Journal of

Educational Planning and Administration

Volume XX **Number 2** **April 2006**

National Institute of Educational Planning and Administration
17-B, Sri Aurobindo Marg
New Delhi 110016

ISSN 0971-3859

Annual Subscription

	Within India	***Outside India*** (By Airmail)
Individuals	Rs. 150	US $ 60
Institutions	Rs. 350	US $ 85

Annual Subscription commences with ***January*** and ends with ***October*** every year.

Advertisement Tariff (For one issue)

Full Page	Rs. 2000	US$100
Half Page	Rs. 1100	US$55

Bank draft may be sent to the Deputy Publication Officer, NIEPA in the name of the ***National Institute of Educational Planning and Administration*** payable at ***New Delhi.***

Limited copies of some back issues of the Journal are also available.

Published by the Registrar, National Institute of Educational Planning and Administration, 17-B, Sri Aurobindo Marg, New Delhi - 110016 and printed by th'e Publication Unit, NIEPA at M/s. Prabhat Offset Press, 2622, Kucha Chellan, Darya Ganj, New Delhi - 110002.

JOURNAL OF EDUCATIONAL PLANNING AND ADMINISTRATION
VOL. XX NO. 2 (APRIL 2006)

CONTENTS

BOOK REVIEWS

Journal of Educational Planning and Administration
Volume XX. No. 2, April 2006, pp. 179-187

Liberalism and Privatisation
Challenges to Education*

Jacob Aikara**

ABSTRACT

While liberalisation has given new impetus to privatisation of education in India, it has also brought in new issues in the field of education. Their main source is the conflict between values. The socio-political processes in India over the years have been attempting to resolve these issues through a process of compromises between, and prioritisation of these conflicting values. This has given rise to paradoxes and inconsistencies in the policy on financing of higher education. Regulatory measures against commercialisation of private education, financial assistance to the poor and rationalisation of the fee structure are some of the steps for managing the conflict between liberalisation-privatisation on the one hand, and equality and notion of education as social service on the other.

Introduction

Liberalisation has had significant impact on education in India. It has been most visible in the increasing trend of privatisation[1] of education. Involvement of private agencies in education is not anything new to India. The government, since the British rule, has all along encouraged the endeavours of private agencies in the field of education. The system of grants-in-aid wherein the state provides financial support to the private agencies has existed in India as an obvious example of the encouragement given to private agencies in the field of education. In fact, private agencies have a greater share in providing higher education in India (Tilak, 2001). But liberalisation has given new impetus to the functioning of private agencies in education in India. It has also brought in new issues concerning privatisation of education. The main source of the issues related to

Revised version of the paper presented in Seminar on 'Sociology of Education in India: Looking Back, Looking Ahead', organised in Honour of Professor Karuna Chanana, (New Delhi, Jawaharlal Nehru University, March 2006).

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1. The term privatisation of education is used here in a broad sense to mean involvement of private agencies as different from the government in running educational institutions. It covers also private provision of education with public expenses, what Tilak (1995: 216) terms as pseudo privatisation.

privatisation of education in India is the conflict of values that arises from the institutionalisation of the right to education and acceptance of the concept of education as social service. The policy on privatisation of education in India has evolved in the context of the attempts made to resolve the conflict between values.

Education as Human Right

Education is accepted as a human right and figures in the UN Declaration on Human Rights. But one needs to specify that education as human right refers to basic education or the level of education that is considered to be a basic need of every human being in order to live a life of human dignity. Today basic education includes the literacy skills as the means to access knowledge about one's social and physical environment that is necessary to live a human life. Denial of real opportunities for basic education would be violation of this human right.

Although benefits from education beyond the basic level do contribute to the quality of human life, these are not considered as absolutely necessary to every human being to live a human life. That is why, unlike basic,education, higher education is not accepted as a right of every human being. However, an individual should have the right not to be discriminated against in the matter of education of any level or type. Here the individual's right is to equality of opportunity in education. That is, no individual should be denied access to, or facilities in any form and level of education on account of her/his personal characteristics. In other words, there should not be any form of discrimination whatsoever in the provision of, or access to education of any type or level.

Thus the principle of right to education as a whole has two important implications. First is the principle of equality under which every individual should have real access to basic education as her/his basic human right. Second, every individual has the right to equality of opportunity or the right not to be discriminated against in the matter of access to education beyond the basic level. Right to (basic) education and right to equality of opportunity are guaranteed to every citizen of India under the Constitution.[2] The freedom of choice enjoyed by the individual aspirants to education and the freedom of the private agencies to meet individual demands for education under the values of liberalism and democracy are to be realised in accordance with the principles set by these constitutional rights. Here, it may involve resolving the conflict between the human right to education

2. The Constitution 86th Amendment Act, which came into force on 12 December 2002, inserted Article 21A in the section on the fundamental rights. Article 21A of the Constitution reads: "The state shall provide free and compulsory education to all children of the age of six to fourteen years in such a manner as the state may, by law, determine". Equality of opportunity in education is provided in Articles 15(1) and 29 (2) of the Constitution. Article 15 (1) of the Constitution reads: "The state shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them." Article 29 (2) states: "No citizen shall be denied admission into any educational institution maintained by the state or receiving aid out of the state funds on grounds only of religion, race, caste, language or any of them."

and the ideology of liberalism. In the process of resolving the conflict, constitutional provisions protecting the rights (fundamental right to education and right to equality of opportunity in education) of the individual may demand regulatory measures on the freedom enjoyed by the private agencies to supply education on demand under liberalism. This is the rationale for the governmental and judicial interventions in privatisation of education.

Education as Social Service

Consonant with the constitutional provision of the right to education (under fundamental right or right to equality of opportunity), there seems to be a cultural consciousness in India to treat education of any type or level as social service. It means that the individual's right to education is to be realised in the form of service made available to the individual by the agencies involved in providing education. The important question in treating education as a social service is whether education should be provided as a free or paid service. As basic education is a fundamental right of every citizen, it would be the responsibility of a democratic state to provide basic education free to every citizen. Thus the state in India has assumed the responsibility to provide primary education as a free service. Every citizen can demand basic education from the state as a service. This is the implication of basic education being a fundamental right under the Constitution of India.

While education even beyond the basic level also is accepted as service in India, there is no constitutional obligation on the part of the state to provide this service free of cost to each and every citizen. Whether the state decides to provide higher education as free or paid service may depend on the consideration of the social returns to education (or benefits to society as against the individual) and the priorities set by the state in allocating the resources at its disposal to education at different levels and types. Education at whatever level has social returns of different degrees. Hence, the state may want to provide higher education too as a free social service. However, where the resources of the state are limited, they should be used in the best interest of the larger society. The state, therefore, has to give priority to basic education as a fundamental right of every citizen in the allocation of its scarce resources. If the resources available to the state and the priorities set by the state for allocating them, do not permit provision of higher education as a free service, it may decide to provide higher education as a paid service, that is, recover the cost of higher education from the individual beneficiaries. In a democracy where education at all levels is treated as social service but higher education is not provided as a free service, the state may decide to subsidise higher education in different degrees so that only a part of the cost of higher education is recovered from the beneficiaries. The degree of individual and social returns to higher education may be an important factor that determines the extent of the cost to be recovered or the subsidy to be provided by the state. Where individual returns are higher, the cost recovery also may be higher. Moreover, in view of the facts that higher education is a scarce resource that is available to a few individuals and the individual returns to higher education are higher

than the social returns, it is but fair that the individual bears at least a part of the cost of higher education. Thus the system of state subsidy combined with cost recovery in the form of student fees is accepted in India as a legitimate form of financing higher education even under the ideology of right to, or equality in education and the notion of education as a social service.

The important aspect in the system of subsidised higher education is what the quantum of the state subsidy for higher education should be, or how much of the cost of higher education should be recovered from the students in the form of fees. In other words, is the state subsidy for higher education in India beyond or below what the state can afford or higher education deserves? Apart from the basic constraint of paucity of resources, a principle that may be accepted here is that the state subsidy may be proportionate to the social returns to higher education, and cost recovery proportionate to the individual returns to higher education. Thus cost recovery mav.be higher in professional education than in general higher education. If this principle is applied in the context of the state's priority to basic education in the allocation of resources, it may call for rationalisation of the state subsidy for higher education, which may result in the revision of the amount of cost recovery.

Liberalism and Privatisation

The private sector has an important role in providing higher education in India. Both the ideology of liberalism and the principle of paying for the service of higher education have been conducive to the growth and sustenance of the private sector in higher education in India. The emergence of the system of self-supporting (or self-financing) higher education, wherein subsidy for education is absent and the cost of education is borne by the beneficiaries of education, is an obvious acceptance of the principle of liberalism in higher education. Operating under the ideology of liberalism, self-financing higher education - especially professional - produces personnel for a liberal job market. If cost recovery is acceptable, why should not higher education be marketed in the sense of being run as a profitable business or enterprise? Why shouldn't education be marketable like the social service of health? The objection to marketing education seems to be that making education a commodity is against the principle of preserving education as social service. The notion of education as a special service has a cultural value that is the product of the socio-political process in India over a period of time. As cultural value, it is open to debate and discussion and may undergo changes in the course of the very socio-political process. Regular state intervention in the form of legislative measures and judicial clarifications in the matter of privatisation and financing of education in India are part of this process.

In the context of the state subsidy and cost recovery in higher education, an important question is to what extent private agencies, involved in education under the principle of liberalism, should fall in line with the system of the state in the degree of cost recovery in education. Liberalism has had its impact in this regard in so far as the private sector makes cost recovery in education higher than the state sector. Any market responsive

endeavour under liberalism has the potential to become commercial. Guided by the value of equality and the notion of education as social service, the socio-political process in India has intervened to check the tendency of privatisation to commercialisation or profit making. As per this regulatory principle, education is not to be marketed in the sense that cost recovered for the service of education should amount to generating profit. That is, the amount of cost recovered from the students in any form should not amount to profiteering. But, what amounts to profiteering is not very clear. According to the Supreme Court clarification, generating a reasonable surplus for development of education does not amount to profiteering.[3] The ticklish problem here is to determine the exact cost of education that may be recovered from the students and which should not amount to profiteering. An important issue here is whether the non-recurring (capital) cost of education can form the legitimate part of the cost to be recovered from the beneficiaries. There is a strong view that, to be free from profiteering, cost recovery in education in the form of student fees should cover only the recurring (running) cost. But the judicial clarification permitting ***reasonable surplus for furtherance of education*** has created enough confusion. What would be an operational definition of surplus that is reasonable (or does not amount to profiteering)? Does investment for furtherance of education belong to the running or capital cost? The main controversies in India at present in the field of privatisation of education are centred on the issue of fixing the cost recovery that does not amount to profiteering.[4]

While the state may like the private agencies to follow its principle of subsidisation of education, cost recovery not amounting to profiteering seems to be accepted in India as a compromise in the context of the conflict between the principle of education as a social service and the ideology of liberalism. The issue of student fees at higher education, therefore, is that of determining a fee structure that realises reasonable subsidisation of higher education in the state sector and does not amount to profiteering in the case of self-financing higher education (that is, where full cost is recovered from the beneficiaries) in the private sector.

The compromise formulae to resolve the conflict between education as social service and liberalism have created anomalies or inconsistencies in the cost recovery in education

3. The judgement of the Supreme Court on 31 October 2002 in the case of T.M.A. Pai Foundation and others versus the state of Karnataka and others made this clarification, "A rational fee structure should be adopted by the management, which would not be entitled to charge a capitation fee. Appropriate machinery can be devised by the state or university to ensure that no capitation fee is charged and that there is no profiteering, though a reasonable surplus for the furtherance of education is permissible" (Judgements Today, 2002: 35).
4. There are serious complaints against the private sector in education that it indulges in profiteering in education. At the same time private agencies point out that under globalisation and liberalisation, even the social service sector has come under the market forces so that it is becoming increasingly difficult to find financial resources for capital investment in education. They argue that in the changed scenario a reasonable portion of the capital cost should form part of the cost recovery from the students.

under the private sector in India. At the level of primary education, the state in India does not seem to exercise any kind of regulatory role in determining the extent of cost recovery in education. Debate and discussion on fixing the amount of cost recovery in education are undertaken largely in the case of higher professional education under the private sector. It is assumed that primary education is or should be provided as a free service and the issue of cost recovery does not arise there. The state seems to be complacent with its stated responsibility to provide free primary education to all and to ignore the issue of cost recovery in primary education under the private sector. But in fact privatisation is as widespread in primary education as in higher education in India. The principle of free primary education to all as a right and the fact of various degrees of cost recovery in primary education under the private sector, indicate one of the paradoxes of the educational scene in India. Every individual has the constitutional right to get free basic education, which comprises primary education. But in many of the educational institutions of primary education under the private sector the beneficiaries meet full or partial cost of their basic education. It may be argued that the state is fulfilling its responsibility of providing free primary education to the citizens. But respecting the individual's freedom of choice under the ideology of liberalism, the state allows cost recovery in the differential forms of primary education. As a result, the qualitatively different education or education of better standard in the private sector is accessible to only those who can pay for it. The state seems to find no good reason to come in the way of the differential or quality education in the private sector. The anomaly here is that the right to free education-service under the state may not ensure quality education and one who looks for quality education should pay for it in the private sector. Obviously in this case the principle of liberalism has received priority in its conflict with the right to equality. It would also mean deviation from the principle of the right to equality of opportunity if not right to education (right to basic education of certain quality). This is an inconsistency arsing from the compromise between the principle of equality (or right to equality) and liberalism (or right to freedom of choice).

One of the factors that contribute to quality of education is availability of resources for the various inputs in education - infrastructure and teaching-learning aids. Liberalisation and the principle of the market would suggest that students who seek education of higher quality and are prepared to pay for it should be allowed to do so. This is what is happening in the privatisation of school education, where the amount of the cost of education depends on the quality of education provided.[5] Those who pay more get better quality education. This is similar to the field of medical service (or rather medical industry). Cost of the medical service in the private sector depends on the quality of the service provided. The implication here is that a person with poor paying capacity cannot have access to qualitatively superior education, just as the services of the super specialty hospitals are inaccessible to those with low paying capacity. This is of course

5. One of the strongest arguments in support of total privatisation of education is that it ensures higher quality in education (Tooley, 2000: 84).

against our professed value of equality. It is a situation of conflict between values. If we tolerate priority of liberalism and quality to equality in privatisation of medical service and primary education, why is the same not applicable to higher education? The answer to questions on such paradoxes or inconsistencies lies in the peculiar socio-political processes that have determined the policies in such matters. Obviously the policies have resorted to compromises or priorities that are not consistent. The results of the socio-political processes determine the situation in which equality is prioritised over quality and liberalism, and vice-versa.

The system of self-financing higher education in the private sector and subsidised higher education in the state sector has given rise to an anomalous system of financing higher education in India. It is the dual fee structure that provides for partial cost recovery from some beneficiaries (under subsidised higher education in the state sector) and full cost recovery from the others (under the scheme of self-financing higher education in the private sector). In this dual fee structure, the same education-service is made available in the state or state supported private educational institutions at a subsidised cost and in the others - private self-financing institutions - at the full cost. The dual fee structure would have been fully acceptable under the principle of the right to education or equality in education, if the subsidy in education were meant to help those who do not have the financial resources to meet the full cost of education. Since the system of state subsidy in education is not a measure directed to equality in education, the dual fee structure is anomalous. Anomaly involved in dual fee structure is more flagrant when it is implemented in the same self-financing educational institution, wherein some students (under the state quota) pay part of the cost and the others the full cost of their education. In effect it amounts to a system wherein some students subsidise the education of the others. This can be sustained in a scheme of cross subsidy for equality in education, wherein the richer students contribute to the education of the poorer students. The fact is that it is not a measure in pursuit of equality in education. The anomaly in the dual fee structure, which is in a way discriminatory, is tolerated as an attempt to resolve the conflict between the ideology of liberalism and the perspective of education as social service.

Financial Assistance for Equality

The fact that the state does not offer higher education as a human right of every citizen means that higher education is a scarce resource to be made available to the aspirants in a manner that is fair. Under the constitutional right to equality of opportunity, every citizen has the right not to be discriminated against in the access to higher education. It is in this context that the quantum of cost recovery can become an issue of equality of opportunity in higher education. From the equalitarian perspective, cost recovery in education can violate the principle of equality of opportunity, when an individual is unable to have access to education because the amount of cost recovery is beyond her/his paying capacity. The question then is how to deal with the issue of equality of opportunity in the case of those who find the amount of cost recovery in the form of student fees beyond

their means? Does lowering the amount of cost recovery solve the issue? If yes, then the issue would be the quantum of cost recovery that is not merely non-profiteering, but also non-discriminatory against those with low paying capacity. The decision here would be arbitrary as one has to determine the level of the paying capacity of the beneficiaries of education in general, above which cost recovery would amount to violation of the principle of equality of opportunity. One may not be able to accept this arbitrary fixing of cost recovery as absolutely non-discriminatory. Thus lowering of cost recovery (or student fees) would not seem to be a feasible solution to the issue of inequality of opportunity.

It may be noted that the state subsidy in higher education is not a measure directly meant to help the poor. It is the societal contribution to education as a social service available uniformly to all irrespective of the paying capacity. So increasing the state subsidy or in effect reducing student fees would not be a measure for promoting equality. In fact, making higher education unreasonably subsidised can go against the principle of equality in the sense that enhanced subsidy to higher education may favour the better-off sections of the society. Low fees in this context would imply making higher education cheaper to a small privileged section of the society that seeks higher education and may be financially capable of bearing its cost. Why should the state over-subsidise higher education of those who can pay for it? How much should the state subsidise higher education, which has higher individual returns than social returns? Another pertinent question that may arise here is on the appropriateness of the state subsidy for higher education of those who migrate to other countries for realising still higher individual returns. What social returns are obtained in the case of those highly educated professionals who leave the country to be in service abroad? These questions point out the need for a reasonable amount of cost recovery in higher education and not to dispense with it or make it nominal in the name of the poor.

Financial assistance to the needy has been recognised as an acceptable solution to the problem of inequality of opportunity created by cost recovery in education. Financial assistance in the form of easily accessible loans or free scholarships can take care of the need of the financially weak students to pay for the cost of their higher education. The state could treat the financial assistance to the needy as part of the subsidy for higher education, or the state subsidy could be directed towards meeting the financial need of the poor. Even the private agencies could make provisions for financial assistance to the poor, so that no individual is denied access to higher education because of poor paying capacity. The goal of equality of opportunity in education (that is, making education accessible to the financially weak aspirants), would be better served by special schemes of financial assistance to the economically backward individuals in private educational institutions than by lowering cost recovery across the board.

Conclusion

The following points, emerging from the above discussion, could be considered in evolving the policy on financing of higher education in India: (i) Higher education has

social returns and hence it deserves societal or state subsidy, (ii) Higher education is a scarce resource available to a few individuals and individual returns to higher education are more than the social returns. Hence, it is but fair that the individual beneficiaries of higher education make a reasonable contribution towards the cost of their education, (iii) No individual should be deprived of access to higher education on account of low paying capacity. Hence, financial assistance in the form of easy loans and freeships should be made available to those with poor paying capacity, (iv) If the financial needs of the poor arc taken care of through suitable measures, then the quantum of cost recovery in higher education need not be determined by the notion of equality or the need to help the poor, (v) The extent of cost recovery in higher education should be determined by the actual cost of education and the capacity of the state to allocate the resources for higher education in the form of subsidy, (vi) As the resources are scarce, there is little reason to raise the subsidy for higher education since it would just result in making higher education cheaper for those who have the resources to pay for it and reduce the financial allocation for basic education, (vii) The current policy that has emerged from years of socio-political processes is that education should not be marketed or made a commodity wherein entrepreneurs of higher education run educational institutions as profitable business. The conflicting values and the compromises generated by them keep the policy on financing of higher education in flux with paradoxes and inconsistencies. The solution attempted is to have compromises among the conflicting values or to set priorities. There is no unanimity on the solution offered, because the compromise formula or prioritisation of principles is a matter of value-laden or ideologically-oriented decision.

Privatisation of education under liberalism seems to have come to stay. Three courses of action emerge to manage the conflict of liberalisation-privatisation with equality and notion of education as social service, viz. regulatory measure against commercialisation, financial assistance to the poor and rationalisation of the fee structure (or subsidy). The policy on privatisation has been evolved under conflicting principles and values, and as long as conflicting values make their demands, the policy in the matter may remain alwavs in a process of evolution. The state and the civil society may remain continuously engaged in negotiating formulae - one after another - to evolve a suitable policy.

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Journal of Educational Planning and Administration
Volume XX No. 2. April 2006

IASSI QUARTERLY

INDIAN ASSOCIA TION OF SOCIAL SCIENCE INSTITUTIONS (IASSI)

(SOCIAL SCIENCE JOURNAL DEVOTED TO ADVANCEMENT OF SOCIETY THROUGH GREATER SOCIAL UNDERSTANDING)

VOL. 23 APRIL-JUNE 2005 NO. 4

Contents

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp. 189-204

Demand Side Factors of Children's School Participation

An Exploration with Household Survey Data for Rural North Bengal

Sudip Chakraborty *

Abstract

The study, covering 2392 children of six villages in the district of Jalpaiguri in northern West Bengal, identifies several household level factors on the demand side of schooling participation. Parent's educational exposure, particularly of mothers, has influenced children's schooling. Neo-literacy of parents has wonderful impact. Poverty, child labour, caste-based disadvantages, are formidable barriers to children \s schooling. This paper suggests initiation and continuation of adult literacy programme, more thrust on antipoverty programme and stipends as incentives for poor and socially disadvantaged children.

Introduction

The passing of the constitutional amendment bill by Parliament making free elementary education a fundamental right, reflects a renewed commitment of our political leaders for universalising elementary education in our country. This is a gesture, better late than never, of our country's supreme legislative house. This move is something to be greeted with applause. The ratification of the United Nations Convention on the Rights of the Child (CRC) by India in December 1992 reaffirms an already existing and long standing obligation of the state enshrined in Article 45 of the Directive Principles of the Constitution of India, that provides free and compulsory education for all children until they complete the age of 14 years. The Constitution had directed the state to achieve that goal by 1960. Unfortunately, even 44 years after the target year, the goal of universalization of elementary education, i.e. up to Class VIII is still elusive. The First National Policy on Education adopted in 1968 reiterated the state's constitutional obligation to ensure 8 years of free and compulsory education. The New Educational Policy of 1986 resolved to achieve education up to Class VIII for all children. India

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became signatory to Education for All (EFA) at the world conference on Education at Jomtien in 1990.

Despite such constitutional stipulations and international commitments, millions of Indian children remain out of school. The total number of out-of-school children in 1995¬96 was around 71.7 million of which 36.1 million were of the 6-10 years age group. Out of school children consist of two groups: never enrolled and dropout. It was found that 28 percent of all children in 6-14 years group had never enrolled in any school. Overall, across the country, only 42 percent students who enrol in the first grade of primary school could complete the full cycle of elementary education. The net attendance ratio, as was revealed by NSSO in their 52nd round, survey was 66 and 44 for primary and upper primary levels in 1999. The FEA-2000 Assessment Report prepared by the Department of Education in the Ministry of Human Resource Development, Government of India, estimated that an additional 39.25 million children were to be enrolled in 2000 for achieving UEE(GOI 1999).

The schooling deprivation is further flecked by persistent gender bias. In primary level, girls are lagging behind boys by 22 percentage points. It goes up to 30 percentage points in some states. Thus the daunting task ahead for India is to ensure education for all her children as a priority agenda. Education is the key to development a vehicle of empowerment and a potent instrument of bringing an end to social injustice, exploitation and exclusion. "Education is universally recognised as an important investment in human capital. It improves their health, skills, knowledge and capability for productive work. For society as a whole, education enriches the political and cultural life of the community and strengthens the community's ability to exploit technology for social and economic advancement. Because the benefits are so broad and pervasive, the development of education is key concern everywhere" (Tan and Mingat, 1992). Therefore, denial of education to a large section of children amounts to retarding the process of human capital formation. The low human capital formation leads to perpetuation of poverty in developing countries. On the other plane, deprivation of schooling for children is denial of child rights as per Article 28 of the UNCRC.

Demand Side and Supply Side Variables in Children's Education

Economists have tried to explain the school participation of children through household choice process based on cost benefit perspective (Bhatty, 1998, Dreze and Kindgon 1999, PROBE Team 1999). It derives from human capital investment model which considers a choice between work and schooling as a simultaneous decision and as a trade off between short term and long term gain (Mincer 1958, Schultz 1960, Becker. 1962). If a household chooses work, it can earn income from child work. On the other hand if a household decides to send its children to school rather than to work, it will earn no income and additionally has to pay for education in the expectation that return to education in future will outweigh the present cost. The cost of education consists of direct costs such as tuition fees, textbooks, uniforms, stationery, and indirect cost of opportunity cost, in the form of children's wage income and non-wage economic activities, of schooling that

parents forgo by sending children to school. Thus, if perceived benefits exceed cost, then only children are sent to school. But children should have access to schooling. Accordingly, schooling of children is a factor determined by demand side as well as supply side variables. The demand side factors include household poverty, parental education, particularly of mother's education, caste aspects, participation in the labour market by children, family structure, engagement in domestic chores for long hours, particularly for girls, and supply factors consisting of availability of schooling within neighbourhood, drinking water, playground, teaching kits, toilets etc. Both supply side factors and demand side factors need to be taken into account to explain children's schooling participation or non-participation. Nevertheless, there are situations where children have access to schooling and homogeneous supply side factors across villages. In spite of that we come across many children remain out of school. Thus this non-participation in these circumstances has to be explained in the variation in the demand side factors arising from household side. The objective of this paper is to locate the demand side factors that influence the school participation where schools are located within neighbourhood and are endowed with excess space for many more children. Schools are, without a doubt, beset with problems of insufficiency of teachers measured by the standard teacher-pupil ratio of 1:40 and accompanying inadequacy of sitting space. Government schools providing elementary education in these localities hardly conform to that standard. Schooling infrastructure deviates in many aspects from the 'model' type. Yet children attending those schools remain there for many years despite several inadequacies measured by the -model' kind. The paper seeks to find the answer why many children in the villages remain out of schools when schools are ready to accommodate them. Do household level factors determine the extent of school participation of children? This paper is an attempt to look into those household level factors that influence children's school participation in a rural setting of North East India.

The Study Area and Methodology

The present study is based on intensive household survey conducted during 2003 and 2004 in six villages in the district of Jalpaiguri, West Bengal. Villages were selected on the basis of multistage random sampling method. Three blocks (Panchayat Samitis), namely Jalpaiguri Sadar, Mai and Rajganj were selected at random, out of 13 blocks in the district. From these three blocks, 2 Gram Panchayat (GP) from each block, were randomly selected. Thus, we have six GPs in the 2nd stage. Again from each GP, at least one village was selected at random. By this way, we have six villages in the 3rd stage (Table 1). All the households having children up to 15 years of age were enlisted for survey. A pre-tested questionnaire was used to record all information relating to children's schooling and household characteristics from 1440 households having a total of 2392 children of these six villages. The household survey was conducted in two successive phases; pilot surveys in the first go, followed by intensive household survey. The latter survey had recorded more comprehensive information on the children's households than what pilot survey exercise had done. The objective of the pilot survey

was to investigate the extent of school participation of all village children and its linkages with parental education as well as with household economic status. The latter survey was conducted, limited to 32 per cent (771 out of 2392) of all village children. The size of the sample was not fixed beforehand but it turned out to be as such at the end because of constriction imposed by the design of the second phase survey structured to elicit detailed information from the households, nature of which is qualitative as well as quantitative. Not all the households were spontaneous, in the second round, by way of participation in the survey exercise. Thus the detailed survey had covered those households which came forward spontaneously and were willing to participate in the discussion on realizing the significance of such exercise. Limiting the sample size of children to 771 thus ensured quality and accuracy of data.

