'Ya Kriyawan Sa Pandita' (learned person is one who is ceaselessly active) is the motto of the University of Pune, which was established in 1949. Since its inception, the University of Pune has placed the objective of 'Social Commitment' on the top of its agenda for attaining excellence in higher education. The Centre for Continuing Education established in 1972 was upgraded as the Department of Adult, Continuing Education, as a result of University Grants Commission's Policy (1977). Following the University Grants Commission's Policy (1977), Government of India launched the National Adult Education Programme (NAEP) on October 2, 1978. The responsibility and the vital role given to the Universities in the NAEP was very much instrumental in upgrading the Centres for Continuing Education in various Universities. This trend was accepted by the authorities at University of Pune. Other programmes such as Population Education, Planning Form and Jan Shikshan Nilayams were started and implanted through the university and colleges with the assistance of the University of Pune and University Grants Commission. Lifelong Learning as the cherished goal of the educational process which presupposes universal literacy, provision of opportunities for youth, housewives, agricultural and industrial workers, professionals and other disadvantaged groups of the society to continue the education of their choice at the pace suited to them is one of the main objectives of the University. The Department recognised the need for providing quality education by up gradation of skills of the learners in tune with the developmental needs of the individual and the society. An indispensable endeavour toward enhancing the human resource is to develop strategies for creating an effective learning environment for a Knowledge society. The department has resolved itself to work on some socially important areas viz. National Integration, Women Empowerment, Senior Citizens, Unorganized Workers, Non-Government Organizations, Tribal Development, youth Education, Entrepreneurship & Employment, Counselling, Literacy, Adolescence Education and Lifelong Learning.

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Environment, Development, Urbanization And Communication Revolution In India: Changing Paradigm Of Urban Development And Public Opinion

Dr. Manish Priyadarshi

Environmental degradation is one of the stern problems faced by the people within the world. Environment typically shares the negative impacts of the development side and human shares the positives. Rapid population growth, industrialization and urbanization in country are adversely affecting the environment. According to the ***World Development Indicators*** report, 1.5 billion people live exposed to dangerous levels of air pollution, 1 billion live without clean water and 2 billion live without sanitation. The increase of population has been tending towards alarming situation. The world's population was estimated to be 6.14 billion in mid-2001 and reached 7 billion in 2012. The world population growth projected 7.82 billion and 9.04 billion in the year 2025 and 2050 respectively (*Estimates suggest that in all probability the Actual figures would be higher*). Contribution of India alone to this population was estimated to be 1033 million in mid-2001 which has been projected 1363 million and 1628 million in 2025 and 2050 respectively. (2001 World Population Data Sheet) According to the results of the Census of India 2011, the population of India on 1st March 2011 is 1210 million. If the world population continues to multiply, the impact on environment could be devastating and few examples of Devastation we have seen in recent future namely *"Nepal Earthquake of 2016".*

Population impacts on the environment primarily through the use of natural resources and production of wastes associated with environmental stresses like Biodiversity, Air and Water Pollution and Increased pressure on arable land. India is

the world's sixth largest and second fastest growing producer of greenhouse gases. Delhi, Mumbai and Chennai are three of the world's ten most populated cities. Two-thirds of city dwellers lack sewerage, one-third lack potable water. India grows equivalent of another New York City every year in its urban population. By the year 2000, more than 350 million Indians will live in cities. In 15 years, more than half of Indians will be urban dwellers; 1/3 will be slum dwellers and squatters (USAID/ program areas/ environment).

The present paper is an attempt to examine population growth, increasing industrialization, urbanization and its influence on the environment and health of the people. The secondary analysis conducted of changes and trends over last fifty years. The analysis reveals that rapid industrial growth plays an important role in environmental problems of the country, from deforestation to land degradation, Air and Water pollution to the spread of disease.

Demographic Characteristics of the Population of India

India is the second most populous country in the world after China. India supports 16.87 percent of the world's population on its meagre 2.4 percent world surface area of 135.79 million square km's. At the time of independence country's population was 342 million. The country's population size had grown from 361 million in 1951 to around 846 million in 1991 and 1027 million in 2001. The population of India almost tripled during the period of 1951-2001, The phenomenal increase in the population during the last fifty years has led to rapid industrialization and high rate of urbanization which have created tremendous pressure on natural resources like land, air and water. The urban population has increased three and half times, from 62.4 million in 1951 to 217.6 million in 1991 and it again increased to 288 million in 2001

Year	Year Population (in millions) *	Decadal Growth Rate (%)*	Population (in million) *	% of Urban Population to total population*	Density (Per Sq. Kms.)*	% of Population below poverty line**
1951	361.1	13.31	62.4	17.28	117	54.88, (1)
1961	439.2	21.64	78.9	17.96	142	51.32, (2)
1971	548.2	24.80	109.1	19.90	177	44.48, (3)
1981	683.3	24.66	159.4	23.33	210	38.86, (4)
1991	846.3	23.86	217.6	25.71	267	35.97, (5)
2001	**846.3**	**21.34**	**287.6**	**27 72**	**325**	26.10, (6)

Source: * Census of India, Provisional Population Totals, 2001.

** Planning Commission Estimates refers to following periods:

1 1973-74, 2 1977-78, 3 1983, 4 1987-88, 5 1993-94, 6 - 2001-latest estimate

Deforestation

Forests are an important natural resource of India. They have major influence against floods and thus they guard the soil erosion. Forests also participate in performing an important role in enhancing the quality of environment by influencing the biological equilibrium and living support system (checking soil erosion, maintaining soil fertility, conserving water, regulating water cycles and floods, balancing carbon dioxide and oxygen content in atmosphere etc. India has a forest cover of 76.52 million square kms of recorded forest area, while only 63.34 million square kms can be classified as actual forest cover. This accounts for 23.28 percent of total geographic area against 33 percent recommended by National Forest Policy of 1988. Per capita availability of forests in India is much lower than the world average. In the year 1997, as compared to 1993, the total forest cover has decreased by 6710 Sq. Kms.

The status of forest cover suggests that the highest percentage of the Forest in India Belongs to open forest. These dense forests in India are continuously decreasing due to Human interference into protected areas.

Status of forest cover in India (2015)		
Class	**Area (In Sq. Km)**	**Percentage of Geographic Area**
Very Dense Forest	85904	2.61
Moderately Dense Forest	315374	9.59
Open Forest	300395	9.14
Total Forest Cover*	701673	21.35
Scrub	41362	1.26
Non-Forest	2544228	77.40
Total Geographic Area	3287263	100.00

Note : * : Includes 4740 Sq km area under mangroves.
Source : Ministry of Statistics & Programme Implementation, Govt. of India. (ON965).

Environmental pollution

The term Environmental Pollution refer to behavior by which people pollute their surroundings, air with gases and smoke, poison the water with chemicals and other substances, and damage the soil with excessive usage of fertilizers and pesticides. Also contaminate the Ecological ambiance in various other ways. Environmental degradation is a consequence of the forceful interplay of Socio-Economic, Institutional and Technological activities. Environmental transform may be driven by many factors including Economic Growth, Population Growth, Urbanization, Intensification and Diversification of Agriculture, Rising Energy use and transportation. Poverty still remains a problem at the root of several environmental problems.

As a result of urbanization in India, pressure on urban land transport is likely to increase substantially. It has been attempted to evaluate the future transport scenario to forecast the vehicle air pollution levels. Following are some of the points of due consideration:

- India is expected to have 53 Million plus cities in 2011 and 75 by 2021.
- The number of vehicles on Indian roads is estimated to increase by nine times by the tune of the century out of which 65 % to 70 % shall be two wheelers or three wheelers.
- Urban transport demand grows by 2.6 times by 2016 at the existing model split in larger medium sized cities.
- At the existing pace of Industrialization and Urbanization, the urban air quality is expected to deteriorate faster in the 21st century, as two-wheeler population would be as high as 86.13 % of the total vehicles used for passenger transportation.

In the year 2009, CO emission levels are likely to rise seven times and that of hydrocarbons by nine times. The levels of other major pollutants are expected to go up five fold (Luthra, 2009)

Sector-wise Emissions of Carbon-Dioxide (CO_2) in India (1994 and 2007) (In %age)

Sectors	1994	2007	CAGR
Electricity	355.03 (28.4%)	719.30 (37.8%)	5.60
Transport	80.28 (6.4%)	142.04 (7.5%)	4.50
Residential	78.89 (6.3%)	137.84 (7.2%)	4.40
Other Energy	78.93 (6.3%)	100.87 (5.3%)	1.90

Cement	60.87 (4.9%)	129.92 (6.8%)	6.00
Iron & Steel	90.53 (7.2%)	117.32 (6.2%)	2.00
Other Industry	125.41 (10.0%)	165.31 (8.7%)	2.20
Agriculture	344.48 (27.5%)	334.41 (17.6%)	0.20
Waste	23.23 (1.9%)	57.73 (3.0%)	7.30
Total without Land use, land-use change and forestry (**LULUCF)**	**1251.95**	**1904.73**	**3.30**
Land use, land-use change and forestry (**LULUCF)**	14.29	177.03	-
Total with Land use, land-use change and forestry (**LULUCF)**	**1228.54**	**1727.71**	**2.90**

Abbr.: CAGR: Compounded Annual Growth Rate.

