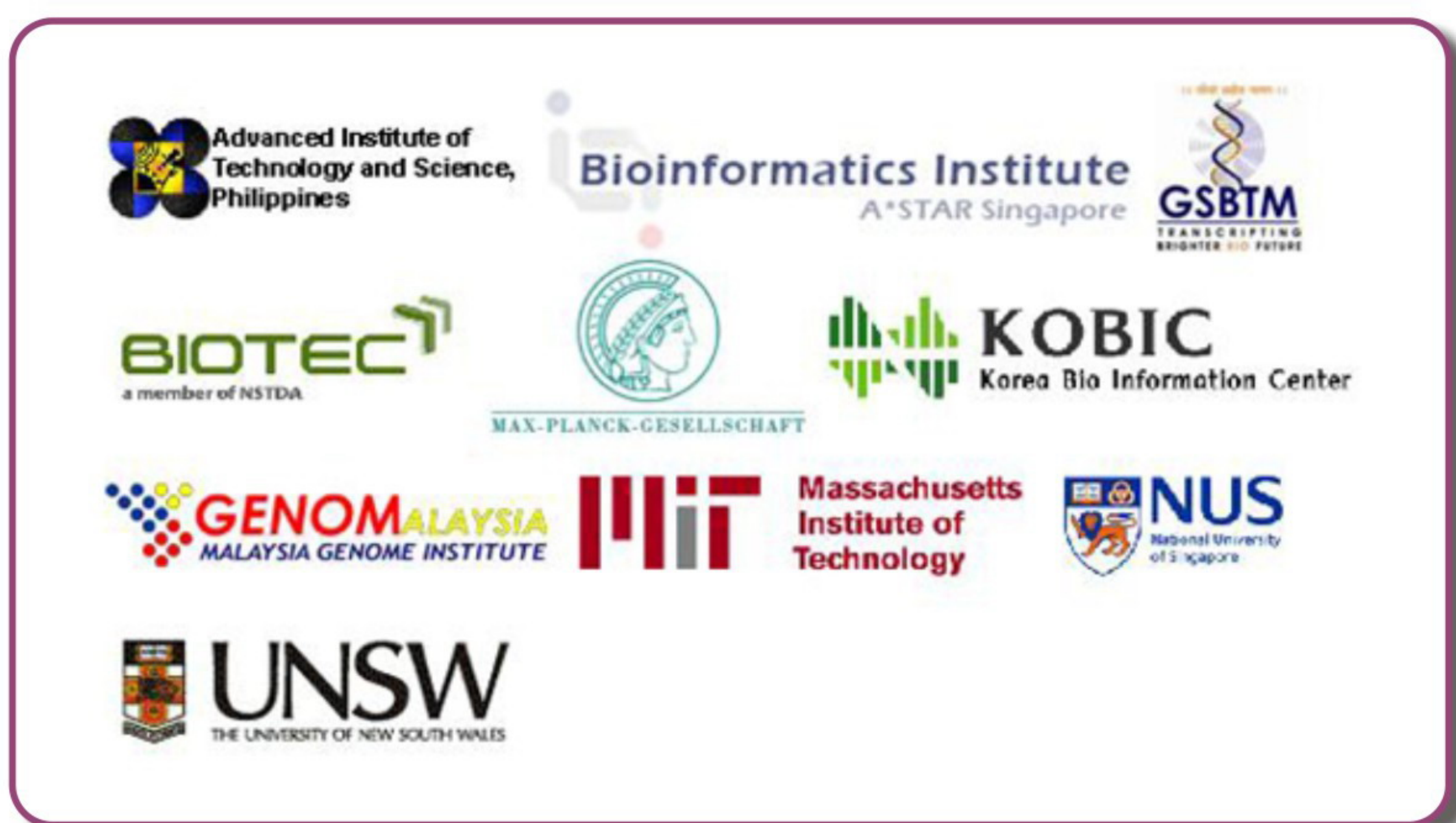




BIT<sup>Virtual</sup> SGI HPC Cluster, for bioinformatics applications into Genomics, Proteomics and In-silico drug discovery is installed in Government Data Centre in Gandhinagar. Infrastructure Facilities include Cluster - SGI Altix 1300 with, CPU -- 22 Quad Core Intel Xeon processors, System Memory -- 16 x 80 GB DDR2 FBDIMM RAM, Internal Storage -- 7.4 TB SATA HDDm, Work Stations for all the students and Progeniq BioBoost™ Lab 3.0, Progeniq BioBoost™ Cluster Accelerator Add-on, Hardware accelerated algorithms, (1) Pairwise Sequence Alignment (Smith-Waterman), 2) Multiple Sequence Alignment (ClustalW)

There are six Nodal Coordinators - BIT<sup>Virtual</sup> (i) Dr. Snehal Bagatharia, Coordinator - BIT<sup>Virtual</sup>, Gujarat State Biotechnology Mission, (ii) Prof C. G. Joshi, Nodal Coordinator- AAU, Dept. of Animal Genetics and Breeding, College of Veterinary Science & Animal Husbandry, Anand Agricultural University, (iii) Prof. Shailesh Dave, Nodal Coordinator- Head-Department of Microbiology & Biotechnology, Gujarat University, (iv) Dr. Rajesh Patel, Nodal Coordinator- Department of Biosciences, Hemchandracharya University, Patan, (v) Prof. V. P. Chovatia, Nodal Coordinator- Professor & Head, Department of Agricultural Botany, College of Agriculture, Junagadh Agriculture University, Prof. Rajendrakumar R. Shah, Nodal Coordinator- NAU, Dean, ABM and Prof. & Head, Dept. of Biotechnology, Department of Biotechnology, Navsari Agricultural University, Prof. Vrinda. S. Thaker, Nodal Coordinator- Centre for Plant Biotechnology & Genetic Engineering [CPBGE], Department of Biosciences, Saurashtra University, Rajkot.

GSBTM is one of the site having Bio Boost Installation around the World including BIT<sup>Virtual</sup>, GSBTM, DST, GoG





## 8. DEVELOPMENT OF BIOTECHNOLOGY ENTREPRENEURSHIP

Biotechnology industries are, capital intensive, power intensive, research driven and have multi sector linkages. Biotechnology industries are Research and Development oriented, manufacturing based and/or Bio-service providing. Biotechnology, have interface with multiple sectors, namely, Agriculture, healthcare, environment, marine, animal husbandry etc. The Biotechnology Industries have multiple client spectrums, characterized by starters, existing entrepreneurs venturing in BT field and established business houses diversifying in Biotechnology.

### 8.1 Biotech Venture Fund

To promote the development of cutting edge research and technology and its conversion into innovative business opportunity, the state Government has created Gujarat Biotechnology venture fund with proposed corpus of Rs. 50 crores, with GVFL as trustee manager of the Gujarat Biotechnology venture fund. State Government has commitment to contribute Rs 10 crores as initial corpus for the same from the funds available at DST, GoG, for Biotechnology. GSBTM has released total of Rs. 7 crores to GVFL. The amount released in different years under the biotech venture fund is, in 2004-05 it was Rs. 2 crores released, in 2005-06 it was Rs. 3 crores released, in 2006-07 again Rs. 2 crores was released and during 2007-08 the amount going to be released is Rs. 3 crores. During the current financial year GSBTM had provided Rs. 2 Crores to GVFL for Gujarat Biotechnology Venture Fund (GBVF) supporting biotech industrialization and business development.

Gujarat has been amongst the first few states, of the country to have created, a dedicated biotech Venture fund. GSBTM as nodal agency has been actively providing the necessary bridge between GVFL and up coming biotech entrepreneurs and biotech projects. Industries who have shown interest for this funds takes approval by the Investment Board of GVFL for providing venture finance. GVFL has received 8-9 projects with request for venture financing. During the period venture support has been provided to Amrita Therapeutics Private Limited and Aura Herbal Wear Limited.

Sr. No.	Name of company	Amount released (Rs. in lacs)
1.	Celestial Biologicals Limited	Rs. 200.00 lacs ( redemption done and funds recovered)
2.	Century Pharmaceuticals Limited	Rs. 250.0 lacs
3.	Amrita Therapeutics Private Limited	Rs. 200.0 lacs
4.	Aura Herbal Wear Limited	Rs. 240.00 lacs

### 8.2 Seminar on "Proactive Governments for Biotech Commercialization"

The success of the tool of biotechnology would depend upon successful translation of the meaningful researches done in dedicated laboratories into profitable and welfare causing endeavors to the society. However for the technologies based on life systems or molecules borne from them; commonly referred to as biotechnologies; thus developed in dedicated laboratories to be converted into profitable ventures; an aptitude of entrepreneurship is the prerequisite. The subjects of the state of Gujarat have a long established legacy of entrepreneurial spirit. However, the onset of knowledge based economy has seen development of other states of India, especially southern ones, on a high. The state of Gujarat is striving to make a niche in knowledge based economies like in Information Technology [IT] and Biotechnology [BT].

The governance at both Central Government as well as State Government levels has reached newer realms of pro-activeness in supporting the same. The SBIRI initiatives of the Government of India, Ministry of Science & Technology, Department of Biotechnology exemplifies the same. The need of orientation to generate awareness amongst the participants about the Government schemes available for commercialization in Biotechnology, to generate a spirit for biotech commercialization in the State, to generate a spirit of competition amongst the entrepreneurs of the State to develop feasible projects in the field of biotechnology, is essential.

Hence GSBTM had organized a One day three-sessioned Seminar on 17<sup>th</sup> October, 2008 at AMA hall, opposite IIM, Ahmedabad, at 16: 30 hrs. At such a juncture, hence, it was of deemed important that some potential entrepreneurs be oriented to the nuances of the Government's initiatives in Biotechnology. For highlighting these aspects by, creating awareness related to various initiatives by Governments; highlighting some success stories in recent past and exemplifying probable collaborations. GSBTM had invited state level biotechnology players, research institutes, government organizations, academic department's faculty members and



research scholars. The seminar also had participation of existing & aspiring entrepreneurs from different fields interested in biotechnology venture.



The mission director GSBTM, raised the seminar curtain with his inaugural speech. The first talk was delivered by Dr. Somnath Ghosh, MD, NRDC, discussing about 'Technology Commercialization Initiatives of Govt. of India', followed by a brief introduction of 'DSIR Certification – A boon to commercial R&D' in absence of Dr. R. R. Abhyankar. 'The Scheme SBIRI' was very well explained by the scientist with DBT, Dr. Shashi Kumar. Followed by an enlightening speech on 'Technology Development Board – A successful initiative' delivered by Mr. Shanshank Sinha, Secretary, TDB, GoI.

