

**Report of the
Sub-Committee
On
Vision for Vocational
Education**

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1.1 The Context

Four basic points should suffice to delineate the context in which this sub-committee has carried out its deliberations. First, the vocational courses available at the higher secondary or +2 level have failed to fulfill the expectations articulated in various policy documents over the last four decades. The limited spread of secondary education in general, and the low attraction of the vocational courses available at the +2 level form the broader context in which this report should be read. The failure of vocational education courses at the higher secondary level to attract a substantial number of students, from within the limited proportion of students who move into the secondary stage is further compounded by the inability of these courses to provide employable skills in terms of relevance and quality. Second, the continued diversity and uncoordinated growth of providers of vocational education and training can be seen both as a source of satisfaction and a cause for concern. Several different departments and ministries of the government are involved in the vocational education and training scenario. This might be seen as an example of the pooling of resources, but one cannot miss the confusion which characterises the sector. Third, persistence of high levels of unemployment among youth, especially in rural areas; and fourth, the continued prevalence of gender disparity in access to work, both in terms of type of work and remuneration are both additional causes for concern.

1.2 Terms of Reference

This Sub-committee was constituted to deliberate on a vision for vocational education, mainly in the context of school education in India. The following terms of reference were given to the Sub-committee:

- a) Identify pitfalls of the existing vocational education system, with particular reference to utilization of available seats, mobility of vocationally educated students within the stream of general (non-vocational) education, acquisition

of skills (which might be measured by modules of employable skills that students undertake as part of courses).

- b) Make recommendations as to whether the existing system of vocational education is to be continued with or without modifications, or be abolished. Suggest ways of implementing the modifications as per recommendations.
- c) Compare the labour market outcomes of students of vocational training with those of general education. Make recommendations as to whether the existing system of vocational training is to be continued in its present form, and if not, what structures are desirable in keeping with the requirements of skill acquisition and employment.
- d) Examine whether the German Model of Dual Training can be applied in India, through a pilot project if needed. Recommend the method of integrating this technique with the Indian Educational System where appropriate.
- e) Set up a UGC-AICTE-NCVT joint committee to evolve a National Qualifications Framework.

The Sub-committee held three meetings.

1.3 Background of Prevailing Conditions

Vocational education and training is provided in India by several types of institutions which function under the auspices of different departments of the government. As many as 17 Ministries of the Central Government provide different kinds of training programmes which can be broadly classified as vocational education and training. The situation in the States is similar although it is difficult to find all the necessary information regarding the different agencies of each State government involved in such programmes. In addition to the programmes organized by the government, a large number of non-government organizations are also active in this sector. Programmes of varying durations have also been initiated by private firms, mostly for training their own work force but, in certain cases, also catering to unemployed youth more generally.

In the context of school education, two major structural arrangements can be identified as being core to vocational education and provision of training. These two structures are: (a) Higher secondary schools with a vocational stream at the +2 level; (b) Industrial Training Institutes (ITIs), both public and private. School-based vocational education in India is currently covered by a centrally sponsored scheme which was mooted in 1988 and was aimed at providing an alternative to the pursuit of higher academic education. This scheme also covered a provision for imparting training in simple marketing skills during Classes IX and X. The National Policy on Education 1986 (NPE) intended to provide vocational courses to as many as 25% of all students enrolled at the +2 level within 10 years. According to the Seventh All-India Educational Survey (2002) only 12.4% (5437) of higher secondary schools are offering vocational courses which are availed by only 5.4% of all students enrolled at the +2 stage. In Classes IX and X, only 2.4% of secondary schools offer pre-vocational courses, which have drawn only 3% of eligible students. This overall picture is somewhat better in Kerala, Tamil Nadu, Karnataka, Maharashtra, Andhra Pradesh and U.P.

As far as ITIs are concerned, they were primarily started to provide training in basic industrial trades. There are at present 4650 ITIs with a total capacity of 678,000 seats. Out of these, nearly 373,000 seats are available in approximately 1800 ITIs run by the government, and the remaining are in privately-run institutions. Recently, the Government of India has decided to establish 100 ITIs as centres of excellence which will be registered as autonomous bodies and will have linkages with. ITIs come under the purview of the Ministry of Labour and Employment and a role in overseeing curriculum and evaluation is performed by the National Commission of Vocational Training (NCVT). School-based vocational courses on the other hand, come under the purview of Directorates of Education in the states, broadly under the Ministry of Human Resource Development.

1.4 Conceptual Challenge

The present Committee was appointed to develop a vision for vocational education in the context of some of the long-pending issues that the sector has been facing and the challenges presented by the larger socio-economic scenario. Our deliberations have led us to recognize that vocational education represents the single most significant area in which educational policy has to make a

breakthrough. Such a breakthrough can be conceptualized in terms of the following components:

1. A coherent policy framework which should inform all vocational courses, no matter which institution offers them and which Ministry controls those institutions. A common policy framework should cover the curricular framework, teacher training and appointments, institutional infrastructure, and administration and supervision, placement and skill upgradation, and linkages for academic mobility;
2. Quality-related aspects of vocational courses and their experiential component;
3. Strategies for institutional collaboration and cooperation, e.g. between higher-secondary schools and ITIs;
4. Linking vocational courses with the National Rural Employment Guarantee Act (NREGA)-related activities and other similar programmes of national development.

The Central Government's initiative in vocational education over the last several years has evolved in the context of a centrally-sponsored scheme which was mooted in 1988. The progress made under this scheme has varied a great deal from state to state, but the overall status remains unsatisfactory. The proportion of children enrolled in vocational courses has remained extremely small in most states, barring Kerala and Maharashtra. In the CBSE system, this proportion has been particularly small. The ITI system has also failed to grow to any significant proportion, especially in comparison with similar institutions in other industrializing countries, particularly China.

Sociologically speaking, both ITIs and those higher-secondary schools which have provisions for vocational education, basically cater to the children from relatively low socio-economic strata of society. The same is true of the clientele of the National Open School which has developed a plan for vocational courses. There are several other providers of short-term vocational training, and in their case also, the above observation is applicable. It is, therefore, important to acknowledge that in the present scenario, vocational education represents a sector directly influenced by social stratification. It has

remained on the margins of the system of education. It has also remained disorganised and scattered in terms of policy and vision. As many as 17 Ministries and Departments serve the sector, with no overarching agency responsible for providing a policy framework and guidelines. The fact that vocational education and training programmes are perceived as serving mainly the lower socio-economic strata of society, constitutes a major challenge for future planning and progress. A related perception is that vocational courses are suitable only for those students whose potential for academic courses is poor.

