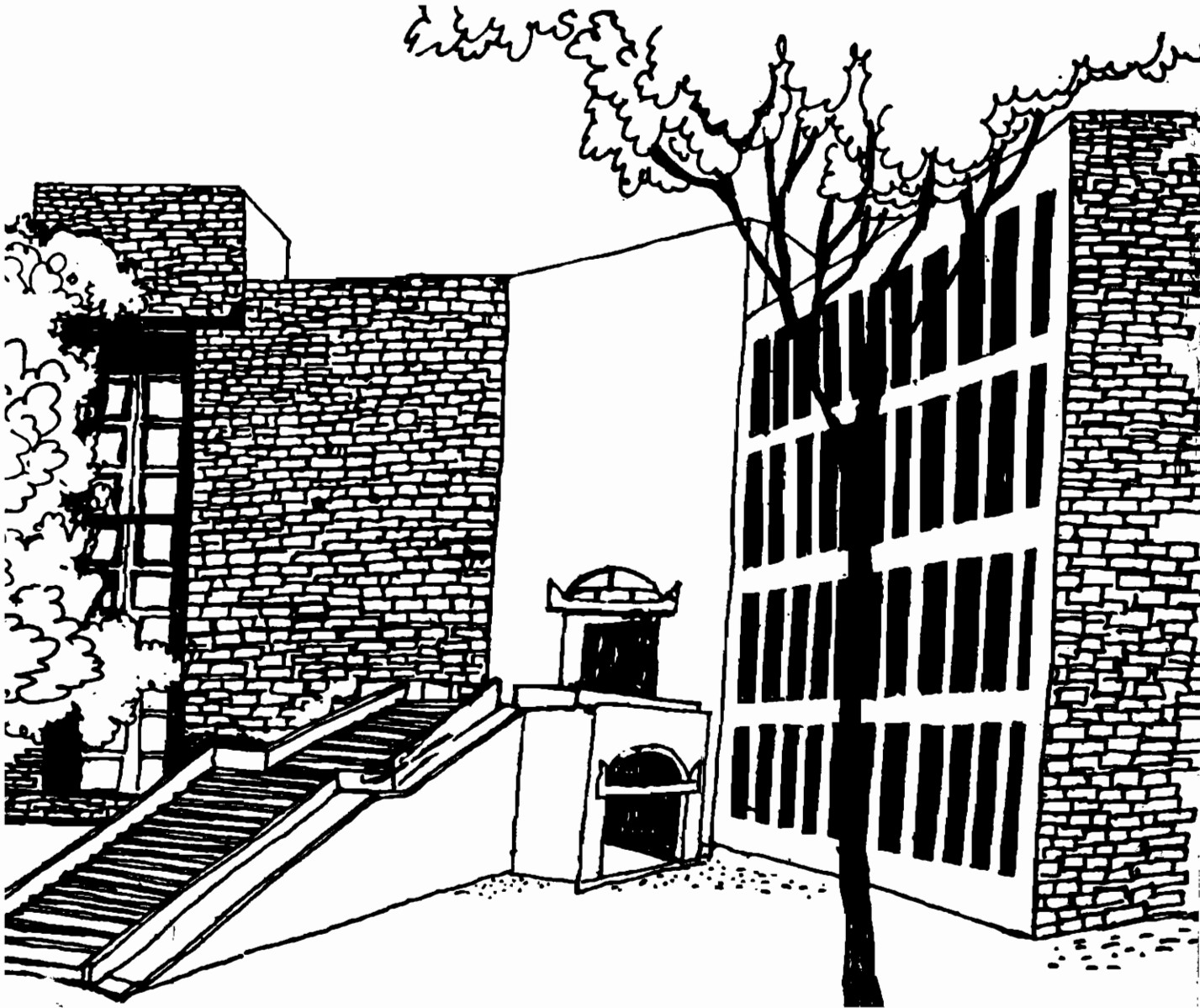




Working Paper



Human Development in India: A Macro Perspective

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Sunil Kumar**

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Human Development in India: A Macro Perspective

By

Shekhar Chaudhuri and Sunil Kumar

ABSTRACT

During the 1950s and 60s the concept of development ignored the social dimension. However, during the last three decades several new concepts have emerged concerning "development" at the national and the global levels. Today the human factor is a central concern in "development." This paper discusses some key aspects of the process of Human Factor Development (HFD) in India with a focus on the post independence period and identifies important influencing factors. We have analyzed HFD in the paper on the basis of four dimensions; a) standards of living, b) skill formation and knowledge acquisition, c) utilization of skill and knowledge, d) human values and ethics.

Our analysis suggests that HFD in India has two disturbing trends. Firstly, it seems that actions by professionals and political leaders of the country are not governed by ethical and moral considerations. Secondly, a very small proportion of the country's population possesses sophisticated knowledge and skills. Moreover, these people are trained at the country's premier institutions at high cost to the society. But, their knowledge and skills are not being properly utilised and the country continues to have a high incidence of poverty, child labour, and illiteracy. Synchronised efforts are required from the academia, policy planners, political and religious leaders of the country to achieve the desired economic growth and development by concentrating on HFD.

Human Development in India: A Macro Perspective

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1. Introduction: During the 1950s and 60s the concept of development ignored the social dimension. However, during the last three decades several new concepts have emerged concerning "development" at the national and the global levels. Today the human factor is a central concern in "development."

"Development" means development of people. This approach to understanding "development" is very different from the earlier concept which treated economic growth and development synonymously. Economic growth and human development may not move hand in hand as evident from table 1 which provides country wise comparison on life expectancy (a surrogate measure of "well being" of people) and per capita GNP.

Table 1		
Rank of Selected Developing Nations based on GNP/Capita and Life Expectancy		
Country	Based on GNP/head (1991) (US \$)	Based on Life Expectancy at birth in 1992
Singapore	7	5
Korea, Rep. of	8	18
Sri Lanka	57	12
China	68	16
India	72	52
Afghanistan	93	94

Source: Human Development Report, 1994.

It is evident from the above table that higher per capita income alone may not ensure better living conditions. It is therefore imperative that if "well being" of humans is considered

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important, the development strategy must consider them as a central concern.

This paper discusses some key aspects of the process of Human Factor Development (HFD) in India with a focus on the post independence period and identifies important influencing factors.