Next sessions were projecting "Success Stories & Possible Collaborations", under which experiences of SBIRI applicants were put in-front of the entrepreneurs as a Case study. Dr. P. K. Desai from Span Diagnostics Ltd., Dr. Vikas Shirsath from Oxygen Healthcare and Mr. Janak Sheth from Century Pharmaceuticals had represented their success stories. The last session was an opportunity for the biotech entrepreneurs of the state to project and share their business ideas at this forum and invite probable business collaborations for further expansion and symbiotic growth of the companies. Companies' individual presentation for various collaborations were appreciated and very well commented by the experts.

### 8.3 Technology Facilitation cell

While development of Biotechnology business involves entrepreneurship and investments, GSBTM has come up with products and out puts that facilitate Biotechnology foresight, entrepreneurship, business, investment and wealth creation. An immediate action needed for this is technology facilitation and support. GSBTM has been operating Technology Facilitation Cell (TFC), within GSBTM, which provides support by providing selected services, in terms of database of biotechnology available for commercialization, transfers, partnerships and later on additional roles. The cell is operational, since two years and is being run by engaging one technical personnel. The cell has developed its second product which is A Compilation of Globally available Technologies. TFC has also developed second edition of Technology Scroll which is compilation of 600 available technologies. The product is aimed to provide essential information to interested biotechnology stakeholders, both the existing ones and also the ones who are looking forward to converge towards and diversify into niche biotechnology sectors. Within one year, TFC has produced



Technology Scroll (6 volume compilation), Business Plan on Bio-fertilizer, a Report on Jatropha including Database, and a Report on Tissue Culture and Bio-Diesel. These all are very well designed and made available for the stakeholders in ready to refer, printable format to have idea on different technological and entrepreneurial aspects.

#### 8.4 IAC2 - Industry Academia Collaboration Cell

21st century is an arena of Knowledge intensive fields like Biotechnology, where growth is dependent on innovation, research and gaining of more n more knowledge, realizing the chant "Yogah Karmasu Koushalam". Along with gaining knowledge there is also a need of Joining the Strengths to become continuously enriched for the better development. Universities and industry, which for long have been operating in separate domains, are rapidly inching closer to each other to create synergies. The intersecting needs and mutually interdependent relationship requires identifying means of further strengthening academia-industry partnerships. Considering the need of the hour and being the nodal agency for overall development of Biotechnology in the state this office has established Industry Academia Collaboration Cell-IAC2. Out of many activities visualized one of the key prospect is to organize lecture of eminent biotechnologists from industries in various academic departments.

Main objectives of the cell are, to develop a common platform for Interaction between Industries & Academia, Guest Lectures by industry representatives, to receive suggestions of Industry in curriculum and content designing, to organize Executive Education and Development Programmes, to organize Joint seminars by academia and industry both for executives and students, academia generating ideas and acting as creator to new business, inclusion of industry experts in governing councils and other board of studies, to provide financial and infrastructure support by industries to business schools for their development, Funding academic and applied research, Creating Placement Cells for absorbing Students and Facilitating Industry Academia Lineages through knowledge integration, developing indigenous strengths and motivating environment for science persuasion.

IAC2 has organized two lectures during the financial year 2008-09, they are,

1. A lecture by Mr Rajiv Gandhi, Chairman & CEO of Hester Biosciences Pvt, Ltd. is scheduled at Dept of Biosciences, HNGU, Patan on 7th August, 2008





2.A lecture by Dr Sanjeev Kumar, Vice President, Biotechnology, Zydus Research Centre at esteemed institute on 17th September, 2008.





## 9. ENCOURAGING BIOTECHNOLOGY BUSINESS AND NETWORKING

### 9.1 Biotechnology Business and Investment

Government of Gujarat, in conformity with national efforts, has been organizing "Vibrant Gujarat: Global Investor Summit" every two years, for bringing up the enormous investment potential in Gujarat and to accelerate the rate of FDI and domestic investment in Gujarat and thereby in India. Vibrant Gujarat-Global Investor Summit-2009 was organized in the same spirit in Jan, 2009. The important sectors for focus were Energy & Power, Oil and Gas, Ports, Agriculture, Textiles, Manufacturing, SEZ, Biotechnology. Biotechnology, as fastest growing sector, has emerged as tool of promise and potential. The event resulted in mobilizing BT investments in the state and included 30 biotech projects and 27 Memorandum of Understanding (MoU) signed with committed investment of Rs 2488.5 crores in Biotechnology Sector during 2009 in Gujarat.

When Gujarat state is developing as the Biotech Hub of the country, GSBTM plays a facilitator's role by extending intermediately services towards these biotech investors in their future ventures. GSBTM being the nodal agency for biotechnology development and investment will be coordinating with the companies for further assistance and timely executions of the projects.

Total 25 companies have made total investment of 2488.5 Crore Rs. with the approximate employment generation of 7393 people. Two new New International companies, Nenobiosym and Savani Biotech entered into the state, where as five national players have ventured in Gujarat are, Vaishnavi Biotech, Piramil Pharmaceuticals, Evolva Biotech, Laxai Aventis, Agriland Biotech. Domestic players spreading across the state are Xcelris, Biomix, Chembond, Agriland Biotech, Thamna Health & Education Trust, Farm Biotech. Expansion by existing players also includes RPG Lifescience, Swatis Pentose, Torrent, Sun pharma, Hester Bioesciences, Intas Biopharma, Cadila Pharma, Zydus Cadila, Concord Biotech. Three companies are diversifying in the field of biotechnology are Greendiam, Troikka, Unimark Remedies. Regional distribution of projects shows biotech investments, at Ahmedabad & Gandhinagar Cluster has 17 projects, Vadodara Cluster with 06 projects, Ankleshwar-Vapi with 04 projects, and Anand-Bhavnagar-Mehsana with 01 project each.

#### Vibrant Gujarat – Global Investors' Summit – 2009

##### Biotech Sector MoUs

Sr. No.	Company	Location of project	Title of project	Approximate Investment (in Rs. crores)	Probable Employment Generation
<b>Biotech Sector</b>					
1	Anil Biochem Ltd	Savli, Vadodara District, Gujarat	Various types of enzymes, Microbes, Probiotics, Gluconates & products manufactured from dextrose through the fermentation route	250	
2	Cadila Healthcare Ltd - Zydus Group	Ahmedabad District	Vacasin Manufacharing	250	300
3	NANOBIOSYM Inc.	Ahmedabad, Gujarat	High end Biotech Research	250	
4	Intas Biopharmaceuticals Ltd.	Plot No: 4961/A & B, Sarkhej Bavla Highway, Matoda, Sanand, Moariya-382210, Ahmedabad	Large Scale Manufacturing Facility for Recombinant Mammalian Platform Products	160	
5	Greendiam Exim Pvt. Ltd	Rajoda, Bavla	Sheet & Tabular Film, Bages & Rigid Products	150	
6	Savani Biotech Pvt. Ltd	Near Ahmedabad & Gandhinagar	Cutting Edge Biotech Research & applied Biotech Platform	150	
7	Troikka Pharmaceuticals Ltd	Virochannagar, Sanad Taluka	Biotechnology facilit, Anti Cancer/Hormones/Steroids	141	
8	Vaishnavi Biotech Pvt Ltd	Bhavnagar	Organice fertilizers/Manures, Bio-Fertilizers & Control Agents, Cattle feed, Poultry feed, Bulk drug/Nutraceutical product	100	
9	RPG Life Sciences Ltd	Plot-2702/A, GIDC Industry Area, Ankleshwar	Biotech API, Life saving anti-cancer & immunosuppressant bulk drugs.	100	



Sr. No.	Company	Location of project	Title of project	Approximate Investment (in Rs. crores)	Probable Employment Generation
<b>Biotech Sector</b>					
10 A	Cadila Pharmaceuticals Ltd & Kamavati Engineering Ltd (Project: 1)	Dholka, Gujarat	Multi Vaccine Manufacturing Facility	120	75
10 B	Cadila Pharmaceuticals Ltd & Kamavati Engineering Ltd (Project: 2)	Dholka, Gujarat	Biotechnology Facility	120	75
10 C	Cadila Pharmaceuticals Ltd & Kamavati Engineering Ltd (Project: 3)	Hirapur, Gujarat	CPL shall set up the Food & Agro based Industry	60	80
11	Farm Biotech Pvt Ltd	Near by Major City / Urban Area, In the State of Gujarat	Manufacturing of Biofertiliser Solid Waste Management	112.5	1640
12 A	Xcelris Labs Ltd. (Project:1)	Ahmedabad District	Biopharmaceuticals products for Human use - Life saving injectible products	100	
12 B	Xcelris Labs Ltd. (Project:2)	Sydney House, Old Premchandnagar Road, Satellite, Ahmedabad	Contract Research & Services Organization providing: a) Pharmaceutical Products development & analytical services and b) Biotechnology services including genomics, bio-pharmaceutical development	40	
13	Evolva Biotech Pvt. Ltd	Ahmedabad - 10000 Sq. ft	R & D in the areas of Nanotechnology, Bioinformatics, Stem Cells	60	
14	Piramal Pharmaceutical Development Services Pvt. Ltd.	Village:Matoda, Taluka: Sanand, Dist: Gandhinagar	R & D Services related to Pharmaceutical Development & scale up and clinical manufacturing of Solid dosage Forms	40	
15	Swati Spentose Pvt Ltd	Vapi, GIDC	Biotech Bulk Drugs	50	
16	Torrent Pharmaceuticals Ltd.	Indrad, Dist: Mehsana (Within existing permises of TPL)	Sterile Finished Formulation Plant for Insullin (Novo Nordisk)	45	
17	Biomix Network Ltd.	Chhatral or Gandhinagar areas	Neutraceutical/Pharma Immune Booster Formulations	40	
18	Sun Pharmaceuticasls Industries Ltd.	Vadodara	Biotechnology R &D	25	
19	Thamna Health & Education Trust	Thaman Village, Taluka: Umreth, Dist: Anand	1 MW Biogas based power generation co Generation, Vegatable, Fruits Freeze & Dry.	25	
20	Laxai Avanti Life Sciences Ltd - Avanti Group Company (Project: A)	Vadodara	Contract R & D, (Drug R & D and clinical Support Services)	20	



