ICT policy in India in the era of liberalisation: its impact and consequences

Gurshaminder Singh Bajwa

Jawaharlal Nehru University, New Delhi[*]

Abstract

This paper tries to bring out the role of Indian state as an actor in responding to the ICT (Information and Communication Technology) policy with special reference to the two task force reports highlighted in for carrying out this study. Response is here understood as the 'role' played by the Indian state towards putting policy statements into practice. The underlying intent of the theories is the belief that information would be the prime mover in information or knowledge societies. It is strongly believed that ICT will propel India into the league of developed nations. The literature review particularly on technological determinism and social shaping of technology gives us important perspective to explore the objectives of the study. At the same time they raise some important issues and questions: What are the broad objectives of major policies on ICT for development? To what extent policies formulated at the highest decision-making bodies find their way for implementation? Is there a gap between 'Theory' and 'Practice'? To what extent ICT policies influenced different stakeholders in the society? And what kinds of responses have been generated by different policies? The aim focus of this study is on the responses of different stakeholders especially the state with respect to the ICT policies and discourse. This will reveal developmental concern for the overall built environment especially in education, health, energy and transportation systems sectors, but the structure and orientation of ICT policy initiatives, in a large measure are directed towards market-oriented demands of globalisation.

Introduction

The main objective behind any innovation in technology is to ensure that it provides comfort, leisure, productivity and a better quality of life and built environment to its citizens. All over the world, countries are employing the power of IT[1] in various activities associated with running of the government machinery as well as utilizing in day-to-day life of its citizens. Governments are initiating various policy measures in the field of biotechnology and telecommunications, which would bring change in the production processes and provide citizens means of social cohesion. The resulting informationalism leads to the accumulation of knowledge with higher complexity. Governments everywhere are using the notion of rapid transformations from an industrial to information society for carrying out programmes, which enable them to remain competitive in the era of globalisation. Governments do not provide space for citizens to be part of the discourse. The European Commission that has employed Manuel Castell's view on the ongoing changes in the society stresses "we are facing a new industrial revolution which has far reaching changes in technologies, jobs and skills and at the same time economy is globalizing and becoming increasingly based on knowledge and learning." The concept of knowledge has been replaced by innovation by OECD and EU member states as it serves dual purpose helping the individuals and collectives by becoming part of social phenomenon to fulfil their needs and desires (Alestalo, 2001: 204).

The United Nations agencies are also actively promoting the application of ICT by providing

---

[*]Centre for Studies in Science Policy, Jawaharlal Nehru University, New Delhi. Email: pozzibaj@yahoo.com

advisory service and experts' views in building up of a National Information Infrastructure (NII), and also facilitating access to a Global Information Infrastructure. The Global Information Infrastructure (GII)[2] vision was first of all articulated in America. The United Nations Development Program (UNDP) considers ICT a tool for developing countries to progress and leapfrog to the developed world. The International Bank for Reconstruction and Development (IBRD) and the World Bank group is pursuing its objective of improving economic conditions by application of information systems and framing policies to accelerate the process of integration of NII with GII, further focusing on strategies to enhance human development. The International Telecommunications Union (ITU) is also involved with the process of implementing the four-year strategic plan Valetta Action Plan (VAP)[3], which was adopted by the World Telecommunication Development Conference (WTDC) in 1998. In addition, 98 countries have launched an interactive digital opportunities task force in Okinawa in 2000.The United Nations have an ICT advisory group with representatives from governments of developing countries and the industry (Singh, 2001). The Global Information Infrastructure Commission was set up in 1995 to strength the leadership role of the private sector in the development of a diverse affordable and accessible information infrastructure.

Almost consensus is emerging among the developing countries for preparing national strategies to participate effectively in the information society. In Asia, ASEAN stimulates the growth of the ICT sector by establishing a Telecom Working Group, who focuses mainly on human resource development, technology transfer, and regional co-operation and telecommunication standardisation. Singapore ever since 2000 is pursuing a master plan with a strategy to ensure that ICT is used in every aspect of professional and personal life.