Note: Figure in brackets indicate percentage emissions from each sector with respect to total GHG emissions without LULUCF in 1994 and 2007 respectively.

Source: Ministry of Statistics and Programme Implementation, Govt. of India (ON1150)

The table shows that in terms of sector wise emission of CO-2 by 1995-2007, the Agriculture and Electricity sectors are the major pollutants. In 2007, the scenario has changed and Agriculture Energy usage CAGR reduced by 0.20 percent, whereas the percentage of other sector was on the rise, out of which Electricity sectors outperforms everyone.

At the juncture we are currently in it is obligatory to progress forward in the most ecologically sounding way possible. While increasing the availability of information and communication technologies available throughout the country India must work to preserve the natural resources available while still moving forward as a growing country. As the population grows and urban areas increase in size more land is being used to accommodate the urban populations in industrial and commercial pursuits as well as housing for the increase in populations.

Urban Environmental Crises

The main distress of urban environmental degradation in India can be broken down into three categories: Transportation and Air Pollution, Solid Waste Management, and Fresh Water Management. The population of India aggravates each of these issues, as the country is simply outgrowing the infrastructural developments. High levels of poverty also make these issues more difficult to fully address as funding and support for development of sanitary services can be low. The ever burden of slums on the Metropolitan increases every year and New Migrants are coming to Metropolitan every day.

Water Supply

In India's urban areas a main issue is supplying the vast populations with adequate and easily available drinking water supplies. Between 1990 and 2000 the amount of people with access to water increased from 68 to 86 per cent of the population, the largest increase of any country in the world. (Anand) However, the population of India is so vast that the water supply available to it is inadequate to meet the needs of the people. The distribution of water is a large issue, as some parts of the country have an excess of available water, many other parts have inadequate supplies. This uneven distribution of water is apparent even within a city. With about 84 per cent of

water going to irrigation, the cities, which have much higher population densities, are not getting enough water to meet their demands. (Anand)

Both state and federal governments regulate water availability in India, however the federal government intervenes with state water usage at four levels:

- Controls state Governments with money and through five year plans, Through national institutions, like the Ministry of Water Resources or the
- Central Groundwater Board
- By creating National policies and programs
- By granting or withholding environmental clearance for projects.

The table below analyses the state wise Rural Habitations with Drinking water supply in India, the coverage of Drinking water supply is an issue and the quality is highly effected in the states of Assam, Bihar, Karnataka, Odisha, Punjab and Tripura.

A City Sanitation Ranking study (2010) conducted by MoUD found that none of 423 cities covered were found to be ' healthy' and ' clean'. While Chandigarh, Mysore, Surat and New Delhi were the only four ULBs that fared relatively better, nearly 190 cities were rated to be in a state of emergency with respect to public health and the environment.

State-wise Status of Rural Habitations with Drinking Water Supply in India (As on 01.04.2012)				
States/UTs	Total Habitations	Habitation		
		Fully Covered	Partially Covered	Quality Affected
Andaman and Nicobar Islands	491	434	57	0
Andhra Pradesh	72387	44463	27528	396
Arunachal Pradesh	5612	2630	2867	115
Assam	86976	47220	23777	**15979**
Bihar	107642	82203	10859	**14580**
Chandigarh	18	18	0	0
Chhattisgarh	72231	36801	26615	8815
Dadra and Nagar Haveli	70	0	70	0
Daman and Diu	21	0	21	0
Delhi	0	0	0	0
Goa	347	302	45	0
Gujarat	34415	33127	1014	274
Haryana	7385	5893	1475	17
Himachal Pradesh	53201	42476	10725	0
Jammu and Kashmir	13938	6062	7846	30
Jharkhand	119191	114308	4471	412
Karnataka	59575	21333	32367	**5875**
Kerala	11883	10949	0	934
Lakshadweep	9	0	9	0
Madhya Pradesh	127197	83565	40843	2789
Maharashtra	100683	87448	11564	1671

Manipur	2870	1589	1281	0
Meghalaya	9326	4903	4326	97
Mizoram	777	711	66	0
Nagaland	1460	1015	315	130
Odisha	141928	73988	55475	**12465**
Puducherry	248	237	2	9
Punjab	15170	12316	2821	33
Rajasthan	121133	70876	23528	**26729**
Sikkim	2498	1805	693	0
Tamil Nadu	94614	84115	9971	528
Tripura	8132	2032	165	**5935**
Uttar Pradesh	260110	245390	13838	882
Uttarakhand	39142	26997	12128	17
West Bengal	95395	86205	3742	**5448**
India	**1666075**	**1231411**	**330504**	**104160**

Source : Lok Sabha Unstarred Question No. 1817, dated on 07.03.2013.

The metro city wise water demand is on the rise and we are more dependent on surface and ground water in coming days and due to climate change and other environmental crisis, the country is in danger of severe drought in coming years.

Environment Movements in India

Environmentalism can also be defined as a social movement which seeks to influence the political process by lobbying, activism, and education in order to protect natural resources and ecosystems. In recognition of humanity as a participant in ecosystems, the environmental movement is centered on ecology, health, and human rights.

The Chipko Resistance Movement

The Chipko Resistance Movement, originating in the Garhwal hills of northwest India, where women in villages clung to trees to save them from state-authorized loggers, became

emblematic of an international Eco-feminist movement eager to showcase the subordination of women and nature and women's environmental consciousness. Chipko is a movement in which poor women united to safeguard their own livelihood, which depended on the forests. This instance of poor women's agency was but one in an ongoing saga of hill people's marginalization, first under colonial rule, and then by the Indian state. Peasant rights to food, fuel, livestock pastures, and fodder were encroached upon first by the colonial state under the Indian Forest Act (1865), in which the scientific management of forests allowed separating them from people and converting them into commodities for private ownership (Cavanagh & Mander, 2004, p. 131).

The Save the Narmada Movement

The Narmada Bachao Andolan or "Save the Narmada Movement" reflects the predicament shared by indigenous, tribal, and peasant communities across the global South. Shiva (2000) aptly calls them the "new global environmental refugees" (p. 112). In the last 50 years, big dams in India have displaced an estimated 30 to 50 million people. Even the fact that there is no telling how many people have been displaced is itself appalling; these are the "noncitizens," the ones who do not count, who have neither been recompensed nor rehabilitated (Roy, 2001). The diversion of water to rich farmers' commodity crops and to urban factories (chemical factories and pharmaceuticals) relegates to secondary status the subsistence need of indigenous people for water and land.

In 1985, the World Bank authorized and sanctioned a $450 million loan for Sardar Sarovar dam on the Narmada River, a dam "that would alter the ecology of an entire river basin, affect the lives of 25 million people who live in the valley, displace 160 villages, [and] submerge 4000 sq km of old-growth deciduous forest" (Roy, 2001, p. 39). In 1993 after a spirited

struggle by the Narmada Bachao Andolan (NBA) led by Medha Patkar, the Bank was forced to withdraw. In 1994, the NBA succeeded in getting a legal injunction against further construction on the dam. In 2000, however, the Supreme Court of India lifted the injunction. As a result, the Sardar Sarovar dam is being built against the protests of the people.

When the lives of 700 million people depend on access to natural resources, privatization of these resources amounts to what Roy (2001) rightly calls "dispossession on a scale that has no parallel in history" (p. 43). As Amita Baviskar (2005) notes, "The Indian state has often mobilized the claim of 'national interest' to justify policies and projects that adversely affect the poor" (p. 171). It is important that we see how the imperatives of a market economy generate poverty. Cash crops take land and water resources away from sustenance needs and exclude populations, largely women, from their entitlement to food. The results include increases in hunger, homelessness, migrant labour, sex trade, and beggary in urban centres.

While the NBA has called for an alternative development paradigm that combines the politics of "green and red," of environmental protection and social justice, it has been reluctant to confront the issues of gender inequity pertaining to tribal women whose specific needs, being in conflict with those of their men, are deemed divisive of the movement (Basu & Silliman, 2000). Further, since "[i]ssues of resettlement and compensation for the displaced have been at the core of the Narmada struggle," it is disturbing that the national resettlement policy is guided by a patriarchal bias: "land right [is given] to the head of household presumed to be male," which both "ignores female-headed households and the fact that not all women can depend on men for financial support" (Basu & Silliman, 2000, pp. 429, 430). Feminist scholars have made it clear that unless the material basis of women's inequality is addressed in issues of land and

property rights, there will be little improvement in women's status (Agarwal, 1994).

Sardar Sarovar project

Amongst the 30 large dams planned for the Narmada, the Sardar Sarovar dam is the largest. With a proposed height of 136.5 m (455 feet), it is the focal point of both the dam-builders plans and the Narmada Bachao Andolan's opposition. The Govt claims that the multi-purpose Sardar Sarovar Project (SSP) would irrigate more than 1.8 million hectares (mostly in Gujarat, some in Rajasthan) and quench the thirst of the drought prone areas of Kutch and Saurashtra in Gujarat. The opponents of the dam counter that these benefits are grossly exaggerated and would never accrue to the extent suggested by the Govt. Instead the project would displace more than 320,000 people and affect the livelihood of thousands of others. Overall, due to related displacements by the canal system and other allied projects, at least 1 million people are expected to be affected if the project is completed.

