

Study to
Assess the Impact of
Foreign Collaborations on
Indian Automotive and Drug & Pharma
Industry in the Liberalized Era



Supported & Catalyzed by:

GOVERNMENT OF INDIA
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Information System (NSTMIS)

Conducted by:



National Foundation of Indian Engineers

PREFACE

National Science and Technology Management Information System (**NSTMIS**), Department of Science & Technology, Government of India entrusted National Foundation of Indian Engineers (**NAFEN**) to undertake the study entitled “**Study to Assess the Impact of Foreign Collaborations on Indian Automotive and Drug & Pharma Industry in the Liberalized Era**”.

The study intends to assess the factors which have affected the foreign collaborations in the Indian Automotive and Drug & Pharma industry through liberalization & globalization. It also covers structural changes in terms of employment of labour, capital and technology.

Data has been collected from 100 firms from automotive sector. Out of 100, 80 firms have successfully implemented the foreign collaborations. Out of 80 firms, 3 firms have 3 collaborations each and 7 have 2 collaborations each between the periods under review i.e. 1985-2005. 20 firms did sign the foreign collaborations, but could not implement the collaborations due to various reasons.

Similarly, from Drug & Pharma sector data has been collected from 105 firms. Out of 105, 84 firms have successfully implemented the foreign collaborations. Out of 84 firms, 1 firm has 5 collaborations, 2 firms have 3 collaborations each and 6 have 2 collaborations each between the periods under review i.e. 1985-2005. 21 firms did sign the foreign collaborations, but could not implement the collaborations due to various reasons.

A Local Project Advisory Committee (**LPAC**) was constituted under the chairmanship of Dr. Laxman Prasad, Advisor & Head – NSTMIS, Ministry of Science & Technology, Govt. of India. The members of the LPAC were from Society of Indian Automobile Manufacturers; Northern Region Automobile Components Manufacturers Association; Maruti Suzuki India Limited and Tata Motors from Automotive site and All India Small Scale Pharmaceutical Manufacturers’ Association, Arbro Pharmaceuticals Ltd., Wockhardt Limited; Morepen Laboratories Limited; Mankind Pharma Limited; Indian Pharma Alliance; Symmetric Laboratories; Systopic Laboratories Pvt. Ltd.; Lark Laboratories (I) Limited, from Drug & Pharma sector. Also representative’s from Department of Commerce, Govt. of India; Reserve Bank of India and National Productivity Council (NPC) were member of this committee.

Detailed structured Questionnaires were finalized in the 1st meeting of the LPAC held on 26th June, 2008 at India International Centre, New Delhi under the chairmanship of Dr. Laxman Prasad, Advisor & Head – NSTMIS, Ministry of Science & Technology, Government of India.

The study has been divided into two Parts; **Part-I: Automotive Sector** (includes Automobiles & Auto Components) and **Part-II: Drug & Pharma Sector**. Each Part has four sections; **Section –1:** Executive Summary, About the Study which includes Introduction, Objectives, Scope, Methodology, Time period, Limitations and PI’s

observations; **Section -2:** Detailed Analysis; **Section -3:** Case studies, and **Section -4:** Annexures.

Study shows that both the sectors have shown substantial growth and foreign collaborations have enabled the industries to meet the growing needs of the Indian markets by offering products and services to the latest technological developments both in international & domestic markets. In the Automotive sector major benefits have been in the areas like Improvement in Quality Standards, New Product Developments, Introduction of Green Technologies to meet applicable Euro norms, Enhancement of Productivity, Market and Brand Building. Similarly, in the Drug & Pharma Sector, major benefits have been in areas like Technological Development, R&D, Human Resource Development, Cost Reduction through development of generic and many other life saving drugs apart from market development in the domestic and export arena.

Throughout working on this study, the main aim had been to collect meaningful and effective information to assess the impact of foreign collaborations on the Indian Automotive and Drug & Pharma sectors. We sincerely hope that the results of this study will be useful to all concerned departments, policy planners, decision makers, industry, potential entrepreneurs and various other agencies and trade associations of the country.

New Delhi
30th November, 2009


Dr. P K GUPTA
Project Investigator

ACKNOWLEDGEMENTS

At the outset, NAFEN would like to specially thank **Dr. Laxman Prasad**, Advisor & Head, NSTMIS, Department of Science & Technology, Government of India for his guidance and motivation from time to time during the course of this study.

NAFEN is equally grateful to **Mr. Rakesh Chetal, Adviser & Dr. Parveen Arora**, Director, NSTMIS, Department of Science & Technology, Government of India. Without their co-operation and guidance from time to time, it would not have been possible for NAFEN to complete this study.

