Item 14.2 of the provisional agenda

THE ROLE OF TECHNICAL AND VOCATIONAL EDUCATION AND ITS PART IN AND CONTRIBUTION TO THE EFFORTS UNDERTAKEN TOWARDS BASIC EDUCATION FOR ALL

SUMMARY

This document is submitted pursuant to decision 6.1 paragraph 3 (a) of the 136th session of the Executive Board and is to be considered by Commission II at the same time as Major Programme Area I. The document contains an introduction; a résumé of UNESCO's contribution to the development and improvement of technical and vocational education; the activities of UNESCO and other organizations; technical and vocational education as an integral part of general education; technical and vocational education and basic educational needs and finally the emerging issues. It is intended to stimulate discussions of the role of technical and vocational education in the educational process and help in identifying and guiding UNESCO's policy in this field.

Decision required: paragraph 30.
INTRODUCTION

1. This document has been prepared pursuant to Decision 6.1 (para 3(a) of the 136th session of the Executive Board. It is intended to assist the debate on the rôle of technical and vocational education and its contribution to basic education.

2. The Revised Recommendation concerning Technical and Vocational Education (adopted by the General Conference at its 18th session in 1974) defines "Technical and Vocational Education" in its broadest sense. This was stressed further by the Convention on Technical and Vocational Education, (which was adopted by the General Conference at its 24th session in 1989) which defines "Technical and Vocational Education" as that which "refers to all forms and levels of the educational process, involving, in addition to general knowledge, the study of technologies and related sciences and the acquisition of practical skills; know-how, attitudes and understanding, relating to occupations in the various sectors of economic and social life". This present document has been prepared entirely within the framework of the provisions of the above-mentioned two instruments, as well as the World Declaration on Education for All, adopted by the World Conference on Education for All (Jomtien, Thailand, March 1991).

UNESCO's CONTRIBUTION TO THE DEVELOPMENT AND IMPROVEMENT OF TECHNICAL AND VOCATIONAL EDUCATION

3. The United Nations Organisation for Education, Science and Culture (UNESCO) has, within the UN system, the most extensive responsibility in the general field of education and training, at all levels. Most of UNESCO's activities relating both to standard-setting and to theoretical and practical education and training, are aimed at cultural, social, personal and individual fulfilment, as well as human resources development.

4. Developments in science and technology and their subsequent effect on production methods and world market demands in the last three to four decades have been more significant than in the past. These have placed special emphasis on technical and vocational education as being a vital aspect of the educational process particularly towards achieving democratization and social, cultural and economic development. This
became more important during the last decade where drastic social and economic restructuration took place in many countries throughout the world. In this context, UNESCO has recognised the need for technical and vocational education as a pre-requisite for economic and social development. The main objective of technical and vocational education is to reply to students’ need to acquire knowledge and skills and behavioural learning patterns which will be of use in different spheres of economic and social life. It also encompasses all forms and levels of technical and vocational education provided either in educational institutions or through co-operative programmes organised jointly by educational institutions on the one hand and agricultural, commercial, industrial or any other field related to the world of work on the other. UNESCO’s activities in the field of technical and vocational education permit the development of this type of education which is to prepare the individual to study, work and develop skills and attitudes which will help him to survive and improve the quality of his/her life.

5. The UNESCO Medium-Term Plan (1990/1995) states in paragraph 54:

“As regards education and the world of work, while work experience in general education and initial technical and vocational education remain important areas, re-training and continuing education will be stressed during the period of the third Medium-Term Plan. This will be conducted in close co-operation with ILO and FAO and in conjunction with the needs of different economic sectors. In the light of changing employment needs, special attention will be given, for example, to curriculum reform, to the development of guidance and counselling services, to renewing curricula in technical and vocational education, to developing materials and to training specialised educational personnel, with emphasis on the use of new technologies. The exchange of information and co-operative regional and sub-regional projects will be supported in conjunction with the existing networks for educational innovation”.

6. While other specialised UN Agencies (ILO, FAO and UNIDO) are more directly concerned with professional training for certain occupational fields, UNESCO’s role is to strengthen all forms of educational activities, in preparation of people for the world of work, as well to educate the individual for his/her whole life in order to cope with change and provide better mobility and opportunities for re-training. UNESCO’s programme areas have concentrated on the educational aspect which includes:

- Innovation of contents, methods and structures
- Training of personnel (teachers, instructors, planners and managers)
- Development of national infrastructures
- Exchange of experience, dissemination of information and data
- Standard setting instruments, in particular the preparation of the Revised Recommendation concerning Technical and Vocational Education (1962/1974); Convention on Technical and Vocational Education (1989) and
international co-operation in technical and vocational education.

