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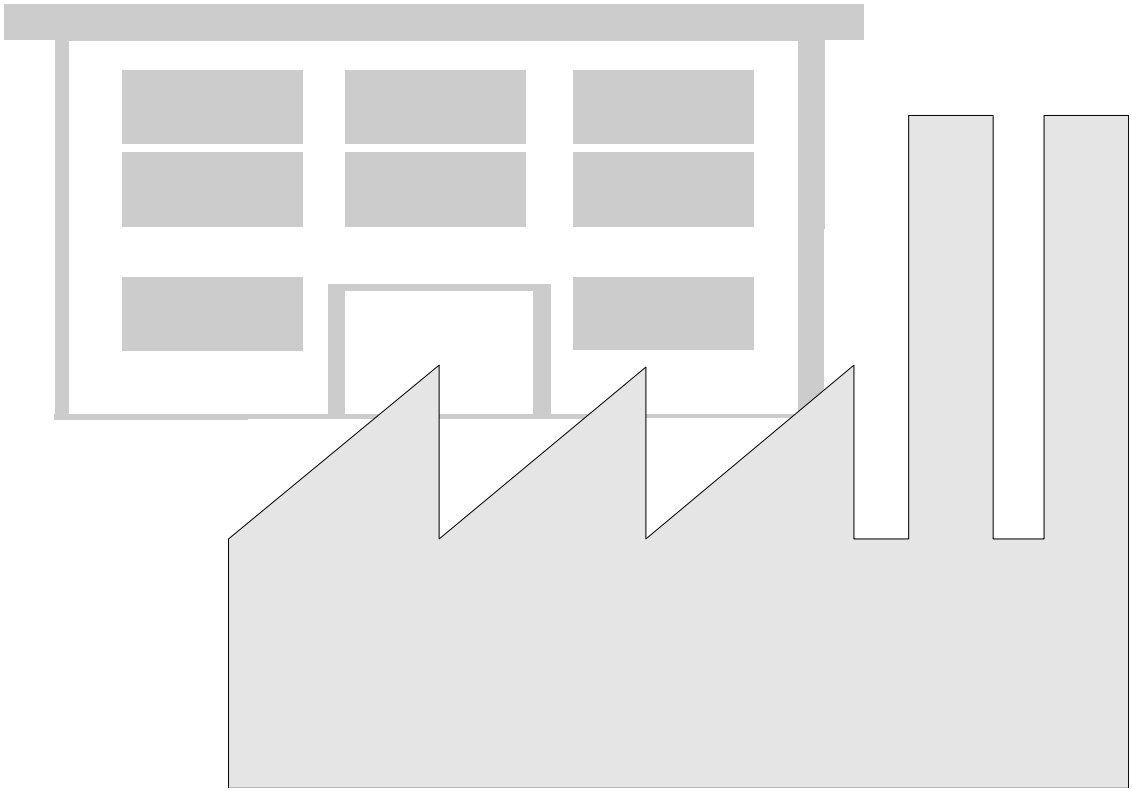
UNEVOC

International Project on Technical and Vocational Education
Projet international pour l'enseignement technique et professionnel

Establishing Partnership in Technical and Vocational Education



Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education

A Seminar for Key Personnel from Africa and Asia

Berlin, Germany, 02-12 May 1995

The **International Project on Technical and Vocational Education (UNEVOC)** is a project of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Its purpose is to contribute to the development and improvement of technical and vocational education in Member States.

UNEVOC works in three programme areas:

Programme Area A deals with the international exchange of experience and the promotion of studies on policy issues. It is devoted to system development in technical and vocational education.

Programme Area B is devoted to strengthening national research and development capabilities, that is to the development of infrastructures.

Programme Area C concerns access to data bases and documentation and strengthening of the UNEVOC Network, in other words, with information and communication.

Under Programme Area B, UNESCO held, in co-operation with the German Foundation for International Development (DSE), an International Seminar for Key Personnel on "Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education" in Berlin, Germany, from 02-12 May 1995.

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The **German Foundation for International Development (DSE)** is an institution which provides a forum for dialogue on development policy and the initial and advanced training of specialists and executive personnel from developing and transitional countries. The institutional donor is the German Federal Ministry for Economic Co-operation and Development (BMZ). Since 1960, the DSE has given advanced professional training to more than 100 000 decision makers, specialists and executive personnel from more than 140 countries.

The Industrial Occupations Promotion Centre (ZGB) of the DSE offers advanced training in the field of vocational training. The ZGB's programmes aim to

- give more people in the developing countries access to vocational training opportunities,
- improve the efficiency of vocational training in the developing countries,
- support the introduction and further development of in-plant forms of vocational training in the sectors of industry, crafts and services,
- promote co-operation between school and in-plant vocational training agencies (dual approach),
- make it easier for target groups on the brink of poverty in the informal sector to set up their own business by undergoing crafts-oriented basic vocational training,
- support the processes of reform in the countries of Eastern Europe by promoting vocational training.

More information can be obtained from:
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Foreword

This is a comprehensive report on a significant activity of UNESCO within its International Project on Technical and Vocational Education (UNEVOC). It has been undertaken by UNEVOC Berlin. It addresses a pre-eminent issue facing the world of education today; namely, the essential need for co-operation between educational institutions and enterprises in preparing people for, and maintaining them within, the world of work.

The rate of change within the social, political and economic arenas of the world today demands from us proactive and creative responses. The thrust of the UNEVOC Project is to encourage and give scope to such responses, as they relate to the world of work. One strategy that it uses in this endeavour is to provide for the exchange of ideas and experiences among leaders within technical and vocational education and within the world of work in the member countries of the UNEVOC Project. This document records in detail such exchange of ideas and provides for their dissemination. Further, it addresses the problems and issues relating to such co-operation from the perspective of very different contexts in which they occur.

Co-ordination of effort in this area of human endeavour is essential if we are to avoid unnecessary duplication and the wastage of human and other resources. To assist such co-ordination, the participants in the Seminar, of which this is the Report, reported on relevant developments in their countries and regions; representatives from the international scene added their ideas and experiences, thus extending well beyond the boundaries of the participants' countries.

I am pleased to state that UNESCO has not only taken the "Conclusions and Recommendations" (page 139) into account, but that a number of suggestions have actually been included in the 1996-1997 Work Plan of UNEVOC. Furthermore, UNESCO is about to use the seminar as a model for a similar activity to be organized in francophone Africa in 1996.

May I use this opportunity to thank all participants in the seminar for their valuable contributions. They have enabled UNEVOC Berlin to present this substantial report, thus making the substance and findings of the seminar available to all those who were unable to attend.

I commend the report to you. I believe that it has considerable potential as a resource to guide the perceptions and activities of people whose responsibility it is to integrate, as far as is appropriate and possible, formal and informal education, as it pertains to the world of work, with the efforts of work enterprises, in order to create and maintain an effective and efficient work force.

Colin N. Power
Assistant Director General for Education
UNESCO

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1 Introduction

1.1 About UNEVOC

What is UNEVOC?

The International Project on Technical and Vocational Education (UNEVOC) is a project of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Its purpose is to contribute to the development and improvement of technical and vocational education in Member States. Based on a decision taken at the twenty-sixth session of the General Conference of UNESCO in 1991, UNEVOC was launched in 1992.

Background

The idea to launch a comprehensive project in technical and vocational education within UNESCO dates back to 1987. That year, UNESCO held its first International Congress for the Development and Improvement of Technical and Vocational Education in Berlin, Germany. Strong support was shown for the suggestion that mechanisms be established for the international exchange of information on technical and vocational education. It was proposed that UNESCO support the establishment of an international centre for research and development in technical and vocational education.

The General Conference of UNESCO at its twenty-fifth session in 1989, took two important decisions related to technical and vocational education:

- The General Conference adopted the Convention on Technical and Vocational Education. This standard-setting instrument provides a coherent set of concepts and guidelines for the development of technical and vocational education in Member States, with particular regard to assuming public responsibility for framing policies and defining strategies of technical and vocational education, considered to be an integral part of the education system and for the promotion of international co-operation.
- Furthermore, the General Conference invited the Director-General of UNESCO to carry out a feasibility study on the establishment of an International Centre for Technical and Vocational Education.

This feasibility study recommended that UNESCO's activities in technical and vocational education should concentrate on matters of technical and vocational education as a component of the overall education system. Based on that feasibility study, which was completed early in 1991, the General Conference of UNESCO decided, at its twenty-sixth session in 1991, to launch the first phase of a UNESCO International Project on Technical and Vocational Education (UNEVOC).

Programme Areas

In accordance with that decision, UNEVOC was designed

- to contribute to the development of systems of technical and vocational education,
- to promote infrastructures in research, development and planning, and
- to facilitate information and communication in these fields.

Structures and Mechanisms

UNEVOC is carried out under the responsibility of the Education Sector of UNESCO at its Headquarters in Paris.

An International Advisory Committee has been established by UNESCO to advise the Organization on the preparation and implementation of the UNEVOC programme.

Many activities within UNEVOC are being executed on a regional basis and UNESCO's Regional Offices play an important role in the implementation of the project:

- Africa:
  Regional Office for Education in Africa (BREDA)
- Arab States:
  Regional Office for Education in the Arab States (UNEDBAS)
- Asia and the Pacific:
  Principal Regional Office for Asia and the Pacific (PROAP)
- Latin America and the Caribbean:
  Regional Office for Education in Latin America and the Caribbean (OREALC).

Following the decision on UNEVOC taken by the General Conference in 1991, the Government of the Federal Republic of Germany offered to host an Implementation Unit in Berlin, in the immediate vicinity of the German Federal Institute for Vocational Training (BIBB).

On 17 July 1992, UNESCO and the Government of the Federal Republic of Germany concluded an agreement on UNEVOC. In this agreement, the Government of the Federal Republic of Germany offered to match UNESCO's budgetary input into the project, thus doubling the overall budget. In addition, UNESCO and Germany agreed to establish a project implementation unit in Berlin. Germany has generously provided premises for this Unit and the budget for office furniture and data processing and telecommunication facilities, as well as other initial equipment.

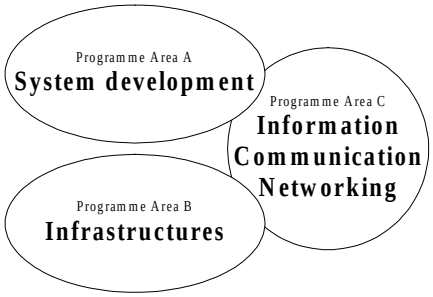
The Berlin Unit was officially opened on the occasion of the first session of the International Advisory Committee in September 1993. It supports the overall planning of UNEVOC and is responsible for the implementation of certain activities specified in the UNEVOC programme.

The "Seminar on Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education" has been carried out by UNEVOC Berlin.

The Programme for 1994-1995

According to a decision taken by UNESCO's Member States in 1991 and reaffirmed in November, 1994, UNEVOC works in three programme areas:

- Programme Area A deals with the international exchange of experience and the promotion of studies on policy issues. It is devoted to system development in technical and vocational education.
- Programme Area B is devoted to strengthening national research and development capabilities, that is to the development of infrastructures.
- Programme Area C concerns access to data bases and documentation, and strengthening of the UNEVOC Network, in other words, with information and communication.



Programme Areas of UNEVOC

System Development

The basic concept behind Programme Area A is to enhance the role and status of technical and vocational education within national education systems.

UNESCO held a consultation in 1993 with experts from different regions of the world in order to identify some of the factors which determine role and status of technical and vocational education. A series of case studies has been prepared on the relevance of these factors within given national education systems.

In order to promote co-operation between educational authorities and the world of work in technical and vocational education, studies have been conducted in selected countries on existing policies and legislation which enhance such co-operation. Regional symposia served to present the experience gathered to policy-makers.

Finally, surveys have been carried out on the relevance of vocational information and guidance for the equal access of girls and women to technical and vocational education. The results have been used as a contribution to the Fourth World Conference on Women in September 1995.

Infrastructures

Programme Area B is devoted to strengthening national research and development capabilities, that is to the development of infrastructures. In 1993, UNESCO held a workshop which convened experts from all the regions of the world. Participants compared different methods of development of vocational curricula. The results have been evaluated in the regions. Follow-up activities have been implemented.

Special emphasis is being made on the process of international transfer and adaptation of existing curricula. Differences in applied technologies, in norms, in legislation, in teacher training, etc. have to be taken into account when curricula are to be adapted to a new environment. UNESCO has facilitated the documenting of methods applied and experience gathered in the course of such curriculum adaptation.

Co-operation between educational institutions and enterprises is needed not only at the system level, but also at the training level. The work place provides a valuable environment for systematic vocational learning. But how can this potential be utilised for the improvement of training? UNESCO initiated a series of studies on mechanisms for co-operation between educational institutions and enterprises, and made the results widely available.

Within this Programme Area, the International Seminar for Key Personnel on "Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education" has been held.

Information and Communication

Programme Area C deals with access to data bases and documentation and with the strengthening of the UNEVOC Network. This concept includes, in particular, the development of information and communication structures among specialised institutions. The programme is devoted to enriching the flow of information between specialised institutions in the Member States, as well as increasing the transparency of information and enhancing access to data bases and documentation. UNEVOC will not compete with specialised documentation centres, but rather will assist Member States in efficiently using existing data and documentation.

The "UNEVOC Directory" of leading national and regional institutions active in research, development and planning in technical and vocational education has been prepared and disseminated.

UNEVOC INFO, which is published quarterly in English and French, is one of the activities under Programme Area C.

Documents dealing with specific topics in technical and vocational education are being prepared and disseminated.

1.2 Greeting Addresses

The organising agencies as well as representatives from the host country addressed participants on May 10, 1995:

UNESCO, Mr H. KRÖNNER

Mr Hans KRÖNNER has been Chief of UNEVOC Berlin since its inception in 1993.

Mr Burk, Director of the Industrial Occupations Promotion Centre of the German Foundation for International Development (DSE);
Prof. Hüfner, Vice-President of the German Commission for UNESCO;
Prof. Standke, President of the Berlin Committee for UNESCO;
Participants in the joint DSE/UNEVOC Seminar;
Ladies and Gentlemen,

I wish to welcome all of you this afternoon. I welcome you on behalf of the Assistant Director General for Education of UNESCO, Mr Colin N. Power, who had intended to come here, but had to stay in Paris for the Executive Board Meeting that starts this week.

Mr Power has conveyed the following message to all of us:

> *I should like to take the opportunity of underlining the importance UNESCO places on technical and vocational education. There is no doubt that the world today is changing at a rapid pace and a significant contribution to this change is the further development of technical and vocational education. Socio-economic development depends largely upon the availability and quality of the technical and vocational education provided and the UNEVOC Project has been conceived by UNESCO as a positive attempt to support this action in its Member States.*
>
> *I should like to make the following observations to the participants present at this gathering tonight. It is obvious that we are seeking educationalists throughout the world to assist us in supporting and encouraging the development of technical and vocational education. I am convinced that this venture greatly depends upon the support it receives in the various regions of the world. This present seminar has been organised for the benefit of Africa and Asia and the Pacific and it is hoped that the experience gained can be disseminated to other regions of the world.*
>
> *I am sure that this seminar has been productive and has provided you with new fields for thought and I should like to encourage you to further develop and disseminate these new ideas in your own country and/or region for the future."*

Ladies and Gentlemen,
We are approaching the final phase of our two-weeks' Seminar on Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education. Eight countries from Asia and five countries from Africa have participated. These two world regions represent 75 % of the world population.

We found out that, in spite of many differences in their socio-economic and cultural backgrounds, there are certain commonalties concerning their needs in future development of technical and vocational education. It was felt that in both regions there was an urgent need to change the image and status of technical and vocational education. It was suggested that Attention-Focusing Initiatives should be taken, such as declaring the year 1997 as the year of technical and vocational education, or by organising a Skills Olympic as a benchmark exercise to rate systems of technical and vocational education.

The quality of UNESCO's programme largely depends on the input from its Member States.
Likewise, the atmosphere and results of a seminar largely reflect the input and commitment of its participants, including the resource persons. I am glad to say that we had a highly productive seminar in a very friendly and co-operative atmosphere over the last ten days. Close co-operation between UNESCO and the German Foundation for International Development (DSE) certainly contributed its share to the success of the seminar.

I wish to thank all of you for your active participation and for the commitment that you have shown to our common objective: To shape systems of technical and vocational education that will better serve both the individual fulfilment as well as the development of our societies and economies as a whole.

Thank you all.

German Foundation for International Development, Mr H. BURK

Mr Herbert BURK is the Director of the Industrial Occupations Promotion Centre (ZGB) of the German Foundation for International Development (DSE) in Mannheim, Germany.

Professor Hüfner, Professor Standke, my special dear colleague Mr Krönner, Ladies and Gentlemen participating in this seminar.

First, I would like to register the fact that this seminar is a result of discussions between myself and Mr Krönner here in Berlin concerning the tasks of UNEVOC and DSE/ZGB. When we discussed our plans for the year 1995 we found out that UNEVOC was planning a similar seminar for African countries to that which the DSE/ZGB was planning for Asian countries. The topic was on vocational education and training. The strategy was the co-operation between educational institutions and enterprises. So we discovered that we had a similar topic and strategy. The target groups were high ranking

decision makers from educational institutions and enterprises, and their associations. As I have indicated, we were planning it for the Asian region, and Mr Krönner was planning it for the African region. So we had the inspiration to bring these two groups together and to organise a common event for one week here in Berlin. I must say that I am very much convinced that this idea was a good one. I am very impressed by the effective and harmonious working together of each group.