2. An Organizing Framework: The organizing framework for the paper is shown in Figure 1. HFD is influenced directly as well as indirectly by the economic and institutional environments. The interaction between economic environment, human factor development process and Institutional Environment (IE) is complex. Economic Conditions (EC) may influence HFD in a variety of ways. The economy provides opportunities for employment and utilization of available skills. Economic conditions also influence living standards and further skill formation and knowledge acquisition. It also influences the institutional environment through the creation of new institutions and sustenance of existing institutions through supply of funds and creating demand for the activities of various institutions. The institutional environment as conceptualized here comprises the higher level educational and research institutions. The institutional environment plays a major role by providing facilities for the development of people's knowledge and skills. Another role, played by the institutional environment, is that of providing employment opportunities to research workers and academicians. The institutional environment is also influenced by HFD as well as influences EC. Figure 1, however, shows arrows from EC and IE towards HFD. In this paper our attempt would be to primarily explore this influencing process.

The other variable shown in figure is "Government Policies" which is outside the rectangular box. The government plays essentially four role; a) catalyst, b) regulatory, c) entrepreneurial, and d) supportive. It can catalyze the creation of institutions, regulate their functioning, set up institutions owned by the state, and support various institutions through

providing funds and technical and other kind of support. Government policies related to education, science and technology, economic planning and industry and their impact on HFD in India have been explored in this paper.

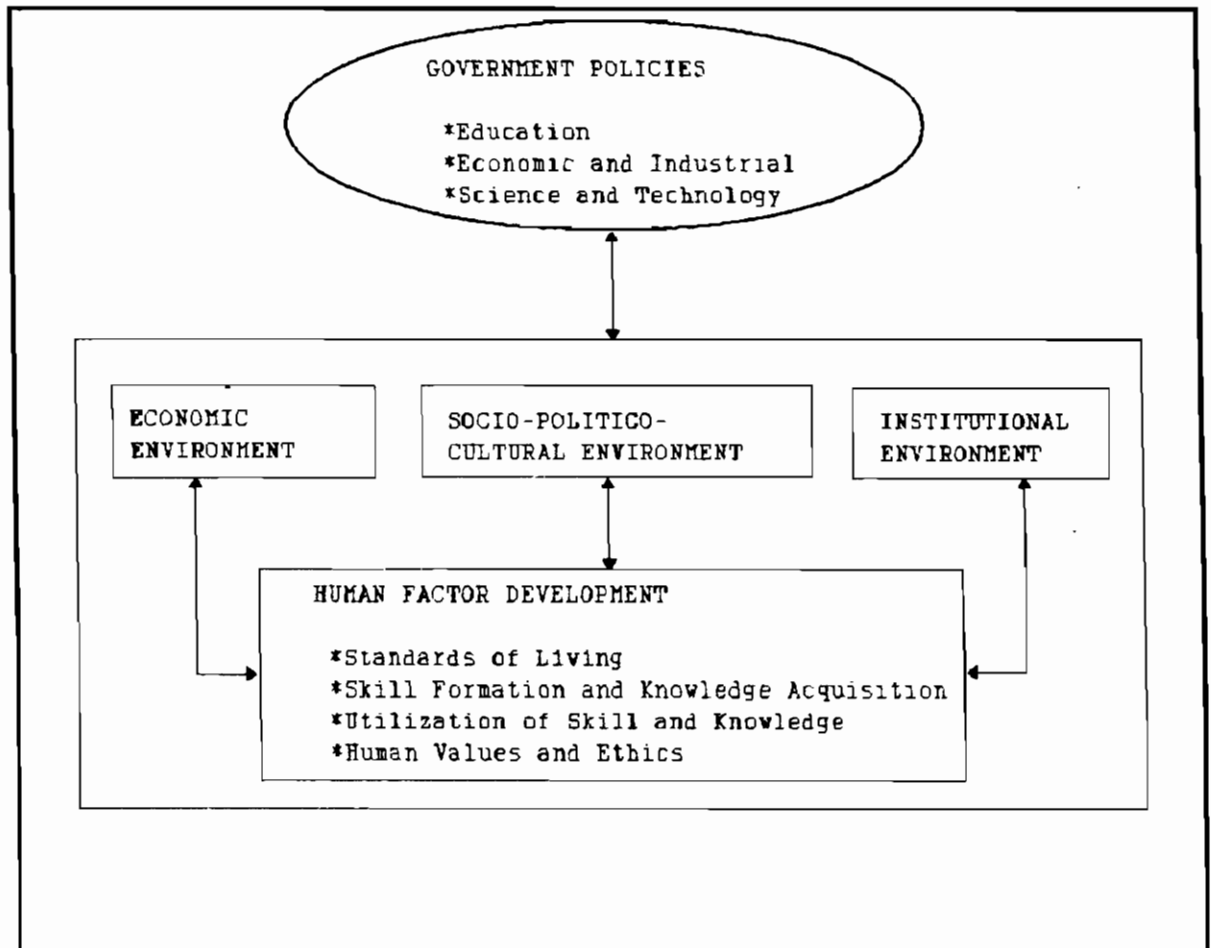


Figure 1

3. Human Factor Development: Adjibolosoo (1995) provides a comprehensive definition of Human Factor (HF) which according to him is essential for superior performance of firms engaged in global competition. We shall adopt his definition in this paper. According to him HF comprises six dimensions; spiritual capital, moral capital, aesthetic capital, human capital, human abilities and human potentials. He emphasizes that it is the availability of the relevant HF that provides the necessary leadership qualities for achieving higher productivity and quality.

We have analyzed HFD in the paper on the basis of four dimensions, which according

to us would capture essential features of the definition provided above. The four dimensions are; a) standards of living, b) skill formation and knowledge acquisition, c) utilization of skill and knowledge, d) human values and ethics. Living standard has been assessed in this paper on the basis of a) economic condition, b) health, and c) status of child labour. Skill formation and knowledge acquisition is dealt with at three levels; a) elementary and secondary education, b) adult education, and c) higher education. Utilization of skills is assessed at a macro level by using data on applications on live register of employment exchanges as a surrogate. Values and ethics are assessed broadly on the dimensions of justice, honesty, sensitivity towards others, and fairness. Due to the very nature of the concept, it is difficult to quantify these dimensions. We have attempted to describe the traditional values very briefly and comment on the contemporary scene with a special reference to the professional class and the political leadership.

3.1 Living Standards: The concept of "standard of living" may be interpreted in a variety of ways and hence multiple measures have been used to assess the same. Some of the macro-measures commonly used are: a) per-capita income, b) per-capita electricity generation, c) per capita availability of food grains and milk. An example of a micro-level indicator is distribution of household expenditure. Per-capita income is an important measure of economic "well being" which has widely been used by researchers (Clark and Roy, 1994; Moon, 1991).

Morris (1979) popularized the concept of "real development" with his index of basic human needs which included life expectancy, infant mortality rate, and literacy rate. Literacy rate is also an indicator of the level of skill and knowledge formation. Standard of living of children has largely been ignored by researchers. Hence to get an overall perspective on the standard of living in India, we have considered three main dimensions; a) economic, (measured by per capita NNP, b) health (measured by child mortality rate and life expectancy at birth), and c) status of child labour.

