

Conclusions and policy recommendations

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In the new millenium, nations will be judged by the well-being of the peoples; by levels of health, nutrition and education; by the civil and political liberties enjoyed by their citizens; by the protection guaranteed to children and by provisions made for the vulnerable and the disadvantaged (National Population Policy 2000). Mere statistics relating to economic growth are not adequate; they are, at best, the indicators of the process for achieving some of the objectives stated above. The contribution of the social and political factors to the quality of life of the citizens is equally, if not more, important.

The dawn of the 21st century and the new millennium was hailed by many as the harbinger of good governance, economic prosperity, better quality of life for all and political stability in the country. With almost a decade of the opening of the economy, and with the structural adjustment lag period almost over, the future looked brighter. Many amongst us harboured the feeling that the era of progress by leaps and bounds had started, and it was only a matter of time when we would be rubbing shoulders with the more prosperous states in the world. The GDP growth rate which was 5.6% in 1990-91, dipped to 1.3% in 1991-92, rose again to 4.8% in 1997-98, 6.6% in 1998-99 and 6.4% in 1999-00. The resilience shown by the Indian capital market during the East Asian meltdown in 1997/98 added strength to our conviction about our ability to hold on our own in times of emergency and near collapse worldwide. The percentage of people living below the poverty line has been going down from 38.9% in 1987-88, to 36% in 1993-94, and, as per the latest 55th Round Survey conducted by NSSO, further down to 26.1% in 1999-00. Other indicators like life expectancy, enrolment in educational institutions, infant mortality rates etc showed signs of improvement. The credibility of the economic and financial policies followed by us were thus greatly strengthened.

The dawn of the new millenium was, thus, full of hopes. It brought in its wake many aspirations, raising some valid questions. Would we be able to achieve a sustained growth of 8-10% annually as demonstrated by China? Would we be able to eradicate poverty, provide good quality education, employment and healthcare to all? The industrialised

democracies of the world have taken many years to reach the present level of their development. Would we, as a democracy, be able to encapsulate the above process of development in a short span of time, say, 25 years, on the lines on which China has already demonstrated? Is the social, economic and political fabric of the country strong and determined enough to perform and leap-frog to prosperity and a caring society in 25 years' time? Would there be social, economic and political stability in the country to enable the powers that be to focus on these issues, take hard decisions, at times, in the overall public interest and to successfully implement the policies in furtherance of the developmental objectives?

The second half of the 20th century witnessed remarkable achievements, both worldwide and in India as well. It has been generally a peaceful period, localised dissensions, some internal security problems, minor clashes and the three wars with Pakistan notwithstanding. In a pluralistic society, for the democracy to have strengthened from point to point is no mean achievement. Post 1991, the reforms have been underway and Government has shown the determination to not only manage the macroeconomics of the country, but also to alleviate the sufferings of the common man. Internationally, there has been a greater awareness of the need for better coordination with like-minded countries in international fora for the common good, as well as in national interest. The role of technological innovations in meeting the aspirations of the people and for economic growth have been widely acknowledged.

However, demographic pressures, rising expectations, and ever growing desire for better standards of living are likely to pose some problems in future. At the same time, along with technological change, they could also provide the desired stimulus for accelerated growth to meet the expectations of the people. The demand for goods and services would increase, and resources would be made available to meet such demands. Worldwide, there would be no shortage of goods and services; the challenge for us would be how to reorient or reinvent ourselves to participate and take advantage of such global phenomenon, in the shortest possible time-frame. But as the gap between the haves and the have-nots increases in the short term, political reaction could lead to social turbulence and political unrest. In any game of development, there would be losers and winners. The concentration of economic strength and benefits in a few to the exclusion of the majority may have to be addressed by a progressive target-oriented policy of resource transfer to the capable and the needy amongst the majority. The disparity would then get narrowed down with better income distribution across the board. In

this, the management of the losers politically, socially and economically would be a daunting task, which has to be carried out in a systematic and well orchestrated manner. The vulnerability of the losers would need to be recognised and action taken to ensure their commitment to the process of sustainable development.

The following sections are an attempt at answering these questions, based largely on the inputs provided by the preceding chapters.

Demography

Optimistic scenario

The National Population Policy 2000 (Government of India 2000) says that the medium-term objective is to bring the Total Fertility Rate (TFR) to replacement levels of 2.1 by 2010. The long-term objective is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic growth, social development, and environmental protection. Among the socio-demographic goals for 2010 are the reduction of infant mortality rate (IMR) to below 30 per 1000 live births, and the reduction of maternal mortality ratio (MMR) to below 100 per 100,000 live births. It is assumed that TFR would be constant at 2.1 after 2010 and the life expectancy at birth in 2010 would be 68 for males and 71 for females. It would increase at a slower pace to 72 for males and 76 for females by 2025. Since these are the national objectives, they provide the basis for the optimistic scenario by 2025.

According to the Census 2001, the provisional population of India is 1027 million, although the National Population Policy 2000 had projected a population of 1012.4 million in March, 2001. The provisional census data and the projections made by the Technical Group on Population Projections, Planning Commission, have varied slightly by almost 15 million. However, based on the provisional results, India's population on March 1, 2000, is estimated to be 1010 million.

Under the optimistic scenario, India is likely to have a population of 1380 million in 2025. The sex ratio would be 950 females to 1000 males, up from 932 in 2000. About 24.5% of the population would be between 0-14 years, down from 35.7% in 2000, 68.3% in the age group 15-64 years, up from 59.8% in 2000, and 7.2% would be 65+ years of age, up from 4.5% in 2000. The dependency ratio would come down from 67% in 2000 to 46% in 2025, a situation which could usher in both increased consumerism and higher households savings rate, although the greying of

the population would be significant. The population in the primary school going age (6-14 years) would go down from 210 million in 2000 to 197 million in 2025 as a result of TFR remaining at the replacement level of 2.1 from 2010 onwards. The demographic bonus would result in an increase in the population of the people in the working age (15-64 years) from 603.98 million in 2000 to 942.54 million in 2025, offering both enormous opportunities to economic growth as well as major challenges for the job markets.

The most likely scenario

In the most likely scenario, TFR is likely to fall from 3.40 in 2000 to 2.80 in 2010 and then gradually to 2.20 in 2025. The life expectancy at birth will rise from 60 years in 2000 to only 67 years in 2025 for males, and for females, it will rise from 62 years in 2000 to 71 years in 2025. India will have a population of 1403 million by 2025. The sex ratio would be 954 females to 1000 males, an improvement of 4 over the optimistic scenario. About 26.5 % of the population would be of the age group 0-14 years, 67.2% would be in the working age group of 15-64 years and 6.4 % of the population would be 65+ years of age. The dependency ratio would be 49% as against 46% in the optimistic case, mainly because of the increase of 2% in the age group 0-14 years. The population of the primary school going age (6-14 years) would increase from 210 million in 2000 to 224 million in 2025, an addition of 14 million children to be taken care of at the primary school level, and consequent cohorts management at the secondary and tertiary levels. There would be 943 million in the working age group of 15-64 years, almost the same as in the optimistic scenario. The population of people of age 65+ years would be 90 million in 2025, double of the 45 million in 2000, bringing considerable pressure on geriatric healthcare and innovative pension schemes to take suitable care of their needs.

In both the optimistic and the most likely scenarios, there would be considerable regional differences, the difference between the two scenarios being only of degrees. Two distinct regions emerge for purposes of comparison: (a) the northern region comprising of the states of Bihar, Orissa, Uttar Pradesh, Madhya Pradesh, Rajasthan, Jharkhand, Uttaranchal and Chattisgarh ; and (b) the southern region comprising of the states of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. The TFR in the northern region would fall from 4.40 in 2000 to about 2.70 in 2025, while the southern region would have reached the replacement level of 2.1 in 2005 itself, and by 2015, the TFR would be only 1.80, and it will remain so till 2025. The life expectancy for males in the north

would be 66 years in 2025 and for females it would be 67. In the south, the life expectancy at birth would be 70 for males and 74 for females in 2025. The population of the northern region would rise from 450 million in 2000 to 700 million in 2025, and its share of India's population would go up from 45% to 50%. The southern region would experience only a marginal increase from 220 million in 2000 to 265 million in 2025, and its share in India's population would decline from 22% to 19%. The population of the northern region would be growing at the rate of 1.4% per annum in 2025, while the growth in the southern region would be only 0.5%. The advantages that the south would derive from its early demographic transition are obvious. But the regional demographic imbalances may induce large labour population movements from the north to the south in search of better livelihoods. This has all the potential of political and social unrest.

By 2025, India's population would be almost equal to that of China, and it would still be growing at 1% per annum even though the TFR for long run population stabilisation would have been nearly reached by then. 86% of the total population increase between 2000 and 2025 would be in the working age group of 15-64 years, 11% in 65+ age group, while only 3% in the age group 0-14 years. This demographic gift could be profitably utilised to (a) raise the savings rate as dependency ratio declines, and (b) raise the productivity of labour to reach a higher level of economic growth. With the decline in the TFR, the number of women entering the labour market would increase. However, the rapid expansion of the male labour force during this period till about 2020 might delay the entry of women in the labour market in significant numbers. By 2025, 40% of the population would be residents of urban areas. About two-thirds of the population increase during this period would live in urban centres, considerably increasing the pressure on urban civic amenities. However, if the demographic gift is properly channeled, then the urban centres would be full of buoyancy, rather than despair.

Education

Optimistic scenario

India in 2025 would have a well established education system at the elementary, secondary and tertiary levels to be able to develop manpower for different levels of the economy and to form the substrate on which research and development would flourish. Having added 203 million to the population of the literates during the decade 1991-2001, India has demonstrable capability to reach near 100% literacy level by 2025. The

high rates of literacy in the rural areas, particularly among women, would encourage labour mobility from the agriculture sector to the more productive non-farm sectors. The managerial and financial skills required for the expanding and rapidly developing economy would be provided by the vibrant and matching tertiary education system.

Elementary education would have become a fundamental right, and the state would endeavour to ensure at least 8 years of schooling to every child. There would be universal access and enrolment and concerted efforts at universal retention of children upto 14 years of age. The girl child, the children of the landless wage earners, SCs and STs and the adult illiterates would become fully and functionally literate. Private schools would have considerable presence in the urban areas, urban agglomerations and the upwardly mobile rural areas, the expansion being mainly demand generated. The involvement of the community and the panchayats and other local bodies in the management of the government and government-aided schools would be near total. The gender gap at the elementary level would have nearly been closed. The drop-out rates would have fallen considerably with the rise in incomes of rural and urban poor households.

The enrolment at the secondary and the senior secondary level would have expanded to take in almost all students desirous of pursuing further studies. From the present level of gross enrolment ratio of about 60% in the secondary level, by 2025, the schools system would be generating a gross enrolment of about 75-80% with almost near full access and retention in computer literacy. There would be greater enrolment of girls, SCs and STs, particularly in science, commerce and vocational streams. From about 48-50% of the secondary school age girls being enrolled, the ratio would substantially increase and nearly match that of the enrolment of boys. There would be a heavy bias in favour of vocational and technical education, although in the Republic of Korea, Malaysia and Thailand employers and students are realising that general education equips people for the demands of a modern economy integrated with the world trading system. There would be emphasis on quality and creativity. Science education would stress on experimentation, scientific enquiry and problem solving, making the school leavers more receptive to on-the-job training. Intellectual rigour, seriousness of purpose, innovativeness, creativity, objectivity, spirit of enquiry, and the ability to think, reason, analyse and to articulate logically, would be the visible traits of the school leavers. While private schools would proliferate in both urban and rural areas, the use of distance education and the mass media would strengthen considerably.

From a level of 613 per 100,000 population of enrolment in tertiary education in 1997, of which only about 30% of the women enrolled were in the science stream, by 2025, India will be able to provide college and university education to about 40% of the population in the age cohort 18-24 years. Engineering, Medical, Information Technology and management education will be the choice of bulk of the students enrolled. From a level of about 61% of the male students enrolled in 1997, the level of female students enrolled would substantially increase to almost evenly match the male students. There would be an increasing percentage of female students in the technical, management, sciences and humanities. The growing importance of the services sector in the overall economy would lead to a substantial stress on Information Technology and IT enabled services. The void in the provision of public sector facilities for IT education would be more than compensated for by the mushrooming growth of institutions in the private sector to cater to this demand. The use of mass media and distance learning will be greatly enhanced to increase the outreach of the educational institutions specialised in these areas. The use of the electronic media, in particular, for simulated virtual class rooms to increase the reach of the teachers would be greatly enhanced. There would be a paradigm shift in the delivery system of education through these means. The emphasis would be on individual initiative to get educated at the pace at which the individual sets for himself, rather than the rigour of classrooms with limited reach and fixed schedules. The system would be flexible enough to meet the changing needs of rapid economic growth and shifting patterns of employment.

Research and Development in the laboratories and the universities would focus on state-of-the-art technologies, adapting them to local conditions, developing new indigenous ones and enhancing production and productivity. The R&D set up in the universities would be greatly enhanced to inculcate the spirit of research in the minds of the students. There would be a greater stress on sponsored applied research in the universities, apart from the fundamental research. Industry-institutions linkages would be strengthened which would give a boost to research activities and consequent improvement in productivity and production. R&D activities in the private sector would have a substantial presence, as industry and corporates realise the importance of knowledge capital in a knowledge-based economy.

Higher education, including technical and management education, would have high unit costs, consistent with the quality of education

imparted. Funding of education, therefore, would be through bank loans, substantially increased tuition fees, and industry and institutional support. There would be higher staff-student ratios and more efficient use of buildings and other infrastructure to suitably reduce the costs.

Most likely scenario

In adult literacy, there is every likelihood of reaching the level of the optimistic scenario. But a substantial, may be upto even 30%-25%, number of the neo-literates would be slipping into illiteracy once again due to lack of infrastructure for continuing literacy programmes. Lack of interest on the part of parents and children, financial constraints, household chores including looking after siblings, economic activities to generate additional income for the family and lack of good infrastructure at the schools would result in limiting the universalisation of elementary education. Continuing poverty for some sections of the society and inaccessible schools would inhibit universal access and enrolment. Instead of 8 years of schooling, perhaps, on an average, there would be only 5-6 years, majority of the children, therefore, getting restricted to only partial primary education, while some would complete the upper primary stage.. The girl child, children of the landless wage earners, SCs and STs, Muslims and those below the poverty line would be the main sufferers. While enrolment may be near universal, retention would be difficult. There would be drop-outs who would require to be covered under the informal system of neighbourhood teachers under the aegis of the panchayats and the local bodies. The gender gap in enrolment may narrow down, but in retention, it will still be significant. The involvement of the community and the panchayats and other local bodies in the management of the government and the government-aided schools would be substantial. The rise of incomes of the rural and the urban poor households would not be enough to prevent drop-outs which may be in the range of 20-25% of the enrolled cohorts. The drop-outs would be after 2-3 years of schooling and would consist mainly of the girl child. The quality of education would not be consistent with the desirable levels of learning in conformity with the requirements of a developing economy. The skills associated with good literacy rate and sound elementary education, so important in a competitive environment, would be deficient by almost 25-30%. The returns on investment in education would also be correspondingly reduced.