Sr. No.	Company	Location of project	Title of project	Approximate Investment (in Rs. crores)	Probable Employment Generation
Biotech Sector					
21	Avanti Feeds - Avanti Group Company (Project:B)	Surat	Prawn feed manufacturing	15	
22	Hester Biosciences Ltd.	Village: Merda Adraj, Taluka: Kadi, Dist: Mehsana	Research & Development centre for animal Disease Surveillance	20	
23	Unimark Remedies Ltd.	Bavla, Ahmedabad and GIDC, Vapi	Biotechnology Products, Biocatalysis	16	
24	Concord Biotech Ltd	1482-1486, Trasad Road, Dholka, Ahmedabad	Biotechnology Project	14	
25	Chembond Enzyme Company Ltd.	Survey No:404/B/1, Village Dudhwada, Taluka:Padra, Vadodara - 391 440	Industrial Enzymes	10	
26	Agriland Biotech Ltd (Project:1)	36, Prince Industrial Estate, Mota-Motipura-391 520, Nr. Samlaya Station, Ta:Savli, Dist: Baroda, Gujarat	Seaweed-Biofertilizers	3	
27	Agriland Biotech Ltd (Project:2)		Biofertilizer-Glomus Fasciculatum, a Vesicular Arbuscular Mycorrhizae	2	

No of MoU's = 27

No of Projects = 30

Total (Biotech Sector)	2488.5	2170
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## Pharma Sector MoUs

Sr. No.	Company	Location of project	Title of project	Approximate Investment (in Rs. crores)	Probable Employment Generation
Pharma Sector					
1	Lupin Ltd	Jhagadia, Bharuch District	Bulk Drug Mfg.	500	
2	Claris Lifesciences Ltd.	Ahmedabad District	Sterile Injectable Products (Life saving medicines)	225	500
3	ThermoFisher Clinical Research Pvt Ltd	SEZ Pharma, Matoda	Contract Manufacturing	150	
4	Amneal Pharmaceuticals Company (I) Pvt. Ltd	SEZ, Matoda, TaSanad	Formulation & R&D	150	
5	Unimark Remedies Ltd	Bavla and GIDC, Vapi	Active Pharmaceutical Ingredients	119	70
6	B D R Pharma International Pvt Ltd	GIDC, Savli/Zagadia	Pharmaceutical Formulations(Oncology)	130	
7	Wochardt Ltd	Ankleshwar, 138, GIDC	Bulk Drug Mfg.	80	
8	Famy care Ltd	20-21 SEZ, Near Matoda, Ta: Sanad	Pharma Formulation	75	
9	Aventis Pharma Ltd	GIDC, Ankleshwar, Bharuch	Tablet Formulation & API	42	
10	Kiltich Drugs (India) Ltd.	Ahmedabd	Pharmaceutical formulations	40	400
11	Contacare Ophthalmic & Diagnostics	GIDC, Gorwa, Vadodara	Intra Ocular Lance	30	
12	Meril Life Sciences Pvt Ltd	Chala, Vapi	Cardiac Stent Mfg.	25	
13	Biotech Vision Care Pvt Ltd	SEZ Pharma, Matoda	Intraocular	18	
14	Fredun Pharmaceuticals Ltd.	Looking for a suitable location	Pharmaceutical formulations	15	
15	Sahjanand Laser Technology Ltd	Gandhinagar, Electronic Estate	Cardiac Stent Mfg.	8	
16	Unimax chemicals Pvt. Ltd. Unimas Laboratories Pvt Ltd.	Vapi/Valsad or any other nearest mumbai chemical zone	Bulk druges	7	40
17	Bio Sencer International Technology (India) Pvt Ltd.	GIDC, Umbergaon	Cardiac Stent Mfg.	5.5	

0

Total (Pharma Sector)

1619.5

1010



## 10.0 PROMOTION OF BIOTECHNOLOGY SECTOR IN GUJARAT

With an aim to create awareness related to biotechnology related aspects, sensitize the general public and key players in this sector, the GSBTM has aimed at conducting various programs. Main being, event participation, Participation in International Conferences and Exhibitions, Participation in National Conferences and Exhibitions, Conduction of National Exhibition, Conference, Development of Resource, Conduction of Popular Lecture Series, Conduction of State Level Seminars, Awareness Generation, Dissemination of Information, Documentation and preparation of Awareness material & literature.

### 10.1 Event Participation Bangalore Bio 2008



Bangalore Bio 2008 – “Global Partnering” had created a platform with 85 International and National speakers, over 700 delegates from industry, R&D, policy makers and academia, over 30000 visitors, 150 leading global & Indian exhibitors. The eighth edition of Bangalore Bio 2008 and the event had attracted largest gathering of International Biotech fraternity.

In response to the invitation received from Dept. of IT, Biotechnology and Sci. & Tech., Govt. of Karnataka for Bangalore Bio – 2008, held during 24-26 April 2008, the state government had supported the International Exposition on Biotechnology, took place at Bangalore, Venue: Bangalore International Exhibition Centre, Near Jindal Institute of Naturopathy, Tumkur Road, Bangalore.

More than 100 delegates from 14 countries were participating; one of the world's biggest biopharma companies, Merck & Co. was the Global Partner of the Event. GSBTM participated as a Co-Sponsor for CEO conclave of the event.

The event provided opportunities of interacting with delegations from UK, France, Holland, Germany, US and Australia, company like Advinus & DNDi, Merck, Nicholas Piramal, Conexios Life Science, Rheoscience, Avesthagen, Groupe Danone professional of national & international fame. It also provided fruitful session of discussion with Dr Samir Brhamachari, Director general CSIR.

## 10.2 Coordination and Facilitation

### 10.2.1 Conduction of Popular Lecture Series

GSBTM, DST, GOG has identified the need to create scientific awareness, sensitization, socio-ethical acceptance and adoption to the potentials and application of biotechnology for the purpose of Promotion, Support and facilitation for the overall development of Biotechnology in the state. Hence, GSBTM has accorded a very high priority to dissemination of scientific information, awareness generation, knowledge up-gradation and exposure by means of various Awareness programs like seminars, workshops, lecture series, participation in fairs and exhibitions Accordingly, GSBTM has conceptualized a program of 'Popular Lecture series', which intends to bring the knowledge of the best professionals, generate awareness about fascinating world of Biotechnology, its future promises, and initiate networking between stakeholders to the doorstep of the society in a comprehensive form. Having visualized program of Popular Lecture Series as a mandate for - dissemination of technical knowledge, creating awareness about the latest developments in the field of Biotechnology, various programs were conducted. It generated a tremendous interest and response in the Biotechnology Stake holders.



### 10.2.2 Facilitation/Conduction of State Level Seminars

Seminars provide opportunities of technical interaction amongst the state players, experts, professionals and enable exchange of information. This facilitates exchange of ideas and possibilities of collaborations, both within the state and in between the states. GSBTM has adopted the policy to encourage this activity by providing financial support to interested institutions. During the year, following seminars were supported.

#### 1. The 27<sup>th</sup> Annual Conference of Indian Pharmacological Society – 'Biotech Drugs : An Unmet Opportunity for Better Healthcare', organized by R. K. Collage of Pharmacy, Rajkot



The 27<sup>th</sup> Annual Conference of Indian Pharmacological Society – Gujarat Chapter, hosted by R. K. Group of Collages, Rajkot, held on 1<sup>st</sup> February 2008, was a one day conference based on the theme of 'Biotech Drugs: An Unmet Opportunity for Better Healthcare'. The conference had met with the kind presence of Hon. Finance Minister of state, Shri Vajubhai Vala, Vice Chancellor, Saurashtra University, Dr. Kamlesh Joshipura, Vice Chancellor, M. S. University, Dr. Ramesh K. Goyal, Chairman, S. H. T. C. Trust and R. K. Group of Collages, Shri Khodidas S. Patel.

With the advent of biotechnology era and India poised to assume the role of the global biotech leader; healthcare professionals of India would do well to get thoroughly acquainted with this high-tech multi-faceted discipline. The motivation behind the 27<sup>th</sup> Annual Conference of Indian Pharmacological Society was truly justified as 'Biotech Drugs: An Unmet Opportunity for Better Healthcare'. Two-session conference had incorporated Planery Lectures on 'Discovery and development of biologics' by Dr. Sanjeev Kumar, VP & HoD Biotech Dept., Zydus Research Centre, 'Therapeutic potential and clinical applications of biologics' by Dr. Chirag Desai, Oncologist & Director, Haemato-Oncology Clinic, Vedanta Institute of Medical Sciences, and also by Dr. Sapan Pandya, Consultant Rheumatologist. 'The corporate Scenario in healthcare biotechnology: Global and domestic perspectives and job opportunities', was addressed by Dr. Rustom Mody, Director & Head – Strategic Research, R&D and Quality, Intas Bio-pharmaceuticals.

With a panel of highly experienced and learned speakers and qualified delegates from both medical as well as pharmacy educational institutes from all over Gujarat, the conference turned out to be highly educative and fruitful. The principal of T. K. Collage of Pharmacy had acknowledged relentless efforts of GSBTM and the state government for recognizing the need of human resource development in biotech field and state mandate for providing financial assistance to host such conferences at district level.

#### 2. The "International Conference on Biomedical and Genomic Research" (ICBGR) from 29th to 31st, January 2009 organized by Human Genetic Centre, Department of Zoology and BMT, Gujarat University, Ahmedabad, Gujarat, INDIA.

The ICBGR conference had seen around 300 participants from different parts of India as well as abroad gathered at one platform. There were 25 invited presentations by the experts in various fields like cancer, complex diseases like diabetics, infertility, mitochondrial diseases, thalassemia, metabolic disorders and Huntington's disease using modern technologies like microarray, proteomics, advanced cytogenetic technology, 4D-ultrasonography, gas mass spectrometry and others. New emerging promising approach for treatment of various diseases using stem cells was also presented. Besides, there were about 50 presentations by the bright young investigators/research scholars which highlighted not only the new diagnostic and prognostic markers but also the new approach to control the diseases and reduce the economic and social /



family burden. Possibly the diverse but important contribution was from the poster presentations (~ 36) by the enthusiastic students and research scholars after formal inauguration by our Hon. V. C. Dr. Parimal H. Trivedi and Dr. V. C. Shah Ex. V. C. of M. S. University, Baroda and Dr. Sen Pathak, U.S.A also blessed the delegates of the International Conference.