The Narmada Bachao Andolan is only the last in a series of social movements against large dams. True, the spectacular schemes of the 1950s and 1960s - Bhakra, Hirakud, Tungabhadra and the like - came up with scarcely a sigh of protest. Villages in the way of the reservoir were made to depart in the name of "national interest". It took fully two decades for this national interest to be revealed as the specific interests of the urban-industrial elite. Thus the 1970s witnessed a series of popular struggles on behalf of the to-be dispossessed. There were movements against the Koel-Karo project in Bihar, the Subarnarekha project in Orissa and the Vishnuprayag and Tehri projects in Garhwal. These varied movements and the questions they raised inspired the editors of the Second Citizens' Report on the Indian Environment, published in 1985, to dedicate their labours to the "dam- displaced people of India".

These precocious works raised the basic issues so spiritedly taken up by the Narmada Bachao Andolan (NBA): social justice, environmental sustainability, economic efficiency and cultural survival. The movement brought to these old, and always relevant, issues, the vigour of a mass popular movement and the appeal of a charismatic leader. Through the 1980s and 1990s, the Andolan organized a series of strikes, fasts, processions, foot march and road blocks, these held in Madhya Pradesh, Maharashtra, Gujarat and that continuing centres of imperial power, New Delhi. Inspired by an exemplary leader and a devoted cadre of workers, it drew into its fold adivasis and peasants as well as students and professionals from the cities.

Failure of Environmental Policies: India protected its environment through many legislative measures and policy decisions are undertaken. But the implementation of the policy is always a neglected area so that there was problem faced in Environmental situation of India. Although poverty and underdevelopment are main obstacle to environment security measures, the inflexibility in structures is another impediment for the formulation and implementation of the new Policy. The gaps in policy implementation indicate the weak-ness of Ministry of environment and forest (MoEF). Despite of MoEFs claims that India has introduced plethora of environmental laws and mechanism, but they were noticed working unsatisfactorily. ***J.B.D Souza****, a former municipal commissioner of Bombay remarked that there is a profusion of laws that do not serve their purpose and eventually create new problems. In India problems are found for every solution*

To manage pollution, it requires substantial expenditure to adopt appropriate technology, due to lack of technical and managerial and adequate economic resources resulting in insufficient enforcement. The absence of the public participation is a great impediment. Environment impact assessments are not

fully operational in the hands of Ministry of environment and forest (MoEF). Effluent control systems and infrastructural institutional capacity is extremely inadequate. Cost of fulfillment is greater than cost of compliance, where it lacks of administrative reasonableness. Corruption is the most important hurdle in every sphere of Environmental protection in India. The lengthy legal process and intense backlog of cases is another impediment. Though there are many impediments still India striving to be successful in protecting environment.

The Role of Media and Communication in creation of Public opinion

The role of communication and media took the driver seat and it created the public opinion for the people, by the people and to the people. Today the world is a changed place, due in part to advances in mass communications. The media's messages are no longer confined to a particular village, town and city or even to a particular country. Technology now takes them, instantaneously, across jurisdictional borders.

Especially, in this latter frame, the figure of the intellectual will be questioned, for she/he is the prominent bearer of the communication *about* and *of* the Narmada, for she/he has allowed the river to substantiate itself and subjectivism into a discourse and further into acting, therefore *political,* reality. True enough, the 'anti-dam' intellectual has meanwhile communicated *on* oneself, maybe also, for oneself as the latest developments might seemingly show. This is the critique some prominent figures among the dam supporters are raising. And the key question is indeed, in the nexus of communication processes, to know which structure of the economy of knowledge and representation of politics that intellectuals as a group do unearth. And through this, to know which emergence of which underground levels of the social structure in the Narmada valley they reveal, if any.

Movement, dissemination, participation, knowledge as networks, are all about politics and serve its constantly renewing and reshaping existence. For the Anti-Narmada dam struggle is exemplary of the diversification of communication means of activist organisations in India, for it is exemplary of the broadening of the action of non-party political movements, the Narmada case vests a large representatively of the Indian political scene. In this, both its spatial coverage and time length add. As we deal with politics indeed, it has to be defined, and the philosophy of politics will serve as our spinal cord throughout this reflection.

In India, today more and more time in the newscasts on radio and television and more space in the daily newspaper are devoted to judicial proceedings, especially criminal cases, since by their very nature, they have sensation value, and other cases which in the opinion of the press will catch public interest. There is increasing and intense public focus on Courts and the cases filed in them. Whether reported in daily newspaper or in electronic media, Indians avidly devour this information, since they are curious about what happens in Court. Now that the Courts have come under the media's microscope, they are likely to remain there forever. As with most changes both positive and negative consequences have flowed from this. A Positive by-product of changes spurred by the media and addressed by the Courts is that more Indians are aware of their constitutional rights than ever before

The role of National Green tribunal:

The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for

damages to persons and property and for matters connected therewith or incidental thereto. It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues. The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. The Tribunal's dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help reduce the burden of litigation in the higher courts. The Tribunal is mandated to make and Endeavour for disposal of applications or appeals finally within 6 months of filing of the same. Initially, the NGT is proposed to be set up at five places of sittings and will follow circuit procedure for making itself more accessible. New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other 4 place of sitting of the Tribunal*. (Ministry of Environment, forest and climate website)*

The roles and responsibilities of the National Green tribunal is huge and in coming years if we are looking for sustainable and Green development then NGT has to take assertive and reformative actions to modify and modulate the thinking of development; Satisfactory ecological security decreases the danger of related wellbeing issues, for example, asthma, and advances a more beneficial environment in spots where people live, work and learn. All such issues and more demanded a body of laws for protecting the same. NGT has a clear cut view that environment protection is not just the duty of the Government but it is the duty of every citizen. If every citizen of India can contribute, then we look for the dream of Green Development.

Conclusion and summary

The analyses show that the population growth, increasing industrialization, urbanization and its influence on the environment and health of the people. The secondary analysis conducted of changes and trends over last fifty years. The analysis reveals that rapid industrial growth plays an important role in environmental problems of the country, from deforestation to land degradation, air and water pollution to the spread of disease.

The analysis shows that the impact of communication in the restoration of the sustainable environment; It also analyses the role of public opinion for and against the industrialization and development instituted by the media and communication. Their role in environmental movements, creation of public opinion, model development plans and the reach of media in communication revolution, the analysis suggests that there is an urgent need to control population, urbanization and environmental pollution in the country for better health of present and future generation.

So, what should be the role of Media and Communication in creation of the public opinion? Media Should Have to think about the national causes and the development of the People should be always given preferences. In conclusion, it is certainly the case that there is a need for concern in generalising implications from a study. Nevertheless, in illustrating the transformative potential of big Dams challenges the perceived localism of grassroots movements and therefore in recognizing elements of central command in the Process of Public opinion modulation leads to Negation of Local Public opinion.

In an era of globalization where the marginalization and exploitation of local communities in the process of development should not be concealed under the promise of 'development for all'

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A Conceptual Education Model for Sustainable Development through Learner-led Education Approach

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Abstract

Wagner (2000) has rightly observed that the relationship between education and economic development is interactive, and not linear causal. Instead of considering education as an enabling factor, we might have been obsessed to hold it responsible for success or failure of developmental efforts. The broader purpose of education could be closely associated with moral and intellectual development of human beings. So far, most of our efforts in the name of quality improvement in education, have directly or indirectly targeted the teachers' performance evaluation system and those hardly ever attempted to devise mechanisms for qualitative assessment of students' actual learning and transformations. The given education system, that is predominantly run through 'hierarchical-individual approach' (Elmore, 2000), has failed to evolve in to a learner-led education process. Simultaneously, an ever increasing obsession for linking education to employment or jobs has further depleted the value of education. The faster innovations and tech-led developments have certainly made our life more comfortable but have made us vulnerable to rapid climate changes and its hazards for survival. There have been examples of civilizations, such as Mayans, Mesopotamians, or Indus valley, which collapsed due to their over exploitation of critical natural resources (Chakraborty, 2015). The present paper makes an attempt to revisit the purpose of education and explore its concomitant association with development, especially the 'sustainable development'.

Key words: education, development, sustainable development, employment, harmony, co-existence, climate change, economic parameters, social and cultural attributes.

Introduction

We inherit the obsession of following others and consider that as a good survival strategy. This pattern of coping others' behaviour is so deeply rooted in us that we have been consciously or unconsciously shaping a destiny, which is more materialistic and far less holistic. In the contemporary and emerging societies, *'social proof'* (Dobelli, 2013) has appeared to be one of the most important determinants of our life, behaviour and prospects, including development. The social proof, exhibited through *'herd instincts'*, dictates the way we think, decide and respond. In every civilized society, the standardized norms and values that govern our social behaviour are important but that should never undermine or dissolve the potentials hidden in every single individual. Unfortunately, our education system has not been able to address the individuality or individual learning needs. UNESCO (1996) has rightly pointed out that each individual must be equipped to seize learning opportunities throughout life, both to broaden his or her knowledge, skills and attitudes, and to adapt to changing, complex and interdependent world. The principle aim of education is perceived to be, to make human being so competent that in his / her individual life, he/she should be able to experience tranquillity throughout life; remain imperturbable, placid and composed even in adverse situations or circumstances (Kumar, 2007). However, in real life we experience that there is progressive erosion of values and that consequently results in to violation, exploitation, discrimination and corruption in public and corporate life (Singh, 1993). Further, Kothari *et al.* (2007) observe that our education system is only concerned for transfer of knowledge, information and

skills needed for different jobs or occupations but there are no provisions or adequate efforts to transform students in to quality human beings.