TABLE 1

Sample Frame for Selection of Villages

Block (Panchayet Samiti)	*GP. (Gram Panchayat)*	*Village*
Jalpaiguri Sadar	Kharia	Sukanta Nagar
	Paharpur	**Balapara**
Mai	Rajadanga	Baroghoria
	Kranti	Khalpara
Rajganj	Panikauri	Kaluarbari
	Sukhani	Moghapara

The economic classification of all households in the order of 'very poor', 'poor', 'middle', and 'rich' has been performed on the basis of annual family income, land ownership, house quality, number of livestocks, ownership of TV sets, cycle, electricity connection, radio, watches, and number of dependents in the family. Thus our poverty estimate is a holistic concept that goes beyond income poverty.

TABLE 2

Distribution of Village Children (6 to 14 years) by Economic Status and Gender Six Villages Combined

	Very Poor		*Poor*		*Middle*		*Rich*		*Total*
	M	*F*	*M*	*F*	*M*	*F*	*M*	*F*	
Sukanta Nagar	115	93	123	132	31	25	1	0	520
Balapara	62	55	69	78	17	22	5	5	313
Khalpara	29	40	119	162	43	58	6	2	459
Baroghoria	51	48	183	166	25	26	2	0	501
Kaluarbari	26	25	90	78	30	37	0	1	287
Moghapara	30	23	111	101	25	22	0	0	312
Total [gender]	313	284	695	717	171	190	14	8	2392
Total [economic status]	597		1412		361		22		2392
Total [households]	375		819		224		22		1440

Source: Computed from Survey data; [M=Male, F=Female]

Out of 2392 children, 1193 are male and 1199 are female. Among 1440 households 26 percent belong to very poor status, slightly better off among poor status, slightly better off among poor household, i.e. "poor" comprise 57 percent of the total. The share of middle household is 15 percent. The share of the rural rich is abysmally low at 2 percent (Table 2).

Cross tabulation between children's schooling status and fathers' educational experience has been undertaken to gauge the correlation between them. Similar exercises have been carried out to estimate the relation between children schooling and mother's education as well as former with household poverty. Gender gap in schooling participation is analysed with relation to parental education, maternal education and household poverty.

Logistic Regression

Children's participation in schools is the outcome of household's decision-making process in the absence of any compulsory education law of the state. The decision to enrol and send the children to school can be captured using binary choice model. Binary choice models are appropriate when the choice between two alternatives, participation or non-participation, depends on numbers of causal factors.

Application of linear probability model to this type of problem, however, suffers from a number of deficiencies (Capps and Krammery, 1985), particularly, the one associated with the estimated probabilities in some cases being greater than one or less than zero as a result of neglecting significant interaction effects (Mingche, 1977). These deficiencies could be circumvented through the use of monotonic transformation (Probit or logit specifications), which guarantee that prediction lies within the unit interval (Capps and Kramer, 1985).

According to Hanushek and Jackson (1977), the choice between logit and probit models is largely a matter of conveniences. However, Maddala (1983) had recommended probit model for functional forms with limited dependent variables that are continuous between 0 and 1 and logit models for discrete dependent variable (0,1). The specific logit model is estimated to predict the 'odds' of a child participating in schools is specified in the following functional form.

$$P\backslash l\{\text{-}P\backslash) = fio + filMALE + fl2AGE + fi3\ AGESQUARE + fi4JOINT + fl5SC/ST + J36FATHEDU + J37MOTHEDU + J38\ FAHEAD + J39LAND + filOEMPLOYME + fill\ POVERTY + fi\ 12MOTHWORK + fi!3\ ECON + Ui$$

Where ***PI*** = the probability that ' i ' ' ' child participates in school
\-***P*** = the probability that ' i " ' child does not participate in school
MALE Dummy, I if male, 0 otherwise
AGE Age in years
AGESQUARE Squared age in years

SC/ST	SC/ST dummy, ! if the chid is SC/ST, 0 otherwise
FATHEDU	Father's education in years of schooling
MOTHEDU	Mother's education in years of schooling
FAHEAD	Dummy, 1 if household head is female, 0 otherwise
LAND	Land in acres
EMPLOYEE	Dummy, 1 if household's main income is permanent wage or salary, 0 otherwise
POVERTY	Dummy, 1 if poor, 0 non-poor
MOTHWORK	Dummy, 1 if mother is engaged in outside paid job, 0 otherwise
ECON	Dummy, 1 if the child is engaged in economic activity, 0 otherwise.

The data for binary logistic

The marginal effect of the k^{th} explanatory variable on the response probability is obtained from:

$$j \quad j \quad , \quad f\ r\ e\ x\ p\ l\ -\ r\ j\ ) \quad \_\ f$$

$$dX_{ik} \qquad (l + exp(-X'J))^2$$

The estimates of the marginal effects are calculated by rescaling the estimated coefficients. The scale factor varies with the observed values of X. However, for present reporting purposes, the scale factor is evaluated at the sample means of the explanatory variables.

Children's School Participation and Mother's Educational Experience

School participation of all children between 6 to 14 years across all of the villages is 78 percent. This enrolment rate in the sample villages is slightly better than the overall district percentage of 70 percent. School participation has been defined all along as mere enrolment in the school register. Effective schooling that encompasses regularity of attendance, learning accomplishment; aptitude and cognitive development, have not been captured. It would be interesting to investigate how mothers' educational attainments have influenced children's schooling. Schooling status is classified into three distinct and exclusive categories, i.e. 'never enrolled', 'dropout' and 'current student'. Mothers' educational attainments have been grouped in seven broad heading, such as illiterate, neo literate, primary, upper primary, secondary, higher secondary and college education. Neo literate mothers are very few who have gained literacy and minimum numeracy through National Literacy Programme initiated during early nineties. Adult literacy programme did not work well as is evident from the large number of illiterate mothers across our villages. Mothers with level of education in primary schooling means that they had attended formal schooling in any of the classes from Class I to Class IV. The same applies to upper primary, secondary and higher secondary and college.

A cross tabulation is performed between mother's educational attainments and children schooling status. In our villages, altogether 1840 children are born to illiterate mother. School participation rate for the children born to illiterate mothers is 76 percent. This rate goes up to 88 percent in the case of neo literate mothers. Mothers enlightened and enriched through literacy programme, although in insignificant number, have been found to be more inclined to send their children in large number. Neo literacy of mothers has succeeded in raising the school participation of their children by 12 percent. The school participation rate in respect of children born to mothers having primary schooling background is 85 percent. It seems that adult literacy campaign has impacted the children school participation to a larger extent than the formal schooling background at the primary level. The rate heightens up to 93 percent in case of mothers having schooling background at upper primary level. The same jumps to 98 percent for mothers with background in schooling at the secondary level. However, all the children born to mother having higher secondary and college level of education are in school. Thus, mothers' schooling attainment has been found to be positively related to children school participation. Incidence of schooling deprivation quite naturally is related inversely to the schooling attainment of mothers (Table 3).

TABLE 3

Schooling Status of the Children (6 to 14 years) by Mother's Educational Level - Six Villages Combined

	Never Enrolled			*Drop Out*			*Students*		
	M	*F*	*T*	*M*	*F*	*T*	*M*	*F*	*T*
Illiterate	103	179	282	83	76	159	726	673	1399
Neo literate	2	4	6	3	4	7	47	51	98
Primary (Class I-IV)	3	9	12	7	7	14	76	70	146
Upper Primary (Class V to VIII)	1	1	2	6	4	10	89	76	165
Secondary (Class IX to X)	1	0	1	0	0	0	29	21	50
Higher Secondary (Class XI to XII)	0	0	0	0	0	0	1	0	1
College Education Graduate & above	0	0	0	0	0	0	0	3	3

Source: Computed from survey data; [M=Male, F=Female, T=A1I]

The ratio of dropout children is as high as 9 per cent in respect of illiterate mothers. The same comes down to 6 percent for neo-literate mothers. It further lowers down to 5 percent in case of mothers having upper primary schooling background. Not even a single children has dropped out of schooling in respect of mothers having secondary, higher

secondary and college education. Like dropout children, never enrolment is negatively linked to mothers' educational experience. It has been found that never enrolled children comprise 15 percent of all children born to Illiterate mother. It drastically comes down to 5 percent for neo-1 iterate mothers. The same comes down to very low at 1 percent for both instances of mothers having upper primary and secondary schooling background. Higher educational background of mothers, higher secondary as well as in college education, has ensured total absence of never enrolled children. However, the most startling segment of this finding is the wonderful impact of mothers' neo literacy in children schooling. The impact of neo literacy of mothers on school participation and on reduction of schooling deprivation of their children is stronger than even mothers with primary schooling background. It would also be interesting to see how mothers' educational achievement can reduce gender disparity in schooling participation of their children.

Discrimination against girls is at a peak level of 0.91 in case of illiterate mothers. The share of girls in school is substantially less than that of boys. Improvement in mothers' literacy, from illiteracy to neo literacy has raised the school participation of girls from 72 percent to 86 percent, a jump of 14 percent. The gender inequality has come down form 0.91 to 0.95. School participation of girls gradually increases as mothers reach higher level of educational attainments. Gender equality is reached in respect of mothers with secondary, higher secondary and college education (Table 4).

TABLE 4

Mothers' Schooling and Gender Disparity in Schooling of Children

Mothers' Educational Attainment	***School Participation of Male Child (%)***	***School Participation of Female Child (%)***	***Gender Disparity F.M***
Illiterate	79.61	72.52	0.91
Neo-1 iterate	90.38	86.44	0.95
Primary	88.37	81.39	0.92
Upper Primary	92.70	93.82	1.00
Secondary	96.66	100.00	1.00
Higher Secondary	100.00	100.00	1.00
College Education	100.00	100.00	1.00

Source: Computed from survey data

Schooling deprivation of girls measured as a proportion of never enrolled and dropout among all children has come down with the successive increase in educational attainment of mothers. It has been found that schooling forfeiture is 27 percent among girls born to illiterate mothers. Maternal neo literacy has brought down this ruin to 14 percent. For mothers having upper primary background, the deprivation of girls has drastically come down to 6 percent. All girls are in school for mothers having higher secondary and college level of education.

Children's School Participation and Fathers' Educational Experience

Likewise, fathers' educational experience has been cross-tabulated with children's schooling status to gauge the impact of the former on the latter. Children's educational status, i.e., never enrolled, dropout and current students are related to their fathers' schooling accomplishment. The results run as follows. Illiterate fathers have 977 children, 73 percent of their children go to school. Out of 423 children born to neo-literate fathers, 84 percent are in school. This is evident that mothers' neo-literacy has a stronger effect, i.e., 88 percent more than that of fathers in child schooling.

Fathers having primary schooling background obviously are trailing behind neo-literate fathers in keeping their children in school. It is estimated that 79 percent of the children, -in case of fathers with primary schooling, are in school as compared to 85 percent in case of neo-literate fathers. Thus, similar to maternal neo literacy, impact of paternal neo-literacy on education of children is indisputable. Nevertheless, there is spectacular jump in schooling of children to the extent of 91 percent for fathers with upper primary schooling experience. This is followed by 92 percent of children being in schooling in case of fathers with secondary schooling. Fathers with higher secondary and college education have been found to ensure hundred percent schooling of their children.

TABLE 5

Schooling Status of the Children (6 to 14 Years) by Father's Educational Level Six Villages Combined

	Never Enrolled			*Drop Out*			*Student*		
	M	*F*	*T*	*M*	*F*	*T*	*M*	*F*	*T*
Illiterate	68	106	174	48	42	90	369	344	713
Neo literate	12	26	38	11	16	27	158	150	358
Primary (1-1V)	16	31	47	16	17	33	151	149	300
Upper Primary (V - VIII)	2	15	17	7	8	15	165	164	329
Secondary (IX - X)	2	1	3	4	2	6	58	40	98
Higher Secondary (XI - XII)	0	0	0	0	0	0	19	12	31
College education, Graduate & above	0	0	0	0	0	0	15	9	24

Source: Computed from survey data; [M=Male, F=Female]

Thus, whether a child would remain inside or outside school substantially depends on the schooling background of his or her father. Table 5 reveals a consistent relationship between children school participation and paternal schooling experience. Gradual improvement in educational attainment of fathers progressively reduces schooling deprivation of the children. The illustrations of dropout children arranged with their fathers' educational level in the same table might be cited as an instance of puissant role. Illiterate fathers have 9 percent dropout children. Neo-literate fathers have brought down

the dropout rate to 6 percent. Education level of fathers as to upper primary has brought down the rate to 4 percent. Remarkably, secondary and college education of fathers has totally eradicated schooling deprivation. Like dropout, never enrolment also goes down with the improvement in paternal education. Starting with a never enrolment ratio of 18 percent for illiterate fathers, it comes down to 9 percent for neo literate father, and further drops down to 4 percent for fathers with upper primary schooling. It touches 2 percent for fathers with secondary education.

It has been noticed that parental education has an explicit impact on children's schooling and on the schooling deprivation of rural children. It is fascinating to study the level of education of parents, of fathers and of mothers separately in our study villages. Illiteracy among mothers is quite high at 78 percent. Fathers' illiteracy is, however, comparatively low at 41 percent across our study villages. Around 17 percent of mothers had ever gone to school. The effect of literacy programme implemented under national literacy mission is marked by disparity between male and female adults (Table 6).

TABLE 6

Parental Educational Attainments Across Six Villages

Educational Level	*Percentage of Fathers*	*Percentage of Mothers*	*Gender Gap in Parental Education*
Illiterate	41.42	78.13	36.71
Neo-literate	18.37	4.71	13.66
Primary	16.50	7.38	9.12
Upper Primary	15.67	7.51	8.29
Secondary	4.64	2.00	2.64
Higher Secondary	1.34	0.04	1.30
College education	1.04	0.12	0.92

Source: Computed from survey data.

Only 5 percent of mothers are neo-literate compared to 18 percent in case of fathers. In all these educational categories, beginning from primary education and ending up at college education, fathers are ahead of mothers in attainment of schooling.

Children Schooling and Household Economic Status

Like parental education, household poverty is a factor that determines the educational status of the children. Table 7 below presents the cross tabulation of data on household economic categories and children's educational participation to reckon the influence of the former on the latter. The data reveal that children born to 'very poor' households are worst sufferers in terms of educational participation as only 69 percent of children hailing from such households are in school. Improvement in household economic condition also raises school participation of children. For the children belonging to slightly higher economic group (i.e. 'poor)', school participation stands at 79 percent. There is a significant leap of 10 percent of schooling due to betterment of household economic

condition, i.e. an ascent from 'very poor' to 'poor' standing. Children of the 'middle' category of households in terms of economic status are mostly in school. The school participation for them is 94 percent.

TABLE 7

Schooling Status of Village Children by Household Economic Categories (6 to 14 Years), Six Villages Combined

(N=2392)

	Never Enrolled (No.)		*Dropout (No.)*		*Current Student (No.)*	
	M	*F*	*M*	*F*	***M***	***F***
Very Poor	47	85	36	16	230	183
Poor	66	111	58	67	571	539
Middle	4	4	6	8	161	178
Rich	0	0	0	0	14	8

Source: Computed from survey data: [M=Male, F=Female]

School participation is full among children belonging to 'rich' category of households. Our findings over the six villages are similar to that of National Sample Survey (NSS) report on school participation. During 1993-94, NSS data indicated that 38 percent of 5-9 years group and 42.9 percent of 10-12 years group of rural children from families with less than Rs 120 of monthly per capita household expenditure, attended school. The participation rose to 78 percent for households with higher per capita expenditure of Rs 455 per month. The number of children out of school among the total of 2392 among the 6 study villages is 508. The share of never enrolled children among these educationally deprived children is 62 percent and that of dropout is 48 percent. Poverty of households evidently induces the schooling deprivation. Betterment of general economic condition lessens the schooling forfeiture as is evident in Table 7. Out-of-school children comprise 31 percent in very poor households. This rate comes down to 21 percent for slightly better off households, i.e. 'poor' in the rural setting. This further comes down to as low as 6 percent for -middle' income group of households. Schooling deprivation is totally absent in rich households.

Gender disparity in school participation is high at 0.87 among lowest economic category, i.e. 'very poor'. School participation of girls to the extent of 64 percent is way behind that of boys, which is 73 percent among this destitute group of households. The gender disparity is slightly reduced to 0.91 for the 'poor' category. Schooling participation of girls has gone up by 9 percent with elevation in economic status, from a standing of 'very poor' to 'poor' standing. Gender disparity is nearly absent (close to one) in case of 'middle' group of families where girls' participation has reached as high as 93 percent. Discrimination is entirely absent for the relatively affluent households, that is, within 'rich' families among them (Table 8).

TABLE 8

Gender Disparity in School Participation by Household Economic Status

Household Economic Status	*School Participation of Girls (%)*	*School Participation of Boys (%)*	*Gender Disparity (Girls : Boys)*
Very poor	64.43	73.48	0.87
Poor	75.17	82.15	0.91
Middle	93.68	94.15	0.99
Rich	100.00	100.00	1.00

Source: Computed from survey data.

The data for logistic regression analysis was collected from 771 children out of 2392 children across the six villages of the district. The result of the regression analysis is presented in Table 9. The parameters or the logit coefficients give the change in log odds ratio associated with one unit change independent variable when all other variables are controlled. The signs of the estimated coefficients give the direction of the effect of a change in explanatory variables on the probability of participation in schools. The coefficient for MALE is positive and statistically significant which implies that boys are more likely to participate in school compared to girls. Similarly, AGE and AGESQUARE are negative and both are statistically significant indicating that grown up children are less likely to participate in school. The result is in conformity with a similar study (Chakraborty, 2003) where it has been observed that incidence of dropout is higher in post-primary stage than in primary stage. Children, particularly between 12 and 14 years of age, on getting out of school, join either paid work or unpaid work and in many cases combining the two. Girls undertake unpaid housework while many boys join outside paid work. One of the fascinating aspects of this exercise is the revelation of the role of family structure in children's school participation. Children living in a joint family are more likely to participate in school. The obvious reason for this positive influence is the presence of other members in the family helping out their children to go to school by shouldering many family responsibilities by themselves that would otherwise have befallen on the children. The negative coefficient for SC/ST variable re-establishes earlier findings regarding the social inequality of educational participation of children in India. The NSSO (1997) statistics on the school attendance status of the children indicate significantly lower attendance rate for SC and ST children. For example, 40 percent of the tribal girls were attending school as compared to 60 percent for general category girls. The coefficients for both FATHEDU and MOTHEDU are positive and statistically significant.

Children, whose parents have schooling exposure in the past, are more likely to participate in school. The present result that brings in focus the enormous role of parental educational background on the schooling participation is also corroborated by earlier studies (Weiner 91, Bhalla 1995, Burra 1995).

TABLE 9

Maximum Likelihood Estimate of the Logit Model for Children's Participation in Neighbourhood School

Explanatory Variables	*Coefficients*	*Standard Error*	*7' Value*
Constant	2.952	.737	5.023
MALE	.2320*	.171	1.832
AGE	-.2340*	.104	4.098
AGESQUARE	-.0050***	.005	.803
JOINT	.2530	.371	.463
SC/ST	-1.357	.251	.459
FATHEDU	.0980***	.046	4.160
MOTHEDU	.4300*	.075	.156
FAHEAD	-.4570	.349	6.159
LAND	-.0950	.113	.707
EMPLOY	.9320	.399	5.412
POVERTY	-.2140*	.330	.420
MOTHWORK	-.3860**	.176	5.172
ECON	-.7530*	6.450	.282

Number of observation (N) = 771; Log likelihood = -96.56
*, **, *** indicate significance at 1 percent, 5 percent and 10 percent level, respectively.

There is almost a common consensus that parental education has a positive impact on children's schooling. The assumed premise is that those who have no experience of schooling do not know the value of education. Children for the female-headed households are less likely to participate in schools. Children have to undertake income-earning activities in case of sudden death of fathers or in situations where fathers abandon them. When mother is the single earner, in the absence of father, girl children are engaged in household chores and child-minding to facilitate mothers to join outside paid work. Children belonging to landed families, where farming is the only source of livelihood, are less likely to join school. Small and marginal farmer families make use of child labour for agricultural activities. Children of the families, having a permanent source of income, like salary or permanent wage, unlike casual wage income, are more likely to participate in school. Fixed income flow might be the reason for investing in child education where families attach more benefits to education than the present cost. Children belonging to poor families are less likely to participate in school. This result is in conformity with the previous finding covering 2392 children across all study villages where school participation increases with gradual rise in economic status of children's households. The negative effects of poverty on school participation of children have been established in many large-scale household surveys (Levy 1985, Buragohain 1997, Singh and Santiago 1977). Children whose mothers are engaged in outside paid job and remain outside for prolonged hours are less likely to attend school. This happens particularly to

girl children where they relieve their mothers to go outside for paid work. Economic activities, other than on-farm work, have also been found to discourage school participation. The result shows that children undertaking economic activities are less likely to participate in schools. This result re-establishes the inverse relationship between child work and child schooling where the former derails the latter. Similar inverse relationship was found in the studies of Anker (1998) and of Nambissan (2003).

The impact of a unit increase in an explanatory variable on the choice probability is obtained by estimating marginal effect. Thus, Table 10 contains more sharp and focused influence of the explanatory variables on the probability of an individual child's participation in the neighbourhood school. Boys are ahead of girls in the probability of school participation. Being a boy increases that probability by 5.60 in percentage points. Joint family structure increases the probability of a child participating in school by 7.80 percentage points.

TABLE 10

Marginal Effects of Selected Explanatory Variables

Explanatory Variables	*Marginal Effects (Probability Points)*	*Percentage Points*
MALE	0.056	5.60
AGE	0.154	15.40
JOINT	0.078	7.80
FATHEDU	0.906	9.06
MOTHEDU	0.106	10.60
FAHEAD	-0.078	-7.80
LAND	- 0.065	-6.58
EMPLOY	0.120	12.01
POVERTY	-0.126	-12.60
MOTHWORK	-0.112	-11.20
ECON	-0.639	-63.90

Mother's educational exposure, measured by the years of schooling, has already established as potent force in children's continuation in school. A unit increase in mother's education increases the probability of participation in school by 10.60 percentage points. Fathers' education has similar impact but slightly less than that of mothers, i.e., 9.06 by percentage points. Being a child of a family without father and where responsibility of running the household befalls on the mother only reduces the probability of participation in school by 7.80 percent. A unit increase in land of the child's family reduces the participation by 6.58 points. The family that survives on fixed income or salary has an increased probability of its children participating in school by 12 points. Poverty, one of the dominant factors, of schooling deprivation, here reduces the probability of schooling by 12.60 percent. Both mother's outside work and engagement in economic activities by the children themselves reduce the probability by 11.20 and 63.90 percent respectively.

Conclusion

The study reveals many interesting aspects of demand side factors in children's schooling. Variation in demand related factors across families of a certain locality in a rural setting could cause significant difference in schooling participation among children. The present study has tried to address the fundamental question that why a few children in a particular locality go to school while others in the same place do not. Many household level factors have been identified. Prominent among them is mother's education. Mothers having past exposure to schooling tend to send their children to school. Neo-literacy among mothers has enormous impact. Children of neo-literate mothers are more likely to remain in school than the children born to illiterate mothers. Gender disparity in schooling is gradually reduced with the rise in mother's educational level. Similar is the case of paternal education. Fathers with past schooling experiences have been found to encourage school participation of children. Paternal neo-literacy, like that of maternal, has achieved wonderful results. Household poverty is a significant retarding factor in school participation. Enhancement of economic well being can improve school participation and can reduce gender inequality. Participation in economic activities that hampers school attendance should be discouraged at household level by providing stipends and other incentives. Caste based prejudice seems to be still prevalent in the matter of participation in schooling. Social awareness programme should be undertaken to sensitise unwilling parents of disadvantaged communities coupled with provision for stipends. Anti-poverty programme with involvement of Panchayat should be initiated targeting the families where poverty is a formidable barrier to children's schooling. Literacy programme should start off all over again in villages for many parents who were left outside during literacy drive undertaken a decade ago. For neo-literates, the second drive of literacy campaign is sure to brush up their literacy attainments that are at risk to be erased in the absence of any sustained literacy lessons. Academic calendar of the schools should be restructured in a way to ensure school attendance of the children participating in family agriculture mainly in peak seasons. One option may be the declaration of vacation or rearranging school holidays in the peak seasons.

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp. 205-225

Engineering and Technology Education in India*

Uneven Spread, Quality and Social Coverage

S. Srinivasa Rao"

Abstract

India has been fast emerging as a country with largest pool of scientific and technological manpower in the globalised world today. The sheer numbers may boast of significant success in terms of the generation of graduates in various branches of engineering and technology education, but it reveals a shortsighted policymaking that produces more unemployed engineers every year. Though the planned development of higher engineering and technology education is only fifty years old. it brought into sharp focus the issues of uneven growth, quality, and social coverage of engineering and technology education. This calls for a rethinking as to what is wrong with the current policies and strategies and what should be the policy direction for the future. It is in this context, the paper attempts to present an overview of the growth and development of engineering and technology education in India.

Higher education is seen as a passport to social mobility in the modern industrial societies. It enhances the prospects of an individual to attain social prestige and honour in a society that places emphasis on individualistic achievements. However, as functionalists, such as Kingsley Davis and Wilbert Moore argue, not everyone within the higher education system is endowed with the same level of social prestige, honour and importance. Some achieve more and some less depending on the kind of higher education received by them. Moreover, some positions in the economy and society are more prestigious and important than the others. These positions and occupations are accessible only to those possessing certain higher educational qualifications. In other words, the system of higher education itself is hierarchised and differentiated in terms of various levels and streams of study, academic disciplines and quality of institutions in so far as it can produce differential prestige and social status to an individual in the society. In

Revised version of the paper presented in the Seminar on Women's Education and Development held at Malasisar. Rajasthan (July 31-April 2, 2004)

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Weberian terms, the access to certain 'life chances' such as higher education would decide the social class position of an individual in the open stratified societies.

In contemporary societies, higher engineering and technology education receives the utmost importance as it provides an assurance of social prestige, status and life chances to an individual. The demand for engineering and technology education and the importance placed on it for future job prospects reinforces this line of argument. A degree in engineering and technology education is thought of as a sure-shot to gain employment and hence social status, prestige and access to better life-chances. The importance laid down by the post-Independent India on industrialization and building infrastructure has opened up new vistas for holders of degrees in engineering and technology in the higher education sector.

It may also be noted that certain areas of engineering and technology education have received differential importance in different periods of the post independence India and hence the employability of these graduates in the economy and society varied from time to time. For instance, civil engineers were in great demand till the sixties and even seventies as the new nation required to build its basic infrastructure such as roads, buildings, irrigation dams/canals, etc. The demand for civil engineers was replaced by mechanical engineers who by then were in great demand for the emerging manufacturing sector in the seventies. However, the developments in the electronics and communications sector in the eighties have shifted the focus to Information and Communication Technology sectors. Thus, at various points of time, emphasis was laid on various branches of engineering and technology education and, accordingly, the graduates of that particular branch received higher status, prestige and demand in the society. For instance, a civil engineer or a mechanical engineer would try to enhance his/her chances of employability and status by securing an additional degree in Information Technology, which could assure him/her of higher salaries, decent work conditions, and a chance to work in greener pastures in developed western and eastern countries. Lack of such additional qualifications means that one is destined to the low paid, less attractive, and highly insecure jobs. It is not surprising that a large chunk of engineers of different hues aspire to enter the new technology areas to facilitate their chances of a bright career.

