

The 'Cyberisation' of India

If ever Indians have lived through a period of uncertainty, it is now. Even the transition from a British colony to an independent India did not affect the individual Indian to the extent he is being affected now. And the cause of this is the Chip made from silicon found in sand - the microprocessor that is at the heart of the modern computer. The entry of the computer in a big way in India almost coincided with the liberalization of the economy and the globalization of world trade and commerce. This turned out to be a mixed blessing. On the one side is the promise of growth and on the other of growing redundancies among the present labour force leading to fears of unemployment. Already thousands of small enterprises unable to take on the challenge of competition have shut shop. This situation it is feared will be further aggravated by advancing computerisation. How this problem needs to be tackled could be the subject of another article.

The Indian Electronic Industry

Shielded from the outside world in the cocoon of autarky for forty of the fifty years after independence, the Indian electronic industry's growth like those in other fields of manufacture was pitifully small and, that too, way behind world standards. There were two major landmarks in the field of electronics in free India. The first was - the entry into India, in the late fifties, of the transistor leading to the development of the ubiquitous transistor radio which operated on a battery and, therefore, not dependent on an unreliable electricity system. The second was the advent of television in the mid sixties. But neither led to any revolutionary changes even if the transistor, in particular, helped improve the percentage of the informed in the country. However a statist economy and a strict regimen of import prohibitions ensured for the then ruling socialist elite, continued control over the dissemination of information and knowledge.

The manufacture of electronic equipment particularly communication equipment in India was the prerogative of the state. The Electronic Corporation of India (ECIL) among other things manufactured television sets (their brand known as ECTV was considered, in those days, to be a premium product and one had to book one's order in advance and wait for a month or more for delivery). The monopoly of the state was ensured by simply restricting the import of picture tubes. This was so with telephone services as well. Telephone instruments and other related equipment like exchanges were manufactured by Bharat Electronics Limited another state-owned monopoly.

The manufacture of telephone equipment by private enterprise was prohibited. In fact a telephone user using an imported telephone instrument (generally smuggled) was fined and the instrument confiscated. Until the late eighties fax machines were practically unknown and we had to do with teleprinter machines manufactured by Hindustan Teleprinters Limited - another loss making state enterprise. And this would have continued but for the fact the Indian economy after forty years of socialist rule was going bust. The economy was opened up somewhat cautiously at first gathering momentum as it went along. Even at the time of writing the door is not fully open. But by the early nineties the cyberisation of India had begun.

While it took quite some time for computer technology to come to India, there were Indians abroad who had been at it for quite some years. They seized the opportunity to encourage computer education in India, and to get youngsters from India across to the States. The two big advantages Indians enjoyed were: knowledge of the English language and some outstanding institutes of higher learning particularly six Institutes of Technology (IITs) and an equal number of Institutes of Management (IIMs) - all State run. This enabled a number of graduates and post-graduates from these institutions to occupy very senior positions in some of the finest corporations in the world; others went to NASA and yet others chose to go to Silicon Valley. In the teaching faculties of some of the most prestigious universities in the United States can be found a generous sprinkling of Indians.

The Indian Diaspora

At this point let me share with you, the reader, the concern of the Indian State with the large number of students who went overseas for higher studies and stayed behind - particularly doctors, engineers, nurses and the like. This brain drain was worrisome. Higher learning in India is heavily subsidized (Almost 80% of the tuition fees are underwritten by the State) so that enough trained personnel are available to man the services and run industries in a free India. But the doctors, engineers, nurses and similar highly qualified persons chose not to return not only because the West offered much better creature comforts but also because of the deplorable conditions back home. The absence of the work ethic; poorly equipped and badly maintained hospitals with unionized staff in a state of indiscipline; or scientists and engineers with little or no facilities for R & D; or the absence of appreciation and encouragement for innovations on the shop floor, for instance.