There have been several new initiatives taken by Ministry of HRD, Government of India (GOI), for quality up-gradation and improvement of education at different levels, including higher and technical education (GOI, 2017). The report of the ministry has proposed that such initiatives shall equip students with necessary skills and knowledge, so that it can overcome the shortage of manpower in science, technology, academics and industry. Does it indicate that the priority of education is to be creating 'skilled manpower', mainly to drive economic and commercial activities? Can we ensure to fulfil the objectives of sustainable development by converting higher educational institutions as *'Kaushal Kendras'* (Skill Centres)? Undoubtedly, people need technical and other skills to fulfil their livelihood requirements and to contribute to the economic prosperity of society. But the domination of commercialization and materialistic doctrines may develop unlimited desires in people, which may ultimately lead them to competition for jobs and increased demand for money and wealth. What is more important? Economic prosperity through widening gap of economic disparity? Or a society where life and relations are guided by values, like justice, equality, fraternity, honesty, co-existence and compassion besides, grooming individuals for jobs, professions and other endeavours? There are many such unresolved questions awaiting fitting answers. The phenomenon is abysmally pathetic calling for immediate and effective actions to save the society, more so education from catastrophe.

Four Dimensions of Education

Broadly there are four dimensions of education: physical development, intellectual development, emotional development and spiritual development. While the first two dimensions are

addressed, either partially or adequately, by modern education system, the next two dimensions are grossly neglected. Unless we strive to achieve a balance by devoting equal attention to all four dimensions, we cannot develop balanced personality among students. Consequently that may turn their life miserable later. The document of the National Policy on Education-1967 emphasised the cultivation of moral and social values to produce young men and women of character and ability committed to national service and development. Later National Policy on Education-1979, too emphasised inclusion of Gandhian ideas and experiments to establish the foundation for moral education. Many earlier committees and commissions (The Calcutta University Commission, 1917-18; The Central Advisory Board, 1944-46; The University Education Commissions, 1948-49; the Secondary Education Commission, 1952-53; The Education Commission, 1964-66) recommended measures to balance all four dimensions, but the observations of committee for the review of national Policy of Education (1986) revealed the complete erosion of social and spiritual values in education and perhaps that could be one of the major reasons behind imbalances of all four dimensions in our education system. Later, Singh (2007) observes that 'politicking of education' has further widened the gap between education system and moral and spiritual values.

Transformation of Learning and Education: The New Perspectives

The future modes of learning are under transformation. The emerging digital and information technologies have evolved different modes of learning and widened the scope of education beyond bounded structures of classrooms and educational institutions. The available technology has created multiple opportunities and choices for us, where learners can decide about what they want to learn, where from they can source their

learning content, how to learn and when to learn. Even learners are empowered to create their own learning spaces and choose to engage in learning at their convenient time. Emerging opportunities have liberated the learning modes or processes, where learners enjoy freedom beyond being restricted to 'learning in classrooms'. Here, it is aptly relevant to narrate the modes of learning framework as propounded by Elmore (2000). Prof. Elmore (*ibid*) describes the four quadrants by beginning with the Hierarchical-Individual quadrant that explains our traditional education system, while the hierarchical-collective quadrant describes an organization as a living learning community. Both quadrants have the prefix of hierarchical, because each of these types of organizations still have a standard form of authority (i.e. principles, learning managers). However, the other two quadrants illustrate the changing dynamics of education and learning in the 21st century. The first quadrant in this category is the distributed-individual, which is a product of the distance education movement. The belief within this quadrant is that learners do not need a formal physical environment to learn, rather all they need is the appropriate knowledge content coupled with practice in order to master a concept and skill, if necessary. The final quadrant that is the distributed-collective, which is revolutionary form of education. This quadrant presupposes that learners have no need for any formal invite, course, or even a classroom in order to learn together in a community. Hack-a-thons which are increasing in popularity are a perfect example of this new age of collective learning. The four quadrants are narrated briefly in the following section.

Hierarchical-Individual Approach

An organized age-grade structure, where teachers deliver knowledge through a structure or pattern, which is common to all the students in a class, and schools consider learning as

students' responsibility. This approach believes that its society's collective decision about what should be taught in a particular subject to a particular class of students or age group.

Hierarchical-Collective Approach

This approach tends to define learning as more a communal activity, and less an individual and competitive activity. It may be referred as a progressive version of hierarchical-individual approach and ideally this approach is synonymous to community school. The purpose here is to develop civic consciousness and a favourable attitude towards collective living and mutual co-existence.

Distributed-Individual Approach

This approach tends to believe that individuals learn for their own benefits, to develop knowledge and skills as they want. The guiding principle here is that learning is an inherent biological imperative and people never stop learning. Here, the sources for learning are broadly distributed throughout society, including but not limited to formal educational institutions.

Distributed-Collective Approach

This assumes that students can learn outside of hierarchies by creating networks of common interests. It's a self-organizing type of learning, where students can join people who have varying degrees of expertise and knowledge. Such networks may exist virtually or socially, where participants meet regularly to share their understanding and knowledge and learn from others.

Very recently, Richardson (2016) has identified five major phenomena which are transforming the learning process: (i) 'content is everywhere', (ii) 'teachers are omnipresent', (iii) 'individualized learning', (iv) 'networks as new classrooms', and (v) 'learning beyond classrooms'. Working through above perspectives requires a comprehensive plan and mechanism at

different levels to integrate structure, process and culture, so that learners fulfil their learning needs and contribute effectively for social, economic and ecological development. In the following section an attempt has been made for conceptual understanding about a prospective road-map for ensuring sustainable development through educational system reform.

The Conceptual Model

Assessment of theoretical and empirical relationship between government expenditures, and economic growth and development has remained as an interesting area of research in economics and other social sciences. Many empirical attempts have been made in order to explore the flow of causality between government expenditures and economic development. An attempt has been made here (Table-1 and Chart-1) to understand, if there is any direct relationship between government expenditure on education and economic development in India. Chart-1 clearly shows that there is no linear causal relationship between government expenditure on education and GDP. Education is a facilitator and enabler, which takes care of

Table-1: Year wise distribution of expenditure on education, GDP and expenditure on education as percentage of GDP (Government of India).

Level/Year	GDP at current price(at factor cost) (Rs.Crore)	Total Expenditure on Education by Education & other Departments (Rs. Crore)	Total Expenditure on Education by Education & other Departments as % of GDP
1951-52	10080	64.46	0.64
1960-61	16220	239.55	1.48
1970-71	42222	892.36	2.11
1980-81	130178	3884.2	2.98
1990-91	510964	19615.85	3.84
2000-01	1991982	82486.48	4.14
2005-06	3390503	113228.71	3.34
2006-07	3953276	137383.99	3.48
2007-08	4582086	155797.27	3.4
2008-09	5303567	189068.84	3.56
2009-10	6108903	241256.02	3.95
2010-11	7248860	293478.23	4.05
2011-12	8736039	333930.38	3.82
2012-13	9946636	368132.87	3.7
2013-14(RE)*	11236635	433640.59	3.86
2014-15(BE)*	12433749	502929.34	4.04

RE - Revised Estimate

BE- Budget Estimate

(Source: Ministry of HRD, Government of India)

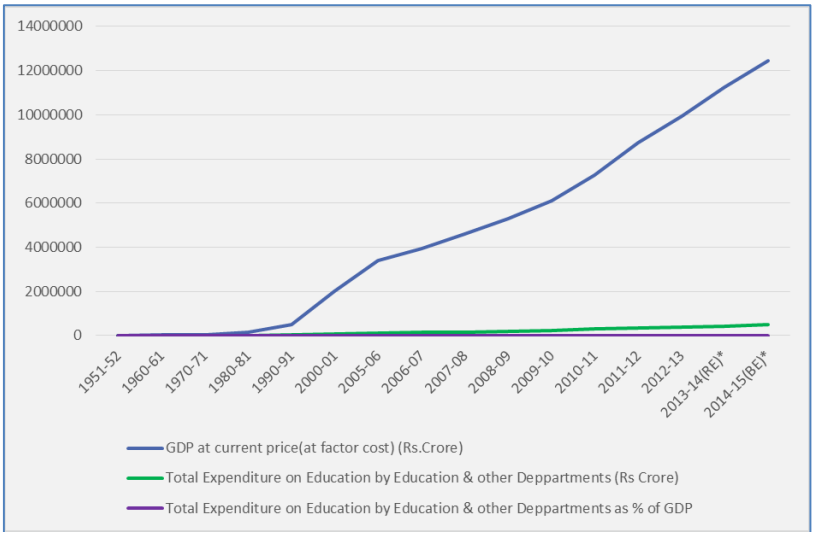

Chart 1: GDP, expenditure on education and expenditure on education as percentage of GDP are presented in line graphs.

