INDIAN PHARMACEUTICAL INDUSTRY
IN
THE NEW PARADIGM

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Content

- India Today
- Healthcare and Regulatory Environment
- Pharmaceutical/Biotech Industry
- R&D
- Outsourcing Opportunities
- Drivers and Barriers
- Advantage India

Temptation of the West

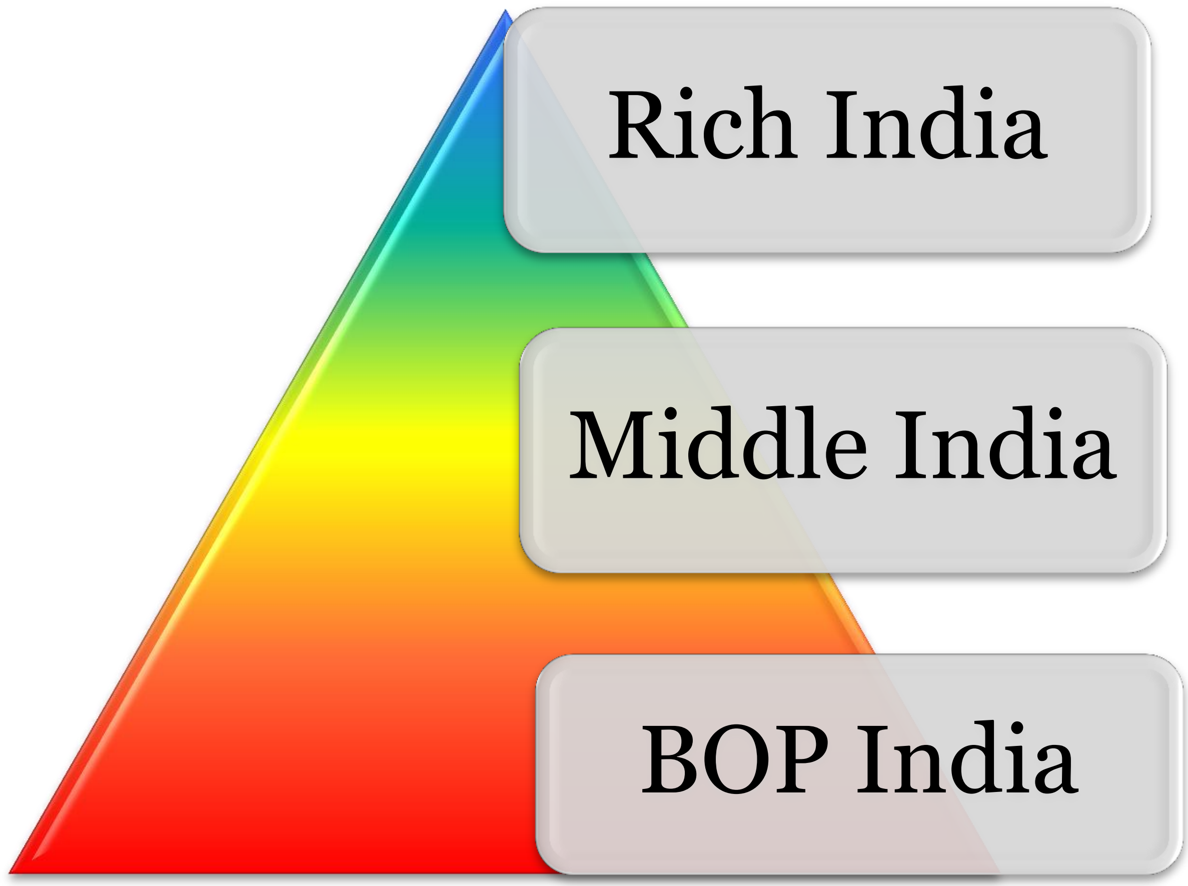
"If you don't know INDIA, you don't know the WORLD"

- Andre Malraux

India Today

The Wise Elephant

India Market Pyramid



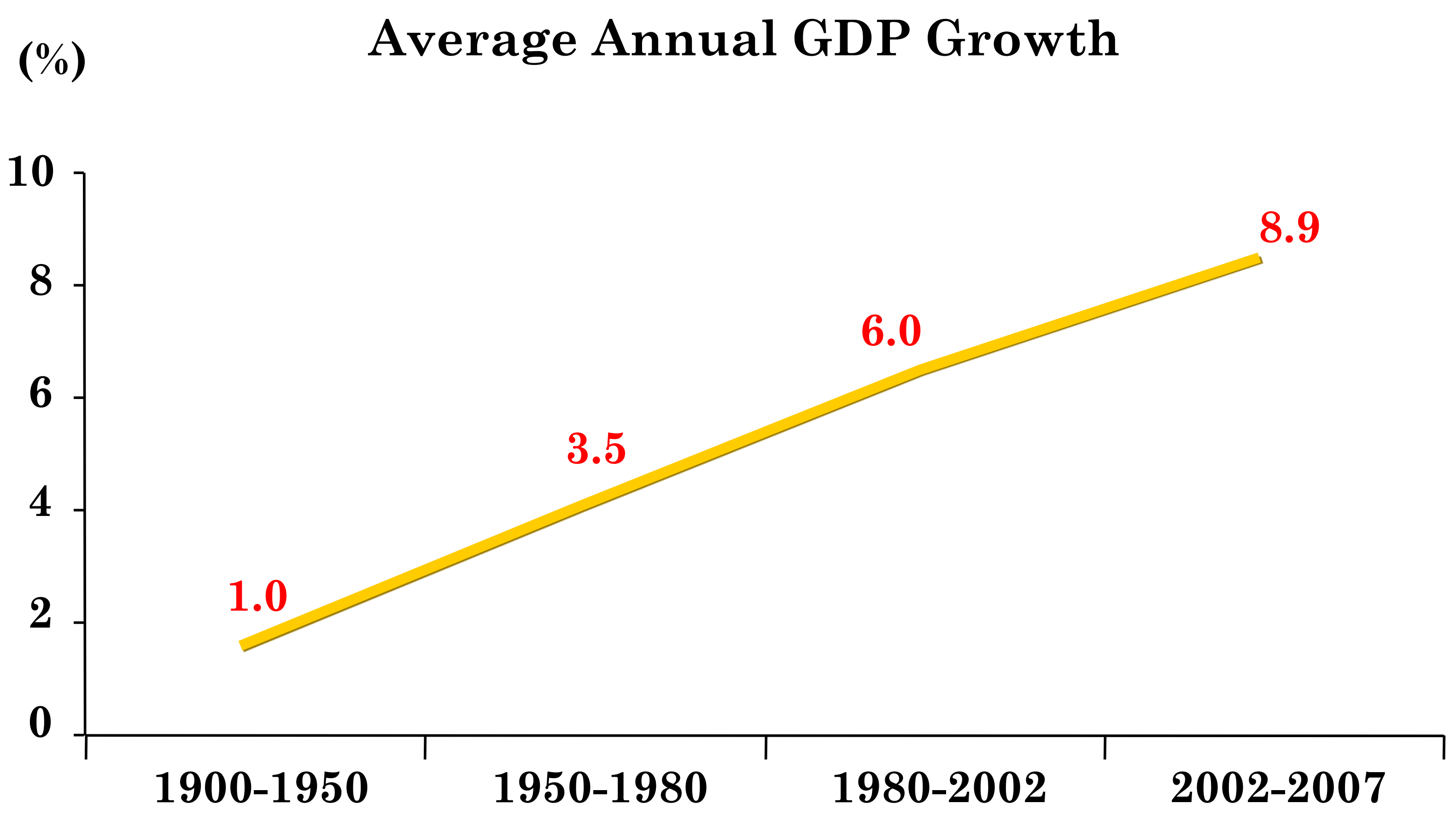
Opportunities in Each Tier

Income Percentile	Population (MM)	% of Income	GDP per capita ($)
Class (Top 10%)	109	34.1	1,878
Mass (Next 30 %)	368	36.1	662
BOP (Last 60%)	653	29.7	265

Source: Rama Bijapurkar, We are like that only

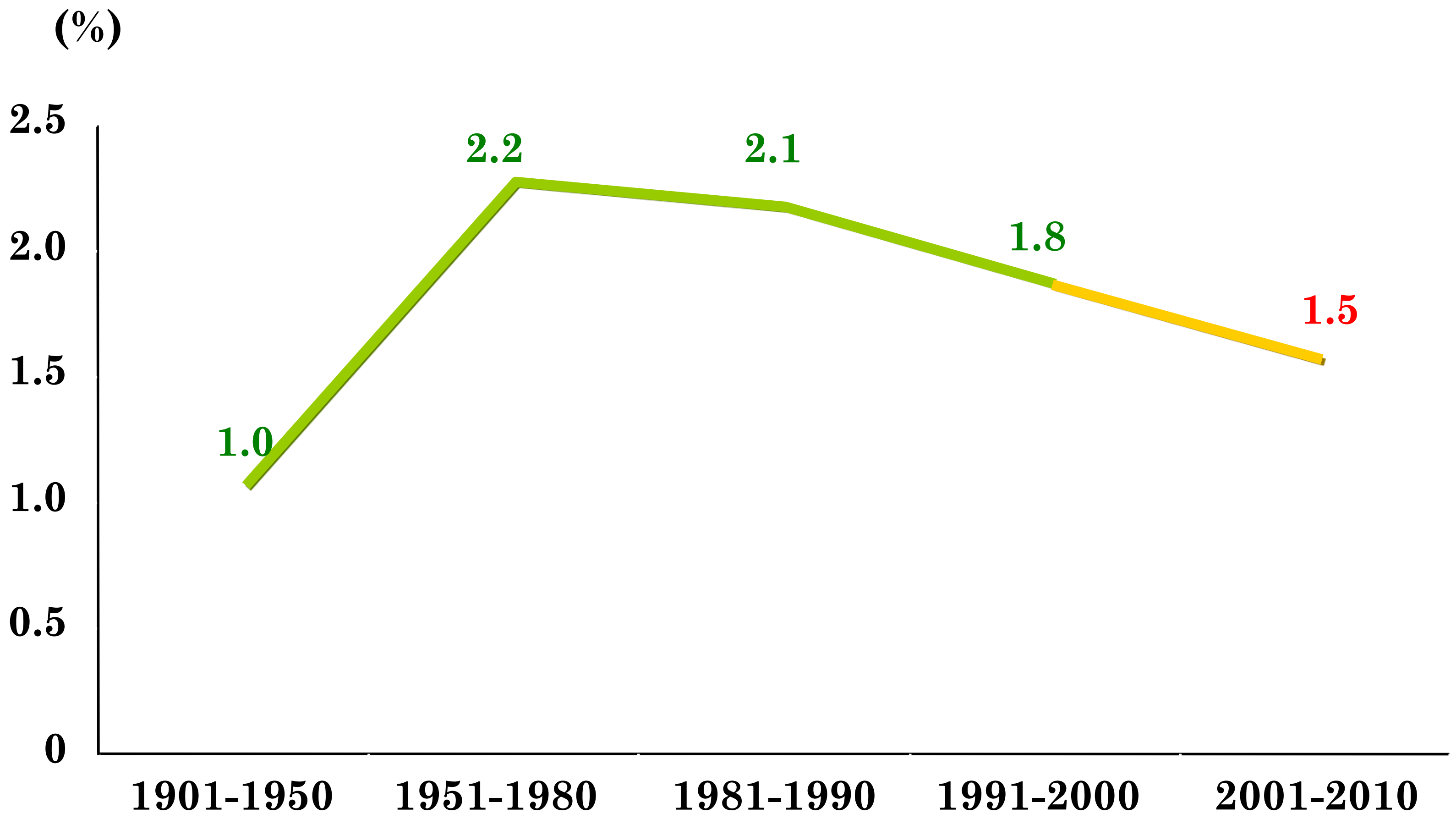
28 Years of High Growth

India is the 4th Largest economy



Population Growth is Slowing Down

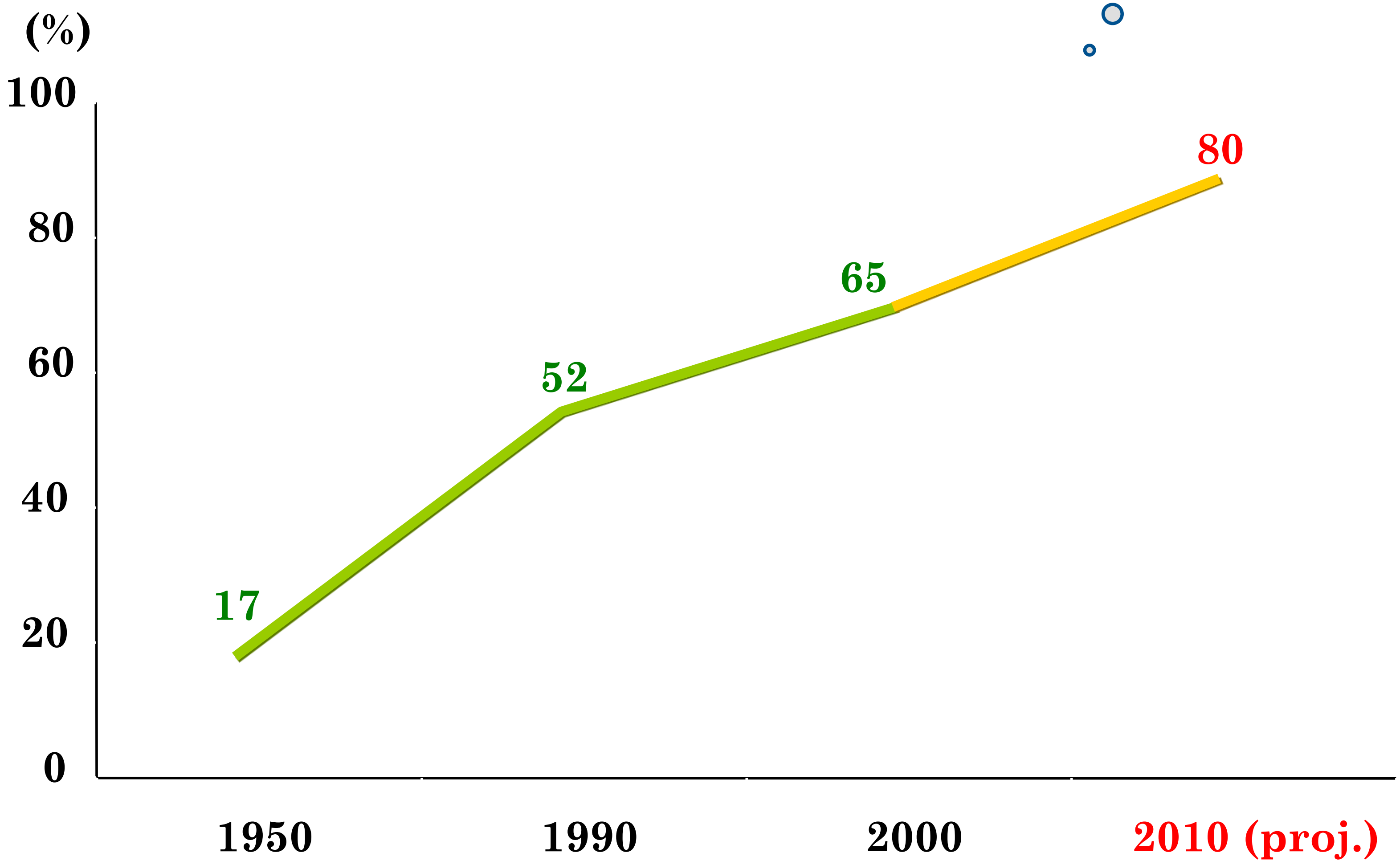
India is the 2nd Largest population



Sources: 1900-1990: Angus Maddison (1995), Monitoring the World Economy, 1990-2000:Census of India (2001)