The gross enrolment in the secondary and senior secondary would be around 70% with near full access and retention in computer literacy in the urban areas. The rural areas would be deficient in computer literacy, and,

thus, the quality of computer literacy for almost 60% of the enrolled students in the secondary and senior secondary level would leave much to be desired. The enrolment of the girl students would increase considerably to match almost the level achieved by the boy students. Vocational and technical education would increase, but the full requirement of the economy would not be met. On-the-job training of the students would be necessary. There would be considerable improvement in the quality of education in so far as intellectual rigour, spirit of enquiry and scientific temper is concerned. But these would generally be visible in the private schools where the cost of education would be higher. In the government and the government-aided schools, the quality of education would not be as high. Thus, the country would have two streams of students: (i) the brighter type graduating from the private schools who have all the potential to do well in academics, science and technical and management education, and (ii) the not so bright graduating from the government and the government-aided schools who might excel in vocational courses and the lower rungs of technical and managerial functions. A developing economy needs both streams, and, therefore, they would complement each other.

About 40% of the population in the age cohort 18-24 years would be provided tertiary education. Engineering, Medical, Information Technology and Management education would be the first choice of the students. Some would also pursue pure sciences and humanities, with a greater preference for the latter. Female students would be almost equal in number as the male students. There would be considerable emphasis on Information Technology education and education for fulfilling the needs of IT enabled services. Private sector will be dominant in the field of IT and IT enabled services education. The use of mass media, particularly the electronic media, would be greatly enhanced to increase the reach of the teachers and to provide facilities to the self learners at their own pace. Despite the anguish expressed in the National Policy on Education 1986, commercialisation of higher and secondary education is on the cards. The quality of education provided by the private institutions would be higher than that provided in the government and government-aided colleges and universities. Deemed universities would proliferate in the private sector. In the tertiary sector also, barring the exceptions of the IITs, IIMs, RECs, IIITs, technical and management education would be of higher quality in the private institutions. The institutions mentioned above are world class and would continue to remain so. Government Medical Colleges and Hospitals would continue to attract the brighter students.

R&D in the universities and the laboratories would increase in scope and depth, but would still be far behind the requirement. Some sponsored research from the industry may well be carried out in the universities and the laboratories, but state-of-the-art technologies research and the frontiers of scientific knowledge would still be carried out in the western sphere. There were in 1997 a total of 10155 applications for patents filed in India by both residents and non-residents. The corresponding figures for China were 12786 for residents and 48596 for non residents (World Development Report 2000/01). Clearly, we have a long way to go, and the prospect for 2025 does not look rosy. It looks as if we may be able to match the resident number, but in so far as the non residents are concerned, we may be far behind since the FDI inflows do not seem to be picking up to a gale. There would be a distinct need for the universities to take up fundamental research in addition to applied research, as they are likely to fail the ambitions and aspirations of the nation.. The IITs, IIMs, IISc, the various laboratories of CSIR and the laboratories under the umbrella of DRDO will be considerably strengthened and productive. Our hopes for R&D will be on them, though the numbers of scientists and researchers may be less. India had only 149 scientists and engineers per million people engaged in R&D in 1997, while China had 454(World Development Report 2000/01). Here again, by 2025, we may be able to catch up with the level achieved by the Chinese by then.

Healthcare

Optimistic scenario

In an optimistic scenario, there would be universal access to good quality health services which would be adequate and affordable. The distribution of financial costs and the sharing of the burden for the provisioning of such good quality health services would both be fair and just. A proper regulatory system would be in place to ensure quality, cost effectiveness and accountability in the healthcare system. The vulnerable group- children, women, aged and the disabled- would be taken care of in a special manner so that just and equitable health services are made available to them in a timely manner.

There will be a shift from the earlier state-led healthcare system to a participatory one where the private and the public sectors would be involved substantially. The responsibility of the state would get limited to the provisioning of adequate healthcare at the primary, mainly, and, considerably, at the secondary levels. The tertiary and the sophisticated, or the speciality and the super-speciality levels would be mainly the

concern of the private sector. Health insurance, to cover the high costs of speciality and super speciality treatment, would evolve into a mix of risk-sharing and risk-pooling tax based system.

Most likely scenario

There would be considerable improvement in the quality of healthcare services provided to the common people. But taking into account the population increase in the coming years, universal access, which is both adequate and affordable, may not be feasible. There would be disparities in the inter- and intra- state population health status. The rural and the urban populations will witness a similar kind of disparities in the provisioning and availability of healthcare facilities. Management of healthcare would be through a mix of private and the public sectors.

It should be possible to achieve some of the National Health Policy 2001 targets for major diseases control. India would be able to control polio and leprosy by 2005 and kala-azar and filariasis by 2010. Also by 2010, blindness prevalence to 0.5% should be possible, although the greying of the population in the coming years may pose some problems. It would, however, not be possible to reduce the growth of AIDS to zero by 2007. There would be around 5 million infected cases by 2015, of which at least 10% would be full blown. Expensive anti-retroviral drugs together with prevalent poverty would make it rather difficult for the patients to get proper treatment, unless, of course, there is a breakthrough in medical research leading to much cheaper drugs, the chances for which appear quite bright. With the DOTS programme, TB menace would disappear as a major communicable disease by 2025. We would be achieving near freedom from the scourge of malaria by 2025.

On the non-communicable diseases front, considerable improvement would have taken place in the detection and treatment of cancer, whose incidence may well be around 14 lakh cases by 2025. Stress related diseases like coronary, diabetes and mental illnesses would be on the increase. About 8-11% of the population could be affected by diabetes by 2025.

It would be possible to reach international standards in regard to MMR by 2025. Levels comparable to China by 2025 would be reached for IMR.

India would have the full potential of a vast public health infrastructure by 2010. The private sector would be more active in the urban areas. For the unorganised sector, replicable models of community

based health insurance schemes would be in vogue. Geriatric healthcare would be on the increase in view of the greying of the population.

Security-external and internal

Optimistic scenario

With the war on terrorism launched by the international community as a sequel to the attack on the World Trade Center on September 11, 2001, terrorism would have been considerably reduced. Cross-border terrorism in J&K would peter out and the Line of Control would have been recognised as the international border. The low cost and low intensity proxy war which Pakistan had been waging against India would have given way to better social and economic ties between the two nations. The border disputes with China would have been resolved and the line of control clearly and finally demarcated to the satisfaction of both countries. Having acquired the nuclear deterrence, obtained self sufficiency in the revolution in military affairs with sophisticated use of the IT in surveillance and precise terminal targetting of missiles, the chances of forceful acquisition of Indian territory by any other state will not be there. India would have been an integral part of a stable global balance of power consisting of the US, EU, Japan, Russia, China and India.

India would have considerably minimised the threats within. International outcry against drug abuse and narcotics trade would have slowed down the activities in the Golden Triangle and the Golden Crescent reducing the risks of money laundering, fake currencies and its malefic influence on people. The funding and fanning of religious and ethnic fundamentalism would have considerably slowed down. The social and economic upliftment would have reduced income and regional disparities. The receptacles of subversive and other terrorist activities of the external forces, particularly the ISI, would have either been eliminated or rendered ineffective. The North East would have been mainstreamed and peace accords would have been signed and implemented effectively. The border disputes with Bangladesh would have been resolved satisfactorily, and the refugee problem contained. Left Wing extremism, manifested as Marxist Communist Centre(MCC) and CPI-ML (People's War Group, Peoples Unity Group and Vinod Mishra Group) with their linkages with the outside guerillas of South America, LTTE and ISI, for the supply of arms, training and money, would have waned with economic growth. Deprivation of the lowest rungs of the society, the main reason for the spread of this form of extremism, would

have been considerably minimised, leading to a substantial reduction in such activities.

Most likely scenario

Despite the happenings of September 11, 2001, and the Security Council Resolution 1373 of September 28, 2001, the US is not likely to be drawn into a long war against terrorism. It is more likely to resort to diplomatic, financial and UN based assault on international terrorism in consonance with the Resolution 1373. Pakistan, having failed the clerics and religious fundamentalists in regard to Afghanistan, will, to assuage their feelings, step up cross border terrorism in J&K. But India would try to contain this tendency through the instruments of (a) giving the people of J&K a responsive and responsible government through a free and fair election, (b) good governance, (c) diplomatic endeavours to bring pressure on Pakistan in terms of UN Resolution 1373, and (d) wage its own war against terrorism in J&K and other parts of the country. There would be limited success only in J&K, through the behind-the-scenes manouvres by the US. While the LOC will be recognised as the international boundary between India and Pakistan, the problem in J&K will continue to haunt the State. It would wax and wane depending upon the hold the ruler of Pakistan has on the clerics and the army and his own personal dispensation towards peace initiatives. The proxy war is likely to escalate, and its future course would largely depend upon the political will and courage of Indian leaders to wage its own war against it. There would be a dire need for political sagacity and sensitivities to control and eliminate this menace. Defence preparedness and the state-of-the-art conventional weaponry, albeit at some cost to developmental expenditure, together with the already acquired nuclear deterrence, would provide enough cover against any armed adventurism by the neighbours. The border disputes with China would be narrowed down to the disagreements only, with the agreed areas being clearly demarcated.

With people-centric approach and good governance, India would try to mainstream the NE region. But there would be attempts by the Chinese and the ISI to foment trouble within this region, which is likely to escalate. ISI and the other secessionists groups would strengthen their links in Bangladesh posing further threats to internal security in the NE. The turmoil would also be exploited by the Chinese directly and through the Myanmar route. Peace would continue to be a hostage to politician-bureaucrat-insurgency nexus, and the chaos would be exacerbated by the invidious actions of ISI, other secessionists groups like the ULFA, the National Democratic Front of Bodoland(NDFB), Harkat-ul-Mujaheedin,

Muslim Liberation Tigers of Assam(MuLTA) and Islamic Liberation Army of Assam and the Chinese. The NSCN(I-M) would sign an accord with India, but its implementation would pose problems. The healing process would spill over to the period beyond 2025, unless the people-centric policies of the Centre and the State governments start bearing fruit earlier. The social and economic well-being of the people holds the key to the resolution of this problem. Thus the Southern States would be relatively free of this malaise. Naxalites would get confined to Orissa, Bihar, Eastern UP and Jharkhand. While Jharkhand and Orissa will make some headway in controlling this menace, though not totally eliminating it, Bihar and Eastern UP will continue to be ravaged by this scourge. The narcotics trade is not likely to slowdown. Afghanistan will, after the installation of a broad-based government, try to curb opium cultivation, but the mafia in the narcotics trade would find ways and means to duck governmental action. The lures of fake currencies, illegal arms and money laundering are pervasive. They can be contained only with rapid social and economic well-being. This is not likely to happen by 2025. The trade will, therefore, flourish and continue to fan the fundamentalists elements to create confusion and chaos in the social, economic and political order.

Likely levels of violence

Criminal instincts with its various manifestations would continue to exist in 2025 as they are now. Therefore, there is no likelihood of any abatement in the normal types of violence and crimes. If at all, with the possible widening of the gap between the haves and the have-nots in the initial stages of the economic development during the period under review, new manifestations of crimes for the goodies of the new found world will increase. It is only after the social and economic well-being of the population is achieved, that there would be some abatement in these new manifestations of crimes. But this is not likely to take place before 2025. The effects of economic prosperity on such criminal tendencies would only be visible sometime after 2025. Regional disparities, differences in levels of development between states and within states, disparities in income levels between individuals, all these will exacerbate crimes involving abduction for ransom, carlifting, extortion of *hafta* for providing protective cover and narcotics trade. Urbanisation and the inability of the public utilities systems to cope with the pressures of rapid urbanisation would lead to mobocracy in the cities with an increase in mob violence. With electoral reforms underway, there would be an abatement in political violence, although the tendency would persevere. New subtle manifestations of political violence to defeat the electoral

reforms would take birth. Caste and class clashes in the countryside would increase to subserve the political ambitions of a few. With the modernisation of the madrasas and the economic upliftment of the minorities, there is a likelihood of communal clashes to abate, although it would continue to raise its ugly head every now and then . There would be continued and sustained efforts by the ISI, other subversive elements and the disgruntled sections of the population, majority as well as the minority, to create unrest. Efforts to contain the violence against the minorities, including the Muslims and the Christians, would have only partial success.

Urbanisation

Optimistic scenario

The growth in the urban population in absolute terms and the rate at which it is increasing is making India as one of the fastest urbanising countries in the world. As stated by the National Commission on Urbanisation, urban growth is the inevitable concomitant of economic change. The provisioning, augmentation and maintenance of urban infrastructure for a good quality of life, and the management of the environment are daunting. In an optimistic scenario, India would have 100% satisfaction level in urban housing needs by 2025, with considerably reduced levels of deprivation. There would be a proper pricing policy in place for efficient use of water so that everyone has adequate quantities of water available for drinking and other purposes. Low cost solutions to sanitation problems would ensure not only access to either private or public toilets, but also the effective collection, carriage and treatment of the sewage generated by the population. The collection, transportation and disposal of solid wastes in sanitary landfills for composting or for biomass generation of electrical power would be near total. Air, water and soil pollution would be within permissible limits, again through the application of market instruments (taxation measures) and use of public transport systems. Poverty, as we know today, would have become a thing of the past. A participatory multi-municipal urban agglomeration structure of governance would have been in place to ensure good quality of public services to the urban population. The Metropolitan Planning Committees, in pursuance of the provisions of 74th amendment of the constitution, would have been in place and fully energised to cater to the emerging demands on urban planning and governance. The State governments would have delegated all the requisite powers under the constitutional provisions to the city government in order to bring about greater accountability and

responsiveness in the discharge of the functions enumerated in Schedule XII to the constitution.. Spatially, urbanisation would have been more evenly spaced in order to eliminate regional disparities and income inequalities in the different regions of the country. The existing urban areas would have considerably improved the content of the services offered in order to not only accommodate the densification but also take care of the existing left out portions of the population. The newly emerging urban complexes would from the beginning be well planned to ensure quality services to the inhabitants.