The key speakers included, Prof. Sen Pathak, The University of Texas, M. D Anderson Cancer Centre, USA., Dr. M. D. Bashyam (CDFS, Hyderabad), Dr. Bhattacharyya (SINP, Kolkata), Dr. U Radhakrishna, University of Geneva, Medical School, Switzerland, C.B. Nagori (Nagori Infertility Centre, Ahmedabad), Dr. K. Bansal (Bansal Hospital and Safal Fertility Foundation, Ahmedabad) on various techniques available for assisted reproduction, Dr. R.K. Goyal (Vice Chancellor, MSU, Baroda), Dr. K.R.S.S. Rao (Centre of Biotechnology, Guntur), Dr. U Dave (Preventive Life Care, Mumbai), Dr. P Desmukh (Toxicology and Pharma Services, JRF, Vapi, Gujarat), Dr. G. Ranga, Karthekeya Medical Research and Diagnostic Centre, Mumbai, Dr. B. N. Sarkar, ASI, Kolkata, Dr. R Raman, BHU, Varanashi, Dr. P Gambhir, Maharashtra University of Health Sciences, Pune, Dr. Ashwin Patel, Green Cross, Ahmedabad, There were several excellent presentations by the youngster. To mention few were S. Mukherjee (National Institute of Reproductive Health, Mumbai), H.H. Mehta, A. K. Tripathy, N. Jhala, Anand Agricultural University, P.J. Shah, Denmark, etc. Dr. Sher Ali, NII, New Delhi, Dr. Harish Padh, B. V Patel PERD Centre, Ahmedabad, Dr. K. Thangaraj, CCMB, Hyderabad Dr. Sujal Munshi, Munshi hospital, Dr. Krishna Mohan general manager, Zydus Biologics of Cadila Healthcare Ltd, Dr. J. D. Sharma Jaipur

Apart from the state funding by GSBTM, the conference was also supported by UGC, CSIR and ICMR, New Delhi.

### 3. The seminar on "Biomedical and Biotechnological Research" held at the Education Campus Changa, Changa on January 22 and 23, 2009.



A seminar on "Biomedical and Biotechnological Research (BMBTR)" was held at the Education Campus Changa (ECC), Changa on January 22 and 23, 2009. Dr. K C Patel R and D Centre, Charotar Institute of Applied Sciences (CIAS) and Ramanbhai Patel College of Pharmacy (RPCP) which are constituent institutions of ECC jointly organized the above event. The objective of the seminar was to motivate/expedite research activities in the academic institutions in Gujarat by exposing the participants to the ongoing research activities at the international level in the emerging areas of biotechnology and biomedical sciences. To fulfill the above objective, the participants were drawn from the academia comprising both faculties and students.

Prof. Bakul Dholakia, former director, Indian Institute of Management (Ahmedabad) inaugurated the seminar as a chief guest. Padmabhushan Prof. P. M. Bhargava (former director, Centre for Cellular and Molecular



Biology, Hyderabad) delivered the key note address. The eminent experts who are carrying out cutting-edge research on topics such as, drug delivery, drug discovery, immunology, molecular biology, genetics engineering, etc were invited to deliver lectures during the seminar. They are Prof. Mulchand S. Patel, Distinguished Professor, State University of New York (SUNY) at Buffalo, Prof. R K Rao, Department of Physiology, University of Tennessee Health Science Centre, Memphis Tennessee, USA, Dr. C.N. Ramchand, President & CEO, Laila Pharmaceuticals Pvt. Ltd., Prof. Bharat B. Chattoo, Professor, Molecular Genetics, Dept. of Microbiology and Biotechnology Centre, Faculty of Science, M.S.University of Baroda,

The inaugural session on January 22, 2009, begun with a prayer followed by a floral welcome of the Dr. T. K. Chaudhury welcomed the dignitaries and the participants to the seminar. The main attraction of the inaugural session was the keynote address on "Medical Research and Healthcare Scenario in 2047" by the visionary Prof. P. M. Bhargava. He summarized the achievement in healthcare biotechnology in the last century.

#### 4. National Symposium on "Industrial Application of Microbial Proteomics", organized by Indian Institute of Advanced Research, Koba

A national symposium on "Industrial Application of Microbial Proteomics" was organized by Indian Institute of Advanced Research, at Koba Institutional Area, Gandhinagar 382 007, Gujarat during 2nd and 3rd May, 2008. The two day symposia had gathered a gamete of expert's at one forum to exchange their experience and knowledge with state researcher and students. The expert talk series started with the inaugural technical session on "Mapping the global network of protein interactions in a bacterial cell" by Prof. J. Gowrishankar, Laboratory of Bacterial Genetics, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, Dr. Dipankar Chatterji from Molecular Biophysics Unit, Indian Institute of Science, Bangalore-560012, enlightened by his presentation on "Proteomics Research and its Application in Diseases: Studies on Latent Mycobacteria".



Dr. Tapan Chakrabarti, Sr. Scientist, Institute of Microbial Technology, Chandigarh - "Microbial Diversity - Gold Mine for Genomics and Proteomics": Dr. Yogesh S. Shouche, Professor, National Centre for Cell Science, Pune-"Microbial Genomics of Unique Environment Niches", Dr. Datta Madamwar, Professor, Bhanuben & Ratilala Doshi School of Biosciences, S.P. Uni, V. V. Nagar.- "Molecular Analysis of a Bacterial Community Structures of Polluted Environment", Dr. Navin Khanna, Scientist, International Centre for Genetic Engineering and Biotechnology, New Delhi-"Infectious Disease Testing: an Indian Scenario", Dr. Sudhanshu Vrat, Sr. Scientist, National Institute of Immunology, Aruna Asaf Ali Marg, New Delhi -"Development of a New Vaccine Candidate against Japanese Encephalitis Virus". Dr. P. S. Ahuja, Director, Institute of Himalayan Bioresource, Technology, Palampur -"Genomics to Proteomics and Proteomics to genomics in Plant Biology", Dr. A. K. Bachhawat, Sr. Scientist, Biochemistry & Yeast Molecular Biology, Institute of Microbial Technology, Chandigarh. -"The Discovery of a Novel Pathway for Glutathione Degradation in Yeast and Fungi", Dr. V. M. Katoch, Director, Central Jalma Institute of Leprosy and Other Mycobacterial Disease, Agra: "Advances in Proteomics : Opportunities for Mycobacterial Diseases", Dr. K. Munniyapa, Professor, Department of Biochemistry, IISc, Bangalore -"An Insights into Homologous Recombination in Mycobacteria".

The Symposium also included session on Drug Target Discovery, study on "Prokaryotic Pathways - Unique Targets to Develop : Therapeutics for the Eukaryote Plasmodium" by Dr. Namita Surolia, Professor, Molecular Biology and Genetics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. A



Comparative Genomics in Aid of Potential Drug Targets for Pathogenic Microbes study was represented by Dr. V. C. Kalia, Sr. Scientist, Institute of Genomics and Integrative Biology, New Delhi, where as Dr. Hemanta K. Majumder who is a Scientist (Director's Grade) from IICB, Kolkatta had delivered his speech on "A Journey Towards Unraveling the Mystery of DNA Topoisomerases of Leishmania".

### 10.3 Awareness Generation, Dissemination of Information, Documentation, Preparation of awareness material & Literature

The important role of mission shall be to provide relevant, field related information to the stakeholders both in print form as well online. It includes hosting of website, updating, and creation of web cell.

#### 10.3.1. Website:

Electronic media is potential and ideal vehicle of information dissemination. To communicate with vast spectrum of stakeholders – Academicians, professionals, experts, industries at state, region, national and international level, and informative website is highly desirable. Accordingly, to reach and have access to vast working stakeholder group, GSBTM conceptualized and developed website of GSBTM. It has been developed to address needs of different stakeholders and provides relevant and pertinent information about Biotechnology of Gujarat, infrastructure, policy initiatives, research, human resource development, entrepreneurship development, Biotechnology business, net etc. It also provides links to important biotechnology sites of Government of India.

To enable information availability to stakeholders, GSBTM operated web cell which is run by engaging the services of a net developer who have uploaded all new activities and the products information, developed by GSBTM team, with include designing, development, uploading of Independent portals of Bio-informatics, and web pages, banners of Marine EDP seminar, MbTeach 2007, Biotech EDP, Gujarat BioState Award-2007, GSBTM CDs, GenDioT program, with total web pages up to 190. Website is developed by latest technology tools for scripting and designing DoT Net and AJAX, is planned to be used for web designing. During the current fiscal year, GSBTM Website Maintenance Contract was provided for its regular updating and maintenance.

#### 10.3.2 Biotechnology E-chronicle



It is important to provide a platform and forum for sharing and disseminating biotechnology related information of Gujarat. Such effort has not been undertaken by any of the state. Accordingly, a concept of e-chronicle was developed, in – house. Since, the launch of first issue of Biotechnology E-chronicle, on 15 Aug. 2005, work is being continued. There was only one issue released during 2008-09. The chronicle covers the industry, research, academic strengths of Gujarat. It has various features like Industry of the month, research institute of the month, entrepreneurs of the month, spotlight, Cartoon corner, techno-views, Bio-business etc. The print format of Biotechnology Chronicle was distributed to biotechnology stakeholders of the state and selected organizations of the country.

#### 10.3.3 Documentation

##### 10.3.3.1 Reports

##### 1. Database of Genetic Disorders in Gujarat Population – DGD

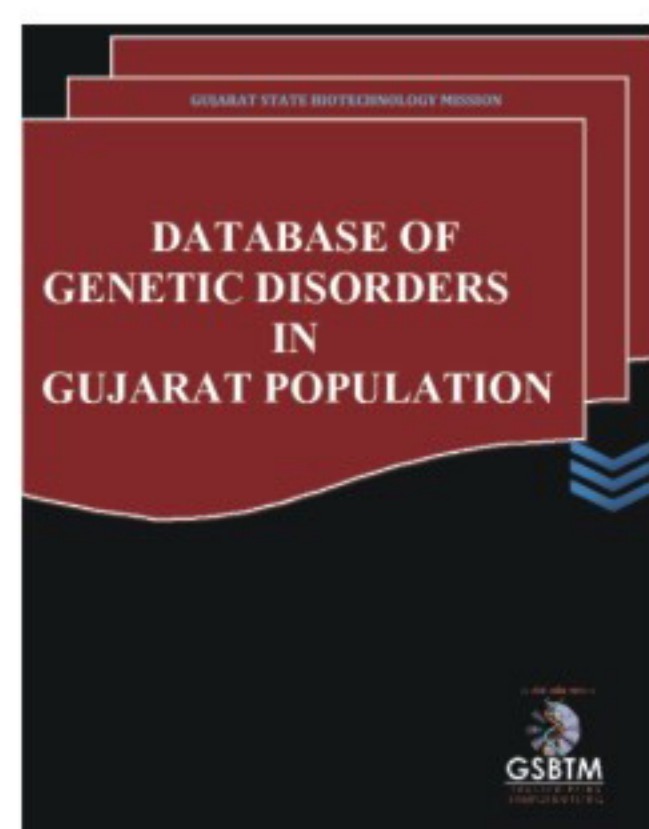
After the era of genetic, proteomic and with completion of human genome project, this world is now witnessing recent developments into human variome project which speaks about human population variation in terms of the varied sequence. This will also lead into the development of knowledge about molecular basis of human genetics. More than 10, 000 genetic disorders prevail in Human population whose diagnosis, study and analysis will be of most important to overcome the major challenges into healthcare and allied areas. Genetic disorders & Human genetics are a very complex subject which is studied by a variety of techniques which have evolved rapidly over the past few years. Genetics, by its very nature, often involves the study of abnormality.