Literacy is Rising

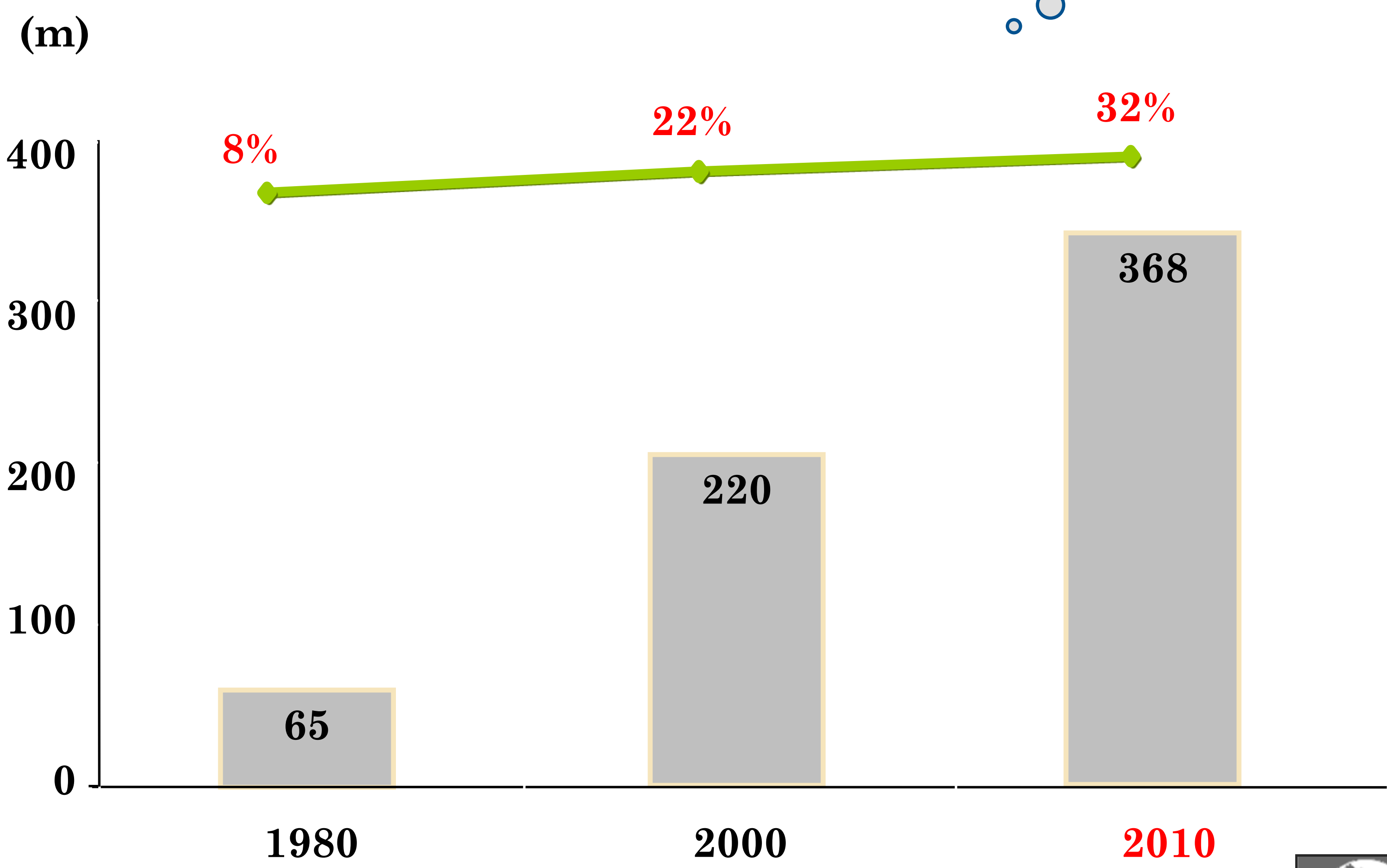
India is the 4th Largest economy



Source: Census of India (2001)

Growing Middle Class Population

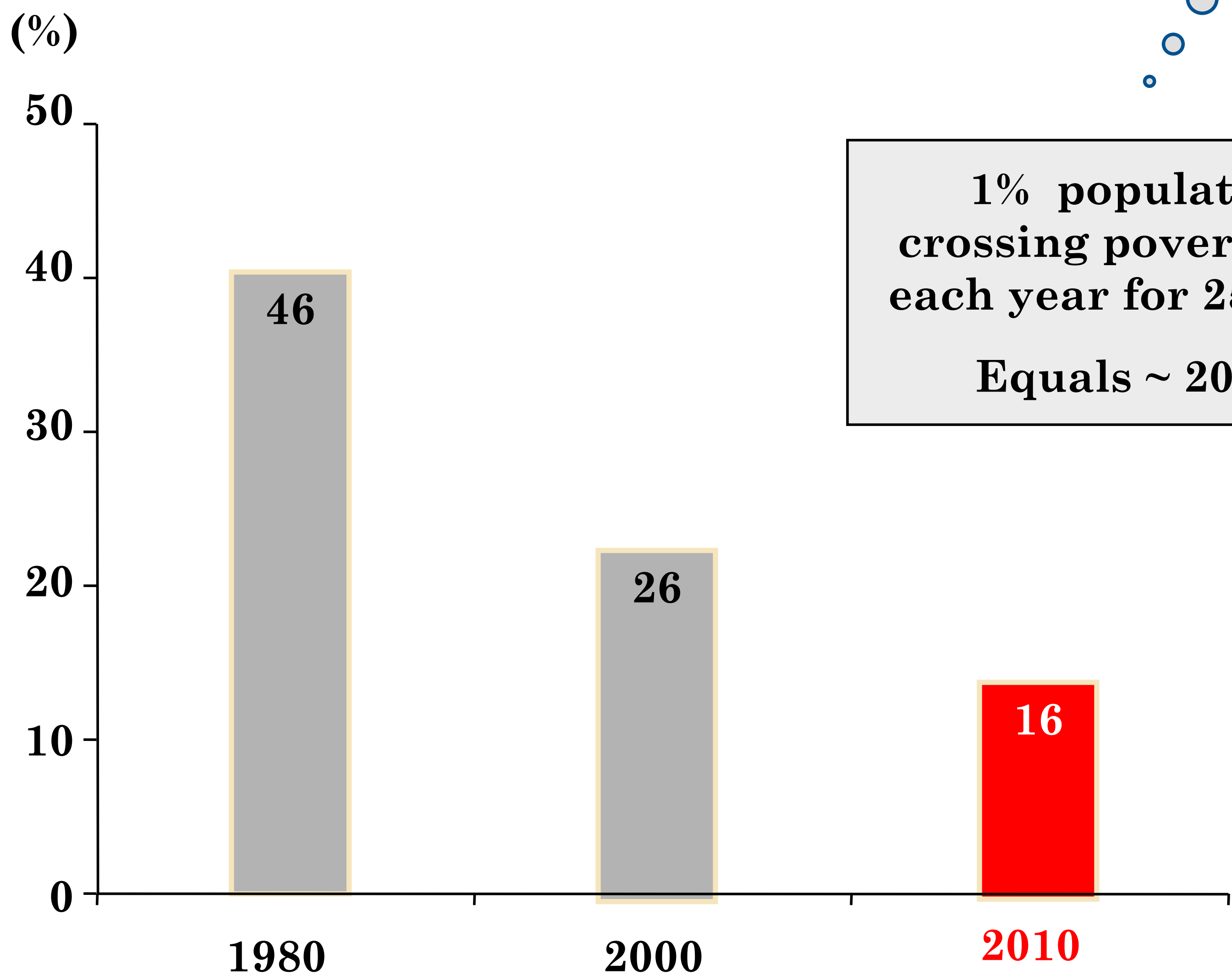
India is the Largest consumer base



Source: The Consuming Class, National Council of Applied Economic Research, 2002

Poverty is Declining

India is the 4th Largest economy

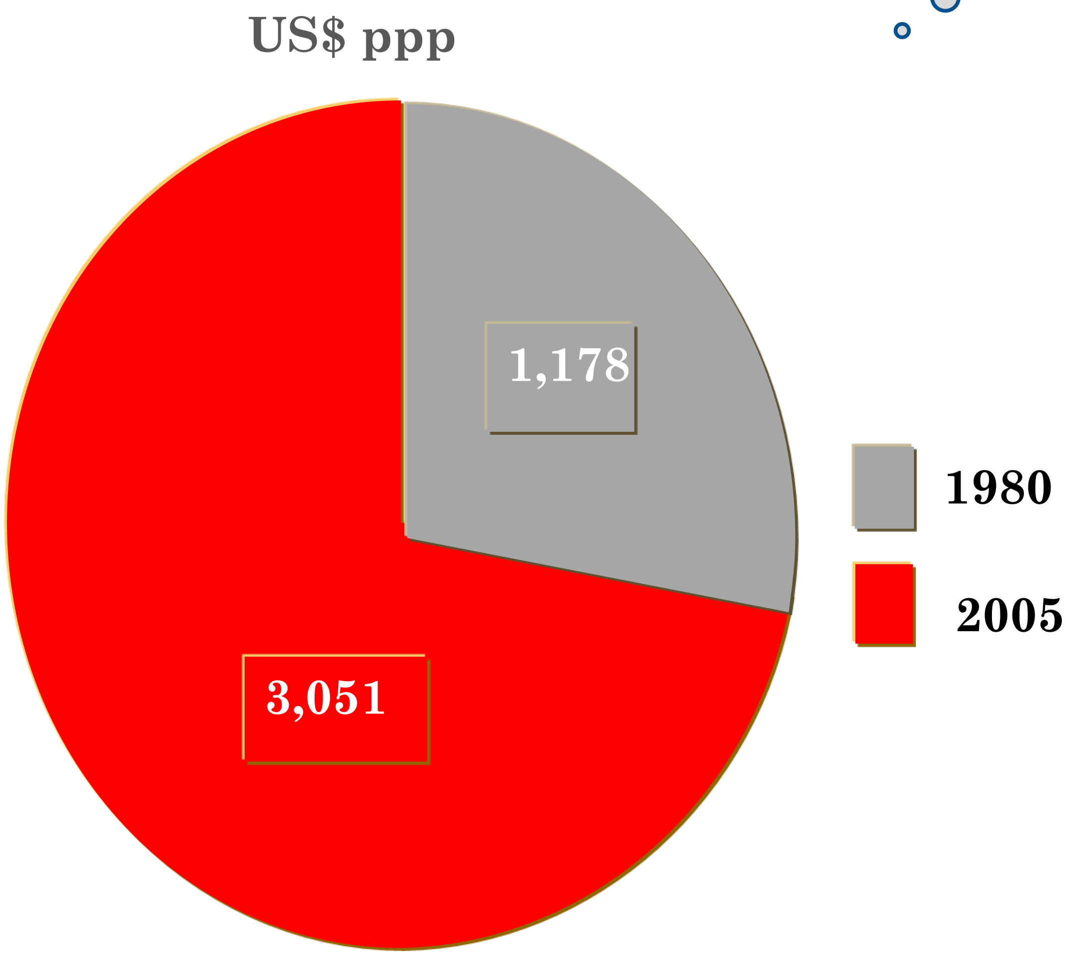


1% population crossing poverty line each year for 25 years

Equals ~ 200m

Per Capita Income Gains

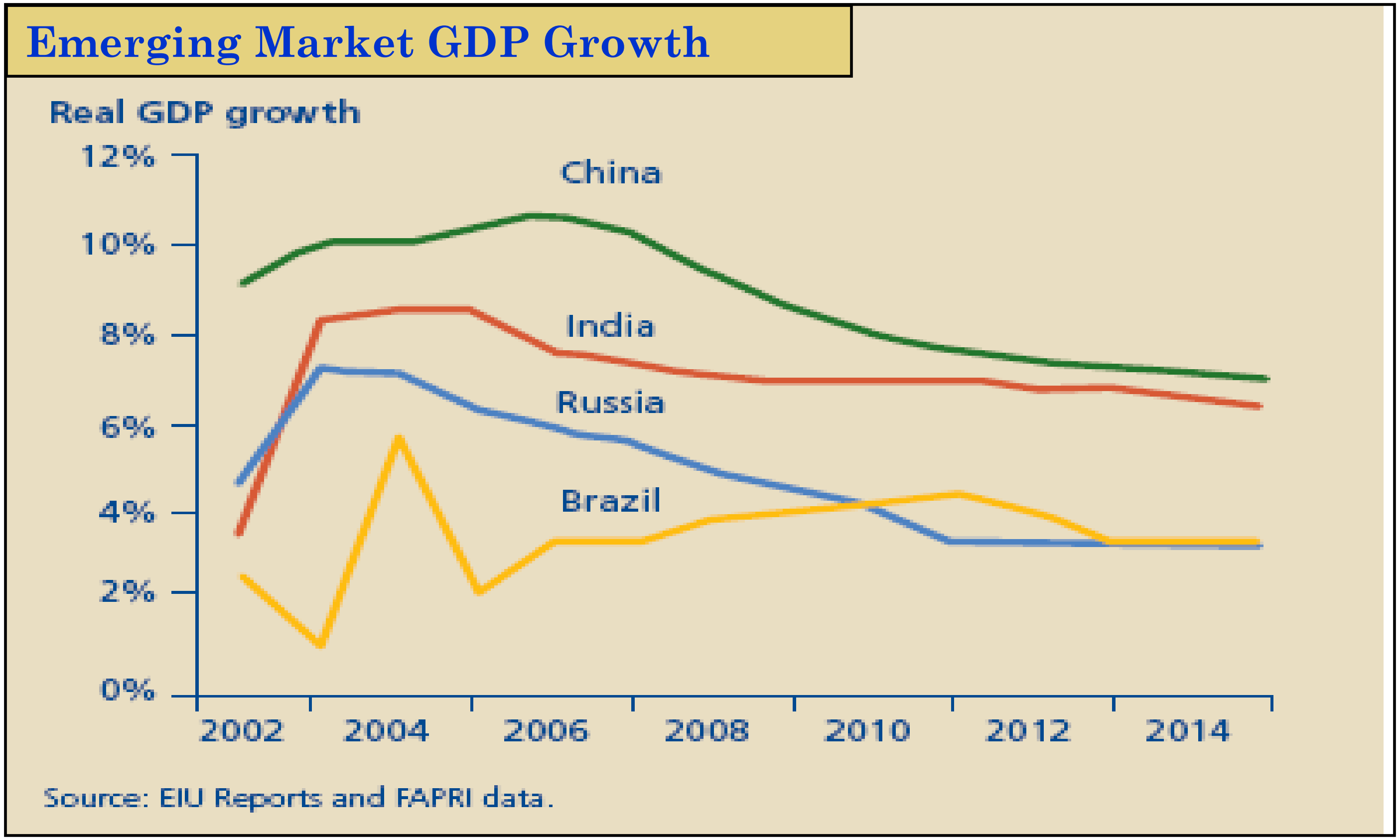
India
will overtake
Japan by 2014



Source: World Bank

India's GDP Growth

India
will overtake
Japan by 2014



Deloitte : Pharmaceutical Market Entry in India

India growing by 6% + despite the current global recession

Indian growth story is still intact

Key Reforms

India
will overtake
Japan by 2014

- Globalization of economy
- Dismantling 'license' regime
- Lowering tariffs / taxes
- Breaking public sector monopolies
- Indigenous R&D
- New IPR Regime