3.1.1 Economic

India's per capita NNP nearly doubled during the period 1950-51 to 1993-94 (Table 2).

However, the level of economic well being in India is very low as compared to world standards.

The Human Development Report (1994) placed India 72nd among developing nations in terms of per capita GNP.

Table 2			
National Product (At 1980-81 Prices)			
Year	Net national Product*		
	Total (Rs Crore)	Per Capita	Index number of NNP per capita
1950-51	40450	1127	100.0
1955-56	48288	1229	109.0
1960-61	58602	1350	119.8
1965-66	65734	1355	120.3
1970-71	82211	1520	134.9
1975-76	95433	1572	139.5
1980-81	110685	1630	144.7
1985-86	139025	1841	163.6
1990-91	185683	2213	197.2
1991-92	185503	2167	193.2
1992-93	193222	2216	197.5
1993-94	202670	2202	197.0

*At factor Cost

Source: 1. Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.
2. Agarwal, A.N. and Varma Hari Om (1996). India: Economic Information Yearbook (1996).

Per capita NNP has grown at an average rate of 1.7% per year at factor cost (1980 prices) since independence. However, there have been some fluctuations. While per capita NNP declined by a record 8.2% during the year 1979-80 (NNP declined in this year by 6.0%), it improved by 8.3% in 1988-89. On a year to year basis during the period 1951-52 to 1993-94 India recorded a reduction in per capita NNP in eleven years (Agarwal, 1996).

Slow and irregular rate of growth of per capita NNP is coupled with uneven income

distribution. This is reflected in the high level of poverty (Table 3).

Table 3			
Percentage of Population Below Poverty-Line in India			
Year	Rural	Urban	Total
1972-73	54.1	41.2	51.5
1977-78	51.2	38.2	48.3
1983-84	40.1	28.1	37.4
1987-88	33.4	20.1	29.9

Source: Agarwal, A.N. and Varma Hari Om (1996). India: Economic Information Yearbook (1996).

Though the percentage of population below the poverty line of Rs. 101.80 for rural areas and 117.50 (at 1983-84 prices) for urban areas has come down during the last five decades since independence, the absolute number of people below the poverty line has reduced only marginally.

Regional and communal disparity is another characteristic of the pattern of poverty in the country. Poverty among scheduled castes and scheduled tribes is more than 50 per cent and 57 per cent respectively (CMIE, Standard of Living of Indian People, 1988). In 1987-88 Punjab had only 7.2 per cent of its population below the poverty line which was the lowest in the country while Orissa had the highest incidence of poverty with 44.7 per cent.

3.1.2 Health

Child and infant mortality rates reflect the basic human need of survival and are considered strong measures of standard of living. Table 4, below, indicates an improvement of infant mortality rate from 173 in 1955-56 to 88 during 1990-95. Child mortality rate too has come down from 152 to 46 in the same period. Still, India's performance is below average. India was placed 64th among developing nations on the basis of infant mortality rate by the Human Development Report, 1994.

Table 4		
Mortality of children in India		
Year	Child mortality rate	Infant mortality rate
1955-56	152	173
1960-65	128	157
1965-70	110	145
1970-75	96	135
1975-80	84	126
1980-85	64	110
1985-90	55	99
1990-95	46	88

(Source: 1) Ross et.al 1988 and 2) Government of India reports)

Improved health condition is also reflected in improved life expectancy at birth. Life expectancy of females at birth has improved from 40.6 years in 1960-61 to 58.7 years in 1990-91 (Agarwal, 1996). This is a reflection of improved pre- and post-natal care. As a matter of fact, in 1990-91 life expectancy of female child at birth stood higher than that of male child. This perhaps is an indicator of change in attitude of Indian society towards nutritional needs of the female child. However, life expectancy of female child in India is much lower than the average life expectancy of 64.5 years for all developing countries. The World Development Report, 1994 placed India 52nd among developing nations in terms of life expectancy at birth.

Unlike economic indicators, health indicators have shown continuous improvement in India. Development experience of India indicates strong negative correlation (-0.9788 with a significance level of .001) between per capita NNP and infant mortality rate. This apparent paradox may be explained by the impact of population growth rate of more than 2 per cent per year. India achieved a GDP growth rate of more than 4 per cent since independence as against

only 1.2 per cent in the pre independence period (1900-1947). But the problem of poverty continues due to high population growth rate.

3.1.3 Child Labour

Use of child labour continues in the country even after five decades of independence, an indication of the poor standard of living (table 5). The table shows that during the period 1961-81 children employed in hazardous processes has increased considerably and the total number has increased during the 1971-81 period.

Table 5		
Child labour in India		
Year	No. of children in banned and hazardous processes (Million).	Total no. of child labour (Million)
1961	0.308	14.5
1971	0.374	10.7
1981	0.671	13.6

Source: Census of India: 1961, 1971, 1981.

Reasons for using child labour are poverty, illiteracy and parental ignorance. Child labour results in educational backwardness. Students drop-out from their schools very early to take up some job.

One of the authors had an opportunity to visit glass units of Firozabad (small city in north India) and carpet making firms at Bhadoi and Mirzapur in north central India. During his visit the author found that children were employed by the glass industry for low wages and in the in the carpet industry they were employed mainly for making fine quality of carpets because of their thin and tender fingers, which enabled them to achieve higher productivity and produce better products. International pressure on the government has forced it to take steps to ensure that children are not exploited. The government has begun issuing "Kaleen" certificate for carpets

made without child labour. Implementation of such schemes, however, is difficult as the carpet industry is spread all over the country and is generally in the unorganized sector. The problem of child labour is likely to continue until the economic status of the poorer strata of the society is improved.

3.2 Skill Formation and Knowledge Acquisition:

3.2.1 Elementary and Secondary Education:

Improvement in elementary and secondary education since independence has been rather slow. The number of middle schools increased from 49663 in 1961 to 155707 in 1994. Primary schools have increased from 330399 to 572923 in the same period. However, India's population too nearly doubled in the same period. Hence, the growth rate of primary schools was less than the population growth rate resulting in overcrowding in primary schools, and specially in urban areas. Another significant feature of primary education is drop-out rate. Though the enrollment in primary schools has increased by more than 200 per cent in last 35 years, more than 60 per cent of this schooling population drop out after six years of education (Agarwal, 1996, p301). These drop-outs are mostly girls. While 104.5 per cent boys in relevant age group are enrolled in middle schools, the percentage of girls drops down to a poor 79.3 per cent (Table 6). Moreover, a large Indian population which did not receive formal education during their childhood remains illiterate after even five decades of independence. This reflects the poor level of skill and knowledge of the huge Indian population.