NAFEN is also deeply obliged to all the members of the Local Project Advisory Committee (LPAC) and all the respondents for giving their valuable inputs and suggestions for completing the study in time.

We are thankful to all our colleagues working in NAFEN, who helped NAFEN in completing this study within the stipulated time period.

New Delhi
30th November, 2009



Dr. P K GUPTA
Project Investigator

LOCAL PROJECT ADVISORY COMMITTEE

A Local Project Advisory Committee (LPAC) was constituted to advice and guide NAFEN from time to time during the execution of the study. The composition of the LPAC was as follows:-

Chairman

Dr. Laxman Prasad, Advisor & Head, NSTMIS, Department of Science & Technology, Govt. of India

Members

Mr. Rakesh Chetal, Advisor, NSTMIS, Department of Science & Technology

Dr. Parveen Arora, Director, NSTMIS, Department of Science & Technology

Mr. Deepak Narayan, Director -Foreign Collaboration, Department of Commerce, Govt. of India

Mrs. Mridul Jain, Director, Department of Commerce, Govt. of India

Mr. Aditya Kishwar, DGM, Reserve Bank of India

Ms. M. Vedavalli, DGM, Reserve Bank of India

Mr. Jagdish Kumar, DDG, National Productivity Council (NPC)

Mr. V.K. Soni, Officer on Special Duty (ES&SS), NPC

Dr. K.P. Sunny, Group Head (Economic Services), NPC

Mr. Paltusana, Director, Northern Region, Automobile Components Manufacturers Association (ACMA)

Mr. Rakesh Gupta, Dy. Manager, Tata Motors

Mr. Rahul Bharati, Sr. Manager, Maruti Suzuki India Limited

Mr. G. Wakankar, I.F.S. (Retd), Executive Director, IDMA

Mr. Vijay Arora, President, AISSPMA

Mr. P.K. Mehta, GM, Morepen Laboratories Limited

Ms. Aprajita, Lark Laboratories (I) Limited

Mr. R.C. Juneja, CEO & Chairman, Mankind Pharma Limited

Mr. Satender Singh, Product Manager, Lifestar Pharma Pvt. Limited

Mr. M.P. Jain, Managing Director, Symmetric Laboratories

Mr. C.K. Dhawan, DGM, Wockhardt Limited

Prof. P.K. Gupta, Project Investigator & Secretary General, NAFEN

Mr. Rishi Kumar, Project Co-Investigator & Vice President, NAFEN

Mr. J.K. Agarwala, Sr. Advisor, NAFEN

OVERALL FINDINGS

AUTOMOTIVE SECTOR

India became an independent nation on 15th August, 1947 and a republic on 26th January, 1950. At that time Indian economy was dependent mainly on agriculture and cottage industries. In order to accelerate the rate of economic growth and speed up industrialization, Government of India on 20th April 1956 adopted a new Industrial Policy which replaced 1948 policy. Industries were classified into three schedules as A, B & C. All the core and basic industries like Arms & Ammunition, Atomic Energy, Power, Transport, Heavy Engineering and Pharmaceuticals were put under Schedule A and were to be either state owned or in the Public Sector. Mainly the investments coming into the country were from the Socialist Block.

In 1980 Govt. of India introduced new Industrial Policy Resolution mainly to meet the new socio economic needs of the country. Role of Private sector was enhanced and they were permitted in the schedule A industries also. In March 1985 GoI reviewed the 1980 policy and introduced delicensing in a big way. MRTP act was also made more rational. This gave push up and easier access to foreign collaborations. With this new policy, investors from all over the globe looked India as a potential platform for foreign investments.

In 1991 GOI brought another industrial policy which had the following major aspects:-

- Delicensing of major industries with enhanced investment limits
- Liberal foreign investment allowed.
- Technology up gradation was the prime concern that is Indian Goods must be produced to the latest cost effective competitive technologies.
- Doing away with MRTP act.

This policy opened up the gates of the Indian Economy to all the foreign investors. There was a spurt of foreign collaborations in all the industrial sectors of India. A need was therefore felt to carry out a comprehensive and systematic study to understand the impact of foreign collaborations on Indian Industry. The present study sponsored and catalyzed by National Science & Technology Management Information System (**NSTMIS**), **GOI** has been undertaken to assess *the impact of foreign collaborations on Indian Automotive Industry in the liberalized era**. This study was covered the period from 1985 (Pre-liberalized Era) to 2005 (Post WTO Era), that is, a period of 20 years.