India is Changing Fast
setting the pace for growth and stability…

YESTERDAY

- Slow rate of growth
- Bureaucratic
- Protected
- Small markets
- Under-developed infrastructure
- No Product Patent

TODAY

- One of the fastest growing world economies
- Less impacted by financial meltdown
- Significant outsourcing opportunities
- Fast growing markets
- Significant investment in infrastructure creation for industry
- Product patent regime / R&D

Healthcare and Regulatory Environment

Developments Across the Value Chain

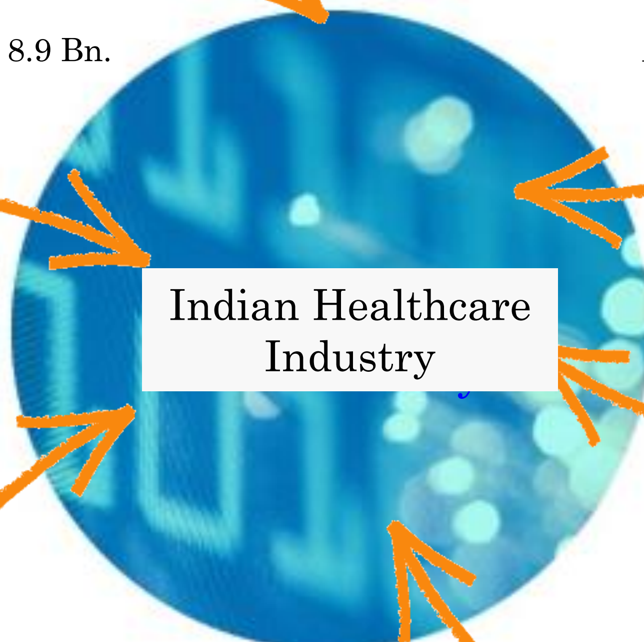
Value Chain

Consumers	• Better informed & aware consumers • Healthcare spend up to 6% of GDP per capita (from 3% in '02)
Customers	• Improved doctor density per 1000 patients • Corporate hospitals / hospitals chain
Marketing	• Increased focus on 'brand building' • Fast developing rural markets
Distribution Chains	• Organization of the retail sector - opening up of retail chains • Entry of international players into the distribution chains
R&D and Manufacturing	• Largest number of FDA approved manufacturing plants outside the US • Maximum ANDAs and DMFs
Legal	• IPR Regime

Healthcare Sector Insulated From Global Meltdown….

Pharma
Domestic Market size USD 8.9 Bn.
@ 17.6%

Health Insurance
10% population has Health Insurance
USD 1 Bn. @30%



Hospitals

No. of beds ~65,500
Increase in Private Sector

OTC Market
India ranks 11th in global OTC market
USD 1.8 Bn.

Medical Tourism
Infertility, Cardiac Management are big contributors.
In 2007, India treated 4,50,000 foreign patients
USD 2 Bn. @ 30% by 2012

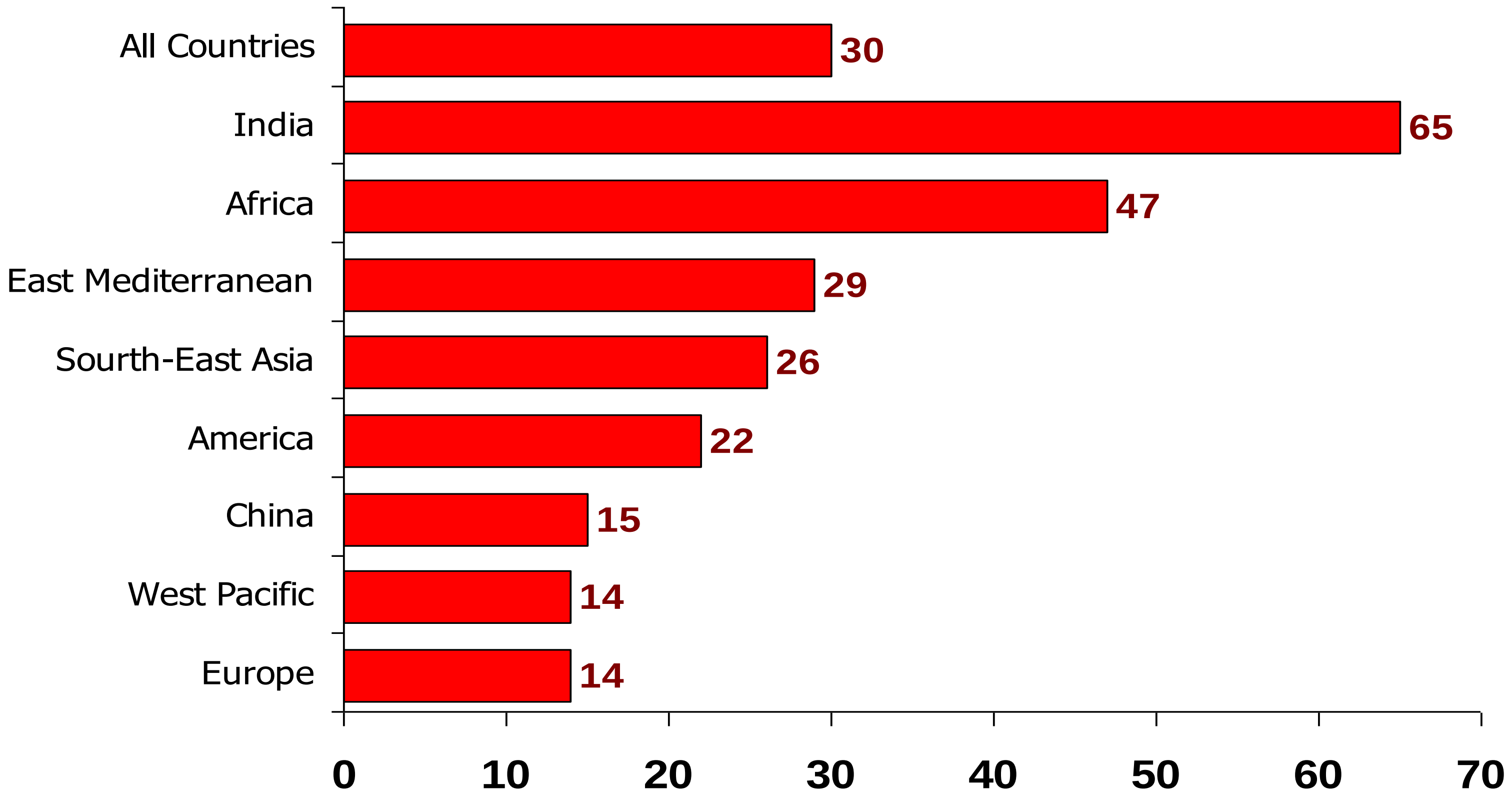
Medical Devices
Small but maturing market
USD 2.17 Bn. @ 15%

Source: ORG IMS Intelligence, various data sources, IBEF

Access to Healthcare

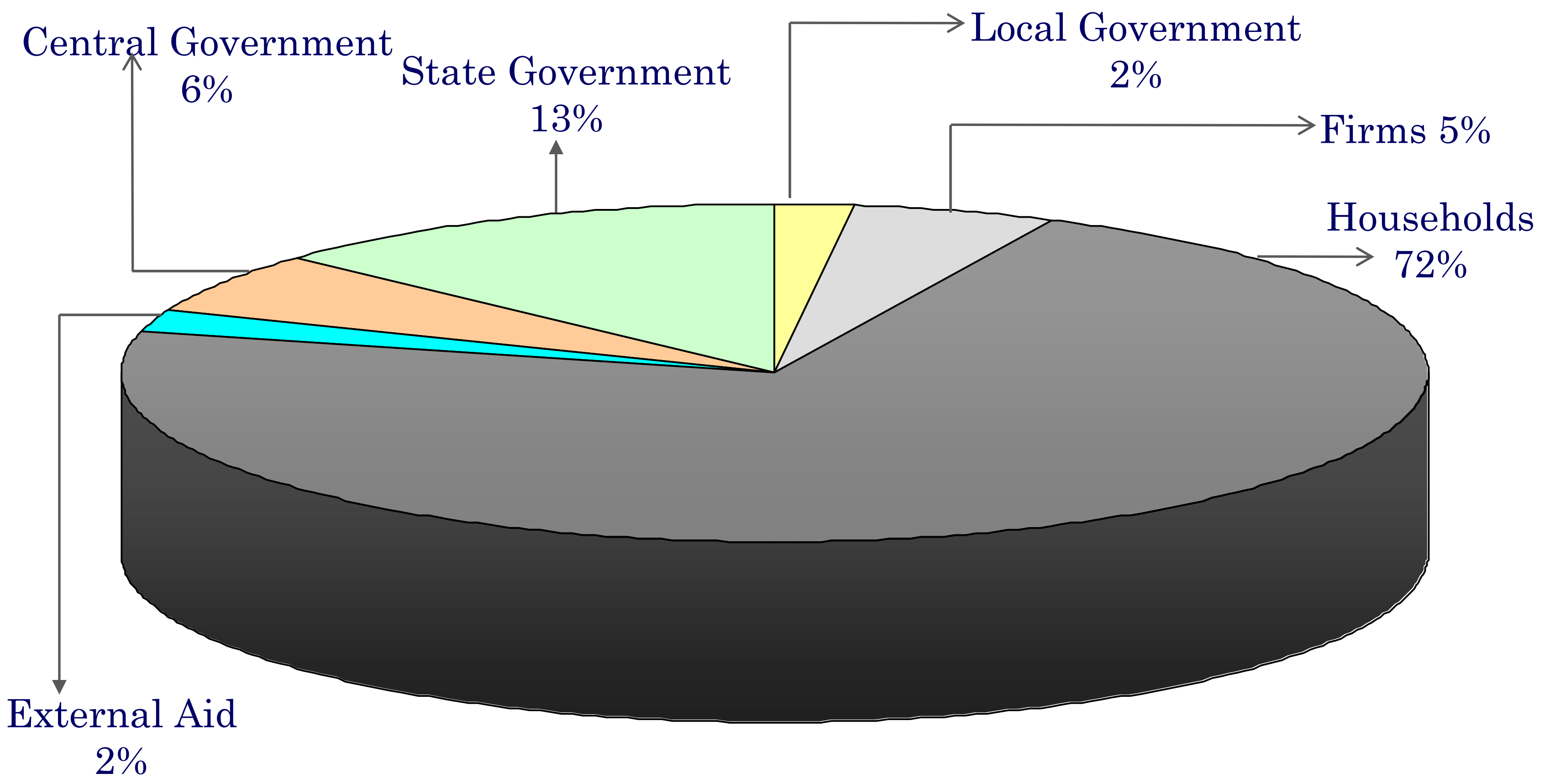
Lower access to medicines than African countries

Percentage of WHO regions lacking access to essential medicines



Source: Diseases of Poverty and the 10/90 Gap,
International Policy Network, November 2004

Proportion of Health Expenditure by Financing Source



Source: National Health Accounts – 2001-02, MoHFW, GoI

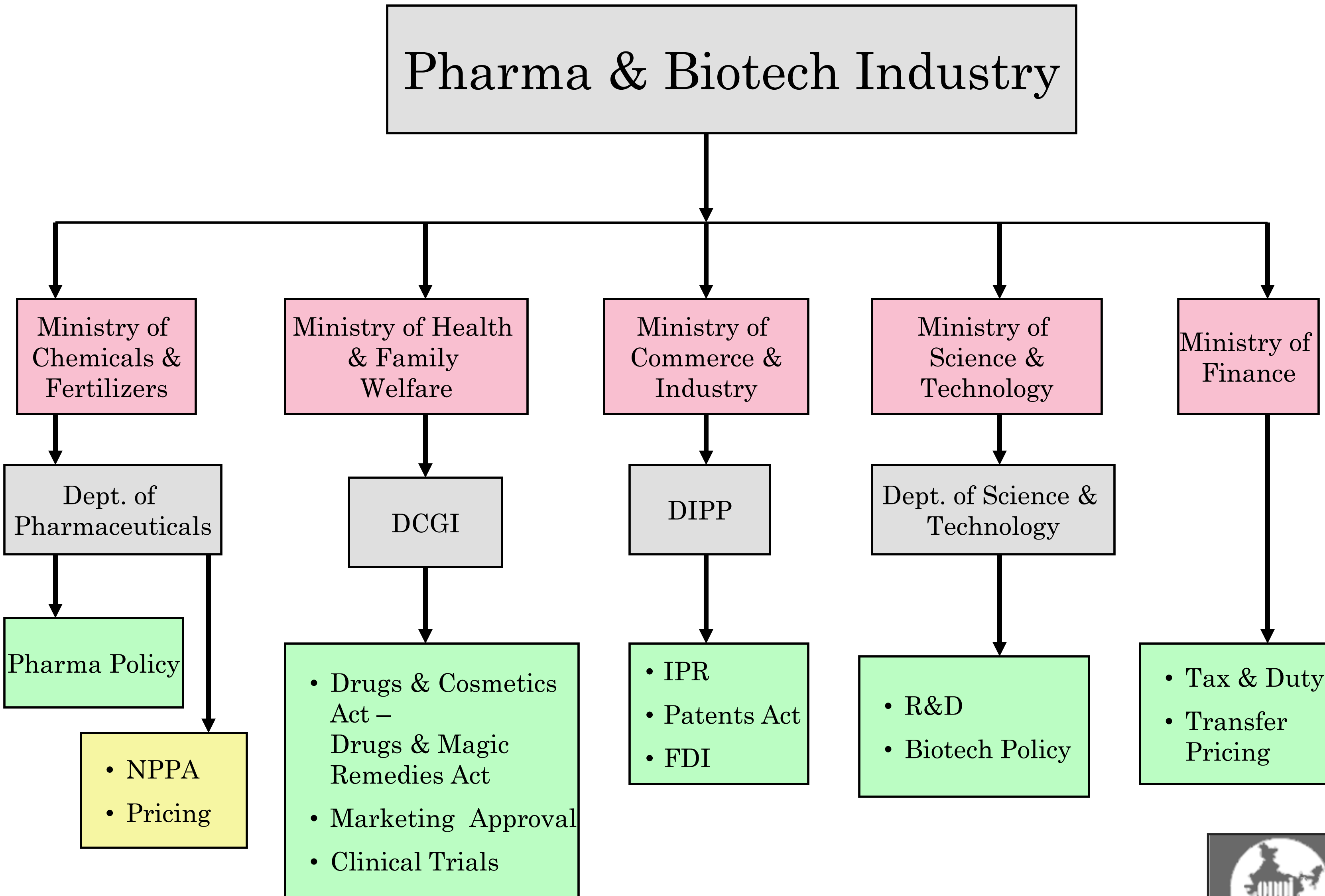
Government: Changing Role

From Healthcare Provider to Healthcare Facilitator

	2002	2012
Private Healthcare Spending (U.S.$ Bn.)	14.8	33.6

Source: India Trade Promotion Organization (ITPO)