Though engineering and technology education in India remained as a system producing low-level technicians for almost a century, the post-independence India attempted to reform its policies and programmes to change the profile of its workforce that otherwise was low skilled and less educated. The past fifty odd years of development of engineering and technology education has been steady and, today the large numbers of technical and scientific manpower produced in the country put it in a special place, on par with some of the highly developed industrial nations. The information technology revolution the world over for the past two decades has also brought into limelight the strength of the higher education system as it has responded to the demands for the skilled manpower in several areas of workforce in the knowledge economy and society.

However, it has brought into sharp focus the uneven growth of higher engineering and technology education in India. Particularly, the growth of engineering education in India is marked by the unevenness in its geographic spread, social coverage and quality. The response of the policy-making establishment, so far, to the demands of the emerging techno-knowledge society appears to be a shortsighted one that kept in mind the temporal demands of the market forces and the global pressures. It has failed to take into consideration the special needs of a society which is still largely rural and agrarian. Even if one thinks of future India as a highly industrialised nation, the issues of uneven growth, social coverage, and quality make it a distant reality. Thus, it is in this context, the paper attempts to provide an overall review of the historical developments, policy initiatives and quantitative expansion of the coverage.

Early Beginnings

Engineering and technology education was introduced in India about a century and five decades ago with the establishment of Thomson Engineering College at Roorkee in 1847 to train civil engineers. Prior to this, industrial schools existed which were attached to the ordinance factories and other engineering establishments in Calcutta and Bombay. However, the first authentic account we have is that of an industrial school existing at Guindy, Madras, in 1842, attached to the Gun Carriage Factory there. A school for the training of overseers was known to exist in Poona in 1854. British rulers of India realized the need for creating such centres of engineering training for overseers out of their necessity in the construction and maintenance of public buildings, roads, canals and ports. They also needed to train the artisans and craftsmen in the field of instruments and apparatus needed for the Army, the Navy and the Survey Department (India, 1950). Although never affiliated to a university, the Thomson Engineering College in Roorkee granted diplomas considered equivalent to degrees. In 1856, the Calcutta College of Civil Engineering was opened and two years later, the overseers' school in Poona was renamed as Poona Engineering College and was affiliated to Bombay University. The industrial school in Madras, renamed as Guindy College of Engineering, became affiliated to Madras University.

The educational process in the three colleges of Calcutta, Poona and Guindy (Madras) has been more or less similar. They all had licentiate courses in civil engineering until 1880, when they organised degree classes in this branch alone. After 1880, the demand for mechanical and electrical engineering was felt and the three engineering colleges started apprenticeship classes only in these subjects. The Victoria Jubilee Technical Institute, started at Bombay in 1887, had as its objective the training of licentiates in Electrical, Mechanical and Textile Engineering.

In Bengal, the leaders of the freedom struggle organised a National Council of Education in 1907, which started many institutions including the College of Engineering and Technology at Jadavpur. The courses in Mechanical Engineering were first offered at Jadavpur College of Engineering and Technology in 1908 and Chemical Engineering in 1921. The teaching in Electrical Engineering commenced at the Indian Institute of

Science (IISc), Bangalore, in 1915 (India, 1950: 224-25). Delhi Polytechnic was set up in 1940, and was later renamed as Delhi College of Engineering. However, the Banaras Hindu University started the first-degree classes in Mechanical and Electrical Engineering in 1917. It was not until 1930s that the colleges at Calcutta, Pune and Guindy introduced degree classes in Mechanical and Electrical Engineering. Thus, it was only when World War II broke out, the need for technicians for the war effort was felt and some attention was paid to the issue of technical education and training in India (NCERT, 1961: 94). A number of engineering colleges have been started since 1947 after Independence, as there was a felt need to make India a great industrial country.

Policy Reforms after Independence

In this context, the Government of India took three vital policy decisions having a far-reaching influence on the development of technical education in the post-Independence period. One was the establishment of an All India Council for Technical Education (AICTE) to advise on all aspects of improvement and coordinated development of technical education. Second was the appointment of a Scientific Manpower Committee in 1947 to assess the requirements for various categories of scientific and technical manpower and recommend measures to meet them. Third was the setting up of Sarkar Committee to look into the feasibility of establishing institutions of national importance in engineering and technology education.

The AICTE carried out a comprehensive survey of technical institutions in the country and formulated a scheme for their immediate improvement and development with financial assistance provided by the Central Government. It also set up a Board of Technical Studies in various fields to prepare frameworks of various courses of suitable standard for various levels of training, which could serve as a model for the institutions and facilitate reorganisation of technical education in the country. Further, four regional committees, one for each region of the country, were set up to survey the regional needs, to formulate and implement development programmes in a coordinated manner and to help in the establishment of liaison between the industry and the technical institutions.

On the other hand, the Scientific Manpower Committee carried out quantitative and qualitative assessment of the requirements for technical personnel over a ten-year period, estimated the existing shortages in training facilities and recommended various measures to meet the demand. It also established the concept of'integrated planning' in technical education with a capacity to foresee future requirements for manpower and to meet them through an organised effort. Thus, when India achieved independence in 1947, a certain awareness of the importance of technical education to the national development was already there in many quarters.

Another development during the mid-forties is that the Government appointed the Sarkar Committee to consider whether India should have several regional engineering and technology institutions of one central all-India technological institution with affiliated colleges. The Sarkar Committee recommended that at least four regional institutions should be established - one each in the North, East, South and West. The

Government accepted the establishment of two, one each in the East and the West (Haggerty, 1969: 126-7). The Indian Institute of Technology (IIT), Kharagpur was established in 1953 as the first of the four higher technological institutes recommended by the Sarkar Committee and in 1956, the Parliament declared it a degree-granting institution 'of national importance'.[1] The Institute planned to provide under-graduate courses for 1,200 students, post-graduate courses and research for 600 students. It offered facilities for training in a wide range of subjects, some of which, for instance, are Naval Architecture and Marine Engineering, Fuel and Combustion Engineering, Production Technology, mechanical handling of materials, Agricultural Engineering, Geophysics, Town and Regional Planning and Architecture for technical personnel, which were relatively new. Later, gradually between 1958 and 1963, four more IITs were established at Bombay, Chennai, Kanpur and Delhi. IITs at Guwahati and Roorkee have been established only in the past decade or so. There are demands to establish some more IITs across the country to develop excellent engineers to meet the challenges of the Indian society in a new century. Further, the Indian Institute of Science (IISc), Bangalore, has been developed for technological studies and research in Aeronautical Engineering, Metallurgy and Electrical and Communication Engineering.

Apart from the IITs and IISc, a large number of technical institutions all over the country have been developed for degree and diploma courses. In addition Regional Colleges of Engineering (RECs)[2] were established to meet the needs of different states. RECs are the joint ventures of both the Centre and the States with 50:50 funding. However, recently, the Government of India has decided to restructure the status of RECs and upgrade them as National Institutes of Technology (NITs) on the lines of Indian Institutes of Technology (IITs). By June 2002, ten out of seventeen RECs were converted into NITs and were granted 'deemed to be university' status.[3] Restructuring of RECs was done with a view to address the demand of scientific manpower besides R & D personnel at the earliest and in the most effective manner. The reason offered by the Ministry of HRD for the conversion is that since setting up of an IIT could cost crores of rupees,

1 At present, there are seven IITs at Kharagpur, Kanpur, Chennai, Delhi, Mumbai, Roorkee and Guwahati. The entrance to these institutions is based on the All India level Joint Entrance Examination (JEE), which is regarded as one of the best and toughest in the world. There has been a demand for setting up more IITs in different states of the country.

2 Fifty percent of seats in each REC are earmarked for students passing their qualifying examination from the state where REC is situated. The remaining fifty percent are for students from other states and union territories. The RECs are affiliated to various state universities and admissions is made by each REC on the basis of entrance test or on the basis of merit in the qualifying examination as per the procedure adopted by the state.

3 The ten RECs that were upgraded as the NITs are located at Allahabad, Bhopal, Calicut, Hamirpur, Jaipur, Kurukshetra, Nagpur, Rourkela, Suratkal and Silchar. The admission to these institutions is through on All India Engineering Entrance Examination (AIEEE), modeled on the lines of IIT-JEE.

upgrading and providing autonomy to RECs, which already have the necessary infrastructure, will improve the quality of engineering and technology graduates.

Further, India's Five-Year Plans provide the evidence of long term planning in the field of technical education. During the First Five-Year Plan (1951 - 56), technical education sector made a significant progress. The Second Five-Year Plan (1956 - 61) also continued the emphasis on expansion of technical education in India. The Second Plan was, however, very much conscious of the problem of standards in technical education. It observes:

> ***Besides expansion in number, qualitative improvement of the standards of institutions has also been kept in view. The crux of the problem of quality in education is better staff, better equipment and better accommodation in the technical institutions.***

As part of the strategy to maintain standards, the AICTE carried out a region-wide study of the state of various institutions in the country, their deficiencies, courses offered, standards and improvements needed. It is important to note that only based on the Report of the AICTE on the individual institutions, the funds were released by the Central Government, which acted as a check for the falling standards in technical education.

It was around this time, the Government of India, realising the role of science and technology for the socio-economic development of the country, took up a massive programme of setting up national laboratories and institutes of higher learning in various fields of science and technology. In this effort of nation building, Pandit Jawaharlal Nehru was the dynamic spirit behind these rapid strides in infrastructure building. This national commitment soon converted into the Scientific Policy Resolution (SPR), authored by no less a person than Jawaharlal Nehru himself, and approved by the Parliament in 1958. The Scientific Policy Resolution clearly commits the nation to using science and technology for national development. It states:

> ***The key to national prosperity, apart from the spirit of the people, lies in the modern age, in the effective combination of three factors - technology, raw materials and capital - of which the first is perhaps the most important since the creation and adoption of new scientific techniques can, in fact, make up for a deficiency in natural resources, and reduce the demands on capital. However, technology can grow out of the study of science and its applications (India, 1958).***

To make the development of technical education in India more planned and directed, keeping in view the objectives pronounced in the scientific and technological policies, the Planning Commission estimates the demand and supply of graduates and diploma holders from time to time. For instance, the draft outline of the Third Plan (1961-66) provides an analysis of increasing demand for the technical personnel in the country. During the Second Plan, the demand for 28,000 technical graduates could not be met. While in the Third Plan, the supply of technical personnel with under graduate degree exceeded the demand, the estimates for the Fourth Plan matched exactly with the demand.

Another important development during the Third Plan period was that the government placed emphasis on certain branches, namely, mechanical, electrical and chemical engineering, along with the need for training specialists in the fields of mining, metallurgy and other technologies. The main programmes in the late fifties and the early sixties also relate to the development of School of Mines and Applied Geology, Dhanbad, and the Delhi Polytechnic. The sixties completed the continuation of 8 regional colleges and 27 polytechnics and the expansion of selected institutions that existed in the Second Plan.

In the seventies, C. Subramaniam, the then Union Minister of Planning, and Science and Technology took special interest in involving the states in developing technical education in India. In a letter[4] to the Chief Ministers in 1971, he emphasized the need for a greater participation of the states in science and technology in the country.

In the eighties, particularly during the Sixth and Seventh Plans, the focus was on improving the quality and standards as well as increasing the facilities in engineering and technology education. For instance, the report of the Steering Group on Science, Technology and Environment for the Seventh Five Year-Plan (1985-90) clearly describes the existing situation in the eighties:

> ***The higher educational institutions with their research facilities are a unique base for training of competent scientists and technologists. We are deeply concerned about the extent to which the university science system has been allowed to run down through lack of support in the past. With every Plan, the size of the Plan has been increasing, but the percentage of money allotted to education has been decreasing. This trend needs to be changed (1984: 83).***

This concern found place in the final Seventh Plan, which states that in the context of rapid modernisation of economy, technical education has to play a leading role in the improvement of productivity. It proposes various measures in the field of technical education, such as consolidation of infrastructure and facilities already created, optimum utilisation of existing facilities, and identification of critical areas with a view to strengthen the facilities in the fields where weaknesses exist in the system. It also calls for the creation of infrastructure in new areas of emerging technology, the provision of necessary facilities for education, training and research and improvement of quality and standards of technical education.

To achieve these goals, the government initiated a balanced development of institutions of technical education at all levels. The government also gave the regional and other engineering colleges the thrust with a view to modernise and make their courses relevant to the emerging requirements. A major task in this direction was the removal of obsolescence in equipment and revision of courses, which were drawn up almost two decades ago.

4 The letter was reproduced in the Report of the Steering Committee on Science, Technology and Environment for the Seventh Five-Year Plan by the Planning Commission, 1984.

The tertiary level engineering and technology education system as prevailing in 1989 offered courses in more than 350 specialisations. There were 44 specialisations in civil engineering, 35 in mechanical engineering, 33 in electronics and communications engineering, 23 in electrical engineering, 16 specializations each in agricultural and chemical engineering, 15 in architecture and planning and 13 each in industrial production, metallurgical engineering and pharmaceutical technology. The rest of the subjects had 1 to 10 specialisations. There were in all 103 specialisations at graduate degree level, 42 for post-graduate diploma courses, 309 for post-graduate degree, and 80 for doctorate level programmes (Sushil Kumar 1993: 18).

An important development in the progress of engineering and technology education in recent years has been the according of statutory status to the AICTE by an Act of Parliament in 1987.[5] AICTE is expected to deal with the situation arising out of the mushrooming growth of private colleges and polytechnics. The preamble of the AICTE Bill 1987, very clearly describes the role of AICTE in the present day context of technical education:

> ***To the proper planning and coordinated development of the technical education throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the technical education system and for matters concerned with.***

It is in this backdrop of changes for proper planning and development of science, and technology, the Government of India formulated the Science and Technology Policy in 2002. The reconstruction of the standards in science and technology in the country is the main feature of this document. Thus, because of all these efforts, engineering and technology education in India developed tremendously in terms of quantity and quality over the years since Independence.

Quantitative Expansion

Growth in Institutions

Forty-six engineering and technology institutions existed by the time India attained Independence (Table 1). Most of them had only under-graduate level programmes. Four of them had post-graduate programmes also, but none offered the doctoral programme necessary for expansion and diversification of engineering and technology education. However, the number of engineering and technology institutions increased three-fold between 1947 and 1965. On an average, six new institutions were established every year between 1950 and 1965.

5 AICTE is supposed to be the regulatory body for checking the growth of low quality academic institutions. It has a malpractice cell, which from time to time derecognises such institutions including those run by state governments and by recognized universities, which do not meet the set norms.

TABLE 1

Number of Engineering and Technology Institutions in India (1947-2003)

Year	*No. of Institutions*	*No. of Institutions Conducting Programmes at the Level of*			
		Doctorate	*Master's*	*PG Diploma*	*Bachelor's Degree*
1947	46	0	4	0	42
1950	58	1	6	1	53
1955	80	1	14	2	74
1960	118	2	27	5	111
1965	151	7	37	9	144
1970	163	20	62	14	155
1975	179	32	84	22	169
1980	226	41	94	19	216
1985	358	58	115	16	347
1987	383	74	143	17	372
1997-98	-	-	-	-	562
1998-99	-	-	-	-	644
1999-2000	-	-	-	-	755
2000-01	-	-	-	-	821
2001-02	-	-	-	-	1,057
2002-03	-	-	-	-	1,195

Sources: 1. Sushil Kumar, et al, (1993): *Outturn of Scientific and Technical Manpower in India: 1984-89,* Vol. 2. Science and Technology, Human Resource Development Group, CSIR, New Delhi, p.3.

2. Government of India, Annual Report (2002-03), Ministry of Human Resources Development, New Delhi.

Further, there occurred a doubling of engineering institutions between 1965 and 1983. More than twenty engineering and technology institutions were added every year from 1980 to 1985. Nevertheless, the sudden jump in the number of institutions offering tertiary level courses in engineering could be observed from mid 1990s. For instance, since 1997-98, there has been a tremendous growth in the number of institutions at the degree level. Particularly, 2001-02 recorded an increase by 236 institutions over the previous year. Yet another aspect is that the number of institutions offering courses in Information Technology (IT) has been increasing steadily ever since the nineties.

Increase in Enrolments

The enrolment at the graduation level increased from 84,000 in 1971 to 325,944 in 2000 for men and from just 820 in 1971 to 63,057 for women (Table 2). Thus, the enrolment of men has increased nearly four-fold over a period of three decades and that of women has marked a quantum jump during the same period. Though this is a welcome development as far as the expansion of access is concerned, the gulf between the proportion of men and women is alarming. Enrolments in post-graduate courses in engineering and technology though have increased, but it has not been proportionate with the growth in the enrolment at the graduate level.

TABLE 2
Enrolment in Engineering and Technology by Levels and Sex (1971-2000)

Level	*1971*		*1981*		*1991*		*2000*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*
Graduate	84,025	820	111,064	4,942	215,081	26,287	325,944	63,057
PG	6,704	186	10,792	567	NA	NA	NA	NA
Doctorate	878	45	1,995	169	NA	NA	NA	
Total	91,607	1,051	123,857	5,678	NA	NA	NA	NA

Source: Institute of Applied Manpower Research (IAMR), *Manpower Profile, India 1995* and 2000, New Delhi.

The annual growth of intake in engineering at the degree level shows that from the mid 90s onwards, the growth has been overwhelming (Table 3).

TABLE 3
Annual Growth oflntake in Degree (Engineering) Courses

Year	***Intake***
1997- 1998	134,298
1998- 1999	153,151
1999-2000	179,647
2000-2001	209,115
2001-2002	293,804
2002-2003	356,258

Source: Government of India (2003): *Annual Report 2002-03.* Ministry of Human Resources Development, New Delhi, p. 184.

For instance, the intake at the degree level in 2002-03 was almost three times the intake in 1997-98. This may be explained in terms of the mushrooming of engineering and technology institutions in the same period, which have also doubled during that time. Further, the intake in Information Technology courses was 126,945 in 2002. (MHRD, India, 2002).

Spread of IT Education[6]

The nineties have seen emergence of a large number of institutions in the private and government sectors imparting IT education, particularly offering courses in computer

6 The Task Force on HRD in IT (Government of India), 2002, defines Information Technology as the technology to explain information the most efficient way. It encompasses computer science, telecommunications, electronics, including micro-electronics and computer applications. This could also include specialized areas, such as artificial intelligence, computer aided manufacturing (robotics, flexible manufacturing system, numerically controlled machine tools), computer integrated manufacturing (CIM), computer aided design, etc.

applications. In 2000, there were 494 colleges awarding degree in MCA with an intake of 66,214. In addition to these institutions, IITs and IISc, Bangalore, have an intake of nearly 1200 in IT related courses. Many of these institutions also offer courses in electronics, microelectronics, and telecommunications. While some of the students in these courses go for hardware stream, a sizeable number of them migrate to software courses. It is interesting to note that a large number of graduates of other disciplines also migrate to IT. This is perhaps in response to the significant new opportunities in these areas and to the fact that the software industry is now looking Tor professionals with domain knowledge in other fields of engineering. For instance, the Interim Report on IT Manpower (2002) quotes the Post-Graduate Review Committee of IITs that, in the case of IITs, more than 90% of non-IT graduates migrate to the IT sector (India 2002:20-21).

Outturn

The degree level outturn in engineering and technology in 2000 is almost thirty fold compared to the year 1951 (Table 4). At the diploma level, it is almost forty times in 2000 to that of 1951. Decadal growth figures show that there has been a steady growth in the output from the higher engineering and technology institutions. The decadal growth recorded from 1951 is more or less twice or one and a half times to that of the previous decade.

TABLE 4

Progressive Outturn in Engineering and Technology Education

Year	*Degree*	*Diploma*
1951	2,893	2,626
1961	7,026	10,349
1971	18,223	17,699
1981	34,835	35,487
1991	44,124	63,888
2000	74,323	92,323

Source: Institute of Applied Manpower Research (IAMR): Manpower Profile, India - 2001 New Delhi, p. 83 and p. 85.

One interesting feature of the outturn in engineering and technology education in India has been the predominance of some courses/branches of study over the others. For instance, only four branches of engineering, namely, Civil Engineering, Mechanical Engineering, Electrical Engineering and Electronics and Communications Engineering, produce nearly two-thirds of graduates (iAMR, 2001:85). Nevertheless, in the nineties the outturn in these branches along with Computer Science and Engineering crossed 80 percent of the total output from the higher engineering and technology educational institutions. Branches like, Chemical Engineering, Production Engineering and Instrumentation Engineering produce somewhere around 10-15 percent graduates.

Issues and Concerns for Policy Reform

Though the quantitative expansion of engineering and technology education has been tremendous in terms of the coverage, it confronts a few issues and concerns that need to be addressed by the policy makers. One criticism is that the quantity has affected the quality and hence put a question mark on the efficiency of the whole system of education of engineering and technology in India. Another criticism is that the growth of the engineering and technology education has not been planned and hence reflects an uneven spread in terms of geography, social coverage and manpower requirements.

Uneven Geographical Spread

A major issue in the development of higher technical education in India is the uneven spread in terms of distribution of institutions and intake across various branches of engineering education. As far as infrastructure for engineering education is concerned, large inter-state/inter-regional disparities are noted (Table 5). About two-thirds of the total infrastructure exists in the south, south-west and western regions. For instance, out of 1195 institutions of engineering and technology at the UG level, 457 are in the southern region, 178 in the south-west region and 154 in the western region.

TABLE 5

Distribution of Degree Level Engineering Institutions (2002-03)

Region	*Total*
Central	85
Eastern	101
North	99
North-East	121
South	457
South-West	178
West	154

Source: Government of India (2003): Annual Report (2002-03). Ministry of Human Resource Development, New Delhi, p. 186.

What is interesting is that the larger states like Uttar Pradesh with 138.76 million and Bihar with 86.34 million populations have fewer institutions. Similarly, Madhya Pradesh, which is in the central region, has only a few institutions. Thus, this presents a very uneven development of technical educational institutions in India.

One of the striking features of engineering education at tertiary level is the involvement of non-governmental private institutions in a major way. In 1989, about 43 percent of the engineering education system was governmental and 57 percent was non-governmental or private (Sushil Kumar 1993). The private engineering colleges mostly offer under-graduate

courses.[7] Their participation at the post-graduation level is negligible. Another important point about the graduate level engineering education is the participation by a group of nine professional bodies[8], which award graduate memberships to those who successfully complete their programmes. These programmes are a kind of distance learning courses. The proficiency of distance learning is tested through a standardised examination system for the award of qualifying certificates.

For instance, as reported earlier, 60 percent of the degree level institutions and 70 percent of the diploma level institutions are concentrated in just four states: Andhra Pradesh, Karnataka, Tamil Nadu and Maharashtra. On the other hand, many large states have very few engineering and technology institutions. This imbalance may be mainly due to the emergence of a large number of self-financing private institutions in the southern and western states. Further, most of these institutions, particularly polytechnics, are offering only conventional courses that are outdated and a large number of these institutions do not have adequate infrastructure of laboratories, library, hostels, computing facilities, etc. In Andhra Pradesh, the State Government has increased the seats in engineering colleges to more than 50,000 by giving permission to the private self-financing institutions, which do not have adequate facilities. In Tamil Nadu, the number of seats available at the undergraduate level in 2003-04 was around 67,000. In many cases, the undergraduate colleges of science or arts or commerce under private managements in the local areas have been upgraded to an engineering college. Thus, the unplanned increase in the number of seats has created a similar situation as in the case of commerce and liberal arts in the seventies and eighties. Now, literally, no one seems to be opting for such courses any more and as a result the education in such disciplines is getting neglected. Even in the engineering and technology education, the fate of civil and mechanical engineering courses today is similar to that of the arts and commerce courses.

Quality Concerns

The quality of engineering education at the tertiary level is a cause of concern to the policy making establishment. The quantitative expansion of the institutions of

7 In 1993, there were 187 private engineering colleges in the country, both in the aided and the unaided categories (Lok Sabha, 1993, Question No.: 5949). Out of these, 114 were yet to be approved by the AICTE. A majority of the approved private colleges were in Tamil Nadu (23), Maharashtra (21), and Karnataka (9). On the other hand, most of the unapproved private colleges were in Maharashtra (53), Karnataka (33), Andhra Pradesh (16), and Tamil Nadu (10). The number of private engineering colleges might have gone up many folds since 1993, especially for the last five years or so. The latest data on this is currently not available at the all India level.

8 The professional societies are Aeronautical Society of India, Institute of Surveyors, and Institution of Electronics and Telecommunication Engineers, New Delhi; Indian Institute of Chemical Engineers, Indian Institute of Ceramics, Indian Institute of Metals, and Institution of Engineers (India), Calcutta; Indian Institution of Industrial Engineering, and Institution of Mechanical Engineers (India), Bombay.

engineering and technology- has not resulted in simultaneous qualitative improvement. Rather, the quality has tremendously suffered due to such unplanned and uneven growth. The expansion of the number of institutions of engineering and technology education apparently has taken place not in the state sector, but in the private sector. The enormous growth of self-financed colleges in the private sector in the post nineties is a case in point. One may find that the withdrawal of the state from further expansion of engineering and technology institutions is clearly visible at the provincial level, as the private self-financed colleges are allowed to mushroom. A large number of these self-financed colleges lack infrastructure, teaching staff, some times even basic equipment for laboratory work. That's the reason why in the past few years there have been no takers for many colleges in the south, particularly in Tamil Nadu, Karnataka, and Andhra Pradesh. For the managements, running a college is like running a private enterprise, interested in just amassing profits rather than providing good quality education.

In the state sector, the reduced funding of higher technical education has been a serious concern, especially when higher technical education and research is becoming increasingly expensive day by day if an institution tries to provide quality education. The cost of modern day laboratory in polymer technology is of the order of Rs.30 millions, a modern computational laboratory catering to the needs of a batch of 40 students will cost around Rs.20 millions. Further, a modern day electron microscope would cost around Rs.10 millions and 3-D Laser Doppler Anemometer requires an investment of Rs.10 millions to set up a laser measurement laboratory (Sharma 1997: 10).

However, the per capita expenditure to educate an engineering graduate is not commensurate with the costs incurred.[9] The per capita expenditure depends on the type of institution as also the recurring and other expenses on infrastructural and other facilities. In 1994, the per capita recurring expenditure, as estimated by AICTE is approximately Rs.15, 500 per annum per student, and that in an IIT it is Rs.55, 000. The minimum and desirable non-recurring expenditure required for establishing an engineering college is of the order of Rs. 66.5 millions and Rs. 75.9 millions respectively (Rajya Sabha 1990: Q.No.72). The amount needed for modernisation of technical institutions during the Eighth Plan was estimated to be of the order of Rs.30,000 millions. Keeping in view the huge amounts for higher technical education, the Government of India proposed for increasing the fee for technical educational institutions, and to establish a reasonable relationship between the fees charged and the actual cost of training. The difficulty, however, is that the paying capacity of an average Indian is limited. Further, the annual grants to engineering colleges are given by the state governments concerned under their grant-in-aid, and control on these colleges is exercised by the state governments in accordance with the rules and regulations laid down for the purpose.

9 Jha Committee set up by AICTE in November 1991 suggested rationalisation of fee structure in the higher level of technical education.

