MAIN FINDINGS AND CONCLUSION

1) Compared to 1960s, the quality of human life and improvement in health and physical fitness, have brought radical changes in longevity and the average life expectancy of the global humanity. In 1960, only 41 countries had life expectancy of 65 to 75 years. By 1990s more than 80 countries of the world have average life expectancy increase to 65 to 75 years. Even in the poor and backward countries like Asian and Sub-Saharan African countries; the life expectancy has been improved to the range of 45 to 55 years.

2) This great revolution is the outcome of the progress of hygienic and sanitary conditions of living, innoculations, vaccinations and medicines to treat epidemics and infectious diseases. The rapid improvement and innovations in the Research and Development of effective drugs and medicines supported by medical infrastructure, equipment and rise in the number of hospital beds, doctors and health workers per capita of the country's population have all contributed positively.

3) Among the essential wants of human life, medicines have equal importance like food, water and shelter. The want for medicines is perpetual, therefore pharmaceutical industry never faces serious recession. As the incomes of all countries have been rising during the 20th Century (compared to income level of 19th Century) the overall purchasing power has also risen and due to the spread of education and health awareness, the global demand for drugs and medicines, has been very rapidly increasing.

4) Compared to 19th Century, human life is no longer vulnerable to diseases like cholera, Malaria, Influeriza, smallpox, chickenpox, typhoid, pluracy, T.B, Anemia etc. The 20th Century, however has witnessed a rapid spread of new diseases like diabetes, cancer, blood pressure, heart attack, paralysis, arthritis, HIV aids etc., in both
developed and developing countries. However, modern pharmaceutical industry has taken commendable effort in discovering new life saving drugs, which can also effectively cure these serious and complicated diseases.

5) The Pharmaceutical industry has made tremendous progress by its R & D in major advanced economies that those of U.S., Germany, Japan, France, U.K, Switzerland, Thailand, Netherlands and the giant multinational companies have expanded their production and marketing activities by collaborations, direct foreign investments, technology transfer, patent, sale etc.; which has contributed to a great diffusion of medical expertise all over the world. Like other developing countries such as China, Brazil etc., India has also made tremendous and very rapid progress in manufacturing of especially ‘generic drugs’ and has been successful in obtaining a market for its pharma products even in advanced economies of the world.

6) The ‘Value-added’ contribution of India’s pharmaceutical industry in the total national income has been one of the major factors of India’s national product. India produces almost all the modern medicine at lower comparative costs by retaining the ‘quality’. There is a vast domestic market of 1 billion plus population, available for India’s pharma industry.

7) Especially during the economic reform era of post-1990s; India’s export earnings per annum have been sporadically rising by an average incremental percentage of growth of more than 25 to 40 percent. The pharmaceutical industry has emerged as one of the biggest foreign exchange grossers en par with software, automobiles, gems and jewellery, marine products, textiles, ready made garments and basmati rice! With the rise in biotech, it is quite likely that India will secure a dollar rank within the world’s top ten pharmaceutical industries. India has relatively a larger manpower having access to scientific and technical training. Indian companies like Ranbaxy and Dr.
Reddy's Lab. have acquired an outstanding and respectable status in the world's pharmaceutical industry.

8) Capital investment in the Indian pharma Industries has increased by nearly 18 times during the period from 1965 to 1990s. (at present it has exceeded Rs. 30,000 crores.) In 1965, India produced only 1500 drug formulations, now the number has gone above 1,50,000. After implementing economic reforms and joining WTO; India's pharmaceutical business has miraculously prospered. In the 60s, India produced only 188 bulk drugs but by the end of 90s, India produced about 40 block busters and bulk drugs. The cost of bulk drugs per unit in India is far less than that of advanced economies. Due to the competitive price / quality advantage, India has captured very large markets abroad during the last one and half decades. In 1960s India used to earn a sum measly of Rs.3 crores by way of exports; by the end of 90s, the amount increased approx. 2000 times and new exports earnings have touched Rs.6631 crores and in the recent year that is 2004-05, India earned U.S. $3 billion (300 cr. dollars) which is equivalent to Rs.15000 crores.

9) The Indian subsidiaries of giant pharma MNCs like Bayer, Parke-Davis, Glaxo, Ciba-Geigy, Pfizer, Procter and Gamble, Godrej, Phillips, Aventis, Novartis, Johnson and Johnson, Lupin, Merck, Solvay farm, Cipla, Torrent Pharma, Wockhardt etc. have brought in world class research, patents, techniques which have radically improved the status of Indian pharmaceutical industry within the entire global market of pharmaceuticals.

10) Along with these foreign giants, purely Indian Companies like Ranbaxy, Dr. Reddy's Lab, Alembic, Dabur, Zandu, J B Chem., J K pharma. Ambalal Sarabhai, N. Piramal, Aurobindo pharma, Kerala Aayurveda, Amrutanjan, Himalaya, Emcure pharmaceuticals etc. companies have also made tremendous and equitable progress during the last 20 years.

11) The impact of WTO on trading in pharma products therefore has been extremely favourable rather than intimidating! The 'n' number of
opportunities of extending pharma products market all over the world; opened up to boost up India’s export earnings. On the other hand, the process cost of medicines in domestic market did not rise by 15 to 30 times; as was predicted by experts, opinion makers, political critics of WTO and the U.S. Lobby. The prices of Indian medicines have remained reasonable and affordable to the common man; because nearly 90 percent of Indian pharma products are generic; and remain unaffected by ‘Global patent right’.