UNESCO has been assisted in developing its Technical and Vocational Education programmes by the findings and recommendations of a considerable number of meetings and consultancy missions, organised either by UNESCO or other agencies and organisations.

7. Issues raised during the first International Congress for the Development and Improvement of Technical and Vocational Education (Berlin, GDR, 1987) including the problem of training and qualification of teachers, in the light of scientific and technological developments, as well as economic and social change and restructuration. The upgrading and continuing education of teachers emerged as a vital need.

At a recent colloquium on education, training and employment, which was organised by UNESCO for the European region (Poitiers, France, April 1991), participants recognised the necessity for a better repartition of the respective roles of Government, local and regional authorities; of business and industry and of all involved in education and training, including closer co-operation between technical and vocational education bodies. The participants also expressed the need for a better balance in the content of education i.e. the rôle of general education and the scope of initial training in technical and vocational education.

8. In recent years, efforts have been made by many Member States to introduce reforms to their educational and training systems with a view to social, cultural and economic development and taking into account scientific and technological progress and innovations in the process of education and training. This is a direct result of the rapid growth in technical and vocational education enrolment which has trebled during the period 1974/1988 in the formal education system, and UNESCO has co-operated in most of the Member States, particularly the developing countries in introducing technical and vocational education and promoting international co-operation in this field, (through Regular Programme activities, as well as providing advice, consultants and experts in the implementation of extra-budgetary projects.)

Furthermore the Universal Declaration of Human Rights, (Articles 23 to 26) advocates the right to "education" and to work".

The widespread reforms which emerged as a result of recognising the crucial role of education for the world of work in the formal, non-formal and life-long education systems are continuing and there is no reason to believe that innovative activities in this area will not continue. We are in fact in a phase of development where research on "education for the world of work" is likely to concentrate on improving the deficiencies of the process or by making a more comprehensive reform of the total system.
9. The Revised Recommendation concerning Technical and Vocational Education recognises that this type of education is an integral part of general education and of the total educational process, particularly when taking into account developments in science and technology which have compelled educators and education planners to re-think and re-assess the old concepts of division between general academic education and technical and vocational education. This has resulted in integrating aspects of studies in technical and vocational education, productive work and science and technology into general education curricula. Another reason for this integration is the need to orient students towards diversified education and initiate pre-preparation for the world of work. This concept is very well illustrated in Chapter IV of the Revised Recommendation concerning Technical and Vocational Education, Paris, 1974 (cf. paragraphs 19 to 23). Initiation to technology, pre-vocational education, introductory technology, polytechnical education, industrial arts education, elementary technology, technical orientation etc. are synonyms for technical and vocational aspects of general education.

10. During a recent consultation with the Member States concerning their implementation of the Revised Recommendation concerning Technical and Vocational Education, responses showed a long tradition of initiation to technology and the world of work in most of the industrialised countries. However, in the developing countries, this trend is much more recent and, in some cases, still at the experimental stage. Although patterns differ, the reports generally showed that, in the earlier stages of primary education, such programmes are integrated with other subjects. At the lower secondary level, initiation to technology becomes a separate subject and at the upper level, it is often linked to work experience or specialisation, including: introduction to informatics and/or general skills development in the fields of woodwork and metal work; food and fabrics’ preparation; arts and crafts; agriculture; animal husbandry; poultry farming etc. The reports also indicated the introduction of courses, in some cases, at the lower and upper-secondary school levels in plastics, photography, business studies, home economics, electricity, power technology, robotics, technical drawing and dress making.

Initiation to technology and the world of work into the basic curricula of primary and lower-secondary education has broadened the scope of education in demonstrating the application of scientific theory, to everyday needs, e.g. linking the theory of fermentation to bread-making etc. This has also contributed widely to the guidance, counselling and orientation process of students, towards more diversified further and continuing education and training, as well as appreciation of work and respect for manual workers.
TECHNICAL AND VOCATIONAL EDUCATION
AND BASIC EDUCATIONAL NEEDS

11. Article I of the World Declaration on Education for All, adopted by the World Conference for Education for All (Jomtien, Thailand, March, 1991), provides a broad conception of what is meant by basic learning needs.