Table 6									
Enrolment in Different Stages of Education as a per cent of Population in the appropriate age group									
Year	Primary class 1-5 (6-11 years)			Middle Class 6-8 (11-14 years)			Higher Secondary 9-12(14-17 years)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1961	82.6	41.4	62.4	33.2	11.3	22.5	16.7	4.1	10.6
1971	92.6	59.1	76.4	46.5	20.8	34.2	27.1	10.2	19.0
1981	95.8	64.1	80.5	54.3	28.8	41.9	23.1	11.1	17.3
1991	115.3	86.0	101.0	73.4	46.1	60.1	NA	NA	NA
1994	115.3	92.9	104.5	79.3	55.2	67.7	NA	NA	NA

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

3.2.2 Adult Education:

Literacy rate was abysmally low at 16.6 per cent at the time of independence. Different schemes for adult education have improved the literacy rate significantly since independence. India achieved a little over 50 per cent literacy rate by 1991 (Table 7).

Table 7			
Literacy rate in India			
Year	Literacy Rate (per cent)		
	Person	Males	Females
1931	8.3	NA	NA
1941	14.6	NA	NA
1951	16.6	24.9	7.9
1961	28.29	40.38	15.31
1971	29.48	39.52	18.70
1981	43.67	56.50	29.85
1991	52.21	64.13	39.29

Source: India 1995. Ministry of Information and Broadcasting, Government of India.

In 1994 India was placed 71st among developing nations by the Human Development Report.

Female literacy rate in the age group 15-24 years in India is low at 40 per cent against the average of 67 per cent among developing nations.

3.3.3 Higher Education-Engineering and Medical:

There has been impressive growth in the number of skilled engineers and doctors in the country. The level of enrollment in engineering and medical colleges went up from 48000 and 40000 respectively in 1961 to more than 270000 and more than 138000 respectively in 1994. Availability of doctors increased from 17 per 100,000 persons in 1951 to 48 in 1992 (Agarwal, 1996).

A similar pattern is observed in the field of general higher education too. Enrollment in first degree and higher level courses went up from 4,94,000 in 967 colleges in 1994 (Manpower Profile India Yearbook 1995). Improvement in enrollment has increased the stock of engineers and doctors in the country (table 8).

Table 8				
Estimated Stock of Graduates in Engineering and Medicines (allopathy)				
Year	Engineering		Medicines	
	Number	Yearly growth rate	Number	Yearly growth Rate
1951	-		59500	
1961	64000	-	75000	2.6%
1971	174500	17.2%	123500	6.4%
1981	304900	7.4%	219510	7.8%
1991	519600	7.0%	296400	3.5%
1992	553000	6.4%	304000	2.6%
1993	587300	6.2%	312000	2.6%

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

The stock of engineering graduates increased by 17.2 per cent from 1961 to 1971-the

highest rate during the periods given in table 8. The stock of graduates doctors experienced the highest rate of growth during 1971-1981 though the growth rate during the previous period was also high. The decade of the eighties and the early years of the nineties, however, exhibit a slow down in growth rate of the stock.

The impressive increase in the stock of doctors and engineers, however, is not reflected in per capita availability due to high population growth rate. As a result, India compares unfavourably with other developing nations. India has a density of 3.5 scientists and technicians per thousand persons against 49.5 scientists and technicians per thousand persons in the Republic of Korea and 29.5 in Brazil (Human Development Report, 1994).

3.3 Utilization of Available Skills and Knowledge: Efforts to improve the technological, social and other skills and knowledge of the population would be meaningless without their utilization. Its measurement, however, is very difficult because of its inherently subjective nature. However, distribution of applicants on the live register of employment exchanges may be used as a surrogate measure of skill and knowledge utilization though it goes without saying that this is only a rough measure.

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Table 9 Distribution of Applicants on Live Register of Employment Exchanges by Educational Level (Thousands)						
Educational Level	1971	1976	1981	1986	1991	1992
1. Matriculates	1296.8	2828.6	5878.1	8682.0	13110.9	13528.5
2. Undergraduates	605.2	1255.2	2325.5	3806.0	5516.4	5572.7
3. Graduates	354.4	926.2	1542.9	2306.6	3387.5	3450.1
i) Arts	147.0	416.3	751.8	1066.7	1398.3	1367.7
ii) Science	99.2	241.3	337.2	467.6	659.9	690.4
iii) Commerce	52.2	137.0	251.6	429.1	611.3	607.2
iv) Engineering	18.6	18.1	19.9	38.3	124.3	137.5
v) Medicine	3.8	8.2	15.6	23.8	30.8	28.1
vi) Agriculture	7.3	8.3	13.0	24.9	31.7	29.7
vii) Education	22.7	85.9	127.1	225.6	442.4	486.5
viii) Others	3.6	11.1	26.7	30.4	88.8	103.0
4. Postgraduates	39.2	94.8	141.9	293.1	419.7	455.0
i) Arts	18.9	52.6	81.8	162.9	213.5	228.5
ii) Science	10.1	24.6	28.0	57.4	90.9	94.3
iii) Commerce	2.9	9.5	17.8	36.1	57.3	61.7
iv) Engineering	0.4	0.3	1.6	0.7	4.1	3.7
v) Medicine	0.1	0.3	0.8	1.9	2.9	3.2
vi) Agriculture	0.7	0.9	0.9	1.5	2.7	3.9
vii) Education	4.7	4.8	7.3	22.8	31.5	34.1
viii) Others	1.4	1.8	3.7	9.9	16.8	25.6
Total	2295.6	5104.8	9888.4	15087.7	22434.5	23006.3

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

Table 9 indicates that the level of utilization of the available skills in the country has declined sharply in the recent past. The number of engineering graduates, registered with employment exchanges, has increased from 38.3 thousand in 1986 to 137.5 thousand in 1992. In the field of medicine too, the number of registered graduates with employment exchanges has increased from 3.8 thousand in 1971 to 28.1 thousand in 1992. Even highly skilled 3.7 thousand post graduate engineers and 3.2 thousand post graduate doctors are registered with employment exchanges. It is estimated that the number of engineers in the working age group is more than 587,300 (IAMR, 1995) in the country, which implies that skills of more than 20 per cent of engineers in the country remain unutilized.

The Indian labour market exhibits two important characteristics. Firstly, on an aggregate

basis India's population is characterized by a low level of skill and knowledge. But there exists a small proportion of the population which possess a high level of skill and knowledge. The higher level skill and knowledge of the latter, however, has not been utilized fully.