In India, the path towards technology-induced development, especially associated with ICT, was given a vent in 1984 by the Congress Government under Rajiv Gandhi. He assumed power and adopted informatization of Indian society as an effective route to development, with massive programme of computerization launched in the public sectors as well in the commercial undertakings, and administrative departments. By 1985, large sectors had announced computerization plans, which included railways, banking operations, schools, etc. In the 1990s, the stress on IT for producing wealth and enabling development continued. A high power National Task Force on Information Technology and Software Development[4] was set up in 1998. This Task Force prepared the blue print for making the adoption of IT a national movement, by establishing a wide network of empowered taskforce at all governmental and non-governmental levels. In 1999, the Ministry of Information Technology was established by bringing together government agencies involved in different aspects of IT[5] for creating jobs to harness opportunities provided by convergence of communication technologies and to facilitate the use of IT in use of Electronic Governance. Taking into account the increasing convergence between telecommunication and IT a Communication Bill was drafted by the Government of India, followed by the Information Technology Act that was notified and brought into force on 17 October 2000. Moreover, the Information Technology for Masses Working Group has been set up with an ambitious target of establishing at least 100 million internet connections, opening up IT kiosks and cyber cafes for covering entire India. A Task Force on Human Resource Development in IT was set up for preparing a long-term strategy for increasing the number of well trained IT professionals. There has even been a Task Force on Information Technology as a Knowledge Super Power[6], which considers how India can become a knowledge economy and society, for which the role of education at the level of primary, secondary, and tertiary level is of paramount importance. Sociologically speaking it seems that the concept knowledge society will incorporate how knowledge will takeover the role of capital and labour in the economy. The question is how

various structural changes can facilitate the various institutions adaptation to the socio-economic changes and what will be the role of technocrats in framing the policies in the near future.

State approaches to development and ICT

In any major policy initiative that induces a major social change or transformation, the state normally is expected to play the role of the initiator, mediator, facilitator and arbitrator. The Indian state has played a major role in the context of ICT for development from the early 1980s at various levels. The approach paper to Tenth Five-year Plan (Government of India, 2001) has been prepared against a backdrop of high expectations arising from the recent performance of GDP growth. This has improved from an average of about 5.7% in the 1980s to about 6.5% in the Eighth and Ninth Plan period making India one of the ten fastest growing economies and a substantial part of the buoyancy is due to the growth in the services sectors led by ICT and telecommunications. The Tenth Plan stresses the need for defining the development objectives not just in terms of increases in GDP or per capita income but broader parameters, which enhance human well being. It tries to focus on inter-state inequalities and underlines the strategies to overcome the regional disparities and different growth rates. The Tenth Plan emphasizes on those sectors, which are most likely to create high quality employment opportunities, such as construction, real estate housing, modern retailing, and IT-enabled services. Moreover, it recognizes the comparative advantage of brainpower to absorb, assimilate and adopt spectacular developments in system integration and technology, and harness them for national growth in today's knowledge-based world economy. Technology and knowledge could be a tool to give India a competitive advantage in the new global economy, but out of the approximately 200 million children in the age group of 6-14 years, only 120 million are in schools. With a view to address this problem, "Shiksha Abhiyan" (Education Campaign) has been launched. Universalising access to primary education and improvement of basic school infrastructure are at core of the Tenth Plan.

The plan identifies telecommunications as a critical part of infrastructure in an emerging knowledge-based economy. It attributes the importance of telecommunications to enormous growth of IT and its potential impact on rest of the economy. India is perceived to have a special comparative advantage in IT, because it can provide excellent communication services at reasonable rates. To maintain this comparative advantage, the Telecommunication Policy should focus on the convergence of data, voice and image transmission, the use of bandwidth and high-speed internet connectivity.

Action taken on National Task Force report

The National Task Force on IT and software development was the first attempt by the state to provide an integrative approach to understand the role IT plays in the national economic and societal development. Unlike other governmental task forces, this Task Force was asked to give recommendations, within the span of three months, on the path of development and economic growth and leveraging the ICT capabilities. The Task Force[7] formulated 108 recommendations of which 50 were in business, 23 in infrastructure and the rest in development. In the business section, out of 50 recommendations made, 44 were implemented according to the Action Taken Report (ATR)[8]. In short, while examining the

role of the state in implementing various measures purported to make India a knowledge super power, the Task Force is a good place to start with.