Ladies and gentlemen, you are participating in a first-off event. You are witnessing the co-operation between the new organisation UNEVOC, and the ZGB/DSE that has been already established for many years.

Personally, I feel that it is high time to strengthen the co-operation between the multilateral agencies like UNESCO, ILO, the World Bank etc. and the bilateral agencies like the DSE, GTZ etc., that are working for the Germany Ministry for Economic Co-operation and Development.

I have been working in the field of vocational education and training since 1970. Before that I worked in Africa and in India, for more than 10 years. I came to realise that all too often we confuse our partners because we introduce different approaches, different policies and different training options.

Instead of that we should try to co-ordinate our efforts and harmonise our policies and strategies. Only then can we reach a better result and a synergetic effect.

This does not mean that we should neglect completely our own mandates. The mandate of UNEVOC is different from the mandate of the DSE/ZGB, and the mandate of UNESCO is different from that of the International Labour Organisation.

But there is nothing wrong, as I see it, if the DSE makes available the experience of Germany and its "Dual Training System" and if UNEVOC makes available a more global strategy of "Co-operation".

The exchange of these two groups has clearly shown that this is an enrichment and gives a clearer understanding of what is meant by such co-operation between private enterprises and state educational institutions in a particular country.

Such seminars as this can help us to understand the various systems in their social and economic contexts and help us to find out in what ways we can develop the systems further. By a better insight we are able to improve vocational education and training.

I will not talk on. I wish you a wonderful evening and all the best in your deliberations.

German Commission for UNESCO, Mr K. HÜFNER

Prof. Dr Klaus HÜFNER is the Vice President of the German Commission for UNESCO and lecturer for economics at the Free University of Berlin

Dear participants,
dear friends,
lieber Hans Krönner,

This year we celebrate the 50th anniversary of the end of the Second World War. We also celebrate the 50th birthday of the United Nations and of UNESCO.

Today's world is certainly different from the one imagined 50 years ago by the authors of the Charter of the United Nations. It is also quite different from the one anticipated after the fall of the Berlin wall.

Today, everything is in process of change. In 1992, the Secretary-General of the United Nations, Boutros Boutros-Ghali, presented his "Agenda for Peace" upon the request of the Security Council. It took another two years, until he published his "Agenda for Development" upon the request of the General Assembly. Both documents have to be seen in their complementary inter-relationship asking for a comprehensive "Culture of Peace and Development". Now, time is ripe for an "Agenda for Change" based upon these two documents and to be drafted and adopted by the members of the United Nations and UNESCO.

The forthcoming 28th General Conference of UNESCO will discuss and adopt a Medium-Term Strategy paper for the period 1996-2001 put forward by the Director General, Federico Mayor, and I quote from his introduction: "This urgent need for solidarity in action also implies a sweeping reform of the United Nations. The United Nations system was designed to deal with the problems of the post-war period, but it is ill-prepared to take up present and foreseeable challenges, which are - first and foremost - those of world development. Let us have the honesty to acknowledge that what has been achieved by the efforts of the international community over the last 50 years to promote development has fallen far short of expectation".

It is in this context that we have to work on the expansion of the International Project on Vocational and Technical Education (UNEVOC) in co-operation with ILO and other partners. Technical and vocational education is of strategic importance in the future work of UNESCO in the field of education. It is good to see that "UNESCO will foster partnership between the education sector and industry, agriculture, labour and the private sector" as mentioned in the Medium-term Strategy.

In this context, let me add three important aspects concerning the work of UNEVOC:

- Regionalisation and networking is the key for further development.
  I am happy to see in the newsletter, the UNEVOC INFO, the reports about how much progress has been reached over the last two years.
- Educating the educators, training the trainers is the key for multiplying the efforts in the field of technical and vocational education.
  I am happy to welcome you here in Berlin demonstrating so well a good example of those efforts.
- Institutional national and international co-operation is a must in order to avoid unnecessary duplication of work and to concentrate the joint efforts in periods of scarce resources available for this important task.

I am happy to see the close co-operation with the DSE as well as with the International Labour Office demonstrating so well the often demanded closer inter-action and co-operation at the national as well as international level.

The present situation, as you all know, is rather disturbing. The Security Council and its increased activities in the field of peace-keeping reached new financial dimensions in an order of almost four billions US dollars - dimensions of which UNESCO and ILO could never dream. The same is true of humanitarian assistance, whereas the multilateral technical assistance efforts of UNDP must be reduced.

Something is wrong in the setting of priorities. If we really want to work towards a "Culture of Peace and Development", much more must be done in the field of conflict-prevention, i.e. in the fields of economic, social and ecological development and co-operation. The 50th anniversary of the UN and UNESCO reminds us that a re-orientation in setting priorities is an absolute must.

This criticism is primarily addressed to the member states of the UN and UNESCO; including my own country. Also in Germany, the discussion centres around present and future blue helmets activities, whereas development policy does not have the necessary priority any longer, although my country could do much better in this field.

Two years ago, I have expressed on behalf of the German National Commission for UNESCO my hopes that our new baby UNEVOC will receive the necessary guidance and assistance. Today, I can see that UNEVOC is growing, and I hope that within the coming years UNEVOC will become a specialised institute of UNESCO such as, e.g., IIEP in Paris or UIE in Hamburg.

Only through functional differentiation and specialisation UNESCO will be in the position of better demonstrating its international expertise in the field of education. Let’s continue our efforts.

1.3 Objectives, Contents and Results

The author, Mr Matthias REICHEL, is a free lance contributor to UNEVOC Berlin.

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(1) Background: The Challenge

Technical and vocational education is facing new challenges. As one participant of the seminar put it: "the future is not what the past used to be".

Liberalisation of trade and technological progress increase the speed of change in the world of work. In developed and developing countries non-competitive industries cannot rely anymore on being safeguarded by the protective measures of domestic governments. The pressure to adopt the most efficient technologies and patterns of work is universal. The desired result - higher productivity - has a twofold effect on employment opportunities in industry. This is

- on the one hand the number of jobs in the modern industrial sector diminishes. Generally, the formal sector in developing countries cannot absorb the growing number of people, qualified or not, seeking jobs;
- on the other hand, the remaining jobs frequently require a higher standard of skills.

Those who cannot find formal employment resort to the informal sector and traditional subsistence activities. An unaccountable number of enterprises is set up - micro-enterprises that occupy virtually all niches left unattended by the market economy. Those entrepreneurs who progress in this sector often are limited in their development by the lack of managerial, administrative and sometimes technical skills. On the other hand, many graduates with formal certificates find themselves with a training that neither qualifies them for a job in the modern sector nor gives them the entrepreneurial skills to set up their own businesses.

All this is not a temporary phenomenon; but it will probably characterise the start of the next millennium. New approaches to reform systems, and to the contents and delivery of technical and vocational education, are necessary. These are not easy to find. First, the market for the "products" of technical and vocational education offers no exact price signals to which to react. Education systems produce for future markets. The "production time" is long and shifts in demand can be at short notice. Secondly, a "good" education system has even more complex tasks than that of being responsive to the signals of an assumed labour market. Social objectives, like individual development needs, access and equity, integration of minorities, gender issues etc., have to be included within its design. Thus, the question needs to be asked: how can technical and vocational education systems be made more responsive to changing demands of the world of work, on the one hand, and to personal and social needs on the other?

(2) Objectives of the Seminar

The task of UNEVOC is to facilitate, as much as possible, the process of finding answers to the above types of questions. Also, it has the task of supporting the implementation of adequate problem-solving strategies and of programmes that reflect these answers.

Therefore, the specific objectives of the seminar were:

- **To clarify the issues related to this area of co-operation**.
  This was achieved by stimulating an interchange of views and concepts of technical and vocational education and work-place enterprises held by the participants, with respect to their own particular countries.
- **To develop strategies for achieving such co-operation**.
  This was achieved by the participants identifying the problems for such co-operation within their own countries, and the experiences they had of successful strategies for overcoming these problems.
- **To elaborate on the recommendations made by participants.**
  This was a significant element of the seminar. These recommendations were expected to have a practical character in order to make them operational.
- **To plan follow-up activities**.
  It was suggested that participants should carry out these in their home countries and that UNESCO should consider them for further support. There are plans to monitor the progress of the implementation of these activities within UNEVOC.
- **To produce a substantial report**.
  In order to spread the results of the seminar to other interested parties, and, in order to highlight the importance of the subjects discussed, the importance of a final report was stressed. During the seminar the form and contents of this report were explicitly considered.
- **To further develop UNEVOC.**
  The UNEVOC Project has only existed for three years and is still defining its role. It was expected that the participants would make a substantial contribution to the further planning of UNEVOC activities.

The variety of approaches in the seminar papers contained in this report, gives insight into commonalties within and differences among the problems in the participating African countries, and among the concepts of the international players. The contributions on issues in technical and vocational education in Germany were aimed at demonstrating how certain features, like the

common development of curricula, can be managed, and how co-operation among the parties involved can be stimulated and institutionalised through the use of laws. The objective of this part of the seminar was to transmit the idea of social partnership as a successful policy to encounter economic and social problems.

(3) Participants

In order to obtain the maximum benefit of the two weeks seminar for both UNESCO and the participants, UNESCO selected participants carefully. These participants were decision makers from technical and vocational education institutions and from enterprises in the sub-Saharan countries - Kenya, Nigeria, South Africa, Swaziland and Uganda. One of these nine participants was the chairperson of a national training board. Two participants came from the human resource departments of large African companies. These represented the world of work. The participants also included 13 people from China, India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand and Viet Nam. These were invited by the German Foundation for International Development (DSE). Other persons who were invited were lecturers and heads in universities and polytechnics.

(4) Proceedings

UNEVOC asked participants to submit, at the preparatory stage of the seminar, the following: a summary of their contributions, a paper addressing the problems with, and possible solutions to, co-operation, which they wished to discuss, and a brief curriculum vitae. These documents were mailed to the other participants. This supplied them with sound background information for the seminar. Included in the background material were two country studies on technical and vocational education in Swaziland and Uganda. These documents are included in this report (see page 52 ff. and page 75 ff.).

All participants were required to submit their individual contributions in a written form at the commencement of the event. This thorough preparation allowed them, during the first week, to present and discuss all the country cases, and to draft some conclusions.

During the second week, the 13 participants from Asia, who had spent their first week in Mannheim, Germany, learning about the German Dual System, joined the African group. The programme of the second week provided for the exchange of experiences between the two groups, and the elaboration on the findings obtained during the first week. It was the first time the organising units, DSE and UNEVOC, had co-operated in this way and, due to the positive results, further interaction is intended (see the greetings addresses on page 7 ff.)

The programme for the event combined presentations of country-cases by the participants, of features of the German model by German experts and of reflections on the topic by international experts. Provision was made for considerable discussion on the presentations. The identification of the key problems and the drafting of the final document was done by the participants' working groups.

(5) Why Co-operate?

There is universal agreement that strengthening co-operation between educational institutions and enterprises is a very significant strategy for tackling the current pitfalls of technical and vocational education in most African countries. Scope for action exists. Experiences of co-operation, and examples of it, are available. These were introduced in the Seminar. Several factors behind the motivation to co-operate in technical and vocational education were identified. The various ways in which all parties involved, not only those at the work place, can profit from co-operation were explored during the seminar, and the following were the conclusions:

- Students benefit from an early introduction to the real world of work by becoming aware of what is going to be expected of them. Their prospects on the labour market rise as a result of practical work experiences. Finally, the possibility to obtain a small additional income is very significant.
- Educational institutions need the advice of the world of work to adapt their curricula to the needs of the labour market, to have access to the latest technology and to guarantee teacher training. Additional sources of income from joint projects with enterprises may be tapped.
- Enterprises can profit directly from co-operation at different levels and, thus, secure the provision of a well skilled labour force. They can identify, at an early stage, students with the greatest potential, for a future long term contract. They may be able to acquire labour at a reduced cost. The exchange of knowledge and know-how, and the joint undertaking of research and development projects, have potential for lifting productivity. The experience, by students and teachers, of life within an enterprise and the participation in the renewal and adaptation of teaching and training programs to suit productive work, are of considerable value.
- The society and its institutions, like the government or trade unions, benefit from the indirect effects of co-operation. It is evident that effective designs of technical and vocational education, at the systems level, in democratic market economies only evolve by close co-operation with and agreement of social partners and government institutions. Tripartite training boards, defining legal structures and adequate policies, are a case in point.

Two lessons learned regarding the implementation of co-operation were:

- The work place itself provides a most valuable environment for systematic vocational training. But enterprises are profit-maximising entities. Thus, they are reluctant to train students, because, in the short run, training at the work place requires attention from

experienced staff, can occupy costly machinery with inexperienced personnel and therefore slow down the production process. The possible advantages, however, are considerable. It is imperative that enterprises be convinced to take a long-term-view on this investment. This is a daunting task, considering the difficult macroeconomic environment prevailing in all of the participating countries.

- In order to exploit fully these potential payoffs, an adequate design for co-operation must be found for each country and for every economic sector - according to the cultural, social and economic settings. Experience from other countries where co-operation has been and still is successful, suggests that government action that is designed to provide an effective framework is an indispensable prerequisite.

(6) The Contributions

This section supplies a content analysis of the documents included in the Report. It is aimed at guiding the reader through the individual contributions and facilitate the identification of texts for further reading.

Part (6.1) introduces, on a comparative basis, the main findings of the contributions made by the African participants in their presentations and discussions.

Part (6.2) (page 15) outlines the results of the work of the Asian group during the seminar.

Part (6.3) (page 15) covers:

- a suggested **analytical framework** for classification of technical and vocational education systems,
- the information provided on the **German context** and content of technical and vocational education, as far as it is considered relevant for the international context, and
- the approaches and strategies of the **international actors** to prepare technical and vocational education systems for the present and future challenges.

(6.1) African Experiences

For the purpose of a clearer identification of key problems, the following analysis is broken down to: experiences and structures of co-operation at the **policy/systems level**, and an overview of problems at **the training level**. The concept of co-operation is applicable at both levels.

Experiences and Structures of Co-operation at the Policy/Systems Level

The two South African papers gave a concrete example of the development of a national strategy for qualification, the National Training Strategy Initiative. The recently initiated transformation of the South African society requires the re-designing of the whole education system. Departing from the typical setting described in the above box, the recent developments in this country have created an atmosphere where a realistic re-thinking of educational strategies is possible. At the same time the magnitude of change is so vast that co-operation at the policy level is imperative. Consequently all stakeholders (government, private sector, trade unions and providers of technical and vocational education) are involved in reforming the subsector. Special attention has been put on the representative character of the commission responsible for the reform. The **process** of decision making within this **framework** is considered as important as the outcome. A human resource development system in which there is an integrated approach to education and training is the goal of this strategy. Its details are still under development.

The paper of Dr Eberlein (see page 27), chairperson of the National Training Board, gives a precise description of the developments so far of the South African National Training Strategy Initiative. In it he explains the integrative design of the system. The contribution of Dr Verster (see page 32), Corporate Human Resources Development Consultant for the South African power supplier, ESKOM, analyses the qualification strategy from the point of view of a large company and the implementation action being taken. ESKOM is sys-

In a nutshell:
Some characteristics of technical and vocational education often found in African countries[1]:

Social context:
- poor basic education and high rate of illiteracy
- difficult access to technical and vocational education for large parts of the population (women and girls; minorities; handicapped persons etc.),
- no individual resources to finance costs of education or training

Economic environment:
- high rate of population growth
- relatively small industrial base
- large informal sector
- low rate of GDP growth

System level/vocational training policy:
- low status of technical and vocational education
- no coherent policy on technical and vocational education
- inadequate consideration of the informal sector and marginalised groups
- insufficient participation of private sector associations, trade unions etc.
- no effective co-ordination between the responsible bodies

Enterprises:
- no tradition of co-operation in technical and vocational education
- little in-company training
- low acceptance of outside controls and regulations

Training institutions:
- poor management and large administration combined with low budgets
- no entrepreneurial behaviour
- inadequate qualification of teachers and trainers
- inappropriate infrastructure

1 Cf BMZ, "Sector Concept Vocational Training", page 127

tematically integrating and monitoring all learning activities within the company, striving for their accreditation at a national level. Close co-operation with educational institutions and boards is the most important tool. Social investment in skills development is also part of the ESKOM strategy. It is felt that this is necessary to meet the company's future skills needs. Various activities designed to establish a skills-respect culture are part of this approach.

At the policy level South Africa is the only one of the participating countries that has already initiated the re-definition and re-structuring of the technical and vocational education system. In the sub-Saharan region the co-operative nature of this approach can serve as a model to other countries. The question of the transferability of national technical and vocational education systems, or elements of it, was repeatedly discussed by participants. A vision of where to go and how to get there is the basis for a successful policy and is the important lesson that is reflected in the final document, presented by the participants.

In the remaining participating countries, the approaches toward co-operation at the policy level have a more country-specific character.

In Nigeria, the Student Industrial Works Experience Scheme was introduced some years ago in order to provide practical training opportunities. It is managed by a semi-governmental type of institution, the Industrial Training Fund. The paper of Ms Odugbesan, rector of the Yaba College of Technology (see page 38), analyses the performance of this system since its inception. Mr Popoola, Head of Human Resources at Guinness, Nigeria (see page 42), criticises the weaknesses in the political capacity of the governmental agencies involved. He suggests that a stronger co-operation in political decision making would be a good way to improve technical and vocational education in Nigeria. It would also diminish the observed reluctance of the large Nigerian companies to co-operate at the training level.