Genetic diagnostics contributes significantly in overall diagnostics market. Prenatal and pediatric disease diagnostic tools are the fastest growing sections of genetic diagnostics, due to more demand. The other areas of predictive diagnostics are also picking up pace, as of upcoming market of preventive and personalized medicines. On the contrary state is lacking into advanced high end centers compared to other states for studying overall study, prevalence & statistical analysis of those disorders.



To cope up with this state government is visualizing Genetic Diagnostic center. For getting this center operated and to set the future prospective of the same task has been visualized to generate database of genetic disorders of Gujarat (GDG), which is going to be the path guider and one of its own kind of database in the state of Gujarat.

### Following are the objectives of the GDG Genetic Disorder Database



#### Objectives

- Generated Database will be first of its own kind in the country for maintaining data related to genetic disorders in the state.
- The database will help in collecting information regarding genetic disorders prevailing in the state over a period of last more than 20 years.
- This will act as centralized database with analysis of this information in terms of type of disease & statistical analysis which shall help in selecting population for future screening work.
- Population analysis of available data will help in setting up future goals of the genetic diagnostic center which is visualized by state Government.

DGD is the compilation of around 10000 patient's data of genetic testing and its analysis for the further development of the state in the field of genetic diagnostics.

### 10.3.4 Publicity Material

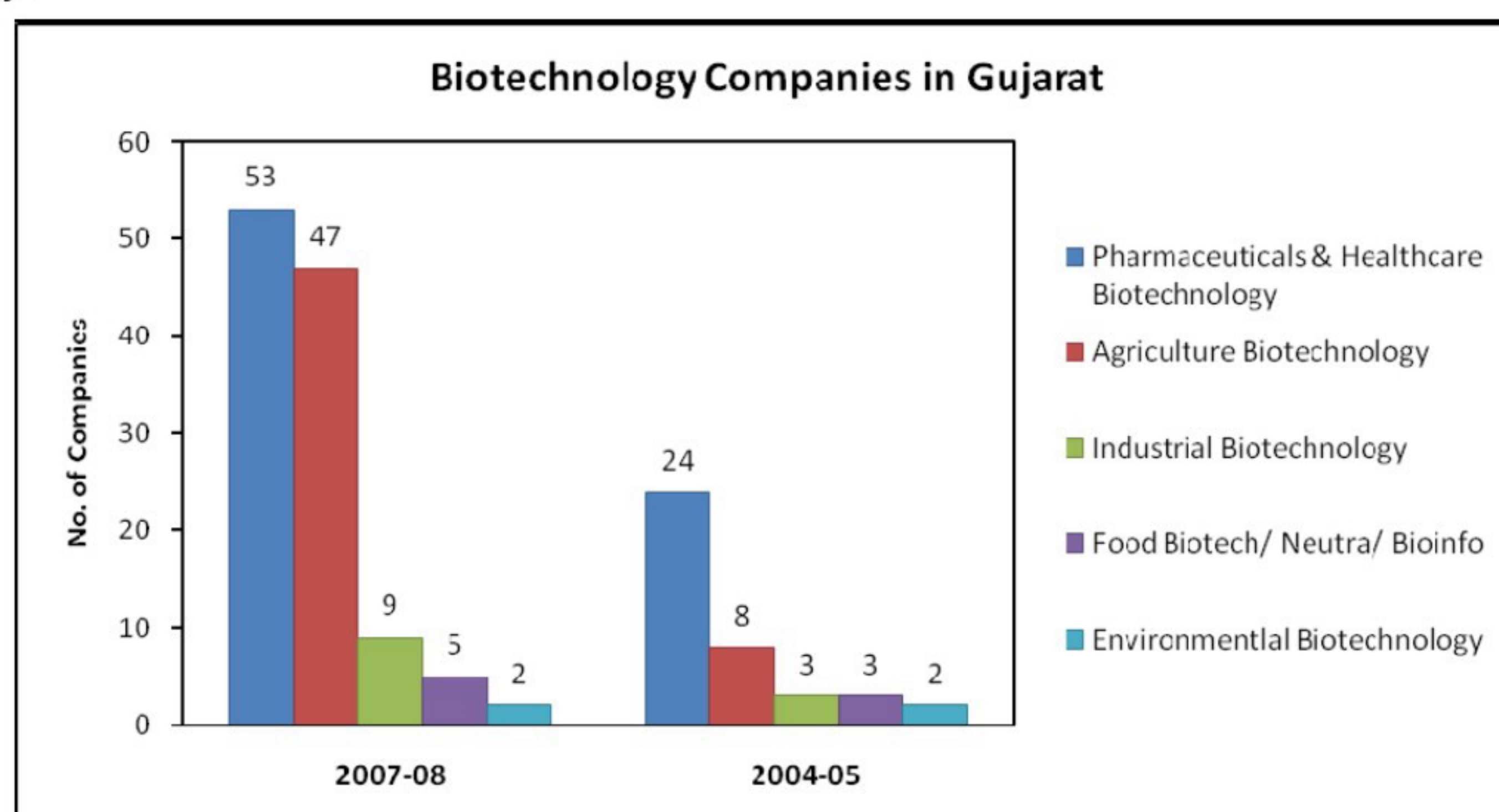


#### 10.3.4.1 Biotechnology Status Paper 2008-09

The Biotechnology Status Paper 2008-09 provides an updated biotech scenario of Gujarat. Driven by new enterprise and innovation in recent years, the Biotechnology industries in Gujarat are witnessing accelerated growth. The strong established base of traditional industries – Pharmaceutical, Chemicals, food, beverages etc, has provided ideal environment and tremendous opportunities for Gujarat to foray into Biotechnology field.

The convergence of traditional industries towards Biotechnology, has witnessed significant growth and expansion of Biotechnology industries and market in Gujarat. India is looking very seriously to this global buzz word and so is Gujarat.

As per the survey conducted in 2004-05, 40 biotechnology companies had their where in present scenario around 116 companies are active in this field. There are 53 in Pharmaceuticals and Healthcare biotechnology, 47 Agriculture Biotechnology, 9 Industrial Biotechnology, 1 in Bio-informatics and 3 in Environmental Biotechnology.



Pharmaceuticals and Healthcare Biotechnology, Agriculture Biotechnology, Industrial Biotechnology and Environmental Biotechnology are the emerging and potential biosegments in the state. The biotech status paper 2008-09 was also covering academic and research updates of biotechnology sector. It was widely distributed during the vibrant Gujarat 2009 for the awareness generation and wider information spread.



#### 10.3.4.2 GSBTM Brochure

New brochures were developed during Vibrant Gujarat 2009 for facilitating information dissemination, proper display, during various state level strengths, opportunities and programs of biotech. The same have been effectively used during various seminars, BT programs.



#### 10.3.4.3 GSBTM : Distance Covered Path Ahead, Interactive Flash Content of BT-Chronicle & Annual Report

An interactive flash content CD, describing the journey of biotechnology of the state of Gujarat was developed. It was containing various issues of Biotechnology E-chronicle and Annual Report of GSBTM. BT Chronicle has provided a platform for sharing and disseminating biotechnology related information of Gujarat. An annual report contains various state level biotech initiatives and activities undertaken. It also provides a brief account of the state's endeavor, achievement and commitment towards this knowledge based sector.

#### 10.3.4.4 BioGadget Guide-a portal aiding Biotech Fraternity for the establishment and maintenance of Biotech Laboratories



An "BIOGADGET GUIDE" aims at providing a one stop comprehensive information about the Bio-suppliers available locally. While GSBTM, DST, GoG acts as the nodal agency for overall development of Biotechnology in the state, it is realized that the Biotech fraternity at large, be it Industry, Research, Academia, or Services; needs collated information about the local availability of Bio-Gadgets.

With this perspective, an exercise was taken up to create a data-base of suppliers of the Bio-Gadgets, locally – classified for various categories of instruments – like Analytical, Microbiological, Molecular Techniques, Immunological, etc. Similarly, a list of suppliers regionally available, along with contact details is also included in the Bio Gadget Guide.

A point of first reference for every Biotechnology researcher and of some use to anyone who needs local information about manufacturers of equipment & instruments required for establishment and maintenance of Biotechnology Laboratories in various Institutions, Industries, etc.



### 11.0 BUDGET

For the year 2008-09, a total of Rs. 1100 lacs Grant were released to GSBTM. It was the fifth consecutive year and various new initiatives were implemented during the year. The audited accounts are produced in the Annexure.

### 12.0 AUDIT

Consequent to the approval received by Governing body during the 6<sup>th</sup> GB meeting on 16<sup>th</sup> March 2009, Shri. U. B. Upadhyay, auditors were appointed for conducting the audit of GSBTM accounts for the year 2008-09. The copies of audited and approved accounts of GSBTM for the year 2007-08 have been sent to relevant agencies including charity Commissioner, Income Tax office etc.

### 13.0 STAFF

State Government has sanctioned a staff of 24 for Gujarat State Biotechnology Mission. This includes 6 technical staff and 8 office staff and 6 supportive staff. However, during the first year, staff of 4 was recruited by Department of Science & Technology. It included three sector specialists and one Account cum Administrative officer. Subsequent to approval, given in November 2005, recruitment of 2 Deputy Section Officers has been undertaken through manpower agency. The process of selection of Administrative and Account Officer is under the way by seeking applications from retired people, in the category of class II, screening and their interview. During the year, two Sector Specialists – Bio-informatics & Pharma –Healthcare were also appointed.

STAFF RECRUITMENT DETAILS YEAR 2008-09						
No.	Designation of Post	Scale of Pay	Mode of Recruitment	No. of Post	Filled Post	Vacant Post
1	Mission Director	16400-450-20000	Deputation	1	1	-
2	Sector Specialist	12000-375-16500	Contract basis	6	5	1
3	Account-cum-Administrative Officer	6500-200-10500	Contract basis	1	1	-
4	English Steno Grade-I	6500-200-10500	Deputation / Contract basis	1	-	1
5	Dv. Section Officer	5500-175-9000	Contract basis	3	3	-
6	English Steno Grade-II	5500-175-9000	Contract basis	2	2	-
7	Clerk	3050-75-3950-80-4590	Contract basis	1	1	-
8	Data Entry Operator	3050-75-3950-80-4590	Contract basis	1	1	-
9	Peon	2500-55-2660-60-3200	Contract basis	4	3	1
			Total	20	17	3

### 14.0 OFFICE FACILITY

GSBTM being a nodal agency, created under Department of Science & Technology, has its office in Udyog Bhavan. The office has created infrastructure facility for The Virtual Institute of Bioinformatics. In view of the bioinformatics lab development computers and furniture were purchase and/or developed accordingly.