"Every person - child, youth and adult - shall be able to benefit from educational opportunities designed to meet their basic learning needs. These needs comprise both essential learning tools (such as literacy, oral expression, numeracy and problem solving) and the basic learning content (such as knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and to continue learning. The scope of basic learning needs and how they should be met varies with individual countries and cultures and inevitably with the passage of time."

12. The above Declaration defines the purpose of basic education to enable "human beings to be able to survive, to develop their full capacities to live and work in dignity....etc." Technical and Vocational Education, can be considered as an integral part of general education and of the whole educational process. Initiation to technology and the world of work is to better understand the technological aspects of modern culture from both its positive and negative points of view and a better appreciation of work requiring practical skills. This initiation to technology can also be seen as a testing ground to determine abilities and aptitudes for further study and education in a technical field.

Some countries emphasis the need to orient and encourage specifically girls and women to further studies in technical fields, which have been traditionally regarded more or less as men's occupations in the past. It is, therefore, essential that technical subjects be included in the curricula of basic education in order to contribute to the development of the necessary skills which will enable the individual to work and live in dignity.

The contribution of Technical and Vocational Education to basic education for all would be to give more emphasis to functional literacy which should, in addition to providing basic literacy and numeracy of adults, also improve practical and communication skills related to specific occupations. This could, in the long term, also improve their quality of life through generating higher income and productivity, which could lead to employment promotion.

13. A recent ILO report (1991) revealed a certain uniformity in the Member States concerning the definition of the basic concept and general objectives of vocational guidance. However, in some Member States, vocational guidance is considered as merely a system whereby candidates are selected for various occupations. The field of vocational guidance and counselling is
extremely vast and covers a wide range of activities designed to help students still in schools for when they leave. Another function is to assist adults in seeking employment, career development and in their further education and training. Vocational guidance is, therefore, an essential service which must be incorporated into the educational system as a whole. The Revised Recommendation concerning Technical and Vocational Education states: "guidance should be viewed as a continuous process and a vital element in education, directed to aiding all to make positive educational and occupational choices". Unfortunately, vocational guidance services are still very limited in the developing countries, as compared with the industrialised countries. Furthermore the computerisation of vocational guidance and counselling services has widened the gap in its application between the developing and industrialised countries. It is essential that vocational guidance and counselling services be modernised, in particular by the training of appropriate qualified staff.

14. Basic education should provide broad knowledge and basic skills, applicable to a number of occupations in a given field, so that the individual is not limited by his education to a single occupation, and will be able to transfer from one field to another during the course of his working life. Technical and Vocational Education also provides basic skills in order to obtain initial employment, as well as effective in-service training and the opportunity for continuing education and training within the concept of life-long education. To achieve this, it is necessary that co-operation be established or further developed and strengthened with enterprises and potential employers; Preparation for employment should also include the possibility of self-employment and should include, in addition to technical skills, business management techniques which would enable them to start up their own businesses.

15. Understanding contemporary culture is becoming increasingly difficult for the general public. New concepts, products, processes and services derived from scientific and technological activities appear everyday. The new developments and their applications affect people's quality of life, jobs, values, habits, use of leisure time, environment, communications and trade, the economic stand of each country, the international distribution of knowledge, power and wealth etc. Ignorance about these matters prevents people from participating intelligently in decisions which may have great impact on their lives.

16. Basic education should provide each person with those fundamentals needed to understand science and technology, and to pursue a life-long self-education.

Rigid and outdated science curricula, with little relation to real life and people's needs often taught more for examinations rather than for real understanding, seems to be a widely distributed pattern. Still worse is the situation of technology education, in which many hours are devoted to teach
students handicrafts, but not giving sufficient opportunity to develop creativity and problem solving, the essence of technology.

17. Basic education for all is now a widely accepted objective, although for some countries it is difficult to reach in the short term. For whatever proportion of the population that completes this educational level it is their opportunity to become science and technology literate. This aspect of contemporary culture is likely to become as important as reading and writing in the years to come and should have to be considered an essential part of the fundamental right of individuals of being educated.

18. Formal education, is one way of widely introducing science and technology literacy. Youth out of school activities should also be fully utilised for this purpose.