Recommendations with respect to business

Out of the 40 recommendations made for the business segment, 31 have been fully implemented. Among them are the withdrawal of the monopoly of VSNL in Internet gateways, the redefinition of software, the reduction of custom duties, the exemption from taxes, and the removal of restrictions on the location of software. Nearly 78% of the suggestions for economic growth of the IT sector have been fully implemented in a speedy and effective way. This implementation is reflected on the tremendous growth displayed by the IT sector in the last few years. Although the report provides significant attention to the hardware sector by initiating schemes like Soft-Bound unit, giving financial concessions to the industry is a definite improvement. The policymaking apparatus over the years have been lethargic and disinterested, when it comes to hardware sector, as the success in the computer arena is generally related to software. The policy does not provide any specialized mechanism for lending to the hardware sector as banks are reluctant to finance forays in this direction because of the rapid technological change in product design, finish, and performance. In the document, the government has announced the advancement of zero duty regimes on all products by two years to 2003. The hardware sector will suffer if electronic products are permitted to be imported at zero duty and inputs are taxed at 5-35%, as the government has already announced certain programmes, which will generate demand for hardware. According to estimates, over 160 billion rupees will be required by 2008 if this is brought from overseas. Import of this magnitude will mean loss of employment opportunities across all social strata and the foreign exchange reserve will decline.

Recommendations with respect to infrastructure

The government tries to improve the IT infrastructure in India by tackling the shortage of proper power supply and the huge gap between demand and supply of bandwidth. With respect to infrastructure development out of the 23 proposed recommendations 19 of them are characterized as ongoing. This is quite misleading, for enhancing the pace of IT penetration in remote areas of the country, the task force has recommended that the defence forces should provide connectivity to civilian establishments. On the proposal for making available updated information at the *panchayat* (local institution at village level) level, the National Informatics Centre (NIC) was involved in the creation of the databases on-line (NICNET) for access to the public. In an inaugural session of the ASSOCHAM (Associated Chambers of Commerce and Industry of India) Summit on "India in a knowledge millennium" Prime Minister Atal Bihari Vajpayee declared that "knowledge-based society will enable us to leapfrog in finding new and innovative ways to meet the challenges of building just and equitable social order and seek urgent solution." (Venkatsubramaniam, n.a).

The Task Force has suggested the maximum number of recommendations in the Developmental sector, 45 in number. The recommendations with respect to e-governance, as stated by Vittal (2001), the government culture of secrecy, corruption, hierarchy, and lack of imagination to do right things at the right time have given rise to cultural resistance to e-governance. Therefore, the attempt has to be made on overcoming each of these curses. Even though the Task Force has recommended the creation of citizen charters, development of a smart card programme; the ATR ruefully notes that only 59 wings of the state apparatus have

notified charter and no mention is made regarding their effectiveness and implementation. The proposal to set up a national institute of e-governance has remained at a proposal level. For creation of e-governance, the government has to first carryout the training manpower for operations and knowing the need of number of technical personnel to maintain the system. Moreover, the government needs to explain to people the advantages of IT, as people participation is a necessary input for the success of these programs. Also the government has to ensure proper physical and mechanical infrastructure for transformation (Jayanth, 2000). The government should adopt a strategy as to explain what the concept of IT to society is, why its need is felt, and how it can transform lives. This can be done with the spread of information networks in the villages as stated by T. Vishwanathan the Director of the Indian National Scientific Documentation Centre (Tribhuvan, 2000)

ICT and governance for development

ICT generates new possibilities to address problems of rural poverty, inequality and environmental degradation. A major impact of e-governance must be felt in the rural areas where the bulk of the Indian population lives so the government has to support initiatives to solve the problems of rural dwellers by using IT.

Numbers of projects have been initiated in keeping with India's local needs for application in rural development. For example, the National Dairy Development Board (NDDB) has successfully employed and IT-based machines are used in milk collection centres. This cheap and credible technology was being used in rural cooperatives to measure fat content of milk, test the quality of milk and promptly make payment to the farmers. As a result reduced time for payments and instilled confidence of the farmers in the cooperative set up. Amul cooperative has introduced a number of ICT-based operations, which have contributed to efficiency of milk procurement and distribution. The NDDB has also been able to deal with problems of unethical practices in the milk enterprises (Bhatnagar, 2001: 65-66).

 India healthcare project that began in 1994 is an initiative for rural development by employing innovative use of IT. It is a collaborative project of the Government of India, a multinational computer vendor and the software company CMC limited. The project's initial impetus arose from the government's interest in providing electronic support to village workers in the rural healthcare system. The project team designed a system, based on hand-held computer technology with a view to reduce the burden of paperwork, improve data accuracy and to empower the health worker to provide timely care and information. The project is interesting as it involves vendors from private sectors getting actively involved in project development (ibid.: 36-38).