## 15. ANNEXURE

ANNEXURE	Content Detail
ANNEXURE – 1	Audited Accounts 2008-09
ANNEXURE – 2	Composition of Biotechnology Council
ANNEXURE – 3	Composition of Governing Body
ANNEXURE – 4	Composition of Executive Committee
ANNEXURE – 5	Vibrant Gujarat Global Investor's Summit Glimpse



## ANNEXURE-1

### Audited Accounts 2008-09

Hitendra B. Upadhyay  
B.Com., F.C.A.

Dipakkumar V. Gusani  
B.Com., F.C.A.

**B. UPADHYAY & Co.,**  
Chartered Accountants

409, 'Abhishek'  
Opp. Hotel Haveli,  
Sector-11,  
Gandhinagar - 382 011.  
Ph. : (079) 232-22798 (O)

#### REPORT OF AUDITOR RELATING TO ACCOUNTS AUDITED UNDER SUB - SECTION ( 2 ) OF SECTION 34 & RULE 19.

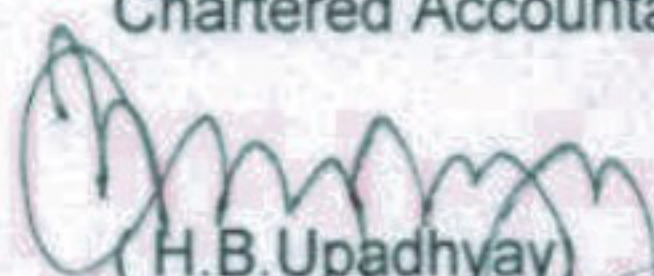
Registration No: GUJ / 1220, Gandhinagar Dt. 23/11/2004

Name of Public Trust : GUJARAT STATE BIOTECHNOLOGY MISSION  
Block No. 11, 9th Floor, Udhyog bhavan, Sector No.11, Gandhinagar

We have audited the annexed Balance Sheet of the above mentioned trust as at **31st March, 2009** and also the Income & Expenditure accounts for the year ended on the date and report as under : -

- (a) Accounts are maintained regularly and in accordance with the provisions of the Act and Rules.
- (b) Receipts and disbursements are properly and correctly shown in the accounts.
- (c) The cash balance and vouchers in the custody of the manager / Trustee on the date of audit were in agreement with the accounts.
- (d) All Books, deeds accounts, vouchers and other documents or records required by us were produced before us.
- (e) All inventory of movable as certified by the Trustees of the Public Trust has been / has not been produced. ----- N.A. -----
- (f) The Trustee has furnished the necessary information and explanation to our satisfaction as required.
- (g) Property or funds of the trust were not applied for the object or purpose other than the object or purpose of the Trust.
- (h) The outstanding amount for the more than one year is Rs. NIL /-. And amount written off is Rs. NIL /-.
- (i) Tenders were invited / not invited for repairs or construction, involving expenditure exceeding Rs. 5000/- ----- N.A. -----
- (j) Money of the Public Trust has not been invested contrary the provisions of the section 35.
- (k) Sale / Transfer of immovable property of the Trust has not been made U/s, 36 of the Act.

For B. Upadhyay & Co.,  
Chartered Accountants

  
H.B. Upadhyay  
Partner



Place : Gandhinagar  
Date : 02/09/2009



**THE BOMBAY PUBLIC TRUST ACT, 1950  
SCHEDULE IXC ( VIDE RULE - 32 )**

**Statement of Income liable to Contribution for the year ending on 31.03.2009**

**Name of Public Trust : GUJARAT STATE BIOTECHNOLOGY MISSION**

Block No. 11, 9th Floor. Udhog Bhavan, Sector No. 11, Gandhinagar

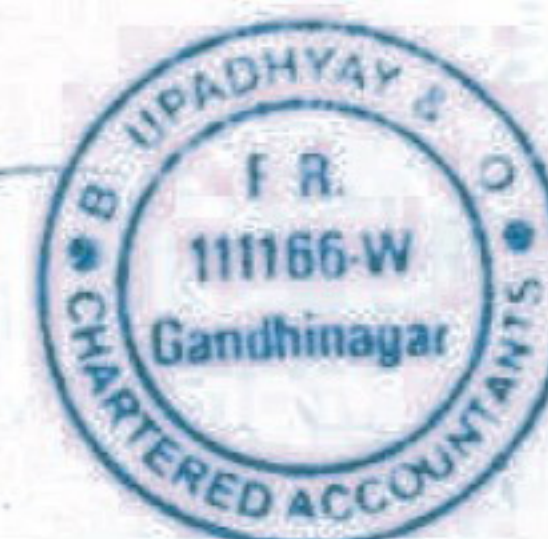
**Registration No : GUJ / 1220, Gandhinagar Dt. 23/11/2004**

	Amount	Amount
Gross Annual Income		163336387.00
Details of Income not chargeable to Contribution under Section - 58 Rule - 32.		
(i) Donation received during the year from any source		
(ii) Grants by Government and Local Authority	134000000	
(iii) Interest on Sinking or Depreciation Fund		
(iv) Amount spent for the purpose of medical relief		
(v) Deduction out of Income from Land used for Agricultural Purpose :-	0	
(a) Land Revenue and Local		
(b) Rent Payable to superior Landlord		
(vi) Deduction out of income from land used for Non - Agricultural Purpose :-		
(a) Assessment, Cesses and other		
(b) Ground Rent payable to other		
(c) Insurance premia		
(d) Repairs at 8-1/3 percent of Gross		
(e) Cost of collection at 4 percent		
(vii) Cost of collection of income or Receipts from securities, stock etc. % of such income.		
(viii) Deduction on account of repairs in respect of buildings not rented and yielding no income at 8 -1/3 percent of the estimated gross annual rent.		
		0.00
<b>Income liable to Contribution</b>		<b>163336387.00</b>

**Place : Gandhinagar**  
**Date : 02/09/2009**

**For B. Upadhyay & Co.,  
Chartered Accountants**

(H.B.Upadhyay)  
Partner





GUJARAT STATE BIOTECHNOLOGY MISSION  
Sector : 11, Udhogbhavan ,Gandhinagar

BALANCE SHEET AS ON 31.03.2009

Laibilities	Amount	Assets	Amount
<b>Unspent Grants</b>		<b>Fixed Asset</b>	33897225.00
<b>BT Park Fund A/c</b>	144186580.00	(As Per Annex. 'C' )	
<b>BT Venture Fund</b>		<b>Investment</b>	
(M.H.5424 Mi.H.800S.H.02)		FDR With GSFS	358593076.00
Opening	0.00	FDR with SBI	990000.00
Addition During The Year	44000000.00	<b>Loans &amp; Advances</b>	20090957.79
	44000000.00	(As Per Annex. 'D' )	
Less Expenditure	20000000.00		
	24000000.00	<b>Deposits</b>	0.00
<b>Grant-3425 60 004 01 Resea &amp; Dev Of BT</b>		Interest Accrued But not Due	3622861.00
Opening	94917185.36	TDS 2008-09	2799981.00
Add:-		TDS - SBI - 06-07	587084.00
Addition During The Year	81000000.00	Cash-In-Hand	0.00
	175917185.36		7009926.00
Less Expenditure As per Anne. A	16388211.21	State Bank of India - 30001818240	57228171.66
	159528974.15	State Bank of India - 30613896097	820475.00
<b>Research &amp; Dev of BT Sector in Gujarat</b>			58048646.66
(M.H.3425 Mi.H.800S.H.03)	65060036.50		
<b>Grant-3425 60 004 03 Guj State BT Mission</b>	5788716.00		
Addition During The Year	9000000.00		
	14788716.00		
Less Expenditure As per Anne. A	1268503.00		
	13520213.00		
<b>Land Contribution Refundable ( Money at BT Park Savli As Per Annex 'B' )</b>	6085392.30		
<b>Gujarat Council Of Science City Security &amp; Earnest Money Deposit</b>	25000.00		
Earnest Money Deposit	1098359		
Security Deposit - Soni Travels	10000		
	1108359.00		
<b>Salary Deduction</b>	17460.00		
<b>Duties &amp; Taxes</b>	224638.00		
<b>Retention Money</b>	47531.00		
<b>TaTa Elxsi Ltd</b>	138000.00		
<b>Inome &amp; Expenditure</b>			
Opening Balance	35403940.50		
Other than educational project	29179407.00		
Educational project	104300.00		
	64687647.50		
<b>Total</b>	<b>478629831.45</b>	<b>Total</b>	<b>478629831.45</b>

0.00

*fair*  
Administrative Officer  
Gujarat State Bioitechnology Mission  
Gandhinagar.

*[Signature]*  
Mission Director  
Gujarat State Bioitechnology Mission  
Gandhinagar.

*[Signature]*  
Chartered Accountant  
Gujarat State Bioitechnology Mission  
Gandhinagar





## GUJARAT STATE BIOTECHNOLOGY MISSION

Sector : 11, Udhyogbhavan ,Gandhinagar

INCOME & EXPENDITURE ACCOUNT  
FOR THE YEAR ENDED ON 31.03.09

Particular	Amount	Particular	Amount
Bank charges	5380.00	Interest on Bank A/C	675713.00
		Interest On FDR	28283709.00
		Interest on Advance	97445.00
		Misc Income	320.00
Excess of Income Over Expenditure	29179407.00	Tender Fees	127600.00
<b>Total</b>	<b>29184787.00</b>	<b>Total</b>	<b>29184787.00</b>

*fai 2)*  
**Administrative Officer**  
 Gujarat State Biootechnology Mission  
 Gandhinagar.

*[Signature]*  
**Mission Director**  
 Gujarat State Biootechnology Mission  
 Gandhinagar.