100 firms from the automotive sector were covered as the sample size, out of 368 firms as the universe. The major findings of the study are:-

1. Out of 100 firms surveyed, 80 firms (23 large size, 56 medium size and 1 small size) signed 93 foreign collaborations (32 by large size, 60 medium size and 1 small size) and implemented the same. Highest numbers of collaborations were signed with Japanese followed by US, out of which maximum collaborations were signed during the post liberalized / post WTO era (1995-2005).
2. Due to liberalization, major impact of foreign collaborations had been in the areas like Technological Developments---R&D & New Product Development, Productivity Enhancement, Reduction in Imports, Increase in Exports, Improvement in Quality Standards, Decrease in Net Foreign Exchange Outflow, Increase in Return on Capital Employed, Enhancing Marketing Base (Domestic & International) and overall Profitability.

3. By virtue of liberalization and consequent foreign collaborations, the Indian Market is booming with new technologically advanced automotive products, meeting the international standards in all spheres including emission norms. This also enabled various well known multinational brands to be produced in the country.
4. Technological Developments have emerged as one of the main reasons for foreign collaborations and is also established by the case studies given in the report of M/S RICO Auto Industries, Gurgaon, M/S Lumax Industries Ltd, New Delhi and M/S TVS Suzuki, Hussar, where many critical components and machines like clutch assemblies, ferrous die casting machines were indigenized fully with engineering and design support from the collaborators.
5. Foreign collaborations also enabled the Indian firms to enter the international markets due to the well established brand image of the collaborators. In many cases, in order to improve the productivity the collaborators also provided training to the Indian workers both in India and at their works abroad as is evident from the case study of M/S Allied Nippon Ltd., New Delhi
6. Many foreign collaborators also participated by contributing towards equity and marketing tie ups which enabled faster expansion of the plants in India. This is established from the case study of M/S HUF India (P) Ltd., Pune manufacturing Auto Locks for two wheelers and four wheelers and M/S Allied Nippon Ltd., New Delhi manufacturing Brake Linings, Brake Shoes and Disc Brake Pads.
7. Other major benefits accruing from the foreign collaborations were establishment of the state of the art design & engineering facilities, marketing to world wide customers, implementation of latest designs to avoid environmental degradation over the entire manufacturing life cycle, identification of various KRAs to enhance productivity in the shortest possible time and improvement in other quality standards to meet domestic & international market requirements.
8. Rapid expansion of the Indian Automotive Industry due to foreign collaborations also resulted in large employment opportunities for the Indian Managers, R&D Specialists and Workers. This is also established from all the case studies in the report
9. Although it is reported by all the respondents that the present environment is conducive for foreign collaborations; but at the same time they have reported certain bottlenecks like Competition from Taiwan and China both in domestic market and International Market (Rico Auto & TVS Suzuki), Labour Unrest in many parts of the country (Rico Auto) , Steep rise in the fuel prices (TVS Suzuki) Lack of availability of skilled technical man power especially suiting the automotive sector (HUF India), Sub standard quality of components supplied by the ancillaries (HUF India & RICO Auto), Lack of training and R&D institutes in India (HUF India & TVS Suzuki), Poor infrastructure like power, availability of adequate quantity of water & ports (RICO Auto, Allied Nippon, Lumax Industries & TVS Suzuki). All these problems are well established from the case studies given in the report.
10. From the data given in the report and from the case studies, it also emerges that still Government Procedures and Customs & Excise Duty Regimes need rapid stream lining and reforms to avoid delays. In some of the states, Law and order also needs attention.

11. The study shows that some of the firms (20 Nos.) could not implement the foreign collaborations. The main reasons for non implementation of the foreign collaborations are: -
 - Financial: Like funds could not be arranged for transfer to the collaborator with in the stipulated time and cost of technology was found to be on the higher side.
 - Procedural Delays: Like delay in allotment of land in the industrial complex by the state Government.
 - Technical: Like technology was not found to be the latest and up-to-date.