Most likely scenario

From 30% (300 million) of the population living in urban areas in 2000, there would be about 40-42.5% (595 million) of the population in urban areas in 2025. There would be upwards of 75 metropolitan cities, 500 large cities and 4430 medium and small towns by 2025. Bulk of the urban population would be in the metropolitan cities. Apart from the densification of some of the existing cities, bulk of the urban growth would be along the peripheries along multi-nodal transport corridors. Some of the corridors would be continuous, while most of them discontinuous, but easily identifiable. These corridors would follow the directions in which the investments in the services and the manufacturing sectors would take place. The structural changes in the Indian economy unfolded by an increasing role of the services and the manufacturing sectors, alongside a declining contribution of the primary sector to the GDP, will push urbanisation. There would be migration from the rural to the urban areas in search of better quality of employment with consequent increase in the productivity of labour. There would be greater stress on self-employment and the informal sector in the labour market. Natural growth, however, would account for bulk of the increase in the urban population. There would be marked variation in the urbanisation of the states, reflecting their economic growth and social and political maturity. Maharashtra, Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh will be the most urbanised states. Northern India would see Punjab, Haryana, Western UP urbanising at a faster pace.

The process of urbanisation, however, would leave much to be desired. There would be unplanned and haphazard development forced by narrow visions of the people migrating to the urban areas. Industrial townships, however, would provide welcome relief, where the growth may not only be well planned, but also comprehensive in the provision of basic amenities. But the growth along the peripheries and along the corridors is most likely to be haphazard, with consequential hardships to

the residents. Informal settlements would precede formal planned ones. Slums in the cities would grow at a faster pace than the rate of provisioning of the basic services. The unplanning of planned cities would result in squalor for a sizeable, and growing, section of the urban population which would have all the potential of threatening the sustainability of the cities. Stark inequities in access and availability of these basic amenities to different sections of the urban population would only aggravate. New forms of violence and social unrest would manifest themselves as the deprived and excluded sections of the urban population try to assert their right for inclusion and the same set of basic amenities as are available to the elite groups in the cities. Water supply, sanitation, sewerage and solid wastes management would pose serious problems to the city government, solutions for which may not be within easy reach due to financial stringency, administrative incapacity and non availability of suitable land. Imaginative and innovative solutions based on low cost technologies might provide the answer, provided time, space, desire, determination and finance are not constraints in any manner. The congestion may have to be cleared by shifting to new planned settlements in a determined manner. However, it is likely that problems would only aggravate making the urban living demeaning for the rural population that would migrate to the urban areas in search of better livelihoods. The pressure on environment would be severe, with air, water and soil pollution on the increase. We may be running out of good water, land and air. There could be some positive results in some of the older metropolitan cities like Delhi, Mumbai and Chennai. But most of the new metropolitan cities would be affected by degradation of the environment. Lack of availability of land would result in destruction of the green cover to make way for new settlements in the urban agglomerations. Inadequate sewage collection, transport and treatment, bulging stress on the existing infrastructure and insufficient solid wastes management would only exacerbate the problems. Mumbai-Thane, Mumbai-Nasik-Dhule-Amravati-Nagpur, Mehsana-Gandhinagar-Ahmedabad-Vadodara-Bharuch-Surat-Valsad, Chennai-Krishnagiri-Hosur, Coimbatore-Erode-Salem-Krishnagiri, Bangalore-Belgaum,Hyderabad-Ananthpur-Hindupur, Delhi-Jaipur, Amritsar-Jalandhar, Delhi-Chandigarh and Lucknow-Kanpur corridors need special attention as they are likely to be adversely affected.

The chances of complete and total implementation of the provisions of Article 243P to 243ZG (74th amendment) of the Constitution also do not appear to be bright. Most likely there would be only faint-hearted attempts at enforcing these provisions, particularly the ones related to the Metropolitan Planning Committees. The absence of a strong, committed,

and financially sound system of municipal governance, including the multi-municipal urban agglomerations, would only result in greater degrees of exclusion and deprivation for a sizeable section of the urban population. While there may be reasonably high satisfaction level in the housing sector, the inequities in the quality of housing to different income groups would exacerbate the sense of being left out. Inadequate public transport systems in most metropolitan cities would increase mobility cost for the deprived and the poor sections of the society. Urban poverty would decrease, if not get eliminated, with rising income levels, but the gap between the elite and the masses would only increase. The private sector would increasingly share the burden of civic governance by providing the basic services at a cost.

Economic stability

Macroeconomic Projections

Most likely scenario

As years roll by, there will be increasing interdependence amongst the nations of the world, and the Indian economy would be increasingly dependent upon and integrated with the world economy and world trade. Any econometric model for forecasting of the macroeconomic scenarios must, therefore, necessarily factor in the services sector and the external factors.

A caveat. While forecasting the macroeconomic indices for the future, the confidence level is highest when the forecasts are for the coming year or two as major changes in the behaviour of labour, energy, technology and bio-technologies are most unlikely to happen. However, when the time horizon expands to 20-25 years, it becomes increasingly difficult to forecast with any degree of certainty as sudden major changes in any of the spheres can cause upheavals in the economy. To quote an example, if Saudi Arabia were to be drawn into a war with the US and its allies, it would dramatically destabilise the oil economy with cataclysmic economic changes across the entire world. The traumatic effect of September 11 would, then, be rendered only as an insignificant blip on the screen of the world economic history.

To project for the next 25 years, a longer run behaviour of the Indian economy over the past 50 years has been considered. The average growth rate during this period has been 4.4% pa. The first three decades saw the Hindu rate of growth of 3.6%, while the next two decades witnessed

5.8%. During the period 1993-99, the growth rate was 6.5%. There was a remarkable upsurge in the growth of the services sector (excluding Public Administration and Defence sectors) during the period 1980-2000. Telecom, Finance, Insurance, Real Estate and Banking sectors were the engines of growth during this period. Industry, including mining, manufactures, construction and electricity, contrary to expectations, declined during the post liberalisation era.

The question that begs an answer is: Can we have an accelerated growth so that at least by 2025 we quadruple our per capita income from the present \$500 to \$2000, to be able to live the life style of the present day middle income economies? The 10th Plan, to achieve this objective, is already speaking of a growth rate of 8-9%. Will it be feasible?

For accelerated growth, either the productivity of labour and capital must be increased or the supply of these factors of production must increase. While it is difficult to measure the productivity of labour at the aggregate level, the capital output ratio is a fair measure of the productivity of capital. In agriculture, the COR increased during the first 3 decades, but showed distinct improvement during the next 20 years. This was the period when agriculture was diversifying to non-traditional activities, away from wheat and rice. If drastic restructuring of agricultural activities were to take place, there could be considerable improvement in the productivity of capital in the agricultural sector. But this would mean increased investments in marketing, bio-technologies, cold storage, etc, and non-traditional diversified agricultural activities. Investments in this sector are unlikely to come by to the extent required, and hence it is unlikely that any significant change would evolve in the productivity of capital in the agriculture sector.

Industry shows a steady increase in the use of capital with almost negligible impact of reforms. To raise the aggregate level of production, therefore, increased investments are required as there is hardly any efficiency in capital use.

There are, however, visible signs of efficiency gains in the services sector. Banking, finance, insurance, telecom, software industry and real estate have shown remarkable productivity gains over the past two decades. Their operations started in almost virgin markets, hence they were capable of registering high growth rates. But soon the markets would stabilise and further growth would mean competitive cost minimisation and improved use of resources, for which the opportunities are limited. They are, therefore, likely to be overtaken by the law of diminishing returns after a decade or so.

The labour market, however, is experiencing serious distortions. The sectors which are showing efficiency gains are the ones that employ less labour, while the labour intensive sectors are not growing at the pace required for the absorption of labour. A daunting task is, thus, on hand, the resolution of which cannot be delayed. It, however, would require carefully planned policy interventions.

The Incremental Capita Output Ratio (ICOR) also shows marginal impact. While there has been some improvement in the services sector, agriculture and industry have only suffered. Is there, therefore, like Singapore and some other countries, any possibility of a large country like ours to prosper merely on the strength of the services sector? It is apparent that due to a severe supply-demand imbalance, it will just not be possible for India to march ahead merely on the strengths of the services sector.

Since the productivity of labour and capital are not likely to improve meaningfully, the alternative of increasing the supply of capital will have to be resorted to for a sustained accelerated growth rate. There must, therefore, be an increase in domestic savings and Foreign Direct Investment must also go up substantially from the present level of \$2-3bn per annum.

At comparative levels of per capita income and development, our domestic savings at 23% of GDP is one of the highest in the world. Only China has a higher rate of domestic savings than ours. Unless, therefore, the income rises, the scope for any meaningful increase in the domestic savings rate is rather limited. The dynamic corporate sector has registered a declining savings rate, there is dissavings in the government sector, and the households sector, whose contribution has always been impressive, has been almost stagnant. There is, thus, no possibility of any dramatic change in the rate of domestic savings, perhaps, at best, it could increase only rather slowly.

This brings us to Foreign capital. Foreign portfolio investments have, for the purposes of developing a scenario, been excluded as they are not productive investments and do not have long term commitments to the country's growth. In fact, their volatility will always be a cause for worry for the managers of foreign exchange, considering the meltdown effect of such capital in the South East Asian countries in 1997-98.

There is always a certain optimality of absorption of foreign capital. There is no visible sign of surge in Indian exports in the medium term making it difficult for export surpluses accretion at a meaningful level. The competitiveness of Indian industry leaves much to be desired. Diversified agricultural activities are internationally competitive, and, hence, possibilities exist. But we would need political will and diplomatic strength and determination to force the EU and the US to lower the non tariff barriers, while we bring about matching investments in the infrastructure and services required for an all round growth of this sector. It is a veritable political challenge. The question is: Will the public sector achieve these objectives? Till 1980s almost two-thirds of the Fiscal deficit was due to capital investments by the public sector. However, there has been a structural change, and now bulk of the fiscal deficit is due to the burgeoning consumption expenditure of the public sector. There has, thus, been a sharp fall in public investment from 8% of GDP earlier to the present 3% of GDP. To complicate matters, private investment is also not forthcoming at the desired pace. The only major private sector investment has been made by Enron, an investment which is mired in controversies.

The logic of the preceding paragraphs leads one to the conclusion, as also determined by the econometric model, that a baseline growth prospect for the future is an average of 5.5% to 6%. In other words, we can expect to grow at the rate of 5.5-6% pa in the years to come till about 2025. If there is no negative effect of any big shock, then this rate of growth is really not bad, considering that very few countries in the world are able to achieve this rate of growth, and that China also, according to some experts, has been growing over the last two decades only at a rate of 6-6.5% only, as against its proclaimed figure of around 9%. The baseline growth rate of an average of 6% translates into a public investment of 4-5% of GDP and a productivity increase of about 1%, which appear to be realistic. For a growth rate of 8% as projected in the 10th Plan, there will have to be productivity increase of about 3% in capital use and a stepping up of public investment to 5%+, a scenario which is unlikely to be achieved. If, however, bottlenecks appear, then the growth rate could dip to 4.5-5%. The best possible scenario could be a growth rate of 7% if the reforms are pushed through aggressively and there is utmost coordination between the States and the Centre. Beyond 7% is both daunting and challenging. In the baseline average rate of growth of 6%, agriculture is likely to grow by 2.5-3%, industry by 5.5% and services by 8-9%.

Agriculture

Optimistic scenario

The Prime Minister at the 88th Session of Indian Sciences Congress on January 3, 2001 unfolded a Vision Statement on Food, Nutrition and Environmental Security. The Vision is: -

By 2020, India will be free of poverty, hunger and malnutrition, and become an environmentally safe country. This, we believe, will be possible to achieve through accelerated social and economic development – by harnessing the advances in science, and blending them with our indigenous knowledge, wisdom and unique socio-cultural ethos. We believe India can banish poverty and emerge as a developed nation by promoting growth through efficient and sustainable use of our human, natural and other resources.

The strategy for achieving the vision accords priority to synergy among science and technology, organisation and public policy in order to improve the productivity of major farming systems through sustainable intensification, diversification and value addition.

The National Agriculture Policy is also on similar lines. It speaks of the establishment of an agrarian economy which ensures food and nutrition to India's billion people, raw materials for its expanding industrial base and surpluses for exports, and a fair and equitable reward system for the farming community for the services they provide to the society. During the coming two decades, the policy aims to achieve a growth rate in excess of 4% per annum in the agriculture sector. It also wants to ensure growth based on efficient use of scarce resources, growth with equity, growth, which after meeting the domestic requirements, is also focussed on exportable surpluses in view of the opening up of the world markets following the Agreement on Agriculture in the WTO, and growth that is sustainable technologically, environmentally and economically.

The Vision Statement unfolded in the Science Congress and the National Agriculture Policy are convergent, and lay down the overall parameters of the optimistic scenario by 2025.

The FAO World Food Summit held in 1996 reaffirmed “the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right to everyone to be free of hunger”. India is a signatory to this reaffirmation, and hence the optimistic scenario must conform to this undertaking.

Availability, access and the economic and financial power to purchase foodgrains according to the needs and desire would be essential aspects. From in-sufficiency in the 1950's to self-sufficiency in the 1970's and 1980's in the matter of food production, the journey must now take us to food security and elimination of all forms of malnutrition and under nourishment, hidden or frank. Those below the poverty line (about 260 million as per the latest estimates), and those suffering from endemic protein, energy and other micro-nutrient deficiencies (about 53% of the children under 5 years of age were under-weight in 1998 and a high percentage of the pregnant women who are anaemic), would, by 2025, have been taken out of the pale of malnutrition and under-nourishment. Over exploitation of our resources has seriously endangered environmental balance. While there would be intensification of agriculture in order to provide the desired food security, soil degradation, deforestation, water scarcity and contaminated loss of bio-diversity would be adequately taken care of. Capital investment in agriculture and rural development would enhance considerably in order to prevent land degradation and extension of cultivation of marginal land due to population pressure.

It is estimated that we would be needing annually additional 5 million tonnes of foodgrains, besides large increases in oilseeds, fodder, fuelwood, fruits, vegetables, milk, meat, eggs, fish etc. the pressure to produce more of diversified food at a much accelerated pace is therefore self evident. However, the widening regional disparities in agricultural performance with the rainfed areas continuing to lag behind will need special care. By 2025 the problems of rainfed area would have been taken care of so that their performance record would be comparable to that of the areas having perennial irrigation facility.

Traditional foods and crops, which are nutritious and eco-friendly, need to be promoted. Alternative foods would be qualitatively developed to address protein – energy – malnutrition problem. There would be a stress on organic food production modern food blended with traditional ones and developing designer crops/products tightly hidden hunger and micronutrient deficiencies through fortification, supplementation, diversifying diets linked with changing food habits, breeding for designer crops such as golden rice or high quality protein maize would have received focus attention.

Our crop productivity and input use efficiency would have increased considerably through effective integration and application of new science in various products, processes and services. Coverage under HYV would

have been further increased and hybrid technology oriented policy particularly under rainfed farming would have been promoted genetic engineering would be used extensively for increasing productivity and conserving our natural resources. Agricultural operations would have become more energy demanding for which the energy generation, transmission and distribution system would have been suitably placed in position.