Land records computerization programme is being implemented as a joint effort of Ministry of Rural Area Employment and NIC. NIC has string of its district centres with additional hardware, software tools, standardized application software, training to offices of state governments enabling the state governments to implement the project. This project is ongoing in 540 districts (Government of India, 2001: 56). Apart from this, the on-line transaction[9] system has been implemented in Railway passenger ticket booking system and Indian Airlines passenger reservation and departure control system. Railway computerization has been carried out by Software Company CMC, thereby contributing to improved services, reducing waiting time in the reservation queue and unethical practices as well (Khan 1987: 204).

The State of Andhra Pradesh, which is heavily reliant on farming and light Industry, is now focusing on software and internet to leapfrog the traditional path of development. Chandrababu Naidu, the Chief Minister of Andhra Pradesh has been successful in attracting Microsoft, which has set up a software development centre, only the second centre outside the United States of America. Oracle and Citibank have set up back room operations in the state. Naidu has facilitated the payment of electricity, water and telephone bills establishing one-step pay counters in Hyderabad. The state's other areas of focus are literacy, healthcare, and women's rights. However, critics say his narrow approach by just focusing on software and computer will not lift pre-industrial state out of poverty (Fuller 2000).

The State of Karnataka has emerged as a front-runner in the ICT sector, which is regarded as the Indian 'Silicon Valley'. Even though there are major, private institutions in both Hyderabad and Bangalore region, the joint catalytic role, played by both the state and central governments cannot be glossed over. The IT department of Karnataka has its policies oriented towards the need of the common masses, which are justified by initiatives like Uyva.com and Bumhi.com. According to S.M. Krishna, the Chief Minister of Karnataka, "The strength of economy is measured in terms of technological advancement; it is a means for achieving over all development". The state has computerized about 600 million land records, and set up *maithis* (information technology kiosks), which provide details of government schemes. Computerized systems have been installed to track poaching and other offences to protect the wildlife in the state forests. The state government also eradicates poverty and helps women through financial self-help groups, which are helped with revolving funds as well as bank credit (Times of India, 2000).

The benefits of IT in administration are provided by example of pilot project of Karnataka state to use computer technology in project monitoring in Karwar district, which moved to the third rank from the eighteenth rank towards implementing its development programmes by utilizing computers within one year of its installation. Afterwards this Computerized Rural Informatics System Project (CRISP) has been expanded to other districts to provide local officials with monitoring system (Naga, 1994: 25).

The Government of Maharashtra has formulated a disaster management plan for improving the administration in the state. For its implementation, the government has set up a statewide VSAT (Vulnerability Self-Assessment Software Tool) network over which a full-fledged communication facility is available. This database will enable district officials to plan better for disaster preparedness, vulnerability analysis and response plans. This project has been financed through the World Bank and is an excellent example of deployment of technology to improve administrative efficiency (Bhatnagar, 2001: 51).

Another project, Warna wired village, illustrates the step towards village empowerment. This project covers a cluster of 70 villages consisting of 46 villages from Kolhapur and 24 villages from Sangli district of Maharashtra. The Government of India has implemented the project with the help of three agencies - National Informatics Centre, Government of Maharashtra and Warna cooperative society. This project was initiated to serve the information needs of the farmers (Bedi et al., 2001: 90).

With increasing emphasis on user computing, the content in local languages is being developed. According to the state government, Internet has the ability to strengthen the existing communities for efficient goal achievement, and makes it possible for the availability of information at their doorstep posturing as means for direct communication

with the state. However, the new paradigm initiated by the ICT with terms of governance shall be fulfilled only when the people who will be participating in this venture have access to basic services provided by the government in terms of health, education and fulfilment of some minimum life sustenance needs. The real test of these technologies can be how they are effectively used as tools to help government to fulfil their primary responsibilities in these areas. The state-led ICT initiatives can be used for re-setting the objectives so that prior faults which were due to wrong prioritisation and inadequate resource allocation and which in turn lead to great wastage at the time of delivery system owing to information gaps and lack of adequate knowledge resources could be corrected.

Salient features in state-level success and failures in ICT development

Broadly speaking, states fall into two categories: the early starters and the late starters. The early starters were states that now have a significant, well-established IT industry; focused on the development of manufacturing and modern services industries and were able to attract investments both from India and abroad. Late starters lag behind in terms of not only having a stable IT industry but also lacked sizable absolute growth in modern industrial and service sectors and in attracting investments both from India and abroad. Early starters having developed IT industry have shown stronger performance in terms of general economic growth and several other development indicators as compared to the late starters. This pattern, however, does not apply uniformly. A state in the early-starter category may still be a moderate performer in such social indicators as literacy and health or rural development. Conversely, a state in the late-starter category may have a strong record in higher education (West Bengal) or literacy and health indicators (Kerala). The states, such as Karnataka and Maharasthra, which were early starters, had no IT policies but the boom in the IT software industry in these states has been driven by the private sector, as a result they have the largest IT industry. On the other hand, Andhra Pradesh, Kerala, and Punjab are emerging as states that strongly emphasize a concerted effort to develop the IT industry with the state government playing a proactive role.