Similarly, in the case of Uganda, the lack of institutional capacity for co-operation is highlighted by Dr Manyindo, Senior Lecturer of the Uganda Polytechnic at Kyambogo (see page 44) and Prof. E. Lugujjo. They suggested that, as a primary step towards the focusing of attention of political and economic decision makers on the problems of technical and vocational education in their country, they should be alerted to the problems.

The contribution of Dr Rwendeire, Principal of the Uganda Polytechnic at Kyambogo, and Dr B. Manyindo (see page 48), gives the first steps that are needed to succeed within this new concept. These are derived from the results and methodology of a workshop carried out by his institution. This is a remarkable initiative of an educational institution to become actively involved in the political process and to foster co-operation. Other educational institutions can draw upon the experiences presented in this contribution.

In Swaziland, the political structures for co-operation traditionally exist. The presentation by Mr Lukhele, from the Examinations Council (see page 65), analyses the rationale for this co-operation. Technical and vocational education policy is formulated by a tripartite board. Political responsibility at the systems level is divided between the Ministry of Education, the Ministry of Labour and the Public Service.

Efforts are being made in Swaziland to introduce vocational education at secondary schools. The presentation by Dr Mndebele (see page 67), lecturer at the University of Swaziland and head of the department of agricultural education and extension, and Mr L.B. Lukhele, presents a vocational educational planning model. The model is applied to the socio-economic setting of Swaziland. This is characterised by a small industrial sector, a large informal and traditional sector, and a high rate of population growth. Technical and vocational education must, in response to this, prepare students for possible self employment in these sectors. It must also focus on a regional approach which would facilitate the employment of persons with vocational skills in neighbouring countries (South Africa).

It was suggested that this model could be used in other developing countries to analyse social and economic factors prior to the launching of a vocational curriculum.

Also included in this report (see page 75) is a study on "Enhancing Co-operation between Technical and Vocational Education and the Economy in Swaziland". It was prepared for the UNESCO by Mr Mndebele and Mr Lukhele in 1993 and provides a substantial description and analysis of the relevant issues and problems. It calls for policy measures and resource allocations to improve the system.

In Kenya, close co-operation between educational institutions and enterprises exists. Technical and vocational education has been expanded recently to cater for the various groups within the economy. Dr Kerre, Director of the African Curriculum Centre at Kenyatta University (see page 94), offers, in his paper, a precise analysis of the legal and policy framework. An Industrial Training Act regulates since 1960 (amendment in 1971) the training of persons engaged in Industry. It includes training levy orders. Nevertheless, there is missing in it, as in the other countries, the delineation of an effective mechanism and a clear policy for co-operation. It is critical to develop such a mechanism in order to make full use of the advantages of co-operation and to balance effectively the needs of the various stakeholders.

Co-operation at the Training Level

It is evident from the papers of this report that variation exists among countries in the degree of co-operation between educational institutions and enterprises at the

policy level. It is even more evident that the perception and identification of key problems of co-operation at the training level, varies more widely. In part, these problems can be considered as resulting from the lack of defined policies toward the educational subsector.

The problems include:

The mismatch of curricula in technical and vocational education with the needs of the enterprises is a key issue, not only in the African countries but also world-wide. In the African countries, the relevance and appropriateness of the curricula for preparing students for the world of work is not reviewed on a regular basis. While companies are concerned about inadequate qualification of students, their participation in curriculum development is low. Equally, educational institutions are reluctant to revise their curricula. They tend to stick to traditional teaching material and methods. Many participants urged the setting up of mixed curricula review commissions and also that more initiatives to be taken by both parties. Substantial proposals were developed in most of the contributions to this Report.

The papers from Nigeria (see page 38 and page 42) analyse in depth the problems of transmitting to students the important practical experiences in the world of work. The problems refer to all areas of attachment. For instance, the number of training places offered by industry is patently insufficient. Often students are exploited as cheap labour for work which does not offer them any kind of skill improvement. In other cases the remuneration does not even cover the transport costs. If students are confronted with this kind of treatment their motivation drops.

A common problem is the inadequate supervision of attachments by the academic staff. Combined with this, in some cases, is the irrelevance of the attachment. This leads to poor performance by the students of practical work.

More incentives to co-operate are needed. The recommendations made by the participants include, on the one hand, government intervention in the form of training levies, and on the other hand, a better marketing of the potential advantages of industrial attachment to students and enterprises alike.

Kerre suggests a whole catalogue of possible actions. Technical and vocational education is intended to give students the relevant key qualifications needed in the world of work. A widespread observation in African countries is that there exists:

- low and/or obsolete qualifications of teachers and trainers, and
- incomplete and/or obsolete technical training equipment in the institutions.

The participants offered a wide range of practical advice on how to overcome these difficulties. Essentially, intensifying co-operation with enterprises and developing different schemes of exchange of staff, were considered to be the best solutions.

Some contributors criticised poor management and self marketing of the institutions. Kerre and Odugbesan described successful activities of their institutions, such as offering research and consulting services for payment of services. An increased offering of further training for companies for a fee, was also suggested. Rwendeire proposed "fund-raising by friend-raising". This referred to the above mentioned workshop carried out by the polytechnics in order to alert decision makers within technical and vocational education to these problems.

On the other hand it was pointed out that most large African enterprises are bound to neglect their training activities. Popoola and Kerre mentioned the short term orientation that inhibits adequate training of future employees. The activities of ESKOM, as presented by Verster, are a excellent example of a more socially acceptable approach; although undertaken by a financially powerful company.

Up-to-date and comprehensive databases are the backbone of a technical and vocational education system that matches the demand of the labour market. A faultless forecast is not possible. But a comprehensive and reliable information system at least allows for the recognition of future trends and problems so that students can make more effective career decisions. This information also serves to sensitise policy makers, at national and international levels, to the significance exigencies of technical and vocational education. The study of Mndebele demonstrated how helpful this kind of data can be for the further development of technical and vocational education.

Many skilled, and even highly skilled, persons have not obtained qualification within the formal technical and vocational education systems in African countries. Thus, they do not have any kind of certification for their skills. However, in order to improve their chances in the labour market and make their proficiency level more transparent to potential employers, or, in the case of the self employed, to the customers, and in order to gain access to the formal education system, efforts are being made formally to recognise prior learning. In South Africa private sector activities are represented by the Private Sector Caucus. This body has published a position paper representing the interests of business in respect to current and future developments in education and training.

Effective co-operation today must also redress the results of the inequalities from the past. This includes the provision of basic skills, like reading and writing, for persons who have already entered the world of work.

The biggest preoccupation of the participants was the fact that all the action undertaken to improve technical and vocational education would not solve the problem of

unemployment in African countries. With the exception of South Africa, industry, and other sectors relevant to technical and vocational education, are not strongly represented in the African economies. As mentioned before, the limited demand of these sectors and the rapid growth of population, accentuate the unemployment problems. Various strategies to tackle these challenges were offered. Manyindo (see page 45) referred to a project that fosters co-operation with small scale industry. This, he observed, had considerable potential for job creation. Participants agreed that the integration of business skills in technical education was crucial. An alternative arrangement was to explore the potential of the informal sector by preparing students for self employment. This strategy has been chosen by Swaziland and Kenya. Regional integration can facilitate the migration of skilled labour to places where sufficient numbers of jobs are available. These tactics can be a solution for small countries like Swaziland. Nevertheless, technical and vocational education in this context has to provide basic skills, and provide more advanced skills only when necessary. Co-operation with industry is even more crucial in order to attract foreign investment and thus, create employment. The experience of some Asian countries demonstrates that the existence of a skilled workforce is a significant asset for economic development.

(6.2) Asian Experiences

A summary of the work and experiences of the Asian group during the first and second week of the seminar is given in the paper "Dual, Co-operative Training Systems - An Alternative for Advanced Developing Countries in Asia?" (see page 100). The author, Dr Wallenborn, Head of Department at the "Industrial Occupations Promotion Centre" of DSE in Mannheim introduces the work of this centre. Then he documents the results of the Asian working groups: Five core problems of technical and vocational education had been identified and solutions suggested. This paper reveals that the main problems in Asia and Africa are similar.

(6.3) International and German Expertise

An Analytical Framework

A theoretical approach to classifying initial technical and vocational education systems implemented in different nations is presented in the first paper of chapter 4. It provides a point of reference for analysing advantages and disadvantages of technical and vocational education systems. Prof. Dr Greinert (see page 105), Professor at the Technological University of Berlin and author of this well known classification, differentiates systems according to the form and magnitude of government intervention. In his paper he presents, as the latest results of his research, an additional regulating factor for technical and vocational education systems that is especially relevant for African countries. This is regulation by tradition. By further looking at the successful technical and vocational education systems it appears that an adequate integration of all three types of regulation within the systems is essential to their attaining high efficiency. On the other hand, this sophisticated form of regulation requires a complex structure. This makes it very difficult for other countries to introduce these systems, or elements of it, to their national system.

The German Dual System

The invitation to Germany made it possible to introduce participants to elements of the German Dual System and to exchange information from the international environment. This was considered valuable to the Seminar because this system is an example of co-operation between technical and vocational education institutions and the world of work.

Mr Iwanowitsch, Head of a large German enterprise, analyses five pre-conditions that determine the performance of the Dual System in Germany (see page 112). The conclusions he draws have repercussions for system design in developing countries.

The work of the principal instigator of the German system - the German Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung - BIBB) - was highlighted by presentations of several members of its staff (see page 114). This Institute is located in the same building as UNEVOC Berlin. The discussion of these contributions during the seminar always ended up addressing the question: are these policies practical in the settings of African countries? The BIBB contribution revealed the highly institutionalised tripartite co-operation in Germany. The presentations conveyed the fundamental principle of the Dual System; that is, the state is a regulator rather than an imposing agency (Tarifautonomie). If intervention is considered necessary, it is done by incentives rather than by punishment. For example, the issue of promoting women in male dominated vocations. Further, trade unions are fully involved and expected to contribute, such as through curriculum development. Entrepreneurs generally accept social responsibility and investment to prevent government intervention. On the other hand, it is obvious that the Dual System has its weaknesses and is exposed to macroeconomic problems. Due to its regulated structure, the German Dual system has been slow to react to these challenges.

This criticism was asserted, during a panel discussion, by a representative of the regional association of employers in the metal and electrical industry and of the metal workers' trade union[2]. Structural change in Germany, especially in the new Länder of the former German Democratic Republic, has diminished industrial employment and seriously affected the numbers of training places offered by enterprises. Although the German government assumes responsibility for a sufficient amount of training places it has no direct means of creating them. It can only call on the social responsibility of employers and ultimately threaten them with the imposition of stricter legislation, or with training levies. In doing so they could count on the support of the

2 The panel is not documented in this report

trade unions. These traditionally favour state intervention to foster their demands.

The panellists also discussed innovative training schemes. Some of these were:

- Siemens. This company has recently set up its own technical and vocational school, where new curricula are tested and the results are publicised. The government finances 90 % of the costs of this scheme.
- The trend, particularly in the new Länder, is for an increase of training places offered in the small scale industry. As a new third leg of the Dual System, inter-company training centres are being tested. They permit smaller enterprises to offer, in a cost-effective way, training places in high-technology areas.
- Some German companies involved in training have taken a more direct approach to represent their interests. Evidence for the genuine interest of the German industry in qualified workers is shown by the creation of an association for qualification called the "Q-Association". This Association was formed about four years ago by companies like Siemens, AEG and Daimler Benz. Now it has more than 150 members and is present in different European countries. It co-operates on the international scene, mainly through the USA and some Asian countries. Its main goals are to develop and support workplace oriented, modern vocational training and to increase the social acceptance of vocational skills. Its main instruments are trade fairs for Management and Professional Qualification. They are held annually in Hannover. In addition, in 1995 for the first time, a fair was held in Asia.
- Part of the exposure of participants to co-operation between educational institutions and enterprises was a visit to the industrial training site of AEG - one of the largest German manufacture companies. Here, modern equipment is constantly available to the apprentices. The independent organisation structure of the centre leaves room for entrepreneurial behaviour. The training and re-training of personnel from external companies is offered and the costs are covered by charging fees.

Sources of International Assistance

Two short papers on the work of the International Labour Organisation (ILO) (see page 124 ff. and page 126 ff.) are given in the following documentation. The first introduces a substantial study by Ms Mitchell, Senior Training Adviser. The ILO is carrying out this study in order to identify policies and strategies that foster strategic training partnerships between the state and enterprises. The second, by Dr Reichling - Director of the Training Department - addresses the main questions concerning training: quality, responsiveness, and efficiency. Both papers come to the conclusion that intensive co-operation between industry and educational institutions is crucial to the improving of technical and vocational education, with respect to these attributes.

The guideline to the German Federal Ministry for Economic Co-operation in terms of the International Context is given in a document called "Sector Concept - Vocational Training" (see page 127 ff.). All projects sponsored by this Ministry have to be in line with the concepts submitted in that policy paper. Vocational training is considered essential, but not in itself sufficient, for the development of the economy and society. At the same time, it is seen as a major precondition for economic growth, for equal social opportunities and for social change. This document states that "many developing countries and donor organisations are becoming increasingly interested in co-operative forms of training...". It offers a comprehensive analysis of the most common weak points of training systems in the developing countries. It strongly argues that target groups from the informal sector should be considered. The recommendations are very much in line with the recommendations of the African group, elaborated during the seminar.

(7) Summary of the Recommendations of the African Group

The following paragraphs summarise the results of the discussions during the seminar. The full text of the recommendations and conclusions enunciated by the African group is given in chapter 5 (see page 139 ff.).

The potential gain from the co-operation of technical and vocational education with the world of work is not fully utilised. The problems stated in the contributions to this report are not new - but they are becoming more compelling. Strategic and practical solutions at the political and educational level have been submitted. However, neither discussion of them, much less their implementation, has yet begun.

The cardinal finding of the seminar is that policy makers, educational institutions and enterprises are not fully aware of the significance and benefits of co-operation between technical and vocational educational institutions and the world of work. UNESCO has made efforts to get technical and vocational education on the agenda as a development priority (e.g. the Convention on Technical and Vocational Education of 1989, see Appendix, page 161 ff.). Participants appreciated these efforts and expressed concern over the apparent lack of progress in their implementation. It was concluded that a really effective strategy is needed to tackle this problem. To insist on the development of a definitive policy and vision for technical and vocational education, was identified as the crucial task. It was thought to be imperative to create more awareness of the current problems of technical and vocational education and of the potential contribution that increased partnership between educational institutions and enterprises could make to solve them. Then, further action and improved co-operation would proceed more smoothly and efficiently.

In order to improve the image and status of technical and vocational education, a mobilising, attention-focusing initiative was proposed. The question of what technical and vocational education is doing for itself to enhance its image and status reflects the underlying philosophy of this initiative and its key players, namely the present incumbents in technical and vocational occupations. The attention focusing action would consist of:

- declaring the year 1997 as the year of technical and vocational education
- organising a Skills Olympics
- convincing relevant national and international bodies to thrust forward technical and vocational education.

It was also determined that among the most critical issues in technical and vocational education are the training of trainers and access and equity.

The proposed instrument to address these issues in the most efficient manner is the development of regional strategic plans. These plans are developed in workshops and planning seminars. They must

- define the vision
- determine how to achieve it
- describe how to implement it, and
- delineate how to monitor the implementation.

The working mandate of UNEVOC enables this Project to assume a significant role in the development and realisation of these plans. According to the objectives of the event, participants have developed in the final document an action plan for UNEVOC and its network in this context. It includes:

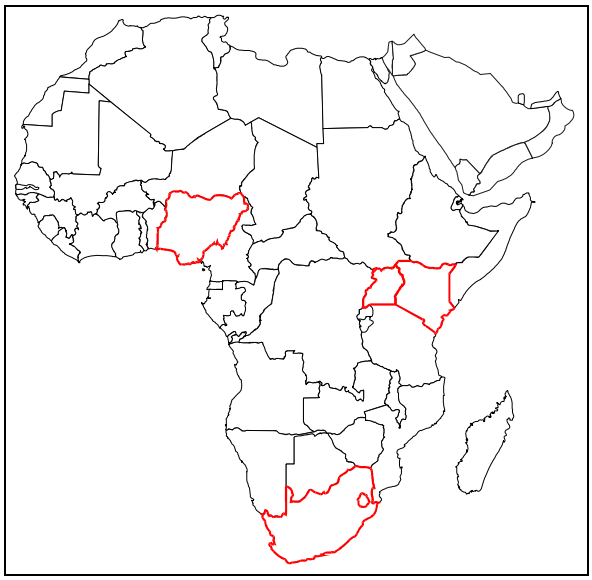
- the strengthening of UNEVOC Centres
- the alerting of relevant people to the vital importance of this development through seminars at national, subregional and regional level
- the promoting of co-operation between educational institutions and enterprises
- the supporting of the reform and improvement of curricula
- the assisting in the mobilisation of resources.

The final document is not merely a declaration of good will. It renders an entire strategy with specific proposals for action, implementation and control. The follow-up activities to be undertaken by the participants and by UNESCO, within UNEVOC, are outlined. Follow-up activities have started the process of making operative the implementing and monitoring proposals.

2 Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education: African Experiences

The African participants in the Seminar came from five countries:

Kenya, Nigeria, South Africa, Swaziland, and Uganda.