The diversification of farming system laying more emphasis of horticulture, milk, poultry, fish and other animal products, fibers, mushroom, spices and condiments, medicinal and aromatic plants and agro forestry would have been considerably increased post production management, value addition, minimisation of losses, processing, storage, observing sanitary and phytosanitary measures, packaging transport and marketing agro-industry and agricultural business would received to focussed attention. There would be greater scientific input including optimal use of social and scientific in these areas.

Genetic enhancement involving genes that can ensure responsiveness to low inputs and also biotic and abiotic stresses would be one of the strategy that would be developed to ensure fruit security and the other one would be efficient production management through agronomy and agri-engineering practices in order to ensure sustaining agriculture. Emphasis would be laid and precision farming conservation, tillage, use of stress tolerant genotypes, input (soil, water, fertilizer, seeds. Pesticides, energy etc.) use efficiency of blending of or rich traditional knowledge with modern science.

Integrated watershed nutrient management approach would be widespread. Balanced use of chemical nutrition with organic fertilizers on soil test based recommendations would improve productivity and economic returns.

Integrated watershed management for the sustainability of our eco-systems through restoration of degraded soils, efficient water harvesting and improvement in an over all productivity would be common place.

In order to achieve the above, they would have:

1. Greater involvement of local people, any problem identification, research planning, technology, generation and technology transfer,
2. Involving NGO's and other voluntary organisations and local institutions,

3. Linkages among private sector, industry and public sector research,
4. Linkages and collaboration among public research system and institutions, and
5. Knowledge sharing and technically cooperation at the international level. There would be viable, legal, remunerative and enabling environment in position for effective participation of the private sector in order to realize the goal of food, nutrition and environmental security.

Food security assumes over-riding priority particularly because of the burgeoning population. As stated earlier, our population is likely to grow from 1.027 billion in 2001 to 1.380 billion in 2025, roughly around 1.4 billion. There would be additional about 400 million mouths to be fed. In addition, with the expected economic development, consumption pattern would change and register definite increases in the total quantities consumed. Biotechnology in relation to seeds, plants, soil treatment etc. would be harnessed in all its aspects. Transgenic plants tailored to meet the desired objectives would be extensively used. R&D related to biotechnology, particularly genetic engineering, for the development of designer crops such as golden rice, high quality protein maize and other cereals and crops, would be of international standards. The hybrid technology would be strengthened. There would be a phenomenal growth in knowledge-based systems – use of information technologies and their convergence aspects for generating synergies over vast tracts of land as well as peoples. Space technology and geographic information system would be put to use. There would be considerable emphasis on precision farming, conservation tillage, use of stress tolerant genotypes and efficient use of inputs. Technological innovations in agricultural implements, machinery, plastics, water technologies, agro-chemicals and fertilizers would be implemented. Post-harvest technologies to prevent storage losses would be put to use in the modernisation of storage and processing facilities.

Industry

Most likely scenario

For projecting the behaviour of industrial performance over a period of time, it is not only necessary to carefully analyse the trends of such performance, but also, equally important, if not more, is the careful consideration of the effects of discontinuities in the behaviour patterns. At the same time, cross-country comparisons with countries which today are at the stage at which India would be 25 years hence, would give an

insight into the constraints that India would have to face in its journey to an industrialised nation status.

Domestic demand, trade and technology shape industrial structure and performance.

In the years to come, due to demographic transition, there will be an increasing share of people in the working age of 15-64 years. From 59.8% (about 604 million) in 2000, the share is most likely to go up to 67.2% (943 million). At the same time, there will be greater urbanisation with about 40-42% of the population living in urban areas by 2025. Simultaneously, with the economy growing at a reasonable pace of, on an average, 6% pa, income transition is also likely to take place, with an increasing share of the middle and upper income segments. The net effect of these factors is to give a definite boost to domestic demand as these factors are the real drivers of demand. South East Asian countries had similar demographic transition- on the supply side, they had efficient labour force, while demand was generated through rising incomes levels of the people at large.

The NCAER has divided the Indian consuming classes into five categories: (i) the destitute, (ii) the aspirants, those who purchase few inexpensive consumer goods, (iii) the climbers, those who own or purchase slightly expensive durable goods, (iv) the consuming class which buys bulk of the consumer goods marketed in the country, and (v) the very rich who buy the most expensive consumer products. Studies done by NCAER indicate that for the Indian market taken as a whole during 2001-02, both urban and rural, roughly 2.6 million households are very rich, 46.4 million are the consuming class, 74.4 million are the climbers, 33.1 million are the aspirants while 24.1 million households are destitutes. The projections made by NCAER show that by 2006-7, 5.2 million households will be very rich, 75.5 million households would be the consuming class, 81.7 million households would constitute the climbers, while the aspirants and the destitutes would be 20.2 m and 16.5 m respectively. There will, thus, be a definite bulge in the group comprising the consuming and the climbers classes, and it is this group that is going to give a big boost to the domestic demand for consumer goods. As the economy grows, the bulge will go on increasing, and hence, by 2025, one should expect a booming market for mass produced consumer and consumer durables goods in the country.

The implications of all these are that there will be increasing consumption of higher quality and branded goods, to the detriment of the

informal sector with negative impact on employment generation within the economy. Intellectual Property Rights and Trade Marks will become increasingly important. Consumer durables will witness increased consumption as income levels of a large number of households increases, and direct consumption of services will see an upsurge. It will, thus, be a demand driven industrial growth. There would, however, be a preponderance of service oriented domestic demand in the years to come, whose share in the overall domestic output would increase as manufactures decline. This is not likely to be conducive for a country of India's size, as the transition from low income to middle income without the share of manufactures at around 40% or so is not feasible.

Trade will be the fundamental determinant of the industrial structure in India due to inherent asymmetries in the world trade regime. There would be relatively low barriers to trade against mass-produced goods as the world trading regime gets more liberalised under the WTO, while sophisticated goods would continue to face higher trade barriers. Coupled with a high population in the working age group(15-64) and the income bulge in the consuming and the climbers classes, there will be a definite movement of consumption towards these types of goods. It would also be cheaper and much easier for international players to penetrate newer markets with their branded goods through the help of satellite communications systems. There would, however, be a shift towards establishing production capabilities, rather than relying purely on imports, in the potential markets that offer scope for volumes production. Such a shift would also enable the international players to cater to local preferences so that their market share could be optimised. With cheap local resources and internationally mobile capital, and the convenience of control and decision making provided by modern Information Technologies, potential large markets would increasingly see new production capabilities established in the domestic area by international players. The implications are that the Indian market for industrial products will become increasingly contested by potentially cheaper international suppliers. Apart from servicing the local market, such production capabilities could also become global sourcing bases. However, the possibilities of manufacturing capacities exiting from India to countries like China also exist, unless we are successful politically and otherwise in creating the conducive climate and environment for MNCs to invest in our country.

The industrial structure in India has been rather rigid. It should have gravitated to the low capital-intensity industries for which we have comparative advantage in many ways. This would have created the

desired push for employment generation and incomes distribution to a wider net of labour force, enabling thereby a further push to demand and production growth. But this did not happen.

Information technology encourages international decentralisation and organisational fragmentation. Production capabilities, therefore, will shift to low cost locations as organisational problems get taken care of by greater use of IT. Technology also ensures that production becomes inherently more skill-intensive and labour-saving. At the same time, there is lower material-intensity and faster rates of obsolescence.

The implications for India are, thus, apart from the promise which IT related services holds for the Indian technocrats, that the decentralisation of production capacities and the fragmentation of organisational structure, offer India considerable industrial opportunities. This would, however, be constrained by our educational paradigm if, along with literacy-numeracy, training in craft skills are not imparted to the levels required by the sunrise industries. Faster replacement cycles of goods and growing first-time buyers are an explosive combination for boosting demand, and hence increased production of goods and services. We will, however, be constrained in taking full advantage of the opportunities available to us by our inability to match the skills requirements.

Cross-country comparisons with comparable endowments and policy framework indicate that the best comparator is either China or Brazil. China is a class by itself because of the Chinese diaspora which has been bullishly investing in the mainland for almost two decades with immense economic benefits to the country. The best comparator country, therefore, is clearly Brazil. There is a clear agricultural linkage and food processing occupies a very important place on the industrial canvas. Indian picture, however, is dismal in this regard. There are also clear natural resources linkages not only in Brazil, but in India also. Both countries have a positive comparative advantage which can be converted into a competitive strength with some degree of protection and promotion. With the provisioning of cheap complementary inputs to these sectors, there must also be an appropriate labour policy to stimulate industrial restructuring. The efficiency of the labour market would be critical, depending to a large extent on the education paradigm, and our ability to impart the crafts skills needed.

India's industrial structure will, therefore, evolve in the direction of

- Agriculture linked: food processing, natural fibers
- Mineral linked: ferrous and non-ferrous metals and products

- Craft skill linked: largely in combination with the previous two

The structural and policy constraints, however, would be:

- Domestic
Labour markets, infrastructure, education, governance etc
- International
The many forms and guises of protection.

Infrastructure

Most likely scenario

Energy:

Power and coal:

Against an optimal mix of 60:40 for thermal:hydro power generation capacities, in 1998-99, we had hydro 23%, thermal 74%, nuclear 2% and wind 1%. 85 % of the thermal plants were coal based, 2% were oil based while 13% were gas based. There is a peak shortage of 18% and energy shortage of 11%. High T&D losses, power thefts and unviable tariffs bedevil the power sector. Coal with a reserves of 209 bn tonnes is the mainstay of energy source, and is likely to continue to be so in the coming decades.

To estimate the future demand for power and coal for different growth rates of the economy, some criteria have been adopted. For agriculture, industry and commercial loads, the past trends of energy intensities and relationship with sectoral GDP have been considered. For residential load, the upward movement along the energy ladder and the coverage by rural electrification are the determinants. Projected increase in freight and pipelines have been taken for projecting the needs of the transport sector.

Projected demand for power and coal

Sectors	Power (TWh)					Coal (MT)				
	1997	2025				1997	2025			
GDP Scenario		7%	8%	9%	10%		7%	8%	9%	10%
Industry	101	218	279	356	452	138	717	925	1192	1531
Transport	7	58	69	84	102	0	0	0	0	0
Agriculture	91	149	188	236	298	0	0	0	0	0
Commercial	44	380	485	618	785	0	0	0	0	0

Power						188	250	400	400	400
Residential	45	2052	205	205	205	0	0	0	0	0
Total	288	1010	1226	1499	1842	326	967	1325	1592	1931

Add 18-22% of T&D losses for power generation

From the above it seems that a growth rate beyond 7% is not feasible considering our capabilities. We will, however, be able to meet the requirements of a baseline growth rate of 6% of GDP. There is also a likelihood of substantial imports of coal, for which adequate port capacities will have to be created.

Oil and gas

Against a demand of 85 million tonnes of POL products, the production was only 61 million tonnes in 1997-98, the balance requirement being met through imports which meant almost 24% outgo of the export earnings. At the current rate of production of crude, India's reserves are likely to last for only 16 years, an ominous sign, forcing policy makers to seriously think in terms of energy security

Projected demand for oil and gas

Sectors	Oil (MT per annum)					Gas (Bcm per annum)				
	1997	2025				1997	2025			
GDP Scenario		7%	8%	9%	10%		7%	8%	9%	10%
Industry	12	77	99	126	160	3.41	10.14	12.96	16.52	21.00
Transport	41	314	402	513	653	0.08	0.78	0.78	0.78	0.78
Agriculture	1	13	16	20	25	0.13	14.69	18.49	23.28	29.31
Commercial	4	21	27	34	43	0.00	0.00	0.00	0.00	0.00
Residential	13	45	45	45	45	0.24	3.13	3.13	3.13	3.13
Power	8	22	31	61	103	6.94	19.02	26.90	53.14	88.97
Non energy	10	52	67	85	108	10.70	61.22	77.97	99.09	125.64
Total	88	544	686	884	1136	21.50	108.98	140.24	195.94	268.83

Large imports of crude or petroleum products are inevitable, as under the best of conditions, India is unlikely to exceed 80 million tonnes of crude production, and 17.33 bcm of gas and coal bed methane by 2025. The elasticity of energy demand to GDP being almost unity in the developing market economies, sustainable development of our economy calls for a hard look at the options. Accessibility, availability and acceptability, coupled with the volatility in international prices of energy would exacerbate the problems which India would have to face. While the world has ample reserves of oil and gas, global supply prospects are threatened by costs. As the supply chains lengthen with the depletion of the nearest sources of supply, the focus would shift to maintaining the

security of international sea lanes and cross border overland gas pipelines. Then there will be the question of establishing LNG terminals for handling imports of liquefied gas at considerable capital cost.

Transport

Due to the inability of the Railways to carry all the freight to all destinations, a modal shift in the mode of transport will take place from the railways to roads. This would, however, entail heavy energy consumption at great economic costs to the country. At the same time, the total length of the state and the national highways must increase considerably from the present level of 7% for the traffic to flow smoothly to all corners of the country. Severe infrastructure bottlenecks in the rail and road transport systems will be experienced. The ports are also likely to be over congested, making it more convenient for large bottoms to offload either at Colombo or Singapore or the like, from where the goods would have to be transhipped at substantially increased costs to the trade and the consumers.

Telecommunications

A teledensity of 150 per 1000 by 2010, as per the National Telecommunications Policy 1999, is within reach. However, the regulatory mechanisms would be overtaken by the convergence of services driven by modern and innovative technologies. The regulatory system would, therefore, be confronted with newer demands on its ingenuity to be able to satisfy the needs of innovative technological advances in the telecom sector.

Conclusions:

To cope with the upsurge in the demand for infrastructural support for a sustainable rate of growth of the economy together with an increasing improvement in the quality of life, there will have to be massive increases in the capacities of such infrastructural support systems. This would entail huge doses of investments. Private sector participation, both for the adoption of the advanced modern technologies for optimality in production and use, and for making available the desired quantum of finance, domestic and international, seems inevitable. It would be difficult for the public sector to take on the total burden on its own, constrained as it is by the lack of adequate resources even for discharging its full responsibilities in the social sectors. With the desired investments and efficiency gains in the infrastructure sectors, it should be possible to achieve a growth rate of 7-8%. It would, however, be difficult to go beyond that. Considering the pace of investments in these sectors, one can safely conclude that a growth rate of 6% in the economy would

definitely be possible, and, with some push, we may even see a 7% growth.

External Trade Sector

Optimistic scenario

During the period 1970-2000, the share of the 17 selected developed countries in the total world exports has shown a declining trend from 71.22% to 57.59%. The share of the 13 selected developing countries, including India, on the other hand, has shown a rising trend, from 4.96% to 14.31%. A similar trend is visible in the case of imports as well. This is in conformity with the available literature on the subject which converges on the view that the most of the growth of output and trade in the world will come from emerging developing countries and not the developed countries.