11) There is a remarkable cost-difference of production of standard medicines between U.S. and India. There is again a vast difference between prices of global brand medicines and Indian generic substitutes. E.g. Prisolec brand in U.S. cost $3.7 per tablet; whereas its Indian generic substitute viz Omeprazole hardly costs about $ 0.09 ( or Rs. 4.50 as against Rs.180 ) Prozac brand in U.S. costs $ 2.2 whereas its Indian generic ‘Fluoxetine’ costs only 0.6 dollar in India that is about Rs.30 as against Rs.100 in U.S. Ranitidine antacid tablet manufactured by Glaxo in India cost only one rupee whereas its counterpart in U.S. ‘Zantac’ costs about Rs.80 in terms of Indian rupees. Simvastatine (Ranbaxy’s generic) in India costs only about Rs.10 per tab. which in U.S. costs about US 20.7 dollars. (Rs.100) The statistical evidence clearly proves that Indian drug prices remained comparatively cheaper in spite of the acceptance of the WTO regime. In fact, the Indian pharmaceutical industry; due to globalization, liberalization and the WTO regime has only improved tremendously so much so, that it has gained a ‘real take-off position’ in the galaxy of world class pharmaceutical industries of the world. The estimated projections reveal that India has bright prospects to earn a prestigious rank among world’s top fifteen countries, as far as, pharmaceutical businesses concerned.

12) Capital investment in pharmaceutical Industry has increased to Rs.25000 crores in 2000 A.D., from a very small amount of Rs.1400 crores in the year 1965 - 66.
13) On an average, about 3500 new formulations were added within the period from 1965 to 1995 and nearly 4000 to 5000 formulations per year have increased during the period of 1995 to 2000 A.D. Inspite of the adoption of the 'Trips' and the WTO regime.

14) The track record of production of 'bulk drugs' also is equally gratifying. In the year 1965 only 180 bulk drugs used to be produced by Indian pharma industry. In the year 2000 that is during the peak year of WTO regime India produce 37770 bulk drugs and India has been successful in exporting them not to LDC's but the advance economies of the world because of their 'quality'.

15) Indian drug Industry has maintained 'a trade surplus account' by expanding more and importing less drugs from abroad, consistently for the last four decades.

16) During 1970 to 1999 the total number of units operating in pharma industry has increased to approximately 20000 from a small figure of about 2000 that is ten times growth in the number of industrial units; and the remarkable thing is that it has not shrunk after adopting the regime of WTO.

17) The total sales in the year 1999 - 2000 were about Rs.27700 crore; during recent years of WTO regime they have increased to more than Rs.50,000 crores.

18) During the WTO regime, exports of Indian medicines have not reduced, on the contrary, they have increased to more than 20000 crores

19) WTO membership has expanded India’s prospective opportunities, more than the threats viz.

   1. Collaborative research opportunities opened by world's giant MNC's offered to Indian counterparts because of comparative advantage
   2. Assignments of contracts of research
   3. Financial aids for research and development activities of Indian drug industries
4. Encouragement to development and exports of new drug formulations.
5. Outsourcing contracts
6. The rising number of filings of new patents from 3500 per annum to 10155 filings in 1998.
7. Business outsourcing contracts to Indian dry units are increasing because of lowest civil construction cost; ($10 per sq.ft. Indian as against $80 in US) Indian scientists average salary being one fourth of that of American counterparts; clinical costs are ten times less than that of US; cost of sales representatives also ten times less that of US etc.
8. Altogether new opportunities of bio-tech, bio-generics and vaccines.\(^{161}\)

Conclusion
Having taken cognizance of the evidence furnished by these main findings; it has been proved that the impact of Trips and WTO has not been actually adverse; as was predicted by the economists, industry associations, political leaders and different lobbies who were against MNC's and in favour of protection of Indian industries. The claims made by all of them were baseless and too much exaggerated.

The main hypothesis of this survey, viz. "The WTO regime is going to enforce Indian manufacturers to manage innovations and workout trading strategies so as to acquire strategic marketing assets" has been proved as valid and true. All these prove that the Indian pharmaceutical industry is completely prepared all the strategic management plans to sustain the market. Now Indian pharmaceutical industry has shown special interest in patent filing, accreditation, approval of Indian manufacturer drugs, business outsourcing, clinical trial, contract manufacturing, consolidation, mergers and acquisition of

\(^{161}\) Refer to chapters 2 & 7 for authentication of the research findings i.e. 1 to 19.
foreign companies and expanding market in developed and developing countries. This proves our hypothesis totally.

It has been clearly established by this intensive research that the WTO has extended opportunities and benefits in a quantum which is far greater than the threats and difficulties brought by them.

This researcher therefore strongly advocates his main conclusion by stating categorically, the WTO membership has proved to be a great boon to Indian pharmaceutical industries

These findings culminate to form a principal conclusion that ‘The impact of WTO has ushered in strength, progress and opportunities of prosperity to Indian pharmaceutical trade rather than creating problems and threats.’ The impact, no doubt created challenges of upgrading the technology and competition and meeting the benchmarked quality in addition to the world class acceptance. However, these challenges too, have worked as disguised boons!