Regulatory Structure



Policy Framework
- Indian Pharmaceutical Industry

Policy-sets that influence the Pharmaceutical Industry

Healthcare Policy

- Access to medicines
- Cost-effective medication
- Regulating the physician and consumer behaviour
- Generic promotion/ substitution

Industrial Policy

- Promoting SMEs
- Strengthening R&D
- Protection of IPR
- Sustaining Industry - Institution Linkages
- Supporting technology transfer and capacity development

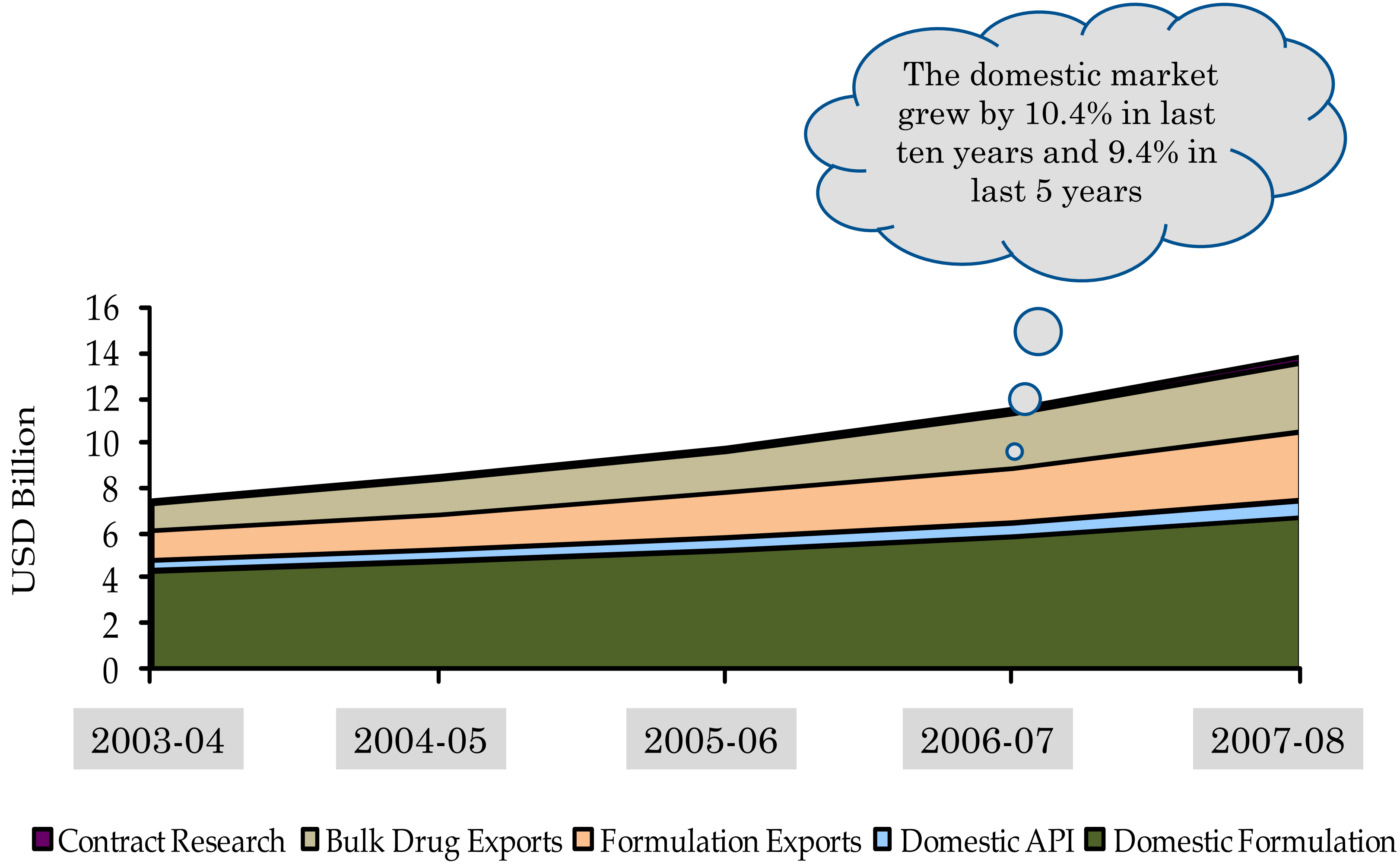
Health Safety Policy

- Ensuring Quality in manufacturing
- Efficacious treatments
- Innovations in drug delivery
- Safety in medicines

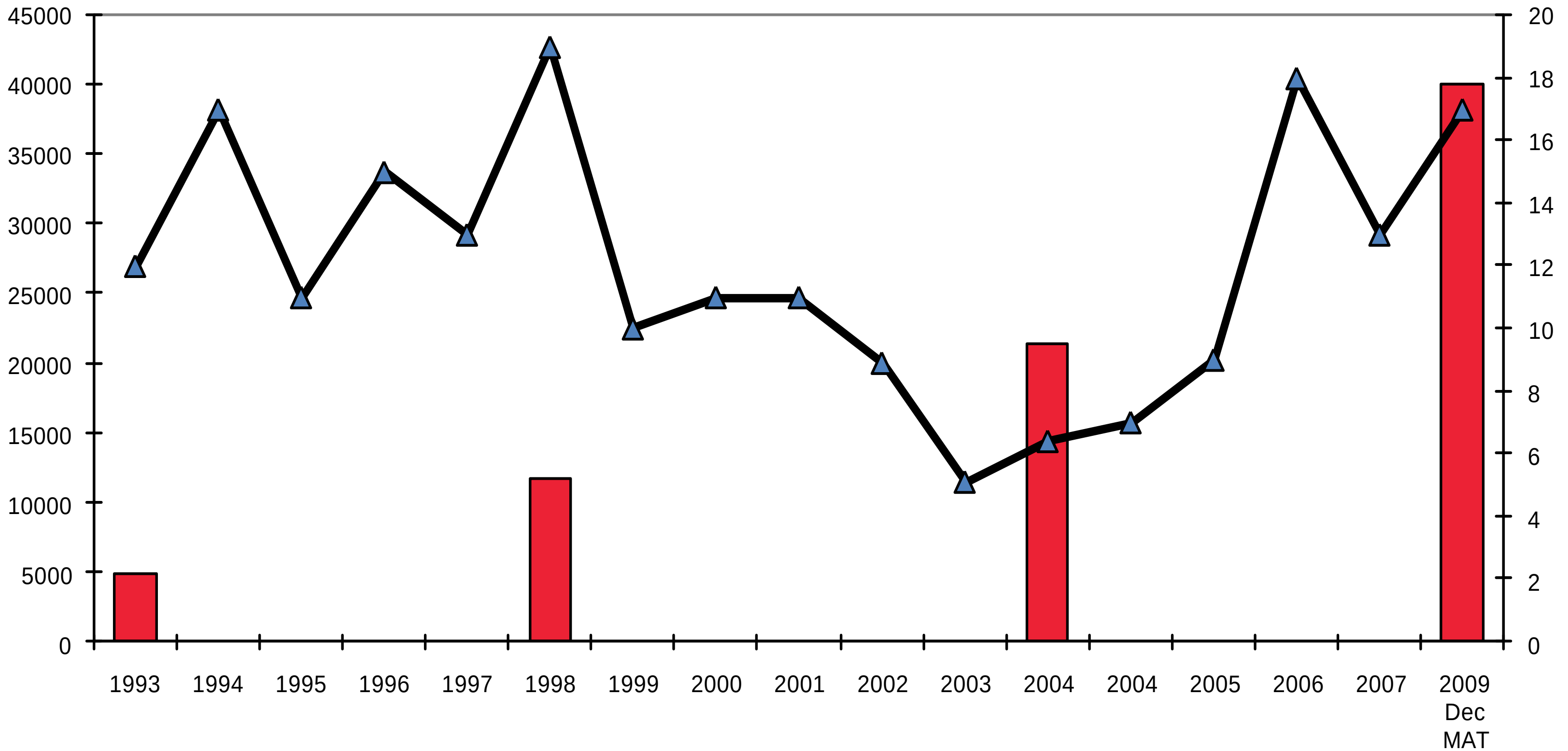
Source: EXIM Research

Pharmaceutical Industry

Indian Pharmaceutical Market



Indian Pharmaceutical Industry is doubling every 6 years…



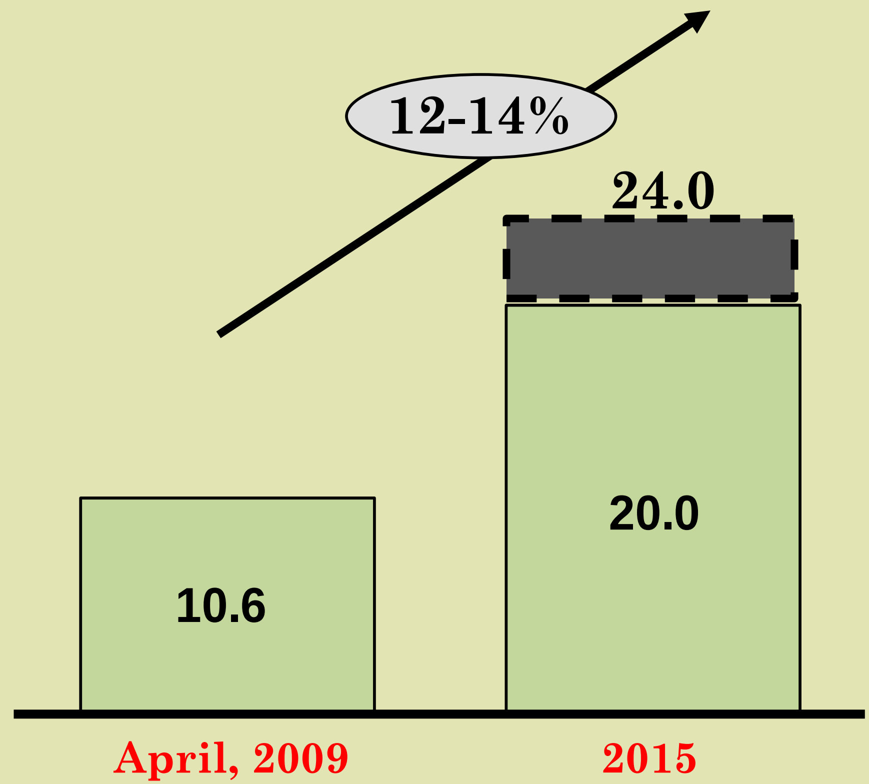
Total retail market size: US $ 8.9 bn; >23,000 companies; over 60,000 Brands

India Pharma Market

Will maintain healthy growth momentum

Growth enablers

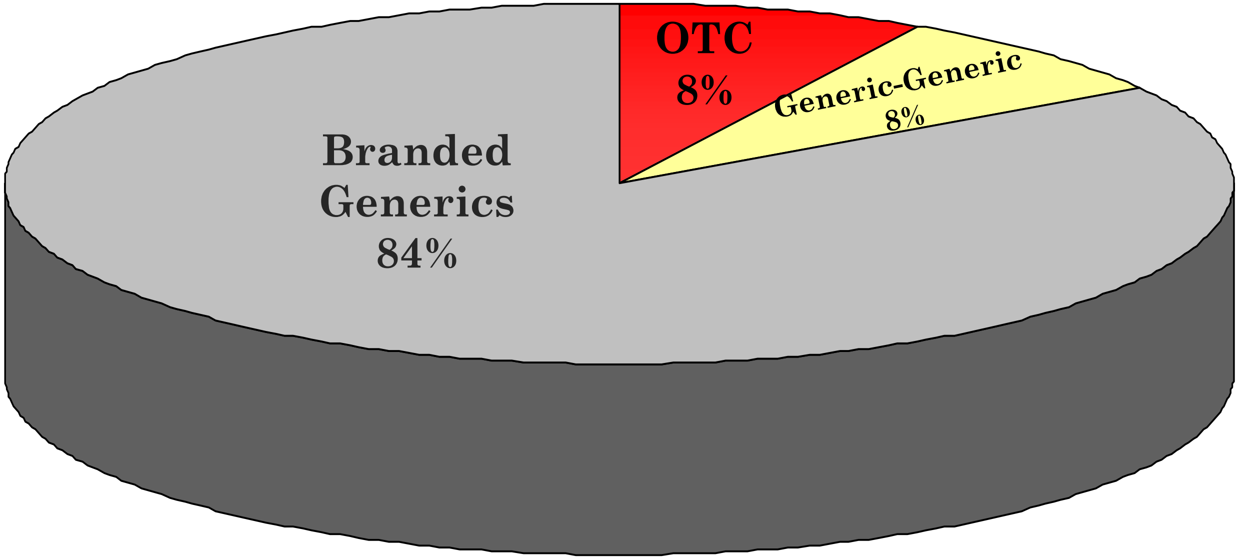
- Income growth
- Growth in medical infrastructure
- Rising prevalence of chronic diseases
- Aggressive market creation
- Rise in insurance coverage



US$ billion

Key Market Types

Market Size US$ 8.9 Bn.