During the period 2000-2025, total global exports are likely to go up from US\$ 6001.40 bn to US\$ 24885.08 bn, giving a rate of growth of 5.85% pa. Imports, on the other hand, would increase from US\$ 6026.48 bn to US\$ 14204.79 bn, at the rate of 3.49% pa. There will be a generalised deceleration in the share of total global exports of the 30 selected countries. The projections for imports show a similar trend, although not so dramatic. It clearly shows that in the coming years, the developing countries, including other countries than the ones selected for the study, would also have an increasingly greater share in global trade.

Between 2000-2025, India's exports, in the optimistic scenario, could well increase from US\$ 37.59 bn to US\$ 104.55 bn, at a rate of 4.18% pa. However, in terms of the total global exports, our share would fall from 0.63 to 0.42, indicating clearly that we will not be able to optimally exploit the available opportunities. Imports during this period will increase from US\$ 43.61 bn to US\$ 108.67 bn, that is, at a rate of 3.72% pa. The share in total global imports would increase marginally from 0.72 to 0.77. The total share of India in global trade, on the basis of existing trends and inclusive of both exports and imports, would decline from 0.68% in 2000 to 0.55% in 2025, indicating that the domestic industrial base would lack the buoyancy of an internationally integrated competitive system

Most likely scenario

In this case, global exports are likely to increase from US\$ 5876.37 bn in 2000 to US\$ 14395.46 bn in 2025, that is, at a rate of 3.65% pa. Imports, on the other hand, would increase from US\$ 5947.63 bn to US\$ 10085.97 bn, at the rate of 2.14% pa. While the share in the global exports of the 30 selected countries show a dramatic slowdown from 71% to 49%, the share of these countries in the total global imports increases marginally from 75% to 80%. Countries, both developed and the developing, other than the ones selected for the study, will, therefore, be more active in the years to come in global trade.

India's export performance during this period would see an increase from US\$ 34.24 bn to US\$ 71.48 bn, at the rate of 2.99% pa. Imports would increase from US\$ 40.16 bn to US\$ 79.44 bn, giving an average rate of 2.77% pa. Our share in total global exports falls from 0.583 to 0.497, while the share in global imports increases from 0.675 to 0.788. The share of India in the total global trade, both exports and imports included, however, remains almost stagnant, changing from 0.63% to 0.62%. The conclusions are obvious: our industrial base will not be fully integrated with the global system and will not exhibit the buoyancy of an internationally competitive system.

The commodities which show promise for substantial increase in exports are: agriculture and allied products, leather and leather manufactures, chemicals and related products, metals, steel, and gems and jewellery. While there is a very positive case for diversification of the export basket taking into account the new demands in the global markets, the competitive advantage already available in the above commodities should be further enhanced. Projections for imports show a very disquieting feature in petroleum crude and products registering almost 37% of India's total exports in 2025. This brings to focus the urgent need for consideration of India's energy security issues.

The important trading partners will continue to be APEC-21, EU-15, IOR-ARC-18 and NAFTA-3 and GCC-6 (for bulk crude imports). Here again, there will be need for diversifying to newer markets. Considering the geopolitical aspirations of China and its economic strength with its joining the WTO, it might be prudent for India to befriend the ASEAN countries politically and economically, to counter the growing influence of China. Greater trading links with these countries might in the first stage mean supplies of intermediate goods from India to these countries at the lower spectrum of value addition, which could be more labour intensive, leaving the upper spectrum involving sophisticated technology and highly skilled labour to these countries. Gradually, India should

upgrade itself along the value addition ladder. India should, however, do well on the export of skill and knowledge intensive services. Rationalisation of the tariff structure, the exit policy and the reorientation of its export policy towards skill and knowledge intensive products and services would be the instruments to achieve this. Amongst the important trading countries by 2025, mention may be made of USA, UAE, Germany, U.K., Australia, Singapore, Belgium, Kuwait and Saudi Arabia.

Technology

Optimistic scenario

John Kenneth Galbraith has said that the future society is one in which science and technology will determine the direction of socio-economic changes. India in 2025 would be in a position to share the dias with the industrialised nations in relation to technological prowess. Since the capability to generate and apply technologies would be the cornerstone for advanced industrial societies, India in 2025 would have developed its technological capabilities through a quantum jump in its human skills, institutions and an overbearing national commitment for achieving the goals.

Dr. A P J Abdul Kalam along with Y S Rajan has outlined the Vision-2020 for India in a book titled India-2020 (1998, published in Viking by Penguin Books India Ltd.). What has been stated of 2020 will, in all likelihood, be equally true, under the optimistic scenario, for 2025. The optimistic scenario that has been developed and the vision outlined by Dr Kalam are, by and large, on similar lines.

The technology vision statement speaks of India competing ably and thriving in the world economy by innovating, manufacturing and trading high quality and high-tech products across international boundaries by:

- Training the engineers and technologists to international standards,
- Encouraging them to innovate by rewarding them and their institutions with both real and psychic income,
- Integrating technology with cultural, social and economic development processes, and
- maximizing employment through appropriate technologies.

It also speaks of India emerging as a major proprietor of intellectual products.

The vision statement gives the parameters of the optimistic scenario. To achieve this vision, Indian technology and industry would have to be internationally competitive so as not to require ordinarily any trade protection. India would be a net importer of talented people for sustained technological competitiveness. Technology would be deployed to promote good quality of life for the people of India. It would be used to a) minimise disparities by reducing poverty and not wealth, b) maximise employment by matching skills to the requirements of innovation and c) making India self-reliant in selective areas of technology in order to avoid import under duress.

Cognitive skills would be central to the skill profile of the modern worker, technicians and scientists. Higher order transferable skills of reasoning, conceptualisation, communication, problem-solving, interpersonal relationships would be necessary. There would also be a need for higher education and training for broad-based generic skill development. Innovate or perish would be the creed. The technical institutions and centers of excellence in science and technology would be fully geared to deliver on the stringent requirements of skill development.

Microelectronics, information technologies, biotechnologies, advanced new materials technologies and new energy technologies would be the focus of development in the coming years. These are interdisciplinary, heavily dependent on R&D, have high obsolescence, impinge on each other, are information intensive with greater demand on human capital and need greater proportion of highly skilled persons.

There would be strong and lasting linkages between the R&D laboratories, academia and the industry. Technological ideas and innovations developed in the R&D laboratories and by the academia would increasingly drive industrial activities. India would see the development and growth of new ideas, new innovations and new industrial activities. It would be a knowledge-based economy by 2025, which would be the envy of some industrialised nations as well, apart from the other developing countries. From the present level of 1.2 scientists and technicians per 1000 population, India would expand to levels comparable to at least that of some of the developed and the newly industrialised countries of the world. While there would be some increase in government contribution to R&D from the present level of 0.6 – 0.7% of GNP to a little less than 1% of GNP, the contribution of the industry would register very substantial increases. Indian industry would realise the importance of knowledge in international competition, and invest substantially in R&D. There would be a quantum jump in the

establishment of Science and Technology Entrepreneurship Parks (STEP). These will not only be attached to an increasing number of engineering colleges but would also be established on a stand-alone basis by enterprising entrepreneurs in the private sector. These will have facilities comparable to the best in the world. There would also be a significant proliferation of the Electronics Parks in the public as well as the private sectors.

India has vast human resources- skilled, unskilled and creative-knowledge intensive industries, extensive span of basic services, vast coastline, reservoirs of minerals, biological and bio-diversity related natural resources and ancient and traditional knowledge. Networking between these resources for value addition would be considerably strengthened. Institutions and systems would be in position to integrate and coordinate related technology development activities by the academia, R&D laboratories, government and industrial organisations.

Food security assumes over-riding priority particularly because of the burgeoning population. As stated earlier, our population is likely to grow from 1.027 billion in 2001 to 1.380 billion in 2025, roughly around 1.4 billion. There would be additional about 400 million mouths to be fed. In addition, with the expected economic development, consumption pattern would change and also register definite increases in the total quantities consumed. Biotechnology in relation to seeds, plants, soil treatment etc. would be harnessed in all its aspects. Transgenic plants tailored to meet the desired objectives would be extensively used. R&D related to biotechnology, particularly genetic engineering, for the development of designer crops such as golden rice, high quality protein maize and other cereals and crops, would be of international standards. The hybrid technology would be strengthened. Space technology and geographic information system would be put to use. Post-harvest technologies to prevent storage losses would be put to use in the modernisation of storage and processing facilities.

India will innovatively use technology to generate wealth from the vast mineral resources. From a current consumption level of about 26 kgms. per capita, as against the world average of 150 kg, the level of consumption of steel is likely to go up to a little above 65-70 kg per capita by 2025. State-of-the-art technology would be deployed to ensure considerable reduction in cost of production, improvement in the quality of steel products and manufacture of speciality steels for the upper segment of the market. India tops the list of countries, with 37% of the world's ilmenite ores, which is used to make titanium, the wonder

modern metal. Titanium will see a much larger and more significant usage in the country by 2025. Development of cheaper alloys, namely titanium-aluminium-iron, will be commercially exploited. Titanium castings would be extensively produced in India for applications in aerospace, chemical, marine and mechanical engineering sectors. Its bio-compatibility would lead to increased use in the treatment of human beings. There would be increased exploitation of the high availability of rare earths through modern technology. There will be a substantially increased usage of composites in many sectors by 2025, particularly the transportation and construction sectors. Glass fiber-reinforced polymers and metal matrix composites would witness increased activities. Photonic materials like laser and fiber optics will be dominating all walks of life. Information technology, fiber optics-based telecommunication, health care, pollution control, life sciences, etc. would witness unprecedented and innovative growth trajectories. Low temperature super conductors with improved performance would be developed. Polymers are likely to see many exciting applications.

In the chemical industry, technological innovations would spur considerable growth in petroleum products, fertilizers, polymers, fibres, organic chemicals, dyestuffs and pigments, leather chemicals, surface coatings and speciality chemicals. Environmental considerations would compel use of cleaner processes with near total recycling and recovery. Technologies for high energy- efficiency, tailor made products, increased automation and use of continuous processes would be available. Biologically catalyzed processes for production of fine organic chemicals and pharmaceuticals would be possible. Technologies related to bioengineering systems, biomolecular materials and biomaterials will be put to use. From the Himalayas to the whole of the northeast, the long coastal region and the expansive Central India, the entire area is very rich in flora and fauna. Coast lines of more than 3500 kms on the main land, together with another 4000 kms of Lakshwadeep and the Andaman and Nicobar Islands gives India a very rich bioresource. India would be able to capture the wealth of these biological resources through the application of technology.

There would be considerable growth in technology applications in the manufacturing sector. There would be a preeminent role for computer-aided design and computer-aided manufacturing processes. Computer and Numerically Controlled (CNC) machines tools would improve efficiency. Software developments for processes and systems will improve the over all efficiency of the manufacturing sectors making it internationally competitive. The service sectors in the country would also witness

increased applications of technology, primarily through the IT sector, for the purpose of gaining greater market access, efficient planning and improved delivery systems.

The infrastructure required for economic growth would also be in position because of technological innovations. There would be marked improvement in the quality of power supply. The use of energy would be efficient so that losses are minimised. Technologies relating to renewable sources would be considerably improved leading to cheaper availability of solar, wind and ocean energy. India is richly endowed with both solar and wind energy, and, therefore, technologies to considerably reduce the costs of solar and wind energy would take care of the shortages of power. To tap the vast ocean energy, the Ocean Thermal Electric Conversion technology would be put to commercial use. Technologies to harness the vast potential of hydel power at affordable costs would be harnessed. Fast Breeder technology would be a major source of energy. Nuclear energy, hydel power, biomass energy, the whole range of renewable sources of energy and sound conservation practices would step in to bridge the energy gaps.

Technology in regard to efficient use of water and creation of a national water grid by linking major rivers of the country would be in position. Local water harvesting and local waste recycling would have developed to fine art to ensure high quality at low costs.

Emphasis will be on conservation and wastages would be eliminated. To prevent exhaustion of resources, recycling techniques would be universally applied. Barring energy and cement, almost all resources would lend themselves to effective application of recycling and conservation techniques.

In the field of space technology, India would be a world leader, enabling it to be a significant world player in remote sensing and communications. In nuclear energy and defense technology India would see considerable improvement. India could well become a major exporter of defence materials.

Most likely scenario

While science and technology would be given the respect acknowledgement that they richly deserve, India is unlikely to achieve the full impact of the vision statement. We would be far behind in giving real and, more importantly, the psychic income as per the international

standards to all our scientists and technologists. Motivation levels would still be low, though at a much higher level than the present. The educational institutions and the R&D laboratories and institutions would also be far behind the international standards. Funds would be a major constraint. There would be considerable brain drain in the early stages, but as the Indian economy grows and the Indian markets open up to international competition, there would be greater opportunities coming up the way of the enterprising Indians settled abroad. They would be coming back to India in droves, and help in India's scientific and technological upliftment.

The linkage between the R&D laboratories, academia and the industry would be strengthened, but would still be way behind the ideal situation as is prevalent in the industrialised nations. IITs, IIMs, IIITs, IISc and a few other educational institutions, CSIR laboratories, some laboratories in the private sector, particularly those in the pharmaceutical industry, would be the front runners in building up the linkages with the industry. Bulk of our educational institutions would not have the capabilities to do so. But the quality and sophistication of research depends upon a whole lot of other attendant factors, and, hence, India would not be able to match the developed countries. At best, we would be alongside some of the better developing countries.

While Government contribution to R&D may increase only marginally from the present level of 0.6-0.7% of GNP, the contribution of the private sector would continue to severely lag behind the levels seen in the developed economies. For reasons of cost and availability of suitable manpower, some MNCs may be tempted to set up peripheral research facilities in India, but the sensitive and strategic research would still continue to be carried out in their own laboratories in the host countries. There would be considerable activities in the STEPs and the Electronics Parks, but this would also, barring some in the Electronics Parks, be way behind the best in the world.

Technological strength in microelectronics, information technologies, biotechnologies, advanced new materials technologies and new energy technologies, would be considerably enhanced. In some areas of biotechnologies and the new energy technologies, particularly those related to the renewable forms of energy, we may become a significant world player.

In agriculture, significant progress would be made in biotechnologies related to seeds, plants, soil treatment and the development of designer

crops such as the golden rice and the high quality protein maize crop. Hybrid technology would be strengthened. India would be able to fully utilise the potential of post-harvest technologies for processing and storage facilities.

In the field of advanced new materials technologies, India would be a market leader in the modern wonder metal, titanium. There would be a marked increase in the technological strength related to cheaper alloys and composites. But we would still be away from the levels attained in the developed nations. The use of photonic materials like the laser and fibre optics will be widespread. Except in the case of titanium, we may not be in a position to strategically exploit our technological strengths in the areas of advanced new materials.

