

## AN OVERVIEW

The Government of India constituted the Technology Development Board (TDB) in September 1996, under the provisions of the Technology Development Board Act, 1995.

The Act enables creation of a Fund for Technology Development and Application to be administered by TDB. The Fund receives grants from the Government of India out of the Cess collected by the Government from the industrial concerns under the provisions of the Research and Development Cess Act, 1986, as amended in 1995. Any income from investment of the amount of the Fund and the recoveries made of the amounts granted from the Fund are credited to the Fund. The Finance Act, 1999, enabled full deductions to donations made to the Fund for income tax purposes.

Of the total Rs. 1533.25 crore R&D cess collection during the years 1996-2008, the government has made available to TDB a cumulative sum of Rs. 501.42 crore over the period of 12 years. This works out to be 32.70% of the R&D cess collections made in 12 years.

The mandate of the TDB is to provide financial assistance to the industrial concerns and other agencies attempting development and commercial application of indigenous technology or adapting imported technology for wider domestic application.

The financial assistance from TDB is available in the form of loan or equity and/or in exceptional cases, it may be grant. The loan assistance is provided upto 50 percent of the approved project cost and carries 5 percent simple rate of interest per annum. In the alternative, TDB may also subscribe by way of equity capital in a company, subject to maximum upto 25 percent of the approved project cost. The financial assistance is provided during the commencement, start-up or growth stages of an industrial concern.

TDB accepts applications for financial assistance from all sectors of economy throughout the year. The industrial concern desirous of seeking financial assistance from TDB has to apply in the prescribed format. A copy of the Project Funding Guidelines including the format of application can be obtained free of cost from TDB or by accessing TDB website ([www.tdbindia.org](http://www.tdbindia.org)).

During the year 2007-08, TDB signed 27 agreements with 21 industrial concerns and 5 Seed Support Systems for Start-ups in Incubators/Science and Technology Entrepreneurs Parks (STEPs-TBIs) and 1 with Venture Capital Company. For the 21 industrial concerns, TDB agreed to provide loan of Rs. 93.85 crore as against the total project cost of Rs. 278.04 crore. In addition, TDB committed Rs. 5 crore for the 5 STEP-TBIs and Rs.15 crore for one venture fund for leveraging a fund of Rs. 65 crore.

During the year 2007-08, TDB disbursed a sum of Rs. 63.01 crore towards on-going and new projects. This included Rs. 49.55 crore as loan, Rs. 2.90 crore as grant and Rs. 10.56 crore to UTIVF, APIDC-VCL and GVFL for investment in early stage as well as growth oriented ventures through their funds.

As on 31<sup>st</sup> March 2008, TDB has signed total 200 agreements (since its inception in 1996) with the total project cost of Rs. 2949.13 crore involving TDB's commitment of Rs. 894.80 crore against which TDB has disbursed Rs. 753.81 crore from the fund provided by the government and through internal accruals.

### Modes of Financial Assistance

The following table indicates the modes of financial assistance provided by TDB upto 31<sup>st</sup> March 2008.

#### **Modes of Financial Assistance**

(Rupees in crore)

<b>Instruments</b>	<b>Sanctioned by TDB*</b>	<b>Disbursement by TDB</b>
Loans	615.78	551.77
Equity	24.36	24.36**
Grant	94.66	65.86
Others		
ITVUS – UTI	25.00	25.00
UTIVF – AIF	75.00	57.52
APIDC VF	30.00	22.80
Venture East	15.00	5.00
GVFL	15.00	1.50
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	160.00	111.82
<b>Total</b>	<b>894.80</b>	<b>753.81</b>

\* *The sanctioned amount by TDB has been revised as on 31<sup>st</sup> March 2008 due to revision in the quantum of financial assistance, foreclosure and cancellations.*

\*\* *Includes conversion of loan of Rs. 18.46 crore to NICCO Corporation into Cumulative Redeemable Preference Shares in March 2004 (thereby reducing the loan).*

## Sector-wise Coverage

TDB's financial assistance has covered almost all sectors of the economy. The following table gives sector-wise projects financially assisted by TDB for the year ended on 31<sup>st</sup> March, 2008, since inception in 1997-98.