Participating African countries

Some indicators of these counties relating to population, national economies and education are given below:

		Source	Kenya	Nigeria	South Africa	Swaziland	Uganda
Population	Estimates (1990)	(1)	24,872,000	108,542,000	35,282,000	768,000	18,795,000
Gross Domestic Product	Million US$ (1987)	(2)	7,972	27,113	80,849	559	4,072
Gross Domestic Product	Million US$ 1990)	(3)	7,500	34,800	90,700	...	2,800
Gross Domestic Product per Capita	US$ (1990)	(4)	370	270	2520	820	220
Public expenditure on education per capita	US$	(5)	28.5	12.0	...	...	22.5
Teaching Staff in TVE		(6)	531	10,785	...	...	652
Pupils in TVE		(7)	8,880	113,556	41,081	395	6,556
Secondary education enrolment: Percentage of vocational education	1970	(8)	1.7	8.5	...	2.3	7.4
	1979/80	(9)	2.0	3.1	...	0.7	5.1
Secondary education enrolment: Percentage of technical education	1987/88	(10)	1.6	...	...	1.4	2.5

Sources:

(1) UN Statistical Yearbook, 38th issue, table 11
(2) UN Statistical Yearbook, 38th issue, table 29
(3) Human Development Report 1993, table 26
(4) UNESCO World Education Report 1993 table 1
(5) UN Statistical Yearbook, 38th issue, table 17,
(Kenya: 1980; Nigeria: 1986; Uganda: 1987)
(6) UNESCO Statistical Year Book 1994, table 3.8
(Kenya: 1987; Nigeria: 1980; Uganda: 1988)
(7) UNESCO Statistical Year Book 1994, table 3.8
(Kenya: 1988; Nigeria: 1989; South Africa: 1990; Swaziland: 1985; Uganda: 1988)
(8) Technical and Vocational Education in the World 1970-1980 (UNESCO CSR-E-47), table 1.1
(9) Technical and Vocational Education in the World 1970-1980 (UNESCO CSR-E-47), table 1.2
(10) Human Development Report 1993, table 15

2.1 Abstracts of Participants' Presentations

(1) EBERLEIN, South Africa: The National Training Strategy Initiative 20
(2) VERSTER, South Africa: The ESKOM Approach 21
(3) ODUGBESAN, Nigeria: The Perspective of an Educational Institution 21
(4) POPOOLA, Nigeria: The Perspective of an Employer 22
(5) LUGUJJO; MANYINDO, Uganda: Co-operation Links..... 23
(6) RWENDEIRE; MANYINDO, Uganda: Realities of Co-operation - Uganda Polytechnic Kyambogo 23
(7) LUGUJJO; MANYINDO, Uganda: Pilot Project on Co-operation. 24
(8) LUKHELE, Swaziland: Co-operation..... 25
(9) MNDEBELE and LUKHELE, Swaziland: Connecting Schools and Enterprises - A Model for Secondary Vocational Education.... 26
(10) KERRE, Kenya: Co-operation in Technical and Vocational Education 26

(1) EBERLEIN, South Africa: The National Training Strategy Initiative

Introduction

The Article takes the form of an executive summary of a report by the National Training Board on the development of a national training strategy for South Africa, and the progress made since its publication.
The national training strategy proposed is the first major multi-party attempt (involving the State, organised business and labour, and the providers of education and training in a national Task Team) under the auspices of the National Training Board to raise the profile of training issues, emphasise the centrality of training for the reconstruction of South Africa, and to propose an integrated approach to education and training in the future.

At the outset it was realised that a traditional approach to training would do little more than perpetuate past problems. The starting point for the activities of the Task Team was the vision of a new approach to education and training which can meet South Africa's need for:

> *"a human resources development system in which there is an integrated approach to education and training which meets the economic and social needs of the country and the development needs of the individual".*

A series of principles were then developed and used continually during the development of the national training strategy to assess conformation with the mission and its elements.

International and National Research

Parts of the research conducted involved an analysis of contextual aspects of international and national education and training systems. Although no foreign education and training systems are considered transferable in their entirety to South Africa, certain aspects are, and these merit further consideration and research.

An environmental scan of the current education and training system in South Africa and the environment in which it operates was conducted and is described.

A Proposed National Training Strategy

The starting point, the nucleus of the strategy, is a National Qualification Framework (NQF) specifying learning in terms of nationally and internationally accepted outcomes.

A nationally recognised qualification which is obtainable via a multiplicity of acceptable education and training sources should satisfy the need for an improved quality of life and concurrently encourage the development of a culture of learning.

The NQF provides a means to meet the needs of the key stakeholders who are:

- the State, the community whose needs for development are underwritten by the access to adult basic education linked to appropriate national education and training qualifications
- the business sector
- the labour organisations, and
- the providers of education and training.

The NQF creates the need for a structure for Governance to champion the achievement of the objectives of the strategy.

All of this based on defined Financial and Incentive Plans enhancing productivity and investment in credible and appropriate education and training, within the ambit of a Legal Framework, and supported by the necessary National Research and Development and Database, within an environment of the National Human resources and Economic Development Plans derived from the Government's Reconstruction and Development Programme.

The remainder of the article deals in some detail with some of the aspects considered in developing the strategy including the interactions between the stakeholders. This includes:

- developing credible outcomes for education and training;
- the Education training Development Practitioner (a new form of trainer);
- adult basic education;
- finance and incentives;
- the development of a labour market strategy;
- rewarding performance;
- an information database system, and
- South African education and training legislation.

The article closes with a section indicating the progress made with the implementation of the strategy since publication of the report.

(2) VERSTER, South Africa: The ESKOM Approach

Introduction

A new education and training system is being implemented in South Africa which is focused on the integration of education, training and development (ETD) and which inherently caters for the co-operation among all providers of ETD in the system. The National training Strategy is pivotal in this transformation process in support of the reconstruction and development of the country.

ESKOM as a large, decentralised organisation is a prominent and respected contributor to the national ETD changes. As a progressive company it has, for the past 18 months, pro-actively positioning itself to accommodate and influence these changes. Most of the details of the National Training Strategy are still under development and ESKOM had to interpret the possible implications in the transformation process and position itself accordingly. Some re-alignment in the future might be necessary.

Against this background, the focus of this paper is on how business, and in particular ESKOM, is positioning itself for compliance with the requirements of the new integrated ETD system and their contributions to influence it.

Context

The integrated education system consists broadly of the following six sectors of education provisions:

- early childhood education and care
- compulsory general education (of 10 year duration)
- adult basic education
- further education (of 3 year duration)
- technical and vocational education (also referred to as career education)
- higher or tertiary education (universities, technikons and colleges of education).

Technical education and training (especially apprentice training) was transformed in 1988 into competency-based, modular format. Industry Training Boards were introduced and they play a pivotal role in technical and vocational education and training. The main providers of technical and vocational education and training in South Africa include Technikons, Technical Colleges, Industry Training Boards, Regional Training Centres, private training centres and non-governmental organisations. It is anticipated that these providers will still be part of the future dispensation but that their roles and focuses will change - in some cases significantly. In the past number of years the trade unions have also zoomed in on education and training and are demanding their right to meaningful influence.

Private Sector Position on Education and Training

PRISEC (Private Sector Education Caucus) has recently published their position paper on the current and future developments in education and training as these have impact on business interests. PRISEC is especially vocal in its viewpoints and needs for lobbying on issues such as business interests in: articulation, governance, financing of education and training; qualifications, accreditation and certification; curriculum development; the world of work; adult basic education and training; teacher supply, utilisation and development; mathematics, technology and science education: as well as tertiary and further education. Some of these issues as they relate to the topic under discussion will be highlighted.

ESKOM's Positioning to Comply with the Integrated National ETD System

ESKOM was fortunate to have been involved in all the working groups on the National Training Strategy. This was very useful to the strategic repositioning process on ETD that ESKOM has embarked upon some 18 months ago. Pivotal in this repositioning process is the integration of ETD in ESKOM and thus also co-operation with all other stakeholders including education institutions in the technical and vocational education and training system. The following initiatives will be discussed in more detail:

- Education, training and development mission, vision, philosophy and policy.
- Strategies for Integration of ETD in ESKOM.
- Targets set for support of the Reconstruction and Development Programme.
- Redressing ETD inequalities of the past e.g. Adult Basic Development and Accelerated Human Resource Development Initiatives.
- Creating a skills-respect culture and changing ESKOM into a learning organisation.
- Professionalisation of trainers (ETD practitioners).
- Establishment of a Technical Training Institute.
- Establishment of a master artisan school/centre for advanced technical training.
- ESKOM's Human Resources Development initiatives in Africa and other international co-operation agreements.

(3) ODUGBESAN, Nigeria: The Perspective of an Educational Institution

Introduction

The Yaba College of Technology, located in the largest urban centre in Nigeria, Lagos, which is also the UNEVOC Centre for Nigeria, is the oldest institution of higher education in Nigeria. It was established forty-seven years ago with a present population of about 14,000 full-time and part-time students in 5 schools and 24 departments, offering courses in Engineering, Environmental Studies, Applied Sciences, Management & Business Studies and Art & Printing Technology.

About 98 % of its programmes are accredited by the National Board for Technical Education (NBTE).

Technical and Vocational Education in Nigeria

Even before the advent of the British in Nigeria, many communities and cultures had developed their own system of informal, formal and vocational education systems. Vocational education was done through the system of apprenticeship, whereby young boys and men were attached to master craftsmen where they learned various trades and skills such as Carpentry, Masonry, Blacksmith, Foundry, Carving, Textile Design and Dyeing etc. Such apprentices could spend from three to seven years depending on the trades they were specialising in, the master's skill, competence and exposure, and the ward's individual ability and performance. At the end of such training, the "graduate" apprentice was assisted by the family to acquire necessary tools, and local equipment to start his own trade. He would recruit other apprentices to work within his new set-up.

At present, technical and vocational education outside the universities is offered at

- Local Apprenticeship with Mastercrafts
- Prevocational School
  - Vocational Schools
  - Artisans - Various Trades
  - Craftsmen - National Tech. Cert. (NTC)
- Technical Colleges
  - Master - Advanced National
  - Craftsmen - Tech. Cert. (ANTC)
- Polytechnics and Monotechnics
  - Technicians - National Diploma (ND)
  - Higher Technicians/Technologists (HND)
- Colleges of Education (Technical)
  - Technical Teachers - NCE (Tech.)

In addition to the formal institutions above, the Federal Government has of late created various programmes/agencies aimed at promoting self-employment and self-reliance through technical education. These include the National Directorate of Employment (NDE), Small Scale Industries Loans Scheme, the People's Bank, with its drop outs' and drug addicts' rehabilitation skill acquisition programme, and the National Open Apprentice Scheme.

Linkage with Industries

After the National independence of Nigeria in 1960, the initial efforts aimed at achieving rapid national development were concentrated on the expansion of formal educational institutions at all levels. However, the products of the Nation's formal educational institutions, though considerably increased in number, did not acquire the skilled knowledge and varied technological expertise to meet the specific needs of the industrial sector.

It therefore became increasingly clear that a link between the industries and the educational institutions must be created in order to meet the needs.

Details of the following programmes will be provided in the main paper:

- The Students Industrial Experience Scheme (SIWES) Objectives, Eligible Courses, Student Reaction in terms of Benefit, Contribution of Companies on SIWES, Contribution of Industrial Training Fund (ITF) on SIWES, Population growth of SIWES (1985-1994), Yaba College of Technology SIWES Section.
- Industrial Attachment between Year One and Year Two of ND Programme.
- One year compulsory industrial Attachment between ND and HND.
- Short Courses for Technicians: 2 weeks to 3 months from Industries at Polytechnics.
- Sponsorship of technicians from Industries to Polytechnics for Industries to Polytechnics for ND and HND Programmes.
- Awards for best students in particular technical fields in Polytechnics.
- Endowment in the Polytechnics by industries.
- Donation of equipment, machinery, computers etc. (new or used).

Conclusion

The need for a strong link between the producers of trained manpower (educational institutions) and the users of such manpower is getting stronger in the country. There is a need to foster such relationships and links to create more relevance for the trained manpower.

(4) POPOOLA, Nigeria: The Perspective of an Employer

Why Co-operate?

- To assist Educational Institutions turn out higher quality graduates to the overall benefit of the world of work (National Economy).
- To better equip Vocational Education Graduates with relevant skills (to today's demand by enterprise).
- To help influence, positively, curriculum design/development.
- To improve the quality of instruction through interaction with teachers in Technical Institutions.
- To enrich the instruction by the participation of experienced professionals.
- Render support services e.g. maintenance/provision of equipment/machinery for training purposes.

Areas of Possible Co-operation

- Attachment of Technical Education Students to enterprises for practical Work Experience.
- Making available special equipment/machinery to Technical Education Institutions at agreed period for training purposes.
- Interaction between Teachers and Relevant Company officers to draw up result oriented attachment programmes and to jointly closely monitor the

implementation of the same for maximum benefit of the students.
- Review by both parties of the relevance/appropriateness of curricula drawn-up for vocational students in light of realities/challenges facing enterprises.

Current Status of Co-operation
- Rather low/weak
- Enterprises generally view the issue of co-operation as a distraction - especially in light of an "Employer's market" situation.
- Those enterprises that do co-operate do so half-heartedly.
- Many others exploit the co-operation arrangement as a means of "cheap" labour.
- There is room for great improvement in the status of co-operation.

Hindrances to Co-operation
- Lack of knowledge/appreciation of the immense longer term benefit of such co-operation to Enterprises/National Economy.
- Economically hostile operating climate which tends to promote "short termism" at expense of the long (sustainable growth).
- Inadequate follow-up/motivation by Government agencies to encourage/forge co-operation.
- Lack of central (national) co-ordination of the interaction between the two groups.

The Way Forward
- Hold workshops/seminars to "sell" benefits of co-operation.
- Assist Government agencies in developing appropriate strategies for follow-up.

(5) LUGUJJO; MANYINDO, Uganda: Co-operation Links

The paper is in three parts. The first two parts examines co-operation links between educational institutions and enterprises in Uganda against the socio-economic conditions prevailing in this country. It will be appreciated that this has a tremendous bearing on the problems and efforts that have been made to address this partnership.

The education and training sector on one hand and the public and private sectors on the other have equally had their share of problems. In the education and training sector the second part of the paper examines the main fields of co-operation: industrial training of students in enterprises, study tours and part-time courses.

The identified major problems of the training institutions are:
- inadequate budgetary allocations
- obsolete training machinery
- inadequate remuneration of staff

The third and core section examines the objectives, modalities of achieving co-operation links, constraints, efforts made in Uganda, the financing of and proposed activities for support of the co-operation links.

The major constraints to the linkage process in Uganda are highlighted:
- There is no coherent political framework created by the political institutions.
- There is no adequate financing by enterprises available.
- There is a continuing information gap between enterprises and training institutions.

The presentation calls for a sensitisation of policy makers and the building of institutional capacity for co-operation. The specific assistance of UNEVOC is needed in this area.

(6) RWENDEIRE; MANYINDO, Uganda: Realities of Co-operation - Uganda Polytechnic Kyambogo

Introduction

The paper examines the attempts made by the UPK at initiating, fostering and promoting the co-operation with industry.

At the first workshop of its kind in April 1995 the UPK introduced the pilot study, presented in this report, (see page 53) to participants from industry and the UPK community. The participants discussed a variety of issues concerned with the proposed UPK-Industry Co-operation. The paper presents the main Resolutions and Recommendations that were made at the workshop. The implications for the way forward in forming partnerships between Educational institutions and Enterprises in Uganda are also examined.

Main Results of the Workshop

By and large the workshop succeeded in formulating the mechanism for the sustainability of the co-operation. A committee of fifteen members was proposed (UPK-Industry Partnership Committee) with the composition of eight members from industry, three from UPK, two from Government and two from Professional organisations. The committee was charged with the responsibilities of ensuring the success of the partnership. The establishment of a UPK Training Fund was proposed in order to ensure the sustainability of the UPK-Industry Partnership. The principal UPK was mandated to follow up the speedy implementation of the recommendations.

To ensure the success of the venture, the Government was obliged to speed up the policy initiative to regularise the co-operation. The policy would also cater for attractive incentives to be offered to the co-operating enterprises, including offers of tax rebates.

The responsibility of initiating such Educational Institutions-Industry linkages was firmly placed on the

Educational institutions themselves. They were encouraged to liaise amongst themselves and also target the policy-makers, be it in industry or in Government. The educational institutions were also to appreciate the demand driven need for short-courses that were relevant to the local conditions. The appropriate marketing strategies must be devised to sell the courses, their tax incentives and services to industry. It should be recognised that the most valuable asset for all industrialists, next to financial capital, is time. Therefore time as a non-renewable resource must be managed efficiently.

Finally, it was further stressed that Educational Institutions should be encouraged to establish linkages with the informal sector of the economy, especially with the small scale or medium Enterprises which have tremendous potential as the main employers. To foster these linkages, the communication barriers should be removed by adopting indigenous languages where applicable. Furthermore, students should be assigned problem-solving projects in this informal sector.

(7) LUGUJJO; MANYINDO, Uganda: Pilot Project on Co-operation

This report is based on a Pilot Project study on Co-operation Between Institutes for Technical and Vocational Education and Enterprises in Uganda. Its objectives were to promote co-operation links between institutes for technical and vocational education and industries/enterprise through:

- an exchange of knowledge and know-how and the joint undertaking of research and development projects,
- the acquisition by students and teachers of the experience of life in an enterprise,
- the renewal and adaptation of teaching and training programmes to suit productive work.