India would make headway in the fields of bio-catalysis, bio-engineering systems, bio-molecular materials and bio-materials. But we would be still very far from the levels attained in the developed countries. Environmental considerations would compel the use of cleaner processes with near total recycling and recovery in the chemical industries. In pharmaceuticals, we would have developed many strategic molecules which would greatly enhance our reputation and standing in the world pharmaceutical industry. We would have gone past the take-off stage in the exploitation of our rich bio-resource.

In the area of information technology, our strength would lie in the development of software, where we would emerge as a significant world player. But we would still lag behind in the hardware sector.

The manufacturing sector would witness the adoption of the state-of-art technologies across the board in order to remain internationally competitive. Bulk of the new technologies would be imported, but innovative modifications would be carried out by Indian scientists and technologists to suit the local and international market conditions.

On the energy front, there would be greater reliance on the fast breeder technology for nuclear energy, all forms of renewable sources of energy including solar, ocean, wind and biomass, and mini-, midi- and mega-hydel power. Technologies for these would see significant progress. In the hydrocarbon sector, the refining and pipe transportation technologies would be upgraded to international standards, but we would still lag behind the world majors in prospecting and exploitation of the oil and natural gas reserves.

Technologies for efficient use of water, water harvesting and the creation of a national water grid by linking up all the major rivers of the country would be in position.

Emphasis would be on conservation and waste elimination. Recycling and conservation techniques would be in position.

Employment

Most Likely Scenario

The process of globalisation and liberalisation, while a laudable objective in itself, has ushered in an era of competitiveness compelling the domestic industries not only to increase productivity but also to undertake fierce cost cutting exercises through capital intensive technological innovations and other measures. Employment expansion, thus, has suffered. The rate of unemployment, measured on current daily basis, has increased from 6.03% in 1993-94 to 7.32% in 1999-00. The post reforms period has, in fact, witnessed a jobless growth, a condition which has inevitably led to growing frustration among the youth, in particular, the educated youth.

The quality of employment also leaves much to be desired, particularly in the context of rising levels of aspirations of not only the educated unemployed but also the general masses who are now increasingly politically relevant, and, hence, whose voices are now being heard. Therefore, not only must new employment opportunities be created commensurate with the growth in the labour force, but these opportunities must also be of the right quality, measured in terms of the incomes generated and the preferences/expectations of the labour force. The traditional low quality, low income employment opportunities must give way to high quality, high income employment either in the preferred organised sector (wage employment) or in the unorganised sector.

According to the population projections, the population in the working age group of 15-64 would increase from 598 million in 2000 to 940 million in 2025 under the most likely scenario. This would mean an average growth rate of 1.83% per annum in the population of the working age group. With a baseline labour force of 363.33 million in 1999-00, on the basis of 5.2% GDP growth during 2000-01 and 2001-02, the Special Group constituted by the Planning Commission has computed that the labour force in 2002 would be 378.21 million (CDS basis). If it were to

be assumed that the rate of growth in the labour force would be in line with the rate of growth of the population in the working age group, or that the labour force participation rate on an average for the entire working age group population remains unchanged, the total labour force by 2025 comes to 570.07 million (labour force growth at 1.8% per annum). But as schooling has increased over the years, the labour force participation rates in the lower age groups have declined. Even otherwise, there has been a general deceleration in the participation rates from 1983 to 2000. Should the participation rate increase, as it should with accelerated development, the labour force would also register an increase. Employment in 1999-00 is 336.75 million on Current Daily Status basis. If the elasticity of employment to GDP is assumed to remain constant at 0.165, the actual elasticity during the period 1994-00 for the economy as a whole, then the employment by 2025 for a baseline growth rate of 6% would be 430.79 million. The number of unemployed would, therefore, be 139.28 million, and the unemployment rate would be 24%, a situation which would be highly explosive for the economy as well as the democratic fabric of the country. If the participation rate increases, the situation worsens, but if the GDP growth rate increases, then there could be some softening of the situation.

A baseline growth rate of 6% per annum is considered very reasonable if viewed in the global context. According to the Special Group appointed by the Planning Commission, the GDP (net) growth rate during the period 1993-94 to 1999-00 in the organised sector responsible for 8.34% of the employment has been 8.5% pa. During the same period, employment in the sector grew at a rate of 0.56% pa, giving an employment elasticity of 0.066. However, the period selected has been the period of adjustment when the Indian industries were compelled to cut costs and to employ capital intensive technologies to bring down the manpower costs so as to be competitive internationally. Meanwhile, with growth in the educational standards and the upgradation of the skills of the labour force, there is a strong likelihood of the productivity of labour increasing. With economic development at the reasonably respectable rate of growth of 6% pa on a sustained basis, the employment opportunities in the organised sector are also likely to multiply. Enhanced labour productivity, and widening job opportunities, as a fall out of the opening of the market, for the skilled labour force would mean not only a more competitive Indian industry structure but also greater investments and hence more diversified employment opportunities and higher employment elasticity than the one witnessed during the period 1993-94 to 1999-00.

Agriculture, Manufacturing, Trade, hotels and restaurants and Community, social and personal services sectors, between themselves were responsible for about 90% of the total employment in 1999-00. Of the total organised sector employment of 28.11 million, these sectors contributed about 72%. Of the above four sectors also, it is mainly manufacturing and community and social and personal services sectors which are significant organised sector employers, the other two are very significant unorganised sector employers. A determined bid to improve the lot in these sectors would go a long way in improving the employment scenario. A 50% increase in the employment elasticities in these sectors by 2025 may seem daunting, but is not very difficult to achieve with the right mix of policies and incentives. Should that happen the unemployment rate by 2025 may well be around 16%, a rate which would still be explosive, fraught with severe political, social and economic travails. However, the problem would be much less exacerbated. The ultimate answer would obviously lie in a faster rate of economic growth and an employment-oriented growth policy

The Special Group appointed by the Planning Commission on targetting 10 million employment opportunities per year has recommended that “Government should revamp the activities in those sectors where the comparative advantage lies in a labour intensive production.” The Group’s emphasis, and rightly so, is on agriculture and allied activities, small and medium enterprises, broad-based rural non-farm activities and some of the socioal services sectors like education and health. Development of high labour intensity sectors like construction, tourism, communication and information technology and financial services has also been emphasised. The Group feels that with the appropriate policy mix and reallocation of resources, it should be possible to eliminate unemployment by the end of the 11th Plan period. The Group has estimated that for a growth rate of 8% per annum during the 10th Plan period, “nearly 20 million person years of employment opportunities would be created by selective innovative programmes and policies leading to a changed pattern of growth in favour of labour intensive sectors; the remaining 30 million will come from the normal buoyancy of growth as perceived over the recent past (1993-94 to 1999-00).” In the perception of the Group, in the low growth scenario of 6.5% per annum during the 10th Plan period, even with the policy changes, there would be a 9.3% rate of unemployment by the end of the 10th Plan.

Bhattacharya, however, feels that India will not be able to go beyond a baseline growth rate of 6% per annum during the coming period till 2025. Most likely, therefore, the unemployment scenario will continue to cause

severe headaches to the social fabric and the economic and the political systems.

Environment and sustainable development

The UN sponsored Stockholm Conference in 1972 on “The Human Environment” drew the parameters of the “rights of the human family to a healthy and productive environment.” The “Global 2000 Report” to President Carter concluded that “if present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world’s people will be poorer in many ways than they are today.” The discoveries regarding the thinning of the ozone layer and the global warming phenomenon due to greenhouse effects and the destruction of forests, have only proved how true the authors of the Global 2000 Report were. The Brundtland Report came to the same conclusion as the Global 2000 Report and suggested a “Global Agenda for Change” to overcome the inabilities of governments and the international community. It argued that poverty and environmental degradation and interlinked-one leading to the other. Thus, environmental challenges arise both from development (though unintended) and lack of it. This lead to the concept of sustainable development, i.e., development that meets the needs of the present without compromising the ability of the future generations to meet their own needs. The Earth Summit at Rio agreed on Agenda 21, but failed to fix a binding time frame and determine quantified targets with regard to environmental indicators and resources for their achievement. The Kyoto Protocol attempts to address these concerns, but it has yet to be ratified by many of the countries. There is, thus, not only a growing awareness to the environmental challenges which the world faces, but also a strong and persistent demand from various interest groups, including the environmentalists, for taking positive and effective steps to control and eliminate such degradation. Pressures on the international community, governments and the civil societies all over the world are mounting, and India would do well to fall in line with the requirements of sustainable development and environment protection. But the question is how are we going to meet the challenges and with what results?

India’s air and water, particularly in the urban areas, are among the most polluted in the world. Ambient concentrations of most pollutants exceed international standards, resulting in a heavy burden of human and economic costs to the nation. Many human lives could be saved and

scarce resources made available for economic development if only the environment were efficiently managed. India can and should take urgent steps to become cleaner and environment-friendly. Policies that encourage improvements in energy efficiency and energy conservation, combined with cleaner coal technologies, adoption of technologies for combating air and water pollution, and greater reliance on public transport, could bring results. Energy intensity, that is, energy consumption per unit of GDP, is likely to decline due to the shift to energy efficient equipments, but the total energy consumption will rise sharply over the next 25 years. Bulk of this energy will come from the use of coal, and hence problems for the environment. According to a World Bank study, international experience shows that pollution initially tends to rise with per capita incomes, and begins to fall only as countries get much richer (Grossman and Krueger, 1995, World Bank). India's per capita income will be well below the "turning point" by 2025, and hence there is every likelihood of increase in the load of pollutants.

Optimistic scenario

If India were to harness market forces, create incentives for investment in cleaner production and improve the monitoring and regulatory mechanisms, substantial reduction in the pollution loads can be achieved despite population increase. Prices should be modified to reflect not only the costs of production but also the hidden and explicit social costs. The basic principle of "the polluter must pay" will have to be ingrained in every activity. A distinct but gradual shift in the policy towards taxation for pollution, based on the quantum of pollution and the costs required to treat such pollution effectively, would provide the desired incentive for adoption of pollution control measures by the polluter. The effectiveness of this mechanism, however, would largely be dependent on the government's success in deepening the reforms. Investments in public infrastructure would also yield rich dividends. The regulator must lay down norms for pollutants, and these norms should be gradually made more stringent till they are in line with international standards. The monitoring should be made more effective, and penalties should be imposed on those who continue to pollute despite warnings. These measures and those mentioned in the paper would be able to make India much cleaner in the years to come.

From the BAU (Business as usual) figure of 8.27 million tonnes of suspended particulate matter in 2025, India could bring it down to 2.634 million tonnes, a very substantial decrease indeed. This does not mean that all areas in the country would be safe from air pollution. Far from it.

The major metropolitan cities would continue to gasp, though at considerably reduced rates, due to ambient concentration of pollutants. However cities like Delhi where the courts have intervened in a big way would heave a sigh of relief. The ability of the other metros to go the Delhi way would depend largely on the capacity of the hydrocarbons sector to procure and deliver CNG and other clean fuels at affordable prices, which does not seem possible. Kolkata and Ahmedabad would be a case in point. There would be relative cleanliness in the rural and the other growing urban areas.

Similarly, there would be a decline in the demand for water from around 840 bn cum to 685 bn cum and the BOD load would come down from 6.587 million tonnes to 5.225 million tonnes per annum. While this may be considered reasonable, some river bodies would continue to remain unhealthy in stretches where there is concentration of polluting effluents discharge from the domestic and the industrial sectors. Mention may be made of Sabarmati, Subarnarekha, Godavari, Yamuna, Damodar and possibly the Ganges in this regard. Others are likely to improve considerably. Availability of water would continue to haunt the country with many areas and regions either under scarcity or severe scarcity conditions.

There would be only a marginal improvement in the generation of municipal solid wastes despite the growing awareness of the menace. However, there would be considerable improvement in the functioning of the municipal bodies with greater devolution of authority and resources in pursuance of the 74th Constitutional amendments. There is also likely to be some improvement in the administration of the municipal bodies as they become responsive to civic needs through privatisation of the civic services. Therefore, collection of the garbage will improve, the efficiency of sorting and treatment would register an increase, and the landfill area required would come down from 950 sqkm to about 890 sqkm. Consequently, the emission of methane would also register a decrease to 19.7 million tonnes a year.

Business as Usual scenario (on the basis of current socio-economic and technological factors)- Most Likely scenario

The business as usual scenario reflects largely the neglect for environment concerns in the thought processes of the decision makers today. Obviously, the business as usual scenario does little to mitigate the national debt to natural resources, a crumbling debt which the present generation owes to the future generations.

Air Pollution

India has typically followed and will continue to follow the trends of industrialising economies: growing and congested cities, increasing traffic, higher levels of energy consumption due to economic development and industrialisation, and rising levels of incomes translated into burgeoning consumerism. All these result in severe air pollution due to toxic emissions from the transportation sector (carbon monoxide, particulate matter, hydrocarbons and oxides of nitrogen), thermal plants (fly ash and sulphur dioxide) and some industries (toxic gases). This is, however, generally concentrated in the urban areas and industrial complexes. But the rural areas have their own woes- that of burning unprocessed biofuels in inefficient burners which emit large amounts of air pollutants. There is growing awareness of the risks to health due to these air pollutants, and there is a visible trend towards cleaner technologies, better burners and fuels, and better monitoring and dissemination of pollution-related information. Although the pace of industrialisation and economic development is likely to be stepped up in the years to come, and although the per capita motorisation level will more than double up by 2025, the shift to cleaner technologies and fuels would result in reduction in the overall suspended particulate matter at around 2% per annum. There is, thus, a visible trend towards improvement in the air pollution loads in the years to come.

Water

There has been a declining availability of water per capita, and the trend is likely to continue in the coming years as precipitation stagnates and population increases. Uneven spatial distribution of rainfall has only compounded the issue. By 2025, most of the basins would fall in the water scarcity and water absolute scarcity categories. Deforestation, lack of watershed management and water harvesting practices would only aggravate the problem. The intensive exploitation of the ground water would add grist to the mill. Unless remedial measures are taken up in right earnest, India may well be in for water riots and water famines in some parts of the country by 2025.

Even with considerable increase in the capacities and efficiencies of treatment plants, for both domestic and industrial effluents, the overall water pollution load in 2025 in terms of BOD is estimated to be 6.582 million tonnes, a load which is beyond the self cleansing capabilities of the water bodies. Runoff from fertilised fields contributed to water pollution, and heavy and often inefficient irrigation has exacerbated water shortages and salinised large tracts of land. Efforts to bring marginal lands under cultivation have worsened soil erosion and desertification and

threatened India's fragile countryside. Thus, both the availability and the quality of water in 2025 would be matters of serious concern.