holistic development of individuals. Wagner (2000) has observed that the relationship between education and economic development is interactive, and not linear causal. However, it would remain as a centre of attention in research to explore further, if at all there is any critical statistical association / correlation between the two variables. We can debate on the issue but existing evidences do not indicate any direct relationship between the two variables. However, there is an interesting phenomenon (Chart-2), where we can see that the expenditure on education by central and state governments have a matching pattern. The subject matter of economic and social development is very complex and they depend directly and indirectly on different factors. The role of education as an interactive and facilitative factor is implied in the

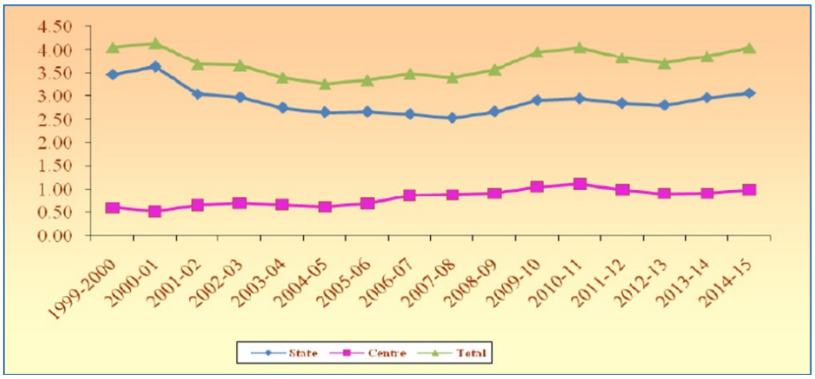

Chart-2: Expenditure on education by Central and State governments.

(Source: Bloomberg)

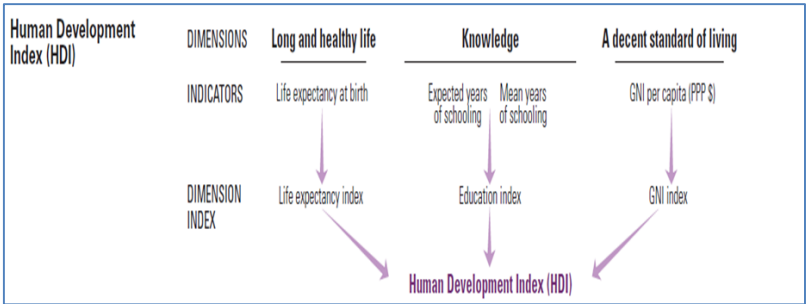

Figure-1: HDI Components (Source: UNDP)

$$HDI = (I_{Health} \cdot I_{Education} \cdot I_{Income})^{1/3}$$

Figure-2: HDI Formula (Source: UNDP)

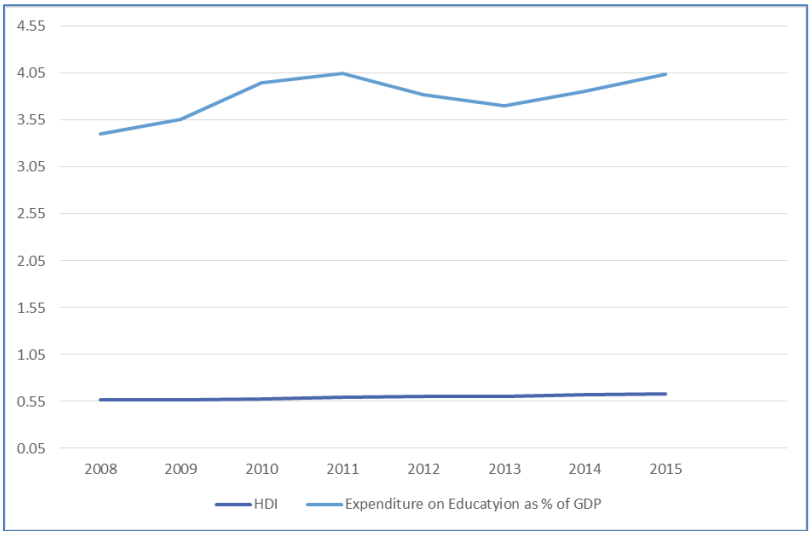

Chart-3: Expenditure on education as percentage of GDP / GSDP (Gross State Domestic Product) and Human Development Index (HDI).

(Source: Bloomberg)

HDI formula (Fig. 2). Expenditure on education may otherwise influence the income potential of people, their quality of life, including health and many other aspects of their life. Thus an association may be expected between expenditure on education and HDI (Chart-3).

History is replete with examples when many historic civilizations of the past had collapsed, such as the Mayans, Mesopotamians, or Indus valley, when they depleted critical natural resources or failed to adapt with nature and its hazards for survival (Chakraborty, 2015). The World Commission on Environment and Development (WCED) defines *sustainable development* as 'development that meets the needs of the present without compromising the ability of future generations

to meet their needs' (UNO, 1987).WCED believes that development should be inclusive and equitable across regions, countries and social and economic groups. It advocates effective utilization of natural resources without endangering 'natural biotic system' (Hendix, 2014). This essentially implies living in harmony with nature and other living systems (Miller, 1978). It's a gigantic task and needs 'equitable cooperation and participation' of all stakeholders. Here, educational systems and institutions can play a vital role, provided they are empowered to think indigenously and are given required policy and budgetary support. The students have to be sensitized about how to think holistically and they need to be guided to learn for exploring sustainable solutions for worldly problems. It's very difficult to portray here the comprehensive design of desirable approach to education and learning. The process demands a fresh look in to the emerging stakeholder issues in line with different local, national and international concerns, and then initiate dialogue and research endeavours to draw insights to redesign our syllabus at different levels and redefine the approach to learning. We need to pay sincere attention to the thoughts shared by Elmore (2000)

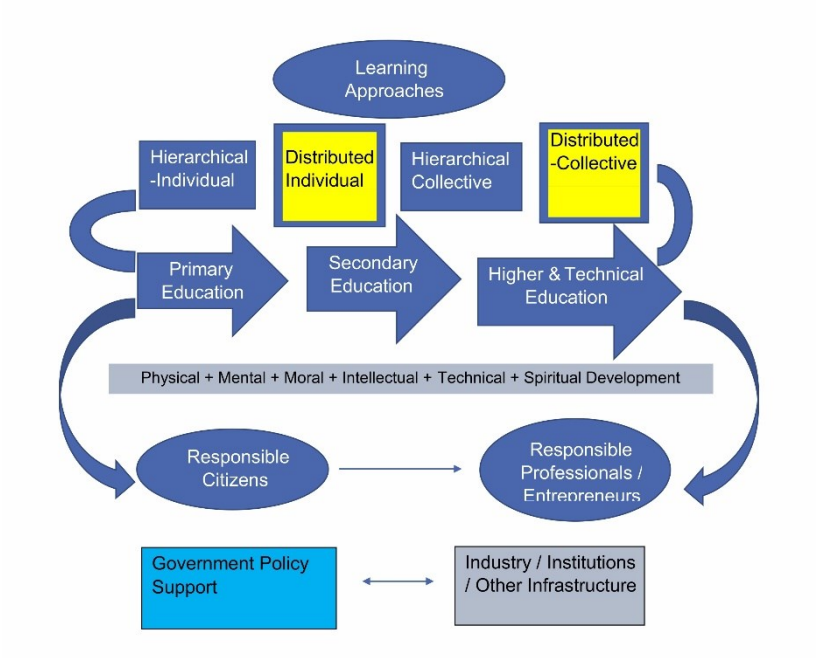

Figure-3: Conceptual Education Model for Sustainable Development

Figure-4: Sustainable Development Pathway
(Source: Global Sustainable Development Report-2015)

and Richardson (2016), while initiate redesigning the education and learning approaches. The policies and systems concerned are to be learner-friendly and the mechanisms for audit, evaluation and measurement of performance must address the *'learning process'* and not categorically *'the short-term outcomes'*. A working model is yet to be evolved. However, a conceptual model is presented in Figure-3.

The desired education system shall ensure that it provides ample opportunities to learn as well as to practice in tandem with needs and issues of immediate neighbourhood and larger society. Throughout the journey of learning the system shall take care of all the components of individual development. However, during primary and secondary education enough attention and

care to be taken for physical, mental and moral development of individuals. There must be ample opportunities for hands-on learning through collaboration with different agencies and institutions, including open communities. Apart from knowledge of different subjects, there must have comprehensive personality development programs through active participation in *'science of living'* (Mathur, 2007). It is expected that before the individuals enter in to higher education and professional training, they have adequate development in terms of their mind, body, intellect, sensitivity, personal responsibility and spiritual values. The higher and technical / professional education shall not only focus on transforming them in to 'skilled workforce' to cater industrial and commercial establishments but also as responsible professionals and entrepreneurs.

The sustainable development model (Fig.4) implies a learning approach, where the learners may not have readily available solutions for practical applications. It calls for an approach, i.e. constructivism, where students are encouraged to create or construct their own new understanding or knowledge through the interaction of what they already know and believe and the ideas, events, and activities with which they come in contact (Cannella & Reiff, 1994; Richardson, 1997). In this approach, students' learning is characterised by active engagement, inquiry, problem-solving and collaboration with others. Here, the teacher is a guide and he/she encourages learners to question, challenge and formulate their own ideas and opinions, and the teacher never emphasises correct answer or single interpretation (Abdal-Haqq, 1998).