19. Non formal programmes have become imperative to deal with the groups which are not in schools and should benefit today from scientific and technological knowledge to better satisfy their basic needs in relation to health, housing and sanitation, nutrition, child rearing, finding suitable jobs for occupations, production of goods and services, consumption, preservation of the environment etc.

20. The success of basic and technical and vocational education will depend upon the availability of sufficient numbers of well-trained personnel, which should include high-level policy makers and administrators, researchers, curriculum developers and teacher/educators, and teacher training is a high priority area for the success of the educational process. The training of school teachers for science and technology subjects, and of popularizers for non-formal programmes, continues to be a challenge for universities and teacher training institutions worldwide, particularly in developing countries.

EMERGING ISSUES IN TECHNICAL AND VOCATIONAL EDUCATION

21. When the world of work was based mainly on skilled workers and craftsmen, on-the-job training was the only method of training and at that time was considered sufficient. The Industrial Revolution and subsequent mass production techniques demanded new and different skills (i.e. training), which justified the establishment of specialised technical and vocational education and training institutions, in order to satisfy the needs of the modern production and service sectors. These institutions were required to place more emphasis on scientific, technological and intellectual training than that required for on-the-job training. Due to the strain of constant repetition in industry, new concepts have been introduced into the work place and the psychological and humanistic aspects of work and behaviour have also been taken into account in establishing working methods, particularly in large-scale enterprises. In the modern sector of manufacturing
and services, where production is programmed through automation, the conceptual content of jobs is becoming increasingly high emphasising the broad general, theoretical competencies and co-operative skills. Consequently, it has been necessary to broaden the role of theoretically-based general education in technical and vocational education. (See figure below illustrating the development of the different types of training models in relation to work demands).

22. Equal access and participation of girls and women to technical and vocational education is another major issue of concern. Certain Member States indicated the existence of special legislation to provide technical and vocational education to girls and women, whereas others advised that although no special legislation or incentives existed, there was however, no restriction on this issue. The measures to encourage the participation of girls and women in technical and vocational education vary from country to country and may include programmes aimed at changing social attitudes amongst employers and teachers; maternity leave; state maternity benefits and children's allowances, crèches and nurseries, day release for study etc. Despite the existance of legislation, the equal access of girls and women to technical and vocational education is not yet acquired. In some countries, discrimination in both the educational systems and the employment market is still practised. Girls and women, when undertaking courses in technical and vocational education, are enrolled mainly in commercial education, nursing and service sector skills/programmes. It is anticipated that by expanding guidance and counselling services as well as encouraging enrolment opportunities for girls and women in the areas traditionally undertaken by men, will increase and facilitate their participation in technical and vocational education programmes.
23. The question of unemployment, especially of youth, is another major issue of concern, not only in the industrialised countries, but to a far greater extent in the developing countries. This complex problem is aggravated by the continuing and rapidly-changing demands for higher level, more sophisticated job skills, as compared with the traditional labour-intensive economy. It is generally agreed by many education and training policy makers that the content of technical and vocational education subjects are becoming obsolete, at a greater rate than that of general education subjects, due to the rapid evolution of science and technology. This has placed greater emphasis on life-long education, whether it involves the entire re-training of the labour force in a specific economic sector, or of simple updating of their present knowledge and skills. Therefore, the updating of the content of technical and vocational education curricula is vital and technical and vocational education courses should be based more on knowledge of science, mathematics and other general education subjects than in the past.

Some reforms in technical and vocational education have tended to postpone the traditional practical skill training to the post-secondary level in order to permit sufficient instruction in the basic science and mathematics subjects. In other cases some pre-vocational (general/technical) subjects have been introduced during primary education or even at the pre-school level as well as linking science and technology in the teaching process at these levels, in order to familiarise children with the world of work in their early years.

24. The financement of technical and vocational education is an important issue in view of its relatively high cost. Costs cannot always be sufficiently found from public funding and additional sources are constantly being explored. One source of funding is industry who sometimes appear to be dissatisfied with the quality of the technical and vocational education institutions. However, it is not evident that they have been able themselves to create better systems. There are many reasons for this situation including apparent unawareness of the need for training, lack of adequate facilities and training personnel, fear of industrial espionage etc. The recent World Bank Policy Paper on Vocational and Technical Education and Training (May, 1991) states that "in practice, the extent and quality of private sector training is limited in varying degrees, depending on the nature of the economy and the level of development in a given country...." In the small and medium-size industrial firms employing 60/80% of private sector workers in many developing countries, the capacity for training in new skills in order to increase productivity is often weak. In addition, the training facilities provided do not benefit employers and workers directly, thus reducing their willingness to invest in new skills.