Yet another issue that concerns higher engineering and technology education in India is the poor linkages between the institutions and the industry. The industry and institutions are closely connected through a symbiotic relationship (Natarajan 1985: 12). For instance, technical institutions are engaged in educating engineers while the industry employs them on completion of their education. The industry largely depends on engineering colleges for well-educated and well-trained manpower, while technical education derives its objectives and inspiration from industry and its needs. The stimuli and depth of sound academic thinking and accent on problem solving skills will be of great benefit to the industry, while the discipline required in the real industrial world and the accent on decision-making skills will be of immense benefit to the technical education system. Greater synergy between the industry and the institutions of higher technical education is beneficial to meet the recent technological changes in the world. Therefore, the knowledge institutions (IITs, universities, colleges, etc.) can play a significant role in meeting the current internal challenges from intermediary institutional mechanisms (Krishna, 2002). The intermediary institutional mechanisms are expected to help in tackling the declining quality of technical education in the country. Amrik Singh (2002) rightly points out that it is the industry, which should be worrying about the dilution of students as it would affect the industrial production process and lower the levels its performance. He quotes a recent initiative by the AICTE chairperson of meeting employees' organizations and telling them that unless they became demanding about the quality, the situation in respect of technical education would not improve. Thus the quality of education provided in many of the engineering and technology institutions is an important component in promoting what is relevant for the industry.

The quality of higher technology and engineering education is sought to be achieved mainly through the faculty development programmes. The programmes to develop the skills and quality among the teachers in technical education sector started in 1959 with the technical teacher's-training programme. However, the actual momentum in quality improvement came at the end of the Third Plan in 1966 when most of the engineering and technology institutions started functioning and the focus came on consolidation and development of facilities rather than on setting up of new/additional institutions. In 1971, Quality Improvement Programme (QIP) was launched for undertaking the revision and improvement of curricula, including laboratory practices, and schemes for industrial training and refresher courses for the teachers. The curricula offered in the institutions mostly resemble those in the advanced countries of the world and do not take into account the real needs of the industry and the society. Facilities have been provided at 14 centres, including the IITs and the Indian Institute of Science, Bangalore, for enrolling serving teachers sponsored by the various universities and colleges. A provision for industrial training of 1-3 months duration was also made at the advanced centres across the country. Technical Teachers' Training Institutes were set up at Bhopal, Calcutta, Chandigarh and Madras to offer regular courses for serving teachers in the polytechnics. Overall, there have been conscious attempts to improve the quality of engineering and

technology education in the country though the facilities may not be sufficient to meet the ever-increasing demands of new faculty, curriculum and industry.

Equality of Access to Engineering and Technology Education

Engineering and technology education in India has been highly selective in terms of providing social access to the disadvantaged sections of the society, such as scheduled castes and tribes, and women. The representations of these groups have been marginal and, therefore, it suggests that the engineering and technology education has contributed in a very limited way to the social mobility in the Indian.society. Especially, the elite Indian Institutes of Technology have almost become out of reach for these groups. Hence, it further substantiates the view that engineering and technology education is engaged in producing what may be termed as a class of potential elite from among the elite sections of the society, in terms of caste, class, and gender.

For instance, the representation of scheduled caste and scheduled tribe students in higher technical education is appalling. In engineering and technology courses, while scheduled caste students constituted only 5.2 percent at the undergraduate level, the scheduled tribe students constitute 4.25 percent in 1996-97. Further, women from these disadvantaged castes/tribes are either very less or negligible in the total enrolment in higher engineering and technology education. Thus, the reach of the technical education system is not commensurate with the national goal of equality. The enrolment of scheduled castes and tribes in the professional courses, for which the job market is attractive, compared to that in general education, is extremely low. Their enrolments in such emerging fields as information technology and biotechnology are at best negligible (Rao 2002, 48)

The Education Commission (1964-66) in its study of socio-economic background of students in professional institutions at various levels observed that, in the IITs, 82 percent of the students came from urban areas and most of them were from families earning Rs. 500 per month. Further, as compared to IITs, the proportion of rural students in the NITs varies from 12.8 percent to 41.2 percent, that of agriculturists from 4.3 percent to 23.9 percent, and that of persons with parental income less than Rs.150 from 6.9 percent to 32.9 percent. The same trend continues in other engineering colleges (India, 1966: 215).

The enrolment of the disadvantaged groups in the elite institutions of engineering and technology is still low. The data on registrants in 1979-80 and 1982-83 show that there was an increase in the representation of Scheduled Caste from 3.2 to 4.3 percent, and of scheduled tribe from 0.7 to 0.8 percent in the IITs, a very marginal figure. Many seats in IITs remain vacant for want of candidates from these sections. For instance, only 132 of the 355 seats reserved for SCs and 20 out of 176 seats reserved for the STs at the undergraduate level were filled in the academic year 1994-95. In other words, the shortfall of seats in these categories is 62.82 percent and 88.64 percent respectively (Loksabha Secretariat 1999:21). The enrolment of SCs and STs in other technical institutions is more or less the same or even worse. Thus, this marginal representation of

students from Scheduled Castes and Tribes in the institutes of excellence is an indicator of unequal educational opportunities (Chanana 1993).

Various reasons have been attributed to this inequality of educational opportunity. Rajagopalan and Singh (1968) argue that though admission to IITs is based on an all India competitive examination and no artificial restrictions are imposed on any section from seeking admission, in actual practice, it appears to be determined by a set of socio-cultural factors. Among these, the awareness of the existence of technological education, appreciation of its importance, the ability to afford that education as well as the quality of education previously received are crucial.

Another cause of concern is the participation of women in technical education. Though the enrolment of women in engineering and technology courses registered an increase, it is far behind the enrolment of men. Women, who form around 50 percent of the population, have only limited access to technical education. For instance, the enrolment of women was just 6.3 percent of the total intake at the degree level in 1991 (cited in Chanana, 2000). Until the late fifties, the enrolment of women for both degree and diploma level programmes was very low because at that time admission was not open to women in most of the technical institutions. It was only in the late fifties that many engineering colleges and polytechnics started admitting women for all courses on a regular basis. Now, a few polytechnics have been set up especially for women. However, despite this, the participation of women is not encouraging. A general feeling amongst the students and their parents is that technical education is not suited to women because of the strenuous nature of training and doubts regarding the employment opportunities, which seem to inhibit the higher enrolment of women in technical education in India (Ravindranath, et al 1990: 38).

Future of Engineering and Technology Education in India

Overall, the review of the policies and actual quantitative expansion of the engineering and technology in India suggests that the intake and production of manpower in various disciplines is not based upon the accurate assessment and planning of manpower demand in various sectors of the economy. As a result, while there is overproduction in some cases, there is an acute shortage of manpower in many of the new and emerging areas. This kind of approach has created more number of unemployed all over the country. For instance, according to the data of the National Technical Manpower Information System (NTMIS). about one hundred thousand engineering diploma holders and over 84.6 thousand engineering degree holders were either unemployed or under-employed until 1992. A majority of them were in Karnataka (13.5 thousand), Tamil Nadu (11.2 thousand), Andhra Pradesh (9.5 thousand), and West Bengal (9.5 thousand) (Rajya Sabha 1992: Q.No.2435).

Further, the Interim Report of the Task Force on HRD in IT presents some of the staggering estimates of IT manpower. For instance, it is estimated that 0.263 million postgraduates (including MCAs), 0.785 million graduates and 0.742 million diploma holders in IT and related areas would be.added to the system by 2008 (India 2002:20-4).

That means, more than a million IT graduates will be available for the hardcore IT sector from the AICTE recognised institutions. Many more would graduate from a large number of institutions in the private sector which are not recognized by either the AICTE or UGC or the State or Central governments. However, the actual IT manpower requirement would be around 0.76 million by 2008[10] as per the NASSCOM estimates or 0.437 million as per the MIT estimates (India, 2002:20-2).

In this background, the continuous expansion of intake in IT educational facilities at the UG and PG levels may only add to the unemployment of IT professionals, which is already alarming today. The IT revolution in the Indian higher education system has raised the hopes of the average middle class households in such a way that they do not think of any other career choice for their wards except the IT education. The fervour for IT careers and education among the youth is already taking its toll in the post Y2K scenario since when the jobs have started shrinking in the IT sector. Today, a village boy does not find it worthy if he does not become a part of the global village rather than his own village (Rao, 2001). Situation is fast changing for the IT graduates today in the same way as it happened to the civil engineers or the mechanical engineers of the yesteryears.

Conclusion

Thus, despite the strides made by India in terms of expanding facilities for higher engineering and technology education, there is a need for a vision for the future. It needs to address a few challenges in order to advance in the globalised world that is heavily dependent on the technological innovations and developments. For this, a well planned engineering and technology education policy is mandatory. Firstly, right kinds of areas of engineering and technology that are imperative for the development of the country at this juncture should be identified without neglecting the other areas. As some would argue, the technology policy would have to be changed to curtail the import of technology in areas of strength, namely, agriculture, railways, etc. and encourage indigenous research and development in those areas (Mohan, 1987:199). It is only in such a way that the educational standards can be improved in a self-regulatory manner. It is only if our science and technology policies change in the above direction that our education will become relevant to science and technology.

Secondly, the planners of engineering and technology need to address the challenge of bridging the regional disparities within the country. As mentioned earlier, the growth of the engineering and technology education in India has been highly uneven. The concentration of the facilities in certain parts of the country, leaving out some others, has brought out the deficiencies in the national level planning and coordination. Some of the states in the south have adopted a policy of competition to attract the students from all

10 The projections assume that 50 percent of the students from electronics and communications and 30 percent from other engineering disciplines would work in IT software sectors. It may also be noted that the figures do not include those who migrate to" IT from the liberal arts, science and commerce streams.

over the country and earn a few lakhs of rupees in the form of capitation or development fees. This has two implications for the engineering and technology education. One is the mushrooming of institutions in the private sector that is interested in making engineering and technology education as a profit making venture or business. The other is that it has brought down the quality of students entering the educational institutions and thus bringing down the overall standards in the engineering and technology education. A student who gets a minimum mark is offered admission without properly assessing his capabilities. Parents encourage their children to go for engineering courses because they consider it prestigious for their wards to study such courses and because it is assumed these courses are the only areas that provide better job avenues.

Thirdly, the unevenness is also observed in the growth of certain branches of engineering and technology over the years as certain branches have gained patronage of the state and the policymaking establishments and certain others have been neglected. Even if one argues in terms of the market driven policymaking, it is insufficient to explain the presence of unevenness in the development of higher technical education in India. Particularly the information technology revolution all over the world has an impact on the engineering and technology education in India. The pre-occupation of different states and the private sector institutions with the Information Technology education needs to be consolidated to meet the future demands of the Indian society. The introduction of courses related to IT at the school level is intended to develop awareness among the children to opt for these courses at the college level[11]. These kinds of K-12 (Kindergarten to 12th Standard) strategies would also enhance the apprehension of the new form of technology education. It has to be a balanced strategy, taking into account the importance of general technological education, rather than just the Information Technology education while formulating such programmes and activities.

Moreover, it is at times suicidal if the policies are not formulated realistically and without a vision. For instance, a slump in the job market is making made the courses in Information Technology redundant in just ten years of their attaining place of prominence. It is reported in some states like Andhra Pradesh and Tamil Nadu that, for the first time after the Information Technology boom, there were no takers in the B.Tech courses in Computer Science and Engineering.

The next on the agenda of the all the provincial and Central governments seems to be to tap the opportunities in Biotechnology and Bioinformatics which may rule the roost for the next decade. However, without any proper strategy, this emerging sector of technological education may also end up producing more and more unemployed youth.

Finally, as discussed earlier, the social base of the engineering and technology education in India is unequal in terms of the representation of women and disadvantaged

11 For instance, as part of its endeavour to take computer education to rural and urban schools, and create IT awareness at the grassroots level, NUT has tied up with the Government of Andhra Pradesh to train over 300,000 high school students from 663 government schools across the state *(The* ***Hindu,*** 20th July, 2002). NUT is already offering computer education to 371 government schools in Tamil Nadu and 700 government schools in Karnataka.

groups like Scheduled Castes and Tribes. One most important implication of this is that the contribution of the engineering and technology education is limited or negligible in terms of the social mobility in India. Instead of reducing the gulf between the social groups, it is actually increasing it by not including the marginal groups. Another dimension is that the caste and gender disabilities coupled with social class barriers, are in fact widening the disparities in the society as a whole. This view gains relevance as the engineering and technology education is seen as a gateway to a more secure, stable and prestigious life in the contemporary society.

Therefore, the policy making and planning in engineering and technology education must take into cognizance the long-term effects of some of the shortsighted policy initiatives in order to avoid the unevenness and adhocism. It should also address the unevenness in its geographic spread and social coverage. It will then certainly go a long way in building India into a mega power in the techno-scientific areas of knowledge.

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Errata

In the review article on Student Loan Schemes for Higher Education in Asia by Asha Gupta, published in Journal (January 2006), please note that all the five books listed on p. 125 are paperback editions, published by UNESCO Bangkok jointly with the International Institute for Educational Planning, Paris, 2003 in the Series on Student Loans in Asia: Mechanisms & Strategies of Educational Finance.

The omission is regretted.

Publication Division

Journal of Educational Planning and Administration
Volume XX No. 2, April 2006

CONTENTS

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp. 227-245

Massification of Higher Education in China

Policy Reforms, Institutional Restructuring, and Innovative Practices

Wang Libing*

Abstract

China's higher education expansion, which started in 1999 and still continuing, has been one of the exciting scenarios both for policy makers and researchers internationally. In the last seven years China's higher education enrolment has doubled which makes the Chinese higher education system the largest national system in the world. This paper tries to provide an overall picture of what has happened in Chinese higher education in the last seven years, including the background of the expansion policy, actual increase in gross enrolment rate of higher education and other major indicators, the strategies used for achievement of the rapid expansion and problems and challenges facing China in the era of higher education massification. The economic consideration caused by the 1998 Asia Financial Crisis as well as the unfavourable situation from international perspective provide the final impetuses for the adoption of expansion policy in China. This paper also raises some problems and challenges facing China after the expansion, including quality assurance, employment of graduates, governance and management, the development of open/distance learning systems, university capacity building and internationalization of higher education.

Background - Why the Massification of Higher Education Process Started from 1999 in China?

Low Gross Enrolment Ratio and Elite Nature of the System of Higher Education in China Before 1999

Although China has the world's largest population, its higher education system had remained relatively small in terms of gross enrolment rate before 1998. According to

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statistics, when the new China was founded in 1949, the total number of higher education institutions was 205 with a total enrolment of 116,000 students (MOE, China, 1999a: 359). During the following half century, China achieved tremendous progress in rebuilding its higher education system. Up to 1998, the total number of higher education institutions in China reached 1022 with total enrolment of 3,408,700 undergraduate students (MOE, China, 1999b).

However, the gross enrolment rates (gross enrolment ratio) of higher education in China had stayed at a very low level despite the steady increases in the total enrolment of university and college students before 1998. Table 1 below shows that the gross enrolment ratio figures started at 3.4% in 1990 and grew a little bit faster in the years afterwards before 1998 (MOE, China, 2001). In 1998, a year before the mass higher education (massification of higher education) process started, the gross enrolment ratio of higher education in China was still 9%, which signalized the elite nature of Chinese higher education system. Table 1 shows the figures of gross enrolment ratio of higher education in China from 1990 to 1998.

TABLE 1

Gross Enrolment of Higher Education in China, 1990-1998

Year	*Gross Enrolment Ratio*	*Year*	*Gross Enrolment Ratio*
1990	3.4	1995	7.2
1991	3.5	1996	8.3
1992	3.9	1997	9.1
1993	5.0	1998	9.8
1994	6.0		

It may be pointed out that the expansion of higher education had not been very much on the government's agenda before 1998. Every year, senior secondary school graduates had to sit in the higher education entrance examination for university places. The enrolment process was highly selective and only students getting top results from the entrance examination were awarded university places. Since only a small group of 18-22 years population in China could have access to higher education, most of them could find their jobs in the public sector after graduation and became government officials or senior civil servants later on. Most of the university budgets came from government sources.

The Impact of1998 World Conference on Higher Education

One of the important factors for the start of massification of higher education process in China had been the impact of the World Conference on Higher Education, held in October 1998 in Paris. The conference came out with two important documents: ***World Declaration on Higher Education for the Twenty First Century*** and ***Framework for Priority Action for Change and Development of Higher Education.*** The Conference was quite inspiring to member countries as it (UNESCO, 1998) declared that:

> ***Higher education should be accessible to all on the basis of merits and no discrimination can be accepted, giving learners optimal range of choice and a flexibility of entry and exit points within the system.***

H,E. Madam Chen Zhili, the then Minister of Education of the People's Republic of China led the Chinese delegation to the conference. In her address to the conference, Madam Chen expressed China's continuous commitment to cooperate with UNESCO and other countries to further promote the development of higher education in the world. She (Chen, 1998) stated that

> ***Universities are going from 'Ivory Tower' to the society and are now entering into the central stage of social and economical development... Higher education should be expanded quantitatively to gradually accomplish the goals of mass and universal higher education. At the same time, more attention should be paid on the quality dimension of higher education.***

Madam Chen went on to point out that the major challenge facing higher education in China in the twenty-first century was to increase the financial capability to support the higher education expansion so that more youngsters in China could have access to and benefit from higher education. She stated the Chinese government was ready to introduce new measures in order to bring a new higher education system into the twenty first century.

Role of Higher Education for the Revitalizadon of the Country

As we enter into an information and knowledge-based society, it has been commonly accepted that education would be the key for national development and competitiveness in the world. There was also a strong consensus in China that from strategic point of view, the expansion of higher education could provide the country with a bigger pool of highly qualified and professional human resources, which would greatly contribute to the healthy and sustainable social and economic development in China (Kang, 2002).

In 1998, a new Chinese government was formed with Mr. Zhu Rongji as Prime Minister. The new Chinese leadership fully recognized the strategic role of the development of education for the revitalization of the country. The development of higher education was an important part of that strategy and was listed as one of the priority areas for the Chinese government to put forward for the years afterwards. This provided very strong political commitment that was needed for the expansion of higher education after 1999.

Economic Consideration

It has been very interesting to note that there were also very strong arguments in favour of the expansion of higher education from economic point of view in China. When talked about the main reasons for the government's decision to adopt the expansion policy of higher education in China, Li Lanqing (2004: 119), former Vice Premier in charge of education, revealed that one of the reasons was to postpone the employment of secondary

school graduates, increase the higher education related consumptions to stimulate the domestic demands and boost higher education related industries.

It has been understandable since China was also suffering from the 1998 Asia Financial Crisis at that time. In the minds of many economists in China, strong social demand for higher education could be utilized and turned into domestic demands through the expansion of higher education to offset the negative impact of the Asia Financial Crisis on the country's economy. This argument was obviously very convincing to the government and became one of the most direct incentives for the government to take immediate action with regard to the expansion of China's higher education system.

Unfavourable Situation from International Comparison

It has also been mentioned very frequently that compared with other countries in the world in general, and in Asia and Pacific region in particular, China's gross enrolment ratio of higher education had long been lagged behind. There were clearly great potentials for China to improve the situation.

As Li Lanqing (2004: 119) pointed out, the total enrolment of university and college students was 7.8 million that it accounted for only 9.8% of the university-age population in 1998. This gross enrolment ratio was not only far behind than that of the developed countries, but also lower than 15%, a start level for mass higher education. China was also lower than India in the figure of the number of university students per 100,000 inhabitants.

Quantitative Expansion - The Largest System of Higher Education in the World Announced by UNESCO at WCHE +5

The Decision for Higher Education Expansion

In January 1999, the Chinese government issued ***Action Plan for the Revitalization of Education in the Twenty-First Century.*** It was announced that by the year 2010, higher education in China would be expanded to a substantial extent and the national gross enrolment ratio of higher education would reach approximately 15% (MOE, China, 1999c). This was a clear message on the part of the government for follow-up actions with regard to the expansion of higher education.

In June 1999, Mr. Zhu Rongji, the then Chinese Prime Minister, announced the government's decision to increase the annual enrolment of new students in universities and colleges in 1999 to 1.537 million (the actual figure is 1.59 millon) in 1999, more than 41.7% increase compared with the figure of 1.08 million in 1998 (Kang, 2002). It was a historic moment in the history of Chinese higher education, which marked the beginning of an unprecedented period of higher education expansion.

The Increase in the Enrolment of New Students

Due to the implementation of expansion policy in higher education since 1999, the enrolment of new university and college students in China have kept soaring every year.

In 1998, a year before the start of the expansion process, the enrolment of new university and college students in China was 1.08 million. In 2004, the figure reached 4.2 million. The Table 2 illustrates the increase in the enrolment of new university and college students in China over the last 7 years.

TABLE 2
The Enrolment of New University and College Students in China, 1998-2004

Year	*Enrolment of New Students*
1998	1,080,000
1999	1,590,000
2000	2,200,000
2001	2,682,800
2002	3,200,000
2003	3,820,000
2004	4,200,000

Increase in the Total Enrolment of Students

With the increased enrolment of new students, the total enrolment of university and college students in China has been increasing rapidly every year. Table 3 shows the growth of the total number of university and college students in China from 1998 to 2003:

TABLE 3
Total Enrolment of University and College Students in China, 1998-2003

Year	*Regular Higher Education Institutions*	*Adult Higher Education Institutions*	*Total*
1998	3,408,700	2,822,200	6,230,900
1999	4,134,200	3,054,900	7,189,100
2000	5,560,900	3,536,400	9,097,300
2001	7,190,700	4,559,800	11,750,500
2002	9,033,600	5,591,600	14,625,200
2003	11,085,600	5,591,600	16,677,200

Source: MOE, ***Bulletin of Education Development Statistics,*** 1998-2003.

In 2004, China recruited 4.2 million new university and college students, a 0.4 million increase compared with the figure in 2003. The total number of students enrolled in universities and colleges in China exceeded 20 million. The Chinese higher education

system was declared as the largest national higher education system in the world by UNESCO at the WCHE +5 (UNESCO, 2003).

The Increase in Gross Enrolment Ratio of Higher Education

Table 4 shows the growth of gross enrolment ratio of higher education in China from 1998 to 2004. In 2002, the gross enrolment ratio in China reached 15%, a threshold for mass higher education set by Martin Trow.

TABLE 4

Growth of Gross Enrolment Rate of Higher Education in China, 1998-2004 (%)

Year	*Gross Enrolment Rate*
1998	9.8
1999	10.5
2000	12.5
2001	13.3
2002	15
2003	17
2004	19

Source: MOE. Gross Enrolment Rate of Regular Schools by Level, http://www.moe.gov.cn/

Mi and Liu (2002) argued that 10% and 20% of gross enrolment ratio could be regarded as the starting point and ending point of the process towards mass higher education. Table 5 shows the development of mass higher education in selected countries.

TABLE 5

Development of Higher Education in Selected Countries

Country	*Starting Year*	*Gross Enrolment Ratio (%)*	*Finishing Year*	*Gross Enrolment Ratio (%)*	*Years*	*Average Annual Increase Rate (%)*
U.S.A	1930	9.60	1950	20.01	20	3.8
Philippines	1950	10.00	1970	19.94	20	3.5
France	1961	9.97	1974	20.35	13	3.6
Japan	1964	10.99	1974	20.74	10	6.6
Italy	1965	10.75	1973	20.94	8	8.7
Germany	1968	10.87	1977	20.70	9	7.0
Cuba	1975	10.97	1985	20.00	10	6.3
R. Korea	1976	9.98	1982	21.70	6	13.8
Thailand	1979	11.00	1985	20.00	6	10.5

Expansion of Postgraduate Education

Since 1999, the enrolment of new postgraduate students in China has also seen substantial increases. In 1998, the enrolment of new postgraduate students in China was 72,508. The figure reached as high as 268,900 in 2003. The average increase rate during that period was 26.9% (MOE, China, 2004c). Table 6 below illustrates the growth of postgraduate education in China from 1998 to 2004.

TABLE 6
Growth of Postgraduate Education in China

Year	*New Enrolment*			*Total Enrolment*
	Doctor	*Master*	*Total*	
1998	14,962	57,546	72,508	198,885
1999	19,900	72,300	92,200	233,500
2000	25,100	103,400	128,500	301,200
2001	32,100	133,100	165,200	393,300
2002	38,300	164,300	202,600	501,000
2003	48,700	220,200	268,900	651,300
2004			330,000	

Source: MOE, China, ***Statistics of Education Development 1998-2003.***

Strategies - How it Happened within 6 Years?

Increase the Recruitment Capability of Existing Higher Education Institutions

As the Chinese government decided to implement expansion policy towards higher education in 1999, one of the main difficulties was the lack of enough infrastructures as well as teaching staff to cope with the immediate large intake of students. Universities and colleges were under severe pressure for the provision of the facilities such as library and teaching spaces, students' dormitories, laboratories, etc. So in the early years, crowded campuses could be seen everywhere in universities and colleges and the supporting systems ware overloaded to operate.

Relocation of Campuses

One of the measures to increase the recruitment capability was the relocation of campuses of some existing universities and colleges. This usually happened in universities and colleges that were originally located in the central parts of metropolitan areas. Because of the lack and higher price of lands in central metropolitan areas, it was almost impossible for them to expand their campuses on original sites. They decided to relocate their campuses in cheaper suburban areas through land replacement. After

campuses relocation, universities and colleges could come up with bigger lands for new campuses and more teaching facilities. At the same time, most of them could keep the ends meet financially.

Multi-Campuses Solution

Another solution was the multi-campuses approach. Traditionally, almost all Chinese universities and colleges had been single-campus institutions. This is no longer the case now in China. In response to increased annual quotas in student enrolments, lots of universities and colleges had established new campuses in suburban areas of their local cities or even opened non-local branch campuses in other cities. This was usually done through self-financing arrangements, including taking loans from commercial banks, local contributions in terms of cash or lands and donations from other sources, etc.

Higher Education Zones

The establishment of Higher Education Zones (HEZs) was another popular way of raising the recruitment capability of universities and colleges. The movement for the establishment of HEZs started in 2000 in Zhejiang Province where the local governments provided certain lands in the suburban areas for the establishment of the HEZs. Universities and colleges could get the lands for new campuses at very low prices or even for free. The advantage of the development of HEZs was to get together different universities and colleges in the same areas with shared infrastructures and facilities and thus make their operations more cost-effective. In Hangzhou, the capital city of Zhejiang Province, three HEZs have so far been set up, which has greatly increased the recruitment capabilities of the higher education institutions in the city. The Hangzhou model was so successful that it had later been copied in other cities within the province and nationwide.

Encourage Private Involvement in Higher Education

For a long period of time, universities and colleges in China had largely been owned and financed by the government. This obviously had something to do with the traditional conception that higher education was a public service and could only be provided by the government. Indeed, when the higher education system was small in size, the financial pressure on the part of the government was not so heavy. The government could afford to defend the argument that higher education was a public service and any private involvement would lead to unacceptable commercialization of higher education. In an era of rapid expansion of higher education, however, the government's attitude towards private education has gradually changed. It is considered that private involvement in higher education could help mobilize more resources needed for the expansion of higher education.

Private Education Enhancement Act, *2002*

In December 2002, The ***Private Education Enhancement Act*** was passed through the People's Congress of the People's Republic of China. According to the Act, the government should encourage, support, guide and regulate the development of private education in the country (Article 3, Chapter 1). Public and private institutions should have the equal legal status. The government should protect the operational autonomy of the private institutions and the legitimate rights of its owners, managers, teachers and students (Article 5, Chapter 1). The Act has provided a long awaited legal basis for the development of private education in China.

Expansion of Private Higher Education Institutions

Despite the late arrival of the ***Private Education Enhancement Act,*** China's private higher education had achieved tremendous progress since 1980s and had become an indispensable part of the Chinese higher education system. Up to 2003, the number of private regular higher education institutions in China was 173 with 0.81 million students. The number of other types of private higher education institutions was 1104 with a students population of 1.004 million (MOE, China, 2004a). It was estimated that in 2000, the gross enrolment ratio of higher education in China was 11% and the contribution from private higher education institutions was at least 2.5% (Chen, 2001: 2).