Over the last three centuries co-terminus with the expanding British Empire, Indians have been mobile in search of employment within the country and overseas. The earliest emigrants from India in the last two centuries were indentured labour to the British or French colonies in Africa, Mauritius, Fiji, and the West Indies. These Indian migrants worked in railroad construction, sugar cane plantations or as unskilled labour in various enterprises. Their descendents graduated from labourer to traders and businessmen. Some of them even went on to become Ministers or even Prime Ministers.

The second wave of emigration occurred during the Gulf boom when large numbers of masons, carpenters, mechanics, electricians and white collar workers went to the middle east so much so that during that period India was woefully short of skilled labour. This was however compensated by large remittances to the mother country helping India tide over foreign exchange difficulties.

And then came the real brain drain of highly trained professionals described above.

The most recent is the migration in droves of computer programmers, engineers, software developers and the like mostly to the US but also to the UK, Australia and Canada. Representatives of overseas recruiting agencies shopped around for prospective computer professionals for employment overseas. They came to be known as the 'body shoppers'. And 'body shopping' became big business. And so we have large numbers leaving India every day for these countries. Now the Japanese and the Germans have joined the 'body shopping' queue. These body shoppers are looking, not only for degree holders but for those who are computer savvy with various computer language specialisations. And these computer savvy guys have been trained at a large number of privately owned and privately run computer training institutes. These institutions are not subsidized by the State.

In recent years an innovation made possible by the nature of the calling itself, is for overseas companies to get their work done by Indian computer professionals in India itself for clients abroad. Maintaining medical records for doctors in the USA instance; or maintaining sales records or inventories etc. In fact this could well turn into a profitable cottage industry in India and large scale emigrations may no longer be necessary.

Developing India

My son, a computer software professional, asserted that the greatest invention after the wheel is the microprocessor. He may well be right.

India's problems are staggering - a galloping population growth, - our population crossed the billion mark this year; over 400 million illiterates who cannot read or write even in their mother tongue; a horribly primitive rural health care system - rural India accounts for over 60 % of the population; even today in many parts of India our women have to trudge many kilometers for potable drinking water; to name just a few have apparently defied solution. The word 'apparently' is used advisedly because even in a bad situation some improvements would have been possible if the Indian National Congress which took over power from the British had had its priorities right. Unfortunately it preferred to dabble in business and industry instead of attending to the business of governance and infrastructural governance.

But now with an increasing awareness on the part of those in power in Delhi and in the states of federal India that the business of governance is governance and not business and with the aid of computer technology there is growing hope that the problems that have been dogging India are capable of solutions.

At a discussion on 'Infotech - Hype & Reality' in March this year organised by the faculty and students of IIT(Kharagpur) attention was focussed on IT's role rural India. A scientist specialising on the work of voluntary organisations pointed out that where electricity and telephone connections were lacking there was need to develop information systems in Indian languages and where need be explain to the non-literate with the help of easily understood graphics. Every village should be connected on a computer network and the effort should be to integrate indigenous knowledge systems with the help of IT. Satellite imagery is already being used in irrigation channel and watershed management. This needs to be expanded to cover much large areas. Expert systems and online information exchange in areas of agricultural management need to be communicated to the farmer in a manner that he will understand.

These will soon become possible. The department of telecommunications of the government of India, the Indian railways and the Gas Corporation of India (the former along railway tracks and the latter laying gas pipelines) and a number of private

enterprises are engaged in laying 40,000 kilometers of fibre optic cables connecting some 40 to 50 towns in India. And villages in a radius of 30 to 40 kilometers from each of these towns will be able to take copper cable connections to their villages and be on line. This wiring up of India will truly revolutionize the countryside. All that is needed is for governments and politicians to let it happen without let or hindrance.

We began this article by drawing attention to unemployment and the shutting down of small uneconomical industries arising from the revolution in information technology. That is perhaps a temporary and in the long run a relatively small price to pay for change - a change from the age of the bullock cart to the cyber age. Democratic India's version of the 'Great Leap Forward'.

S.V.Raju, Editor, *Freedom First*

Bombay

31.08.2000