Conclusion

The educational institutes are mostly confined to the 'hierarchical-individual' model of education and learning with limited scope for 'hierarchical-collective' approach. The opportunities for other two approaches are either absent or confined to boundaries of the institutions or prescribed syllabus. Unless 'distributed-individual' and 'distributed-collective' modes of learning approaches are not given adequate space, the purpose of education shall hardly be achieved. We shall transform our learning systems to be more process oriented and led by learners not teachers. In the present scenario students must be given more space and freedom for 'self-learning' opportunities. Very often we come across such situations where students demand more options beyond the prescribed areas of specializations, but they are deprived of such opportunities. The existing bureaucratic control over education system constantly fails to bridge the gap between 'learning needs' and 'skill requirement'. It just does not only require more autonomy but extended support from government, industrial houses and other agencies in terms of cooperation, partnership and financial assistance. Students need adequate space and support for their physical, cognitive, moral and technical development, so that they are confident to address current problems as well as future challenges. It is expected that teachers, administrators and policy makers must understand and accept that the role of 'teachers' has been shrinking and they need to be ready to facilitate learning of the students as their mentor, counsellor and guide to help them define, plan and design their own life spaces and career.

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Dairying as a Sustainable Rural Livelihood of the impoverished in Andhra Pradesh with special reference to Chittoor District

Prof B. Krishna Reddy

Abstract

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.' (DFID, 1999)

The present paper discussed the dairy farming as major rural livelihood of the rural people. The dairy farming occupies major livilihood for which the livestock production has been the source of income of the majority of the population. Chittoor is one such district which produces major bulk of the milk in Andhra Pradesh. Every house has this kind of activity and there are certain demands from the people of the state that the govt should purchase the milk and the private dairies need to be stopped. The policy intervention is required to protect the interests of the people, who produce milk as a result of livelihood. Fodder security, sustainable livestock production and cooperative dairy milk centres for marketing need to be addressed for better financial results. The innovative veterinary approaches for the better results need to be thought of for expanding the dairy industry which will also create employment to millions. There was a demand from the farmers to start semen banks in the nearest place, so that the cows on heat will not postpone its conception. lack of micro nutrients in the fodder leads to low yield . The Gopala Mitras who are not properly

trained not able to discharge their duties due to low remuneration. Privatization has almost knocked of the farmers interests. Hence the revised policy in the larger interests of the farmers need to be brought out in order to sustain the dairy farming. Impoverished need to be educated on the above issues for better tomorrow.

Introduction

India is the second most populous nation containing 17.50% of the world population. Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 per cent of India's gross domestic product (GDP) and provides employment to 50% of the countries workforce. Its dairying differentiates the other countries in several socio-economic features. India accounts for 51% of bovine population in Asia and 19 % of world with a population of 196 million cattle and 80 million buffaloes, a total of 276 million animals. Dairying has been playing prominent role towards nutrition, food security and strengthening the rural economy with an annual increase of 4.7% in milk production since 1971. It has been considered as an instrument to bring about socio-economic transformations in the rural sector. The dairy sector has helped the national economy by emerging as the highest milk producing country in the world. FAO's reported that India's milk production has increased from a mere 17 million tonnes produced in 1951 to 74 million tonnes in 1998. This is now 13.5 percent of the world's milk production. This progress made by India in the field of dairying may be attributed to the concerted efforts of a large number of milk producing farmers, scientists, planners, NGOS, dairy co-operatives and the industry. Presently, milk is the largest contributor towards India's GNP. The unique feature is that 70 million rural families with holdings of 2-4 cattle are engaged in milk production. This is in contrast to specialised dairy farmers in the western world, where a much smaller

section of the population is engaged in milk production activity with large cattle holdings. We have come a long-way towards food security and have been able to raise the per capita availability of milk from 132 g/day (1950s) to 214 g/day (1997). Further efforts are needed to raise this to the minimum recommended level of 240 g/day. 7% growth rate is anticipated for pushing the total annual demand of milk up to 170 MT by the year 2020.The operation flood launched in 1970 changed the face of Indian dairying.

It appear the growth of the dairy in India is under unorganized sector and there is a growing awareness that future of the dairy industry in India should favor promotion of traditional milk products through the organised sector. The needs of the market will determine future changes in technology (Mahadevan, 2000). The accelerated socioeconomic change will drive the traditional dairy products to be processed and packaged in new forms. Appreciation of the prospects for traditional milk products in the newly emerging world scenario presents exciting opportunities for orchestrating further growth. Growing awareness of the beneficial role of milk and milk products in maintaining human health will demand the development of a new range of functional foods. It is widely recognised that unique bioprotective factors present in milk such as immunoglobulin, lactoperoxidase, lactoferrin, lysozyme, vitamin binding proteins, etc. play an important extra-nutritional role. Many advanced countries developed food with special health attributes and food ingredients with milk fractionation by employing emerging technologies. Gross domestic product per capita and economic growth are important determinant of the market potential. The life styles are changing very fast and the upper middle-income group in India represents the largest consumer market next to China. Working couples in the urban areas are searching for convenient foods. Thus, new markets are expected to emerge. Keeping the

market trends, the dairying needs to be a different business to be dear and near to everybody. In the coming years, an agenda for developing Environmental policy is to be planned.

Since the dairying is in upward mobility, it requires human resources to bring changes in the system to meet the international demands. In that order at present the education network comprises 11 Dairy Science Colleges, 31 Veterinary Colleges and over 80 Agricultural Colleges and Research Institutions affiliated to 25 State Agricultural Universities, one university each of Horticulture and Forestry, Veterinary and Animal Sciences and Veterinary, Fishery and Animal Sciences. Besides these, many general universities also offer Dairy Education as a vocation course at the B.Sc. level. Dairying is also included as a vocational course for ten plus two level education (Mathur, 2000). In view of the increasing demand for middle level floor shop management personnel in the Dairy Industry, a two year National Diploma in Dairying is also offered by the National Dairy Research Institute, Deemed University, Karnal. In addition, over half a dozen major research Institutes under the Indian Council of Agricultural Research (ICAR), New Delhi, work in the field of Animal Sciences. These institutions provide facilities for certificates, diplomas and degrees, the latter also at Masters and Doctoral level, in Animal and Dairy Science, with specialisation in animal health, production and processing technology. There is a strong trend towards the application of new science as well as management sciences in resource management. Further, attempts are being made in the dairy industry for cost reduction through labour saving mechanisation, process automation and application of computers in systems management. The industrial requirement for quality and risk management of export products, conforming to the SPS standards envisaged by WTO, would demand newer knowledge and skilled and competence of future scientists and managers. Thus the dairy education program needs to be

reoriented. The expanding dairy industry, privatisation of enterprise and the globalisation of the economy, will result in an increased demand for people trained in specific areas of dairying.A close interaction between the dairy industry and educational institutions are necessary to contribute to the further development of dairying in India. The active participation of industry in providing necessary feedback about the training needs of dairy graduates and the educational institutions to come up to the industry's expectation, will be necessary to achieve this goal.

Andhra Pradesh is one of the agriculturally most advanced states in India but still has high levels of rural poverty. Mixed crop-livestock farming is the predominant farming system practiced by over 80 percent of rural households in the state. Of the total livestock population, bovines accounted for about 41 percent in 2003 (GoAP, 2004). In the rural economy, milk is one of the most important products of cattle and buffalo enterprises, contributing over 51.5 percent of the value of all livestock output and 1 billion US-$ of value added at constant 1993-94 prices in 2002-03 (GoAP, 2002-03). With landless, marginal and small operational holdings (< 2 hectare land) accounting for nearly 80 percent of the 12.6 million farming households (GoAP, 2004), increasing milk production from these farm types could be an efficient way to improve rural livelihoods.

India produced about 92 million tons of milk in 2004, accounting for 15 percent of total world milk production. Average milk yield in India, at 800 kg per dairy animal per year have been increasing steadily between 1996 and 2003 at an average annual rate of 3.8 percent. Andhra Pradesh (AP) accounts for 8.4 percent of the national dairy animal population and produces 7.6 percent of the country's milk. Andhra Pradesh's milk production comes mostly from farms of less than 2 hectares with

1 to 4 dairy animals. The milk yields in Andhra Pradesh are slightly higher than the Indian average and are increasing at a faster rate. Farm gate milk prices, however, are slightly lower than the average for India.

India, Chittoor, the second largest milk producing district after Anand in Gujarath state, is the fountain head of the white revolution in Andhra Pradesh (AP). The district is known for its impressive livestock population and milk yield. The rural population is largely dependent on dairy sector since apiculture has increasingly proved unremunerative. The gross cropped area has declined owing to acute drought conditions in consecutive years. The area under paddy, groundnut and sugarcane fell substantially. Small and marginal farmers turned to dairying since it ensures decent income periodically and, thereby, stable livelihood. Fodder production, which does not require large quantity of water, rose as farmers began to cultivate jowadmaize during the rainy season. With increased fodder availability, milk production has jumped.