Special Independent Colleges (SICs)

Special independent college (Erjixueyuan) is a new type of higher education institution that came into existence after the start of the higher education expansion campaign in China. Such institutions were initially established by their mother universities and colleges as extension institutions. SICs usually have their own campuses. They could utilize some of the resources from their mother institutions but operate independently with students enrolled having to pay higher tuition fees for their education. They are the kind of institutions that are owned by the state but operate along the market line with no or little subsidy from the government. It was estimated that in 2003 there were over 300 SICs in 25 provinces in China with a total enrolment of 0.4 million undergraduate students (CPEN, 2003). The development of SICs has been seen as one of the government's attempts to facilitate the ongoing massification of higher education process in China.

Development of Higher Technical and Vocational Education

The expansion of higher education does not mean the expansion of traditional universities. Lessons from the developed countries suggested that expansion of higher education could be achieved mainly through the expansion of non-university sector higher technical and vocational education.

Changing Mission of Higher Education

In the elite higher education period, the mission of higher education had been merely to educate a small group of people into administrative and academic elites. Curricula with academic nature had been preferred in universities and colleges. Universities and colleges tended to ignore the needs of the social and economic development. The process of massification of higher education was accompanied by a changing conception of the mission of higher education. Higher education would not only be regarded as a means to produce elites but also as a way of providing the country with practical-oriented technical and vocational human resources. It was under this consideration that the Chinese government decided to further develop higher technical and vocational education as an important measure to facilitate its massification of higher education process.

Expansion of Higher Technical and Vocational Institutions

At the end of 2003, there were 908 independent higher technical and vocational institutions in China. This means that every city in China would have had at least one such institution. Moreover, there were 612 universities and colleges that offered higher technical and vocational education courses. The number of students offering technical and vocational education courses was 4.79 million, which accounted for 43% of the total students in the system of higher education. In 2003, the enrolment of new university and college students was 3.82 million, of which 2 million students enrolled with higher technical and vocational courses, which equaled to 52.3% of the total enrolment of new students in higher education (Ge, 2004). Table 7 below shows the development of higher technical and vocational education from 1998 to 2003.

TABLE 7
Development of Higher Technical and Vocational Education, 1998-2003

Year	*Institutions*	*Students Admitted*	*Enrolment*
1998	101	62,751	148,561
1999	161	123,378	234,244
2000	184	194,329	361,774
2001	386	354,924	716,867
2002	548	595,420	1,197,121
2003	908	883,848	1,897,859

Source: MOE, China, *Education Statistics Yearbook of China. 1998-2000 & 2002-2003.* Beijing, People's Education Press.
China Education Yearbook 2002. Beijing, People's Education Press.

Local Relevance and Market-Driven Courses

The government has made it clear that the development of higher technical and vocational education should be market-driven and employment-oriented and should be focused on contributing to the local economic and social development. The courses on offer should be based on the needs of local employment market. Institutions would be encouraged to establish strong partnerships with local industries when undertaking their teaching and research. It had also been believed that as China was becoming one of the world's major manufacturing centers, the development of higher technical and vocational education could ease the shortage of skilled workers. In December 2004, the Ministry of Education issued ***Category of Courses for Higher Technical and Vocational Education*** to further restructure the higher technical and vocational courses in order to serve the needs of economic development with highly qualified and skilled workforces.

Changing Patterns of Finance

Although China has been experiencing rapid economic growth during the last two decades, it has obviously been very difficulty for the government to bear the full cost of the higher education expansion. Actually no government in the world could have done so without financial inputs from other sources.

Diversification of Funding Sources

Like other countries, the funding sources for higher education in China have been more diversified with non-governmental contributions on the increase in the last decade. Table 8 shows the changing patterns of funding sources of higher education in China from 1998 to 2002.

TABLE 8

Funding Sources of Higher Education in China (in 10 thousand Yuans)

Year	*Total*	*Government Appropriation for Education*	*Budgetary*	*Funds of Social Organizations and Citizens for Running Schools*	*Donations and Fund Raising for Running Schools*	*Tuition and Miscellaneous Fee*	*Other Educational Funds*
1998	5,981,215	3,837,813	3,55 L727	***21,854***	118,194	854,665	1.146,689
1999	7,646,450.3	4,728.311.9	4,444,956.8	39,083.0	163,891.0	1,378,830.9	1,336,333.5
2001	12,475,481.3	6,659,987 1	6,322,876.8	253.801.9	174,307.6	3,124.295.9	2.263.088.8
2002	15,832,129.1	7.875,176.1	7,548,856.1	417,624.1	279,514.3	4.264,516.5	2.995.298.1

Sour:e: MOE, *Education* ***Statistics Yearbook of China 2003.*** Beijing, People's Education Press.

Student Support System

The introduction of student support system had been another important development in the funding of higher education in China. In 1999, a National Student Loan Scheme was piloted in 8 cities, including Beijing, Shanghai and Tianjin, and extended to the whole country a year later. The main purpose of the scheme has been to help students from lower income families to be able to pay their tuition fees and living costs during their stay with higher education. The scheme has been launched jointly by the central and provincial governments and administrated by designated commercial banks. The central and provincial governments would subsidize 50% of the interest rate of the loans. It is been pointed out that in the long run, students loan scheme would be the main way of supporting students from lower income families (MOE, China, 2004b).

In September 2002, the Chinese government also introduced National Scholarship Scheme for students from lower income families to help them go through their period with higher education. The applicants should have good academic performance to get the scholarship. The annual amount for the scholarship is 200 million Yuan (RMB) and 45,000 students from lower income families could benefit every year. The winners of the scholarship holders would also be exempted from tuition fee charges by their studying institutions (MOE, China, 2002).

Income Generation Activities

In many Chinese universities and colleges, income generation has long been regarded as subordinate activity. Some had worried that this would lead to the unacceptable commercialization of higher education and would damage the academic quality of the faculty members. But the mentality towards income generation has now changed since it is increasingly believed that higher education institutions should finance themselves by providing teaching, research and social services not only to the government, but also to the industries and the general public. To maintain sustainable and full operations, universities and colleges in China have been encouraged to undertake income generation activities through contract researches, links with industries, consultancies and services to local communities, etc.

Challenging Issues - Long Way Ahead

Quality Concern and Quality Assurance

Does quantitative expansion always come with declining quality? This has been the most frequently mentioned question and also one of the toughest challenges facing China since the start of its higher education expansion campaign. International experience suggested that there should be quality assurance arrangements to accompany the expansion of higher education so that the expansion would not be at the expense of quality.

National Higher Education Evaluation Center

Founded in August 2004, the Chinese National Higher Education Evaluation Center (NHEEC) is a semi-governmental national higher education quality assurance authority under the direct leadership of the Ministry of Education. It is responsible for organizing national teaching evaluation, undertaking policy-related research on teaching reforms and teaching evaluation, promoting international exchange and cooperation in higher education evaluation (NHEEC, 2004). The founding of the NHEEC has been China's attempt to introduce professional buffer organization to operate for higher education evaluation.

Quinquennial National Teaching Evaluation Exercise

In 2003, the Ministry of Education introduced Quinquennial National Teaching Evaluation Exercise (QNTEE). The first round of the QNTEE evaluation started in 2005 and is now being implemented by NHEEC. A panel of evaluation experts was established and a national workshop on the methodology of the evaluation was held in late March and early April 2005. A set of benchmarking indicators has also been released for the reference of universities and colleges. It was stressed that the purposes of the QNTEE evaluation would be to encourage universities and colleges to refer to the benchmarking indicators for self-improvement.

Internal QA Mechanisms at Institutional Level

There has been increasing awareness of the importance of internal quality assurance arrangements among Chinese universities and colleges after the start of the higher education expansion process. This has been because expansion would mean more competitions and quality would be the central part of their competitiveness. In recent years, enormous efforts have been made to maintain or lift the quality of teaching and research. Several universities upgraded their faculty members by recruiting more Ph D. holders. Internal teaching evaluation mechanisms have been established with students playing increasingly important role. In order to increase the productivity of the academic staff, some universities have introduced a performance-related subsidy system.

Employment of University Graduates

Another challenging issue with the expansion of higher education in China has been the employment of university graduates. When the expansion process started in 1999, worries about employment of university graduates were expressed by some analysts but was overwhelmed by the economic consideration of the expansion. From 2003, greatly increased number of university graduates began to enter into the job market. In many cities, the previously privileged university graduates found that the number of job vacancies available was far behind the number of job seekers. Some argued that university graduates should change their mentalities and settle themselves in small cities

or even remote areas. But it was clear that university graduates would no longer easily get their jobs, especially in major cities. Efforts are being made by the Chinese government to facilitate the employment of university graduates, as it is very much cpncerned with the 'soft landing' of the higher education expansion process.

Vocational Training for Unemployed University Graduates

Considering that the social demands for technical and vocational jobs have been very strong and the difficulty in the employment of university graduates has mainly been for structural reason, the Ministry of Education and the Ministry of Employment and Social Security jointly launched an initiative to provide vocational training for university graduates who could not find jobs on their graduation. University graduates taking the training course would be granted with certain technical and vocational qualifications. The main purpose of this initiative is to increase the employability of the unemployed university graduates.

Employment Information Center

The collection of employment information would be strengthened for university graduates. It has been noted that under the encouragement of the government, more and more on-line employment information networks for university graduates have been in operation all over the country. Local job centers have been asked to set up special job information desks for university graduates. There have also been increasing job recruitment activities both on and off campus in which university graduates could meet face to face with their potential employer.

Students Career-Counseling Service

University students used to get their jobs designated by the government. So there was absolutely no student career-counseling service in universities and colleges at that time. Recently, the government decided to ask universities and colleges to provide career-counseling service to their students in order to get them well prepared for their future employment.

Self-Employment

The government also encouraged university and college graduates to choose the path of self-employment and provided them with a favourable package of services in training, project development, small amount of loans, tax reduction and exemption, etc.

Governance and Management

The Chinese higher education had traditionally been a centralized system. This was manageable when the system was small in size. But an expanded higher education system

would require more devolution of powers and responsibilities. This would pose another big challenge in the years ahead.

Central and Local Partnership in Running State Universities and Colleges

Higher education institutions in China are normally divided into two categories. The fist category is state universities and colleges that are financed by the central government budget and administrated directly by the Ministry of Education and other government departments. The second category is local universities and colleges financed and administrated by the local governments. Since the end of the last century, the Ministry of Education has become the sole national administrative authority to look after the functioning of state universities and colleges. With the rapid increase of student enrolment in state universities and colleges, the Ministry of Education has decided to cooperate with the local governments in running the state universities. According to the partnership agreements, local governments would make certain contributions in cash and kind to support the development of the state universities and colleges located in their areas, and at the same time they could have more influence on the running of related state universities and colleges.

More Institutional Autonomy for Top Universities

Due to centralized tradition, the Ministry of Education used to retain most of the powers and responsibilities with regard to higher education. Universities and colleges had long been in a very passive position. This means that the transition towards institutional autonomy is not unconditional and the devolution process would be well-paced according to the capacity and strengths of the universities and colleges. It is the government strategy to gradually devolve certain powers and responsibilities to top universities in the fields such as approval of new degree courses, programme restructuring and staff policies.

Different Modes of Delivery

With the booming of ICT-driven open and distance learning (ODL), it has been the policy of the Chinese government to develop on-line and distance higher education as part of its attempt to accomplish the goal of mass higher education. In the ***Action Plan for the Revitalization of Education in the Twenty-First Century,*** the Ministry of Education announced that the government would launch a Distance Education Promotion Plan and regarded it as one of the important infrastructure constructions (Zhao & Zhu, 2002).

Development of ODL in Higher Education

In September 1998, four universities, including Tsinghua University, Zhejiang University, Hunan University and Beijing University of Posts and Telecommunications, were selected by the Ministry of Education as pilot universities for recruiting ODL students. 9,000 ODL students were enrolled in the same year. This started the

development of ODL in Chinese universities and colleges. As pilot universities, Tsinghua University recruited 1,700 ODL postgraduate students. In Zhejiang University, there were 3,000 undergraduate students as well as 200 postgraduate students learning on-line. Up to 2002, under the approval of the Ministry of Education, the number of pilot universities and colleges recruiting ODL students had reached 67 and the total enrolment of ODL students had also increased correspondingly (Zhao & Zhu, 2002).

Future Directions - Single or Dual Mode

There has been a question that needs to be addressed as it is related to the future directions of the development of higher education in China. Clearly there would be two options. The first one is 'traditional programmes + on-line programmes' model in which students are divided into two groups, with regular students undertaking their studies along the traditional lines while the ODL students studying on-line. The second option is to get the whole university transformed into dual mode system in which all students could have the flexibility of either studying along traditional ways or on-line. The current situation in China seems to follow the first model. It is believed that the dual mode system would not only boost the development of ODL but also contribute to the openness and flexibility of traditional universities (Wang, 2002:204).

University Capacity Building

Massification of higher education should not impede further development of traditional elite universities. How to maintain and upgrade the capacity of traditional elite universities in the times of higher education expansion would be a focus of attention for the Chinese government.

•211 Project'

'211 Project' stands for a project launched by the Chinese government to support the development of selected 100 universities and colleges with concentrated financial injections at the turn into the twenty-first century. The project covered the university capacity building, strengthening of key university disciplines and the improvement of higher education supporting systems. The project started in 1995 and an office based in the Ministry of Education was set up to coordinate its implementation. During the Ninth Five Period, the total amount of fund used for the implementation of the project reached 18.3 billion Yuan (RMB), of which 6.388 billion Yuan have been spent on key university disciplines' construction, 3.5 billion on higher education supporting system, 1.006 billion on the university infrastructure construction (MOE, China, 2005).

'985 Project'

The '985 Project' was named after the date of 4th May 1998 when Mr. Jiang Zemin, the then President of the People's Republic of China, announced at the Conference

celebrating the Centennial Anniversary of Peking University, that in order to facilitate the country's modernization process, China should build some world class universities. The introduction of the project was the Ministry of Education's response to Mr. Jiang's speech with the aim of supporting selected top Chinese universities to build into first-class research universities. So far 34 top universities in China, including Peking University, Tsinghua University and Zhejiang University, have been approved by the Ministry of Education as universities supported by the project. The tasks of the project are to encourage institutional innovations, staff capacity building, research bases construction, supporting system construction, and international exchange and cooperation. It has been hoped that after years of implementation of the project, some of the Chinese universities could close the gap with world's first-class universities in some university disciplines and become world-leading universities in a longer period of time.

Internationalization of Higher Education

The problem of internationalization of higher education has been a hot topic in China for many years. With China's entry into WTO in November 2001, the impact of GATS has been increasing on Chinese higher education system.

Impact of GATS

Higher education in China is one of the areas that have been promised to be open to foreign providers. In March 2003, the Chinese government issued ***Regulations of the People's Republic of China on Chinese-Foreign Cooperation in Running Schools,*** which came into effect on 1 September 2003. This regulation was the legislative response to China's entry into WTO and its promise regarding commercial presence of service in higher education. According to the regulation, foreign providers are allowed to supply higher education services in certain areas, provided that they cooperate with Chinese education institutions in providing that kind of services. As for assumption abroad, China imposes no limitation on students studying abroad and foreign students studying in China.

Mutual Recognition of Qualifications

China became one of the contracting parties of the ***Regional Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in Asia and the Pacific*** in 1984 and has been very active in getting involved in the activities of Regional Committee since then. Recently, China had just hosted the Eighth Session of the Regional Committee meeting in Kunming. Efforts have been made by the government to make China's degrees and diplomas more transparent and comparable to other countries. Up to 2003, China has signed bilateral agreements of recognition of studies, degrees and diplomas with 18 countries (Zhou, 2004).

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Journal of Social and Economic Development

Vol. 7 **July - December 2005** **No. 2**

CONTENTS

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Journal of Educational Planning and Administration
Volume XX No. 2, April 2006

JOURNAL OF RURAL DEVELOPMENT

I Vol.25 April - June 2006 No-2

CONTENTS

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp. 247-256

RESEARCH NOTES

Community Participation in Primary Education Under Janshala Programme in Orissa

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K. Girija Shankar

Abstract

Janshala programme was a joint venture of the Government of India and five UN agencies (UNDP, UNICEF, UNFPA, UNESCO and ILO) to provide support to make the ongoing primary education programme accessible and effective to all categories of primary school age children. Community participation in school management and development was one of the major strategies adopted under this programme, especially to ensure universalization of primary education. In the State of Orissa, the programme was launched in 2000 and had continued till December 2004. During these five years, several measures were taken under this programme to initiate community participation in an institutionalized way, especially by formation and functionalization of School Committee, Parent Teacher Association and Mother Teacher Association in each formal primary school in the Blocks adopted under this programme. The paper highlights the scope of community participation through these institutions in Orissa, and delineates some important measures taken to ensure community participation in school management and development. Furthermore, it has also analyzed the efficacy of these measures in the State. Finally, some policy measures have been recommended to strengthen community participation in school management and development.

Introduction

Since Independence, the Government of India has been striving for achieving rapid progress in various development sectors so as to raise the living standard of people. But the pace of progress has slowed down and the quantum of achievement in development

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sectors has been far from planned. Consequently, despite perceptible increase in the country's gross national product (GNP), per capita income and in the number of industries and infrastructure facilities, the living standard of people has not adequately improved. Two factors that have acted strongly as stumbling blocks to nation's overall progress are population explosion and large-scale illiteracy. In order to restrict population growth to its minimal accepted level, the Government of India had implemented several programmes. Similarly, to eradicate illiteracy, the Government had also implemented several literacy promotion programmes. One among them was the Janshala programme.

Janshala programme was a joint venture of Government of India and five United Nations agencies, i.e. UNDP, UNICEF, UNFPA, UNESCO and ILO. Basically, the aim of the programme was to provide support to the ongoing primary education programme to make it accessible and effective to all categories of primary school age children. The programme had been implemented in 139 Blocks and a few Urban Bodies in the country. These included 7 Blocks and 3 Urban Bodies in Orissa. In India the programme was launched in 1998 and had ended in December 2004. However in Orissa, the programme commenced in 2000 and during the five years of its operation in the State, some innovative processes had been initiated. These included community involvement in management and development of schools, multi-grade and activity-based teaching, elaborate and regular academic support through Block Resource Centres and Cluster Resource Centres, decentralized planning and implementation of programme activities, and regular capacity development activities for teachers. Under Janshala programme, a special emphasis had been given upon sensitization of community to participate in the management and development of Primary Schools and in ensuring universal participation of children in primary education in an institutionalized way. In doing so, the Government of India had intended to make a shift from centralized bureaucratic form of administration to decentralized participatory type of administration of primary education. For this purpose, the programme had provided some scope and inputs. In order to get an answer to such questions as to what had been the efficacy of those inputs; and to what extent the programme had been able to materialize the process of community involvement in management and development of school, the authors had made an empirical study on the extent of community participation found in primary education under the Janshala programme in Orissa in 2003-04. The findings have been delineated in this paper.

Materials and Methods

The study had been conducted in three Blocks of Mahanga in Cuttack District, Brahmagiri in Puri District and Nilagiri in Baleswar District, and one urban area (Bhubaneswar city) of Orissa. In these areas, 56 formal Primary Schools (10 % of the universe) had been visited to elicit data from 152 community members of School Committees, Parent Teacher Associations and Mother Teacher Associations relating to their participation in school management and development. The data had been obtained by employing structured schedules. Besides, the data relating to sensitization and

capacity building of the community members had been obtained from the official records available at schools as well as the Block and State level Janshala offices.

Scope for Institutionalized Community Participation

Under Janshala programme, institutionalized form of community participation in primary education had been initiated by encouraging formation as well as operation of School Committee, Parent Teacher Association and Mother Teacher Association in each formal Primary School. Each of these three institutions had been assigned with some roles to play relating to school management as well as development and universalization of primary education. The Government of Orissa had formulated the Orissa School Education (Community Participation) Rules 2000, to ensure formation of these three institutions in each formal Primary School. The School Committee was thus a registered representative body of the community. Structurally it was composed of 9 members that included one Ward Member of Gram Panchayat or Councilor of Urban Local Body in which the school was located, three female guardians and three male guardians of children of the school, one representative of local NGO, and the school Head master. The major assignments given to School Committee included : (1) raising funds, labour or material for school development; (2) maintaining school wall, garden, classroom and toilet; (3) providing clean drinking water and health check-up for the students; (4) solving school problems by meeting with higher authorities; (5) preparing Annual Action Plan for school; (6) receiving and utilizing the government grants given for school development; (7) raising enrolment and regular attendance of students; (8) controlling dropout of students; (9) participating in celebration of school function; and (10) encouraging students to appear in the school examination and take part in co-curricular activities.

Parent Teacher Association was another forum through which the community also got scope to take part in school management and development. It was a government recognized body constituting all teachers and the parents of all children of the concerned school as its members. One among these parents acted as its President and the school Head master functioned as its Secretary. Through this association, the community got a scope to play role in five major aspects of school management and development, such as (1) preparation of Annual Action Plan for school; (2) collection of funds or materials for school development; (3) review of measures taken for total enrolment, attendance and retention of children in school; (4) appraisal of accounts of expenditure of school funds; and (5) nomination of members to School Committee and Mother Teacher Association.

Mother Teacher Association was also a government recognized forum through which the female community got a scope to take part in the management and development of school. All lady teachers and mothers of all girl children were members of this association. Through this forum, the female community participated in eight major aspects of school management and development. Those were: (1) raising enrolment and regular attendance of girls in school; (2) controlling girls against dropout; (3) arranging vocational or cultural teaching for girls; (4) arranging training programme for girls on games and sports; (5) distribution of mid-day meals; (6) improving school campus;

(7) solution of problems relating to girls; and (8) collection of funds or material for school development.

Measures Taken under Janshala Programme to Ensure Community Participation

In order to ensure community participation in the management and development of schools and universalization of primary education, following measures had been taken under Janshala programme in Orissa:

1. A training module for capacity building of the members of the School Committees on school management and development had been developed.
2. A training module for capacity building of the members of Mother Teacher Associations and Parent Teacher Associations on school management and development had been developed.
3. Village level programmes like padayatra, public meeting and kalajatha had been organized to mobilize the community to take part in Janshala programme in achieving universal primary education through School Committees, Parent Teacher Associations and Mother Teacher Associations.
4. Master Trainers for conducting training programmes for the members of School Committees, Mother Teacher Associations and Parent Teacher Associations had been selected and trained.
5. Training programmes had been conducted by the Master Trainers for the selected members of the School Committees, Parent Teacher Associations and Mother Teacher Associations on their roles and responsibilities relating to management and development of school and universalization of primary education.
6. Exposure visits had been organized for some selected members of School Committees from each Block covered under Janshala programme to oversee the contributions made by the School Committees of other Blocks relating to school management and development.
7. All types of school grants given by the State Government had been released to the School Committees for their use towards management as well as development of school.

Level of Community Participation

The policy and measures taken under Janshala programme were intended to increase the level of community participation in school management and development. The study conducted on the level of community participation noticed in 2003-04 (4 years after implementation of Janshala programme in the State) has revealed the following findings on this issue:

1. A major role of the School Committee under the Janshala programme was to raise funds, labour or material for the development of school. But in 2003-04 the School Committees of only 44.6 percent of the sample schools had raised funds, labour or materials for school development.

TABLE 1

Extent of Participation of School Committee in School Management in Sample Blocks and Urban Body in 2003-04

Name of the Block, I rban Body	*No. of Sample Schools Studied*	*No. of School Committees Participated in*									
		Raising Funds, Labour or Material For School Development	*Maintenance of School Wall. Garden, Classroom and Toilet*	*Provision of Clean Drinking Water, Health Check up, etc.*	*Solution of School Problem by Meeting Higher Authority*	*Raising Enrolment and Regular Attendance of Students*	*Control of Dropout of Students*	*Celebration of School Function*	*Preparation of Action Plan for School*	*Receipt and Utilization of Govt. Grants*	*Encouraging Students to Participate in School Exam and Co-Curricular Activities*
Brahmagiri	12	9	4	2	7	12	2	1	0	12	5
	(100.0)	(75.0)	(33.3)	(16.7)	(58.3)	(100.0)	(16.7)	(58.3)	(0.00)	(100.0)	(41.7)
Nilagiri	12	7	8	NIL	6	9	4	9	1	12	4
	(100.0)	(58.3)	(66.7)	(0.0)	(50.0)	(75.0)	(33.3)	(75.0)	(8.3)	(100.0)	(33.3)
Mahanga	20	5	5	1	10	8	2	15	0	20	2
	(100.0)	(25.0)	(25.0)	(5.0)	(50.0)	(40.0)	(10.0)	(75.0)	(0.00)	(100 0)	(10.0)
BBSR City	12	4	6	4	6	6	7	8	0	10	4
	(100.0)	(33.3)	(50.0)	(33.3)	(50.0)	(50.0)	(58.3)	(66.7)	(0.00)	(100.0)	(33.3)
Total	56	25	23	7	29	35	15	39	1	56	15
	(100.0)	(44.6)	(41.1)	(12.5)	(51.8)	(62.5)	(26.8)	(69.6)	(1.8)	(100.0)	(26.8)

Note: Figures in parenthesis indicate percentage.
Source : Field study, February - March, 2004.

2. Maintenance of school wall, garden, classroom and garden was also an aspect of school management. In 2003-04, the School Committees in 41.1 percent of the sample schools had participated in this aspect of school management.
3. Provision of clean drinking water at school and health check up of students was also an important aspect of school management. In this aspect, the School Committees in only 12.5 percent of the sample schools had made some contributions in 2003-04.

Thus in 87.5 percent of the sample schools, the School Committees had remained aloof from making any contribution to this aspect of school management.

4. Every school gets an occasion to face some developmental or managerial problems for which there could be a need for meeting the concerned higher authorities to solve the problem. In this aspect of school management in 2003-04, the School Committees in 51.8 percent of the sample schools had met the higher authorities for this purpose.
5. One of the major responsibilities of the School Committee was to raise enrolment and regular attendance of students in school. The findings reveal that in 2003-04 the School Committees in 62.5 percent of the sample schools had shared this responsibility.
6. Along with raising of enrolment and regular attendance of students in school, there was another responsibility of the School Committees relating to school management, that is, control of dropout of students from school. It has been found that in 2003-04 the School Committees in 26.8 percent of the sample schools had taken some measures to reduce the dropout of students.
7. Another aspect of school management was celebration of functions like national days, festivals and annual function in the school. In the celebration of these functions, the members of School Committees had to participate, contribute or take up organizational responsibility. Table 1 shows that School Committees in 69.6 percent of the sample schools had participated in the celebration of school functions in 2003¬04.
8. Preparation of Annual Action Plan for school was also another integrated part of school management. Under the Janshala programme, every School Committee had been given a responsibility of preparing the Annual Action Plan for the school. In 2003-04 the School Committees in only 1.8 percent of the sample schools had prepared such a plan. This indicates that till 2003-04, the School Committees had not made any perceptible improvement in participating in this aspect of school management.
9. For the administration and development of the school, sometimes government grants are given to schools. Receipt and utilization of such grants is also an aspect of school management. In this aspect, the School Committees have to actively participate in receiving and utilizing the grants released for school management and development following the appropriate guidelines. The figures presented in Table 1 reveal that in 2003-04 the School Committees of all the sample schools had received and utilized the government grants given for school development.
10. Another important aspect of school management is encouragement to students to participate in school examinations and co-curricular activities. The School Committees have the responsibility to encourage the students for this purpose. Table 1 shows that in 2003-04, the School Committees in only 26.8 percent of the sample schools had regularly encouraged the students to appear in the school examinations and to take part in various co-curricular activities.