### Sector-wise Coverage 1997-2008

(Rupees in crore)

	Sector	Number of Agreements	Total Cost	Sanctioned by TDB
1	Healthcare	55	773.07	238.50
2	Engineering	40	328.77	108.67
3	Chemicals	17	127.65	41.08
4	Agriculture	16	90.98	29.02
5	Energy & Waste Utilisation	7	105.34	45.98
6	Tele- communication	10	79.79	29.35
7	Defence and Civil Aviation	1	8.00	2.20
8	Road Transport	10	527.04	81.20
9	Air Transport	2	142.10	67.80
10	Information Technology	26	172.56	80.50
11	Others			
	a) Including Venture Funds	5	583.33	160.00
	b) STEP-TBI	10	10.00	10.00
	c) CII	1	0.50	0.50
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		16	593.83	170.50
	Total	<b>200*</b>	<b>2949.13</b>	<b>894.80</b>

*\*(Excludes 10 agreements cancelled by TDB without any release.)*

Financial participation by TDB depends largely on the market driven conditions and varies considerably from one sector to another. Healthcare along with Engineering sector have a significant share in its financial assistance.

In the recent past, TDB has partnered with the UTIVF and APIDC Venture Capital Fund to widen its scope with a view to leverage investment in innovative projects and also supported R&D initiatives by the incubators through Seed Support Fund. TDB has also decided new initiatives by investing in the SME Technology Venture Fund, a venture capital fund targeted at investing in start-up and early stage technology based companies like IT/ ITES, Biotechnology, Nano-technology and Bio-fuels, etc. by Gujrat Venture Finance Limited, Ahmedabad. These participations would enable TDB to enlarge its activities in potential areas with good scalability and to enhance its scope of commercialization of emerging technologies.

## Job Opportunities

TDB has added value by creating new job opportunities through implementation of projects by new enterprises as well as through new projects implemented by ongoing enterprises.

### State-wise Distribution of Agreements

The State-wise distribution (based on registered office of the company) of agreements signed during the years 1997-2008 is given below:

### State-wise Distribution of Agreements 1997-2008

(Rupees in crore)

No.	State, Union Territory	Number of Agreements	Number of Enterprises	Total Cost	Loan/Grant /Equity Sanctioned by TDB
1	Andhra Pradesh	57	44	781.75	252.43
2	Chandigarh	1	1	2.40	1.20
3	Delhi	15	14	132.10	50.71
4	Gujarat	8	5	65.84	15.89
5	Haryana	2	2	7.40	2.10
6	Himachal Pradesh	1	1	6.24	1.90
7	Karnataka	20	20	303.70	71.44 +Gr 60.16
8	Kerala	2	2	10.91	5.15
9	Madhya Pradesh	7	5	143.94	38.85
10	Maharashtra	27	26	497.05	84.25
11	Pondicherry	1	1	5.83	1.90
12	Punjab	7	6	79.74	19.56 +Eq 5.90
13	Rajasthan	1	1	35.77	3.00
14	Tamil Nadu	24	23	160.68	45.11
15	Uttar Pradesh	4	3	38.04	3.92 +Gr 24.00
16	West Bengal	7	5	83.91	18.37 + Eq 18.46*
	Others- Including				
	Venture Funds	5	5	583.33	160.00
	STEP-TBIs	10	10	10.00	10.00
	CII	1	1	0.50	0.50
	<b>Grand Total</b>	<b>200</b>	<b>175</b>	<b>2949.13</b>	<b>894.80</b>

*Note: Excludes 10 agreements cancelled by TDB without any release.*

- \* *Loan amount of Rs.18.46 crore (Rs. 12.46 crore in 1999-2000 and Rs. 6 crore in 2001-2002) disbursed to NICCO Corporation Ltd., Kolkata was converted into Cumulative Redeemable Preference Shares in March 2004.*

## **Products and Services in 2007-08**

The brief profile of products released / projects completed during the year 2007-08 with the financial assistance from TDB is indicated below.

**Hib Conjugate & DTP-HBV Vaccines:** M/s Biological E. Limited, Hyderabad has successfully completed the project for development and commercialization of Conjugated Haemophilus Influenza Type B (Hib) Vaccine, Diphtheria – Tetanus-Pertussis & HIB Combination Vaccine and Measles Vaccine in June 2007. The company launched DTP-HBV commercially in June 2007.

**Software Solution for Agriculture:** M/s iSmart Business Solutions Private Limited, Mumbai completed the project in September 2007 for development and commercialization of Harvest IT version 2.0 as an end-to-end solution catering agribusiness in India as well as abroad. The product focuses on cultivation practices including crop specific agronomy solutions, ERP (Enterprise Resource and Planning) etc. for plantation and crop management.

**Microarray Datamining and Management Software Tool:** M/s Strand Life Sciences Private Ltd., Bangalore completed the project in December 2007 for development and commercialization of Avadis Enterprise-wide Tool that enables quick and accurate identification of interesting gene and gene relationships. The tool is useful for companies, R&D institutes, educational centres and agencies dealing with manufacturing, education and research in the area of life sciences.

**Software for Telecom Analytic Services:** M/s Teleonto Technologies Private Limited, Hyderabad completed the project in December 2007 for commercialization of ApT (Analytic platform for Telecom) software product for Telecom Analytic Services, such as Revenue Assurance Analytics, Radio Resource Analytics, Roaming Analytics and Marketing Intelligence.