Municipal Solid Waste

As economic development progresses and the standards of living of greater numbers of people improve, there would be changes in lifestyles and the generation of municipal solid waste would increase. It is estimated that by 2025, there would be a four fold increase in generation of municipal solid wastes to about 200 million tonnes per year. Bulk of these wastes would be non-biodegradable posing very serious threats to the environment. A vast landfill area of 950 square kilometers would be required just to dispose off these wastes which will release about 21 million tonnes of methane contributing to global warming.

The increase in population to about 1.4 billion by 2025 would mean over exploitation of natural resources and destruction of existing assets just to feed the people and cater to their rising expectations, in disregard, presumably, of the future. Coupled with pollution, this would lead to severe land degradation and loss of bio-diversity. Deforestation, soil erosion, climate change, water scarcity and loss of the flora and fauna resulting in an imbalance in nature, would mean a poorer India in many aspects despite the economic growth. The future generations would be at stake.

Regional Disparities

Despite efforts to bring about a balanced regional development of the country, there have been both inter- and intra- regional disparities in economic and social development. The on-going liberalisation and other economic reforms since 1991 have only tended to sharpen and accentuate the differences; the disparities have widened, causing resentment and a feeling of deprivation in the areas which are lagging behind. A potential social bomb is in the making, and, therefore, warrants urgent attention.

While demographically speaking, there has been a clear distinction between the southern states, consisting of Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, and the northern states comprising of Uttar Pradesh, Bihar, Orissa, Madhya Pradesh,, Rajasthan and the newly formed states of Uttaranchal, Jharkhand and Chattisgarh. The south would reap the benefits of early demographic transition while the north would still be groaning under the weight of population increase even by 2025. In so far as urbanisation is concerned, Maharashtra, Gujarat, Tamil Nadu, Karnataka and Andhra Pradesh would be the most urbanised states. Punjab, Haryana and Western Uttar Pradesh would have significant

levels of urbanisation. Rest of the country would witness a relatively slow growth of urbanisation.

Taking key parameters of economic and social development into consideration, two distinct groups appear: (a) the forward, comprising of Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab and Tamil Nadu, and (b) the backward, consisting of Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and west Bengal. The direct relationship between population control, economic and social development and urbanisation is only too obvious from the above lists.

Geographically, the forward states are in the south and west and are contiguous except for Punjab and Haryana. The backward states are in the North and east and are contiguous. However, paradoxically, the backward states have an edge over the forward states in terms of natural resources including mineral wealth, water resources and quality of soil. It only means that given the desired push in the social sectors, including measures to bring down population increase, and education at all levels, in particular, the backward states have the potential to catch up the forward states.

The forward states, except Haryana and Punjab, have improved their per capita incomes as a percentage of the country's GDP over the last two decades, with spectacular increases in Gujarat, Kerala, Maharashtra and Tamil Nadu since the beginning of the reforms in 1991. Even in Punjab and Haryana, the decline has only been during the 1990s, perhaps, due to the vicissitudes of the agriculture sector. The backward states, on the other hand, have witnessed a relative decline in per capita incomes during the last two decades, the decline being more marked after the reforms. In other words, the reforms have tended to help the forward states while the backward states have experienced declining fortunes, thus accentuating the regional divide.

The forward states, following the close positive relationship between poverty reduction and economic prosperity, have reduced substantially their share of poverty, while the backward states have seen an increase. However, as overall percentage of people below the poverty line has reduced considerably, there has been a decrease in the absolute numbers of poor people in most of the states despite population increase.

Flows of external development assistance during the 90s have been heavily biased in favour of 7 states, of which 5, Andhra Pradesh, Gujarat,

Karnataka, Maharashtra and Tamil Nadu, belong to the forward states group. Uttar Pradesh and West Bengal account for the other two fortunate states. Although the overall share of external assistance for these seven states combined has been declining gradually over the years, yet a substantially still continues to gravitate to them. Reforms have again, with the exception of Uttar Pradesh and West Bengal, again favoured the forward states.

The group of forward states accounted for two-thirds of the total investment proposals, while the backward states could only muster a bare 27%. Private investment is going to Gujarat, Maharashtra and the other forward states. Although the banking sector is fairly evenly spread over the entire country, the non performing assets in the backward states appear to be high. The credit –deposit ratios are more favourable in the forward states than in the backward states. This, again, is a pointer to the direction in which development is taking place.

Political stability

Political power

Most likely scenario

M N Srinivas wrote in 1962 in his book “Caste in Modern India and Other Essays” that “Caste is so tacitly and so completely accepted by all including those who are most vocal in condemning it that it is everywhere the unit of social action”. What was said 39 years ago by an eminent and renowned scholar is true even now and is likely to hold good for many more years to come. Indian democracy has been deepening and widening and caste is being progressively used by the political parties and various interests groups as an instrument of social change. Myron Weiner (2001,199)¹ has said competitive democratic system provided mechanisms for the incorporation of the groups and elites that had previously been excluded from political power. The electoral system of first-past-the-post, and the sheer numbers of the lower castes entitled to exercise their right to franchise prompted political mobilisation of these castes in a big way. This led to rising political consciousness amongst them. Reservations in government jobs and admissions into educational institutions, as means of effecting social change, followed. These were considered essential by the political leaders to win and secure the active support of these castes. Eventually, it has resulted in the growing political clout of the castes which were earlier excluded. All this has happened ostensibly in the name of social justice, but, unfortunately, in spite of

growing political importance of the lower castes including landless lower class, educational standards have not improved to the extent that they should have. This is despite the fact that, in today's politics, there is no political party which can afford to turn a blind eye to the importance of specific castes or group of castes. The political parties have necessarily to rely on caste leaders and take into consideration the caste profile of a constituency while allocating tickets for contesting elections to the parliament and the state assemblies. Political power is, thus, slipping rapidly into the hands of those who had earlier been excluded from the exercise of political power. The process is most likely to deepen and broaden and will draw its sustenance from the importance and the crucial role that it plays in the battle of the ballots. However, the fragmentation of the society on caste and sub-caste lines would eventually make it ineffective at the hustings because of the many permutations and combinations that may be possible to win elections. Also, as economic development progresses, and the social indicators, including the status of education and healthcare, improve, there will be increasing demands for merit-based politics in place of caste based politics.

The economic divide within and between castes as a result of liberalisation and globalisation is likely to be increased. As some members of a particular caste progress further in life as a result of economic opportunities afforded to them, there will be new identities created within the same caste in the years to come. These new identities will garner the advantages offered to the particular caste as a whole and increase the economic differentiation within the caste. The policy of inclusion is likely to succeed only partially, there would still be a sizeable section of the caste which would feel excluded. Due to historical reasons and even otherwise, some castes are likely to progress at a faster pace than the others; education, healthcare, available economic opportunities and general attitude to life being the main contributing factors. What would be offered collectively in the name of social justice would most

1. Myron Weiner, 2001. 'The struggle for equality: caste in Indian politics,' (pg 199) in Atul Kohli, ed. The Success of India's democracy, Cambridge University Press.

likely be garnered by only a few of the dominant castes in the relevant groups. Economic differentiation between castes would, thus, only accentuate. All these are likely to intensify intra-caste and inter-caste rivalries, which might rock the very foundation upon which the edifice of present day caste-based politics is erected.

There could be newer forms of caste-based political parties, caste-based educational institutions and hostels and caste-based housing societies. Sub-castes might play an increasing role in generating political identities. These newer forms of institutions would be relatable to specific castes and their sub-castes, and, therefore, they are only likely to create distrust and conflict within and between castes. Therefore, caste conflicts would be intensified.

Myron Weiner² has said that we can anticipate two kinds of caste-based political struggles. At the village level, dalit agricultural labourer and service classes will continue to be embattled with the local dominant caste as they may demand higher wages and resist the armed efforts of dominant castes to keep them in their place. In the urban areas, the struggle will be between middle classes of the OBCs and scheduled castes on the one hand, and the middle and upper castes on the other over reservations and their extension. The middle classes among the forward castes will resist reservations, for they increasingly view reservations as an affront to the moral order they seek to create, one based on equality of opportunity not equality of outcome; and they will be resentful at the demand for jobs from the creamy layers who want benefits for their children.

There would be a greater demand for decentralisation of political power. Political decentralisation and the political empowerment of the OBCs and the other lower castes would be the instruments for achieving greater equity and social justice. However, unless the panchayati raj institutions are made operational in terms of financial and functional delegation not much progress can be expected. There is a positive move towards decentralisation and it is most likely that the panchayati raj institutions are firmly in position and efficiently operational by 2025. The control of most of the panchayati raj institutions would be in the hands of the upwardly mobile OBCs and other lower castes. Financial constraints which could arise out of the inability of both the Centre and the State

2. Myron Weiner, 2001, "The struggle for equality: caste in Indian politics" (pg 223) in Atul Kohli, ed., "The Success of India's democracy" Cambridge University Press.

Governments to provide adequate funds for the working of these institutions, would most likely be taken care of through innovative measures adopted by these institutions locally.

While the role of the state will progressively move from interventionist to regulatory, from maximalist to minimalist, as a result of

rapid economic growth and integration with the world order, in certain areas like education, health, nutrition, sanitation, water supply, security, natural calamities and national shocks, it will continue to maintain its maximalist position. The role of the government in economic activities would be limited to the establishment of an enabling environment with the appropriate legal and regulatory framework. The development of the rural and urban areas would be through the panchayati raj institutions and the civic bodies, whose role will be considerably enhanced. Government's superintendence over these local bodies would be through the purse strings in large measure.

There will be greater regionalisation of politics. Regional parties will play increasingly more important role in the governance of the country. The state governments would be more actively involved in economic development of their states and would exert themselves more assuredly in luring foreign capital to their states. The role of the Planning Commission and the Central government would get eroded in most spheres of economic activities except those pertaining to monetary policies. There is already evidence of a greater clamor for more devolution of powers, including, in some cases, of autonomy, to the States from the Centre. The Centre, however, would retain all regulatory and superintendence functions.

Then, as the economy progresses, and the employment opportunities in the public sector shrink, in consonance with the government assuming a minimalist role, a clamour for employment opportunities through a process of reservations in the private sector might arise. Already there are rumblings to that effect. The caste and class struggle would then spill over to an arena which has hitherto been protected from such intrusion. There would be serious attempts to ensure the fulfilment of this goal, but, most likely, the private sector, motivated as it is by meritocracy and profit maximisation, would be spared ultimately.

In the exercise of political power, the effectiveness and the strength of NGOs and the civil society is likely to get enhanced. Social or political action groups would be active for specified agendas which they may consider as being inalienable to the general welfare of the community, and exert considerable pressure on the political system for taking decisions in line with their thinking. NGOs, with deep commitment to the development of the grass-roots to bring about visible social change, would be very active, and will have their due share of political power expressed through the will of the people they would be serving. Civil society would be providing the government-citizen interface, but would

still not have matured to the extent that it would ensure the delivery of good quality services which the citizen is entitled to.

Sri Atal Bihari Vajpayee³ is of the view that parliamentary democracy has failed to deliver the goods and that the time has come to introduce systemic changes in our structure of governance. He points out that “barring exceptions, those who get elected to these democratic institutions are neither trained, formally or informally, in law making nor do they seem to have an inclination to develop the necessary knowledge and competence in the profession.... Sadly, serious debate on matters of vital public importance has ceased to take place in our elective bodies which have come to resemble akharas where noisy confrontation is the norm.” He further points out that “those individuals in society who are genuinely interested in serving the electorate and performing legislative functions are finding it increasingly difficult to succeed in today’s electoral system.” To him the reasoning is obvious. “The electoral system has been almost totally subverted by money power, muscle power and vote bank considerations of communities. As a result, although casteism and communalism may be weakening in social life, the same are being aided and abetted by the electoral process. Elections are not entirely free and fair; they are not reflecting the true will and aspirations of the people.” Without mincing words, he says: “the natural inclination of today’s MPs and MLAs is to get involved in the executive functions-that too without accountability and much capability. The extensively high premium placed on capturing power by fair or foul means is because of the elected representatives’ conviction that power is passport to personal prosperity. Corruption in the governing structures has, therefore, corroded the very core of elective democracy.”

3. Whither accountability? Excerpts from the 13th Desraj Chowdhury Memorial Lecture originally published in Pioneer and reprinted in Indian Bar Review, Vol. 25(3) (1998), pp1-4.

The exercise of political power has, thus, been a victim to the nexus between politicians –bureaucracy-criminals. Politicians have necessarily to rely on businesses and other means, fair or foul, for generating resources required for contesting elections. The emphasis given by the Election Commission of India on the correctness of the voters list, the use of the voters ID while casting vote and the universal use of electronic voting machines, are likely to substantially mitigate electoral mal-practices like booth capturing, rigging of elections, impersonation etc.

Elections would, therefore, be reasonably free and fair. To a large extent, therefore, the need for seeking the help of criminal elements in elections would be mitigated. But the need for money power would still remain. Concepts like state funding of elections will neither be sufficient nor would they be acceptable to the political parties. The hope would lie in the system detecting undue use of money power leading to the declaration of the victor as null and void. Considerable headway with the cooperation of the judiciary will be made in this direction by the Election Commission. But the malaise would still continue.

Political power will continue to be plagued by corruption. Despite efforts being made to the contrary, the extent of corruption in public life might only increase, albeit not abnormally.

The criminalisation of political power which has been on the increase in the past will slacken, but not evaporate. There is a growing tendency of criminals and persons with criminal background to contest elections on tickets allotted by the political parties in order to increase their rent seeking activity. This would be on the increase for sometime during the period 2000-25, but, then, eventually it would tend to plateau out by 2025, when the element of meritocracy in public life would start having sway. The Election Commission has already taken the first step in narrowing down the criminalisation of politics by issuing guidelines. It is for the political parties to ensure that there is no criminalisation of politics, and this they can do very conveniently by denying tickets to such elements. But this is not likely to happen so easily. Most likely, there would be a constitutional amendment or a separate enactment by the Parliament prohibiting the political parties from either sponsoring or providing ticket to a candidate who has been convicted by any court for any criminal offences or against whom charges have been framed. Persons who have been convicted of heinous crimes like rape, murder etc would be permanently debarred from contesting elections.

Political Parties

Most likely scenario

Sarkaria Commission has, in its report, stated “ a large number of splinter groups with shifting loyalties and narrow interests have been thrown up rather than large-size political parties with healthy traditions and broad outlook which could shoulder heavy responsibility if occasion arose. This has tended to encourage irresponsible political behaviour

(paragraph 1.4 . 30 of the report). The Commission has gone on to say that “effective functioning of democracy requires adherence to basic political morality. A sad commentary is the spectacle of members of the legislatures changing their allegiance from one pattern to another for personal and factional gains. The result has been an undermining of confidence in all institutions barring the few having constitutional sanction. (paragraph 1.4 . 31 of the report) The Commission has pointed out that the new political leaders were distinctly different from their predecessors. Political life was not seen as in the days of the freedom struggle as a sacrifice for the nation. Rather, it became a political career and as a means of reaching for power and pelf in varying proportions. It was the local leader commanding money, muscle power and caste or communal loyalties who came to the forefront of state politics. (Paragraph 1.4 .18 of the report)

About political parties, Sri Atal Behari Vajpayee⁴ says: “The certainty of scope of corruption in the governing structure has heightened opportunism and unscrupulousness among political parties, causing them to marry and divorce one another at will, seek opportunistic alliances and coalitions often without the popular mandate. Yet they capture, and survive in power due to inherent systemic flaws. Multi party system is the soul of democracy, but opportunist power seekers have distorted it by developing a vested interest in political fragmentation.”