11. Under the Janshala programme, the Parent Teacher Associations had been formed and functionalized in schools, and they had to take part in different aspects of school management. It is evident from Table 2 that in 2003-04, in 1.8, 14.3, 57.1, 35.7 and 64.3 percent of the sample schools, the Parent Teacher Associations had contributed towards preparation of Annual Action Plan for school management, collection of funds or materials for school development, review of measures taken for total enrolment, attendance and retention of children in school, appraisal of the accounts of expenditure of school funds, and nomination of members to School Committee and Mother Teacher Association respectively. These findings point out that the participation of Parent Teacher Associations had been visibly more in two aspects of school management, i.e. review of measures taken for total enrolment, attendance and retention of children in school, and nomination of members to School Committees and Mother Teacher Associations than in other aspects of school management.

TABLE 2
Extent of Participation of PTA in School Management
in Sample Blocks and Urban Body in 2003-04

Name of the Block/ Urban Body	*No. of Sample Schools Studied*	*No. ofPTAs participating in*				
		Preparation ofAction Plan for School Management	*Collection ofFunds or Materials for School Development*	*Review ofMeasures Takenfor Total Enrolment, Attendance and Retention ofChildren in School*	*Appraisal ofAccounts of Expenditure ofSchool Fund*	*Nomination ofMembers to School Committee andMTA*
Brahmagiri	12	0	*2*	10	7	*1*
	(100.0)	(0.0)	(16.7)	(83.3)	(58.3)	(58.3)
Nilagiri	12	1	3	9	8	8
	(100.0)	(8.3)	(25.0)	(75.0)	(66.7)	(66.7)
Mahanga	20	0	1	10	3	14
	(100.0)	(0.0)	(5.0)	(50.0)	(15.0)	(70.0
Bhubaneswar City	12	0	2	3	2	7
	(100.0)	(0.0)	(16.7)	(25.0)	(16.7)	(58.3)
Total	56	1	8	32	20	36
	(100.0)	(1.8)	(14.3)	(57.1)	(35.7)	(64.3)

Note: Figures in parenthesis indicate percentage.
Source: Field study, February- March 2004.

12. The process of formation and functionalization of Mother Teacher Associations had also started after the operation of Janshala programme. These Associations were required to participate in some aspects of school management and development. Table 3 shows that in 2003-04, the Mother Teacher Associations in 58.9, 25.0, 14.3 and 7.1 percent of the sample schools had respectively participated in activities relating to raising enrolment and regular attendance of girls, in school, controlling dropout of girls in schools, arranging vocational/ cultural teaching for girls in schools, and arranging training programmes for girls on games and sports. Similarly, in the same year, in 16.1, 8.9, 28.6 and 10.7 percent of the sample schools, they had contributed towards distribution of mid-day meals to children in school, solution of problems relating to girls, improving school campus, and collection of funds or materials for school respectively. These findings show that except in raising enrolment and regular attendance of girls in school, in all other aspects of school management the participation of Mother Teacher Association had been very less.

TABLE 3
Extent of Participation of MTA in School Management
in Sample Blocks and Urban Body in 2003-04

Name of the Block / Urban Body	*No. of Sample Schools Studied*	*No. of MTAs Participation in*							
		Raising Enrolment and Regular Attendance of Girls in School	*Controlling Girls Against Dropout.*	*Arranging Cultural / Vocational Teaching for Girls in School*	*Arranging Training to Girls on Games and Sports*	*Distribution of Mid - Day Meals to Children in School*	*Solution of Problems Relating to Girls*	*Improving School Campus / Environment*	*Collection of Funds or Materials for School*
Brahmagiri	12	10	6	4	1	3	NIL	5	2
	(100.0)	(83.3)	(50.0)	(33.3)	(8.3)	(25.0)	(0.0)	(41.7)	(16.7)
Nilagiri	12	7	4	2	2	4	2	2	1
	(100.0)	(58.3)	(33.3)	(16.7)	(16.7)	(33.3)	(16.7)	(16.7)	(8.3)
Mahanga	20	12	1	NIL	NIL	1	1	5	3
	(100.0)	(60.0)	(5.0)	(0.0)	(0.0)	(5.0)	(5.0)	(25.0)	(15.0)
Bhubaneswar	12	4	3	2	1	1	2	4	NIL
City	(100.0)	(33.3)	(25.0)	(16.7)	(8.3)	(8.3)	(16.7)	(33.3)	(0.0)
Total	56	33	14	8	4	9	5	16	6
	(100.0)	(58.9)	(25.0)	(14.3)	(7.1)	(16.1)	(8.9)	(28.6)	(10.7)

Note: Figures in parenthesis indicate percentage.
Source: Field study, February - March. 2004.

Policy Recommendations to Improve the Level of Community Participation

Keeping in view the aforesaid findings, following policy measures have been recommended to improve the level of community participation in school management and development:

- In many schools, the system of regular monthly meeting of the School Committee is operating. This system may be extended to all schools. Similar regular monthly meetings of the Mother Teacher Association are not being held anywhere. This may be done in every school. The meetings of Parent Teacher Association are now very rarely done in formal Primary Schools. These may be conducted quarterly in formal schools.
- Under Janshala programme, very fine guidelines have been developed for reference relating to formation, responsibilities and functioning of School Committee, Parent Teacher Association and Mother Teacher Association. These guidelines include the Oriya versions of : (1) Training Module and Reference Manual for the Members of School Committee, (2) Training Module and Reference Manual for the Members of Mother Teacher Association, and (3) Orissa School Education (Community Participation) Rules, 2000. It was observed during the study that the Training Module and Reference Manual for the Members of School Committee had been distributed to some schools but the guidelines pertaining to the other two have not been given to any school. In schools where these guidelines have been available, no measure had been taken for their discussion among the participants in the concerned meetings. In order to strengthen and invigorate the School Committee, Parent Teacher Association and Mother Teacher Association, a copy of all these three types of guidelines should be given to each school. This will help in sustaining community participation in school management. Further, in every meeting of the School Committee, Parent Teacher Association and Mother Teacher Association, different aspects of these guidelines should be discussed.
- In order to strengthen the functioning of School Committee, Mother Teacher Association and Parent Teacher Association, it is highly necessary to make a gradation list of them based upon availability, understanding and utilization of guidelines and participation in various aspects of school management and development. They should be classified into 4 grades, i.e. A, B, C, D, and special capacity development programme should be conducted for the lowly graded School Committees, Parent Teacher Associations and Mother Teacher Associations.
- It has been observed that every Cluster Resource Centre in Orissa is attached to a Primary School and at every Cluster Resource Centre. A monthly meeting is regularly conducted for teachers, especially to review the multigrade-multilevel teaching process. It is suggested that this practice should be continued but two hours of the meeting may be devoted to discussion on the role, responsibilities,

problems and prospect of School Committee, PTA and MTA. Some members of School Committee, Parent Teacher Association and Mother Teacher Association should be invited to this meeting to participate in the discussion and also to speak about the contributions they have made towards the development of schools as well as universalization of primary education.

Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp.257-271

Schooling in the Hill Economy of Arunachal Pradesh

Sanjukta Das*

Abstract

The hill economy of Arunachal Pradesh poses a serious challenge towards the attainment of education for all (EFA) and thereby in the fulfillment of millennium development goals (MDG). Though a late starter, this state is making much progress in the provision of education facilities which has resulted in the literacy attainment of the state from virtually zero level to 54.3 percent within half a century. But yet to go a long way, many striking points need to be taken care of In this state, more than 60 percent of the children of 6-10 years were not in the school, approximately 46 percent children of 7-14 age-group were never enrolled in 1991, dropout at the primary level was as high as 46.89 percent in 1998-99. Thin and scattered habitations, low road connectivity, hilly and steep terrains, continuous rainfall for days together during rainy season, low adult literacy and parental consciousness etc., together make the school enrolment and attendance poor and thus, in turn, these appear as challenges to the state's provision of free and compulsory education for all. In this paper an attempt is made to analyze the educational scenario of the state, and the typical problems it faces in the provision of schooling facilities for all. The pros and cons of various alternatives of schooling provision are also examined to find out the most appropriate one.

Introduction

To achieve the education for all and the millennium development goals (MGD) of education in a hilly, underdeveloped state like Arunachal Pradesh (Ar. P.), more responsibility lies with the Government than with the parents. Given the resource scarcity, how this objective will be achieved is indeed a big question. Hilly terrain, scattered and thinly populated villages, and low road connectivity require a serious thinking on the concept of educational accessibility to make it more state specific. The present accessibility criterion based on the distance factor, appears to be very much

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unrealistic to the prevalent local conditions and unsuitable for policy designing. A better understanding is required for providing a viable solution.

In this paper an attempt is made to examine the complex nature of the educational accessibility, enrolment, literacy and other educational achievements of the students. Considering the scattered habitations and the low population density, various alternatives to achieve the goal have been considered and the pros and cons of the different alternatives are thoroughly examined before suggesting the most appropriate one. Finally, suggestions are made for achieving the prioritized goals. The paper is divided into the following sections. In the first section, the educational scenario and more particularly the literacy situation of the state is presented. In the second section socio-economic situation of the underdeveloped regions/districts is analyzed to find the association of these factors with the low literacy achievement. In the third section, estimates of costs and benefits of different alternatives of schooling are made to find out the least-costing one. In this section, the pros and cons of the different alternatives are examined. The last section contains the conclusion and policy recommendations.

Educational Scenario of Arunachal Pradesh

Arunachal Pradesh is a late starter in the process of educational development and literacy — it is only a post-independence development. At the time of independence, the state had only 30 students enrolled with almost zero percent literacy. The literacy rate of the state increased to 11.3 percent in 1971 which further went up to 25.55 percent in 1981 and 49.59 percent in 1991. However, within a period of just 50 years, it has achieved an overall literacy rate of 54.74 percent and male literacy rate of 64.07 percent and female literacy of 44.24 percent (in 2001). States like Bihar, Jharkhand, and Jammu & Kashmir, have lower literacy rates than that of this state. Though the average literacy level of the country is 10.46 percent points higher than that of Arunachal, the rate of growth of literacy is higher in Arunachal Pradesh than the country as a whole. The district level literacy (as it is in 2001 census) is presented in Table 1, which shows that at least seven districts of the state have achieved quite high levels of literacy. Similarly, the gross enrolment ratios (GER) for the age group (6-22) years also show a quite high percentage, considering the short period of educational development. The state's achievement in education is though laudable, yet all parts of the state have not improved at the same pace. There is much inter-district disparity. While the district Papum Pare remains at the top with the literacy rate of 69.3 percent, which is higher than the average literacy of the country, the newly created district of Kurung Kumey has a literacy of 25.7 percent only. Similarly, East Kameng has a literacy rate of 40.6 percent while West Kameng, its adjacent district, has 60.8 percent literacy. Similar pattern also exists in case of GER of the districts. While Lower Subansiri and West Siang have GER more than 90 percent, Lohit and Changlang have GER less than 40 percent (Table 1). Besides inter-district disparity in educational achievement, there is gender gap and rural-urban gap in this respect.

TABLE 1
Literacy and Gross Enrolment Ratio of the Districts (2001)

District(s)	*Literacy Rate (2001)** %	*Gross Enrolment Ratio (2000-2001)***
Tawang	***47.3***	46.87
West Kameng	60.8	48.22
East Kameng	40.6	65.45
Papum Pare	69.3	79.96
Kurung Kumey	25.7	-
Lower Subansiri	59.4	98.27®
Upper Subansiri	50.3	64.82
West Siang	59.5	91.45
East Siang	60.7	78.31
Upper Siang	49.8	59.94
Lower Dibang Valley	59.9	53.73*
Upper Dibang Valley	52.4	-
Lohit	38.4	38.89'
Anjaw	58.7	-
Changlang	51.3	39.30
Tirap	41.7	44.82
Arunachal Pradesh	54.3	61.77

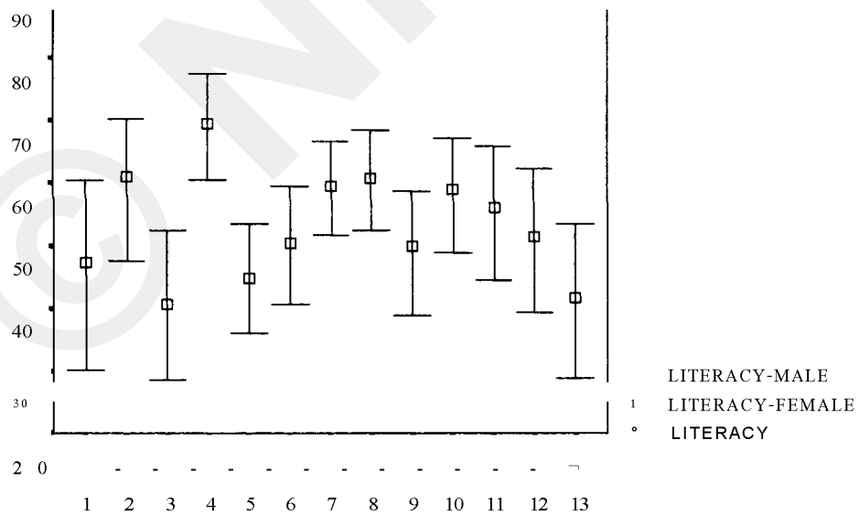
Notes: @ L.S. includes Kurung Kumey also
It represents the old Dibang Valley that includes Lower Dibang Valley and Dibang Valley (New)
$ It includes Anjaw also.
Source: * Census Report, 2001.
"•Estimated from the enrolment data of Govt, of Arunachal Pradesh and population estimated of the required age group.

Rural areas as a whole have a much lower level of progress than the urban areas everywhere, because of the better facilities available in the urban areas and the conscious and well-aware residents. In Arunachal also a very high rural urban literacy gap exits. It is 30.5 percent points which is 9.6 points higher than that of the country as a whole. Educational progress of the women of the state also, as in other states, is much less than that of the males. Gender gap in literacy of the state is 20.3 percent points, which is marginally lower than that of the country as a whole. However, the rural-urban gap and the gender gap in literacy rates are much wide in case of some districts [Fig.l (a) and **(b)].** Gender gap in literacy ranges from 30.30 in Tawang to 15.0 percent points in West Siang. The rural-urban gap of the same varies from 52.10 in Tawang to 11.40 percent points in East Siang. Papum Pare has low gaps in both the gender and rural-urban cases. Lohit has a high gender gap in literacy of 30.1 percent points. The districts with low literacy are found with high rural urban gap. It is also clear from Fig. 1 that rural-urban literacy gap is more prominent than that of the gender. This implies that facilities and

general environments are more important than the attitude towards female education in the promotion of literacy and education. Another noteworthy point from the above figure is that rural-urban and male-female literacy gaps are high in the districts with low literacy rates since the urban centers every where possess some infrastructural facilities and these attract people of better economic condition and skill for working and living there. Hence, the disparity in the literacy rates of different urban areas is not found to be high. The urban literacy rates of the districts range from 66.0 to 86.0 percent. But the rural areas have wider variation in terms of facility and literacy. Since the proportion of rural population in Arunachal Pradesh is more than 80 percent and still more in the hilly under-developed districts, their low literacy rates are very close to the district literacy rates, but the urban literacy is comparatively quite high and hence, the high urban-rural literacy gap. The high gender gaps in the literacy of underdeveloped districts are also owing to the similar causes. In the less developed interior areas, people send their children to schools of other areas (even at a high cost in terms of time and money) as they apprehend the return from schooling of their words to be high. But sending girls does not come spontaneously (as returns from schooling of the girls go to their in laws' family,) and thus the high gender gap in those areas.

Figure 1 (a)

Gender Gap in Literacy



Case Number 1,2... .are the 13 Districts in order as shown below:

1 - Tawang, 2 - West Kameng, 3 - East Kameng, 4 - Papum Pare, 5 - Lower Subansiri, 6 - Upper Subansiri, 7 - West Siang, 8 - East Siang, 9 - Upper Siang, 10 - Dibang Valley, 11 - Lohit, 12 -Changlang, 13 - Tirap.

The district level data also suffer from the problem of aggregation. There is sharp inequality in the literacy rates of the different circles of the districts. For example, the difference in the literacy levels of Itanagar (77.3%) and Mengio (19.1%) circles of the district Papum Pare is a very good example of the sharp inter-circle inequality. In Table 2, each district's highest and lowest literate circles are presented to show the inter circle disparity existing in each district. Anjow, Papum Pare and Tirap have the literacy gap of more than 55 percent points, while the state's overall literacy is 54 percent. Lowest gap is found in Lower Dibang Valley. East Siang, the district with overall highest level of development is found with moderate literacy gap. Kurung Kumey, the least developed district, has also a comparatively low gap of 27.3 percent points. East Kameng with also low level of development has high literacy gap, i.e. 44.3 percent points. In the state, the gap between the highest and the lowest literate circles is 67.2 percent points.

Figure 1 (b)

Rural-Urban Literacy Difference

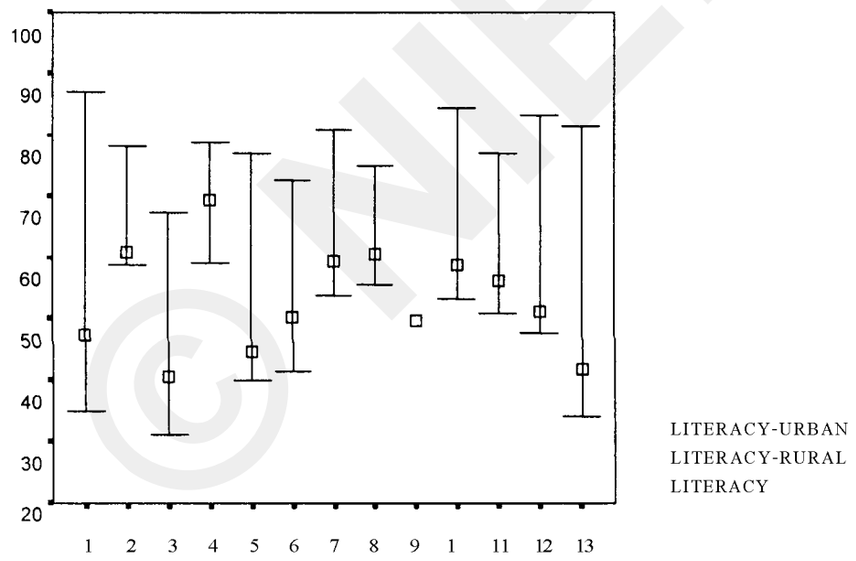


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TABLE 2

Inter-Circle Literacy Gap in the Districts

District	*Highest Literacy*		*Lowest Literacy*		*Gap*
	Circle	*Literacy*	*Circle*	*Literacy*	
Tawang	Tawang	62.7	Dudunghar	17.3	45.4
West Kameng	Singchung	76.1	Jamiri	39.4	36.7
East Kameng	Seijosa	62.3	Lada	18.0	44.3
Papum Pare	Itanagar	77.3	Mengio	19.1	58.2
Kurung Kumey	Palin	39.8	Longding Koling	12.5	27.3
Lower Subansiri	Ziro	67.3	Kamporijo	34.9	32.4
Upper Subansiri	Daporijo	68.9	Siyum	23.8	45.1
West Siang	Likabali	71.8	Monigong	21.9	49.9
East Siang	Pasighat	71.8	Rebo-Perging	38.5	33.3
Upper Siang	Yingkiong	65.1	Mariyang	38.4	26.7
LD Valley	Roing	63.3	Desali	46.3	17.0
UD Valley	Anini	61	Anelih	39.8	21.2
Lohit	Tezu	70.8	Piyong	40.0	30.8
Anjow	Kibithoo Circle	74.35	Chaglagam Circle	15.8	58.5
Changlang	Jairampur	76.9	Khimiyong	35.8	41.1
Tirap	Namsang	65.4	Pumao	10.1	55.3
Arunachal Pradesh	Itanagar	77.3	Pumao	10.1	67.2

Source: Census of India, 2001.

The table also reveals that except Kurung Kumey, all other districts have achieved literacy rate of more than 60 percent at least in one of their circles. In fact, seven out of 16 districts have literacy rates more than 70 percent at least in one circle. But what is more serious is the literacy level of the lowest literate circles of the districts. Among them (i.e. lowest literate circles), Desali of Lower Dibang Valley is at the top with 46.3 percent (which is 6.5 percent points higher than the literacy level of Kurung Kumey's highest literate circle, Palin) of literacy and Pumao circle of Tirap is at the bottom with 10.1 percent. There are six districts whose lowest literacy levels are less than 20 percent.

Finding the high inter-circle disparity, an attempt is made to analyse the overall literacy of the circles of the state. Circles are categorised as low, moderate, high and very highly literate if their literacy level is 10-15 percent, 15-30 percent, 30-50 percent and above 50 percent (Table 3). It is found that three circles, Londing Koling, Pumao, and Mengio come under low literacy level, while majority of the circles are under either high or very high level. This implies that the overall literacy situation is good though some pockets are extremely lagging behind for which urgent attention is required. An important point worth mentioning here is that: the combined male-female literacy may not be very much representative of this state's achievement in literacy and education. Rural un-connectivity and other infrastructural bottlenecks of this state discourage the

immigrants (who constitute a significant proportion of the total population of the state) to bring their family here. Though exact information is not with us, but it may be assumed that majority of the male migrants are at least literate which in turn to a great extent make the male literacy as well as the combined literacy a higher one whereas this state's effort is almost zero in the literacy attainment of these migrants.

TABLE 3
Literacy at the Circles

Category	*Overall Literacy*		*Female Literacy*	
	Number	*Percent*	*Number*	*Percent*
Very low (0 -10)%	0	0	10	6.7
Low (10- 15)%	3	>	9	6
Moderate (15-30)%	27	18.1	32	21.5
High (30 -50)%	49	32.9	67	45
Very high > 50%	70	47	31	20.8

Hence, for the study of the state's role in literacy promotion, the analysis of female literacy appears to be more appropriate. Moreover, analysis of female literacy also indicates a more realistic picture of the achievements of the state, districts, etc. It is observed from Table-3 that as many as 10 circles of the state have female literacy of less than 10 percent and 19 have literacy level less than 15 percent, which constitute about 13 percent of the total circles. It is also noticed that while 70 circles have overall literacy above 50 percent, their number is less than half (i.e. 31 only) for the female literacy. Thus, it appears to be more appropriate to examine in detail the underdeveloped/less developed circles that have low or very low female literacy.

Basic Features of the Underdeveloped Circles

In Table 4, the list of circles of each district which have female literacy below 10 percent (categorized as very low) and 10-15 percent (categorized as low) is presented. The circles with low or very low female literacy are mainly from the underdeveloped districts with thin and scattered habitations. These circles are also characterized by low road connectivity, very high percentage of tribal population, and most of them are in the upper regions of the state. Some of the characteristics of these circles are presented in Table-4. In the absence of village-wise household data, we use the average number of households per village to show the very less number of households of the villages. This table also shows the low average population per village. In fact, all have population below 200 (except those of Tirap). It is found that all these circles (except the four in Tirap) have very small number of households per village. In Chambang, a village has on an average 11.71 households. Londing Koling and Tali also have similar number of households, i.e., 13.54 per village. Among all these circles, the highest number of households per village is in the circle Khenewa, i.e., 28.79 which is even considered to be very low in the

context of the unit cost of service provisioning. In these circles more inter-village (IV) schools are established to serve the thinly populated more number of villages simultaneously. An inter-village school is established by the government with hostel facilities to provide boarding and schooling to the children of a cluster of thinly populated villages.

TABLE 4

Characteristics of Low Literate Circles

Circle	Population	Household	Sex Ratio	ST%	School	Village	IV School	HH/Village	Pop/Village	Village/Schc	Village/Schc
Dudungbam	2281	519	1089	99.3	-	-	-	-	-	-	-
Pipu	3815	853	1034	98.4	21	45	3	18.96	84.78	2.14	9
Khenewa	2729	691	998	98.4	8	24	6	28.79	113.71	3.0	3.67
Sawa	2486	572	1015	99.6	11	25	3	22.88	99.44	2.27	5.67
Lada	1931	385	910	99.5	6	24	4	16.04	80.46	4.0	5.5
Londing Koling	2206	370	1004	99.6	15	76	0	13.54	76.28	5.07	-
Tali	3591	659	975	98.3	15	76	0	13.54	76.28	5.07	-
Yangte	1732	335	1097	99.7	-	-	-	-	-	-	-
Chambang	4497	820	1016	99.7	15	70	2	1 1.71	64.24	4.67	28.5
Sarli	1972	405	958	94.5	7	-	4	-	-	-	-
Siyung	4055	849	1065	98.5	-	-	-	-	-	-	-
Monigong	3025	516	1089	99.3	-	-	-	-	-	-	-
Mengio	3845	651	1047	99.9	7	34	3	19.15	113.09	4.86	10
Chaglagam	2359	569	946	96.4	6	50	2	11.38	47.18	8.33	23
Goiliang	1662	361	902	98.4	4	40	1	9.03	107.80	10	39
Pumao	4312	574	932	99.5	-	-	-	-	-	-	-
Pangchao	10421	1688	927	98	19	23	0	143.17	855.09	1.21	-
Wakka	9246	1605	955	97.7	19	23	0	143.1	855.09	1.21	-
Laju	7959	1770	1009	96.2	16	19	2	93.16	418.89	1.19	2.5

Note: - Implies data not available

Source: Computed from Census of India, 2001 & Seventh All India Educational Survey, 2002.

In the circle Khenewa, 6 out of 8 schools, i.e., 75.0 percent are such inter- village schools. Similarly, in Lada 4 out of 6 and in Sarli 4 out of 7 schools are inter village schools signifying their importance to the hilly thinly populated regions of the state. However, in Londing Koling and Tali circles, there is no inter-village school. It is found that circles with less number of schools have high percentage of IV schools. The number of villages served by an inter-village school on an average indicates the high load on these schools. Assuming that one non-IV school is serving one village and the rest of the

villages are served by IV-schools, the average number of villages served by an IV-school can be computed, accordingly. In Chambang, one IV school is found serving on an average more than 28 villages. In Mengio circle also, 10 villages are being served by an IV school. Only in Kenewa, and Lada, where the percentage of IV school is high, the average number of villages served by these schools is quite reasonable. The actual numbers of villages served by some schools may be much higher than the average shown. In fact, a number of villages do not have school.

The same fact also remains in the other parts of the country of course with lesser degree. According to the Sixth All India Educational Survey Report, 52.95 percent of the habitations of the state did not have primary schools/sections within a distance of 1 km, which implies the children covering long distances to reach the school daily. Hilly and slippery paths during the rainy season, family problems like help in the domestic production as well as household activities, very often contribute to make the school attendance poor. Special studies are required to know the extent and causes of low attendance of the students.

However, the high percentage of repetition at least partially hints at the low attendance rates (overall repetition rate was 15.16 percent at the primary level, according to the Sixth All India Educational Survey Report). Poor attendance, low learning achievement (owing to the low attendance, less study time, low or no guidance at home for study) together result in high repetition and finally high dropout rates. Dropout at a lower level, say at class I or II level finally is being converted into an illiterate one later on.