Quinquennial livestock census in Chittoor district during 1999- 2012 reveals that the cow population has increased from 8.56 lakhs in 1999 to 9.25 lakhs in 2012. The year 2007 recorded the highest number of cows at 11.04 lakhs . The buffalo population was 1.44 lakhs in 1999 as against 0.83 lakhs in 2012. Cows account for more than 85 per cent of livestock and the remaining are buffaloes in the district.

The number of milch animals rose due to the initiatives of the District Rural Development Agency (DRDA) and the District Poverty Initiatives Programme (DPIP). A number of jersey crossbred cows and graded Murrah buffaloes were brought to Chittoor district. This has helped to achieve mile stones in the production of milk. More than 70 per cent of cattle are crossbred. There is plenty of grass in grazing lands due to high moisture retention in the' soil in the western parts and

above average rainfall in the eastern parts of the district. The rise in milk production may be attributed to cool climate, existence of extensive grazing lands, crossbreeding animals and fodder production initiatives. The Chittoor Cooperative Milk Producers Union is the largest dairy in the cooperative sector in Asia. It remained a jewel in the district's crown for a long time. Established in 1969 with an output of 6,000 liters per a day, it reached a phenomenal capacity. The huge surplus milk was converted into milk powder, which, however, could not be sold owing to slump in prices. This sealed the fate of the dairy, which was closed down. Private dairies have come up to fill the vacuum, but their operations took an ugly turn when they formed a syndicate to exploit the milk producers. The Tirupati-based Balaji Dairy, an offshoot of the National Dairy Development Board (NDDB), procures milk from farmers. The DRDA jumped into the fray by establishing two BMCUs(Bulk milk cooling units) on a pilot basis at Gangavaram and Venkatagiri Kota with a capacity of 3,000 liters per a day. The BMCUs collect milk from nearby villages. Women's Self Help Groups (SHG's) maintain the BMCUs, Subsequently, the BMCUs were established in 50 out of 66 mandals in the district. There are 87 BMCUs with a network of 2,12l(MPIs) and 19,586 pourers. The milk procurement per day is 2.90 lakh liters. The MPIs in every cluster of villages collect milk in stainless steel cans in small caniage vehicles. Samples are collected and tested at the BMCUs. Payment is made based on the fat and solid not fat (SNF) levels. The novel initiative put dairying in a win-win situation in the district. The livestock-raisers get remunerative prices. The SHG members earn additional income per month. The dairies in the cooperative and private sectors including mini ones have increased their supply manifold so much so that they even began to supply milk in rail wagons to Mother Dairy, New Delhi. All the BMCUs in the district are spread over not only the dairy-rich but in the poverty-stricken mandals. The

intervention of the government served as a rude jolt to private dairies, which now offer prices at par with cooperative dairies. In south India, dairying has put the Chittoor district at the forefront of white revolution. It has also promoted empowerment of women in several spheres of life.

Several schemes were introduced such as Kamadhenu, Rashtriya Krishi Vikas Yojana (RKVY), Pasukranti Patham, Chief Minister's package (CMP) and Prime Minister's Package (PMP) and mini dairies were set up over the years to develop livestock, increase milk production, create employment, enhance income, reduce poverty and empower the poorest of the poor in the district. In addition, centrally sponsored schemes were also launched in the district. The RKVY was started during 2008- 09, while CMP as well as PMP were taken up during 2007-08 with an objective of providing economic support to rural people; create employment; bring rural women who are below the poverty line above the poverty line; increase milk production; and provide subsidiary income in addition to agriculture and, thereby, reduce suicides of farmers in the district. Heritage, a private dairy is now collecting milk from the villages at lower rate and the cooperative dairies are shutdown.

Hindu 2014

With several parts of the tail-end Chittoor district reeling under drought-like situation with failure of rains, the farmers are concentrating on the dairy sector as alternative step for immediate succor. Giving a fillip to the development, the district rural development wing officials have increased the milk chilling centres.

As of now, the 65 mandals in the district are divided into 12 clusters, with over 100 chilling centres. The milk collected through the self-help groups which stood at 1.25 lakh litres in 2013 has touched 2.12 lakh litres in 2014. As many as 94

collection centres are operating in various clusters. In order to further augment the milk production, the DRDA authorities launched special drives in rural areas with mahila groups, creating awareness among farmers and women in the dairy field. At present, the dairy farmers are getting Rs 27 per litre. The officials said that the district holds a capacity to collect 3.4 lakh litres per day, and as such the immediate target has been fixed at 3 lakh litres.The bulk milk collection centres(BMCC) are providing self-employment to a number of DWCRA groups, besides giving remunerative price to the dairy farmers. The officials are gearing up to increase the number of collections centres to expand the scope of dairy farming.

Hindu 2017

The Chittoor district administration has embarked on "Suphalam," a unique programme to increase milk production from 30 lakh litres a day to 40 lakh litres a day by 2020.

The project, launched in September 2016, with an outlay of Rs. 1.2 crore for one year, targeted about 25,000 cows, covering 250 villages.

The first of its kind in India, this focused programme aims at reducing 'milk production loss' in the district dairy industry which has an annual turnover of more than Rs. 2,000 crore.

Animal Husbandry (Chittoor) Deputy Director M. Srinivasa Rao told The Hindu that though a heifer can be inseminated at 18 months, a majority of dairy farmers in rural pockets prefer to wait till the animal reached 28 to 30 months.

"A heifer is fit to conceive at 18 months. A delay of 10-12 months will lead to great loss of production," he said. Also, the mother cow could once again be inseminated immediately after three months, but it is not being done in most cases. Apart from

ensuring more milk production, the farmers could allow their cattle to conceive.

Though the district has a cattle population of nearly 6 lakh, delayed conception among 40% of the heifers is leading to great production loss. A massive awareness campaign is under way by deploying vets, para vets and Gopala Mitras in the targeted villages.

"Already we have started receiving satisfactory results in several villages. We are maintaining records of the targeted cattle, including heifers from 18-30 months, and re-insemination of lactating cattle at the right time. More villages will be covered soon. Collector Siddarth Jain is monitoring the programme from time to time," Dr. Srinivasa Rao said.

The official said that the other vital areas of providing nutritional supplements, vaccination and fodder facilities were also being given top priority.

"Suphalam scheme is unique in Chittoor district, which has already received national recognition, thanks to our competing levels with Anand. We are confident of achieving revolutionary results in dairy farming in the district in the next two years," he said.

Constraints in dairying

1. The major constraints is low productivity and very large numbers of animals across both species of dairy animals, cows as well as buffaloes. Nearly 80 percent of the cattle and 60 percent of the buffaloes are nondescript and have a very low milk yield and work output. The unproductive animals in the country consume over 90 percent of the limited feed resources.
2. The Ministry of Environment and Forest, of the Government of India, estimated that in 1993 that there was a deficit of

31 percent of dried fodder, 23 percent of green and 47 percent of concentrates. The total area of Common Pasture Resources has shrunk by 30 percent during the last four decades, now being 130 million (Patel, 2000). They can no longer support any meaningful livestock production.

3. Machine milking of these animals was not practiced until very recently. However, physiological studies have helped to develop specialised milking machines. These use a pulsation ratio of 50:50 , a rate of 40 pulsations of per minute and a vacuum of 46-51 mm of Hg.

5. Livestock production in India is seriously handicapped by recurrent ravages of epidemics across all species. This leads to annual production losses of over Rs. 50 billion. Support services in the livestock sector such as veterinary services and artificial insemination, need to be offered almost exclusively by the State Departments of Animal Husbandry. Nearly 80 percent of the breedable family stock is not covered by well-defined breeding policies suitable for the 14 distinct agro-climatic zones of the country. The State Governments provides coverage for less than 20 percent of the breedable female cattle and 10 percent of the buffalows.

6. Despite the obvious need for extension support to promote agricultural production, the delivery of services by the State Departments in the livestock sector has remained far from satisfactory. Socio religious compulsions have prevented culling of unproductive animals in this country. Over 30 percent of the adult females among cattle are not suitable for further propagation. Lack of good quality semen and coverage of artificial insemination has seriously impaired the attempts for genetic improvement of the national milch herd.

7. Accelerating livestock sector development in India has to be balanced with the compulsions to conserve the ecology, as livestock component of the cattle is the major cause of environmental degradation. The uncontrolled growth of the cattle population far beyond the capacity of cultivated land to support it and is a threat that needs well-focused policy interventions, while the concomitant potential for milk production, employment generation and poverty alleviation, needs support .
8. Closing the cooperative dairies and encouraging the private dairies led to low remuneration to the impoverished.

Educational Implications

The following educational implications are offered for uplifting the lives of impoverished.

1. Impoverished farmers need to be educated in selecting the milk yielding animals which can sustain and survive to the local climate
2. Disadvantaged farmers need to be trained in Cleanliness and maintenance of animals and need to be educated on the feeding practices of the cattle
3. Poor Farmers need to be educated on calf rearing practices
4. Farmers need to be educated about the marketing trends
5. Farmers need to be educated about the artificial insemination method. So that the farmers will not get loss as a result of delaying the conception.
6. The farmers need to be given knowledge in setting up petty milk product industries
7. The farmers need to be educated on the precautionary measures for voiding the ailments occurring due to epidemics.