The study on co-operation between institutes for technical and vocational education and enterprises in Uganda sponsored by UNESCO's Regional Office for Education in Africa (BREDA) sought to review and analyse:

- the place and role of technical and vocational education in the education and training system and its linkages with general education;
- the relations between institutes for technical and vocational education and in particular industrial firms, and the official policies governing any existing relation;
- the co-operation links through case studies highlighting training periods spent by teachers and students in enterprise; the participation of staff from enterprises in teaching and training in technical institutions, and the joint design of projects.

This study also called for proposals for guidelines to strengthen co-operation between technical institutes and enterprises, as well as proposals for research topics aimed at renewing and adapting the content of teaching and training programs, to fit the present national needs, taking into account the evolution of the national context and the advances in science and technology.

Uganda has many institutions (both private and public) engaged in technical and vocational training and industrial activities. These include technical schools, technical institutes, vocational training centres, technical colleges, a polytechnic, Universities, and a wide range of industrial establishment.

The team of consultants agreed to get the relevant data and information for this study through research (to get baseline data, conducting interview with identified stakeholders e.g. Heads of Institutions, Training officers in Industries, Professional organisations of engineers and manufactures; and also policy makers in technical education).

In order to take a firm consensus and informed judgement on a portfolio of identified issues affecting co-operation between University and industries, a one-day workshop was convened. During this workshop a working document reflecting the issues obtained was presented and discussed.

Findings

Uganda does not have a well conceived and co-ordinated policy governing co-operation between technical and vocational institutes, Universities and Industry. Different institutions engaged in co-operative schemes use their own guidelines and initiatives with no recourse to any established procedures.

The industrial strata underwent disruption with the economic decline and mismanagement that followed the expulsion of skilled industrialists and managers in 1971. At present, efforts are being progressively made to rehabilitate the industries but nevertheless their capacity output is still low at an average of about 30 %. Under such circumstance of survival these industries are still constrained to open up fully to linkages and collaborative ventures especially, when the advantages are long-term.

The existing linkages between training institutions and industries are weak and they largely occur through students' industrial training. This is partly due to:

- Inadequate industrial training places for all students;
- weak interaction between industrial training officers in technical institutes and their counterparts in industries;
- absence of vetted industrial training programmes;
- absence of supervised industrial training programmes;
- absence of clearly articulated joint projects between universities and industries;
- negative attitude to industrial training by industries as they still hold on to a short-term commercial focus.

During the workshop, it was generally agreed that the existing institutional delivery system for university/

industry co-operation is very weak and does not only require government interventions but a concerted effort of all stakeholders, such as manufacturers, (big and small-scale), financiers, trainers, and professional bodies.

It was also found out that there are no fora or committees responsible for reviewing, assessing and promoting training programmes in colleges and industries. In this respect it was proposed to urgently set up such committees with membership drawn from training institutions, industry, government and relevant professional bodies.

The workshop convened to deliberate on issues affecting co-operation and linkages between university and industries appointed a National 'Steering Committee' with the following Terms of Reference:

- follow up the deliberations of the workshop;
- work out modalities for establishment of a permanent body (organisation) for promoting co-operation links between university and industry;
- liaise with Government and other relevant bodies in order to avoid duplications;
- explore ways and means of funding the activities of the organisation;
- work out specific objectives of the organisation, composition and mode of operation; and
- carry out any other activities incidental to the Terms of Reference.

(8) LUKHELE, Swaziland: Co-operation

Introduction

The policy of Education in Swaziland promotes co-operation between educational institutions and the world of work, at primary school level and at tertiary school level.

Pre-Vocational Programmes

The primary school provides basic literacy with a mixed bag of positive work-orientated attitudes. This is effected through the subject called Practical Arts. At secondary school level the curriculum is more practical with a deliberate purpose to introduce the students to subjects leading to specific vocations - Technical Studies, Business Studies, Agriculture and Home Economics. At one time this conceptual framework in the secondary schools was conceived as diversification of curriculum. These days it is constantly referred to as pre-vocational programmes.

Technical and Vocational School Programmes

Tertiary training institutions in Swaziland cover a variety of programmes that prepare the students for industries. Among others, are Engineering programmes, Civil and Building programmes, Business programmes, Agriculture programmes and Hospitality programmes. Training in each of these programmes, and other programmes, should be accompanied by some apprenticeship in a qualified industry under a qualified supervisor. In order for an artisan to be recognised he/ she must have had a five year industrial attachment, which includes, in part, institutional training. Those persons that start their career from industries are also given the opportunity to be trade tested by the training institutions, after a recognised period of service in the industry.

Need for Co-operation

For purposes of this paper, rationale for the needed co-operation between the training institutions and the industries have been condensed and classified into three arguments, namely:

- preparation of an effective curriculum;
- introduction of the students into the world of work; and
- matching of the training skills with the job opportunities existing in the industries.

First, an effective curriculum in a technical/vocational school covers both theory and practice. The theory should be able to support the practice and the practice should be able to support the theory. The attachment of the students to industry provides live practice which supports the theory learned in the classroom and laboratory situations. Secondly, the students need to be introduced into the industry of their choice smoothly and in a way that will make them fit in and be productive in the industry. Where possible, this should go parallel with the training offered in the technical/vocational institutions. Thirdly, through a deliberate co-operation between the training institutions and the industries the institutions become aware of job opportunities for which they should train the youth. Conversely, the industries also become aware of the manner they can benefit from the training institution. Through this type of co-operation industries can also use the technical and vocational institutions as recruitment grounds for their artisans.

Instrument of Co-operation in Swaziland

The Ministry of Labour and the Public Service have established a policy-making body called The Directorate of The Industrial Training Centre. This body consists of the representatives of the Federation of Swaziland Employers, the Unions and the training institutions. Through this body the general policy of technical and vocational training that will meet the needs of the industries is formulated. At a lower level there are Trade Advisory Panels, which advise the training institutions on the nuts and bolts of the trades needed in the industries. The panels cover the areas of Engineering, Construction, Hotel and Catering and Business Education and they consist of representatives of industries and training institutions. Hence, theoretically, it can be said that the instrument of co-operation between industries and training institutions exists in this country; but, in practice, there are numerous problems that need constant attention.

(9) MNDEBELE and LUKHELE, Swaziland: Connecting Schools and Enterprises - A Model for Secondary Vocational Education

Introduction and Conceptual Framework

During the past two decades, an intense focus on educational reform has caused concern among educators and private enterprises about the workforce preparedness of non-college/non-university bound youth and the concomitant role of secondary vocational (pre-vocational) education in the reform movements. Yet, despite the initiatives and reports generated from numerous education commissions, the role of secondary vocational education in Swaziland remains unclear. Few of the reports have even mentioned vocational education, or discussed its role in educational reform. Consequently, education has not responded effectively to the needs of the Swaziland workforce or the youth who, in all likelihood, will not obtain a post-secondary education.

An urgency to create new directions for Swaziland secondary vocational education has been heightened in recent years by dramatic changes taking place in the private enterprise workplace, the labour market, and throughout society. It is no longer business as usual. Innovations in technology, and ther increasingly higher-order skills required of employees in the private enterprise workplace have affected the Swaziland education system, thus calling for the development of futuristic approaches to the content and delivery of vocational education.

The waves of education reform, beginning with the National Education Review Commission (NERCOM) of 1985, now focuse on isolating the main problems associated with the relevance of education to the socio-economic needs of Swaziland. The NERCOM report recommended the establishment of alternative education, such as vocational (pre-vocational) education, that would link secondary education to the world of work, and schooling to business/industry enterprises.

Purpose

The purpose of this paper is

- to examine "realised" and potential impacts of recent waves of education reform on vocational education,
- to describe the initiatives for secondary vocational education and business/enterprises collaborative efforts,
- to examine the issues/problems that constrain implementation.

Methodology

The methodology utilised is commonly referred to as documentary or information research methodology (Fenner & Armstrong, 1981; Asselin & Finch, 1988). The criteria for inclusion of studies in this review were adequacy of methodology, impact of research upon vocational education, and whether the research was conducted in Swaziland during the last 10 years (Asselin & Finch, 1988)

Conclusions and Implications

The article concludes with implications for secondary vocational education reform in the context of a developing country with a limited industrial economic base. The results of the present study, as well as proposed directional statements, must be interpreted in the light of the appropriate literature and research on employment preparation and secondary vocational education. In addition, the literature may be used to establish a theoretical base (model) for proposed changes in the existing educational system. This model graphically portrays the process of education related to the workplace of enterprises. Other less industrialised economies in Sub-Saharan Africa, with appropriate refinements, may wish to emulate it.

(10) KERRE, Kenya: Co-operation in Technical and Vocational Education

Technical and Vocational Education in Kenya

The development of technical and vocational education in Kenya has expanded rapidly over the past two decades, mainly:

a) to provide occupational training for a growing number of youth who enter the labour force each year, and
b) to provide skilled manpower to meet the demand from agricultural, industrial, business and other technical service sectors in the Kenyan world of work.

Today, besides its inclusion as a vital aspect of general education in the school curriculum, technical and vocational education and training is offered in a broad spectrum of courses found in technical and vocational institutions, ranging from Youth Polytechnics to National Polytechnics. There are over 600 youth polytechnics, with an enrolment of about 40,000 Primary School leavers, taking artisan and craft courses. At the post secondary level, there are 20 Technical Training institutes and 17 institutes of Technology, enrolling about 3,000 and 6,000 trainees respectively. These institutions offer a wide range of craft and technician diploma and certificate commercial courses. At the highest level in technical and vocational education, there are three national Polytechnics and a Technical Teacher Training College, with a total enrolment of about 10,000. The Polytechnics offer advanced courses leading to diplomas in technology, with a proposed Bachelor of technology degree in one of the Polytechnics. The Technical Teachers College provides pedagogic studies to qualified and experienced technical and vocational personnel, who become certified teachers in their areas of specialisation.

Besides the technical and vocational institutions, Kenya's five public Universities offer a range of technological

and vocational programmes in which co-operation with industries has been a vital link.

Co-operation with Enterprises

Because of the realisation of the importance of co-operation between educational institutions and enterprises to achieve appropriately trained manpower, there has been close co-operation on several fronts:

- The government co-operates with industry through the Industrial Training Act whereby industries use training committees to determine training needs for industry. The information is used to design and develop curricula for training programmes for artisans, craftsmen, and technicians, and general skill improvement courses for indentured learners and supervisors. Through the Curriculum Development Panels at the Kenya Institute of Education (KIE) industry personnel are often called upon to contribute to the development and review of curricula for TVE to ensure quality and relevance.
- Individual TVE institutions in Kenya have an industrial Attachment in each training programme. By this, trainees are attached to industry in their areas of specialisation for a period ranging from three months to a year, to gain valuable industrial experience.

The co-operation with enterprises, however, has not been easily facilitated, for a variety of reasons.

- There has been a lack of an efficient mechanism in planning for and managing the institutional and industrial linkage to foster effective training.
- There has been a lack of clear policy on such co-operation.
- Industry has often been reluctant in opening to institutions for fear of competition in their business.
- There has been a lack of awareness on the part of industry of the capacity of technical and vocational institutions to conduct short term research and training needs analyses and to ascertain the capacity and employment opportunities that industry holds for their trainees.

These reasons, amongst others, have impeded the co-operation, and, as a result, have contributed to the growing gap or mismatch between TVE programmes and the skill needs of industry.

2.2 South Africa: The National Training Strategy Initiative by R. EBERLEIN

Dr Ray EBERLEIN, born in 1939, is the Chairperson of the National Training Board of South Africa. He retired from the South African Navy as a Rear-admiral, after more than 35 years of service. He is a specialist in the human resources field, a registered Personnel Practitioner and a Fellow of the Institute of Personnel Management (SA).

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(1) Introduction

In April 1994 the National Training Board published for comment a discussion document entitled "A National Training Initiative" (NTSI). This was the product of a representative Task Team made up of selected members of the National Training Board, and those drawn from the four main stakeholder organisations; the employers, the employee organisations, the State and the providers of education and training.

The national training strategy proposed in the report was the first major multi-party attempt to raise the profile of training issues, emphasise the centrality of training to the reconstruction of South Africa, and propose an integrated approach to education and training in the future.

Since its publication a great deal of effort has gone into consultation and discussion of the report and its recommendations, and into implementation studies. A great deal of support for the recommendations of the report was received from all stakeholders. This article attempts to present the key elements of the report and the progress made in implementation of the recommendations.

(2) The Importance of Process

In the South Africa of today, the manner in which an objective is striven for is often more important than its actual achievement. The importance of the process by which an objective is achieved to the acceptance of the achievement cannot be over-emphasised. In terms of management style, process demands that a new Africa-style management be utilised in striving to achieve. The application of this new style requires that all the stake-holders together identify the problem to be solved, propose solutions together, and strive for their achievement, in the same way as was done in the development of the NTSI.

(3) Vision

At the outset the Task Team realised that a traditional approach to training would do little more than perpetuate past problems. The starting point for the activities of the Task Team was the vision, which is of:

"a human resources development system in which there is an integrated approach to education and training which meets the economic and social needs of the country and the development needs of the individual".

This vision requires several paradigm shifts in thinking about education and training as separate entities to thinking about learning as a lifelong, changing process aimed at meeting specific needs.

(4) Principles

The Task Team developed a series of 12 principles which were used continually during the development of the national training strategy to assess conformation with the mission and its elements. While the principles listed refer to both education and training, the Task Team's activities concentrated on their interpretation in the context of training. The six key principles to underpin the report's recommendations are as follows:

Integration

Education and training should form part of a system of human resources development which provides for the establishment of an integrated approach to education and training.

Standards

Should be expressed in terms of a nationally agreed framework and internationally accepted outcomes.

Articulation

Should provide for learners, on successful completion of accredited prerequisites, to move between components of the delivery system.

Portability

Should provide for learners to transfer their credits or qualifications from one learning institution and/or employer to another.

Recognition of Prior Learning

Should, through assessment, give credit to prior learning.

Guidance of Learners

Should provide for the guidance of learners by persons who meet nationally recognised standards for educators and trainers.

(5) International and National Research

(5.1) Foreign Countries

A survey was made of education and training systems in eight countries in order to monitor the performance of their systems and identify those principles and practices which had proved to be successful. The countries researched were Australia, Brazil, Germany, Malaysia, Singapore, Tanzania, the United Kingdom and Zimbabwe.

Although no education and training systems are considered transferable in their entirety, certain aspects are, and merit further consideration and research.

(5.2) South Africa

South Africa, including the homelands, currently (April 1994) has fifteen Ministries of Education and nineteen Departments of Education. Although current expenditure is over R 20.4 billion per year, which is equivalent to other countries at similar stages of development, the education system suffers from numerous problems.

Regarding training institutions, the bodies responsible for training in South Africa are:

- the Department of Manpower,
- the National Training Board with 24 members,
- nine autonomous regional training centres with 62 satellite campuses and 65 mobile centres,
- 1417 private training centres and training centres established by employers and
- 26 industry training boards, mostly with predominantly employer representation.

There is little articulation between these components of the training system and there is no single certification body.

Accepting the fact that the fiscus cannot provide more funds for education and training at this junction; that a huge imbalance exists between the amounts spent by the State on education and on training (R 3.1 billion versus R 300 million); that the private sector spends approximately R 3.5 billion on training, one must still deduce that South Africa's total spending on training is less than 1 % of total employment costs. This 1 % compares badly with the 5 % spent by South Africa's major trading partners.

In terms of its ability to provide qualified personnel, the education and training system performs poorly with two-thirds of the work-force illiterate and nearly 10 % of the population with no education at all.

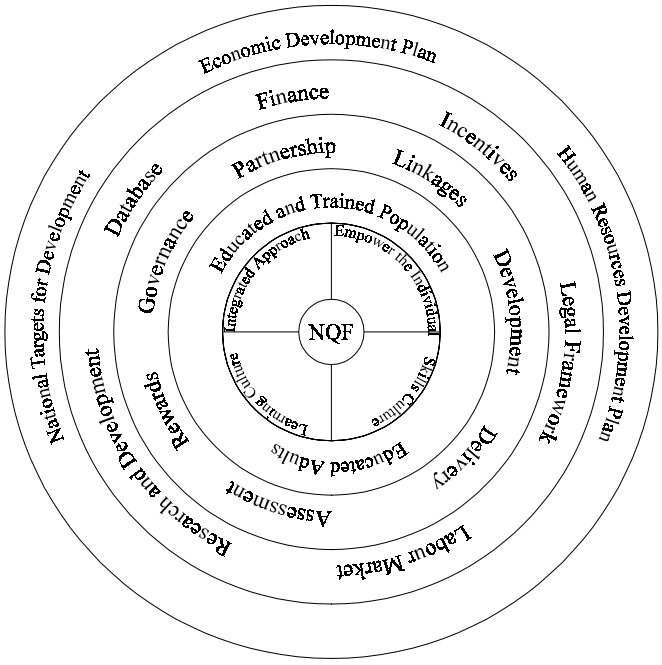

Figure 1
Essential Elements of a National Training Strategy

(6) A Proposed National Training Strategy

Figure 1 depicts the essential elements of the strategy. These are needed to implement the strategy.

The starting point, the nucleus of the strategy, is a **National Qualification Framework** specifying learning in terms of nationally and internationally accepted outcomes.

The National Qualification Framework creates the need for a structure for **Governance** to champion the achievement of the objectives of the strategy.