The low literacy achievement of these circles may be/or at least partly due to the above-mentioned features. The highly literate circles have much different characieristics. Out of the 31 highly literate circles with more than 50 percent female literacy, eight (Itanagar, Nahalagun, Doimukh, Along, Pashighat, Tezu and Jairampur) have female literacy more than 60 percent - all these are developed ones with good transport and communication facilities. In fact, four of them are district headquarters and Itanagar is the state capital and Naharlagun is the old capital of Arunachal Pradesh. All these circles are with quite high number of households and population compared to the low literate circles. For example, the numbers of households are 8471 in the circle Itanagar, 8545 and 1934 in Naharlagun and Doimukh respectively. Similarly, the sex ratios are as low as 879 in Itanagar and 894 in Naharlagun. The percentages of tribal population in these circles are also low (46.9% in Itanagar and 46.8% in Naharlagun). The number of households and population served by an average school in these circles are very high. Using the rural data of these above mentioned three circles together* it is found that household-village ratio is 71.62%, population-village ratio is 361.41 and a school is found to be serving on an average 71.62 households and 361.41 populations. Using the data of all the circles of the state, high degree of correlation is found between the number of households and the

In the absence of circle-wise village and school data, we have used the data of Doimukh Block which consists of Itanagar, Naharlagun and Doimukh circle.

literacy rates. The value of correlation coefficients of total literacy and female literacy with the number of households are 0.45 and 0.44 respectively which are significant at 0.05 levels. Thus, the small number of households of the circles as well as of the villages may be somehow associated with the low literacy rate. The less number of households of the village is not the cause of its low literacy. In fact, a thinly populated village cannot effectively demand schooling provision within a reasonable distance. Lack of schooling facility in the village causes illiteracy and lack of knowledge among the children of the present and the future. Beside, the less number of households not only make the cost of provisioning of schooling high, (In Arunachal Pradesh as a whole, the unit cost of schooling is two and half times more than that of the country as a whole) very often, due to the resource scarcity the quality of the service provisioned also becomes very poor. The one-or two-teacher school, the lack of proper school building, (Kutcha houses), low salaried teachers, (whose attentions to teaching may be diverted to other occupations), the scarcity of teaching equipment, etc., are the very common features found in the schools of this state which may not be able to attract and retain the students in the schools resulting in, the low literacy rates. These features are found more in the newly established schools in the inaccessible/unconnected areas of the state.

Costs and Benefits of the Alternatives

How to provide free and compulsory education for all and how to find every child of 6-14 years age group in the school in this state and more particularly in these backward circles is a matter of serious concern. Among other things, it requires a re-examination of the concept of educational accessibility. According to the recent accessibility criterion, each village should have a primary school within a radius of one km in case of plain area and within a radius of half km. in case of hilly area. The present education policy of the state Government provides for a new school, within a radius of 1 km if the unserved village has population equal to or more than 200. If the population of the same is less than 200 but more than 100 an inter-village school can be established for 2-3 villages. It makes the provision of Education Guarantee System (EGS) center for the villages of less than 100 people. Under such a situation, majority of the villages will even not have an IV school, as the average populations of the villages are less than 100. In the IV schools, at present only the students of distant villages i.e., villages far away from the school (by 5 km for boys and 3 km for girls) are eligible for hostel and stipend facilities. In Arunachal Pradesh, strict adherence to this rule does not appear to be very logical as five or three km distance is very long and tedious in a hilly area. This rule should be relaxed to accommodate even the students of nearby villages. Regarding the low cost alternative of schooling provision in the thinly populated villages in the form of Community Schools, etc. it may be said that they are poor substitutes and hence, the questions of enrolment, attendance, retention and learning achievement in these schools are doubtful because households will compare the costs (both the direct cost and the opportunity cost) and the benefits of schooling. Here the households will consider the benefits of learning achievement and increase in the expected earnings owing to the educational development.

When the schooling facilities provided are of low quality, cost of schooling exceeds the benefit and children are withdrawn from schools. In this state the chances of such occurrence are more. Since children start education here at a very late age, the opportunity cost of schooling becomes very high at the lower classes itself which exceeds the expected benefits of schooling for the illiterate or less educated parents who withdraw their children from school. Only schooling at the right age, and of good quality will increase its benefits and thereby the motivation for enrolment and retention. This requires the choice of the best alternative of schooling provision.

Out of all the alternatives, provision of schooling facilities within the reasonable distance (here it should be in the village or in the nearby village) and the provision of hostel facilities in the IV schools appear as the important ones. The choice of the best alternative requires the examination of their feasibility, pros and cons. Here expected costs and benefits of each alternative are considered without much quantification.

The cost (construction) of school building (may be with two rooms in the beginning) in the interior areas may be matched with the required portion of the hostel building and extra space required in the classroom building in the less interior areas where IV schools are expected to be provided. The 12 months' salary of the teacher, say of one teacher with the Rs.50007- p.m. amounts to Rs.60, 000/-. It can be utilized as the stipend of at least 25 students of primary level along with Rs.50 per head annually towards the furniture cost (of cot, table, chair, etc.). Classroom furniture of both schools can be assumed to be canceling each other. The cost of stationary items - like chalks, duster etc. of the ordinary school are the extra expenses which is not required in the IV schools so that the cost may also be channelised towards the maintenance cost of the hostel. Thus, from the cost sides, the provision of hostel facilities in the IV school does not appear to be more costly than that of a school in the village. Here we have not considered the value of land assuming that community land will be used in both the cases.

In addition to costs of different alternatives their merits and drawbacks are also to be carefully examined before selecting one. Following points are worth mentioning in this context:

Problems of Schooling in the Remote Areas

1. The thinly populated villages make the unit cost of schooling provision high. On an average the state has the unit cost of schooling two and half times more than that in the country. Provision of schooling in the interior villages of the circles mentioned earlier would make the unit cost higher.
2. Provision of schooling within a reasonable distance under resource scarcity will reduce the service quality in the form of poor quality of school building, no or very less teaching equipments, low paid teacher etc.
3. With low literacy, the interior village will not be able to provide local teachers in the beginning. Lack of good infrastructures in the village for living will motivate the teachers to stay in the nearby accessible villages and hence the high chance of

teacher absenteeism. Guardians with low educational status will not be able to effectively monitor the teacher's activity.

4. Students' regularity in attendance is less likely as the illiterate ahd less aware parents may engage their school-going children in domestic production and household activities. Besides, hilly and slippery paths during rainy season also very likely distract school going.

Advantages of Schooling in the Remote Areas

Establishment of schools in the remote areas is expected to generate a number of externalities. These may take the form of creation of awareness among the villages, infrastructure development of the village (road etc.), more enrolment because of the school in the same/nearby village, benefits of association with the teacher, and the increase in the employment with the increase in the number of schools.

Merits of IV School

A11 the advantages of economies of scale can be reaped with the proper care and management of the Headmaster and the Warden in the IV school. The merits of such school may be classified under the following heads:

Academic: Good quality teaching with adequate number of qualified teachers, adequate amount of teaching materials, good library facilities etc., promote academic activities in these schools. In addition to this, study environment in the hostel may be created with adequate infrastructure, warden's proper attention, peer learning, competition and complements from friends and seniors etc. A11 these help the learning achievements of the students.

Extracurricular Activities: Good quality school with adequate infrastructure will also take care of the extra curricular activities of the students and will help in realizing and nurturing the latent talents of the students with respect to games and sports, literary activities etc. The performance of Midpu IV School of Papum Pare district in this respect, both at the district and the state level competitions, is praiseworthy.

Social and Interpersonal Relation: Since majority of the students of these IV schools happen to the boarders, they will be out of their home and will be staying together. Naturally during the time of sickness etc., they are expected to take care of each other. They will thus learn sharing and caring and subsequently of taking up responsibility.

Demerits of IV School

The IV schools also possess some drawbacks, some of which are stated below:

Nutritional Deficiency

The low amount of stipend along with its irregular payment hinders the wardens in providing nutritioifs food to the boarders. In the hill state of Arunachal Pradesh, the

children (while staying at home) get sufficient nutrition from the fruits, roots and vegetables collected from the common property resources. While staying in the hostels the boarders lack that opportunity. In the hostel they are provided ***Khichdi*** (prepared with rice, ***dal*** and potato mainly) only and that too twice a day, when at this growing stage, they need more frequent eating.

Sanitation Problem

Boarders are supposed to take care of themselves but unaccustomed to do that at the early age, they fail to take enough sanitary measures. With the low stipend, authorities cannot appoint a helper in this respect and the outcome is the sanitation problem.

Problem of Adjustment

Staying in a hostel from an early age creates problem of aloofness from home environment which makes the students find it difficult to adjust with the native environment in future.

Indifference to Family Problems

Socialization only with the peer groups (with only certain age group people) in the hostel has its own demerits. Problems of old-age, sickness, death - may not affect them more and they may not behave in the expected manner.

Delay in Stipend

Problem of no timely stipend release creates many of the problems. Authorities very often have to manage the hostel by borrowing. In the worst case, it is found that boarders are asked to bring ration from their homes or they are sent back home.

Un-remunerative Warden 's Job

In the absence of any remuneration for the warden, the job becomes just a routine work to be performed as per the headmaster's order and hence no contributory involvement of the warden. In the IV schools of the interior areas, the boarders are also engaged in carrying rations, cooking food etc. which reduce their study time. They become independent sometimes but academically not very sound. Of course, if we compare it with feeder village school situation, then probably IV school appears to be a better one.

Conclusion and Policy Recommendations

From the above analyses, the IV school appears (broadly) to be a better alternative than the ordinary school for each village at present. But simultaneously, it requires some additional contribution by the government for reducing its present drawbacks. Under such a situation, following suggestions may be made for the better functioning of the IV school.

a) For the smooth functioning of the hostel, stipend of the students should be released in time and if possible like monthly salary of teachers.

b) Utmost care must be taken to provide nutritious and balanced diet to the boarder. If possible instead of providing food twice daily, food should be provided three times a day, arid for this extra fund should be arranged.

c) At least some nominal amount should be given to the warden as incentive.

d) To overcome the problem of overage learning, the present Anganwadi system should be strengthened. It would ensure early-childhood health, nutrition and education to the children. Every village should have a very good Anganwadi system where at least pre-primary education should be imparted effectively. Instead of creating Sarva Siksha Abhyan separately, if both are combined together to provide health, nutrition and pre-primary education in the village itself, education can the (Class-I) start at the right age. This will also ensure learning in Class-1 in the IV school (in contrast to the present system where children of Class-I do not know even A, B, C and D. Consequently i.e. Class-I children fail more, and it takes more time to complete Class - V.

Viability and Sustainability Issues

The future prospect the system appears to be quite feasible. After a period of (10-15) years, it is expected that the literacy and educational status of interior villages will increase. At least eradication of axiomatic illiteracy can be assumed if not the absolute illiteracy. All the households are expected to achieve at least 100 percent proximate literacy. In the meanwhile some infrastructure facilities like roads, electricity etc. will be available in the village and at that time if school is provided in that village, it will be more functional (instead of present defunct type). The educated youth of the village (which will be feasible at that time) may be taken as the teachers of the school, instead of an outsider one. If by chance some outsiders are taken as teachers, the conscious village community will be effectively monitoring the teachers' attendance, and if required by providing manageable quarters to these teachers through even community help. In the process, the school building construction and other expenses can be financed from different heads in future. Regarding the finance of the teacher appointment, say five teachers for the primary schools (instead of the present two), a part will be mobilized from the students' stipend, a part can also be mobilized through equitable distribution of teachers among the different schools. Service in the more interior areas should be accompanied by some incentives, may be in the form of promotion, or financial incentives etc. All these appear to be feasible and are expected to take the rural areas a long way in their march towards literacy and education.

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Journal of Educational Planning and Administration
Volume XX No. 2, April 2006

INDIAN JOURNAL OF AGRICULTURAL ECONOMICS
(Organ of the Indian Society of Agricultural Economics)

Vol.61	JANUARY-MARCH 2006	No. 1

CONTENTS

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006, pp.273-292

BOOK REVIEWS

Bista. MIN BAHADUR & Carney, STEPHEN: ***'Reforming the Ministry to Improve Education: An Institutional Analysis of Ministry of Education and Sports (MOES) of Nepal'.*** International Institute of Educational Planning, UNESCO, Paris, 2004, pp. 324.

In order to achieve the goal of Education for All (EFA), which is a commitment given by almost all developing countries of the world in Jomtien (1990) and in Dakar (2000), it is important and necessary to ensure that appropriate educational administrative machinery is in place and people running this machinery are capable of discharging their responsibility efficiently. In many developing countries, not only reform in educational administration at various levels is required, but there could also be a need for capacity building of these personnel who are working in the country right from central level down to the local level of educational administration.

Many countries, especially the bigger ones, feel that their educationat-rrraTTageWient has improved through the process of decentralization. It is this aspect of educational management in view that the book under review attempts an institutional analysis of the Ministry of Education and Sports (MOES) of Nepal in order to assess the overall capacity of MOES to support the regional, district and schools level actors.

The study has two main objectives and these are: to assess the overall capacity of MOES, its staff and constituent bodies in relation to their mandates, roles and responsibilities; and to guide the conceptualization and preparation of a Human Resource Development Plan (HRDP) to support the central goal of quality improvement under the Basic and Primary Education Programme (BPEP II).

Institutional Analysis (IA) is not restricted to an analysis of the capacity of central or administrative agencies or bodies only, but it has also given particular attention to the role and function of the district education office and the district education officer, resource center system and a range of critical school management processes. The study draws upon quantitative and qualitative methodology and the data have been collected by administering questionnaires on central MOES agencies, selected regional and district units, and local schools within the central and western region of the country.

The study claims to be unique in Nepalese situation for its desire to understand the institutional environment in which the key management functions of staff development, information and communication, planning, and monitoring and evaluation, are undertaken. The aim is basically to provide a firm foundation of knowledge on which past failures can be understood and sustainable human resource development processes can be built.

The public sector reforms, according to authors, undertaken in Nepal recently are insufficient to effect meaningful changes. The study reviews the critical issues in

Nepalese pubiic administration and also focuses on the recent policy initiatives to improve the quality of public administration in Nepal. Describing the challenges confronting the civil services in Nepal, the authors highlight the problems in this regard which are: heavy bureaucracy, poor governance practices, politicization of bureaucracy, weak institutions, lack of strong workforce, poor quality of service delivery, frequent job rotation, and nonproductive organizational culture. The authors are of the view that public service in Nepal has become less concerned with the needs of the population, and less able to adjust itself in ways that might rectify its internal failings.

The study opines that human resource development and systemic reform must take place together. External agencies can take the lead in devising and providing training, ideally enhancing local capacity in the process. However, according to authors, Nepalese political leaders and civil servants must take the lead in changing the aims and processes of public governance as failure to do so will tend to ensure that staff training inputs continue to disappoint the aspirations of development partners on all sides.

The study examines the institutional framework and processes under which the education sector in Nepal is organized and managed at the central level. In this regard it notes that there are many positive conditions that exist in Nepal to promote institutional reforms and these conditions have been listed in the study. The administrative machinery to organize and manage the education sector, according to authors, is divided into areas which are central, regional, district, cluster and schools in Nepalese context. These areas have been discussed in the book at length. With regard to the Ministry of Education and Sports (MOES), authors are of the opinion that there is much incongruence between structures, functions and tasks, suggesting dys-functionalities in the existing organizational structure of the ministry.

The study reveals that there are a number of technical deficiencies within MOES as well as substantial cultural barriers to institutional improvements. Fundamental impediments identified to capacity building and institutional development within MOES, as per the authors, mostly emanate from the 'center'. These are that (a) structures, mandates, and responsibilities are far from clear and there are mismatches between organizational charts and activities actually performed; (b) staffing practices are poor, induction is week and staff appraisal and transfers are described repeatedly as secretive and partial; (iii) communication and information processes reflect and reinforce the steep organizational hierarchy within MOES and create barriers to communication; (iii) planning, monitoring and evaluation procedures .are unclear, poorly coordinated and driven by central bodies at the expense of local ones.

Decentralization has been emphasized and propagated in Nepal but according to the study data there has been little decentralization in the Nepalese context and at best centrally devised and controlled strategies have been 'de-concentrated'. However, there is little sign that local officials or the communities that they serve feel true ownership for the process and direction of education in the districts.

Pointing towards the functioning and capacity of District Education Officers (DEOs) the study notes that they are clearly a vulnerable group. Obviously many DEOs are

powerful in their own right but many of them feel that they had been manipulated and undermined. In addition to weak or misdirected leadership from the center, the DEOs, like other MOES officials engaged in district administration, were poorly prepared for their work and inadequately supported. The study points out that the recent district planning exercise, whilst valuable and needed, served to illustrate the weak professional basis of educational provision at the local level.

Discussing the problems faced by schools in Nepal, the study notes that vast majority of schools suffer from lack of resources, including qualified staff, materials and facilities as well as weak school leadership. The resource center scheme introduced under BPEP, has not yet proved to be an appropriate vehicle for teacher and school development. Authors are of the view that school development must be owned and driven by the school's community, i.e. parents, the headteacher and the students themselves. The need to establish local democracy, ownership and accountability in schools is of paramount importance while the problem of inadequate resources seems to be a second order issue.

With respect to the resource center (RC) system, the study finds two useful themes. These are: the resource person's range of tasks is beyond the scope of one individual but, more importantly, symptomatic of a misunderstanding of the RC concept; and two, headteachers are not expected to play a leading role in the development of their schools. It is suggested that much more thinking is required before resource persons (RPs) become effective in the most important aspects of their work, i.e. teachers' development. A cursory look at the RPs job description shows that RPs are viewed as 'supervisors' of teachers, which suggests that the headteachers are expected and encouraged to play only a minor role in relation to teacher and teacher development.

The study notes that there is no significant constituency within MOES prepared to promote the view that women are as competent as their male colleagues. In fact women are viewed as lacking the qualities that are often associated with successful leadership. Further, the unacceptable attitudes and practices of male managers are supported and reinforced by women managers themselves who undermine their own self-image. It is noted that though MOES is concerned about increasing the number of female teachers but there is no recognition of the fact that women should also be placed in leadership positions. This is perhaps the reason that women are heavily under represented in the headteachers' cadre.

There appears to be little or no incentive to facilitate the entry of women into educational management. For example, women have fewer training opportunities and have little access to important information. Placement and promotion practices do not favour women. Further, women managers enjoy only a limited degree of autonomy and powers as compared to their male counterparts. This can be seen in terms of the women's access to and control over information and social resources, participation in decision-making and the low esteem with which they are held by their supervisors, colleagues and even subordinates.

The study outlines a framework that provides an innovative way to approach human resource development in a large organization; it is based on a multi-dimensional

approach. The HRD plan given in the study includes short, medium and long-term human resource development activities aimed at individual, institutional and systemic development. The study presents recommendations that highlight measures to be taken at different levels of management (i.e. central level, regional/district level, cluster/school level) in relation to the key domains, namely organizational structure, mandates and functions, staffing and staff development, information and communication, planning, and monitoring and evaluation. It also presents a set of skill requirements deemed essential at different levels.

With regard to planning, the authors write that MOES considers planning to be an essential activity and institutional infrastructures have been created for undertaking planning activities. But the study finds many problems and lacunae in this regard. As such, it presents a number of remedies that include: creating an inter-disciplinary team of planning officers, providing short formal training in planning to all Class II and III officers, establishing a strategic planning team in planning division of MOES, establishing an inter-sectional planning team in each institution within MOES, and improving EMIS.

The study suggests measures for capacity building at the regional and district levels. These measures are : (1) Redefine the structure and functions of the Regional Education Directorates; (2) Redefine the role of DEOs, and restructure of the DEO; (3) Appointment of Class I level DEOs in districts with large school system; (4) Stop appointing DEOs on acting basis; (5) Develop comprehensive package for decentralized planning; (6) Appoint planning officers in DEOs; (7) Establish school districts; (8) Redefine the role of school supervisors; (9) Define clearly the relationship between the DDC and DEO; (10) The whole district staff to be fully involved in the design and implementation.

The measures suggested for capacity building at the cluster and school levels include: change the focus of job descriptions of RPs and strengthen their professional capacity; make school administration site-based; shift the focus from RPs onto the headteachers; redefine the relationship of RPs with headteacher of host school; introduce school improvement planning; introduce a school evaluation system; hold schools and teachers accountable for performance; output-based funding to the schools; develop a separate reform package to support chronically low performing schools; establish a strong governance structure; strengthen the educational leadership role of the headteacher; headteacher selection to be through open selection and not by DEO nomination; allow parents to form their own associations; and encourage teachers to form subject-based professional associations.

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Journal of Educational Planning and Administration
Volume XX. No. 2, April 2006

Shattock, MICHAEL (ed.) et al (2004): ***Entrepreneurialism and the Transformation of Russian Universities.*** Paris, France, International Institute for Educational Planning, 7-9 rue Eugene, Delacroix 75116, Paris. ISBN: 92-803-1268-5. Paperback. Pages-334, Price not mentioned.

The book is the outcome of the Tempus Project-NP- 21011-2000 "Eurus net (European Russian Dissemination Network), funded by the European Commission and partnered by as many as fifteen universities and institutions within and outside Russia. Thirty-eight contributors, both academicians and administrators, are from diverse disciplines. They have contributed twenty-five papers which have been grouped into sections - one on introduction and four main sections of the book. Purpose of the Tempus Project is "to provide something more than exhortation, but clear example of how Russian universities have confronted the problems of an unstable economy, new student demands, regional development and a loss of international standing."

The title of the book is fascinating. It highlights new trends in Russian higher education that emerged (or still emerging) out of swift and dramatic, almost chaotic, changes in Russia, such as the collapse of the Soviet Union, transition from socialism to capitalism, liberalization, privatization and globalization, ushering in competitive market conditions, and the state inaction in funding adequately higher education likely to be mass or universal in future.

The situation was so gloomy that for Russian universities it was a question of survival, and a do or die situation. In fact, "the financial crisis was the forcing house of change". In the wake of this unstable environment, the entrepreneurialism followed by the Russian universities was more a survival mechanism.

Titles of the four main Sections - Strategic Management in Russian Universities; Universities and the Generation of Non-State Income, Universities and Regional Development; and Internationalization and Academic Mobility in Russian Universities (Sections 2-5), and the Introduction Section 1 - neatly summarize the gist of the these sections, and clearly bring out the entrepreneurial methods followed by the Russian universities to face these challenges for their meaningful existence, both nationally and internationally, as a vital force for the stabilization, modernization and development of the Russian political economy.

The central message of the book is contained in the preface by the editor as well in the three paragraphs 'About the Book' on back of the main cover. To quote: "Each of these four sections provides case studies of change and adaptation undertaken by particular universities and groups of institutions reflecting their academic focus, regional economic imperatives, or the energy with which they confronted the problems of survival in rapidly deteriorating circumstances. There are lessons to be learnt internationally from the way the Russian universities addressed these issues" (Preface p. 26).

Higher education in Russia was totally in disarray at the time of this unprecedented political and economic turbulence. Universities needed thorough reorganization of rather

long term nature. This crisis affecting the whole society and not just the universities, in fact, should be taken as some sort of blessing in disguise for the universities.

They could reorganize in the manner they deemed proper. They aspired for autonomy through decentralization; they wanted to reduce their dependence on state funding by diversifying sources of funds and by introducing internal privatization instead of solely depending on students fee contribution; they thought regional/industrial collaboration more a life-line for regional economic development by creating regional innovation infrastructure, by raising skill levels and by founding job centres for their students as well as with an eye on the export of Russian educational services. They also understood the importance of international cooperation by promoting academic mobility and by exploring profitable markets of overseas students for the modernization of Russia. The entrepreneurialism followed by the Russian universities is termed as qualitatively different from the one followed in Europe as they were supposed to "change the shape of universities, broaden their range of disciplines and evolving their academic decision policies much more responsive to external environmental conditions."

From the above narration of the Russian universities' responses to the critical situation, one could surmise that they had a clear vision of the questions relevant to strategic management: (1) Do you know where you are? (2) Do you know where you are going? and (3) Do you know how to get there? Probably this might have led the contributors to express the view that the universities responses to environmental change "represent an almost classic account of organizational change inspired by extreme externa] market conditions."

It is the state inaction that has led to the transformation of the Russian higher education system than the state action. Though the engagement in self-reform is not evenly spread, it has sufficiently instilled self-confidence among the late followers. Russian universities might have succeeded in elevating their public image as the engines of growth.

Questions worth exploring in the Indian context are: Can a new culture of management in higher education, if imbibed in our system, lift the public image of universities and colleges? Can we succeed in meeting the challenges of a real knowledge explosion on account of information, communication, and technology (ICT) revolution? Will it respond to what the stakeholders, students and employing agencies, want, namely flexible education system, new and dynamic subject combinations and a teaching system with a stress on capability development?

The book is a must for those engaged in university governance, teachers, the corporate sector eager to enter the arena of higher education to perform its social responsibility, management experts, town planners and developers, and the intellectuals concerned with the current issues of the Indian higher education system.

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Journal of Educational Planning and Administration
Volume XX. No. 2, April 2006

Mehrotra, ANJU (2005): ***Leadership Styles of Principals - Authoritarian and Task Oriented.*** New Delhi: Mittal Publications, ISBN 81-8324-065-8, (Hard Cover) pp. xv+128, Price Rs. 295.00.

The bdok under review forms the substance of a doctoral thesis in education. The study aims to find out the leadership styles of principals and the relationship among the leadership styles of principals as perceived by teachers with job satisfaction of teachers and organizational climate of government and private senior secondary schools of Delhi. It has been seen that the leadership style of principals, job satisfaction of teachers and school organizational climate differ from school to school. The book deals with the various factors that influence the relationship of these variables.

The principal plays the most vital role in setting tone for school-based improvement. It is emphasized that effective principals are the ones who create effective schools where the future generations can be educated and trained to take their place in the ever changing world (Journal of Educational Planning and Administration, January, 2005). In this context, Prof. Mohammad Miyan in the "Foreword" points out that it is perhaps the effective leadership of the head of the school which is responsible for fully utilizing the talent of teachers and exploiting the capacities of students. There are numerous examples where the school heads have made all the difference in the motivation level of students as well as teachers. In one of cases, the school results rose from 35% to 85% in a period of 4-5 years. There is ample evidence that prospective principals or heads need appropriate training in leadership and management to enable the individuals to realize his/her potential.

The rationale of the study is provided by the Four Force model. It states that four types offerees impinge on a school principal: work environment, group pressure, task demands and personal needs. Environment refers to the organizational climate, i.e. participative style, more congenial, peaceful environment. Group pressure reflects the principal's interaction with the teachers of the organization. These interactions will influence both work environment and their job satisfaction. The style of the leader will determine the interpersonal competence. The ability to listen and communicate deal with pressure to confirm, resolve conflict, and get on with others. Task demands are based on the tasks assigned to principals and their abilities and styles to carry them out - skills, technical competence, experience, attitude, willingness to exert effort, satisfaction and expectation of outcomes and rewards. Personal needs include compelling influence and a principal's reaction to environmental organization, task demands and needs for affiliation, achievement and power. These Four Forces interact and merge with one another and affect the climate of the organization and the job satisfaction of the teachers (p-90).

The study was conducted in 56 senior secondary schools in Delhi 28 government and 28 private schools. From each school, 20 teachers, 10 Post-Graduate and 10 trained Graduate teachers were selected. Total sample comprised of 1120 teachers, 560 from

government schools and 560 from private schools. Care was taken to ensure that every teacher had worked for 3 years in the present school. The data was generated through three questionnaires; Leadership Behaviour Description questionnaire, to determine the leadership styles of the principals as perceived by teachers; School Organizational Climate Description questionnaire; and Job Satisfaction Scale for teachers. The data was analyzed statistically by using appropriate statistical technique. The hypotheses of the study are based on null hypothesis. Thus assuming the leadership style of principals, organizational climate of schools and job satisfaction of teachers are independent of each other between the government and private schools.