*[Signature]*  
**Chartered Accountant**  
 Gujarat State Biootechnology Mission  
 Gandhinagar





**GUJARAT STATE BIOTECHNOLOGY MISSION**  
**Sector : 11, Udhogbhavan ,Gandhinagar**  
**BIT VIRTUAL M. PHIL EDUCATION PROGRAMME**  
**INCOME & EXPENDITURE ACCOUNT**  
**FOR THE YEAR ENDED ON 31.03.09**

Particular	Amount	Particular	Amount
Student Semester fees	12650.00	BT Virtual Project Fees	134000.00
Salary - Faculty	34650.00	Fees Income	17600.00
Carried Forward to Next Year	104300.00		
<b>Total</b>	<b>151600.00</b>	<b>Total</b>	<b>151600.00</b>

*for 12)*

**Administrative Officer**  
Gujarat State Biootechnology Mission  
Gandhinagar.

*[Signature]*

**Mission Director**  
Gujarat State Biootechnology Mission  
Gandhinagar.

*[Signature]*  
**Chartered Accountant**  
Gujarat State Biootechnology Mission  
Gandhinagar





## ANNEXURE - A

## GSBTM (2008-09)

Block No - 11,  
9th Floor,  
Udhyog Bhavan  
Gandhinagar

## Group Summary

1-Apr-2008 to 31-Mar-2009

Page 1

Particulars	Biotech Human Resource Dev Exp.	Dev. of BT Sector in Gujarat Exp.
	Nett	Nett
	Transactions	Transactions
<b>Biotech Infrastructure Dev.</b>		52,60,654.00 Dr
Agro BT Park	11,46,072.00 Dr	11,46,072.00 Dr
B.T.Park	33,36,605.00 Dr	33,36,605.00 Dr
Dev of Infrastructure Based COE	1,59,096.00 Dr	1,59,096.00 Dr
Advertisement Exp-BT Infrastru. Dev.	3,96,026.00 Dr	3,96,026.00 Dr
Bio Infrastructure Development Exp.	21,677.00 Dr	21,677.00 Dr
OfficeExp. - BT Infra Dev.	38,160.00 Dr	38,160.00 Dr
Staff Welfare Exp.,-Bio Infra Dev	8,550.00 Dr	8,550.00 Dr
Worksho Seminar Meeting Exp., BT Infra Dev	1,54,468.00 Dr	1,54,468.00 Dr
<b>Biotech Research Innova Support</b>		2,21,931.79 Cr
Support in Biotech Research	5,64,077.79 Cr	5,64,077.79 Cr
Workshop-Seminar-Symposium	2,75,885.00 Dr	2,75,885.00 Dr
Staff Salary BT Res & Innov. Exp.	14,271.00 Dr	14,271.00 Dr
T.A./D.A. & Honorium-Biotech Rese. Innov. Supp. Dev	51,990.00 Dr	51,990.00 Dr
<b>Establishment Exp.</b>		77,02,157.00 Dr
Accounting & Audit Fees	34,854.00 Dr	34,854.00 Dr
Advertisement Exp.	44,041.00 Dr	44,041.00 Dr
BIT VIRTUAL PROGRAM EXPS.	11,676.00 Dr	11,676.00 Dr
Books & Periodicals Exp.	8,100.00 Dr	8,100.00 Dr
Computer Exp.,	2,93,002.00 Dr	2,93,002.00 Dr
Electricity Exp.	5,01,937.00 Dr	5,01,937.00 Dr
GIIC M & R Exp.	26,700.00 Dr	26,700.00 Dr
HOSPITALITY EXPS.	7,181.00 Dr	7,181.00 Dr
Insurance Exp.,	9,274.00 Dr	9,274.00 Dr
Misc Exp.	3,512.00 Dr	3,512.00 Dr
Office Exp.	1,40,882.00 Dr	1,40,882.00 Dr
Office Renovation Exp.	2,10,444.00 Dr	2,10,444.00 Dr
Office Rent Exp.	16,00,000.00 Dr	16,00,000.00 Dr
Postage & Courier Charges	44,154.00 Dr	44,154.00 Dr
Printing & Xerox Exp.	1,07,831.00 Dr	1,07,831.00 Dr
Repair & Maint., Exp.	5,07,461.00 Dr	5,07,461.00 Dr
Security Charges.,	2,07,445.00 Dr	2,07,445.00 Dr
Staff Salary Exp.	25,41,088.00 Dr	25,41,088.00 Dr
Stationery & Printing Exp.	74,639.00 Dr	74,639.00 Dr
T.A. / D.A. & Meeting Charges.,	4,10,307.00 Dr	4,10,307.00 Dr
Telephone & Mobile Bill Exp.	10,848.00 Dr	10,848.00 Dr
Travelling Exp.	3,095.00 Dr	3,095.00 Dr
Vehicle Hire Charges	9,03,686.00 Dr	9,03,686.00 Dr
<b>Event Participation</b>		17,67,053.00 Dr
Vibrant Gujarat	16,57,645.00 Dr	16,57,645.00 Dr
Conduction in Nat Exhib, Conference	85,000.00 Dr	85,000.00 Dr
Event Participation Exp.,	24,408.00 Dr	24,408.00 Dr
<b>Policy Plann. Supp. &amp; Stra. Initiative</b>		10,61,078.00 Dr
Policy Formulation-BT & Related Issue	9,18,750.00 Dr	9,18,750.00 Dr
Advertisement Exp- Policy Pla. Supp. & Stra Initi.	5,016.00 Dr	5,016.00 Dr
Consultancy for Seed Gene Bank	63,709.00 Dr	63,709.00 Dr
Staff Salary Exp-Policy Planning	67,323.00 Dr	67,323.00 Dr



**GSBTM (2008-09)**

Group Summary : 1-Apr-2008 to 31-Mar-2009

Page 2

Particulars	Biotech Human Resource Dev Exp.	Dev. of BT Sector in Gujarat Exp.
	Nett	Nett
	Transactions	Transactions
<b>Brought Forward</b>		<b>1,55,69,010.21 Dr</b>
<i>T.A./D.A. &amp; Honorium-Policy Plann, Supp, &amp; Strat.</i>	6,280.00 Dr	6,280.00 Dr
<b>Popularization of Biotech</b>		<b>8,19,201.00 Dr</b>
Popular Lecture Series	5,000.00 Dr	5,000.00 Dr
Advertisement Exp.,- Populerisation of Bt	38,070.00 Dr	38,070.00 Dr
Popularisation of Bio Tech.,-Exp.,	1,80,630.00 Dr	1,80,630.00 Dr
Printing Exp. Awe. Gen & Info	48,573.00 Dr	48,573.00 Dr
T.A./D.A. & Honorium-Popularization of BT	1,06,012.00 Dr	1,06,012.00 Dr
Vehicle Hire Charegs-Popularisation of BT	32,011.00 Dr	32,011.00 Dr
Workshop-Seminar-Meeting Exp., Populari. of Biotech	4,08,905.00 Dr	4,08,905.00 Dr
<b>Technology Faciliation</b>	<b>2,94,015.00 Dr</b>	
Staff Salary TFC Exp.	18,600.00 Dr	18,600.00 Dr
T.A./d.A. & Honorium Exp., HRD	2,14,037.00 Dr	2,14,037.00 Dr
T.A./D.A. & Honorium Exp. -Tech Fesiliation	61,378.00 Dr	61,378.00 Dr
Advertisement Exp. HRD	13,167.00 Dr	
Financial Incentives to BT Industries	40,000.00 Dr	
Meeting Exp., HRD	55,901.00 Dr	
Office Exp. Hrd	19,102.00 Dr	
Printing Exp. HRD	12,863.00 Dr	
Staff Salary Exp.,HRD.,	64,339.00 Dr	
TA/DA Exp.-HRD-Bit Virtual	52,760.00 Dr	
Train. Prog in Spec. Institutes	80,000.00 Dr	
Workshop Seminarexp., HRD	6,36,356.00 Dr	
<b>Grand Total</b>	<b>12,68,503.00 Dr</b>	<b>1,63,88,211.21 Dr</b>



**GUJARAT STATE BIOTECHNOLOGY MISSION**  
**Gandhinagar**  
**Year 2008-2009**

**Land Contribution Money At BT Park Savli**

Sr. No.	Name of Party	Amt.
1	Anhox Biotech Pvt. Ltd.	266050.00
2	BDR Pharmaceuticals Inte. Pvt. Ltd.	1500000.00
3	Sun Biotech	1050.00
4	MD Bio	286902.30
5	Mebs Biotech Ltd.	2489300.00
6	M J Biopharm	1192950.00
7	Oxygen Healthcare	312840.00
8	Scrutiny Fees Income	36300.00
<b>TOTAL</b>		<b>6085392.30</b>





## GSBTM (2008-09)

Block No - 11,  
9th Floor,  
Udhyog Bhavan  
Gandhinagar

## Fixed Assets

Group Summary

1-Apr-2008 to 31-Mar-2009

Page 1

Particulars	Opening Balance	Transactions		Closing Balance
		Debit	Credit	
<b>Computer System</b>	<b>36,42,943.00 Dr</b>	<b>8,24,079.00</b>		<b>44,67,022.00 Dr</b>
Computer	13,38,719.00 Dr	6,825.00		13,45,544.00 Dr
Computer at Dist-Biotech Infra Deve.		8,17,254.00		8,17,254.00 Dr
Computer Software	5,500.00 Dr			5,500.00 Dr
Computer with Accerelators	21,56,448.00 Dr			21,56,448.00 Dr
Laptop.,	1,07,156.00 Dr			1,07,156.00 Dr
Scanner A/c	35,120.00 Dr			35,120.00 Dr
Air Conditioners- Bio Infra. Dev		3,83,928.00		3,83,928.00 Dr
Biotech Instrument and Equipment A/c		13,04,767.00		13,04,767.00 Dr
Books	1,89,568.00 Dr			1,89,568.00 Dr
Books TFC	95,965.00 Dr			95,965.00 Dr
Cluster Machine- Seed Gene Bank		35,92,500.00		35,92,500.00 Dr
EPABX Machine	2,10,933.00 Dr			2,10,933.00 Dr
Furniture & Fixture Establishment	9,36,496.00 Dr	3,10,701.00		12,47,197.00 Dr
Lab Instrument-Bio Infra. Dev(Seed Gene)		76,65,674.00		76,65,674.00 Dr
Lab Moduals- Seed Gene Bank		7,51,018.00		7,51,018.00 Dr
Land of BT Park, Savli	1,37,37,600.00 Dr			1,37,37,600.00 Dr
Microwave Oven-Seed Gene-Policy Plann		25,200.00		25,200.00 Dr
Mobile Instrument.,	17,500.00 Dr			17,500.00 Dr
Office Equipment	44,955.00 Dr	42,400.00		87,355.00 Dr
Refrigerator-Seed Bank Policy Plann		62,000.00		62,000.00 Dr
RO System A/c	10,000.00 Dr			10,000.00 Dr
Tools & Equipment	18,341.00 Dr			18,341.00 Dr
Wall Motorised Screen.,	25,257.00 Dr			25,257.00 Dr
White Board.,	5,400.00 Dr			5,400.00 Dr
<b>Grand Total</b>	<b>1,89,34,958.00 Dr</b>	<b>1,49,62,267.00</b>		<b>3,38,97,225.00 Dr</b>