Among Indian cities, the largest IT industries are located in Bangalore and Hyderabad, followed by Chennai and Delhi. Bangalore has served as a role model and has attracted a large number of private investors from other states as well as from foreign countries. In Bangalore, the IT and software industry has developed due to private-sector initiatives, which now has assumed the shape of export-oriented industry. Tamil Nadu, too, is attracting private investment because of the stable and strong commitment of its government to develop the IT sector, even before it presented a state IT policy. Moreover, the government has significantly progressed in its concerted efforts to develop ICT for the public sector (Singhal and Rogers, 2001: 202-203).

ICT and education

The discourse on knowledge-society education has occupied paramount importance as the prime contributor to the development of a knowledge society. The Information Technology Task Force has come out with 18 recommendations out of the 45 on development with respect to education. Interestingly the ATR notes just two of them as implemented and the rest as ongoing, which includes providing internet access to all schools, colleges, polytechnics, and public hospitals by 2003.

At the higher technical education level especially in IT, multiplicity of agencies is the norm. UGC and the respective universities control M.Sc/ M.A courses while as MCA/ MBA have been controlled by AICTE. No coordination is visible between these two agencies with respect to launch and control of degree programmes and contents resulting in proliferation of degrees with new nomenclatures like BIT/MS e-commerce etc, which confuse the student as well as the recruiters simultaneously. Even though an All India Board on Information Technology Education is constituted by AICTE (All India Council For Technical Education), it is yet to come out with a model curriculum, which is binding upon institutions. The Chairman of AICTE, Rame Gowda, states that there are a number of challenges brought by liberalisation and globalisation, therefore the need for technical education has to be strong enough to face these challenges, otherwise it will result in failure to compete in world markets thus driving economic ruin to the country (Jaychandran 2000). However, contrary to such statements no attempt is made by AICTE either to examine the current status of higher education both at the professional and continuing education level. The AICTE by transferring the question of academic quality assurance to universities has abdicated its responsibility for ensuring education quality. No progress is yet made on the proposal to set up an institute for computer professionals of India as well as on the creation of a 'National Qualification Framework', which would enable seamless integration of credits earned from different institutions and systems.

The boom in the IT sector is because of investment in higher education especially elite institutes only. There is not much emphasis on the other technical education infrastructure, which includes polytechnics, engineering colleges, etc. The public spending on higher education is skewed towards privileged sectors, which receive 61% of resources in government-financed education while as majority of the technical institutions suffer from poor quality infrastructure and facilities generating graduates at the technical level who join unemployable rolls. The government has to enhance the literacy as individuals who will be literate will be ready to learn high skills and participate in knowledge economy. In order to halt the brain drain of students to abroad overhauling of our education system to make it market-oriented and on its part the government develops domestic market for ICT-based services which in turn ensure job opportunities for students coming out of institutes of engineering, technology rather than being obsessed by software industry and its export-orientation strategy (Narasimhan 2000).

The government has failed to meet the demand for technical educational which has resulted in a rapid growth of private institutions in the IT sector which are unrecognised and generating students, which are being added to ranks of unemployed youths even in the technical sectors (Rai 1998). The number of students enrolling for IT courses has slumped due to US slowdown in 2002. On its part government, industry and educational institutions must review and totally revamp IT education in India. The content of graduate and postgraduate courses needs to be standardized and effective industry, institute linkage need to be developed to provide training to the students. Bureaucracy hurdles in universities have to be overcome to ensure substantive changes in the curriculum. Industry can contribute to its role by participating as sponsors and framing the curriculum, providing visiting faculty and hands on training (Jayanth, 2001). The IT education has been commercialised e.g., NIIT, APTECH with high fee structure and with their employment oriented qualifications as a result growing number of "Have Not's" who cannot access to computer education is increasing (Abimanayu, 2000). UGC with AICTE are framing guidelines to regulate the entry of the foreign Universities and with respect to technical education a committee has been set

up under the supervision of former Vice Chancellors N.V. Vasani and Billange (Jayanth, 2001).