Above reasons are also established from the two case studies given in the report viz M/S Suntech Gears (P) Ltd., Pune and M/S Zenox Technologies Ltd., Coimbatore.
12. In an earlier study entitled “Foreign Collaborations in India” undertaken by IIM, Lucknow, which was not sector specific, in the year 2000-2001, the main findings of the IIM-L study are similar to the findings emerging from the present study like maximum number of foreign collaborations signed in the post liberalized era and mainly for bridging the technology gaps and meeting various requirements of the customers in India and Abroad.
13. In another study undertaken in 1998 by Massachusetts Institute of Technology, USA, the main findings of this study highlighted that Indian Automotive Firms entered into foreign collaborations for accelerated training of Indian managers & workers and improvements in quality standards.
14. Comparing with other emerging economy like China, in a study conducted by Prof. Kelly Sims of WTO, it is observed that foreign direct investment in the automobile sector has contributed to the economic success of this industry in China in a number of ways. It has created desirable and stable jobs for Chinese workers in the joint venture firms and strongly benefited the wider economy especially through spillovers into the parts and components sector. By having to meet the requirements of the foreign-invested joint ventures, Chinese parts suppliers were forced to improve the quality of their products, reduce costs, and become more competitive exporters.
15. In the end, we can conclude that foreign collaborations have resulted in building faster, cost effective technologically competitive automotive industrial base in the country and have also bridged the gaps in technology wherever they existed. This provided the Indian customers with various alternatives and options. In short we can say that the foreign collaborations have contributed to knowledge flows to India’s’ advantage. We can also infer that developing economies like India have used foreign collaborations for accelerated economic development, build strong industrial and managerial base. This has also increased India’s marketing base globally by offering various products and services with advanced international technologies in the automotive sector. This has enabled the Indian automotive industry to rapidly integrate into the global automotive supply chains.

DRUG & PHARMA SECTOR

India became an independent nation on 15th August, 1947 and a republic on 26th January, 1950. At that time Indian economy was dependent mainly on agriculture and cottage industries. In order to accelerate the rate of economic growth and speed up industrialization, Government of India on 20th April 1956 adopted a new Industrial Policy which replaced 1948 policy. Industries were classified into three schedules as A, B & C. All the core and basic industries like Arms & Ammunition, Atomic Energy, Power, Transport, Heavy Engineering and Pharmaceuticals were put under Schedule A and were to be either state owned or in the Public Sector. Mainly the investments coming into the country were from the Socialist Block.

Subsequently in 1980, Govt. of India introduced new Industrial Policy Resolution mainly to meet the new socio economic needs of the country. Role of Private sector was enhanced and they were permitted in the schedule "A" industries also. In March 1985 GOI reviewed the 1980 policy and introduced delicensing in a big way. MRTP act was also made more rational. This gave push up and easier access to foreign collaborations. With this new policy, investors from all over the globe looked India as a potential platform for foreign investments.

In 1991 GOI brought another industrial policy which had the following major aspects:-

- Delicensing of major industries with enhanced investment limits
- Liberal foreign investment allowed.
- Technology up gradation was the prime concern that is Indian Goods must be produced to the latest cost effective competitive technologies
- Doing away with MRTP act

This policy opened up the gates of the Indian Economy to all the foreign investors. There was a spurt of foreign collaborations in all the industrial sectors of India. A need was therefore felt to carry out a comprehensive and systematic study to understand the impact of foreign collaborations on Indian industry. The present study sponsored and catalyzed by National Science & Technology Management Information System (**NSTMIS**), GOI has been undertaken to *assess the impact of foreign collaborations on Drug & Pharma sector* in the liberalized era. Study covered the period from 1985 (Pre-liberalized Era) to 2005 (Post WTO Era), that is, a period of 20 years.

105 Firms from the Drug & Pharma sector were covered as the sample size, out of 329 Firms as the universe. The major findings of the study are:-

1. Out of 105 firms surveyed, 84 firms (39 large size, 31 medium size and 14 small size) signed 98 foreign collaborations (51 by large size, 32 by medium size and 15 by small size) and implemented the same. Maximum collaborations were with USA followed by Germany. Highest numbers of collaborations were signed during the post liberalized / post WTO era (1995-2005).
2. Due to liberalization, major impact of foreign collaborations had been in the areas like Technological Developments--R&D & New Product Development, Productivity Enhancement, Reduction in Imports, Increase in Exports, Improvement in Quality Standards, Decrease in Net Foreign Exchange Outflow, Increase in Return on Capital Employed , Enhancing Marketing Base (Domestic & International) and overall Profitability.