8. Need to be educated on the cooperative marketing and conventional feeds
9. The related technology applications for increasing the efficiency levels of the farmers need to be introduced in the rural areas, such as using machines for pulling out the milk from the animals, making certain milk products for better income may be known to the people in the rural areas.
10. The veterinary and dairy technology educational institutions should guide the nearby area milk producers and adopt the local villages for experimentation.
11. knowledge about Insurance schemes for the animals need to be given to the impoverished
12. Nonliterate farmers need to be made literate so as to achieve better results in dairying.

Conclusion

Indian dairying will face several challenges in the liberalized and global economy and it has to take all the measures to improve the dairy farming in order to meet the international demands. The challenges include the production of good quality milk, adoption of cost effective, energy efficiency eco-friendly technologies for collection and processing of milk and milk products, diversification of the product range, upgradation and improvement in the shelf-life of Indian dairy products, development of appropriate systems for packaging, infrastructure for storage, transportation and marketing of dairy products, quality systems, certification, food safety, government legislation, effective management of resources and energy, proper disposal of industrial waste and customer services.

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Higher Education and Sustainable Rural Livelihoods: Tackling the Challenges

Dr Biswajit Mohapatra

It is well known that the current world is perhaps evolving more rapidly than the capacity of any of the existing education system. As such the challenge of learning to stay afloat and be knowledge wise productive to one's society is becoming more gigantic. The unfulfilled aspirations of the millions, it is emphasized can only be met if the Higher Education system is oriented towards producing youths who are not only well versed in the text based learning but also in skills based learning which alone can then inspire them to be innovators in a developing country such as ours.

When we look into such issues, it is found that innovation in education is a highly contentious issue, given the fact that the policymaking processes is done in the Parliament is very slow and also political, where the issues that deserve everyone's attention is often seen through the party politics lenses. Hence the higher education system remains a victim of these party politics and a fractured one rather than being transformed into a National Education System, which can serve as national innovation incubators in order to create knowledge economy structures, processes and productivity. The transformation of the Higher education system is probably long overdue as it is said to never encourage any innovation and perhaps responsible for the absence of young innovators on the national and international stage. Besides given the strong emphasis that is being laid on Make in India, Skilling India and Start-up India, the higher education system is also in need of

rejuvenation which will provide both skills and will to emerge as innovators within one's state.

Unfortunately when one looks into the critical (deficit) areas within the Higher Education System, one is confronted with the question, whether the ability to innovate is at risk as a result of the country's lackluster education system. This leads us towards the direction of development of a framework for management of our higher education institutions, which would ensure deliverables both in terms of quality of inputs by way of recruiting best talents into teaching profession as well as output in terms of turning out sound, highly knowledgeable students, confident in their ability to contribute to society's rapid development.

It is well known that the creation of new knowledge lies embodied in the very idea of setting up of research institutions and universities, for which our society even though poor in terms of economic resources, doesn't stop from committing the required tremendous investments of resources in them. In this regard it's a welcome sign in today's times that both central and state governments, industry and other foundations have come forward unreluctantly. In the light of this, large number of institutions which have emerged at present, the fact that our society still is faced with the problem of lack of access, lack of quality education and above all unemployable graduates coming out of these institutions, not only has become a threat to the rural economy, due to its immediate failure in creating and sustaining the existing rural economy. The prevailing situation as has made the rural conditions quite desperate, also points towards the need for a critical analysis but also perhaps adoption for new strategies to overcome these challenges.

Critical Areas: Calling Out Attention

*Management of Higher Education Institutions & Universities***:** One area which calls for our immediate attention is the evaluation of the present institutional structure for management of these institutions. At present one knows that these institutions of higher education, whether in the government sector or private sector, are being run by the people, who are said to be either casual, as driven by narrow socio-political considerations, as can be said to be present in our political system or by people who are merely driven by the zeal to make money, as if working in for-profit business sectors, ignorant of the role, the education plays both within the society and in building up the whole economy, more particularly, the rural economy, which caters to the majority of the population in India, which, Gandhiji rightly said, lives in the villages.

Secondly, another important area which stands out is the issue of attracting and retaining best talents into the teaching profession, as without which these institutions can easily lose their worth as also usefulness for our society. So far as the selection of teachers is concerned, the present system of selection of teachers by the various institutions has been pointed out to be one factor, which has given rise to Elitism within and across the institutions. The emphasis on being educated in bigger institutions both within India and abroad, has only widened the entry of English educated upper and middle class Indians and prevented the others educated, not to speak of their deprivation from needed employment opportunities, in the diverse languages of India, whose knowledge remain unutilized in these institutional framework. This instead of facilitating has rather restricted access of the trained manpower from other communities, from the rural areas, into the institutions. This has also defeated the very objective of dissemination of knowledge,

imperative and inherent in the idea of the universities and their management.

Promotion of Research and Scholarship

When the research carried out by faculty and scholarship undoubtedly represent, what is called, the invaluable intellectual capital, it's essential that these remain not only relevant to the present the needs of our society but also contribute towards meeting the unmet needs in the field of public policymaking. It has been pointed out that for achievement of such noble objective, proper strategies within an institutional framework will have to be worked out for realizing the value of this capital through an effective dissemination to our present and future societies.

It is also true that research and scholarship is largely strengthened by the teaching learning process that is facilitated and promoted by the institutional values that are held supreme by the existing institutions in the field of higher education. The teaching learning process besides the research are also said to be pillars of public policy making in democratic societies. In order to ensure that the teaching learning process and the research results of these institutions need to greatly benefit our society besides advancement of further research and scholarship, along with quality teaching and standards of service to our communities, it is time to devise strategies for entry of quality talents in diverse ways. This can be done by diversifying our source from where largely our talents are now being drawn from. These could be a mix of traditional, modern talents besides accommodating foreign teachers within the present selection process.

Specific Tenure System

In order to make the transformation of Higher Education system truly sustainable, it has also been underlined to work out

a specific tenure system in keeping with the demand of the system and discipline as well while keeping in mind that copying the western processes may not produce the desired result within India. While the tenure can be different in different areas, it also has to be adequately remunerative, productive in terms of being innovative as well as supportive. All these may call for an alteration in the mode of government support to higher education sector, much against the present emphasis on PPP mode of funding and management.

Curriculum Development

Development of higher education curriculum plays an important role both in terms of addressing the needs of backward rural areas and their representative higher educational institutions. It also sensitizes people about the changes taking place in the world and also in boosting their interest in their own development. It also helps in the implementation of flagship social and rural development programmes with focus on education, skill development, employment, livelihoods, being run by the governments for their own welfare. By focusing on Rural Studies, Rural Development, Rural Management, Social Work and Education, the educational curriculum can both serve as inputs in broadening the people's minds in both theoretical and practical field-related relevant to rural India. Through this it can enable development of sustainable, climate and disaster resilient rural livelihoods.

When livelihoods in rural India at present is said to be covering almost two thirds of our total population and these people still bear the brunt of the massive effects of changing dimensions of climate and disasters. Hence it is essential to build resilience for them. Development and maintenance of higher educational institutions is always a first step and on to higher stages in their path of development. Despite years of hard efforts in bringing in development in the rural areas, rural life continues

to be a hardship ridden life. Rural India as the source of civilizational growth needs to regain its prime place in the nation building. In today's rapidly changing development climate, it has not only become a social responsibility to develop livelihoods but it is also essential to make them sustainable by continuous attempts to make them resilient. Higher educational institutions in the country have an important role in formulating and building curriculum for promoting continuous student and institutional engagement in study, research and improvement of the resilience of rural livelihoods and rural critical infrastructure, but also in ushering in an era of continuous development which will truly bring in empowerment of these much heretofore neglected brethren suffering in the rural areas.

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Scope of the Journal

The Journal promotes original academic research in adult education, humanities, culture, comparative education, social sciences, rural development, science & technology for 'development, gender & development, security issues, domestic politics, governance & social movements, grassroots governance etc.

Objectives

The Millennium Development Goal the emphasis has shifted towards people centered approach that recognizes human and social capital leading to sustainable development. In other words, developments from efforts include economic strategies tied with resonance development inputs. It is an under pinning factor for many emerging programmes. The main goal of our development policy is to create sustainable improvement in the quality of life among common people. In area of development programmes much stress was given to stakeholders oriented programmes, to facilitate increase in per capita income of individual families. Attempts are being made to empower people in all aspects like health, economy, polity, education and so on. Objectives of IJLLAD, specifically, are to publish original empirical research and theoretical studies on adult education, lifelong learning, extension, and economic relations, gender and development studies, civil society movements and studies on democracy, problems of marginalized sections, cross border terrorism and violation of human rights, ecology and environment, issues i'n governance at the local, national and regional levels

Department of Lifelong Learning and Extension

Aims & Objectives

AIMS

The Department aims at conducting Lifelong Learning programmes to meet the demands of emerging knowledge society.

OBJECTIVES

- Impart education and training in Lifelong Learning in order to provide professional manpower for the development of human resource.
- Develop knowledge, skills, attitudes and values appropriate to the Lifelong Learning.
- Integrate theory and practice in the field of Lifelong Learning.
- Promote interdisciplinary collaboration for better understanding of human problems and reaching out to larger sections of community, specially deprived groups through Lifelong Learning programmes.
- Undertake research on social problems and issues particularly related to the formal and non-formal education.