It is necessary to develop a two-pronged strategy which, on the one hand, ensures that the institutions involved in vocational education have the capacity to serve children and youth in an egalitarian and relevant manner, and, on the other, helps reduce the various gaps between vocational and academic courses. Taken together, such a twin-pronged strategy can pave the way towards a major breakthrough as has been articulated in the National Curriculum Framework (NCF) 2005. The NCF discusses the challenges faced by the larger system of education in the context of the relationship between work and education. It takes the view that a strong bonding of work and education can create congenial conditions for progress towards a common school system. By introducing vocational components in academic courses at all stages, and academic components and rigour in vocational courses, the gap between the two kinds of courses can be reduced. If curricular policies can evolve greater flexibility in this direction, the quality of the overall educational experience that our schools provide can be enhanced.

2.1 Content of Vocational Courses

A survey of the content of courses offered for vocational education and training in different kinds of institutions makes it quickly apparent that the range of courses offered is very limited indeed. The narrowness is particularly striking given the contrast with the rapid diversification that is taking place in the economy and the labour market today. Over the recent decades, a vast range of opportunities and specialized tasks have emerged as a result of numerous changes in the technology and changes in the modes of production and services, but the curriculum of vocational education has generally remained aloof from these changes. There is a large gap between the various agencies involved in different kinds and levels of vocational education and training on the one hand, and the world of production in agriculture, industry and services on the

other. In addition to this gap, there is also an entrenched reluctance in the system of vocational education to recognize the unorganized sector of the economy as a major client for employing vocationally-trained youth. Although the unorganized sector forms the bulk of the Indian economy, the status of the majority of people who work in this sector is perceived to be socially low. Perhaps this is one major reason why the skills necessary in this vast sector do not figure among the priority areas of vocational education and training.

Yet another tendency we notice in the curriculum and syllabi of vocational education is that of focusing on information and ignoring the theoretical basis of this information. In the absence of sufficient theoretical backing provided for the information given in a course, the learner cannot be expected to develop an understanding of the tasks and responsibilities for which the particular course offers certain skills. This is a major conceptual flaw in the prevailing process of curriculum and syllabus designing. The flaw is further reinforced by poorly produced textbooks and other material available in the market. Textbooks for vocational education have yet to show any signs of the kind of leap made in the textbooks of conventional subjects in the wake of NCF 2005. Not only are there no major government agencies working for the improvement of the textbooks for vocational education, but there are hardly any major publishers in the private sector either. The kind of textbooks and other material which are available typically offer information and instructions for practical work. Hardly any attempt is made to provide an in-depth discussion of the theoretical background with the help of which students might make sense of the information provided, or develop a wider perspective and awareness regarding the skills he or she might learn.

Against this background, we need to appreciate the pressing need for extending the range of areas in which the courses for vocational education and training are to be offered and for improving the quality of the curriculum and textbooks in all these areas. According to the information available, ITIs offer courses in about 170 trades. This number has not increased in any significant manner over the last few decades. If we look at the vocational courses offered in higher secondary schools, we find the range of subjects to be far smaller. In the CBSE system the total number of vocational courses available is 26. This range becomes even narrower when we consider the extremely limited resources that schools possess, both in terms of infrastructure and teachers, for offering vocational subjects.

The NCF 2005 has highlighted the need to consider the epistemology of vocational education afresh, from the perspective of bridging the gap between academic and vocational streams. On the basis of the analysis presented in the position paper of the National Focus Group on *Work and Education*, NCF recommends that the courses of all subjects include a focus on skills and practical work experience. This recommendation has been implemented in the new syllabi and textbooks of NCERT in the conventional subjects to a considerable extent. NCERT has also mooted certain new courses which attempt to bridge the gap between academic and vocational courses. Examples of this initiative are: the NCERT's textbooks in Creative Writing and Translation; Computers and Communication Technology; Human Ecology and Family Sciences; Graphic Design and Heritage Crafts. In the coming years NCERT intends to make more subjects available along these lines. However, the need to increase the number of trades available in higher secondary schools as well as ITIs has to be addressed on large scale.

The direct involvement of the private sector assumes importance in this regard. By systematizing the involvement of selected private sector players from different sectors both in the local as well as larger economy, it will become possible to ensure the relevance of the curriculum, both in terms of being contemporary as well as in terms of being useful for actual work conditions. Secondly, private players can also provide trainers for vocational education, and work towards apprenticeships, or internship-type of arrangements for providing hands-on experience to students. In the long run, such arrangements would benefit both employers as well as employees.

2.2 Employment of Vocationally Qualified Students

Vocational education and training are available mainly in two types of institutions: higher secondary schools of general education where certain vocational options are available, and the Industrial Training Institutes (ITIs). It is widely felt that students who opt for vocational subjects at the +2 level in higher-secondary schools find it difficult to secure employment if they terminate their education after Class XII. On the other hand, the students of ITIs do often succeed in finding employment, at least of a rudimentary kind. But the picture varies a great deal across different states, depending on the infrastructure of particular ITIs and their linkages with the local labour market. There is

no data regarding the experience of either set of students in this matter. Principals of ITIs who were contacted informed the Sub-Committee that some of them have placement services which are run in collaboration with local industries. This kind of facility exists mainly in ITIs which are located in industrially developed towns. Even in such cases, the employment given to the ITI's students is often at a low level, with very limited emoluments. A common perception in the market is that while ITI students have practical experience of the trade which they have learnt, the experience is usually based on out-dated technology. For this reason, ITI graduates require further training by their employers and very few of them end up getting higher emoluments. The employability of those who take up vocational classes as part of their regular school education at the +2 level is perceived to be extremely poor. Some of the reasons for this perception have been discussed in the preceding section, but the main reason appears to be the general paucity of practical or hands-on experience.

2.3 Mobility of Vocationally Educated Students

Among the terms of reference given to this Sub-Committee, the first includes the issue of mobility of students who opt for vocational courses at the +2 level. It is evident that students who opt for vocational courses face great difficulty in seeking admission to general academic courses at the undergraduate level. In the recent past, the CBSE attempted to introduce a package of courses on financial management. The general response was good but the students who opted for this package could not secure admission to undergraduate courses in economics. This example illustrates the general tendency in the system to view vocational courses with a certain degree of bias. There is no direct evidence available to examine the nature of this bias and any justification on which it may be based. It seems to be based on the general perception that students who opt for vocational courses after Class X are generally those who fail to secure admission to academic courses. This perception is linked to the common practice of treating examination marks as an adequate basis for judging the potential of a student. Needless to say, this practice and the view it is based on, contradict the policy which demands that each student should be regarded as possessing unique potential. NCF-2005, which articulates this policy, emphasises the importance of diversifying the opportunities for study and success. The fact, however, remains that the students who opt for vocational courses for their higher secondary

education are taught by teachers who generally lack formal pedagogic training or qualifications. This problem arises from the absence of B.Ed. courses in the area of vocational education. Quite often, teachers of vocational courses do not get the same salary and other benefits which teachers of academic subjects at the +2 level are given. For many vocational courses, teachers are hired on a contractual basis and are given emoluments which are significantly less than their counterparts who teach academic subjects. This kind of differentiation is further compounded by the lack of high quality textbooks in different areas of vocational education. Typically, teachers and students both depend on poorly produced instructional material which is available in the market. As a result of all these factors, the public perception that students who opt for vocational courses are not comparable with students who take academic subjects, continues to persist. This perception significantly curtails the potential mobility of vocationally educated students within the general stream of education.