## GSBTM (2008-09)

Block No - 11,  
9th Floor,  
Udhyog Bhavan  
Gandhinagar

ANNEXURE - D

## Loans &amp; Advances (Asset)

Group Summary

1-Apr-2008 to 31-Mar-2009

Page 1

Particulars	Opening Balance	Transactions		Closing Balance
		Debit	Credit	
<b>Staff Advance.,</b>		1,30,140.00	66,140.00	<b>64,000.00 Dr</b>
Adv-A.K. Saxena		64,000.00		64,000.00 Dr
Adv-Anand Bhadalkar		8,972.00	8,972.00	
Adv - Ansuya Laheri.,		8,732.00	8,732.00	
Adv- Madhavi Joshi		20,732.00	20,732.00	
Adv-Nikita Patel		8,732.00	8,732.00	
Adv - Snehal Bhagthariya		18,972.00	18,972.00	
Adv-Anand Agric. Uni.,	1,80,000.00 Dr	21,41,000.00	15,46,720.00	7,74,280.00 Dr
Adv-Bio Chemistry Dept. M. S. Uni.		7,02,890.00	6,58,353.00	44,537.00 Dr
Adv-Bioscience Dept. Saurashtra Uni. Rajkot		29,92,100.00	23,08,392.00	6,83,708.00 Dr
Adv- CSMCRI Bhavnagar		1,08,60,696.00	78,24,324.00	30,36,372.00 Dr
Adv-Dean Aspee College of Horti. & Forestry-NAU		40,000.00		40,000.00 Dr
Adv-Dept. Microbiology & Biotechnology		1,61,38,000.00	1,24,06,362.21	37,31,637.79 Dr
Adv-Dept. of Biological Sci. CIOASAC		50,000.00		50,000.00 Dr
Adv-Forensic Science Laboratory.,	50,000.00 Dr			50,000.00 Dr
Adv-Foundation for Res. in Genetics & Endocrinology		50,000.00		50,000.00 Dr
Adv-Giri Maharaj		8,000.00		8,000.00 Dr
Adv-Guj. Cancer & Resea. Inst.	1,50,000.00 Dr	52,36,665.00	41,96,924.00	11,89,741.00 Dr
Adv-Guj. Forest Research Insti. Gnagar		18,45,000.00	12,63,700.00	5,81,300.00 Dr
Adv-Guj. Genomic Initiative (GGI)	4,50,000.00 Dr	2,70,927.00		7,20,927.00 Dr
Adv-Guj Insti. of Dev. Research A'bad	50,000.00 Dr		50,000.00	
Adv-Guj. Uni. Zoology Dept.,		1,00,000.00	1,00,000.00	
Adv-Hemchandracharya Uni. Patan		74,040.00		74,040.00 Dr
Adv-Indian Inst. of Advance Research		1,60,000.00	1,60,000.00	
Adv-Microbiology Study Circle(J&J Sci.Coll)Nadiad		25,000.00	25,000.00	
Adv-M& Virani Science College Rajkot		4,98,876.00	2,07,087.00	2,91,789.00 Dr
Adv-M. V. Rao		80,000.00		80,000.00 Dr
Adv-N.V.Patel College	50,000.00 Dr	40,000.00	90,000.00	
Adv-Plant Tissue Culture Lab AAU Anand		5,62,400.00	4,76,050.00	86,350.00 Dr
Adv-Preksha Associates		7,90,907.00		7,90,907.00 Dr
Adv-Rasheedunnisa Begum.,	45,000.00 Dr		45,000.00	
Adv-Registrar Sardar Patel Uni.		85,000.00	85,000.00	
Adv-R. K. College of Pharmacy		50,000.00	50,000.00	
Adv-Sai Infosystem (I) Pvt. Ltd.		5,59,500.00	5,50,000.00	9,500.00 Dr
Adv-School of Science A'bad		24,23,703.00	15,56,725.00	8,66,978.00 Dr
Adv-S.P.University Vallbh Vidhyanagar		15,09,700.00	14,64,633.00	45,067.00 Dr
Adv to Ramkya Consultancy	6,36,454.00 Dr	1,59,516.00	7,95,970.00	
Project Advance	1,72,91,101.00 Dr		1,04,69,277.00	68,21,824.00 Dr
<b>Grand Total</b>	<b>1,89,02,555.00 Dr</b>	<b>4,75,84,060.00</b>	<b>4,63,95,657.21</b>	<b>2,00,90,957.79 Dr</b>



## ANNEXURE-2

## Constitution of Gujarat Biotechnology Council

No	Designation	Status
1	Chief Minister, Gujarat State	Chairman
2	Minister of State, Industries	Member
3	Chief Secretary, GoG	Member
4	Secretary, DBT, Gol	Member
5	Principal Advisor, GoG for Biotechnology	Member
6	Principal Secretary (Finance), GoG	Member
7	Principal Secretary (Industries & Mines), GoG	Member
8	Principal Secretary (Forest & Environment), GoG	Member
9	Secretary (Higher & Technical Education), GoG	Member
10	Secretary (Health), GoG	Member
11	Secretary, Department of Science & Technology, GoG	Member
12	Secretary (Agriculture), GoG	Member
13	Dr. S. P. S. Khanuja, Director, Central Institution for Medicinal and Aromatic Plants - CIMAP	Member
14	Dr. Bharat Chattoo, Head of Biotechnology Programme, MSU, Baroda	Member
15	Vice - Chancellor, Gujarat Agriculture University	Member
16	Dr. Datta Madamwar, Head, Dept. of Bio Science, SPU, Vallabh Vidhyanagar	Member
17	Dr. Harish Padh, Director, PERD, Ahmedabad	Member
18	Dr. Lalji Sing, Director, Centre for Cellular and Molecular Biology, Hyderabad	Member
19	Dr. V.R Kamboj, President, National Academy of Science, Allahabad	Member
20	Director, CSMCRI, Bhavnagar	Member
21	Prof. Subhash Chand, IIT, New Delhi	Member
22	Shri Pankaj Patel, CMD, Zydus Cadilla Ltd., Ahmedabad	Member
23	Shri Sudhir Vaid, MD, Concord Biotech Ltd., Ahmedabad	Member
24	Dr. Farzaan Engineer, MD, Quintiles Spectral(India)Ltd, Ahmedabad	Member
25	Director, Gujarat State Biotechnology Mission	Member
		Secretary
26	Dr. S. Nagrajan, Director, IARI, New Delhi	Member
27	Director, National Institute of Oceanography, Goa	Member
28	Dr. Amit Ghosh, Scientist, Director, IMTECH, Chandigarh	Member
29	Dr. P. K. Ghosh, Advisor, Cadila Pharmaceuticals, Ahmedabad	Member
30	Dr. Amrita Patel, NDDDB, Anand	Member
31	Shri P. K. De, Chairman, Span Diagnostic Ltd, Bandra	Member
32	Dr. V. Chothaiwala, GM, Torrent Research Center, Bhatt	Member
33	Dr. Devyani R. Tipre, Research Assoc., Department of Microbiology, School of Sciences, Gujarat University, Ahmedabad	Member



## ANNEXURE-3

## Constitution of Governing Body Committee

No.	Designation	Status
1	Chief Secretary, Gujarat State	Chairman
2	Principal Secretary, Forest & Environment Department	Member
3	Principal Secretary, Finance Department	Member
4	Principal Secretary, Industries & Mines Department	Member
5	Principal Secretary, Health Department	Member
6	Principal Secretary, Higher & Technical Education Department	Member
7	Secretary, Agri. & Co-operation Department	Member
8	Secretary, Science & Technology Department	Member
9	Secretary, DBT, Gol	Member
10	Joint Secretary (BT), Science & Technology Department	Member
11	Director, BISAG, Gandhinagar	Member
12	Advisor, GUJCCST, Gandhinagar	Member
13	Prof. Bharat B. Chattoo, M.S. University, Baroda	Member
14	Prof. Harish Padh, Director, B. V. Patel PERD Center, Ahmedabad	Member
15	Prof. Datta Madamwar, Head, S. P. University, Vallabh Vidhyanagar	Member
16	Dr. P. K Ghosh, Adviser, Cadilla, Ahmedabad	Member
17	Director, CSMCRI, Bhavnagar	Member
18	Shri Pankaj Patel, Zydus Cadila, Ahmedabad	Member
19	Mission Director, GSBTM, Gandhinagar	Member Secretary

## ANNEXURE-4

## Constitution of Executive Committee

No.	Designation	Status
1	Secretary, Department of Science & Technology, GoG	Chairman
2	Secretary, Department of Technical Education, GoG	Member
3	Joint Secretary (BT), Department of Science & Technology, GoG	Member
4	Director, BISAG, GoG	Member
5	Advisor, GUJCOST, GoG	Member
8	Director, B. V. Patel P. E. R. D. Centre, Ahmedabad	Member
9	Dr. P. K. Ghosh, Advisor, DST, GoG	Member
10	Financial Advisor	Member
11	Mission Director, GSBTM	Member Secretary



## ANNEXURE-5

### Vibrant Gujarat Global Investor's Summit Glimpse





## GUJARAT STATE BIOTECHNOLOGY MISSION

### Scientific Officers



**Dr. Snehal Bagatharia**

Sector Specialist - Agriculture Biotechnology (Class-I)  
[ssabtm@gujarat.gov.in](mailto:ssabtm@gujarat.gov.in)



**Mr. Anand Bhadalkar**

Sector Specialist - Industrial Biotechnology (Class-I)  
[ssibtm@gujarat.gov.in](mailto:ssibtm@gujarat.gov.in)



**Mrs. Anasuya Lahiry**

Sector Specialist - Environmental & Marine Biotechnology (Class-I)  
[ssebtm@gujarat.gov.in](mailto:ssebtm@gujarat.gov.in)



**Ms. Madhvi Joshi**

Sector Specialist - Pharma & Healthcare Biotechnology (Class-I)  
[sspbtm@gujarat.gov.in](mailto:sspbtm@gujarat.gov.in)



**Ms. Nikita Patel**

Sector Specialist - Bioinformatics (Class-I)  
[ssbbtm@gujarat.gov.in](mailto:ssbbtm@gujarat.gov.in)





Papillon multimedia 9426968677



## GUJARAT STATE BIOTECHNOLOGY MISSION

Department of Science & Technology, Government of Gujarat  
Block 11, 9th Floor, Udyog Bhavan Gandhinagar-382 017, Gujarat

Ph :079-232 52197  
Email: [info-btm@gujarat.gov.in](mailto:info-btm@gujarat.gov.in)

Fax: 079-232 52195  
URL: <http://btm.gujarat.gov.in>