UGC with AICTE are of view that it is not practical approach to ban their entry but what could be done is to "rationalization" of standards so as to prevent students from being cheated (Mittal, 2001). UGC has come with revised guidelines to facilitate the role of private players in higher education. In this regard the "de novo Institutions" in emerging areas with promises of excellence, are likely to get deemed university status. This status is subject to review every five years. These deemed universities under stipulated guidelines of UGC on course structure, admission procedures and fee structure can open centres in the country and can even open centres in foreign countries with due permission from UGC and the host country (Hindu, 2001).

The role of social variables i.e. education and health as enabling factors, fostering economic progress has recently received much attention in the development literature. However, the way elementary education has been neglected is striking given the importance provided in contemporary world and its importance for economic development (Dreze and Sen, 2002: 38). The operation and success of market mechanisms can be deeply influenced by the nature of governmental arrangements and actions that go with it. The market is an essential vehicle for realizing economic potentials, the long-run active policy for example in initiating particular industries and in providing a wide base of public education is also important (ibid.: 49).

The development itself opens new opportunities for social cooperation. At an early stage of development, the focus of human activity has to satisfy basic needs associated with relatively simple commodities, as the horizon of human concerns and social interdependence expands so does the realm of cooperative action. Technological progress also paves the way for more complex forms of cooperative action involving large number of persons. This cooperative action plays a crucial part in formulating organized public demands on which state depends in identifying its priorities and actions in democratic society.

The development of basic education was significantly more advanced in all the high performing Asian economies with successful growth mediated progress at the time of their economic breakthrough as compared to India. Moreover, in the educational expansion of these countries, the state has played a major part. In India by a contrast there has been a remarkable apathy towards expanding elementary and secondary education and certainly 'too little' government action rather than 'too much' is the basic failure of Indian planning in this field, in spite of all the policy initiatives in this regard. Therefore, an essential goal of public policy must be to ensure that bulk of growing population had the capability to read and write, communicate and interact in modern economy. The Government must invest heavily on basic education as in view of complementarily between education and effectiveness of economic reforms (Das, 2000). By ensuring basic quality improvement, remove barriers against women's education, utilizing of funds for education properly. The government motto of economic liberalization should be accompanied by massive investments in social services (Aarti, 2001)

The scenario of basic education is sad according to S.K Somiya Chairman Educational Committee (FICCI) (Das, 1999). The elementary education must be provided to every one as only one fifth of the population reaches secondary education; therefore about 80% of

country's human capital goes waste. On the other hand, there exists a paradox of country's achievements in nuclear technology, space technology, IT ignoring elementary education that also suffers from lopsided growth if it is analysed on urban–rural trends (Kumar, 1995). The above scenario is further highlighted by government failure to achieve universalisation of elementary education, in spite of Ramamurthy panel recommendations that was put forth by V.P Singh's government to review the National Policy on Education 1986 brought by Rajiv Gandhi (Rajagopalan, 1991). Government's concern of providing in computer facilities in state schools seems to have run into major difficulties as there is lack of awareness on part of school administrators about IT usage in the rural areas. Anil Sadgopal, Head of Department Education Faculty, University of Delhi, attributed to sorry conditions of education to anti-people and anti-child education policies rather than the poor implementation of governmental policies. "Knowledge has become patentable commodity in the emerging knowledge society," this has been observed by Prof. R. Govinda, Head School and non-formal education NIEPA (Sharma, 2001).

Some reflections on recommendations with respect to development

The social use of IT has to be enhanced to overcome the digital divide. The government should make resources available for public welfare, which is its social responsibility (Kranjilal, 1999). The former Chief Minister of Bihar, Laloo Prasad, states that IT cannot be thrust of nation where priority is agriculture and economic development. He laments that IT cannot provide electricity, for common people the need is water, health, and education. Without this internet and email make no sense. It is not catering to 90% of our population (Times of India, 2000). For the implementation of ambitious agenda the policy makers in the government must ensure that turmoil at global level does not affect the social policies being pursued by the government. IT is basically a symbol of gender based, pro rich and anglicised tool not as a tool belonging to village community. The hype created by the boom in the software industry is creating glamour's culture, and this, has stirred India's priorities on economic and social front and raises very pertinent questions whether technology can really transforms the life of the poor (Kumar, 1999). The government association with rapid economic growth by loosening restriction on trade and investment is further leading to misery of poor people even as the size of Indian middle class doubles by getting jobs in the service sectors. The government has to devise a strategy so that the revenue generated by software companies should be deposited with public fund so that it could be utilized for development activities. As the income from software is exempted from 38.5% corporate income tax, and high technology companies are not paying 40-60% of customs duty on import of technology item, which they are utilizing in their business (Dugggers, 2000).