On the question of utilizing available seats, it is clear from the available data that vocational classes do not attract students who have passed Class X examination with high scores. Vocational subjects are generally treated as a last resort. In the CBSE system, students who opt for vocational courses comprise less than 3% of the total number of students. Barring a few States, such as Kerala, Maharashtra and Karnataka, the general picture has remained quite dismal over the years. This picture is as much a reflection of the social stigma attached to vocational education as that of the quality and status of teachers available to teach vocational courses and the quality of teaching material or textbooks in these subjects. The paucity of apparatus or equipment necessary to give practical experience of the specific vocation and the skills related to it is also a common problem of the vocational education system.

3.1 Vocational Skills Development *in Rural Areas*

The primary challenge in rural areas is to gradually build occupational opportunities which are neither based in the primary sector, nor fundamentally based on the primary sector, given that as an economy develops, the contribution of the primary sector shrinks over time, and therefore, so should the size of the population dependent on it.

Even as the need to undertake wider skill-development that makes the rural economy less dependent on the primary sector over time has been indicated above, in the intervening period, there are several primary sector-related skills and occupations that can be developed to provide higher earnings and economic growth. Yet, skill without background knowledge will remain a memory-dependent set of activities which individuals undertake, without providing them with the means to contextualize, adapt, or augment those skills. This implies that meaningful vocational skill development programmes which envisage individuals acting as flexible and capable entrepreneurs or workers must take this into account, and provide those individuals with knowledge and understanding in the skill areas where they are being trained.

An example would help to illustrate this point further. Dairy farming is an important, semi-agricultural occupation where incomes are higher than most small-scale agricultural production, provided that suitable market linkages exist for the marketing and processing of dairy products. Were vocational skill development programmes to train rural persons in dairy farming, they would need to incorporate several aspects of this if the individual is to become a successful entrepreneur who is resilient to adverse shocks, and able to adapt to changing market conditions. Thus, a dairy farmer should, to begin with, have a basic understanding of the cow/buffalo's reproductive cycle and physiology, to make sense of the natural milk-production process. Related to this would be background veterinarian knowledge about the cow/buffalo which would enable the entrepreneur to spot several ailments early on, understand the need and timing of different vaccinations, and provide suitable nutrition to the animals according to their requirements. Next, the dairy farmer should understand how various dairy products are made to enable future involvement in dairy processing if and when required, and the chemical properties of milk which determine these products, and the storage/transport requirements of milk. Thirdly, and arguably the most important, the entrepreneur must be trained in basic economics and finance, enabling her/him to understand and participate in the market processes, and using financial products and services according to her/his need to aid the growth of the business.

A vocational curriculum that covers these and similar such areas of knowledge to the particular area such as dairy farming, agriculture, agricultural-products processing or micro-enterprise management can

ensure the long-term sustainability of these vocations, and the development of a professional knowledge base in each area. Such a professional knowledge base, coupled with a professional identity of the entrepreneur are both key to the long-term growth and sustainability of each skill area, which in turn provide for higher incomes and reduced poverty. In some senses, this would then constitute vocational education rather than merely vocational training, by acknowledging that the development of a professional knowledge base curriculum--is essential if vocational skills are to result in sustainable, long-term growth in incomes and employment. *This implies that short-term, modular courses which focus on the imparting of an isolated skill or trade will not be adequate to serve the needs of rural youth.*

3.1.1 Non-primary sector

In view of programmes such as the NREGA and the fact that a lot of rural infrastructure development needs to be undertaken, rural vocational skill development could also involve fulfilling the labour needs of infrastructure development. Currently, the majority of NREGA implementation does not undertake permanent construction using concrete or other such materials for the construction of irrigation/flood-control bunds or roads et al. This is an area where vocational skill development in rural areas could intervene to provide a large pool of skilled labour, and consequently, allowing for such employment to provide higher wages.

There is a larger issue to be specified, if not addressed, in this context. Any blanket application of either a vocational-skill development programme, or an employment-generation programme as the NREGA that takes advantage of those skills, is likely to meet with only limited success unless it is contextualized to the specific needs of the village or tehsil in which it is taking place. Such contextualization can, by definition, be undertaken only locally, and requires skilled leadership and authority in determining and implementing the required skill-employment dyad. This contextualization involves understanding the context of the market, geographical, transport-related, and production/service-capabilities in a given location, and recommending NREGA-like employment opportunities coupled with training requirements, where needed, to suit them.

- Identifying 'skill-leaders' at a village level who are able to get trained in a given skill such as masonry, and are then responsible for training additional persons themselves.
- Creating a cadre at the block or district level of officers responsible for planning the employment and skill-development needs of that block/district. The types of institutions from which such officers can be drawn include:

Institute of Rural Management, Anand; Xavier's Institute of Social Service, Ranchi; Xavier's Institute of Management, Bhubaneswar Tata Institute of Social Sciences; Madras School of Social Work ; Delhi School of Social Work

3.2 Training needs in the unorganised sector

Provision for vocational education and training, at present, is generally oriented towards job opportunities in the organized sector of the economy. It is a well-known fact that in India about 93 per cent of the working population is employed in the informal, or unorganised sector of economy. According to Social Security for Unorganised Workers, a report by the National Commission for Enterprises in the Unorganised Sector in 2006, "All unincorporated enterprises owned by individuals or households engaged in the production and sale of goods and operated on a proprietary or partnership basis and employing less than 10 persons" constitute the unorganised sector.

The unorganised sector today contributes more than 60 per cent share to the GDP of the country. But due recognition to the needs of the sector has been slow to come by. The Unorganised Workers' Social Security Act 2007 provides for a security net for 34 crore workers. The National Rural Employment Guarantee Act and the National Social Assistance Plan of 1995 are among various legislations and plans which have aimed at providing humane conditions for this vast majority of workers. However, one area which has been left largely undiscussed is that of the skilling needs of unorganised workers. At a time when skills development has become the buzzword in the country, we cannot afford to lose sight of the fact that without appropriate skilling for the 93 per cent of the working population working in the unorganized sector, the country would be rendering the skills movement futile, not only because of the sheer number of people that stand to be impacted but also because of their overall contribution to the economy.