Source : IMS Feb. 2010

Market Characteristics

Highly fragmented industry

- USD 8.9 Bn. @ GR 17.6%
- Over 60,000 Rx Brands; 23,000 Companies
- Top 10 Companies contribute to 38%
- Top 300 brands contributing to 33%
- Top 10 brands contributing to 3.6%

Source : IMS February 2010

Top 10 Pharma Companies

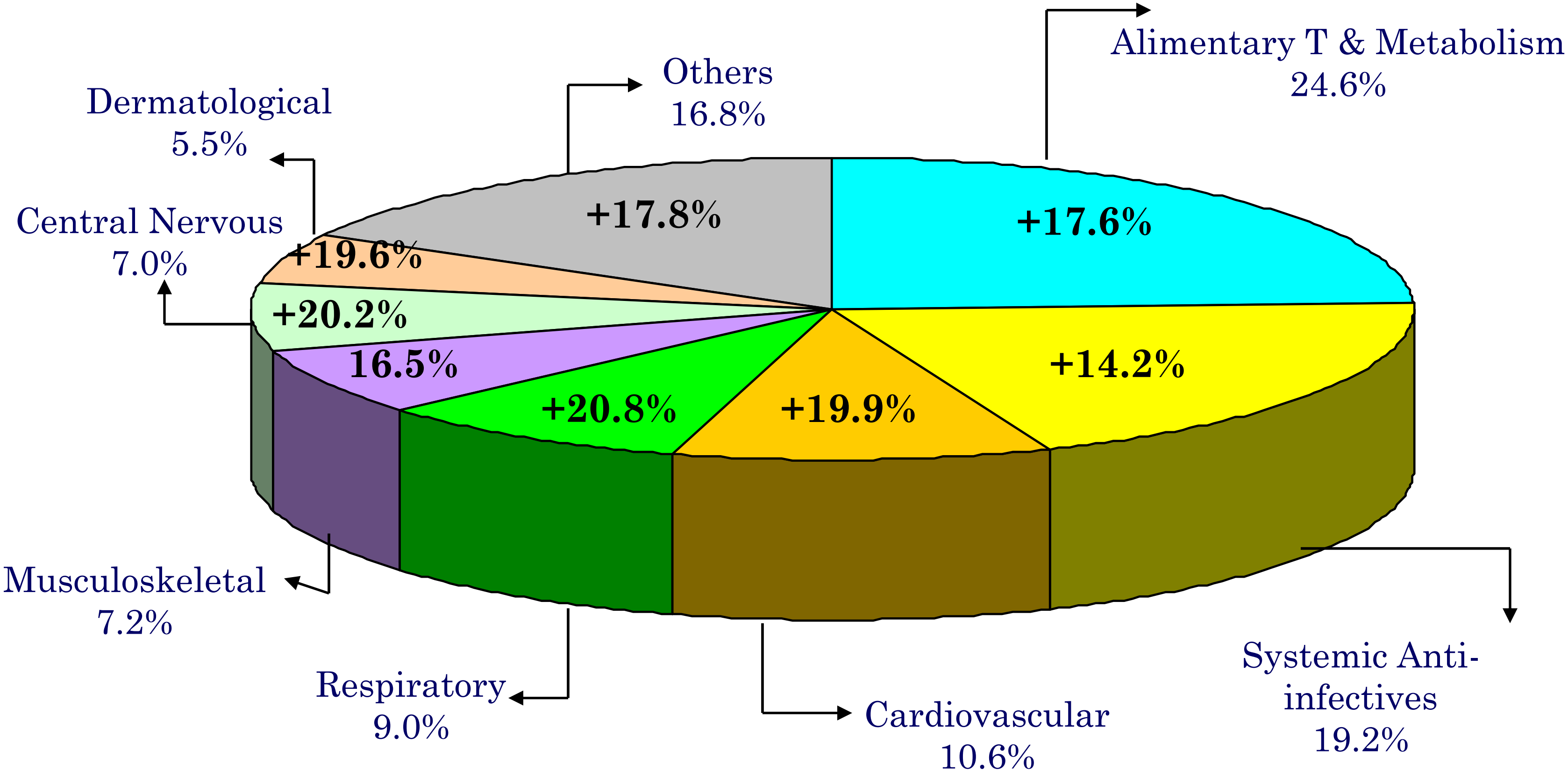
Top 35 Companies contribute to 75%

Rank	Company	Sales (USD Mn.)	% M.S.	% Growth	No. of Products
	Market	**8939**	**100.0**	**17.6**	
1	Cipla	482	5.39	18.9	932
2	Ranbaxy	439	4.91	13.0	593
3	GSK	387	4.32	18.2	178
4	Piramal Healthcare	369	4.13	21.4	754
5	Zydus Cadila	334	3.73	22.5	734
6	Sun Pharma	329	3.69	26.0	524
7	Alkem	286	3.20	21.2	657
8	Pfizer	271	3.03	17.3	151
9	Mankind	252	2.82	30.4	456
10	Lupin Labs.	246	2.75	17.9	564

Source: IMS Feb. 2010

Market By Therapy Area

Key Therapeutic Segments



Total Market US$ 8.9 Bn. (Growth 17.6%)
[13th in value and 4th in volume globally]

US$: INR 46

*Annual Income >$ 5000

Source: IMS Feb. 2010

Top 10 Pharma Products

Top 300 brands = 32%,

Top 10 brands = 3.6%

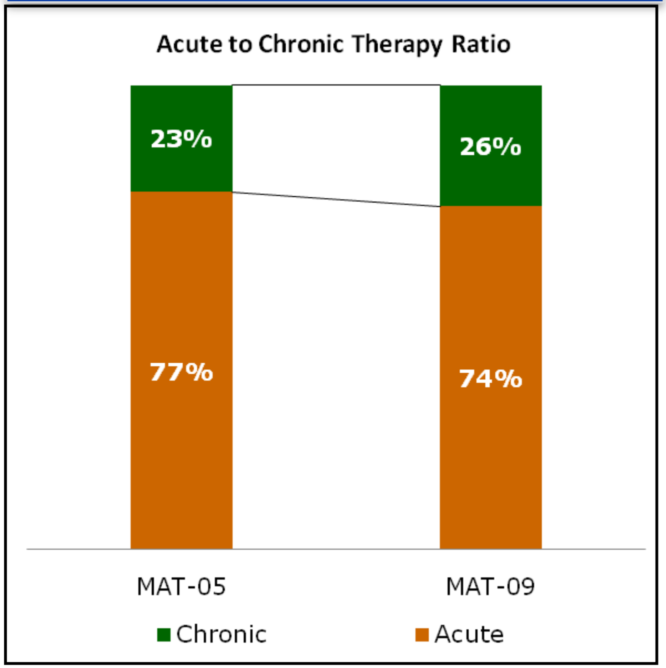
Rank	Products	TG	Company	Value (USD Mn.)	%GR
1	Corex	Cough Preparation	Pfizer	41.02	14.1
2	Phensedyl	Cough Preparation	Piramal Healthcare	37.17	22.6
3	Voveran	NSAID	Novartis	36.73	14.6
4	Augmentin	Amoxy+Clav	GSK	31.63	27.3
5	Human Mixtard 30/70	Insulin	Abbott	30.02	12.4
6	Revital	Nutritional	Ranbaxy	29.39	40.1
7	Zifi	Cephalosporin	FDC	28.43	12.7
8	Monocef	Cephalosporin	Aristo	27.58	23.6
9	Dexorange	Haematinic	Franco Indian	27.49	12.3
10	Taxim	Cephalosporin	Alkem	27.48	7.9

Source: IMS February 2010

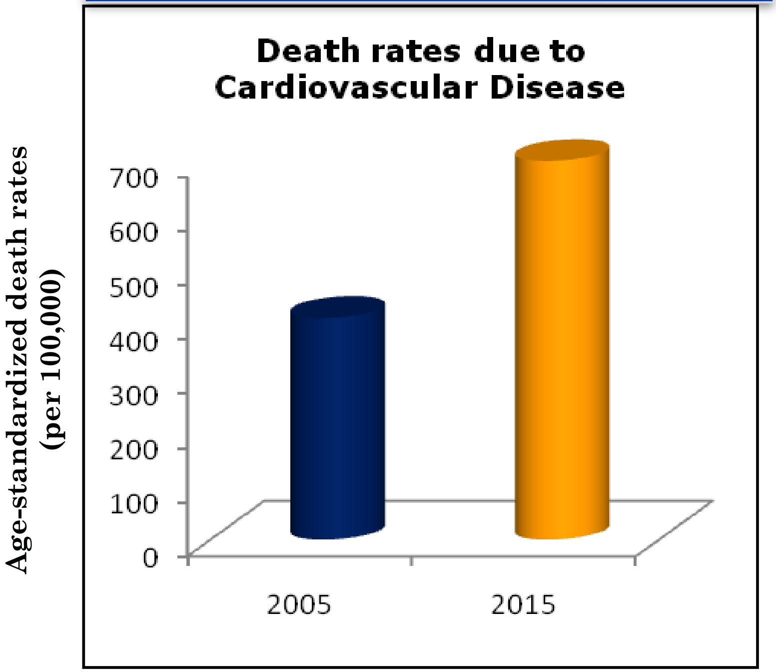
Changing Disease Pattern

Increase in life expectancy and rapid urbanization leading to epidemic in chronic diseases

Therapy Transition in IPM



WHO – Chronic Disease Projection-2



Projected number of Deaths attributed to

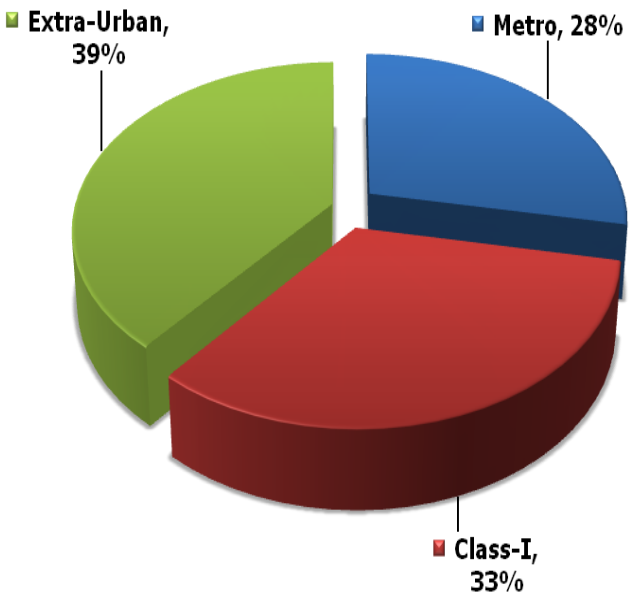
- **Chronic disease 3.78 Mn.** (**40.4%** to all deaths) in 1999 to **7.63 Mn.** (**66.7%** of all deaths) in 2020
- Diabetes number up from estimated 19.3 Mn. in 1995 to 57.2 Mn. in 2025

Source –IMS Plus SSA data – March-09- Dataset, WHO Chronic Disease Report-2009

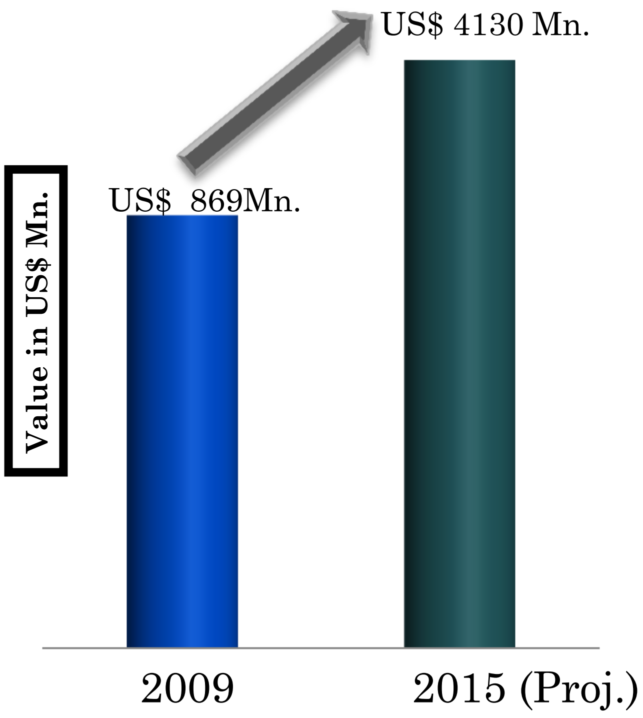
Extra Urban Market

Improved Extra-urban market access would be crucial for the next growth wave

Extra-Urban Market Contribution



Extra-Urban Market Forecast

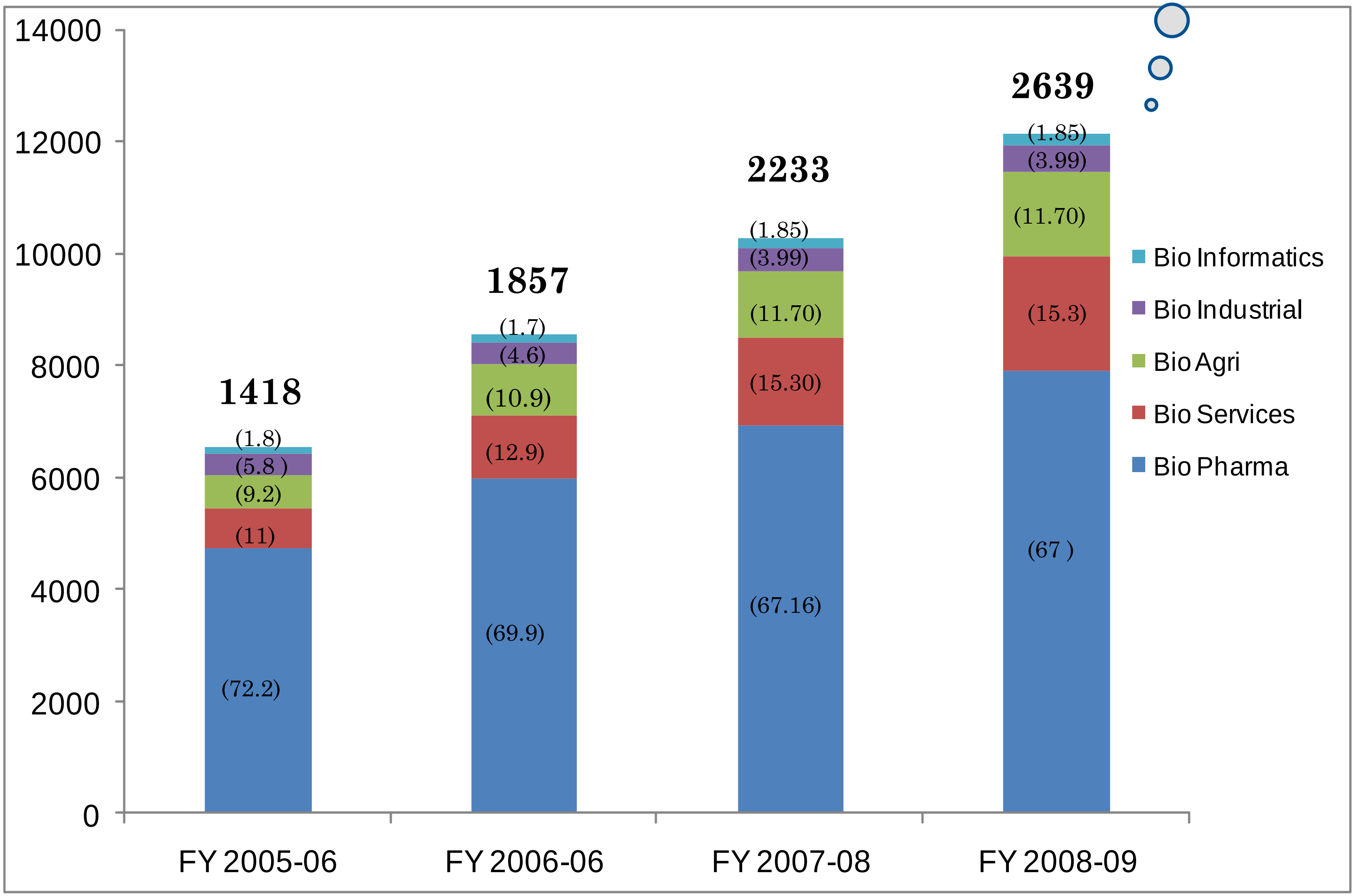


Source: IMS Plus – March-09 Dataset , IMS Thought Leadership

Biotech Industry

Indian Biotech Industry

Biotech growth18%
Biopharma 67%,
average 14%
growth



USD Mn. (%)

Source: BioSpectrum

Top 10 Indian Biotech Companies

USD Mn.