From a single dominant political party, the Indian National Congress, to a multiplicity of political parties, each struggling, surviving and trying to secure and capture political power, ostensibly on the basis of serving the people, the journey has been quick and impressive. The process of inclusion of the deprived in the democratic set-up has been sharp and definite. According to Ramashray Roy⁵ the political parties have not only

4 Whither accountability? Excerpts from the 13th Desraj Chowdhury Memorial Lecture originally published in Pioneer and reprinted in Indian Bar Review, Vol 25(3) (1998), pp 1-4.

to make democracy vigorous, dynamic and vital so that it can promote and safeguard the realisation of the goals the political community has set for itself. They have also to function in accordance with the rules and procedures that makes democracy distinct and universally preferable system of governance. The multiplicity of political parties has meant the determined wooing of specific electorates by the smaller and the rather powerful regional parties in a bid to establish and maintain committed vote banks for capturing power in coalition with other political parties, despite, unfortunately for the health of the democracy, the convergence of

views or ideologies on some crucial matters of state policy. Mainly, it is a marriage of convenience for the sole purpose of remaining in power, notwithstanding the promises made to the voters during the elections. It also degenerates at times to a mere process of give and take the loaves and fishes of office, with no relevance to economic and social well being of the people. Inward looking political parties, whose very existence and importance being dependent upon the support of a small minority of the people, frequently tend to rock the coalitions with in-fighting, each trying to pressurise the other for the sake of promoting their own narrow vision. The national parties, particularly the Congress and the BJP, have, however, been dealing with the prevailing instability by introducing flexibility in their approach to their ideologies, vision and strategy in order to capture power alone or in coalition with other parties. Most likely, the scenario may only intensify in the years to come till the eventual emergence of two or three sets of ideologies: one, right of center, and the other, left of center, or a mix of both. This would not, however, mean the emergence of a two-party democracy. There would a multiplicity of parties based on the support of different segments of the society, but there would be a near convergence of views on important matters of state policies. Elections would then be fought on the basis of two or three common platforms, each platform comprising of a set number of national, regional, state and other local political parties. Each platform will evolve its own social, economic and political ideologies on the basis of a common minimum programme, indicating a near convergence of views to offer to the electorate to choose from.

Regional parties and state parties operating at local levels would become stronger and more important, and increasingly share the burden

5. Ramashray Roy, 2001, " Making the party system in India work " (pg. 275) in V. A. Pai Panandiker and Subhash C. Kashyap, eds., Political Reforms: Asserting civic Sovereignty, Centre for Policy Research, Konark Publishers.

of the running of the affairs of the Central Government. The trend is likely to only intensify. The process will throw up in the long run strong regional political leaders who would eventually shift and bring to the Central Government their rich experience in the management of affairs of the state governments. This would enrich the quality and calibre of the political masters at the helm of affairs at the Centre, and also strengthen centre-state relations for the purpose of managing the affairs of the Centre

The political parties, in view of the rapidly unfolding political competition, will be compelled to set their houses in order to be able to pursue their goals with competitive political strengths. Internal party democracy would be the means to achieve competitive political strength. It would take some time for the state/regional leaders who have founded these political parties to give in to the hard realities of political competition. But most likely they would see the writing on the wall and bring in inner party democracy, albeit without many questions being raised about their own undisputed status within the party. The national and other more mature political parties, who have had their share of cult worship in large measure, would readily turn to inner party democracy. But there would not be a return to total party democracy; it would still be curtailed, and hero or cult worship for the avowed purpose of vote catching would still continue. Instead of the decision-making process cascading down to the village levels, there would still be considerable concentration at the top. This is unlikely to change, even as the panchayati system throws up a large number of local leaders who would not only exert greater influence, but also pose ever increasing challenges to the powerful personalities at the apex.

Political parties will continue to base their survival instincts on committed vote banks, albeit small, till such time that the system of first-past-the-post for winning elections continues. Broad basing of the appeals of political parties will take place only when this system of winning election is changed to 50% +1 vote. With the likely universal use of electronic voting machines in the conduct of elections, it has become easier, without loss of time, for a run-up contest between the two candidates who secure the highest number of votes in the preliminary election. By 2025, it is most likely that the system of election would be changed to 50% +1 in place of the existing first-past-the post. The political parties will broad-base their vote banks, and no longer remain confined to a narrow band of voters. The process would involve, first, deeper fragmentation of the society on sub-caste, caste, class and community lines, and, then, convergence of interests for sharing of power while maintaining their individual identities.

Political parties will increasingly experience the need for developing leaders at the local levels in order to participate in the Panchayati Raj institutions in an effective way. Once these institutions become fully operational with the devolution of resources and delegation of financial and administrative powers as enshrined in the constitution, the political parties will be get focussed on these institutions. Soon the process of graduating from the levels of the panchayati raj institutions to the state

assemblies, and thence to the parliament, would develop. Most likely, by 2025, this process would be in position, and it is also likely to help the development of inner party democracy. The gradual process of enlargement of the constituency for the local leader would induce him to broaden his appeal to cover voters whom he had earlier ignored.

By 2025, India would have successfully crossed over the period of transition towards a stable multi-party system. But during the interregnum, political instability would continue as coalitions of ideologically different parties would govern both in the states and at the Centre. Two major issues would dominate: economic policies and secularism. Attempts at consensus building on the broad parameters of economic reforms to deal with internal problems and the external forces of globalisation have only partially succeeded. There will be greater pragmatism in the years to come, with differences persisting only on the timing, pace and depth of the reforms to be introduced. This will necessitate negotiation and compromise. But despite a multitude of vested interests, there would be general agreement on the economic direction that the country would be taking. Similarly, in regard to secularism, there would be a greater acceptance of India as a multi-cultural state, in harmony with different shades of religious beliefs. Here again, pragmatism would prevail over bigoted attitude, more so, as economic growth would be enhancing the well-being of the deprived sections of the society. The compulsion of enlarging the support base of the political parties due to the change in the electoral system to 50%+1 vote for winning an election, would mean, for a multi-party system, a constant readjustment of the ideologies of these political parties to include as many of the others in a coalition as possible in the interests of political stability. There would be a realignment of the ideologies and the relationships between the political parties giving rise to new national or regional political identities and greater understanding of the regional and cultural differences. A stable multi-party system would have firmly been in position resulting in greater political stability in the long run. Selfish and narrow interests of the smaller and the regional political parties would, after some negotiation and compromise, give way, without losing their own specific identities, to considerations of national interest and economic well-being of the masses, albeit under some constraint.

As a regulator of the political parties, the Election Commission of India would have gained considerable clout and strength. It is likely to ensure greater transparency in various activities of the political parties. Membership drives, subscriptions, donations and party as well as election expenses are all likely to become more transparent than before. Along

with transparency would come greater public scrutiny and accountability. New independent NGOs, members of the civil society and the media would all be sensitised to perform the functions of public scrutiny of the activities of the political parties, who would then have to become more accountable for survival. A politically competitive environment in a stable multi-party system in association with a strong and vibrant Election Commission is likely to ensure all these.

Coalitions

Most likely scenario

As the political scene has unfolded in recent years, it is clear that there is no likelihood of a single dominant party in the years to come to match the Indian National Congress of pre-1967 era. A multiplicity of regional and the national parties has made coalitions a political necessity to capture power, as no individual party has a political base wide enough to ride to power on its own. The two premier political parties, the Congress and the BJP differ widely in their social base. While the Congress is stronger among those at the lower end of the social and economic spectrum and weaker the higher the educational, social status and economic well being of the social group, the BJP has a reverse support base.. Thus the former has a slight left of center bias and the latter a more pronounced pro-market right of center tilt. Besides, there are many smaller players who have gained strength and would resist any curtailment of their power. Powerful regional parties who have made and unmade governments in the recent past also belong to this category. The fragmentation of political strength would continue to exist. It might get exacerbated in the medium term, but soon thereafter, pragmatism would take over, and there would be either coalitional platforms of common minimum programmes or a blending and fusion of ideologies to be able to capture power. Coalitional politics would not mean absorption of the smaller political parties in the bigger ones. Far from it. The possibility of being a partner in the sharing of power even with reduced number of representatives in the legislatures and the parliament would prevent such absorptions. Each party would retain its individual identity; only for the sake of political expediency and the desire to capture political power, there would be blurring of the political ideologies differentiating the parties.

Despite the innate ambitions of both the Congress and the BJP to form government at the centre and the state levels entirely on their own, it would be difficult for the Congress to regain its former space, and the

BJP to substitute the former. Coalitions would, thus, be built around the following matrices: federalism inclusive of fiscal autonomy, the expansion of a welfare network combined with carefully calibrated market reforms and the expansion of opportunities for the deprived sections of the society that were denied the right to live with dignity in the past. The Congress and the BJP would continue to hold the centre stage, and would try to build alliances with like-minded regional parties. There would be, in view of the fragile nature of the coalitions and the growing political importance of regional and state level parties, increasing expansion of autonomy to the states as well as space for smaller groups to share power and assume responsibility.

Coalition governments would have their own cup of woes. Once a coalition is formed, cracks would develop because of parochialism, ego clashes, indefensible demands and irresponsible behaviour of coalition partners. To bring about a semblance of stability among the coalition partners, the system of coordination committees will gain ground. Differences among the partners would be aired in these coordination committees, and a workable solution based on compromises would be struck after detailed and protracted negotiations among the coalition partners. This could at times lead to weakening of the government's resolve on many issues, including the questions related to economic policies and reforms. There would be a visible, and, at times, questionable, trend towards distribution of largesse to the constituents of powerful regional and state level political leaders and parties in order to keep the coalition together. Aware of the fact that it may not be feasible to contest elections successfully alone, the political parties would tend to forge pre-election alliances on the basis of common minimum programmes. These programmes would provide the foundation for future policy generation. It is likely, as experience is gained by the political parties, that these common minimum programmes would assume ideological proportions.

The frequent breakdown of coalition governments in the recent past has made stable government virtually impossible. Apart from heavy electoral expenses, a great burden on the state exchequer, there has also been a slowdown of economic development which is so important for poverty alleviation. Most likely, however, the process of democratisation and learning from experience would cobble up two or three stable coalition platforms. Political stability would be further strengthened by changes in the electoral laws mandating the victor to secure at least 50%+1 vote.

Federalism and multi-level governance

Most likely scenario

From a centralised federalism with a strong centre look, the journey has taken India to cooperative federalism resulting in a collaborative and participative arrangement between a powerful centre confronted with increasingly assertive states. The inexorable growth of the regional and the state parties due to the widening and deepening of the democratic processes has resulted in political coalitions for the purpose of power sharing both in the states and the Centre.. The process of change is likely to get strengthened further as there is no likelihood of a single party dominance emerging in future. The political space at the states level may ultimately be shared by two alliances, either pre- or post- electoral. The centre may witness a combination of political parties sharing political power in coalitions, because no same two parties or alliances would be in power in all the states. This would inevitably mean the weakening of the Centre and the strengthening of the States.

There would, thus, be less and less of central intervention in matters that are germane to the state administration, particularly management of the finances and law and order. Resource transfers from the Central pool to the states would be more liberal, and successive Finance Commissions would be alive to the new found Centre-state relationships. The use of discretionary powers in matters of resource transfers by the Centre would get limited. The States, on their part, however, would have to be more and more responsible in financial management and the political parties or alliances in power at the state level would be frittering away the resources of the state only at their peril and political backlash.

With the opening up of the country's economy to the play of the market forces as a result of rapid globalisation and liberalisation, an era of competitive federalism within the states has been ushered in. The Centre is likely to withdraw more and more from its erstwhile role of attracting Foreign Direct Investments and Foreign Institutional Investments and confine itself increasingly to providing an umbrella within which the states would be more effectively operational. This would, in essence, mean a greater role for the individual states in the development of its region, and the space which the Centre used to occupy for ensuring a balanced regional growth would now be left largely to the initiatives of the individual states. Differential rates of population and economic growth would accentuate the regional disparities resulting in the rich states becoming richer and the poor states poorer. This will lead

to migration of population to the developed states from the poor ones in search of employment opportunities. Tensions and dissatisfactions created as a result of imbalanced regional growth would, however, have to be taken into consideration by the Centre where its role will become more prominent. Asymmetrical federalism and special status provisions, including special fiscal regimes and incentives will help address these problems to some extent.

There will be a greater clamour from the regional and state parties to participate in the decision-making process at the Centre, particularly in those fields which directly or even indirectly affect their fortunes. This would be effected by informal conclaves of like-minded and similarly affected Chief Ministers, who would jointly or severally bring pressure on the Centre to fall in line with their approach. Institutions like the National Development Council and the Inter State Council would lose their sheen and the informal conclaves would become more prominent.

Because of the growing strength of the states in political power, the Centre would be hesitant to use Art 356 to dismiss state governments. More and more it would be the state legislatures where the fates of the state governments would be decided. The institution of State Governors for interference by the Centre in the affairs of the States would be considerably weakened. There would, however, be increasing use of the provisions of Art 355 when the situation so demands.

The Panchayati Raj Institutions, as embodied in the 73rd and 74th constitutional amendments show considerable promise as the base building blocks of Indian federalism and the process of democratisation. Although the constitutional provisions have not yet been fully implemented due to a variety of vested interests of politicians and bureaucrats alike, yet there is a growing consensus on more vigorous movement towards the fuller realisation of these provisions. Greater delegation of authority and fuller devolution of funds, mandated by the successive Finance Commissions, would see these institutions grow in strength. They will form the building blocks for all political activities in future, including grooming of future leaders of the political parties. These institutions will be the battleground for intra-party democracy, and inter-party competition for political strength and sharing of political power. They will be providing the markers for state party leaders and national leaders in the years to come.

A caveat. In India, with its cult of hero worship, much would depend upon the quality of leadership that the political system throws up.

Therefore, while there would be a federal coalition of different political parties at the centre for the purpose of power sharing, a strong leader of a political party would be in a position to extract implicit and total allegiance from all the Chief Ministers belonging to his political party. In the operationalisation of the federal system, the individual strength of the state leaders would get compromised to that extent. Intra-party democracy, in its true sense, may still be a far cry by 2025.