The unorganized sector is large and varied, and the training requirements resultantly differ very widely across occupations. We need to look at skills requirements at two levels in this sector: a) skills development for improvement within an occupation to improve productivity and the quality of products, and simultaneously, strengthening of the professional or occupational identity; b) skill development for entrepreneurial opportunity and vertical mobility, that is, for a shift from lower to higher rungs within a given occupation or profession. Skill-development initiatives must address both these aspects.

3.2.1 *Skills development for improvement within an occupation*

Skilling of the existing workforce and new entrants is required to improve the production in micro and small enterprises, particularly those which are part of the unorganized sector. Such skilling would address two interlinked issues—first, the quality of goods or services provided by that enterprise—and at a larger scale by the sector—would improve. Second, the occupational status of workers would get strengthened as the nature of the tasks they perform becomes specialized and skilled. Such strengthening of the occupational identity is necessary for improved working conditions such as safety, job security and pay, while correspondingly ensuring consistent higher quality standards across the particular occupation wherever it is practiced as the requirements for practicing the occupation become more stringent.

For instance, ILO and Prayaas are offering a short-term course for household-helpers to equip them with skills and a certificate, with a view to enabling better job prospects. The training includes aspects such as the operation of electrical appliances, making dining arrangements, familiarity with safety procedures like the operation of fire extinguishers etc. The largest challenge facing such sectoral improvement of skills are two-fold, one, the provision of skills, but correspondingly, the need to generate demand for such certified workers by convincing employers in the unorganised sector that skill development is a prerequisite for improving productivity even as this takes place alongside the compulsion to provide better working conditions, including higher wages.

3.2.2 *Skills development for entrepreneurial opportunity and vertical mobility*

Appropriate skill-development and vocational training can facilitate entrepreneurial opportunities, particularly when such skill development is coupled with enabling financial or other inputs. Alongside the skills required for the occupation, managerial skills to manage an enterprise and financial training for maintaining accounts and understanding markets can also assist in setting up small enterprises, thereby generating further employment and improving incomes. Such training can take place across various occupational groups, including tailoring, construction and transport.

Rajiv Udyogasri (RUS), the skills development and employment initiative of Andhra Pradesh Government, has taken up driving skills as one focus area due to the heavy demand arising out of auto boom. Surely, requirements in other states are similar as those of Andhra. Construction and maintenance and electrical works are some areas where a candidate, if he has a certificate from a certifying agency like the National Council for Vocational Training (NCVT), there are opportunities with big builders in both India and abroad.

For a younger workforce, of course, new-age training options like retail, tourism and hospitality, creche service, security services, seeds and marketing are also being provided, though a major requirement of communication skills and English remains to be addressed in many cases.

Emphasis on communication skills, English language skills and life skills like money management will have to be an integral component of any skills programme.

It is evident from the discussion above that the unorganized sector of the economy offers a wide range of opportunities which need to be addressed by imaginative planning of vocational education and training. At present, institutions and outfits providing any kind of training for those either already employed or seeking employment in this sector are themselves without an academic or knowledge-based support system. For this reason, the training they provide is either too short or too superficial to make any serious impact on the quality of the work-force and its productivity. The major gap in this kind of training is that it does not include a larger educational perspective.

Such a perspective aims to cover areas such as communication skills (including proficiency in English), civic, political and economic literacy, gender-related issues, health and safety-related knowledge and information and skills related to personal financial management. For any substantial educational endeavour to be planned in the context of the unorganized sector, it would be necessary for higher secondary schools to serve as resource institutions for the areas which fall in their vicinity. Special funds will need to be provided to higher secondary schools which offer vocational programmes to help them develop into resource centres with the capacity to provide flexible courses and services to young people of the relevant age groups, aiming at work opportunities in the unorganised sector.

4.1 Relevance of the German Dual Model

It is our submission that, at this juncture, given the complex and disparate nature of the different components characterizing our educational system, the scope for introducing the German Model of Dual Training is bleak. At the minimum, the latter is premised on a very high level of co-ordination between three major actors – the Education sector, Trade Unions and Employers – with the German state acting as a catalyst and implementer of the agreement arrived at between the three players. Further, unlike in India today where students opt for vocational education largely because of their failure to get into ‘reputed’ institutions of higher education, the significance and value attached to vocational education across all sections and classes of German society is unique, while the coordination structure itself has evolved slightly over two centuries. There is much to learn from the German Model but it cannot be merely replicated unless we are able to effect a fundamental change in our present conception and approach – a conception and approach that has till now viewed vocational education as not only an ‘inferior’ form of higher education but also one that is ‘suitable’ for large numbers of the poor in our country. Worse, unlike in the German case, where vocational education is built on a strong foundation of school education, the existing vocational education system in India is as, if not more, disparately organized than the school education system.

We provide a brief overview of the German Model of Dual Training, concluding that rather than attempting to imitate the German Model, it may be more fruitful to evolve our own system that begins by aiming at initiating coordination *within* the Education system.

4.1.1 *The German Vocational and Apprenticeship-Based Educational System*

Apprenticeship training in Germany is referred to as a dual system of vocational education. **Trainees receive school education at special vocational schools and on-the-job training in industrial firms. Law lays down both the length of training and its objectives.** This applies both to in-company and school-based training. **In-company training normally lasts three years.** The training objectives are specified in training ordinances, which are adjusted from time to time according to social, economic and technical changes. These ordinances are prepared by the Federal Institute for Vocational Education and developed in cooperation with employers, trade unions and the state governments under the auspices of the federal government.

The first crucial aspect of the German system is that training is defined on a sectoral and/or regional or national level. To understand the German system, one must understand why it relies on collective action among firms and binds firms together in larger units. If all or most firms in a region or sector offer training according to identical standards and curricula, the incentives *not* to train declines for individual firms. The German system also offers several lessons for trade unions. Training programmes can enable the generation of general, transferable skills; such skills can enable workers to quit one job for another, a possibility that may not be available if their training were to give them firm-specific skills. Further, since training in Germany follows standardized, obligatory training profiles that apply to all firms training for a particular occupation, such training generates 'excess' skills that can serve as reserve skills for later use. Another valuable lesson from the German system is its emphasis on skill profiles—a task that is accomplished by consensus between unions and the employers' associations; the broad-based training that emanates from this in turn enables greater coordination and adjustment on the shop floor, thereby increasing the competitive strength of firms and of the industry in general. Equally crucial to note is that it is the private sector, namely the firm, that is the main actor in training. The public sector facilitates private action. The German system also places considerable emphasis on training of trainers and the certification of firms that take part in workplace-based training. Institutionalised accountability is built into the German system, which lends it

credibility. An aspect that trade unions find difficult to accept and which, therefore, remains a bone of contention is the special employment status of apprentices. The employer is under no obligation to continue the employment of individuals beyond their apprenticeship term. Similarly, apprenticeship wages are significantly lower than the wages of skilled workers. The apprenticeship period is an investment whose cost needs to be shared between the apprentice and the employer; hence the lower wages are considered appropriate.