All of this is based on defined **Financial and Incentive Plans** enhancing productivity and investment in credible and appropriate education and training, within the ambit of a **Legal Framework**, and supported by the necessary **National Research and Development and Database**.

The figure shows the necessary elements providing the environment within which the National Training Strategy is implemented, the **National Human Resources and Economic Development Plans** devised by the appropriate multipartite forums and State bodies, from which are derived:

- a **Strategy** to create the supportive involvement of education, and
- a series of **National Development Targets**.

(7) National Qualification Framework

A national qualification framework (NQF) would be based on a system of credits for learning outcomes achieved. A learning outcome is essentially a capability developed in the learner reflecting an integration of knowledge and skill which can be understood, applied and transferred to different contexts. Qualifications might be achieved by full time, part time or distance learning, by work-based learning or by a combination of these together with the assessment of prior learning and experience.

Levels: 5-8 Non-Compulsory				
Tertiary & Research				
Research	Higher Degrees	Initial Degrees	National and Higher Diploma	Professional Employment
Levels: 2-4 Non-Compulsory to Higher National Certificates				
Core and Applied Generic and Options				
Senior Secondary Schools	Technical Colleges & Community Colleges	Private Providers & NGOs	Industry Training	Labour RTC's Market Schemes
Level 1: Compulsory Schooling	ABE & Training: Level 1			

General Certificate of Education GCE		General Certificate of Education GCE
9/10 years	Grade 9/10	Level 1
7 years	Grade 7	Sub-level C
5 years	Grade 5	Sub-level B
3 years	Grade 3	Sub-level BA
Educare		

Figure 2
A National Qualification Framework

The proposed framework illustrated in Figure 2 has eight levels and incorporates education and training in the same framework. The proposal has since been accepted and is presently being incorporated in legislation by the national Department of Education.

(8) Structures for Governance

The governance structure originally suggested included the following (Figure 3, page 29):

Ministry of Education and Training

A single integrated Ministry of Education and Training headed by a Minister accountable to Parliament.

National Council for Learning (NCL) and Representative Councils

A National Council for Learning representative of the key stakeholders, to formulate national policy on education and training for submission to the Minister and/or Parliament or to such other policy forums as may be agreed upon for decision and approval. It should contain representation from and be represented on the National Manpower Commission and the National Economic Forum or their successor bodies.

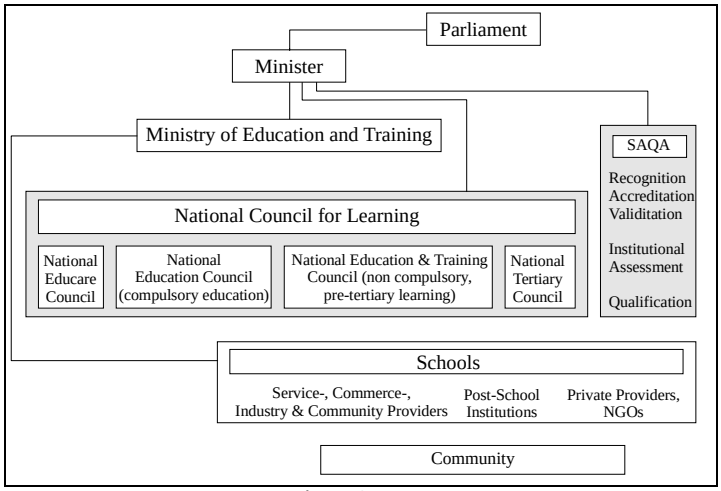

Figure 3
Suggested Structure for Governance

Statutory Councils

Statutory Councils representative of specific sectors of education and training, subordinate to the NCL, to advise on, develop and monitor the implementation of specific policy guidelines for the four sectors:

- Educare Council (EC)
- National Education Council (NEC) covering compulsory schooling
- National Education and Training Council (NETC)

- National Tertiary Council (NTC).

National and Regional Departments of Education and Training

A single body, the National Department of Education and Training, to carry out functions allocated to it by the Minister and by relevant legislation, within the context of the constitution. At regional level executive departments of education and training, supported by representative committees similar to the Representative Councils established at national level.

South African Qualifications Authority (SAQA)

A national accreditation and certification authority, a statutory body with jurisdiction extending over the four sectors of education and training to enable them to set up a coherent, integrated system of assessment, accreditation and registration for all national qualifications offered in South Africa.

Sector Education and Training Organisations (SETO's)

Sector Education and Training Organisations are essentially representative service-, commerce- and industry-based education and training organisations responsible for identifying and specifying development and ensuring the achievement of the desired level of education and training by personnel in the specific sector. It is envisaged that, through a process of negotiation and evolution, the present Industry Training Boards would change their structure and role, and that a change of name to Sector Education and Training Organisation would signify these and other changes needed.

Providers of Education and Training

Education and training programmes in the non-compulsory, pre-tertiary sector are presently provided by a wide range of organisations, such as:

- secondary schools
- technical colleges
- non-governmental organisations (NGOs)
- regional training centres
- private colleges and training centres
- private companies
- industry training centres.

The governance structures emerging after further consultation include a single national Ministry of Education responsible for policy and standards for education and training; a Ministry of Labour responsible for labour market training, and a multipartite Inter-ministerial Working Committee creating the essential links for consultation between the two ministries. At provincial level, Education and Training Forums provide the links in a manner similar to the Inter-ministerial committee at national level. In addition the SAQA is in the process of being formed, together with its subordinate National Standards Bodies and Education Training Qualification Authorities (ETQA's). Restructured Industry Education and Training Boards are taking the place of the SETO's in a process of rationalisation of the former, and similar bodies are being formed in the public service.

(9) Developing Credible Outcomes of Education and Training

The key to the acceptability of education and training lies in providing credible end results, or outcomes. Achieving this lies in the effective use of the National Qualification Framework as a basis for the accreditation of units and modules of learning and of the providers. The developing ETQA's will perform this role.

(10) The Education, Training Development Practitioner

The term "trainer" is usually associated with training offered by industry and commerce. The inclusion of Adult Basic Education (ABE) and community development into the training function makes it necessary to develop a new kind of trainer to meet the specific demands in South Africa. In addition, the inclusion of teachers in technical schools, technical colleges and technikons joins three traditionally separated sites of training together and begins to dissolve the distinctions between the provisioning of formal and non-formal training. An inclusive term, namely "Education, Training and Development Practitioner" (ETD Practitioner), was adopted in lieu of "trainer" to depict the notion of integration, while at the same time recognising the differences which still exist.

The proposed model (Figure 4) for the development of practitioners makes provision for a compulsory core to build occupational expertise, contextual understanding and facilitation of learning, as well as for further ETD Practitioner role specialisation. It provides, in addition, for career progression through a combination of options, and could be equally applicable to teachers in schools. The model has been accepted, and implementation research is under way using international expertise and funding.

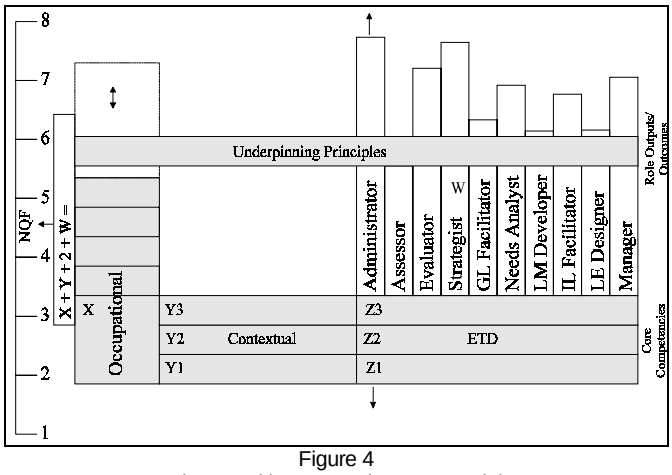

Figure 4
The Practitioner Development Model

(11) Adult Basic Education

Millions of adult South Africans have received no education at all and for millions more the little formal education they have received has been of low quality. In keeping with the overall thrust of the proposed national training strategy, the Task Team proposes to tackle this problem by improving access to learning by greatly increasing the resources devoted to Adult Basic Education (ABE), by addressing the quality of learning and by integrating ABE into the National Qualification Framework. Adult Basic Education is the basic phase in the provision of life-long learning, consisting of levels along a continuum of learning aimed at adults with very little or no formal schooling, not having the equivalent of a compulsory school leaving certificate. The final exit point from Adult Basic Education should be equivalent to the exit point from compulsory education.

There are three current providers of ABE in South Africa: the private sector, NGOs and the State. The Task Team's research indicates that the private sector is currently providing about 100,000 adults with ABE classes, NGOs are reaching some 10,000 learners per year and the State, through a complex network of adult education centres and departmental projects, is reaching some 110,000 ABE learners per year. The expenditure, some R200 million per year, comes from the private sector.

Only 1 % of adults who may need ABE classes are presently taking them. The key to a more effective system in future lies in the development of a policy framework to enable a step-by-step transition from the present small-scale inefficient provision of ABE to large-scale effective and coherent provision of ABE.

South Africa does not have the capacity to provide ABE to 12½ million people at the same time. A set of priorities should therefore be developed in order to begin to tackle the problem. The national Department of Education has appointed a National Adult Basic Education and Training Committee to determine a strategy and an implementation plan.

(12) Finance and Incentives

The proposed national qualification framework, government structures, the provision of education and training, all require funding. There are essentially three available sources of funding, namely public, donor and private. In order to make the best possible use of funds it is necessary to:

- create an optimum balance in the mixture of public, donor and private funding;
- seek stability in the balance and attempt to sustain it in the long term, and
- provide incentives to encourage and sustain financial investment in education and training.

To improve investment in education and training it was felt necessary that funds, especially public funds, be more effectively allocated and that increased investment by the private sector be encouraged by entering negotiated agreements. Turning to donor investments, it was considered necessary that such funds be used to support the priorities for socio-economic development, and that they should in future also meet the requirements of the National Qualification Framework.

Research into the development of a Funding Mechanism is presently being conducted, using international expertise and funding.

(13) Labour Market Strategy

A new labour market strategy for South Africa is properly the responsibility of the National Manpower Commission, or its successor, and the appropriate State department. However, there is such a strong relationship between a future labour market strategy and the proposed national training strategy that the Task Team considered it necessary to make an input in this regard.

The Task Team recommends that the following aspects, inter alia, should be addressed by a national labour market strategy:

- Learning and Skills Culture
- Development of the Micro-Enterprise Sector
- Development Programmes for the Unemployed
- Development Programmes for Displaced or Retrenched Persons
- Development of the School-leaver
- Access to Practical Skills Development
- Development of Apprentices in Small Business
- Affirmative Action
- Career Guidance and Placement

The development of a labour market strategy forms part of the remit of the recently appointed Comprehensive Labour Market Commission, and implementation studies covering the skills culture, the training of the unemployed, pre-employment training and the revision of the apprentice training scheme will shortly commence, supported by international expertise and finance.

(14) Rewarding Performance

In overseas countries with successful education and training systems, reward systems are taken seriously. South Africa's performance in this regard was compared with that of Singapore, South Korea and Australia.

Analysis identified a number of key issues which appear to be preventing the formation of a national skills culture in South Africa.

(15) Information Database System

Although the process of developing the proposed national training strategy led to the Task Team accumulating large quantities of information, the Task Team was frequently handicapped by the non-availability of certain kinds of information and statistics

and the absence of a national database related to education and training.

The National Training Board, the Task Team, Central Statistical Services, the various Departments of Education, the University of Cape Town, the Human Sciences Research Council, and others, have perceived the need for education and training related databases and have compiled significant amounts of information. But none of these institutions on their own is able to satisfy the need for a comprehensive database.

It was recommended that a project be commenced in conjunction with other interested stakeholders to develop a suitable "Education and Training Information System" for the management of the National Training Strategy and that this become part of the functioning of the proposed National Education and Training Council. The recommendation has been accepted, and an implementation proposal in this regard is presently being formulated.

(16) South African Education and Training Legislation

Extracts from some 130 different statutes were included in the report, which found that more than 200 different institutions, councils, committees, boards and other bodies which had been established by legislation exercised powers regarding the education and training process. Many of the statutes referred to in the report are exclusively, or primarily, concerned with the provision of education and training. Others are essentially concerned with other issues, but do contain enabling provisions regarding the education or training of some or other categories of persons. These were included in the understanding that the Task Team was seeking to establish an all embracing national framework, guaranteeing portability of skills and national standards applicable to all sectors.

It is recommended that, once implementation of a National Training Strategy begins, the statutes be reviewed, revised, and if necessary, rewritten to meet the needs of the strategy.

(17) Implementation Research

A great deal of progress has been made since the publication of the report, largely due to the application of process in its development and a planned programme of advocacy. In addition to those aspects mentioned in the body of this article a consolidated programme of implementation research has been embarked upon. Figure 5 depicts the areas in which work is being carried out in conjunction with international expertise.

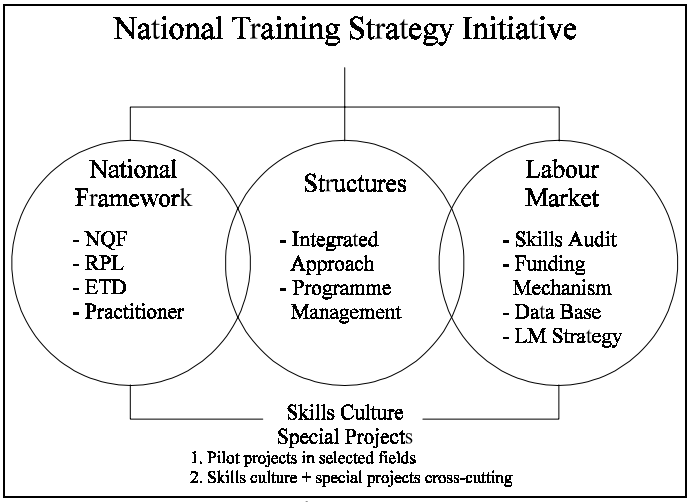

Figure 5
NTSI - Implementation Research

These include:

- Pilot Projects for the development of the NQF in specified areas;
- a project on the Recognition of Prior Learning (RPL);
- the development of the Education Training Development (ETD) Practitioner;
- the development of governance structures for the integrated approach to education and training, and for the programme management of the NTSI;
- the execution of a national skills audit in terms of the NQF;
- the development of a funding mechanism;
- the development of an active labour market strategy, and
- several cross-cutting projects, such as the development of a skills culture, revision of the apprentice system, pre-employment and unemployment training.

(18) Conclusion

In conclusion, the National Training Strategy Initiative is alive and well, its implementation is gaining momentum and is being driven by all the stakeholders with organised business and labour well to the fore.

2.3 South Africa: The ESKOM Approach by R. VERSTER

Dr Ryno VERSTER is presently the Corporate Human Resources Development Consultant for ESKOM, the power supply company of South Africa. He has been closely involved with the establishment of the ESKOM and Allied Industries Training Board and its processes. He has also been closely involved in initiatives of the National Training Board in preparing a National Training Strategy for South Africa. He is presently project leader for 10 major projects to reposition and integrate ESKOM's education, training and development system to comply with national developments, particularly the National Training Strategy and the Reconstruction and Development Programme.

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(4) Vocational Education Development Company 35
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(1) Introduction

A new education and training system is being implemented in South Africa which is focused on integration of education, training and development (ETD) and which inherently caters for the co-operation among all providers of ETD in the system. This process of transformation is largely spearheaded by the National Training Strategy and the White Paper on Education and Training.

ESKOM is a large, progressive organisation which is highly decentralised, also in its Human Resources Development (HRD) function and is therefore in co-operation with numerous technical and vocational education and training (TVET) institutions countrywide. ESKOM is furthermore a prominent and respected contributor to the national ETD changes. Through the activities of the South African Chamber of Business (SACOB), ESKOM is also a member of the Private Sector Education Caucus (recently became Business SA) and in this way is impacting amongst others co-operation between the business sector and TVET institutions on the macro level.

Against this background, it is considered to be less meaningful to dwell too long on co-operation in the previous TVET system or to describe the co-operation between ESKOM and a single or even a particular group of TVET institutions. The focus of this presentation will therefore rather be on the macro level attempting to demonstrate how a large company in South Africa is positioning itself for compliance with the National Training Strategy and related initiatives. To some extent the stance of the private sector in general will also be covered.

(2) Context

The integrated education system consists broadly of the following six sectors of education provision:

- early childhood education and care
- compulsory general education (of 10 year duration)
- adult basic education
- further education (of 3 year duration)
- technical and vocational education (also referred to as career education)
- higher or tertiary education (universities, technikons and colleges of education)

TVET, especially apprentice training, was transformed in 1990 into competency-based, modular format. Industry Training Boards were introduced and play a pivotal role in TVET, mainly as custodians of quality.
The main providers of TVET in South Africa include the following:

Technikons

The mission of Technikons is to prepare students for a specific profession or career and must be aimed at practice, promotion and transfer of technology. The programmes offered by Technikons include certificates (1 year), national diplomas (3 years), national higher diplomas (an extra 1 year) and Laureatus in Technology (an extra 2 years). The main problems/challenges faced by Technikons include staff (especially management) development, mobility of students to other educational institutions, placement of students for experiential learning and the need to offer academic support/bridging programmes for educationally disadvantaged students.