However, in the development perspective the policy makers are in the dilemma how to prioritise the programs and utilize the meagre funds just for laying down infrastructure for ICT when basic amenities are still not being provided to citizens in terms of schools, hospitals, healthcare, etc. The major concern about these development programmes are that when they are at the pilot stage they work fine but when they are implemented fully the question of sustainability arises as then exist a gap between the training provided to workers at pilot stage. Therefore, the need arises for redevelopment or learning in the application of tools for effective implementation of projects

The government identifies IT as tool for development has been farming policies at the macro level, but most of the policies are leading to sectoral development of IT in software rather than focusing on social induced development by employing IT in various developmental

programme. There is need on part of the government to develop an overall strategy for the participation of local institutions to take the ICT to the masses.

The Task Force Report has demanded the tripling of IT students. Since most of the jobs in IT have substantial functional content, meagre increase in pure IT professionals will only lead to competition, reduction in wage rates or even unemployment. The government is delaying the implementation of the recommendations as such; the policy pronouncements of the government hardly carry any weight-age. These kinds of procedural delays are mostly because of lack of political will on its part or vested interests within bureaucracy, which creates resistance to implementation of recommendation (Bhatia, 1998). Armed with substantial growth rate of the Indian IT the Government unveiled its vision to leverage IT to bridge the developmental divide and leapfrog on the developmental axis. The state's working group on Information Technology for masses declared that: "It is a firm view of the government that if any technology can create new opportunities to bridge the gap between haves and have-nots in society in the present times, it is IT." Nevertheless, it continued that, "for Information Technology to improve the lives of the 40 percent of the population, which lives below the poverty line, the government must play 'a catalytic and enabling role'." (Government of India, 2001). Besides the federal government, several state governments have also committed themselves to policies that deliberately aim to spread widely the benefits of IT, including the less privileged segments of society.

Concluding remarks

India during the last decade has also embarked an ICT for development in rather big way and sought to transform India into what has been termed as "Knowledge Superpower" (another variant of knowledge Society). IT Taskforce and IT Action Plan from Planning Commission and MIT respectively are the major policy initiatives towards this end. Among the developing countries, even though India has been able to establish considerable ICT national capacity in the context of market-oriented globalisation, the same cannot be said about India's ICT capacity for addressing pressing needs and demands of the underprivileged sections and majority of the people in terms of education, health, energy and transportation systems to name some important sectors are concerned. Even though the exploration of major ICT policy documents and state ICT policy discourse reveal developmental concern for these sectors and mentioned, the structure and orientation of ICT policy initiatives, in a large measure are directed towards market-oriented demands of globalisation. It also emerges from the study that the role of individual state leadership for proactively using ICT for development, also tend to strengthen the system of market economy.

Notes

[1] Throughout the paper IT and ICT are changed interchangeably.
[2] GII- It is basically a combination of physical infrastructure and applications of all sorts that flow over high speed communication networks capable of seamless delivery of content. GII encompasses both computers and communication. It is also referred to as GICI.
[3] VAP is six-point action plans that try to bridge the digital divide whose main elements are: sector reform, access to new technologies, gender issues, rural development, universal service and access.
[4] The aims of the task force was to formulate the draft of a national policy on Informatics to enable India to emerge as in Information Technology Super Power within the next ten years,

appropriate empower institutional mechanism to implement this policy as a national mission with the participation of the central and state governments, industry, academic institutions and society at large, to remove bottle necks and give boost to India's Information technology industry. To prepare vision statement that well Excite and Energize the People of India. Creating the faith in then that Information technology aids personal growth and National growth. Suggested a strategy for effective articulation, dissemination that vision so as to period and Etho's mindset and a work culture consistent with the NIIT of emerging knowledge driving global civilization.

[5] Specialised R&D institutions working in specific high technology sectors: - Centre for Development of Telematics (C-DOT) was formed in 1984 to produce family of digital switches that would offer an alternative to foreign technology. It was created a scientific society vested with total authority and flexibility outside government norms. Centre for Development of Advanced Computing (C-DAC) was formed in 1989 with a mission of producing massively supercomputer, to transfer technology to host of Indian manufacturers.