3.4 Human Values and Ethics: India is an ancient land having a vast geographical area. She has seen the confluence of diverse religions and cultures brought in by invaders and that of the indigenous peoples. The contemporary human values and ethical beliefs are a result of this intermingling process. A variety of factors have influenced the value and ethical development process such as; technology, income and social status, language, racial stock, economic conditions, etc. As such there are regional variations in the values and customs of people. It is no wonder therefore that it is widely believed that it would be meaningless to think about something that can be called "Indian culture" or "Indian values". On the other hand any outsider visiting different cities and regions would easily discern significant commonalities in behaviour patterns amongst individuals depending on relationships, religious and social customs, conception of the individual's purpose in life, duties and rights, etc. Chakraborty (1995, p.3) states: "...Besides the indigenous Vedantic, Buddhist, Jaina and Sikh traditions, Indian culture has absorbed numerous enriching strands from Islamic, Christian and Parsi traditions. And yet even within this great diversity of outward forms of culture, e.g. crafts, music, architecture, dress, painting, food and so on, we detect also numerous significant commonalities constituting a distinct class when compared to non-Indian cultures ..."

Hinduism is the dominant religion in the country with approximately 85 per cent of the population under its fold. Many customs and traditions have been influenced by the values espoused by this dominant group. According to Indian tradition the two main goals of human beings are *abhyudaya* or prosperity and *nihsreyasha* or ultimate consummation. *Abhyudaya* comprises three aspects; *dharma* or rectitude and righteousness; *artha* or money and wealth; and

kama or desires and needs. Nisreyasha or ultimate consummation refers to the end state of all human beings which results in the liberation of the spirit. Most people attain this state over a long period of time though a few may consciously pursue this goal and achieve it in a shorter period. An important aspect of the Indian ethos is nishkama-karma or desireless work or karmayoga. The advice given by the scriptures is that one can become more effective and efficient in work when it is done in all humility as an offering to God and not out of the compulsions of egoistic vital drives (Chakraborty, 1995). Great leaders like the Buddha, Vivekananda and Gandhi lived by these values and tried to disseminate them through their personal examples. They lived in simplicity and self denial.

It should be noted that in the past though these values were strongly ingrained in the Indian psyche, they did not come in the way of economic development in a general sense. This is borne out by history. Over the ages India has been the favourite target of invaders from the north as well as of the sea faring traders from Europe because her wealth. According to Sri Aurobindo (1919) one of India's greatest philosophers in modern times has said: "... No people before modern times reached a higher splendour of wealth, commercial prosperity, material appointment, social organization. That is the record of history, of ancient documents, of contemporary witnesses ..."

The wealth of India was created alongside achievements in the field of culture; architecture, music, dance, literature, sculpture, painting, etc. Distribution of wealth and conservation, the values sought to be created by the teachings of seers of yore, were also given emphasis as borne out by travelogues of ancient travelers who wrote about trust, openness, absence of theft, absence of famines, and ecological denudation. According to Chakraborty wealth creation and cultural development was possible because these were inspired by the concept of nishkama-karma or work done as an offering to the Supreme Being. Adjibolosoo (1993 and

1995) also seems to emphasize the significance of the spiritual and moral aspect of HF in development. According to him, HF through the commitment and integrity creates, directs and motivates people to achieve higher productivity and quality.

What we have described in the foregoing was the picture in the past. However, over the ages there has been considerable dilution in the traditional values though they still remain present deep in the consciousness of the people. The dilution in the values is apparent from the numerous scams unearthed recently. Today's professional class is driven predominantly by mercenary goals. Chowdhury (1990) echoes this view on the basis of a survey. A recent newspaper report mentioned that the board of directors of the national airlines of the country passed a resolution conferring on themselves free passes to travel abroad with their families for their entire life time. Chakraborty (1995) on the basis of an opinion poll from a group of junior and middle-level executives in a programme on values concluded that almost 85 per cent of the group (age range from 25+ to 50+) had a poor and negative perception of work-life within the organizations in general. Meanness, pettiness and smallness seemed to be the dominant attributes of organizations.

In the pre-liberalized economy grabbing of industrial licences by influencing administrators, bureaucrats and other people in the positions of power was an important ingredient of corporate success. With economic liberalization though need for licences is not there in a large number of industries, the extent of competition has increased thus making it more difficult to make ethical decisions. For example, Indian managers find nothing wrong in hiring away employees from competitors to pirate their technology (Monappa, 1977). Of course Western nations and Japan have gone through this phase of development in the past. The manager of today is primarily appraised on the basis of his economic contribution or profit generation. His own values and ethical considerations are subordinate to the company's values

and company loyalty. They generally find it not wrong to take unethical decisions, if the organization forces or demands so.

Economic liberalization has changed the spectrum of dishonest practices. The quantum of these practices, however, has hardly changed. The trend is not very much different in the political field. The charges of corruption and misuse of power are increasing against the political leaders of the country. People use and adopt unfair means to wield power and try to use that power for their personal benefits. There is growing concern in the country whether trade union leaders are concerned about the welfare of employees.

Laws of the country are very complex on even very simple matters. These laws exist primarily to put restrictions on unfair practices in business and other walks of life. But, they do not seem to provide any solutions to the present problem. Dishonest people are able to find loopholes in every rule. Solution to this problem perhaps lies in closely coordinated action by government, judiciary, industry, academia, media, and administrative system and above all the political and religious leaders.

4. Factors Influencing the Process of Human Factor Development:

This section explores in very broad terms the impact of the economic and institutional environments in the country on human development.

4.1 Economic Environment

Trends in sectoral share in GDP over the years indicate broadly the nature of demand for skilled people. Table 10 provides this information.

Table 10		
Share of agriculture and manufacturing in GDP at factor cost (1980-81 prices)		
Year	Share of Agriculture	Share of manufacturing
1950-51	50.1	11.4
1960-61	47.4	13.5
1970-71	41.5	15.4
1980-81	36.3	16.9
1990-91	30.4	20.7
1993-94*	29.4	19.2

Source: National Account Statistics 1950-51 to 1979-89;
1990, 1991, 1992, and 1995.; *: Provisional

The share of manufacturing in GDP has increased slowly from 11.4 per cent in 1950-51 to 19.2 per cent in 1993-94. Moreover, the growth rate of the share of manufacturing sector has fluctuated on a year to year basis. Growth rate was maximum at 11.1 per cent in 1978-79 and minimum at -1.85 per cent in the very next year (Krishna, 1987). Part of this fluctuation is explained by fluctuation in agriculture. Moreover, the contribution of manufacturing in the growth of India's GDP has been declining in recent years. In 1992, the industrial sector's contribution to the GDP growth was 0.6 per cent compared to 0.9 per cent in 1972. In 1992, the figure for China was 7.6 per cent (Ray and Ghosh, 1992). These fluctuations and low share of the manufacturing sector in GDP is reflected in the fluctuating demand pattern for skilled people in the country.