Rank 2008	Company	2008-09	2007-08	2006-07	2005-06	2004-05	% Change over 2007-08
1.	Serum Institute of India	24.22	21.46	20.67	15.28	10.98	12.87
2.	Biocon	19.83	19.07	18.46	14.98	14.37	4.04
3.	Panacea Biotech	12.98	14.74	15.24	9.52	4.72	-11.98
4.	Rasi Seeds	8.17	6.37	7.24	6.71	1.89	28.07
5.	Nuziveedu Seeds	7.91	6.35	4.91	1.37	-	24.69
6.	Novo Nordisk	7.17	5.65	4.82	3.80	3.04	26.92
7.	Siro Clinpharm	6.09	-	-	-	-	-
8.	Novozymes South Asia	5.43	4.89	2.17	1.80	1.50	11.11
9.	Shantha Biotech	5.37	3.26	2.50	1.78	1.46	64.67
10.	Jubilant	5.26	3.46	-	-	-	52.20

Source: BioSpectrum

R&D

R&D Trends

Innovation through R&D is the life blood of Pharma Industry

- Move from process to basic research
- Exploit human resource pool
- Tie up with MNCs for collaboration or out licensing
- Recent times – NCEs and NDDS
- Leverage cost advantage
- The Government in the 11th year plan estimates industrial R&D spend to be 5% of turnover

Source : Yes Bank

R&D
– Indian Pharma Companies

Innovation through R&D is the life blood of Pharma Industry

Company	NCE Pipeline	Key Therapeutic Area
Biocon	Preclinical – 2 Phase II – 2 Phase III – 1	Inflammatory Diseases, Oncology, Diabetes
Piramal Healthcare	13 Compounds in Clinical Trials	Oncology, Infectious Diseases, Diabetes, Inflammatory Diseases,
Glenmark	Discovery – 4 Preclinical – 5 Phase I – 1 Phase II – 3	Metabolic Disorders, Dermatology, Inflammatory Diseases
Ranbaxy	Preclinical – 4-6 Molecules Phase II – 1	Metabolic Diseases, Infectious Diseases, Respiratory Diseases, Oncology
Suven Life Sciences	Discovery – 2 Preclinical – 4 Phase I – 1	Neurodegenerative Diseases, Obesity, Diabetes, Inflammatory Diseases

Source: March 23, 2009, Financial Express

R&D
– Indian Pharma Companies

Innovation through R&D is the life blood of Pharma Industry

Company	NCE Pipeline	Key Therapeutic Area
Dr Reddy's Lab	Pre-clinical – 1 Phase II – 2 Phase III – 1	Metabolic Disorders, Cardiac, Oncology
Advinus	Pre-clinical – 3	Diabetes, Cardiac, Lipid Disorders
Wockhardt	Preclinical – 10 Phase II – 1	Infectious Diseases,
Lupin	Discovery –2 Pre-clinical – 1	Migraine, Psoriasis,T.B.
Sun Pharma	Discovery – 2 NDDS – 1	Allergy, Muscle Relaxant,, Inflammatory Diseases, Pain Management

Source: March 23, 2009, Financial Express

R & D Spend by Indian Pharma Companies

Innovation through R&D is the life blood of Pharma Industry

	FY 2009		
Company	**Sales USD Mn.**	**R&D USD Mn.**	**As % of Sales**
Ranbaxy Laboratories	161.00	9.03	5.6
Dr. Reddy's Laboratories	157.26	8.36	5.3
Cipla	115.16	5.12	4.4
Sun Pharmaceuticals	95.11	6.74	7.1
Lupin	84.75	4.84	5.7
Wockhardt	76.99	1.12	1.4
Piramal Health Care	72.06	1.85	2.6
Cadila Health Care	64.40	3.44	5.3
Aurobindo Pharma	55.72	2.45	4.4
Matrix Laboratories	49.99	4.65	9.3
Total	932.44	47.60	5.1

Source: Prowess
Business World February 8, 2010

Clinical Trials

Far low operating cost

Phase Study	US ($. Mn)	India
I	20	< 50%
II	50	< 60%
III	100	< 60%

Hiring investigators, nurses, computer staff and recruiting patients (50% of US cost)

R&D – Indian Pharma Companies

Innovation through R&D is the life blood of Pharma Industry

Specialities	2001	2008	Comments
R&D Exp. as a % of sales	1.4%	9.9% ↑	7 times
R&D Exp. in absolute terms	55	660 ↑	12 times

Source: Ernst & Young analysis of top 25 pharmaceutical companies operating in India

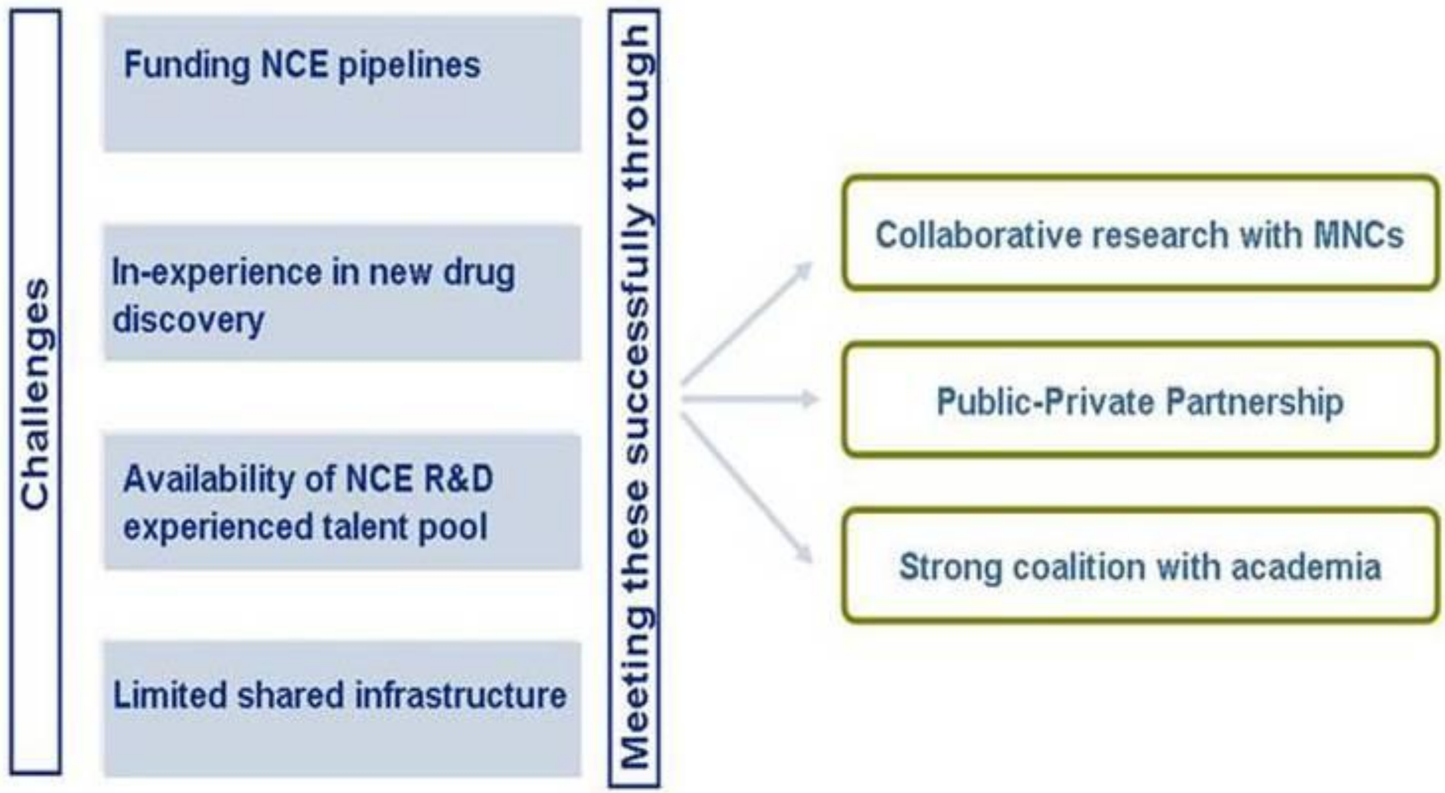
Indian Players Building Global Assets

Innovation through R&D is the life blood of Pharma Industry

Indian Player	Acquisitions / Expansion	Geographies
Biocon	30% stake in IATRICa	US
	Nobex Corporation	US
Dishman	Carbogen and Amcis	Switzerland
Jubilant	Target Research Associates	US
Kemwell	Pfizer's Site in Uppsala	Sweden
Piramal Healthcare Ltd.	Avecia Ltd.	Billingham, UK
		Torcan (Canada)
	Pfizer's facility in Morpeth	Grangemouth (Scotland)
		Morpeth, UK
Shasun	Rhodia (Pharmaceutical custom synthesis business)	France

Source : Ernst & Young Research and Analysis

New Drug Discovery and Biopharmaceuticals



An innovation-driven operating model is very different from a generics model... Innovation requires a long-term investment perspective, unique management skills and commitment, higher funding and strong scientific talent