Leadership is defined as the process of influencing group activities towards accomplishment of goals in a given situation. It is conceived in terms of interaction of variables among principals, teachers, students and others which are in a constant flux of change. The leadership style of an individual is the behaviour pattern that a person exhibits when attempting to influence the activities of others. It involves some combination of either task behaviour or relationship behaviour or some combination of both. Leadership Behaviour Description questionnaire has two dimensions: initiating structure and consideration. Initiating structure is directed primarily at the achievement of formal goals of the group, whereas consideration behaviour is related essentially to the maintenance or strengthening of the group itself. The School Organizational Climate Description questionnaire gives score on eight dimensions, grouped into group behaviour characteristics and leader behaviour characteristics. The dimensions in the group behaviour characteristics include: disengagement, espirit, intimacy and psycho-physical hindrance. The four dimensions in the leader's behaviour characteristics cover - alienation control, production emphasis and human thrust. Motilal Sharma (1974) reported six types of climates: open climate, autonomous climate, familiar climate, controlled climate, paternal climate and closed climate. Satisfaction scale for teachers comprises six dimensions: pay, work itself, promotion, work group, working conditions and supervision. For the ease of the interested reader, the three scales are given in the appendices.

The results indicate that majority of principals in government schools are low in initiating structure (task orientation), but are high on consideration, while in private schools, the trend is towards high on both initiating structure and consideration. However, no significant difference was found between the leadership styles of principals in the government and private schools. Majority of schools (government and private) have autonomous climate. It is characterized by an environment in which there is almost complete freedom that the principal gives to teachers to provide their own structures for interaction so that they can find ways within the group for satisfying their social needs. The climate profile did not show any significant difference between the two types of schools. There was also no significant difference on the eight dimensions of the organizational climate between the two types of schools. It was found that the teachers in government schools are more satisfied than their counterparts in private schools. There is a significant difference between the job satisfaction of teachers on four dimensions of the

significant coefficient of corelation emerged between the leadership styles of principals on the one hand, and organizational climate and job satisfaction of the teachers on the other. Similarly, no significant correlation was reported between the organizational climate and job satisfaction of teachers and the various dimensions between the government and private schools. The researcher writes that the knowledge of the non-significant relationship of job satisfaction and organizational climate would pose a challenge to principals to find out the attributes for these problems of the government and private schools.

The findings of the study pose a challenge to the leadership styles of principals who are not able too influence the teachers. The principals, school administrators and managements of the private schools have to think about the ways to enhance the job satisfaction of their teachers and to make the school organizational climate more congenial. Principals have to think about the ways to make them high on both the dimensions of leadership style, that is, initiating structure and consideration, to achieve the desired goals. However, at times, it may be difficult to find such combination. Of course, some principals do show high task-oriented behaviour, but at the same time show high relationship-oriented behaviour. In this endeavour, principals can be helped to develop these attributes through in-service training and orientation courses. It will help them to move their schools towards more open climate and to enhance the job satisfaction of teachers. The study points out towards the need for change with the changing time.

In sum, the study gives a call to make schools a better place to work and also to increase the job satisfaction of teachers. This is sought to be achieved through the appropriate leadership style of principals i.e. high on both, i.e., initiating structure and consideration. The study raises a number of issues that should catch the attention of researchers and administrators with a view to making educational institutions more attractive, both to staff and students. The book will be of interest to a variety of audience interested in making education a joyful experience, in attracting talent for the school, and in the harmonious and allround development of the students to prepare them for the world of work. In spite of minor lapses, Principal Dr. Anju Mehrotra has done a good job and deserves compliments for her endeavour.

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Durrant, JUDY and Holden, GARY (2006): ***Teachers Leading Change*** (Doing Research for School Improvement). Paul Chapman Publishing. (Paperback); pp.185; Price 19.99 £.

The present book is, little unusual for an Indian teacher. It is not that we do not innovate, pursue research and/or apply its results in practice but we seldom come across university

departments with so much dedication, foresight and voluntary hard work to be able to offer a model for others to follow. ***Teachers in India too have vision, are willing to collaborate but sustained co-operative work with support coming from the top is somehow found missing.*** That does not mean we do not wish to learn. This review should motivate the small community of research-minded teachers who may like to engage themselves voluntarily to offer an indigenous model all their own.

The authors of the book under review argue, "that we need a new approach to professional development in which 'it can be seen both as an input and an outcome in teachers' leadership of learning." The tired old models of professional development and training premised upon 'top-down' delivery and prescription have failed to deliver. Therefore, the idea is that if sustainable school improvement is to be achieved, "we undoubtedly need new models and approaches to professional development that place teachers at the heart of organizational learning and change". In brief, here is a model for others to consider and if possible emulate.

What then is the model?

The duo of Judy Dun-ant and Gary Holden, while following a tradition, have been engaged in building upon what David Frost and earlier Lawrence Stenhouse and John Eliot had already been doing at Cambridge and with David they partnered too on a project. Therefore, there is nothing very novel for them. Secondly, teachers are seen to be receiving innovations and are not perceived to be innovators themselves. This then is a departure. Here is a book wherein the teachers are leading change and not being led as commonly accepted. The present book is not a summary of tips being offered to teachers; instead they 'offer a structured way of engaging with the main concepts and themes explored in the book.'

The Foreword mentions that ***'developing a community of practice may be the single most important way to improve a school'*** because the idea integrates three robust concepts, viz. school culture that emphasizes ***professionalism;*** one that emphasizes ***learning*** and lastly, ***personal connection.*** Little (2000) had argued: "To be most effective, professional learning communities need to exist within a social architecture that helps shape teachers' attitudes and practice." The Preface invites readers to "consider a theoretical and practical perspective on school improvement in which teachers' ***leadership of learning*** is seen as the key to school change." For this to happen, teachers need to use methodological techniques in particular ways to support their leadership of change. The authors also invite 'a wide perspective on school-based enquiry that requires teachers, head-teachers, and those, supporting school improvement to conceptualize beyond the research project.' The book deliberately bridges the gap between theory and practice and the authors claim they provide thereby 'insights into the world of schools and classrooms through our experience as teachers, tutors, advisors and consultants.'

Chapter 1 starts with the need to consider 'some current perspectives on school improvement and argues that we need a more holistic approach that demands nothing less than a re-culturing of schools, a change of mindset, a new way of working.' And for all this to happen, teachers' leadership of learning through enquiry provides a focus for such

an approach. All this is based on a premise 'that teachers have a central role in the complex processes of school improvement, not only because this is a more effective way of implementing policy, but principally because leadership is a fundamental aspect of humanity and therefore needs to be fostered in everyone.'

Chapter 2 gives us an idea how to unlock school cultures by adopting the principles given in the book. However, the idea behind it all is that while the present 'discourse on school improvement and effectiveness has taken some schools further along the road but that transformation remains elusive. Many schools reach a plateau where they are left tinkering around the edges of entrenched structures and ways of working.' What then is the way out? The authors therefore suggest, transformation through teachers' engagement in the dialogue, enquiry and leadership for change, with the common purpose of fostering true learning communities' as the only way out.

For an Indian who is steeped in the ancient or medieval traditions, the concept advanced by the authors, viz. 'the common purpose of fostering true learning communities' would not look very novel or strange. After all, teachers have to remain students all their lives. The major consideration for them in life is to remain eternally inquisitive and keep their eyes open for advancement of society, which sustains them. Their dedication to this goal (once upon a time) was such that unmindful of the riches, they kept teaching while learning. In fact, there were two types of teachers - the Dronacharya type, who accepted the job for teaching princes very late in life and had to barter independence and honour with the riches and comfort for his son and family. The other type belonged to Vishwamitra type - though born a ruler, gave up everything to join the ranks of the learned - the Brahmans. The typical concept of a teacher in India has always been of a learned poor. Since life has different attractions for different people, homogeneity in goals of life is most unlikely. But for those who join teaching as a life - time occupation it does not behove them to seek materialistic goals over their well-accepted goals of learning. Learning requires dedication and for dedication, one has to have unwavering attention to remain on course. In the ultimate analysis, the concept of a teacher universally remains the same. A teacher prefers learning over riches.

Chapter 3 discusses authors' view of school-based inquiry that can be used both for providing 'findings' upon which one could base school changes and also employ research as a powerful engine for implementation of change. School-based inquiries are good as they are focused and goal-oriented. Focused research is purposive and can be seen to be yielding results. Personally, I believe there is no alternative to highly personalized, well thought out and purposive research since situations and problems are highly localized and specific problems demand pointed solutions that cannot be generalized. In given schools the problems relate at times to individual teachers, whose learning or traits and idiosyncrasies might make them by and large unpopular and unacceptable. There may be a subject-area wherein a specific problem might relate either to teaching method or the depth of teachers' understanding. In brief, it is not always possible to generalize.

Chapter 4 discusses ways to integrate enquiry with leadership to change; especially remarkable are the ways in which teachers can do it all. These offer various rationale,

ideas and strategies to inspire teacher leaders to adopt fresh approaches to their own and others' learning.

Chapter 5 explores relationships and structures within schools through the experiences and the dilemmas of the three teachers who have used an enquiry approach to leadership of change. The experiences of these teachers tend to show that "power and authority used inappropriately can lead to peoples' incapacity to lead change and the stifling of learning at every level of an organization, whilst active support for teachers' leadership can lead to improvements in practice and significant cultural change." In this chapter both external and internal opportunities and constraints are examined. The sub-titles of the chapter hold a clue to their real content, which consists of teachers' stories of change.

The last Chapter leaves a crisp message for those who wish to find out the new ways of doing their work: "Through the strategies explored and illustrated in this book, teachers can assume a central role in change not just as implementers and recipients but by being active in setting agendas and in providing the leadership to make changes work. Enquiry is essential in enabling them to assume control over their practice and to assimilate evidence to support the developments they are advocating." (p. 170).

It shows new ways, for (Indian) and almost universally to teachers and schools. Therefore it deserves to be made compulsory in B. Ed. and other teacher training programmes. An excellent book!

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MOHAPATRA, K M. (ed.) (2004): ***Technology Environment and Human Values: A Metaphysical Approach to Sustainable Development.*** Concept Publishing Company, ISBN 81-8069-089-X; pp: 200 plus index (Hard Bound); Price Rs.400/-.

Technological breakthrough in various fields of human needs has significantly contributed to the economic growth process. It has also contributed to the physical development of the society and facilitated comfortable living for the human being. But at the same time the technological advancements revolution have caused certain negative impacts on the human values as well as on the environment. These have made man more materialistic and selfish resulting in demolition of many human values. The excessive materialism has started dominating the feeling of welfare of society as whole. For acquiring power and wealth, people are ready to commit crime and corruption. Because of these negative impacts, there is an apprehension that this developmental process would one day give a jolt and worldwide devastation might take place. In order to save the human being from the probable problems, environment friendly industrialization and eco-

friendly technological inventions should be restored. It would support the sustainability of the entire development process. The several papers in the volume under review discuss the above mentioned issues in some way or the other.

The book is based on the proceedings of a seminar on ***'Human Values and Technological Progress'*** held at HBTI, Kanpur. It is an important contribution that tells how metaphysical perception is essential for sustainable development and socio-economic welfare of humans. The book contains are twenty-two essays, including an introductory chapter by the author. All the chapters are arranged in four major sections. Section one is ***'Technological Progress and Quality of Life';*** Section two on ***'Harmony Between Materialism and Spiritualism through an Appropriate Technological Revolution'***, Section three on ***'Human Values and Environment'*** and Section four deals with ***'Impact of Information and Computer Technology on Human Values'.*** Each section consists of five to six articles.

The main theme of discussion is related to the issues how today's scientific and technological inventions in different fields of knowledge are deviating from human value norms that lead to cause adverse impacts on the human beings, environment and development. Therefore, it is very essential to attach human values to technical and scientific discoveries so that their adversities can be minimized and parallel development of both 'materialism' and 'spiritualism' can take place. In short the discussion in the book revolves around three broad issues, i.e. impact of technological progress on the socio-economic conditions and human value system; technological progress and environmental problems and their impacts on the quality of human living; and suggestive measures.

The essays on ***'Impact of technological progress on the socio-economic conditions and human value system'***, points out that there is a close relationship between technology and quality of life. The technological progress has not only influenced human life but also ushered changes in the world economy. Through the technological development, quality of life has been improved. But it is very unfortunate that the quality of life today is assessed mainly by physical/material things that one possesses. People have stopped thinking almost completely about their basic responsibilities to the society and have totally overlooked their social commitments, and ignored the value of human life. Human values refer to moral or ethical values, which are accepted by the society as required standards that ought to be maintained by the human being for the safeguard of the social and natural orders. Materialism creates a force in human thoughts, which makes him lean towards to outer objects and temporal pleasures. Materialism dominates over spiritualism in human thoughts. This is a main cause of erosion of human values. It is very essential to stop erosion of human values and in turn integrate human values with technological progress. Ghosh explains five domains of human values i.e. truth, righteous conduct, peace, love, and non-violence, with picture presentation. He also focuses on how technological inventions and technology transfer are collated to the above domains of human values. Education can draw out the best in an individual to enable his personality to develop to perfection.

Several contributors to the volume believe that technological advancement has posed a threat to human value system. They believe that introduction of new technology into the production process has brought about a number of structural changes in the economic realm; socio-political spheres, and bureaucratic administration. These changes deviate from the human values and affect quality of human life. Shapre and Uplane's outlook for technology is positive. According to them, technology has improved the standard of living of man. It has bestowed several benefits in opening up new avenues of living and working. But they have also created a series of problems, mainly from social, political and economic view point, which lead to degradation of human life. Sharan notes close relationship between engineering product design and social values. She discusses different value dimensions of engineering design of a product and how social values influence the mental processes of humans and again how the engineering design is dependent upon the mental process.

In the essays on ***'Technological progress and environmental problems*** ', contributors opine that man should not only manage the nature but should also learn to manage himself as part of the nature. The rapid technological progress and changes have certainly improved the quality of our living to some extent, but beyond a certain stage, it is felt that the quality of our life has suffered at the cost of environment. These changes have brought untold miseries for mankind as well as for the environment. Contributors argue that technological breakthroughs and advancements, to a large extent, depend upon the requirements of humans. Because of industrialization and urbanization, renewable and non-renewable resources are exploited with the help of technology. But both these types of resources have optimal limits and over exploitation of these are causing adversities on the environment as well as on the living beings. Technological inventions in different fields of knowledge have brought adverse affects on the human moral values with reference to Indian societies. The negative impacts are observed in the fields of mass media, Internet and genetic engineering (Awasthi and Singh). On the one hand information technology has become helpful in enhancing social awareness in matters of dowry, problem of child labour, illiteracy, AIDS, superstitions, etc., while on the other, children and teenagers are victimized by pornography on the website. The contributors mention that value based education on traditional lines would be helpful in attaching human values to scientific inventions and their applications.

It is a very timely publication that not only warns against adverse affects of industrialization but also suggests ways to the possibility of environment-friendly industrialization and eco-friendly technological inventions so as to reverse the developmental process that is close to the nature and is eco-friendly. Discussions in each section are highly thought provoking and touching fundamentals of reality of life and development. Many studies are based on primary information. To maintain a sound relationship between man and nature, emphasis was laid on education. Contributors very elaborately threw light on how changes among the youngsters in Indian society can take place. Influence of western culture has made the Indian youth materialistic. Information Technology sector has played a very vital role in such changes among youngsters. These

changes are inevitable. Several contributors to the volume believe that it would not be impossible on our part to direct such changes towards a noble direction, i.e. towards bringing harmony between materialism and spiritualism and balance between physical and non-physical developments. In sum, the book is useful for all sections of readers and researchers pursuing higher studies, especially in teaching on scientific lines. Scientists, researchers, policy makers will get many insights in implementing their righteous actions and policy decisions.

NIEPA

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Alan, ROGERS, ed. (2005): ***Urban Literacy - Communication, Identity and Learning in Developing Contexts.*** Hamburg: UNESCO Institute for Education, ISBN: 92-820¬ 1145-3 (Paperback), Pages: 312, Price not mentioned.

The book has had its origin in an international seminar on "Literacy and Livelihood in Urban Contexts", held in New Delhi during 11-13 December 2002. Some of the papers presented in the seminar are included in the volume. In addition to the introduction and conclusion by the editor-author, the book contains 12 contributions from different scholars. As many as 10 of them are based on empirical studies from different developing countries, viz. Botswana, Brazil, India, Mexico, Namibia, Nigeria, Philippines and South Africa. The contributions deal with various aspects of literacy education and use of literacy in different socio-cultural contexts.

Two of the studies presented in the book are from India. Denzil Saldanha's evaluation of the literacy campaign in the states of Maharashtra and Goa in India speaks of residual illiteracy in urban areas as a phenomenon of uneven development of literacy, which needs to be attended to with different approach and strategy. In evaluating the literacy campaign in the states of Haryana and Bihar in India, Ajay Kumar analyses the content of the textbooks in the context of literacy education. He argues against centralisation in adult literacy programmes and calls for making literacy meaningful to the local life of the adult learners.

Two contributions in the book are based on studies from South Africa. Moeain Arend analyses literacy practices within and around a police station in a South African township and shows how particular contexts make differential demands on the use of literacy. In the other study from South Africa, Catherine Kell points out the divide between literacy and illiteracy, and between rural and urban. She argues making literacy learning contextual or connected to the specific needs of the people.

Maria Luisa Canieso-Doronila and Cecilia Cuevas-Sipin undertook the study of the use of literacy for social mobilisation and development in a squatter community in the

Philippines. This is an interesting study that shows how effective use of literacy can help a disadvantaged community improve its socio-political situation.

Guilherme Rios studied the role of informal learning in different contexts, and the uses and values of literacy in two socio-economically different urban neighbourhoods in Brazil. The study points out how real life situations, such as a police station, a workplace and a family, provide the opportunities and settings for individuals to master new forms of literacy in order to cope with the respective demands of the life situations.

Judy Kalman's study of urban women's literacy classes in Mexico finds that the contextually different, multiple uses of literacy, perceived and defined as specific and personal to each individual (or making literacy as a socio-cultural practice), were the motivating factors of women's participation in the literacy programme. The study emphasises the importance of understanding the social context of literacy attainment and practices and not stereotyping what adult learners want literacy for.

Uta Papen's study of the literacy practices of a group of Black Namibians living in Windhoek, the capital of Namibia, points out the need to make literacy meaningful to everyday life by relating literacy programme directly to the struggles and aspirations of the everyday life of the adults. "The idea would be to design a literacy programme that explicitly concerns itself with the context-specific uses and meanings of literacy in everyday life and uses 'real literacy texts' as its teaching materials" (p.230).

Tonic Maruatona studied the centralised state-sponsored projects of literacy in Botswana. The study brings out the weaknesses of a centralised adult literacy programme and calls for decentralisation and contextualisation of literacy programme, and participatory approach in organising the curriculum for literacy education.

Rashid Aderinoye and Alan Rogers studied the experiment of the 'literacy shop' run by the Ibadan University in an 'irban market in Nigeria. It "is based on the concept of 'drop-in centre' - a place that is open to the public to come in at any time of their choosing to gain or learn what they individually wish to acquire or learn" (p.257). The experiment emphasises flexibility and decentralisation in adult literacy education. It also points out that literacy programme should be embedded in the daily life activities of the adult learners in order to elicit their effective participation. This in turn requires involvement of the adult learners in deciding all matters related to the operation of the literacy programme.

The use of the term "urban" in the title of the book is inappropriate if not misleading. Nor does the concept of the urban integrate the different contributions in the book. In fact the thrust of the book is that the urban-rural dichotomy does not help adult literacy, and even in what is called urban or rural area, there should not be a standardised literacy package that can be uniformly implemented. The author himself has clearly endorsed this position in the introductory and concluding chapters of the book. "We do not need two different kinds of learning programmes, one rural and the other urban. We need many different learning programmes to meet many quite specific and immediate needs and aspirations" (p. 11). "So the urban-rural divide is an artificial divide, which we have created to reflect our preferences and justify our actions, and it hides a complex reality.

Life is too diverse to be constructed into two dichotomous categories, urban and rural" (p. 292). The only justification one finds for the use of the urban in the title of the book is that many of the field studies presented in the book happen to pertain places typed as urban.

The substantive contributions in the book are categorised into three sections, viz. (i) literacy and the urban-rural divide, (ii) literacy practices in urban contexts, and (iii) literacy teaching and learning in urban contexts. One finds it difficult to find the rationale for this categorisation. There is little reason why a contribution appearing in one section should have been therein or could not have been in either of the other two sections. Although the categorisation has not affected the substance of the book, it is likely to lead to misunderstanding of the focus or thrust of the different contributions.

The book deserves merit for the ethnographic studies on adult literacy from the different developing countries. The field studies deal with different aspects of literacy education and practice in different contexts and give very interesting insights into the issues involved in imparting literacy to adults and practice or use of adult literacy. They are linked together as contributions in the volume by the theme adult literacy education and practice have to be contextualised, which implies that a time-and-space specific approach to adult literacy, and decentralisation and flexibility in the operation of literacy programmes. The contributions on the whole converge to this approach and strategy to adult literacy. The findings of the field studies support and reinforce this position.

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Connell, HELEN (Ed). ***University Research Management - Meeting the Institutional Challenge.*** Paris: OECD, 2004, 258 Pages.

The reviewer firmly believes that it is the reputation of the faculty that is at the core of an internationally reputed university. Faculty reputation in turn depends on how often their work is quoted globally, which calls for faculty publications in top journals. Given the singular importance of research quality in building university reputation, the book under review is welcome.

University Research Management: Meeting the Institutional Challenge is the outgrowth of three seminars and eight invited case studies, undertaken as part of the OECD Programme on Institutional Management in Higher Education. The two-part book has a summary report culled out of the seminar discussions (Part 1) and all the eight cases studies (Part 2).

Part 1 addresses three themes: the growing significance of the research mission to higher education; strengthening structures and processes for research management across the institution; and funding and 'resourcing' university research. The eight cases in Part 2 are under the following titles (with institutions highlighted for the convenience of readers of this review): A question of scale and focus at the University of Adelaide, Australia; Response to changes in research funding at the Universidade Federal Do Rio Grande Do Sul, Brazil; A HEI with entrepreneurial orientation: Universidade de Aveiro, Portugal; Restructuring amid crisis: Humboldt Universitat zu Berlin, Germany; Managing research careers in an expanding research profile: Universite Libre de Bruxelles, Belgium; Building a research profile: Bogazici Universitesi, Turkey; Research management at University Kebangsaan, Malaysia: towards the making of a research university; and Developing research in a HEI: Dublin Institute of Technology, Ireland.

The executive summary of just about 4 pages is a great appetizer. Here is the reviewer's summary of the executive summary: (1) Research "production" of an institution is crucial to its competitiveness and standing in the hierarchy of universities; (2) In the rapidly changing external environment, universities need to pay attention to research management issues including setting goals, drawing up plans and appointing professional research managers; and (3) Conscious development of research careers for academics.

The reviewer would like to end this short review with three comments. First, this book is an important must-read for all academic administrators, notably Vice Chancellors of our universities, despite the fact that not all the case studies in the book are from top ranking universities. [As per the academic reputation rankings for 2004 from Shanghai Jiao Tong University in China, the following are among the top 200 institutions: Humboldt Universitat zu Berlin (rank 95) and Universite Libre de Bruxelles (136).] Second, it is time that a periodic (say, once every three years) meeting on research quality in universities is held under the auspices of NIEPA, with support from UGC and allied bodies, with the explicit purpose of taking stock of research quality. The meetings should explicitly focus on the trends in the publications of academics in top journals, patents filed, and funding and other facilities. Finally, all those interested in the quality and reputation of our universities should impress on GOI that it should invest a billion dollars a year and sponsor 10,000 or more young academics from our universities to pursue doctoral programmes in the top universities abroad with due safeguard like a service bond etc. The number should include a fair representation of SC/ST and others. Within a span of some 3 to 5 years, each university in the country would have anywhere between a 100 to 150 academics well versed in the art of publishing in top journals from the Indian soil.

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Journal of Educational Planning and Administration
Volume XX, No. 2, April 2006

WORLD BANK: ***Expanding Opportunities and Building Capacities for Young People: A New Agenda for Secondary Education.*** Directions in Development. Washington DC. 2005, pp. 300 (Paperback), ISBN: 0-8213-6170-8.

World Bank started its lending operations in education in early 1960s with secondary education - vocational and technical education projects - in Africa and Latin America. Realising the importance of primary education, it has shifted its attention to primary education since 1985. The shift in favour of primary education, which was subsequently termed as basic education under the global Education For All programme, has been so emphatic that it is widely and rightly regarded as a shift against secondary and more importantly higher education. Some tendencies to shift its attention in favour of higher education could be noted in the 2002 World Bank paper on Constructing Knowledge Societies. In this background, the study under review, by the World Bank, forms a very important contribution, which also marks a significant shift in the World Bank's attention towards secondary education.

Secondary education had been subject to severe neglect. National governments and international community have focused their efforts either on primary education or on higher education. Secondary education, which forms an important link between the two, has remained as an important missing link in the education edifice in developing countries. As noted in the Foreword to the book, "Secondary education is back on the agenda of developing countries ***after a period of historical neglect"*** (p. xi; emphasis added).

The policy approach to secondary education has been paradoxical: it was expected to be terminal, giving enough skills and knowledge for the graduates of secondary education to enter labour market, and also at the same time, preparing students for higher education. As the Bank rightly notes (pp. 14-15), the policy choices in secondary education are ambiguous and complex because of the intrinsic duality of secondary education, which is at the same time, terminal and preparatory, compulsory and post compulsory, uniform and diverse, meritocratic and compensatory, to serve individual interests and societal and labour market needs, integrating and screening students, offering a common curriculum for all and specialised (vocational and technical) curriculum for some. This also reflects the complexity with which several aspects of secondary education are inter-twined with each other in a very complicated manner.

The present study was prepared by a team led by Ernesto Cuadra and Juan Manueal Moreno. The authors outline the historical background of secondary education, describe the importance of secondary education - the direct benefits and externalities, and then focus on the challenges the secondary education system faces in terms of improving access, quality and relevance; and how some countries have been responding to these challenges, through reforms in curriculum, innovations in teaching methodologies, and use of technology etc. The analysis of these issues is arranged in eight chapters. The concluding chapter 'Epilogue' describes the trade-offs in secondary education, some of

which, for example, quality and equity, and efficiency and equity, need not necessarilv be treated as trade-offs. After all, quality, quantity and equity are three closely related inter-dependent aspects of educational development, all requiring serious attention, not one at the cost of the other.

The study recognises that teachers play a critical role in development, and that 'there are no low-cost shortcuts to training high-quality teachers.' On the issues of financing, the authors review analytically the advantages and disadvantages of formula funding and favour it, besides discussing other funding options. The study also recommends multiple sources of funding and efficiency-enhancing measures in secondary education. While compulsory education is expected to be financed by the governments, the Bank study argues that "families and communities should play a more active role in financing the post-compulsory phase" (of secondary education) and als opines that public-private partnerships can contribute in an important way to n -king mass secondary education affordable.

While there is a lot of useful information given in the book, it would have been more valuable, had the discussion on many issues been more in-depth and analysis rigorous. The main contribution of the analytically interesting descriptive study lies in the efforts of the authors in bringing back secondary education in developing countries to the policy agenda of the national governments and of the international development community.

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Journal of Educational Planning and Administration
Volume XX No. 2, April 2006

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Vot.XXXXI **Number 1** **January-March, 2006**

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