**Software Product for Unified Relationship Management for e-Governance and Workflow Applications (URM-SEWA):** M/s Value One Infotech (P) Limited, New Delhi has developed a world-class software product for Unified Relationship Management for e-Governance and Workflow Applications (URM-SEWA), an integrated suite of applications encompassing Customer Relationship Management (CRM), for workflow automation (paperless office), Internet Space Management, Knowledge Management, and Document Management based on the open source technologies in March 2008.

**Facility for Manufacturing Microarrays :** M/s Ocimum Biosolutions (India) Limited, Hyderabad has built a manufacturing facility for the production of Microarrays viz., Human 40K Oci Chips™ and disease/pathway based Oci Chips™ in March 2008. The facility will provide a framework for the identification of novel potential drug targets and the common genetic factors

that affect drug metabolism and toxicity using a technology acquired from Oxford Gene Technology (OGT) and Affymetrix.

## **New Products and Services in 2007-08**

Development & commercialization of Laser Head Systems and Subsystems based upon LASER Technologies by M/s Laser Scanning System Private Limited, Indore.

Commercialization of Indigenous Technology for Utilization of Municipal Solid Waste (MSW) at 14 different locations in the country by M/s Unique Waste Processing Company (UWPC), New Delhi.

Manufacture of Human 40K Disease/Pathway-Based Microarrays by M/s Ocimum Biosolutions (India) Limited, Hyderabad.

Setting up of facility for Development and Commercialization of Liquid Adsorbed Rabies Vaccine by M/s Bharat Biotech International Limited, Hyderabad.

Development and commercialization of Concentration, Evaporation and Spray Dryer System for Distillery Effluent Treatment by utilizing powder from ETP plant to be fixed as composite fuel with bagasse by M/s Ugar Sugar Works Limited, Ugarkhurd, Distt. Belgaum (Karnataka).

Setting up of facility for Design, Development, Manufacturing & Marketing of Enterprise Routers by M/s Realtime Systems Limited, New Delhi.

Development and Direct-to-Consumer Retail Distribution of Mobile Applications for use in mobile phone handsets by M/s Verity Technology Private Limited, Bangalore.

Setting up of a cross breeding facility for Development and commercialization of Low Input Birds to obtain better quality meat and to improve on quantitative production of eggs by M/s Indbro Research and Breeding Farms Pvt. Ltd., Hyderabad.

Development and commercialization of Primary Healthcare Delivery Technology through ReMeDi Telemedicine Solution with a focus to Rural Applications by M/s Neurosynaptic Communications Private Limited, Bangalore. The solution being developed indigenously in collaboration with the TeNeT group of IIT, Madras has applications in semi-urban and urban areas as well.

Setting up of facility for Development and commercialization of Automated Vehicle Underside Scanning System by M/s KritiKal Secure Scan Pvt. Ltd. (KSS), New Delhi, the first company in India to develop a vision based scanning system with high accuracy and reliability. The project is promoted by faculty & students of IIT Delhi.

Setting up of facility for manufacture of the 9 APIs (Active Pharmaceutical Ingredients) namely Quetiapine Fumarate, Ropinirole HCl, Aripiprazole, Clopidogrel Besylate, Risedronate

Sodium, Venlafaxine HCl, Donepezil, Nateglinide and Fluvastatin Sodium through Indigenous Technology by M/s Ind-Swift Laboratories Limited, Chandigarh based on in-house R&D.

Development and commercialization of Fibre To The Home (FTTH) Optical Access System based on IEEE standards, termed as VERA Passive Optical Network (PON) System consisting of: (1) Optical Line Terminal (OLT), (2) Optical Networking Units (ONUs) and (3) VERA Operating System by M/s Cavera Systems (India) Pvt Ltd, Hyderabad.

Development and commercialization of Beta Thymidine, a key intermediate used in manufacturing of Anti HIV/AIDS drugs i.e. AZT (Zidovudine) and Zerit (Stavudine) by M/s Sequent Scientific Limited (SSL), New Mangalore.

Setting up of facilities for development and commercialization of Net- O<sub>2</sub> ATTEST Switch Tester viz, a feature rich automated software testing solution for comprehensive functional verification of Layer 2 and Layer 3 (L2/L3) communication protocols in Fast Ethernet and Gigabit Ethernet Switches by M/s Net-O<sub>2</sub> Technologies Private Limited, Chennai.

Production of anti cancer agents, namely, Irinotecan, Bicalutamide and Anastrozole by M/s AVRA Laboratories Pvt. Ltd., Hyderabad based on in-house R&D.