Source: Pharma Summit Report 2009

Outsourcing Opportunities

Outsourcing Opportunities

Cost-competitive research base

Maximum US FDA approved plant

Globally harmonized regulations

Process chemistry skills

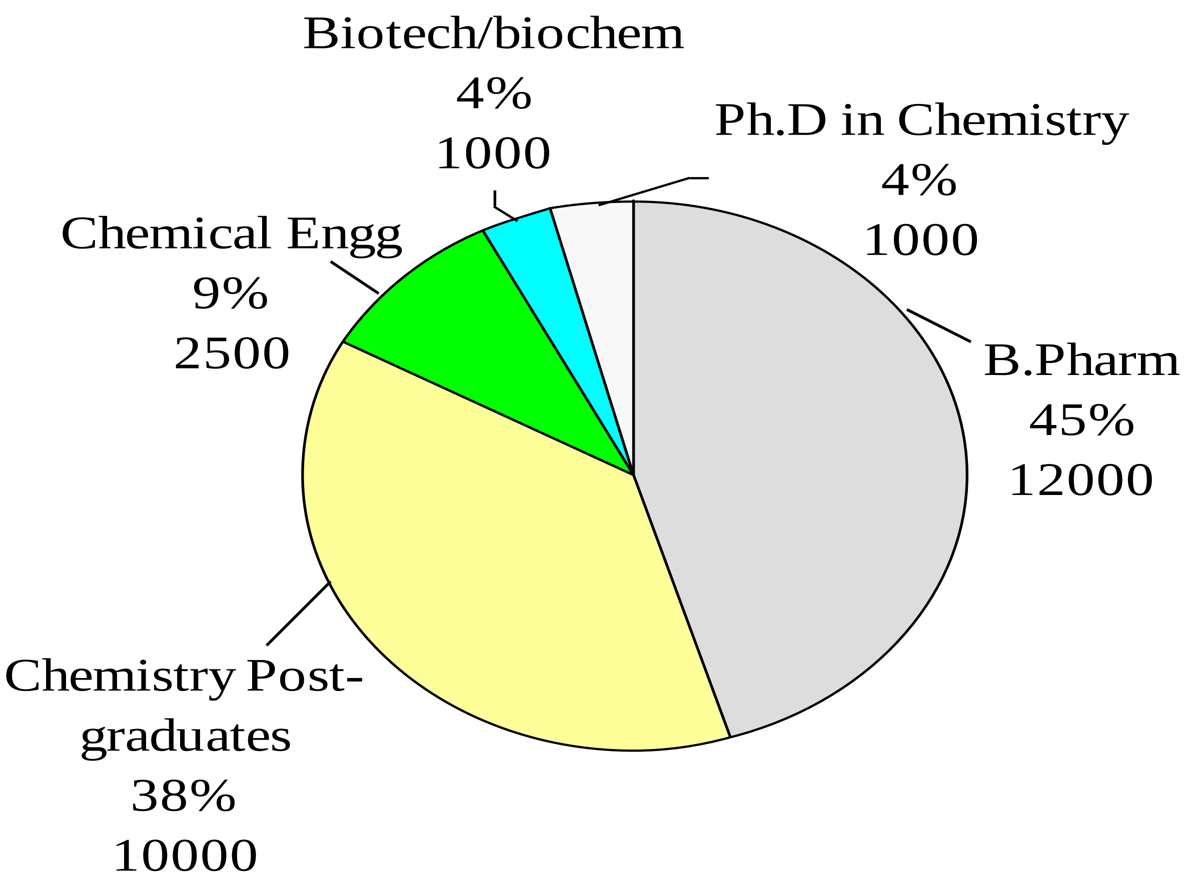
cGMP compliance

Large, skilled workforce

IT enabled

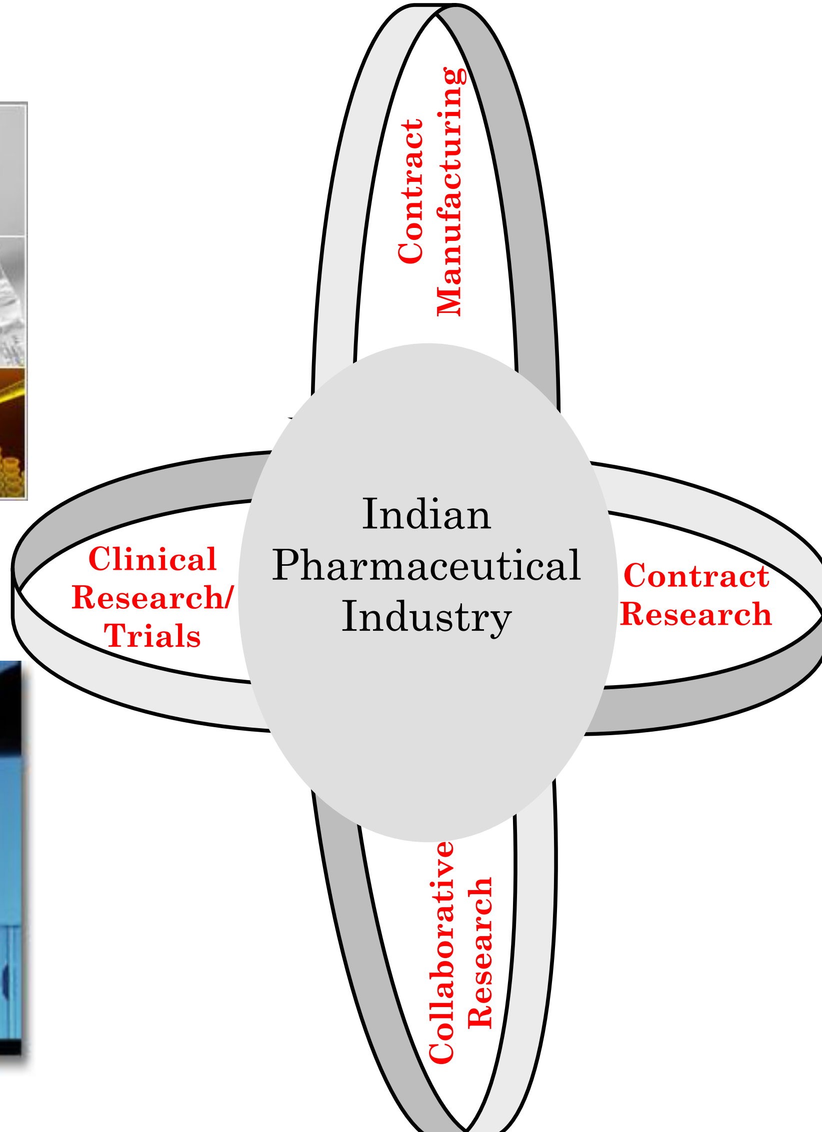
Highly Skilled Manpower

Annual Graduates



Source: Grant Thorton

Key Opportunity Segments



INDIA….The Twin Opportunity

India as a Market

- Significant unmet needs
- 20 Bn. USD by 2015
- One of the Top 10 markets by 2015
- Top 3 in growth opportunity

India as a Service Provider

- Resources
- Competence
- Cost Arbitrage
- Experience
- Young population
- Growing economy
- Pharmaceutical expertise
- Democratic set up
- IP Protection

McKinsey / BCG, 2006

India Well-Positioned for New Opportunities

Clinical research

- Most common and important diseases
- Large pool of treatment-naive patients
- Rapid patient recruitment

Genomic research

- Many isolated populations, varied lifestyles, genetic endowments and numbers
- Large endogamous families for disease linked gene analyses
- Availability of DNA samples from closely and distantly-related sufferers of a disease

Regulatory Requirements

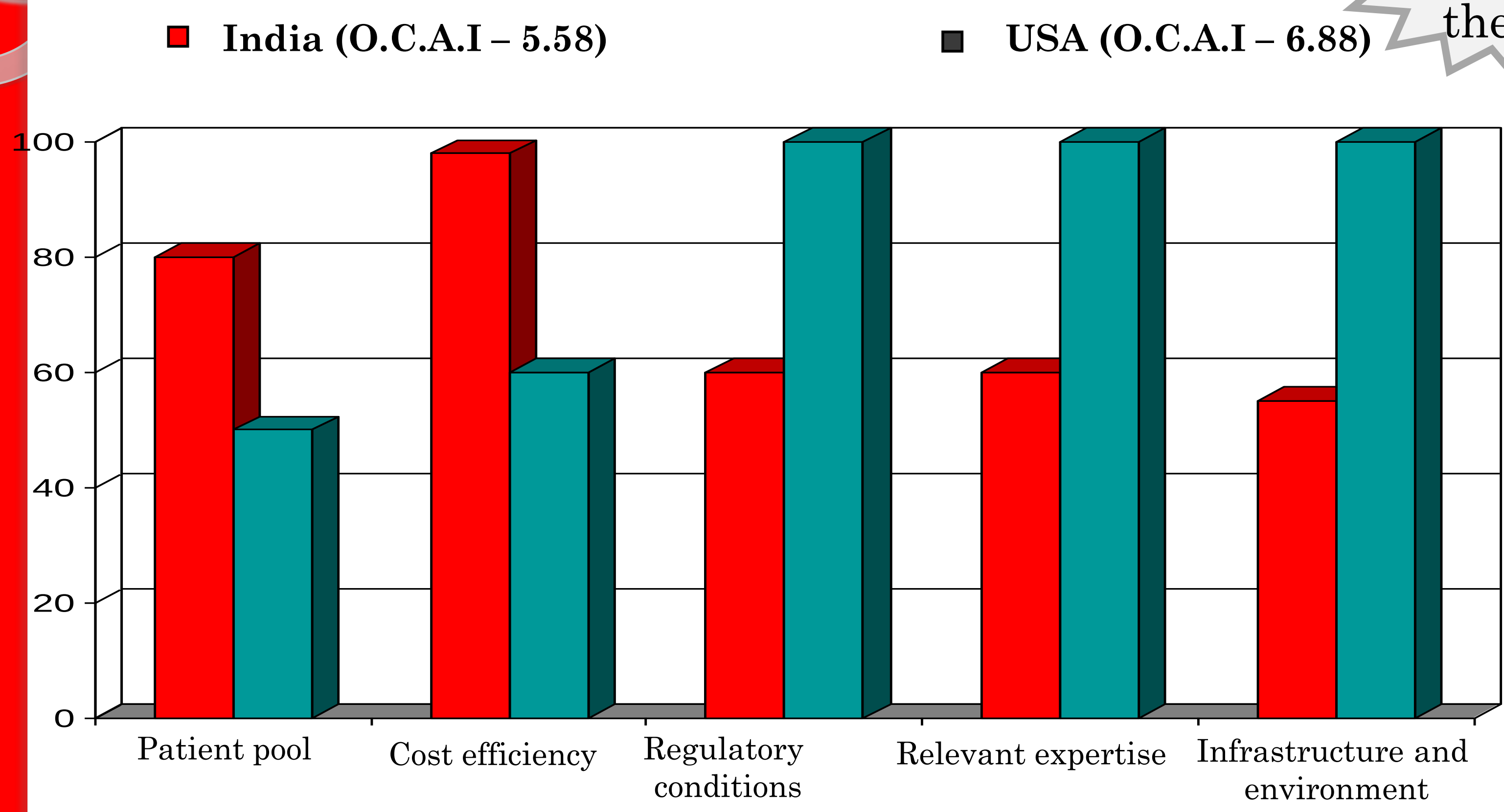
For all 'New drugs'

- Clinical trial approval
- Import license
- Export license
- Safety reporting
- Annual report

Regulatory body	Approval	Time
Drug controller general of India (DCGI)	Regulatory approval for study conduct in India	12 weeks
Ethics Committees	Ethics committee approval for study initiation	4-6 weeks (parallel)
Directorate general of foreign trade (DGFT)	Permission to import test supplies	2 weeks
TOTAL	**Initiation of clinical trial in India**	**14 weeks**

Overall Country Attractiveness Index
alternative clinical trial destinations

India tops the list



scale 1-10

Source: PharmaExec.

Drivers & Barriers

Drivers & Barriers

Will maintain healthy growth momentum

DRIVERS

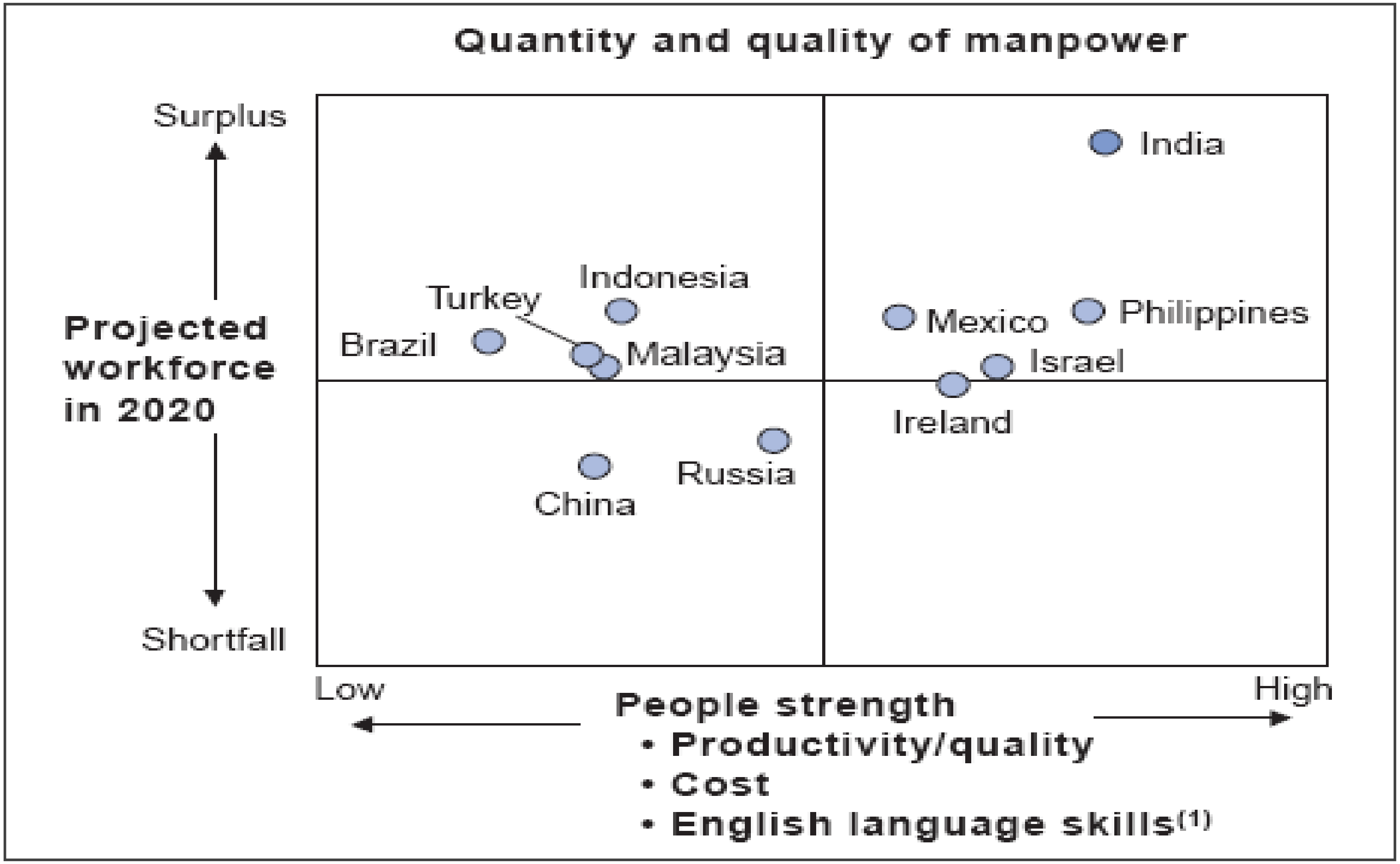
- Income Growth
- Expanding Healthcare Infrastructure
- Increasing Health Awareness
- 368 Mn. strong Middle Class
- 90 Mn. estimated to be able to afford the best medicines
- Penetration of Health Insurance

BARRIERS

- DPCO
- IPR related issues
- Access to Modern Medicines
- Long pending Regulatory Reform

Advantage India

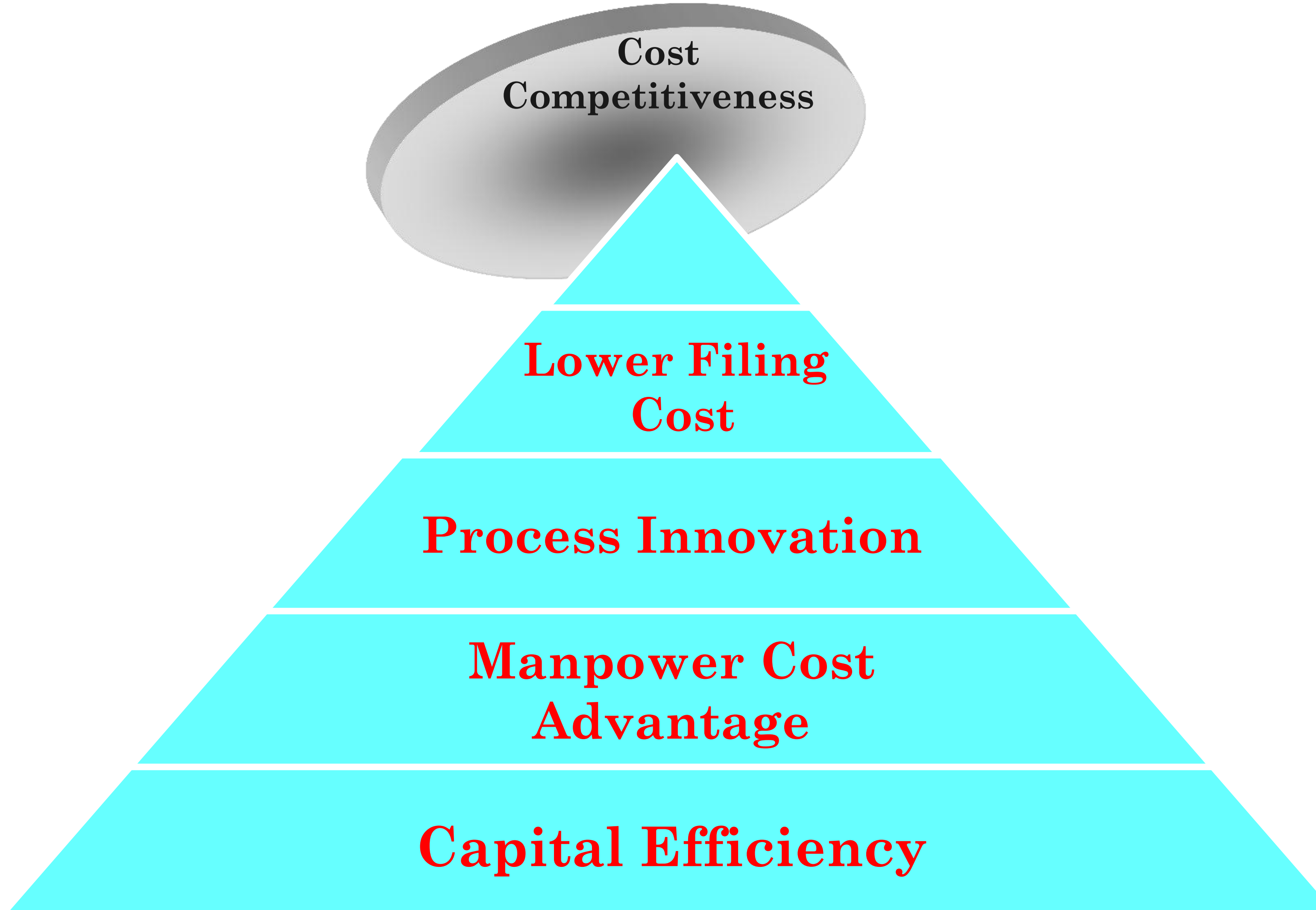
Advantage India



(1) Over 50% of shortages expected from English-speaking countries
Note: Pakistan, Bangladesh and Vietnam have not been represented for lack of reliable data on productivity and cost of service employees