That apprenticeship should culminate in an examination is another point that is stressed by the German system. For each trade and region, evaluating committees participate in about 600,000 theoretical and practical examinations each year. These committees consist of representatives of labour, management and the vocational schools. Unions are represented with about 100,000 individuals. Examinations not only provide the apprentices with a certificate but also test the employer who has trained the apprentice; apprentice failure may be a very important reason for a firm to lose its training license.

4.1.2 Appropriateness of the German model for India

The most important learning from examining the vocational education systems of Germany and other countries is that a basic level of education for all is non-negotiable; at another level, the form of higher education, which includes vocational education, needs to be rooted in the context of the society for which it is being planned. In India, today, universality of basic education still eludes a sizeable number of children, while over the years an ill-thought and equally ill-implemented 'vocational' education, within and outside the educational sector, has contributed in no small measure to keeping intact the caste and class hierarchy of the Indian society, when in fact modern education should have mitigated, if not done away with caste and class hierarchies.

The inappropriateness of the German model for the Indian situation also arises from the fact that India has a very large unorganized sector which accounts for more than 90% of the work force whereas in Germany all work force is employed in the organized economy. The above description also clarifies that the functioning of the German model also depends on close cooperation between trade unions, the owners and managers of industries and state functionaries. The role played by trade unions in ensuring the smooth functioning of

apprenticeship arrangement is crucial. Under the conditions prevailing in India, the German Model can at best be considered on a small scale in an experimental setting, in highly industrialized hubs of certain metropolis cities. Schools and ITIs which may be interested in participating in such an experiment would have to be selected with great care. The experiences arising from such an experiment should be researched and reviewed so that appropriate lessons can be drawn for the planning of vocational education and training in general.

5.1 Vocational Education through Open Schooling

The National Institute of Open Schooling was set up as an autonomous body in 1989 to impart academic and technical courses at the pre-tertiary level. In 1990 it was vested with the authority to conduct and certify all pre-degree courses whether academic, vocational or technical. NIOS has been conducting vocational education programmes since 1993 and by October 2008 it had certified 111,224 learners.

One of the main objectives of the Vocational Education Programme of NIOS is to meet the need for skilled and middle-level human resource for the various sectors of the economy, both organized and unorganized. Other objectives include preparing learners for self-reliance and gainful self-employment, attracting sizeable segments of the population to varied vocational education courses, and creating individual employability by providing professional skills in different vocations.

The target group of the NIOS vocational courses consists of persons belonging to the marginalized sections of society, rural youth, girls and women, the scheduled castes and the scheduled tribes. The admission data for 2008-09 shows that, of the total admission in vocational courses, 47% were male while 53% were female. While around 71.6% were from the general category, SCs formed 11.7% and STs formed 3.55% of the total admissions. The age group was largely between 14 to 25 yrs, with 77.14% belonging to this group. Although NIOS has All-India coverage, the largest numbers continue to come from the Delhi region (24.76%), followed by Chandigarh (16.90%) and Kochi (13.41%).

NIOS offers vocational courses in major areas such as Agriculture, Technology, Home Science, Computer Applications and Paramedics. NIOS offers around 80 courses in these areas.

The NIOS courses are conducted in partnership with professional and technical agencies which are NGOs, government institutes, government supported agencies like ITIs, Jan Shikshan Sansthan, Krishi Vigyan Kendras, Schools, Colleges, District Institutes of Education and Training (DIETs), Universities, Paramedical Training Centres, and several other voluntary agencies. In March 2009, NIOS had a total of 1106 Accredited Vocational Institutes (AVIs) spread across 28 states and 7 UTs.

The courses offered by NIOS are of different durations. Some diplomas are of one and two-year durations, while others are six months long. NIOS has package courses as well as stand-alone courses. The latter can be taken in combination with secondary and senior-secondary courses in lieu of academic courses. NIOS also offers life enrichment courses that are non credit and are, therefore, not certified.

The NIOS course curriculum includes both theory and practical training. This is usually in the ratio of 30:70. The courses are conducted through AVIs where appropriate infrastructure is available. The training hours vary according to the course. The entry level for the courses also varies and ranges from being just literate (as in Cutting and Tailoring) to 10th pass (as in Library Clerk). The NIOS develops and supplies course material written in self-instructional style in Hindi, English and Urdu. Some region specific courses are being developed in local languages also.

5.1.1 *Performance of Open Vocational Education*

Although NIOS has developed a number of vocational courses, the popularity of these courses is less than expected. The annual enrolment has not gone up significantly and continues to range between 22,000 and 23,000. This is very small when compared to the enrolment of academic courses which is annually around 3.7 lakhs.

Although NIOS offers a large variety of courses, the courses that draw larger admissions include computer applications, ECCE, cutting and tailoring, beauty care, household wiring, and electrical appliances repair, plumbing, bakery and confectionary, and catering management. Most of these courses are urban based and are popular with girls. Although market sources indicate that health is an upcoming sector, yet NIOS courses in the paramedical area are not very popular.

Another issue is that of equivalence of NIOS vocational courses and their recognition by State Departments of Training and Employment. It is important that these courses be listed in the Employment exchanges so that learners attach a value to them. They have to grow from being mere 'hobby' courses for girls to more professional courses that lead to income generation and livelihood.

In the present scenario, considerable freedom is given to the AVIs (study centres) to run courses based on their expertise. While some utilize this freedom judiciously, others tend to be lax and complacent. The setting of standards and a system of monitoring of those standards has to be set up so that the skills obtained through a NIOS course are measurable and of a certain quality.

This quality should also be seen in the context of financial support given to the AVI (Study Centre). Under the present arrangement, a Study Centre does not receive any funds from NIOS. A study centre is allowed to charge fees as per the norms set by NIOS. This fee is shared between NIOS (for course materials) and the AVI (for teaching and providing infrastructure). This is quite different from the academic courses where the entire fee is charged by NIOS and financial support at the rate of Rs 250/- per learner is given to the accredited institute. In order to maintain a closer working relationship and oversee the quality of training being given, it would be prudent for NIOS to review this situation.

6.1 Vocational Education and Gender

The enrollment and retention of girls up to upper primary level remains poor despite several schemes focused on this problem under Sarva Shiksha Abhiyan. Very few girls manage to reach the higher secondary level and out of them even fewer get the opportunity of studying vocational subjects. The situation is similar in ITIs in every aspect which includes the number of courses available and their quality. There is no shying away from the fact that girls get the worst educational experience out of those available in the vocational sector. The existing programmes and their courses neither offer substantial learning of skills nor interesting or attractive future possibilities to the female students. Social class and gender are two important factors which determine access to resources, potential for participation in the work force and prospects for the future of students' occupational

choice. At present, both these factors seem to work in tandem against girls' chances of getting good quality vocational skills and putting them to use. The financial outcome of their occupational skills not only determines their socio-economic status, but it also contributes significantly towards their success in the struggle against patriarchal norms of society. Addressing this imbalance in the resources and opportunities available to girls and boys in the vocational sector has led to a growing realization that the participation of girls and the strengthening of their position in society are central requirements for equitable development.

