



Overview of the Indian Biotech Industry & Opportunities for Indo-Israeli Cooperation

Dr. M. Vidyasagar
Executive Vice President
Tata Consultancy Services Limited
Hyderabad, India

Snapshot of Indian Biotech Industry

- Annual sales in 2003-04: \$ 705 million
- CAGR: 39% from previous year
- Annual sales in 2002-03: \$ 536 million
- Two largest companies: > \$ 100 million each in 2003-04
- Total number of companies: About 150
- Total number of persons employed: About 8,900 in 2003-04
- Manpower includes 400 Ph.D.'s
- Source: Biospectrum survey; see www.ableindia.org

Composition of Industry

Note: \$ 1 US = Rs. 44 approximately

Segment	Revenue (Rs. Billion)	Percentage
Biopharma	24.80	76.0
Bioindustrial	2.50	7.5
Bioservices	2.75	8.5
Bioagricultural	1.80	5.5
Bioinformatics	0.80	2.5
Total Industry	32.65	100.0

India as a Vaccine Capital

- India has a significant presence in vaccines
- Serum Institute, Pune, is the world's largest supplier of DPT vaccine
- Bharat Biotech, Hyderabad, manufactures vaccines for Wyeth in an FDA-approved facility
- India supplies 80-90% of world's demand for measles vaccines

Significant Recent Event

- Accession to WTO patent regime:
 - Ordinance issued in December 2004
 - Law passed by Parliament and signed by President in March 2005
 - India has now fulfilled its obligations under WTO
- India now recognizes product patents, not just process patents as was the case earlier
- Opens possibility for MNC's to undertake significant R&D in India

Indian Biotech: Strengths

- Large well-trained workforce with process chemistry skills
- Ability to scale up from proof of concept to pilot and production levels at extremely competitive costs
- Accession to WTO patent regime affords full IPR protection
- Several US FDA and European approved facilities for manufacture (e.g., Bharat Biotech), clinical trials etc.
- Knowledge of and adherence to GXP standards is pervasive
- Biotech now perceived as a glamorous field to study
- Increased self-confidence spawned by success in IT

Indian Biotech: Weaknesses

- Lack of *domestic* venture capital funding with patience
- Number of youngsters entering scientific stream (as opposed to engineering) not commensurate with requirements of industry
- Lack of large established companies
 - Largest pharma company (Ranbaxy): > \$ 1 billion/year
 - Largest biotech companies: \$ 100 million/year
- Too much bureaucracy in conducting animal tests, conducting clinical trials, approvals for GM crops, etc.
- Overall, hype does not match up to reality (unlike in IT)

Indian Biotech: Opportunities

- India as “clinical trials capital” (but regulatory environment has to improve first)
- India as “vaccine capital” (process well under way)
- Licensed production of biologics at very low costs
- Scale-up and commercialization of proven technologies
- Outsourcing of drug discovery (from target ID to pre-clinical)
- Acquisition (e.g., from Israel) of agri-biotechnology
- Investment by Indian biotech companies into Israeli start-ups (a hard sell, but very worthwhile)

TCS' Initiative in Life Sciences

- Objectives:
 - To develop IPR in the intersection between IT & BT
 - To have a “window” on the life sciences sector
- Achievements thus far:
 - “Bio-Suite” – a comprehensive software package
 - Several projects for customized software development
 - Alliance with Israeli start-up (Altiora Ventures) to offer single-window service in structure-based drug discovery of small molecules; advanced stage of negotiations with European biotech company

Indo-Israeli Cooperation in BT

- Participation by Indian biotech industry in Biotech Israel
- Only TCS has “represented” India in last two meetings
- Israeli delegation to make contact with Indian BT community
- Note: There is no single dominant biotech event in India
- TCS *does not* participate in Bangalore Bio for example
- Best prospect: Carefully worked out tour, not mega-meeting
- Second best: A dedicated workshop

Indo-Israeli Cooperation in R&D

- We must recreate BIRD Foundation model and create IP
- Separate *legal aspects* of operation (who signs off on expenditure approvals) from *operational aspects* (who recommends funding)
- Involve Indian and Israeli private sector (e.g., have an Advisory Board including two leading industries from each side)
- Conduct focused workshop in targeted areas (e.g., Biotech)
- Initially at least, ensure participation by Indian *academic* R&D community (which is much stronger than industrial R&D community)

Thank You