Another measure of economic condition, level of per capita Gross Domestic Investment (GDI), too does not reveal a very healthy status of India's economy. In the last 20 years per capita GDI increased by only 60 per cent from US\$ 50 to US\$ 80 at 1987 US prices. The comparable figure for other countries are; Malaysia- 288 per cent; Indonesia-467 per cent; Thailand-383 per cent; and Korea-632 per cent (Ray and Ghosh, 1996). The growth rate of per capita GDI for developed countries during the same period has been low as they had a high

starting base. But India's performance has been far from satisfactory in comparison with the rapidly developing Asian countries. The slow rate of growth in per capita GDI in India is another explanation for the slow overall growth of demand for skilled people.

4.2 Institutional Environment:

There has been impressive growth in the educational and research institution infrastructure in the country since independence (table 11).

Table 11 Progress of Educational Institutions (Selected Professional Courses)				
Year	Engineering		Medical	
	Degree	Diploma	Allopathy	Dental
1951	53	89	28	4
1961	111	209	60	11
1971	134	301	95	15
1981	171	363	109	16
1986	248	680	122	29
1987	272	763	125	36
1988	273	779	128	40
1989	321	879	128	43
1990	322	896	128	49
1991	351	910	128	54
1992	354	911	128	57

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

Since independence the number of degree engineering colleges has gone up from 53 in 1951 to 354 in 1992 and the number of diploma engineering colleges has increased from 89 to 911 in the same period. During the same period the number of medical colleges went up from 32 to 185.

Various types of institutions other than engineering and medical colleges relating to higher education and research including other fields have come up since independence. These types include "deemed to be universities", institutes of national importance, and advanced research institutes. Institutes of national importance include; six Indian Institutes of Technology (IITs), five Indian Institutes of Management (IIMs), All India Institute of Medical Sciences (AIIMS), New Delhi, the Post-Graduate Institute of Medicine and Research (PGIMR), Chandigarh, and

Indian Statistical Institute, Calcutta. More than 40 research laboratories have been set up in the country under the auspices of the Council of Scientific and Industrial Research (CSIR). The Indian Institute of Public Administration, New Delhi, Center for Policy Research, New Delhi, Indian Institute of Education, Pune were established during this period. The research laboratories do not award degrees but some of them have strong doctoral programmes in affiliation with the collaborating universities. The ministries of Agriculture, Health, and Industries and commerce have also set up research institutes which operate under their purview.

Such institutions have helped in the development of a strong base of highly skilled and knowledgeable people in a variety of fields. The proportion of scientists, engineers and technicians engaged in research and development activities has gone up from 3.37 in 1978 to 5.85 in 1990 (Manpower Profile India, 1995).

However, the country has not been able to utilize the skills and knowledge of the persons trained by these institutes fully. A large proportion of people trained at these elite institutions migrate to developed countries for better career opportunities. According to estimates, 30.8 per cent of the graduates of IIT, Bombay during 1973-77, and 24.7 per cent of the graduates of IIT, Madras during 1964-86 settled abroad (Manpower Profile India, 1995).

4.3 Socio-politico-cultural environment: The socio-politico-cultural environment is an important factor that has influenced the process of HFD. It is a vast subject by itself and obviously it is impossible to do justice to it in this paper. We shall attempt to describe in skeletal form the major dimensions of this aspect to provide only a broad perspective.

This section is based on Panikkar's (1995) analysis of colonial India. In our view contemporary Indian society is not very different from what it was in the past on many essential features. It is characterized by constraint, credulity, status, authority, bigotry, and blind fatalism. The popular beliefs and customs of people in the country still show signs of magic, animism, and

superstitions. The drama of idols of Lord Ganesha drinking milk, offered by devotees across the country could perhaps only happen here. The credulity and superstitiousness of the ignorant laity are exploited by religious and political leaders of the country. This acts as an impediment to the progress of the country and its people.

The age old policy of divide and rule pursued by the country's rulers in the past is still the norm of the day in the country. Candidature for elections in the country is largely decided on the basis of caste and religion. Many of the policy decisions are based on fragmentism than on merit. Continuation of the reservation policy for minorities in educational institutes and in government jobs has failed to uplift the masses from deprived sections of the society. The benefits of these policies are largely taken by the more affluent and privileged people from the targeted groups. But political considerations have not allowed to change the system for the benefit of really needy people of the society.

Religious fundamentalism is on ascendancy. Demolition of the historical Babri mosque on December 6, 1991 is still hailed by many religious fanatics in the country. This single event caused the worst communal bloodshed in the post independence history of the nation. However it must also be said that most intellectuals and many politicians in the country have condemned this act of barbarity. Even the common people have exhibited their displeasure by defeating the fundamentalist party in the elections. One can therefore see an ambivalence which goes to show that the nation is today at a crossroads in the social, political and cultural sphere.

5. Government Policies:

5.1 Education Policy: Independent India inherited a system of higher education patterned after the British model (India 2001). Unlike British universities, however, Indian universities have been under the administrative control of governments. As a result, bureaucracy has crept into the system and Indian universities have lost the dynamism that was once the characteristic of the

better known ones.

Jawaharlal Nehru, the first prime minister of India, felt the need to reorganize the educational system to reflect the emerging needs of a newly independent nation. The setting up of the University Education Commission under Sarvepalli Radhakrishnan (1948-49), the Committee on Elementary Education (1950-52), and the Secondary Education Commission (1952-53) were steps in this direction. A national policy on education was evolved on the basis of the comprehensive report of the D.C. Kothari Commission in 1966. The national policy of 1968 adopted many of the recommendations laid down by the Kothari commission. The objectives of the policy were: 1) free and compulsory education till the age of 14, 2) improved status, emoluments and education of teachers, 3) three language formula and development of regional languages, 4) equalization of educational opportunities, science, and research, 5) development of education for agriculture and industry, 6) improvement in quality and production of inexpensive textbooks, and 7) investment of 6 per cent of national income on education (India 2001).

In 1986 National Policy on Education (NPE) was enacted by the parliament. The NPE highlighted the need for setting up Navodaya Vidyalayas in the each district of the country for talented children to develop their full talent. Two hundred and eighty such schools were set up by 1991-92 to provide free education (India 2001). In 1992 the central government initiated further actions. The Programme of Action (POA) of 1992 provides for the development of open universities. The Indira Gandhi National Open University of India is the second largest of its kind in the world (India 2001).

The objectives of various educational policies, however, have not been achieved fully. Though the Indian government has increased expenditure on education over the years, it has not been able to achieve the target set by the Kothari Commission in 1968. While only 1.27 per cent

of GDP was spent on education in 1951, it went up to 4.06 per cent of GDP in 1991 (Table 12). India's expenditure on education is extremely low compared to international trends. For example, Australia spends more than 9 per cent, South Korea spends 16.8 per cent, and Malaysia spends more than 20 per cent of its overall expenditure on education as against 2.2 per cent of such expenditure by the Indian government in the Year 1993 (World Development Report, 1995).