Development & Commercialization of Revolving LED Aviation Obstruction Lights & LED Railway Signaling Systems by M/s Insta Power Limited, New Delhi. The technology is developed by in-house R&D unit of the company.

Setting up of manufacturing facility for commercialization of indigenous bone grafting technology developed, patented and transferred by Sree Chitra Tirunal Institute of Medical Science & Technology (SCTIMST), Thiruvananthapuram by M/s Basic Healthcare Product (P) Limited, Chandigarh.

Setting up of facilities for development and commercialization of purified vaccine for Foot and Mouth Disease (FMD) in animals based on technical know-how licensed by National Research Development Corporation (NRDC) by M/s Biovet Private Limited, Bangalore and down stream vaccine purification HIMAX process developed by M/s. Bharat Biotech International Limited.

Sourcing, Acquiring of the Technology to set up Pilot Demonstration facilities and Commercialization of Public Area Security System to counter terrorist threats in India by M/s Central Electronics Ltd., Sahibabad (U.P.).

## **Pro-active Role**

### **Participation in Venture Capital Fund**

TDB has decided to spread itself by providing support to early stage ventures through SMEs having innovation and innovative products / services. TDB has so far contributed in 5 Venture Capital Funds (UTI-ITVUS, UTI-AIF, APIDC-VCL, Venture East Tenet Fund, GVFL) aggregating to Rs. 583 crore and leveraging Rs. 145 crore from other investors. TDB's

motivation and participation has resulted in the venture capitalists contouring their assistance to TDB's mission.

### **MoUs with Foreign Institutions**

TDB has signed MoUs with several foreign institutions, namely, Agence Nationale De Valorisation de la Recherche (ANVAR), France, Centre for the Development of Industrial Technology (CDTI), Spain and Commonwealth Business Council (CBC), UK to promote, assist and fund the development of joint technology cooperation / transfer projects and for supporting SME growth via technology transfer, industrial research, technology development and innovation for the purpose of generating economic benefits.

### **Seed Support for STEP/TBIs**

TDB has instituted Seed Support Fund to provide early stage financial assistance to the young entrepreneurs in bringing out innovative technology venture ideas to fruition. TDB has supported 10 Technology Business Incubators (TBIs) and Science and Technology Entrepreneurs Parks (STEPS) involving TDB's commitment of Rs. 1000 lakhs and disbursed Rs. 520 lakhs till date. The Seed Support Fund Scheme has benefited to a total of 33 entrepreneurs in various fields.

### **Technology Day and Presentation of National Awards**

The President of India, Dr. A.P.J. Abdul Kalam, presided over as the Chief Guest at the National Awards Function of the Technology Day held on 11th May 2007 at 'The Ashok', New Delhi. The Chief Guest in the presence of Shri Kapil Sibal, Minister of Science and Technology and Earth Sciences presented Rs. 2 lakh and a trophy each to the SSI units, M/s Elpro Energy Dimensions Private Limited, Bangalore for developing and commercializing ETrACS (Energy Tracking and Control System and M/s Diaonics Automation (I) Limited, Nasik For designing and developing state-of-the-art Wireless Digital Addressable Fire Detection cum Prevention System with Centralised Monitoring Station.

### **Interactive Mode**

To create awareness in the industry, entrepreneurs and R&D institutions about the available financial support from TDB, it is undertaking diverse activities e.g., interactive meetings / participation in exhibitions in collaboration with other organizations. During the year, TDB demonstrated its facilities by participating in exhibitions at Ahmedabad, Bangalore, Bhopal, Bhubaneswar, Chandigarh, Delhi, Gurgaon, Guwahati, Hyderabad, Indore, Jaipur, Kochi, Kolkata, Mumbai, Mysore, Noida and Pune. TDB also participated in various exhibitions abroad under the Ministry of Science & Technology at Cairo (Egypt) and Istanbul (Turkey).

### **Board Members**

The Board places on record the valuable services rendered by Dr. T. Ramasami Secretary, DSIR and DG, CSIR (Additional Charge) upto 12.11.2007, Dr. Subas Pani, Secretary,



Department of Rural Development upto 02.01.2008 and Dr. Sanjiv Misra, Secretary, Department of Expenditure, Ministry of Finance upto 31.03.2008 as Members of the Technology Development Board.

Dr. Samir Brahmachari, Secretary DSIR & DG, CSIR and Dr. Rita Sharma, Secretary, Department of Rural Development have been nominated as members of Board w.e.f. 12<sup>th</sup> November, 2007 and 2<sup>nd</sup> January 2008 respectively.

## **Acknowledgement**

The Board is grateful to the Department of Science and Technology for sparing the services of their officers for TDB.

**(Dr. T. Ramasami)**  
**Chairperson**  
**Technology Development Board**