[6] Task Force June (2001), Steering Committee Members: Dr A.P.J. Kalam, Dr. R.A. Mashelkar, M.K. Kaw, Dr. K.Venkatasubraminam, Prof. A. Parhasarathi, and 14 members,3 co-opted members.

[7] Task Force Members: Chairperson Jaswant Singh, Co- Chair persons, N.C. Naidu, M. G. K Menon and 15 others members.

[8] This is a parliamentary document filed in the parliament by the Ministry of Information in March, 2000.

[9] On line transaction, processing is the Computer processing of data relevant to individual business transactions at their time of occurrence. Typical applications included reservation-processing, point of sale applications, telephone switching, order processing and distribution, sale management equipment tracking and control etc.

References

Aarti (2001) "Need to Accelerate Literacy", *News Time*, 12 September.

Abimanayu, A. (2000) "Don't Shut the Door", *Hindustan Times*, 7 September

Alestalo ,M .H. (2001) "Is knowledge based society a relevant strategy for civil society" *Current Sociology* 49, 4: 209

Bhatnagar, S. and R. Schware (2000) *Information and Communication Technology in Development: Cases from India.* New Delhi, Sage Publications.

Bhatia, S. (1998), "Commendable Step", *Pioneer*, New Delhi, 9 July.

Bedi, K., P. Singh and S. Sandeep (2001) *Government@net: New Governance Opportunities for India.* New Delhi, Sage Publications.

Das, D. (2000), "Great Digital Divide", *Hindustan Times* , 29 June.

Das, M. (1999) "India Most Illiterate", *News Time*, Hyderabad 17 February.

Dreze J. and A. Sen. (2002) *India Development and Participation.* New Delhi, Oxford University Press.

Jayanath ,V (2000) "Implementing E-Governance", *Times of India* , 8 November,

Jayananth, V. (2001) "Upgrading IT Education", *Hindu,* 1 November

Duggers, C.W. (2000) "Technology Widens Chasms in India", *International Herald Tribune*, 20 March

Fuller Thomas (2000), "An Indian State Logs Onto Net: will East Asian Economic Model Work in a Raucous Democracy*", The International Herald Tribune,* 30 August.

Government of India (2000-2001) *Annual Report Ministry of Information Technology*. New Delhi, Government of India.

Government of India (2001) Report of Working Group on IT for Masses GOI.

Hindu (2001) "UGC Guidelines Revised"*, Madras Edition, 6 July.

Jaycharndran, R. (1999) New Light on Technical Education: Building India as Knowledge based Economy, 8 October 1999, at CII Partnership Summit 2000

Kanjilal P. (1999) "A Window of Opportunity", *Indian Express*, New Delhi, 13 December

Khan, M. U. (1987), "Impact Micro Electronics in India," *Science and Public Policy* 14, 4: 204

Kumar, K. (1995) "New Education Policy – Leading the Light", *Economic Times*, September

Kumar, P. (1999) "Quest for Knowledge "Scope for India to Accelerate its Role in Information Revolution Reports", *National Herald*, 21 November.

Mittal, P. (2001) "UGC to Regulate Ecology of Foreign Universities", *Times of India*, New Delhi, 29 May.

Naga, H. (1994) *Exploiting Information Technology for Development: A Case Study of India.* World Bank Discussion Paper Series 246, Washington DC, World Bank.

Narasimhan R. (2000) "Human Resource Development to meet the challenges of information and communication technologies (ICTs). National Centre for Software Technology (NCST).

Jayanth, C. (2001) "Students fire wall", Interview with R.S. Nirjan, chairman AICTE *Times of India*, New Delhi, 6 July.

Rai, U. (1998) "Whither Unrecognized Engg. Colleges", *Times of India*, 22 June.

Raj, T. (2000) "Information Technology Need of the Society", *National Herald*, 29 January.

Rajagopalan, T. (1991) "Looking for Right Education Policy", *The Hindu*, 13 January.

Sharma, R. (2001) "Focus on E- education", *News Time*, Hyderabad, 23 March.

Singh, S. (2001) "Managing the Digital Divide", *South Bulletin* -12, 15 May

Singhal A. and M.E. Rogers (2001) *India's Communication Revolution from Bullock Carts to Cyber Nets.* New Delhi, Sage Publications.

Times of India (2000) "Is emphasis on IT Justified", New Delhi, 19 November

Venkatsubramanian, K. Approach paper on "India development as knowledge society", Planning Commission, New Delhi

Vittal, N. (2001) "Resistance to E- Governance", *Economic Times*, 10 June.