It is an established fact that education contributes significantly to improving the social status of women. However, the existing pattern of vocational education in ITIs and schools has contributed to the already deep gender differences by adhering to popular stereotypes about work capacity of girls. In addition, poor content and the pedagogic interaction in the programmes keep the general ethos extremely depressing for girls. Programmes and curricula of existing training courses for girls frequently fail to meet the demands of the labour market. This does not mean that girls should be labelled as hard spots of vocational education; rather that their integration in the market economy should be the central aim, without succumbing to those forces of tradition that limit girls to sectors like beauty care, tailoring and child care. The need to underscore the relevance of a gender-sensitive approach in school-based vocational education and in the programmes of it is a central concern of this report. The new approach should focus on strategic elements for the promotion of girls in vocational education which includes developing a long term vision of the life of girls as participants in an educational experience, conceptualization of vocational education in coherence with the life of girls in our society, and standardized skills for various old and newly emerging fields.

It has been discussed in the earlier sections that any experience of vocational education has to engage with civic and political issues, personality enhancing opportunities and development of language skills. The need to have this larger perspective applies strongly in the context of the links between gender and vocational education. Gender-specific segmentations can be broken up by expanding vocational programmes and courses to include professions which are accessible to both girls and boys, for example, in the textile industry. The equal inclusion of girls requires additional measures, such as reservation of

seats, reduction in fees, scholarships, residential facilities and assured placement after the completion of course. Job diversification to include modern service occupations such as bank employee, office manager/administrator, will enhance the employment chances for girls with education up to the senior-secondary level.

6.1.1. Re-visioning Vocational Education

The position paper of the National Focus Group (NFG) on *Gender in Education* (NCF 2005, NCERT) argues that gender concerns cannot be addressed by mere inclusion of girls in the curriculum. As in mainstream school education, any experience of vocational education has to be viewed in terms of its potential for being transformative and imaginative enough for an unseen future. In its second chapter *Towards a Project of Possibility*, the position paper identifies " the critical challenge is one of developing *alternative frameworks of knowledge that equally reflect the life worlds of both men and women and carry within them the seeds of a just social transformation.*" (p32) This fundamental challenge accepted by the NFG committee is equally relevant for vocational education which needs to be reviewed with gender as a focus of enquiry. The curricula of vocational education in school based courses as well as in ITI programmes need to be expanded to include scientific, technological and social scientific contents with gender as an integral guiding factor. With a gender based analytical framework, we must aim at developing a fresh vision of vocational education. With the adaptation to local conditions (as discussed in earlier section) and the move towards broader and more flexible training programmes, the target groups for vocational education will become more diverse. Accordingly, new ways of instruction and new curricula are needed. The strengthened NCVT should work at developing a national curriculum framework for the vocational education and a full-fledged section on gender should constitute a set of guidelines.

The educational needs of girls cannot be identified effectively with traditional methods of enquiry. The multi-layered needs of girls have to be determined more with the help of individuals, who have a command on the gender discourse. Since this would include developing a holistic view of training needs, it will lead towards indications for an improved conceptualization and assessment of training needs. The training needs of girls should relate to the whole context of their life and not just to a specific activity or particular profession. The highlighted need for re-visioning vocational education

and developing a curriculum framework must include identification of skills around which courses and programmes can be developed without either falling in the trap of stereotypes or compromising on the potential for participation of girls' in the work-force.

Media industry offers a wide range of possibilities for such educational programmes. A few possible options are script-writing, photography, video-editing, audio-editing, camera work, character visualization and make-up, and news reading. The unfolding tourism industry has a potential which remains unattended by the world of vocational education. A course in tourism, which aims at developing a professional with understanding of historical events, command over one or more foreign languages and organizational skills could provide interesting options for young aspirants.

The re-visioning exercise must include identifying works and skills which are part of basic needs, but are not taught with a vocational aim. Gardening, pottery, handicrafts, and yoga are some of the activities which should be taught in elementary schools. ITIs can conceptualize programmes on such important skills to develop resource persons for schools and otherwise. The attempt of re-visioning will also have to include the exercise of the development of textual material, other reading material and a plan for an internship experience. The National Council of Educational Research and Training (NCERT) has recently developed text material in the field of media studies for 10+2 level students. It is a simple, but significant beginning as it establishes the relevance and possibility of good quality material which is a central requirement to any educational endeavor.

6.1.2 Addressing the Stereotypes

There is a tremendous pressure against girls learning and doing what are considered 'masculine jobs' and boys doing what are considered 'feminine jobs'. Our aim should be to maintain gender balance at the higher secondary level and in ITIs. Efforts will have to be made to increase girls' participation in non-traditional occupational choices and to motivate boys to choose areas traditionally considered to be feminine, such as home-science and child-care.

We realize that given the patriarchal structure of society there cannot be a short-cut route to increasing girls' participation in non-traditional courses and they will continue to opt for such safer looking

programmes. We must challenge this and aim at a change in the long run, but meanwhile we must not miss the opportunity of educational engagement with girls who enroll in the available programmes. We should aim at recasting and enriching those programmes so that girls are able to develop into more critically aware professionals. The knowledge component of the courses in traditional fields must be expanded. The NCERT has recently undertaken an exercise in this direction by overhauling the Home Science course for the higher secondary schools. It has now been re-casted and oriented towards a fresh understanding of the relation between home and outside worlds. The new title, *Human Ecology and Life Sciences*, reflects this shift in perspective.

We also must recognise that several jobs remain unavailable to girls despite their relation with traditionally feminine spheres of work, such as the job of a waitress and chef. The daily task of preparing three meals and serving them does not enable girls to claim the job of waitresses and chefs. We must aim at enriching the course content of programmes which involve these skills with a gender perspective. The courses must enable girls to combine skills with an understanding of markets, business negotiations and language skills. The courses must be of suitably high quality and long duration so as to enable girls' upward mobility in the educational and occupational sphere. A girl who chooses a career in sales at present must also retain the eligibility to undertake an MBA in future.