Source: World Competitiveness Yearbook 2001; Britannica Yearbook; Literature search; BCG analysis

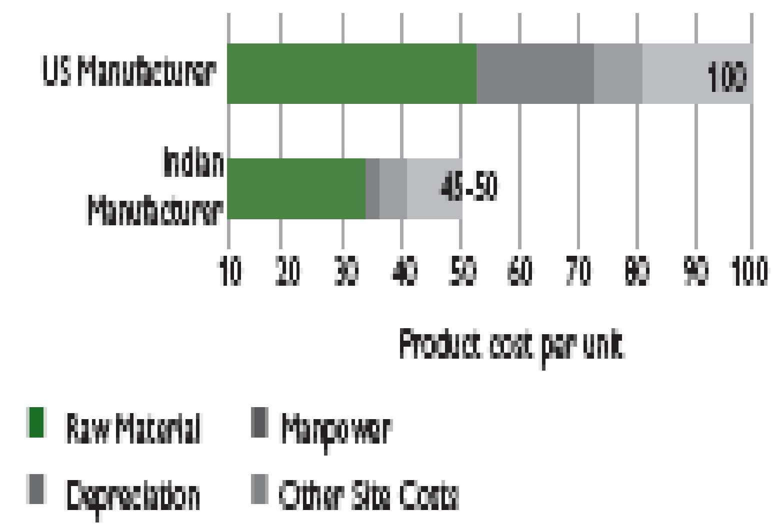
Cost-Competitiveness



Significant Cost Arbitrage

Production cost in India 50% lower than US

- FDA approved plans can be constructed in India for 30 % to 50 % lower cost
- Higher utilization of equipment due to improved process
- 85% to 90% manpower cost savings
- Labor costs 10% to 15% of US cost
- Increased efficiency contributes to low labor costs per unit

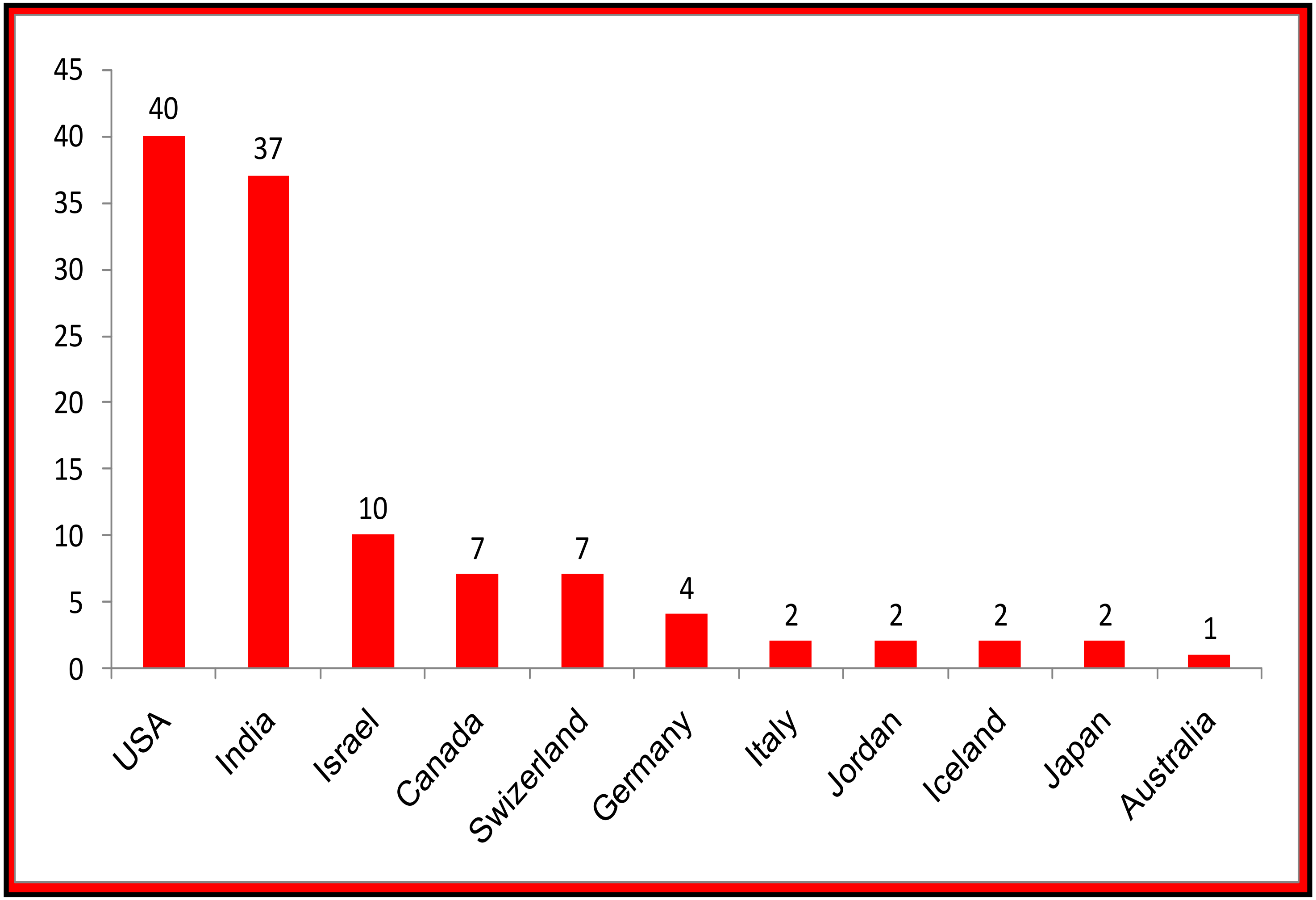


Source: OPPI – Adapted from Monitor Group, Study on Outsourcing Opportunities in Indian Pharmaceutical Industry

Manufacturing

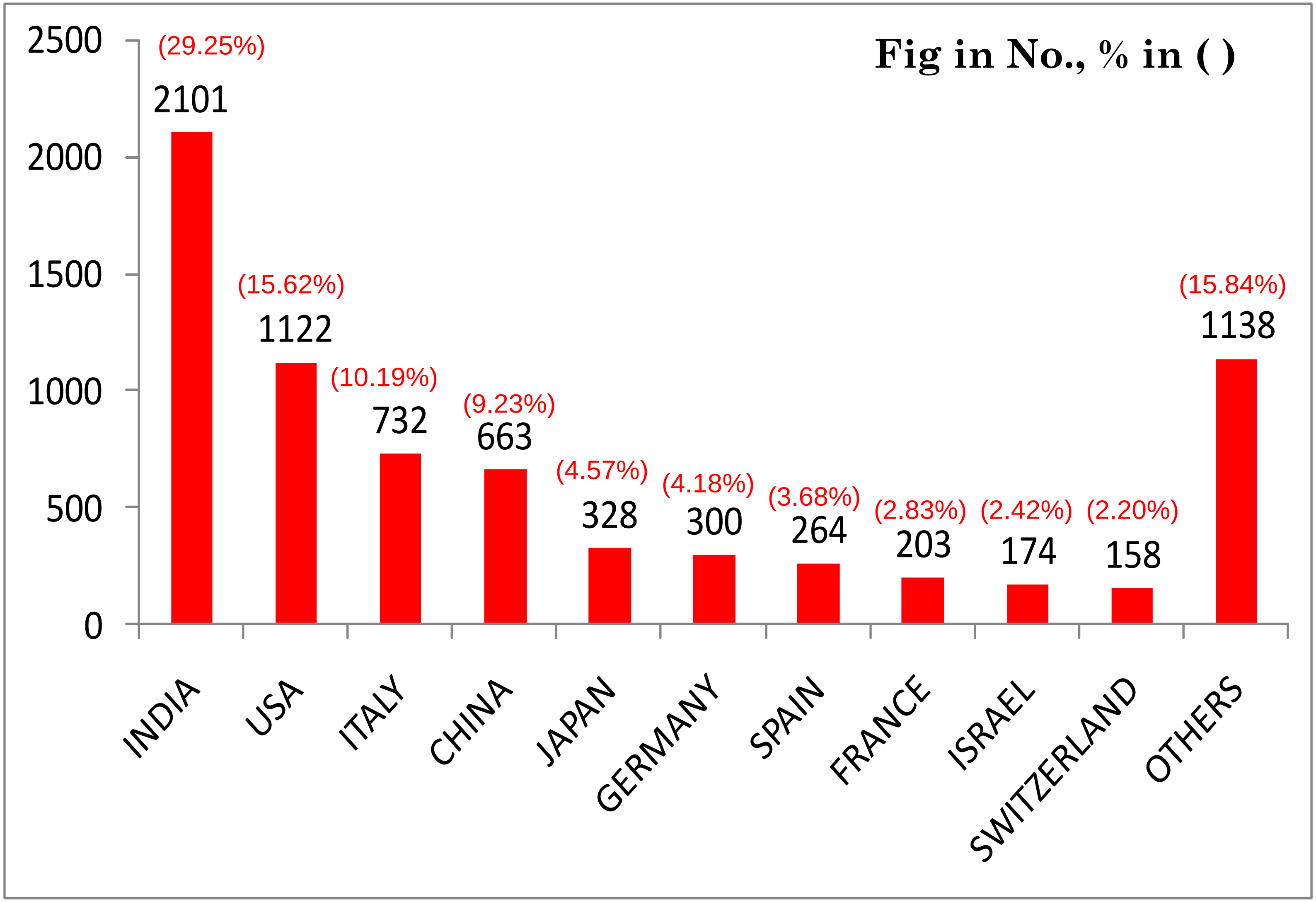
- Development/ Pre-clinical Support for NCEs
- APIs/Intermediates of Patented Drugs
- Mature APIs/ Intermediates/ Finished Forms
- Finished Forms for Generic Players
- Emerging Biopharma Capabilities

Country-wise ANDAs



Source: Pharma Matters-Movers and Shakers – Oct-Dec 2008

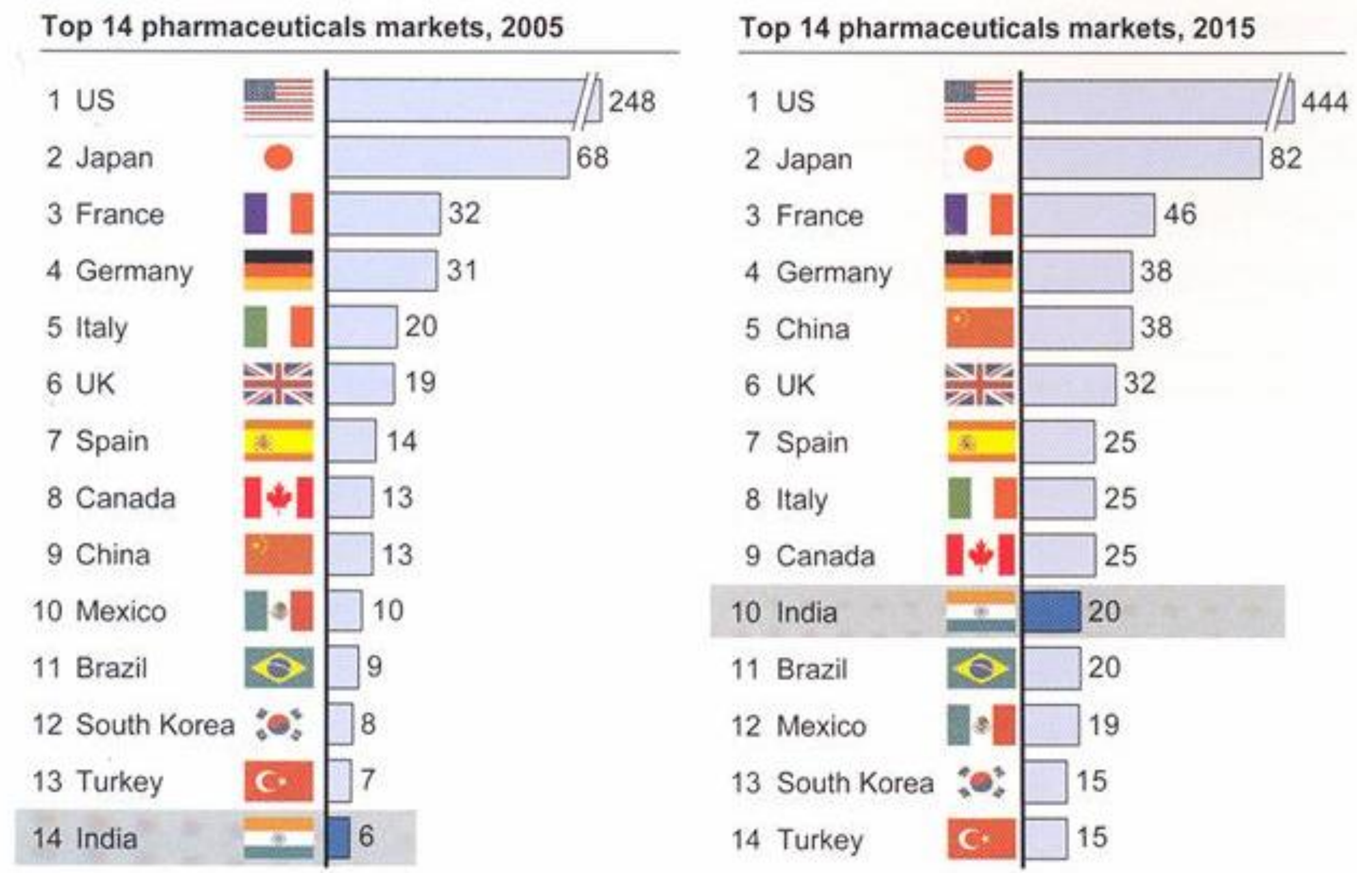
Global DMF with U.S. FDA



Updated to September 2009

Source: Pharmexcil research on CDER US-FDA data base

India to be in Top 10 ....



Source: IMS World Review; analyst projections; McKinsey India Pharmaceutical Demand Model

India Poised

India lives in the growing optimism in the hearts of its people…..

… the world is now looking at this optimistic, pulsating, dynamic and democratic new India as a future economic global superpower…


Thank You