Technical Colleges

Technical Colleges provide technical and vocational education and training for students at both secondary and post secondary levels. Programmes offered include national technical certificates N1 - N3 (secondary level), national technical certificates N4 - N6 (post secondary level) and more recently added pre-N1 courses to help students to gain access to the TVET system. Technical Colleges play a major role in apprentice education (N1 - N3).
Some of the problems/challenges facing technical colleges include:

- Decrease in apprentice numbers. More than 70 % of students are private students without an opportunity for on-job training to qualify as artisans.
- Staff development (also management development) opportunities.
- Staff operate under similar set of conditions of service as school teachers.
- Under-resourcement in terms of buildings, equipment, staff and finance.
- Mobility and articulation with Technikons is difficult.
- Counselling/placement services virtually non-existent.

There is a need for Technical Colleges to become a more dynamic force for post-school education for a range of age groups and there is clearly a demand for continuing education programmes which will help compensate for the inequalities of the education system.

Industry Training Boards

Most of the Industry Training Boards are only quality custodians of training yet some also act as providers of TVET. In the new dispensation only one of these roles will be possible.

ABD	Adult Basic Development
EAITB	ESKOM and Allied Industries Training Board
ETD	Education, Training and Development
HRD	Human Resources Development
NQF	National Qualifications Framework
PRISEC	Private Sector Education Caucus
RDP	Reconstruction and Development Programme
SAQA	South African Qualifications Authority
TVET	Technical and Vocational Education and Training
VEDCO	Vocational Education Development Company

Abbreviations

Industry-based Training

In a recent investigation by BMI (Business Market Intelligence) among 154 South African organisations the following picture emerged:

- The amount invested in training for 1994 was R1,488 billion covering 887,460 employees.
- Training expenditure as a percentage of salaries and wages is 3.7 % on average.
- Training expenditure per employee per annum amounted to R1,678 on average.
- Technical/Skills training as well as commercial/clerical training are offered in 75 % of these organisations.
- In organisations with more than 500 employees 91 % have their own training facilities.

Regional Training Centres

Regional Training Centres (RTC's) were first established by an association of employees or by the government. They all train for two specific sectors namely commerce and industry and the Department of Labour's Unemployment Training Scheme. The RTC's are constituted as Section 21 Companies (institutions not for gain). Employers can send their employees for training at RTC's at rates subsidised by the Department of Labour - 60 % of the cost of training for industry and 75 % of the cost for agriculture. The RTC's are also able to offer training to any organisation that is prepared to fund its own training. Several RTC's are running at a loss and the whole RTC system had an overall deficit of around R2.5 million in 1992.

In summary, it is anticipated that the above-mentioned providers of TVET will still be part of the future dispensation but their roles and focus will change - in some cases significantly.

(3) Private Sector Involvement

PRISEC (Private Sector Education Caucus) has recently published their position paper on the current and future developments in education and training as these impact on business interests. A very wide variety of positions and viewpoints are stated in this position paper - the first of its kind in many years stating a collective viewpoint of the private sector. Unfortunately PRISEC has not really done justice to the field of TVET (also called career education) in the position paper. Chapters were devoted to tertiary and further education yet TVET issues were interwoven in several chapters but not covered nearly as thoroughly as the other education sectors.

In general, the private sector's stance on education and training is summarised as follows:

> *"While access to education is a basic right, the purpose of education and training at this point in South African history is to contribute, through the development of the country's people, to the national and provincial economic, technological and developmental goals and programmes of a democratic South Africa."*

PRISEC is also of the opinion that the key components of an integrated ETD system to be supported include:

- The creation of a national culture of learning, skills formation and work ethic
- A sense of competitiveness in the various aspects of productivity should be cultivated
- Stakeholder participation/co-operation (government, business and labour)
- Coherence with the National Qualifications Framework
- Separate governance structures with clear linkages
- An outcome-based system with recognition of prior learning

In terms of co-operation between private sector and providers of TVET and other issues regarding TVET, PRISEC holds the following positions:

Technical Colleges and Technikons:

In the new dispensation Technikons will be part of national provision while Technical Colleges will be under provincial control. PRISEC's stance is that this sector of education is so vital to economic growth that stable, coherent policy and structures are essential. Also that Technikons should return to their original purpose, namely to provide technological education and training with their primary role being technician development. They should avoid competing with universities and should address industry's needs, contribute to economic development and respond to partnerships with industry and other tertiary institutions.

Reconsideration of the nature and roles of technical colleges should be done. Business could assist in promoting a thorough rationalisation of technical colleges, with a corresponding change in image. Full use must be made of the huge investment represented by technical colleges; they cannot simply fade away.

Providing Opportunities for Experiential Learning and Curriculum Development:

The issue of how to encourage businesses to take on trainees needing practical experience, also needs to be explored in terms of shared responsibility between government (educational institutions) and business, possibly involving further incentives. The number of apprentices has declined considerably during the past number of years and it is estimated that 70 % of students at technical colleges are private students, without an opportunity to obtain their on-the-job/experiential learning part to be fully qualified. On the issue of curriculum development, PRISEC's stance is that the business sector must be involved in all curriculum development which has a bearing on the skills and competencies required in the workplace.

Redressing ETD Inequalities of the Past

It is estimated that some 15 million adults require adult basic education and training (functional literacy and numeracy) to assist them to make a more meaningful contribution to economic growth in South Africa. PRISEC strongly supports the eradication of this

situation as a joint effort (between government and private sector) but with the primary responsibility resting with the government of the day. PRISEC feels strongly that to achieve success on a meaningful scale, prioritisation of groups of learners according to agreed upon criteria and incentives to business to improve the levels of basic education among their employees should be focus areas.

(4) Vocational Education Development Company

Another co-operation initiative with strong private sector involvement is the Vocational Education Development Company (VEDCO), initiated by the Federal Committee of Technical College Principals (FEDCOM). The mission of VEDCO is to become the major foundation to promote, fund and support vocational/career education and training in South Africa.

Their visions include, to:

- Effect a paradigm shift and to promote TVET through a structured marketing/perception-change and awareness programme.
- Conduct fund-raising on behalf of TVET to fund projects such as:
  - curriculum development
  - training ETD practitioners
  - management development
  - training in education technology
  - adult basic education and life skills
  - entrepreneurial and economic empowerment programmes, etc.
- Contribute towards development of human resources
- Enhance career path opportunities, achievements and personal development through career guidance centres at technical colleges.

VEDCO will also play a significant role in the repositioning of technical colleges into community colleges.

(5) ESKOM's Positioning

In anticipation of national developments and a changing relationships with our trade unions, ESKOM undertook, in August 1993, a major investigation into its ETD activities with a view to its total repositioning to ensure recognition of its training amongst others national bodies. Very little detail on pivotal elements, such as the National Qualifications Framework, were of course available at that time.

Faced with the realisation of the magnitude of the impending national changes, we preferred not to wait for all the details to become available and to lose valuable time in the process, but to pro-actively push ahead, realising that some re-alignment might be necessary at a later stage. We argued that the principle of recognition of prior learning will in any event be available as a last resort to obtain national recognition. We also argued that we could, on an empirical basis, influence national developments and play a leadership role if we do a professional job.

Amongst others, two philosophical vantage points were used as guiding principles, namely:

- Quality of learning outcomes must always be evident/possible to demonstrate to the future accrediting agency of the South African Qualifications Authority. The ESKOM and Allied Industries Training Board through the accreditation standards set and accreditation audits to assess compliance with these standards, is being repositioned to be the quality custodian of all ETD activities in ESKOM.
- It is believed that for the NQF to be workable, the people taking the final accountability for declaring learners competent, must be totally competent and professional. It is imperative that professional ETD practitioners must be trained and authorised to perform their roles and declare learners competent.

Based on the findings of a current situation analysis on ETD in ESKOM in 1993, all stakeholders approved ten strategies to integrate ETD - strategies that we trust will lead to national recognition and which will inherently through their integrative nature, lead to and depend on co-operation, also with education institutions in the TVET system.

The ten strategies are the following:

Strategy 1:

Link/integrate all present and future learning interventions and activities in terms of needs analysis, design, development, evaluation and standard to a common competency menu consisting of generic and specific competencies.

This is basically a mini NQF exercise. The methodology we have used for the design and development of our apprentice and operator training and which, through accreditation with the ESKOM and Allied Industries Training Board carry national recognition, is also used for the design and development of all other learning inventions for which we seek national recognition. This methodology was also negotiated and approved by our trade unions.

Basically the design and development of learning interventions are based on a competency menu (consisting of knowledge, skills and attitudes) which are derived from analysing the competencies required to produce the required job outputs at a specific standard of performance. Other large organisations and the National Training Board itself in the project on the output model for the ETD practitioner, are basically using the same methodology.

This initiative is closely linked in its outputs to those that the ETD function in ESKOM has committed itself to in support of the Reconstruction and Development

Programme. Initially the focus will still be on the number of training days and investment in ETD although with a shift to a focus for staff in the lower organisational levels and those on an accelerated developments paths to redress ETD inequalities of the past. Gradually as the project on competency modelling progresses, the shift will be to competencies achieved and skills accredited through the system of recognition of prior learning.

Strategy 2:

Change ESKOM to a learning organisation.

This is a long-term organisational culture change initiative. The first steps have been taken by the introduction of the ESKOM Council of Learning. The mission of the Council of Learning is "to strategise for an integrated, focused and optimised HRD investment in people". The outputs/focus of the Council of Learning include:

- facilitation and sanctioning of the ESKOM HRD business plan
- monitoring ESKOM's HRD key performance indicators
- leading and monitoring ESKOM's progress on its road to become a learning organisation
- monitoring skills planning and skills utilisation in ESKOM
- clearing house and reporting forum for HRD projects and initiatives; also ESKOM's representation on councils of TVET institutions
- assist ESKOM to impact/influence national HRD and industry HRD direction.

The composition of the ESKOM Council of Learning include also outside stakeholders such as leading academics (including from TVET), professional bodies, PRISEC, trade unions etc.

Strategy 3:

Reposition the ESKOM and Allied Industries Training Board to control the quality and standards of all ETD initiatives and interventions in ESKOM.

Quality assurance is imperative if accreditation with the future accrediting agency of SAQA is to be obtained. The EAITB is already the nationally recognised quality custodian of apprentice training and a project has been going for six months now to reposition the training board to also become the quality custodian of all ETD in ESKOM. In line with developments stemming from the National Training Strategy, this project is also investigating, with other partners in the electricity supply industry, the feasibility of rationalising the activities of the three existing industry training boards into one training board for the electricity supply industry and the feasibility to act as ETQA (Education and Training Qualifications Authority) for the electrical discipline. All TVET institutions involved in electrical training will be closely involved in this exercise.

The issue of quality assurance has also been included in the restructuring of the HRD function - see Strategy 9 below.

Strategy 4:

Establish ETD integrative mechanisms.

The establishment of the ESKOM Council of Learning is a prominent element of this strategy. Another important component is ESKOM's representation on the councils of amongst others TVET institutions. It is endeavoured to empower all representatives on TVET councils with a uniform and informed stance to make an optimal contribution in ESKOM's co-operation with TVET institutions and to create a forum for such representatives to feed back into ESKOM trends at TVET institutions for amongst others, HRD business planning in ESKOM.

Strategy 5:

Redress ETD inequalities in ESKOM.

This is a major problem in South Africa and in ESKOM as a microcosm of South Africa. There are some 12,000 illiterate employees in ESKOM. ESKOM's Management Board has declared Adult Basic Development (ABD) a strategic priority and an ABD programme has been designed and developed. ABD provides a foundation for further education, training and development and ESKOM provides for three levels of education which equate to national qualifications and standards. Up to the end of 1997 ESKOM will invest R100 million in ABD of its employees.

The ESKOM ABD approach is regarded by our trade unions, the Independent Examinations board and the national literacy co-operation organisation as a national role model.

Redressing ETD inequalities also include accelerated human resources development. This issue is strongly addressed in our targets in support of the RDP (as was discussed earlier) and the restructuring of the HRD function (see Strategy 9 below).

It is envisaged to expand the ABD programme to also cater for functional literacy in areas such as technical and vocational careers. In this regard close co-operation with TVET institutions will be enhanced, for example linking with their bridging (pre-N1) courses in order to allow for access to the TVET institutions.

Strategy 6:

Establish and maintain a reliable ETD information system.

Strategy 7:

Evaluate cost-benefit of ETD activities.

These two strategies have more of an internal/business focus. Strategy 6 could also be very important in quality assurance with a view to national recognition.

Strategy 8:

Develop and maintain ETD scenario and skills planning, conduct skills audits and analyse skills utilisation.

The need to be able to focus HRD activities, prioritise and eliminate duplication is essential to ensure a proper return on HRD investment. South Africa lacks a national

economic and technological development plan and thus also a national manpower/skills development plan. It is expected that this situation will change in the future. It remains, however, important that co-operation with TVET institutions is maintained to ensure that duplication is minimised and that each provider stick to their core HRD business e.g. TVET institutions are much better equipped and experienced to deal with the knowledge component of competencies.

Strategy 9:

Align ETD structures with ETD integrating strategies.

A major restructuring of the HRD function has taken place to accommodate the people development road that we have embarked upon. The Council of Learning forms part of this alignment of structures with the ETD strategies. The major changes in terms of structures have, however, been introduced in the corporate HRD function. The following philosophical vantage points and implications, formed the cornerstone of the restructuring:

- The national HRD/ETD system is just beginning to unfold. National systems and structures will, for a long time, still be in flux. The perceived implication of this is to structure for development and research of new systems rather than for maintenance of existing systems.
- The need for a world class HRD system is acknowledged and appreciated but the shortfalls of the ETD system of the past necessitate a disproportionate focus on redressing ETD inequalities of the past. The perceived implication of this is to structure for a balance between accelerated human resource development and redressing ETD inequalities while positioning for the new integrated national ETD system.
- National recognition of ESKOM's learning interventions is imperative. The perceived implication of this is to structure for quality assurance of our learning interventions.
- The magnitude of changes in the national ETD system is enormous. Numerous structures and processes will emerge that will impact ESKOM's HRD function. The perceived implication of this is to structure for networking and co-operation agreements.
- Pressures on ESKOM's HRD infra-structure to assume a national leadership role in reconstruction and development will increase. The perceived implication is to structure for impact beyond ESKOM and optimal utilisation of ESKOM's ETD infra-structure, also beyond ESKOM's needs.

Five portfolios were established for these five processes. The HRD quality assurance portfolio's focus is, for example, on training of ETD practitioners, on The ESKOM and Allied Industries Training Board, on the ETD information system and on competency assessment centres. The impact beyond ESKOM portfolio's focus include African and international co-operation, skills promotion initiatives, the Technical Training Institute (to be discussed later) and private and public sector co-operation agreements (such as with TVET institutions).

Strategy 10:

Develop skills through social investment.

ESKOM is investing roughly R50 million per year in community and skills development e.g. electrification of schools. There is a need to align these initiatives with ESKOM's future skills needs.

Apart from these strategies to focus and integrate ESKOM's ETD initiatives, there are also a number of other initiatives that pertain to the support of the National Training Strategy, an integrated national ETD system and co-operation with TVET institutions.

- An underlying component for the new national integrated ETD system to function successfully, is the availability, training and professional work ethic of ETD practitioners (trainers). ESKOM has introduced a career and training path for ETD practitioners and this model was also used as a chopping block in the National Training Board's project for a national ETD practitioner model.

  The ESKOM model makes provision for two focus areas in ETD practitioner development namely training/learning technology development and advanced technical/discipline development. ESKOM ETD practitioners are authorised or licensed to perform the roles of training co-ordinator, discipline mentor, coach, instructor, instructional designer and developer. Authorised means competent to perform the function/role whereas licensed means competent to train and declare other ETD practitioners competent to perform the role. Presently the development programme includes courses in instructional techniques, learning intervention design and development, mentoring and coaching skills, handling the differences in learners, evaluation etc.

  The advanced technical/discipline development will take place in the ESKOM master artisan school/ advanced technical skills development centre presently established. ESKOM has in 1992 sent ten artisans to the Handwerkskammer in Nürnberg to be trained as master artisans. They have recently completed their training and are busy establishing the master artisan school, amongst other things to develop our technical trainers further in their trade.

  ESKOM has already trained staff from TVET institutions in both the areas of training/learning technology and advanced technical skills. This form of co-operation with TVET institutions will increase in the future and will form part of our technical/ vocational training institute.

- Another strong sentiment prominent in South Africa at present is not to invest any further in "bricks and mortar". There exist excellent ETD facilities and

infra-structure in South Africa, especially in the private sector. The sentiment is to optimally utilise this infrastructure rather than to build and equip more such centres.

With this in mind ESKOM is now busy in establishing a Technical and Vocational Training Institute. The vision is to utilise our spare capacity better, provide opportunities for other stakeholders to enter into a partnership to develop human resources in support of the RDP and provide for overseas investment (monetary and expertise-wise) in a credible training partner.

The structure will be in the form of centres for the development of a specific target population or focus area, such as a centre for technological literacy, a centre for technical bridging training, a centre for advanced technological training, a centre for training the unemployed, a centre for training the informal sector, a centre for technical skills awareness among school pupils, etc. Of special interest is a co-operation agreement with a technical college and Technikon to become part of this venture and to establish satellite campuses at our training centre. ESKOM's major focus (apart from making spare capacity available) will be in a competency assessment centre (for recognition of prior learning) and a centre for ETD practitioner development. This centre will have as one of its outputs, staff development of TVET institutions.