25. The main concerns of Governments and funding sources are similar yet different at the same time. Funding sources would like to see "value for their money" in the form of an efficient, relevant, cost-effective system which will produce "what the employer wants" while Governments,
although in agreement with the principles of the funding agencies/sources, also have a social, public and political responsibility to provide education and training. The rôle of training in industry and the private sector as opposed to institutionalised training has, therefore, become an important area for research.

In this connection The World Bank advocates that "one way of separating training and education is to concentrate on skills training in institutions outside of the education ministry. This approach is most clearly needed in training skilled workers for wage or self-employment. Specialized technical schools oriented to wage employment can be run within the ministry of education, if bureaucratic procedures can be modified to give programs the flexibility needed. Another strategy for education ministries is to deliver vocational training intensively at the end of the secondary cycle." In fact some of the foregoing is already taking place but the problem of generalisation still remains (particularly in the developing countries), where the ability of industry and enterprises to undertake responsibility for training still remains weak.

26. It is evident that technical and vocational education institutions and programmes financed from public funding cannot keep pace with the rapid developments in science and technology and production techniques and a better linkage should be established between those responsible for the education and training process in both the public and private sectors. Existing experience in this area should be carefully studied and exchanged between the countries concerned.

27. Technical and Vocational Education has been considered of secondary importance in many countries and for a long period was considered as a type of education with no future, which would not lead to higher education. This has resulted in students opting for technical and vocational education when no other choice was available. The type of student and course content of technical and vocational education has changed drastically over the past few decades thus requiring a higher level of entry qualification. This has in turn raised the question of technical and vocational education graduates' right of entry to higher education institutes, including universities. Some countries have created "bridging" systems for this purpose, but more needs to be done in this field. There is a need for flexibility in the planning, content and implementation of technical and vocational education programmes, which should allow for further education and training, and also to introduce a system of controlling the flow of graduates in the system to the required fields of competence in order to avoid over-production and subsequent unemployment amongst the graduates.

28. As it was stated during a recent OECD Meeting on Further Education and Training of the Labour Force (Paris, June, 1991), in addition to the technical and vocational education, provided by the educational system, there must
and vocational education, provided by the educational system, there must be a sustained effort at re-training the adult labour force and to a large extent this must be enterprise-based. At the moment, this is often insufficient both due to the changing environment of the 1990s and due to the long standing tendency for individual firms to under-invest in training for fear that skilled workers will be "poached" by other employers. This also leads to the tendency to focus on narrow job-based training rather than on focussing on wider transferable skills of use to different employers. The ultimate response must be to upgrade the level of competence of the adult. This calls for continuous re-training throughout the working life of the entire labour force. More than 80% of the workforce of the year 2000 is already at work and this adult workforce will thus comprise an increasing part of the labour force available to us in the next century. In many countries a large part of this workforce left school with only the minimum school qualifications and the large majority do not receive systematic adult education or re-training. These circumstances are compounding the other problems which we are facing. This situation can no longer be tolerated and must be put right during the 1990s.

29. The scientific, technological economic, social and cultural developments and structural changes will impose new demands on the individual and his/her society and environment for which educational systems will need to seek appropriate solutions. Considerable knowledge and experience in this field exists in many countries in the world, as well as in UN specialised agencies such as ILO, FAO and UNIDO etc. and Intergovernmental Organisations and Non-Governmental Organisations. It is, therefore, essential that co-operation be established between countries at the regional, sub-regional and even international levels, as well as between Organisations. It is essential to exchange information and experiences, in particular on policy questions and research results, to organise exchange programmes for high-level personnel, particularly from the North to South regions. Network systems between institutions, granting of fellowships and organising study tour programmes, mobile team training seminars etc. need to be established.

30. As the draft 26C/5 indicates, UNESCO intends to address these needs through: (i) the development of Technical and Vocational Education, including the launching of an international project; the organisation of training seminars and the publication of innovative teaching/learning materials etc. (ii) primary post-literacy and continuing education, including the preparation of teaching/learning materials and the implementation of pilot projects on work and life skills for community development and functional post-literacy in developing countries etc. as well as dissemination of information on the use of productive work in primary schools; (iii) establishment of commission on education for the 21st century.