Table 12			
Educational Expenditure as percentage of GDP			
Year	GDP (Rs. Crore)	Total Educational Expenditure (Rs. Crore)	Educational Expenditure as percentage of GDP
1950-51	8979	114	1.27
1960-61	15254	344	2.26
1970-71	39708	1118	2.82
1975-76	71201	2105	2.96
1980-81	122427	3641	2.97
1985-86	233799	7457	3.19
1986-87	260030	8450	3.25
1987-88	294851	10430	3.54
1988-89	352703	12409	3.52
1989-90	408661	15292	3.74
1990-91	475604	20761	4.37
1991-92	551552	23248(RE)	4.21
1992-93	627913	25502(BE)	4.06

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

The expenditure on education in India shows an increasing trend except in the years 1988-89 and 1991-92 and 1992-93. Since 1990-91, the emphasis of the government has been on reducing subsidy on higher education (Table 13).

Table 13							
Percentage Distribution of Budgeted Expenditure by Stages of Education							
Stage	1970-71	1975-76	1980-81	1985-86	1989-90	1991-92	1992-93
Elementary Education	44.9	49.6	48.5	46.3	46.4	43.8	45.3
Secondary Education	31.3	32.9	32.3	30.8	30.8	30.5	31.6
University and Other Higher Education	9.3	10.6	12.2	14.0	14.3	13.2	12.7
Technical Education	3.8	2.9	2.8	4.6	4.2	4.8	4.5
Others*	10.7	4.0	4.2	4.3	4.3	7.7	5.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Special Education including Adult Education

Source: Manpower Profile India Yearbook, 1995; Institute of Applied Manpower Research.

Share of elementary education has been varying from 45 per cent to 50 per cent over the years in India since independence. Share of technical and other higher education in the budget has been declining since 1992-93. Reduction in the budget of higher education is directed towards share of adult education and other special education in the country. The central government has accorded very high priority to adult education in the eighth plan (1992-97).

What have been the broad achievements of the government's policy in the field of education? The national stock of educated manpower has gone up from less than four million in 1951 to about 48 million now. Educational facilities have not only increased, but also diversified at all levels and in different subjects. The country's sizeable educated manpower is one of the largest in the world. Although the quality varies, the best among the educated are on par with the best anywhere (India 2001).

However, the content of different courses at various levels specially at the higher level of education lacks the ethical considerations. Education in all the IIMs, the premier management institutes of the country, is left-brained. Holistic, real life management problems face utter neglect (Chakraborty, 1995). Management is more equated with manipulation with the neglect of holistic consciousness. Hence, country might have succeeded in having a large pool of

engineers and doctors, they could be more effective only if they are made to learn to view problems with a holistic view, In this sense country's educational system has to cover a lot of ground.

5.2 Economic Planning and Industrial policy:

In the immediate post colonial period India lacked the basic infrastructure and skilled people for rapid economic growth . There was shortage of raw material and food. National planners faced the challenge of achieving goals of economic development and social justice with very limited resources. Resource scarcity required synergy of efforts by different organizations and departments of the government. The five year national planning process was adopted to synchronize the efforts of different departments by clearly stating the objectives and direction for growth and development (GOI 1957). This enabled the country to invest its resources in a well defined direction.

The stated objectives of these plans may be classified into three broad categories; a) poverty alleviation, b) socialistic pattern of development and c) self reliance (Chaudhuri, 1995). The poverty alleviation objective is evident from the following statement in the first five year plan:

The central objective of planning in India at the present is to initiate a process of development which will raise living standards and open out to the people new opportunities for a richer and more varied life...The urge to economic and social change... comes from the fact of poverty and of inequalities of income, wealth and opportunity [Government of India (1952), pp 7-8].

The document further adds:

The elimination of poverty cannot , obviously, be achieved merely by redistributing existing wealth. Nor can a programme aiming only at raising production remove existing inequalities. The two have to be considered together...[Government of India (1952) pp 8].

Indian planners thought that poverty could be eliminated by increasing production as it would result in a larger 'cake' for all. In the first three five year plans, the primary focus was on

economic growth to reduce both unemployment and poverty. However, benefits of increase in production did not trickle down to the poor automatically. As a result, by the end of the fourth plan the issue of equity and social justice got special attention of national planners. . The fifth plan drew up a clear strategy for poverty eradication. Various employment generating schemes like Jawahar Rojgar Yojana, Integrated Rural Development Programmes were initiated. To a large extent, however, the benefits of these schemes have accrued to well to do people owing to their better access to power centers. Siphoning off of substantial parts of the resources from various schemes by intermediaries, lack of communication resulting in lack of awareness about various schemes among the target groups, lack of organized efforts on the part of the target groups to press their demands, fragmentation of schemes and lack of coordination among them are some of the significant problems that have plagued poverty alleviation programmes (Vaidyanathan, 1995). It is no wonder that unemployment rate is more than 20 per cent.

Objectives of socialistic pattern of development and self reliance influenced the adoption of the mixed economy model of development in India. Deliberate intervention by the state in planning for development was considered necessary to reduce the gap between India and other developed nations. The private sector was not willing to invest in long gestation, low return, and high investment capital intensive basic industries. Hence the government considered it necessary to intervene by taking over the role of entrepreneur in these capital intensive fields. The public sector has played an important role in the development of the country since then. It accounted for more than 71 per cent of total employment in the organized sector in 1994 as against 58 per cent per cent in the year 1961 (DGET reports). The mixed economy model and protection of domestic firms through the import substitution policy had some adverse impacts on the economy. The policy of protection created barriers for the entry of foreign firms into the country. Without exposure to international products Indian consumers were less demanding, industries did not have

much incentive to be more efficient and effective through technological and managerial innovations. Indian firms entered into collaborations with foreign firms for technology import. But the technology imported by Indian firms was generally obsolete. Though considerable product and process adaptations have been made in India, a large gap continues to exist between the technological standards of the developed nations and that of India. This technology gap is between 10 to 15 years after nearly 5 decades of independence (Table 14).

<p>Table 14</p> <p>Technological gap between India and other developed nations of the world.</p>	
Industry/Product	Technology Gap (Years)
Cement	10-15
Steel	10
Aluminium	2-5
Foundries	10
Engineering	10
Engine Valves	20
Agro-chemicals	10-15
Tyres	10-15
Tobacco	10
Paper .	15-20

Source: Strategy for Bridging Technology Gaps in Indian Industry, Monograph, ASSOCHAM 1991.