3. By virtue of liberalization and consequent foreign collaborations, the Indian Market is booming with new technologically advanced drugs, meeting the international health standards in all spheres. This also enabled various well known multinational brands of drugs to be produced in the country.
4. Technological Developments have emerged as one of the main reasons for foreign collaborations and is also established by all the case studies given in the report like M/S Biocon Bio Pharmaceuticals Pvt. Ltd., Bangalore, M/S Emcure Pharmaceuticals Ltd., Pune and M/S Fermenta Bio Tech. Ltd, Thane, etc. where many new drugs and combinations thereof and some bio generic medicines have been developed.
5. Foreign Collaborations have enabled many R&D centers of Indian Drug industry to be recognized internationally as one of the best state of the art centers like that of M/S Biocon Bio Pharmaceuticals Pvt. Ltd., Bangalore and M/S Emcure Pharmaceuticals Ltd. Pune. Biocon are also perusing a path of break through innovation through Phase III human critical trials to develop the worlds' first oral insulin. Similarly, M/S Fermenta Bio Tech Ltd., have developed expertise in pharmaceutical bio catalysis for enzyme purification and immobilization from the classical betalactam intermediates.
6. Indian drug companies like M/S Vantech Industry Ltd., (a SME) and M/S Alembic Ltd, Vadodara have developed many generic drugs which provide cheaper health care facilities for the masses
7. Many Indian firms like Biocon and Emcure have developed high grade contract research facilities of international standards. This had been possible due to collaborations
8. Foreign collaborations also enabled the Indian Firms to enter the international market due to the well established brand image of the collaborators including approvals from the FDA like M/S Biocon Bio Pharmaceuticals Pvt. Ltd.
9. In many cases foreign collaborators also participated by contributing towards equity enabling faster expansion of the manufacturing plants in India. This is established from the case study of Alembic manufacturing items like basic drugs, pharmaceuticals and antibiotics.
10. Other major benefits accruing from the foreign collaborations were to market the latest drugs for critical illnesses like Cancer etc., with the shortest lead time and also marketing world wide particularly to developing countries.
11. Rapid expansion of the Indian Drug & Pharma Industry due to foreign collaborations also resulted in large employment opportunities for the Indian Managers, R&D Specialists and Workers. This is also established from all the case studies in the report.
12. Although it is reported by all the respondents that the present environment is conducive for foreign collaborations but at the same time they have reported certain bottlenecks like drug price control policy and lack of availability of animals locally and the policy in that regard. This is evident from the case studies of Biocon and Alembic. Other bottlenecks reported are Lack of trained skilled man power, power & water shortage & labour unrest.
13. 21 firms signed the foreign collaborations but could not implement them. The main reasons for non implementation of the foreign collaborations are :-

- Financial: Like high cost of technology and non participation of foreign collaborator in the equity although agreed earlier.
- Technical: Like technology not being latest and competitive.

Above reasons are also established from the two case studies given in the report viz M/S Paras Pharmaceuticals Ltd, Ahmedabad and M/S Aurobindo Pharma Ltd., Hyderabad.

14. In an earlier study entitled “Foreign Collaborations in India” undertaken by IIM, Lucknow, which was not sector specific, in the year 2000-2001, the main findings of the IIM-L study are similar to the findings emerging from the present study like maximum number of foreign collaborations signed in the post liberalized era.
15. Similarly In an other earlier study, conducted by KPMG, India in 2004-2005 entitled “The Indian Pharmaceutical Industry: Collaboration for Growth”, the findings match the present study findings particularly in areas like Emphasis on R&D for innovative new products, to offshore (outsourcing) R&D activities, discovery research and undertaking clinical trials activities and in the production of high-quality generic medicines.
16. In a study conducted by IHS Global Insight, China is expected to become the fifth largest drug market in the world by 2010. China remains an attractive location to foreign drug companies, because China offers many advantages in terms of the size of its marketplace, the relatively easy access to patients who are available for clinical trials, and lower clinical trial costs. China has made considerable progress towards an improved standard of living for its population, including better health, reduced levels of poverty, and strong macroeconomic growth. The market for high quality, patient-oriented healthcare services is small, but growing steadily. Currently, there are many successful foreign and joint venture healthcare service providers in China. Their experiences point to growing opportunities for foreign companies looking to invest in this segment of the market. In China's competition with India for the position of world's top outsourcing destination, the country's manufacture and export of active pharmaceutical ingredients (APIs) has played an important role. Antibiotics remain the largest category in China's API exports.
17. In the end, we can conclude that foreign collaborations have resulted in building faster, cost effective, technologically diverse industrial base of medicines in the country and have also brought newer drugs for Indian populace at affordable prices.. We can also infer that developing economies like India have helped our drug industry to broaden its manufacturing base not only in India but also in many of the developing countries. This has increased India's marketing base globally by offering various drugs manufactured as per latest technologies.

For more details please contact at the following address:

Prof. (Dr.) P.K. Gupta,

Project Investigator & Secretary General

National Foundation of Indian Engineers (NAFEN)

Shanti Chambers, 11/6B, Pusa Road

New Delhi-110 005 (INDIA)

Phone: +91-11- 2585 3104/ 4212/ 0446 Fax: +91-11- 25789399

E-mail: nafenindia@nafenindia.com