6.1.3 *Increased Participation of Women Teachers*

There is no teacher-training programme to prepare teachers for vocational training in higher secondary schools and ITIs (i.e. a vocational B.Ed.). Teachers who are engaged in vocational education today are primarily ITI and polytechnic pass-outs, where the enrollment of girls continues to be very low. As a result of this, the number of female teachers in the vocational education sector is extremely low. One big impediment in promoting the flexibility of choice in occupations and offering a wider variety of options to female students has been the lack of female teachers as role models for young girls who join ITIs and opt for vocational courses at the 10+2 level. Female teachers are concentrated in the traditionally feminine job areas in arts, teaching and beauty care. Absence of role models for female students in courses with technical and commercial orientation

automatically excludes many, because they do not get the opportunity to feel enthusiastic or excited for trying something new by seeing someone like themselves as a leader in the classroom.

6.1.4 *Rural Girls: A Specific Case*

The position paper of the National Focus Group (NFG) on *Gender in Education* (NCF 2005, NCERT) identifies rural girls as victims of compounded deprivation from educational facilities. We echo a similar categorization of rural girls and argue for a multi-pronged strategy and creative intervention to increase the participation of rural girls in learning vocational skills and knowledge. The committee recommends opening ITIs in rural areas with reservation for girls, but the more important task would be to imaginatively link those institutes with already existing schemes and facilities.

At the school level the funds of schemes, such as the National Programme of the Education of Girls at the Elementary Level (NPEGEL), under SSA, can be utilized to provide opportunities for learning skills which do not figure in their immediate social environment. Plumbing, motor repair, carpentry and masonry are some of the skills which girls are currently unable to learn, neither for domestic nor for commercial use.

Kasturba Gandhi Balika Vidyalayas (KGBVs) run under the aegis of Mahila Samakhya (MS) in Uttar Pradesh adopted the model of education as a work experience and organized opportunities in which girls could learn skills from real-life carpenters, plumbers, masons and electricians. The service providers in the village market became the resource teachers and taught these skills to students in the school setting. With the introduction of Rashtriya Madhyamic Shiksha Abhiyan (RMSA) the availability of funds for such learning experiences can be ensured up to grade X.

State governments must feel encouraged to adopt this model for the 10+2 level in which real-life practitioners teach such skills as part of the overall curriculum. The fact that a sizeable work-force in the near future will constitute of young girls who will not have the opportunity of studying any further than the compulsory education must also be taken into cognizance. The integration of work-based skills at 10+2 stage will, therefore, be an important contribution in the development of skilled workforce. This step will be a contribution in the direction of

skill upgradation and creating a positive ethos for female entrepreneurs.

In rural areas, ITI teachers, disseminators of information, women employees with proven abilities for supervision and representatives of non-governmental organizations and women's groups will have to form an active network or pressure group which keeps track of potential female students in the region so as to effectively identify those who are already working, and those who wish to work. Every ITI must liaison with local women's organizations and ensure that half of the board members and faculty members be female. Those institutes which represent the interests of girls in their institutional framework and programmes, should be able to claim higher annual grants.

7.1 Joint Action for Reforming Vocational Education

The sub-committee recognized that schools will need to provide students with a broader range of skills, qualifications and opportunities to develop an understanding of the contemporary world of work. For such an understanding to be promoted in a systemic manner, there is an urgent need for joint action by different Ministries of HRD and Labour and Employment. They must work together to chalk out a broad vision will create systemic conditions under which the relations between work and education can be institutionalized and appropriate policies made. What follows in this section is only an indication of the kinds of changes that will result at the institutional level once a joint strategy between two ministries is put in place. A shared view of relationship between work and education requires participation of the students in programmes and activities which foster and develop enterprise skills, including those skills which will allow them maximum flexibility and adaptability in the future. This highlights the need for schooling to relate to the broad range of future avenues available to all students, not just the minority who proceed immediately from school to work life. In a caste-ridden society like ours, work-based education also falls prey to notions of 'good' and 'bad' work. It is therefore important that work-based education should be available to all the students irrespective of their socioeconomic class and plans for the future so that they get the opportunity to develop appropriate attitudes towards all kinds of works. The divide between liberal education and vocational education is getting greater and greater at present. There is a great need for boys and girls from the better-off sections of society to 'dirty their hands' and understand what it means

to engage in manual work. A system has to be built in through which the stigma associated with manual work can be diffused and reduced over a period of time. Education should be relevant, preparing students for living independently, for managing inter-personal relationships at work and otherwise, and for prospective employment, and so too must be the vocational education provided at school. The broader aim of vocational education at the school level should be to provide opportunities for students to learn about the world of work and understand it; assist students in developing generic as well as workplace skills; provide opportunities for students to participate in a range of work-related activities, such as work experience, voluntary and mandatory work placements, and mentoring with working people. Schools should focus on service-sector vocations for which practical training does not require heavy infrastructure. Areas in which courses can be developed are translation and interpretation, journalism and media, tourism and travel, handicrafts and design and fine arts. The NCERT has brought out high-quality textbooks in some of these areas.

7.1.1 Evaluation and Certification

Both in higher-secondary schools and ITIs, a new system of assessment should be implemented, with a view to linking all vocational courses with potential employers in the market, particularly those in the private sector—both industry and service-based. A major reason why students of vocational courses do not find suitable employment is that the prevailing system of assessment is rote-based rather than based on experience or problem-solving. Potential employers do not feel confident about the practical skills that students are expected to have acquired during their vocational training. The prevailing examination system is believed to be suited to academic courses, although even in that context, the National Focus Group on Examination Reforms set up by NCERT has taken a critical view and has suggested numerous strategies for reform. Appropriate strategies for examining and assessing students of vocational subjects and training programmes need to be developed in the context of a wider strategy to evolve a National Qualifications Framework. Although certain steps have been taken in this direction, a coordinated effort will require the participation of all the organizations involved in vocational education and training. These would include the NCVT, NCERT and CBSE. Once a National Qualifications Framework has been evolved and elaborated, so as to cover the wide diversity of skills and knowledge required for covering the entire vocational sector,

appropriate assessment and certification strategies can be worked out in accordance with such a framework.

8.1 Recommendations

A. *For Joint Action by Ministry of HRD and Ministry of Labour and Employment*

1. For a holistic vision of vocational education and training for young people below the age of 18, it is recommended that a strategy may be developed to build a strong linkage between higher secondary schools with vocational courses and the ITIs. Such a linkage is necessary both for allowing two institutions to mutually benefit from their own strengths in curriculum and pedagogy, as well as for improving the employability and vertical mobility of students. Such a collaborative strategy requires linkage between the Departments/Directorates and Ministries under which the two institutions (i.e. higher secondary schools and ITIs) fall.

It is also recommended that a mechanism may be developed for close collaboration between MHRD and the autonomous bodies working under it (such as NCERT, NCTE and NUEPA) and the Ministry of Labour and Employment (including NCVT) so that appropriate planning may be carried out in all areas of vocational and training.