India's position as an industrialized nation has slid down from the 10th position in 1950 to 26th currently (Agarwal, 1996). This worsening industrial position of the country is partly explained by continued technological backwardness in most industries. We believe that the technological gap has also contributed to the problem of migration of highly skilled manpower to the west. The skill and knowledge of graduates from the premier technological institutes- Indian Institutes of

Technology (IITs) and other nationally important institutes is comparable to the best anywhere. However, it is estimated that from some of the IITs in certain disciplines close to 60-70 per cent of the graduates in some years have gone to the U.S. and other developed countries for greener pastures.

Though lack of utilization of the skills and knowledge of India's best engineers has contributed to their migration to the west, the lack of recognition and importance accorded to the engineering, manufacturing, design and research functions by local firms is responsible for the migration of some of the better engineers residing in the country to lucrative managerial careers. Every year there is literally an exodus of IIT graduates to the Indian Institutes of Management (IIMs), the elite management schools of the country.

5.3 Science and Technology Policy: Science and Technology (S&T) in India has the distinct imprint of the country's first prime minister Jawahar Lal Nehru who established the basic framework for its development. He assumed charge of the presidency of the Council of Scientific and Industrial Research (CSIR) in 1947. His government backed up this involvement with financial support. In the early years the central government provided almost all the financial requirements of the Indian Council of Medical Research (ICMR), Indian Council of Agriculture Research (ICAR), CSIR and the Atomic Energy Commission (AEC).

On March 4, 1958 the government adopted the Scientific Policy Resolution (SPR) which further articulated and elaborated upon the ideas and efforts of the previous years. India's SPR was considered by many developing nations as a historic landmark. It committed the country wholeheartedly to the scientific approach to development. Another important landmark in the sphere of S&T in India was the announcement of the Technology Policy Statement in 1983 by the central government. What have been the achievements and failings of the scientific and technological efforts of the country since independence in relation to human factor developments?

Around 50 per cent of the country's production is based on imported technology. Of the remaining 50 per cent the major chunk is based on adopted and indigenized technology. It is estimated that only about 5 per cent of the country's industrial production is based on indigenous R&D (Economic Times, 1991). These views have been echoed amongst others by Lavkare and Gulati (1989), Jain and Uberoy (1993), Patel (1989), Bhattacharya (1988) and Parthasarthy (1994).

The fact that 45 per cent of the industrial production is based on imported technology which has been indigenized and adapted to local conditions is by itself no mean achievement. The ability to scale down plants and the adaptation of processes to locally available materials in the engineering industry is quite common (Chaudhuri, 1986; Chaudhuri and Moulik, 1986; Desai, 1984). Even in process industries this has been achieved to a considerable degree.

Parthasarthy (1994) has noted that there are currently at least 40 major professional systems/products in the area of tele- communications, TV and radio broadcasting, civil aviation, industrial electronics and control systems, etc., under the commercial production which are based on domestic technology, supported or promoted by the central government's department of electronics. Several notable technological innovations have been achieved by laboratories under the ministry of defence and CSIR.

Our purpose in this section is not to develop an inventory of all the technological achievements of the country but to develop an understanding of how the government's S&T policies have influenced human factor development in India though a widely perceived weakness of the S&T system is the low level of utilization of research conducted at the national R&D laboratories. A variety of reasons are believed to be responsible for the present state of affairs. Preference for imported technology by manufacturing firms and their lack of commitment to R&D, poor communication between industry and research institutions, and the propensity of

scientists in the latter to undertake basic research rather than applied research that has potential for industrial applications are some of the oft mentioned reasons. Part of the problem lies in the process of training and developing the country's scientific and technical manpower. The elite institutions' reference groups are scientists and technologists in the west. Their work is inspired by research conducted in the west which in most cases is only remotely connected to the problems existing in the country. Part of the problem also lies in the predicted environment in which industry has been operating these last five decades. Without competitive pressures there was no incentive for firms to invest in R&D for product or process innovations in a major ways.

6. Summary and Conclusions: Our analysis of HFD in India reveals a mixed picture:

- a) In spite of the per capita NNP doubling during the period 1950-51 to 1993-94, India is placed 72nd among developing nations.
- b) Though the percentage of population below the poverty line has come down significantly during the post-independent era, the absolute number of poor persons below the poverty line has only reduced marginally.
- c) There are significant regional and communal variations in the incidence of poverty.
- d) Though child mortality rate has come down considerably, it is still very high compared to that of many other developing nations.
- e) Life expectancy of female children has gone up significantly but is still behind that of many developing nations.
- f) Despite the government's efforts to improve the educational infrastructure, school drop out rate is high as also the incidence of child labour.
- g) Adult literacy in India has improved by major strides in the post-independence period but is still low compared to that of many developing nations.
- h) Paradoxically, India has a large population of qualified scientific, technical and medical

persons, a significant part of which is unemployed or inappropriately employed.

i) A significant proportion of the country's elite engineers migrate to the west every year in search of better opportunities. This problem of brain drain is compounded by the migration of the very well trained engineers remaining within the country to commercial careers.

j) Indian managers are considered good at process innovations. They are quick to adopt any process to suit their business environment. But they are poor at product innovation. The tradition of original research and development activities needs to be developed. For this a close coordination between the relevant research institutions, industry, academia, the policy making bodies and implementing agencies is required.

k) A widely perceived weakness of the S&T system in the country is its lack of linkage with industry. Lack of practical orientation of scientists and engineers in the national R&D institutions, absence of proper incentives for undertaking R&D for product and process innovations in industry and the overly theoretical education in the national technological institutes inspired by western models are some of the important reasons for this state of affairs.

l) India's education system, specially at the higher level fails to impart ethical and moral values to students. This is partly responsible for the deteriorating value standards in the country. There is more need to integrate the ethical and holistic learning at all the levels of education in the country. Political and religious leaders of the country today need to become ethical in their activities and create an environment of trust, openness and honesty to support the efforts of educators.

m) It is time for reflection and bringing about ethical orientation in the political system of the country. The policy of divide and rule pursued by political leaders needs immediate replacement by truly democratic principles and a concern for the welfare of all. The judicial system, media, and intellectual thinkers of the country need to pay immediate attention to this problem.

n) Significant improvements in NNP, health facilities, and technical infrastructure over the years have however been neutralized by a growing population and imbalances between the demand and supply sides of the HFD system. While our analysis, being very macro in nature, does not allow us to make detailed and specific recommendations for improving the HFD system, we wish to reiterate that HFD must be made a central concern in economic development. Economic growth of the country cannot by itself ensure HFD. Sensitivity to wider ramifications resulting from the interdependent nature of the subsystems within the overall HFD system is essential. Better coordination between the several interdependent subsystems is essential for effective human development.

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