2. The Sub-Committee recommends that NCVT should be strengthened by means of academic support and formal collaboration with NCERT, NUEPA and NCTE. It is further recommended that NCVT and NCERT should together prepare a National Curriculum Framework for Vocational Education.
3. This Sub-committee endorses the recommendation given by the National Focus Group of NCERT on *Work and Education* that work-benches or work-spots should be identified in the vicinity of higher secondary schools so as to facilitate the imparting of practical experience necessary for a vocational course. Such work-benches may be identified and accredited on the basis of certain necessary conditions which might assure the school that

the students attached to these sites will acquire their practical experience in a positive environment.

4. It is recommended that NCVT and NCERT may set up a joint empowered committee to review and revise all existing syllabi and textual material available for vocational and training courses running in ITIs. Similar exercise may be initiated by NCERT in collaboration with CBSE and the Boards of Secondary Education in Kerala, Tamil Nadu, Karnataka and Maharashtra.
5. To expand and improve the provision for elementary education and training in rural areas, it is recommended that the Ministry of Labour and Employment may appoint, in consultation with MHRD, a Vocational Education Officer (qualified in rural management from the kind of institutions listed as examples on p.12) in each district. This officer should be given the responsibility to develop a dossier on the knowledge and skill resources and needs of the district. This dossier should be utilized as a basis for organizing education and training programmes with the help of different departments.
6. The Sub-Committee recommends that new vocational courses for girls should be introduced in areas which are traditionally considered suitable only for boys and on the other hand, vocational courses which are stereotypically associated with girls should be opened up for boys. Thus, an attempt should be made to break the gender stereotyping of certain areas of vocational education and training.
7. It is recommended that institutions of higher learning and research in different areas of technology, design, management etc. should be involved in planning for reforms in vocational education in schools and ITI s. For example, National Institute of Design, Ahmedabad, Indian Institutes of Technology and Indian Institute of Management should be invited for joint consultation by Ministry of Human Resource Development and Ministry of Labour and employment.
8. The Sub-committee recommends that recruitment rules of public institutions should reflect the requirement of vocational subjects opted at the +2 level or an ITI qualification for jobs in which

vocational or technical skills and knowledge of a relevant area are required.

9. It is recommended that private industries and service institutions should be involved in designing policies for vocational and technical education, including policies regarding the provision for practical experience related to course content. This kind of involvement should also be encouraged for upgradation of course content.
- B. *For Ministry of HRD or the autonomous bodies working under it*
10. At present most of the courses available in higher secondary schools focused on employment in organized sector of the economy. It is recommended that higher secondary schools, which have provision for vocational courses should also be involved in short-term courses oriented towards opportunities in the unorganized sector. Certain short-term courses can also aim at self-employment or improving the skills of young people already working in the unorganized sector in the neighbourhood of the school. Such courses can be organized in after-school hours or evenings.
 11. In view of the problems encountered by higher secondary schools in procuring and maintaining infrastructural facilities for imparting machine-oriented vocational courses, it is recommended that courses to be carried out in higher secondary schools should focus on the service sector or on skills which require relatively less expensive tools. This will also allow a close link between the academic courses in main stream subjects and vocational courses should be established. For example, NCERT has recently developed +2 level syllabi and textbooks in *Creative Writing and Translation* and *Heritage Crafts*. Both these subjects have a rich academic content even as they attempt to provide high-order skills to the students.
 12. It is recommended that the 1988 Centrally sponsored scheme for vocational education should be reviewed and the performance of the States in implementing it should be evaluated. New guidelines need to be developed for vocational education at the higher secondary level.

13. It is recommended that NCERT may develop a B.Ed. (Vocational Course) and NCTE may include the vocational area in its National Curriculum Framework for Teacher Education and facilitate the preparation of different kinds of syllabi of varying lengths to ensure adequate preparation and supply of teachers to different kinds of institutions and for different types of short-term and long-term courses.
14. It is recommended that a roster of resource institutions and non-government organizations active in the field of vocational education and training may be drawn up by MHRD, with the aim of entrusting such institutions and NGOs with the task of providing academic support to higher secondary schools, ITIs and all other providers of services in the area of vocational education and training.
15. It is recommended that the National Institute of Open Schooling may be given additional resources for strengthening its current vocational education and training, especially with a view to improving its curricula and material and the capacity of institutions used by NIOS to provide practical experience to students.
16. It is recommended that an empowered committee may be set up by MHRD, including representatives of AICTE, NCVT and NCERT in order to determine and recommend the ways for improving the vertical academic mobility of students who opt for vocational courses at the +2 level.
17. It is recommended that CBSE and all State Boards make a provision so that students can select both academic and vocational subjects as their optional subjects, so that the prevailing system of the separation of the academic stream and the vocational stream may be reformed, as suggested in the National Curriculum Framework-2005.
18. Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), established under NCERT at Bhopal, should be recognized as a national-level resource institution in the field of vocational education and training. To serve this role, PSSCIVE should be strengthened in terms of faculty, research facilities and linkage with other institutions. It should be utilised

for academic support both by the MHRD and Ministry of Labour and Employment, and all other Ministries and Departments involved in vocational education and training of different kinds.

19. It is recommended that the tendency to club vocational courses in a 'vocational stream' should be abandoned as suggested by NCF-2005. CBSE and other boards of secondary education should allow students to choose their optional subjects at the +2 level from both vocational and academic areas, so that no student can be classified as having gone through a vocational stream. For improvement in course content also, the policy should be to academise the vocational and vocationalise the academic subjects.

C. *For Ministry of Labour and Employment*

20. It is recommended that the ITI system should be greatly expanded and the number of trades available for training should be substantially increased. Residential facilities and scholarships for girls may be introduced in ITIs in order to promote their participation in technical areas of vocational education. It is further recommended that the Kasturba Gandhi Balika Vidyalayas (KGBVs), started under the SSA, should be upgraded to the higher secondary level and a formal link may be established between such upgraded KGBVs and ITIs, in order to provide employment-oriented opportunities for KGBV students.
21. It is recommended that all existing vocational courses imparted at higher secondary schools and ITI s should include in their course content a section on gender issues as articulated in the position paper of the National Focus Group of NCERT on *Gender Issues in Education*.
22. It is recommended that a committee may be set up by the Ministry of Labour and Employment with representatives of UGC, AICTE, NCVT, Ministry of Rural Development and Ministry of Human Resource Development to evolve a National Qualification Framework which might provide a basis for standardization of certification in vocational education. Such a framework should be sensitive to local specializations.

23. It is recommended that an evaluation study should be carried out to assess the employability of students who pass out through Class XII with vocational subjects or from an ITI. This study should be commissioned by Ministry of Labour and Employment to an appropriate research institution such as one of the Indian Institute of Management.
 24. It is recommended that all ITI s (including ITCs) run by private agencies should review their entry level demands in the light of Right to Education Act which makes full time school education upto Class VIII compulsory for all children.
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