- Regional co-operation is also an important objective of the future. ESKOM has successfully hosted an African Technical Skills Development Summit in October 1994. Twelve African countries participated and actions are now implemented which will lead to closer regional HRD co-operation. ESKOM could in this regard also serve as a facilitator for co-operation with TVET institutions.

- Establishing a skills-respect culture. The new national ETD system is very well received in South Africa. If this good system is, however, not balanced with initiatives to bring about a change in attitudes and mindset to respect and appreciate skills, we might not achieve the desired results. This was also realised in ESKOM some two years ago when a project was launched to create a skills-respect culture with a strong focus on enhancing the image of the artisan. Some of the initiatives taken include:
  - a career path for artisans
  - ESKOM Skills Olympics and Artisan Challenge programmes. These are mechanisms to compete, compare, recognise and reward technical excellence
  - Removal of low status symbols
  - German master artisan project
  - Establishing a professional association for artisans which play a pivotal role in accreditation audits and as part-time trade testing officials - thus monitoring and influencing the quality of the end-product they allow into their trade. The overall mission of this association is to enhance the professional image of the artisan.

(6) Summary

TVET, in South Africa, is on the brink of a very exciting and challenging phase in its development. The magnitude of the changes in this transformation process and the importance of balancing the focus and limited resources between making the new ETD system work and redressing the ETD inequalities of the past, makes the integration of efforts and resources, limiting duplication and co-operation between all stakeholders, but in particular between enterprises and TVET institutions, imperative.

2.4 Nigeria: The Perspective of an Educational Institution by F. A. ODUGBESAN

Chief Felicia A. ODUGBESAN, born in 1946, is the rector of the Yaba College of Technology, Lagos. She has been a consultant for the UNDP and the ILO. Her research activities focus on entrepreneurship development and technical education for women in Nigeria.

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(1) Introduction

I feel greatly honoured and indeed privileged to be invited to present this paper from the perspective of an educational institution in Nigeria, at this UNEVOC Seminar in Berlin.

The Yaba College of Technology located in the largest urban centre in Nigeria and (incidentally the UNEVOC centre for Nigeria) is the oldest institution of higher education in Nigeria. It was established about forty - seven (47) years ago. It has continued to provide leadership and innovation in technological education.

With a student population of about 14,000 (full time and part time), it offers courses in Engineering, Environmental studies, Applied Sciences, Management and Business studies and Arts, Printing Technology. About 98 % of its programmes are accredited by the National Board for Technical Education. Those not yet accredited are those which started about 2 years ago and are still operating under the initial approval before the necessary accreditation. The college operates under a school system, with five schools and 24 Departments.

(2) Technical and Vocational Education in Nigeria

Even before the advent of the British in Nigeria, many communities and cultures had developed their own

system of informal, formal and vocational education systems. Vocational education was done through the system of apprenticeship, whereby young boys and men were attached to master craftsmen trades and skills such as carpentry, masonry, blacksmithing, foundry, carving, textile design, dyeing etc. Such apprentices could spend from three to seven years depending on the trades they were specialising in, the Masters' skill, competence and exposure and the apprentice's individual ability and performance. At the end of such training, the "graduate" apprentice was assisted by the family to acquire necessary tools and local equipment to start his own trade. He too would recruit other apprentices to work within his new set up.

At present, technical and vocational education outside the universities is offered at

a) Local Apprenticeship with Master craftsmen level
b) Prevocational school
c) Vocational Schools (Artisans - Various trades (Craftsmen - National Technical Certificate (NTC)
d) Technical Colleges - Master craftsmen, Advanced Technical Certificate (ANTC)
e) Polytechnics and Monotechnics High Technician/ Technology Technicians - National Diploma (ND) and Higher National Diploma (HND)
f) Colleges of Education (Technical) Technical Teachers -National Certificate in Education NCE (Tech).

In addition to the formal institutions above, the Federal Government has recently created various programmes and agencies aimed at promoting self-employment and self-reliance through technical education. These include the National Directorate of Employment (NDE), Small Scale Industries Loans Scheme, the People's Bank (with its drop outs and drug addicts rehabilitation skill acquisition programme) and the National Open Apprentice Scheme (NOAS).

After the national independence of Nigeria in 1960, the initial efforts aimed at achieving rapid national development were concentrated on the expansion of formal educational institutions at all levels. Many first and second generation Universities and Polytechnics were established by decrees in quick succession to fulfil this national objective. Most of the programmes were however concentrated in the arts and the humanities.

It was later discovered that most of the technical expertise needed for national development still had to be imported as few people were trained in the technical, and technological areas. Most of the graduates or products of the nations' formal educational institutions, though considerably increasing in number, did not acquire the necessary skilled knowledge and varied technological expertise to meet the specific needs of the industrial sector.

It therefore became increasingly clear that a link between the industries and educational institutions must be created in order to meet the needs.

(3) Co-operative Links

After the national independence in 1960, the products of the nation's formal educational institutions, though considerably increased in number, did not acquire the skilled knowledge and varied technological expertise to meet the specific needs of the industrial sector.

It therefore became clear that a link between the industries and the educational institutions must be created in order to meet the needs.

One of the ways of bridging this gap was the establishment of the Students Industrial Works Experience Scheme (SIWES) by the Federal Government.

In the face of criticism from industries that university and polytechnic graduates lacked the practical skills to undertake serious industrial work, SIWES was established.

(4) Objectives of SIWES

The Students Industrial Work Experience Scheme (SIWES) is a skill training programme, designed to expose and prepare students in institutions of higher learning for the industrial work situation they are likely to meet after graduation. The scheme is also meant to familiarise students with work methods and expose them to the needed experience in handling such equipment and machinery that are not available in the educational institutions. It is financed by the Federal Government and managed by the Industrial Training Fund (ITF).

Under the present arrangement, it is compulsory for students to undergo attachment with a selected participating industry or company for a period of 3 to 4 months between Year I and Year II of the ND programmes.

Eligible Courses

The courses in the Polytechnic, Colleges of Education and Universities for which Industrial Attachment are funded under this scheme are restricted to Engineering, and Technology, including Environmental studies. Courses in National certificate in education (NCE) (Technical) and NCE (Business) in post secondary institutions were later included.

Contribution of Companies to SIWES

Employers of labour are very important in the effective running of this scheme. They are to absorb a large number of SIWES students in their various establishments to acquire the practical training. Students are normally posted to identified industries or companies for a period of three to four months during the long holidays between ND/I and ND/II. Prior to this period, the SIWES officer in the students' Affairs unit of the college would have liaised with the various industries and companies, the ITF office, and the National Board for

Technical Education (NBTE) for the placement of such students. The students are paid some sustenance allowance which is usually subsidised by industry, in some cases. Lecturers from the College pay scheduled visits to the industries to supervise the students' work. Each student is given a SIWES Log Book. In this Log book are recorded the students activities and experiences in the industries. Such Log books have to be countersigned by the student, the College SIWES supervisor and the supervisor from the host industry.

A syndicated supervision has now been arranged among the Polytechnics in the country. This means that instead of lecturers from one Polytechnic/College going all over the country to supervise the students from that particular college, the country is now divided into zones and lecturers in a particular polytechnic supervise all SIWES students in that zone, irrespective of the students' institution. Log books and other activities are overseen, signed, record reports are forwarded to the ITF, the students College and other such bodies.

Year	Students
1985	17,887
1986	17,890
1987	20,558
1988	22,558
1989	26,569
1990	32,520
1991	29,410
1992	42,465
1993	52,341
1994	47,718

Population growth of SIWES participants
Source: ITF records

Year	Students
1979	1,300
1980	1,253
1981	1,360
1982	1,400
1983	1,560
1984	1,460
1985	1,340
1986	1,700
1987	1,600
1988	1,540
1989	1,870
1990	1,544
1991	850
1992	797
1993	None participation
1994	None participation
1995	About 1,700 to take part

Participation by YCT in the SIWES
Source: YCT, SIWES Records

Since the establishment of the SIWES in the country a large number of students have benefited from the programme. Above are the statistics of students involvement in the scheme.

The fall in the number of students taking part in the scheme in 1991 and 1992 was due to the elimination of students in Management and Business Studies programmes. Non participation in 1993 and 1994 was due to the extended academic sessions as a result of the national crisis.

Benefit to Students

The benefits accruing to SIWES students over the years have been tremendous. Tracer studies indicate that the students have gained a lot from this exposure. The central focus of the scheme therefore is to enlist and strengthen employers involvement in the entire educational process of preparing students for employment in commerce and industry after their graduation, to practical work experiences. Some of the students have been able to secure permanent employment from the industries or companies where they had the SIWES experience, during their attachment period.

Industrial Attachment:

The Nigerian polytechnics operate a three tier system or level of training, viz. the National Diploma (ND), the Higher National Diploma (HND) and the Post Graduate or the Post HND Diploma. All three are terminal diplomas in their own rights and the percentage of students moving from one tier to another diminishes as the level of education gets higher. Under the present scheme of things, it is compulsory for a candidate coming in for the HND to have undergone at least one year of related work experience before such a candidate can be considered for admission. If a student had an ordinary PASS grade at ND level, she/he is expected to have had a minimum of two years of relevant work experience before being considered for an HND admission. This situation is to expose the students to more practical experience. It is the responsibility of such students to look for such relevant employment/attachment where they are expected to be paid a salary equivalent to the national minimum stipulated for a holder of the National Diploma.

The Industrial Training Fund

The Industry Training Fund (ITF) was one of the parastatals established by the Federal Government of Nigeria to create a link between educational institutions and industries. This was done during the second National Development Plan Period (1970-1974). Its enabling Decree, No 47 of 8th October, 1971, defined its objectives as the promotion and encouragement of the acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained persons sufficient to meet the needs of the economy.

Functions of the Fund

To be able to generate this needed pool of skilled and efficient indigenous persons, the governing council of the industrial Training Fund is empowered by the decree:

- to provide facilities for training of persons employed in industry or commerce.
- to approve such courses and facilities provided by other persons;

- to consistently and regularly vet areas of industry or commerce that require special manpower development actions and to recommend the kind of training needed, the standards to be attained, and to ensure that such standards are met;
- to assist persons in finding facilities for training for employment in industry and commerce;
- to conduct or assist other persons to conduct research into any matter relating to training in industry.

Two of the activities carried out by the ITF specifically portray their role as the co-operative link between the industries and the educational institutions:

- Research and information services. They produce National Directories of training facilities and resources for personnel development at formal Training Institutions in Nigeria. These documents give details concerning the courses offered, with their respective duration, at formal and non-formal training institutions. However, these directories have not been regular due to lack of funds and the rapid rate at which the Government establishes institutions of learning.
- The fund has developed an edge-punched card system of employers' training and levy records. The data from these cards are periodically analysed and the resultant information is of immense value in providing information about the various industries and their needs. Through the ITF, and other staff development programmes, employees are sent to the universities or polytechnics to undertake the regular degree or diploma programmes. Short courses, ranging from a few days to two weeks and three months, are also run for and are attended by employees of industries to meet specific training needs in the industries.

Equipment, Machineries and Computers

Some of the industries often donate equipment, machinery and computer components (new and/or used ones) to the institutions for their laboratories and workshops, where funds are limited. This is usual and can be a life saver for some programmes.

Endowments, Scholarships and Awards

Special endowments, scholarships and awards are often instituted by private companies and industry to promote their special interest in an institution.

Problems, Prospects and Solutions

However, the situation described above represents the ideal. Sometimes these ideals are achieved; sometimes only a part of these ideals or objectives are achieved, as there are many problems militating against the success or its attainment.

One major problem is that sometimes some of the students do not get placed for the four month or one year industrial attachment within the National Diploma Programme (ND) and the Higher National Programme (HND), respectively. The situation is even worse in the latter where the students are expected to find such industrial attachment themselves. The situation may become so hard that some students even opt to work without pay, just to gain the experience and be qualified to return for the HND programme. Invariably, the job may be done half-heartedly because of lack of financial support, even for such basic needs as the transportation to and from the work place. Some parents have to fund or support their children on this aspect of the training just as if their wards were full time students.

In some cases, some of the students are placed in job places and environments not related to their training. This is to satisfy the compulsory one year placement between the ND and the HND programmes. Invariably, the experiences acquired are irrelevant to their training needs and thus may defeat the very fundamental objective of the scheme of training.

Tracer studies have also indicated that in some few cases, some of the students are often used for other assignments unrelated to the primary purpose of their attachment.

Most often, the SIWES calendar clashes with the academic calendar of the institution. This means that while some of the students are out on SIWES attachment for four months, the institution is running a normal academic calendar for the other students of the institution not involved in SIWES. Since it is often the academic staff that would supervise the students on SIWES, this leads to the problem of inadequate supervision in some cases. Often the same supervising lecturers still have to carry out their normal academic duties of teaching, research etc. and therefore may not be able to adequately cover the number of students assigned for supervision. In the end, some lecturers just rush round to sign the log books without adequate interaction with the students in their work places. When the particular students are working in an industry where the commitment is lacking and where they are regarded as an unnecessary burden, they are placed in a double jeopardy.

In some establishments where there is no real commitment, the students placed on SIWES may receive inadequate supervision also by the industry supervisors. The log books may not be kept or used as envisaged and the whole purpose of the scheme may be defeated. In many cases, the SIWES allowances are not paid until the end of the exercise. For students who come from poor families, this could mean that they may be unable to attend the work place because of their inability to pay the transport fare to and from work. This has led to instances of irregular attendance.

There is generally a poor collection of data and record keeping of participants and their activities. It is not unusual to find the latest data to have been published three to five years before.

One area that may be termed "collaboration" between educational institutions and industries is that of the accreditation of programmes by the National Board for Technical Education (NBTE) Industries and Professional bodies that are involved in the accreditation visits. However, in the area of curriculum development, in the institution, the relationship needs to be strengthened, whereby the private industries can have greater input in what is being taught and how.

As the consumer of the products of these educational institutions, relationships are usually arranged between individual institutions and industries, based on the initiative of the institutions and not on any compulsive laws. Some courses are organised by the institutions in anticipation of fulfilling some need-gaps in the industries. Advertisements of available courses are usually placed in the papers, and industries respond to such adverts if they feel that some of the courses are relevant and useful for their staff. This is often cheaper for the industries than running them in their own training schools.

(5) Conclusion

A brief history and status of technological education in Nigeria has been examined. The nature and level of co-operation between educational institutions and industries were also discussed while some of the shortcomings and problems were mentioned.

From all the above, one can conclude that there is a need for a stronger link or relationship between the producer of the trained manpower (educational institutions) and the consumer, or the user of such products (industries).

There is also the need to foster and nurture such relationships in developing countries like Nigeria, to make education and training more relevant to the national economy and to national development and to create more relevance for the trained manpower.

UNEVOC will be performing a great service for humanity if this area is looked into and supported.

2.5 Nigeria: The Perspective of an Employer by B. A. O. POPOOLA

Biola A. O. POPOOLA, born in 1953, is the Human Resources Development Manager of the Guinness Brewery, Nigeria. Currently he manages a Plant modernisation project of his company and the respective skills and knowledge upgrading implications. He holds a bachelor of science in Biochemistry and an M.B.A.

This paper is cast in the form of an interview with Mr Popoola concerning co-operation between technical and vocational education institutions and enterprises in Nigeria.

1. *What is the context within your country of the co-operation that exists between your technical and vocational educational institutions and your enterprises?*

A very low level of co-operation nationally.

Vocational Educational Institutions expect students to be given opportunity to acquire relevant experience in the world of work through SIWES (Students Industrial Works Experience Scheme). Enterprises do not readily provide such opportunity. What opportuniy is available is grossly inadequate for the numbers seeking such experience.

Very few employers foster the co-operation. Where such co-operation does exist, it is not limited or dedicated to one Educational Institution.

2. *How extensive is your co-operation with your industrial or educational partner?*

No educational partner exists for us. However, we provide SIWES opportunity for deserving students in relevant disciplines. We also do interact and co-operate with University or Polytechnic Supervisors in monitoring performance and progress of the SIWES attachees.

3. *What are the objectives of the co-operation between your technical and vocational institutions and your enterprises?*

To foster learning through exposure to a practical application and demonstration of theoretical principles and processes.

To realign the attitudes and perceptions of students towards the real world of work outside school.

4. *Is there general co-operation, and enthusiasm for this co-operation, between technical and vocational institutions and enterprises?*

There is, generally, little enthusiasm between the two.

5. *What particular efforts do you make to establish this co-operation?*

Effort has usually been made more by the Vocational Institutions.

6. *What are the principal problems that you encounter in establishing this co-operation?*

The economic justification to the Company for the SIWES programme, in terms of value-added to the business, is questionable and often felt not to be apparent.

7. What are the strengths and weaknesses of the training of trainers in establishing this co-operation?

Training of Trainers needs to be refocussed to establish this co-operation. Workshops and Seminars involving Trainers in the world of work and Educational Institution Trainers, should be held for both parties so that they might appreciate the mutual benefits that are derivable.

8. What are the limitations of equipment you encounter and how do you try to overcome these limitations?

The equipment level in most companies is rather low. Access to equipment by students on attachment is also low or poor.

9. What are the three strengths you have in establishing this co-operation between technical and vocational institutions and enterprises? What are the three most serious weaknesses you have in establishing this co-operation?

a) Strengths in establishing co-operation:
- Potentially a good supply of high quality labour to enterprises.
- Potentially a very useful source of validating what has been taught and learnt in school.
- Could provide cheap labour that is effective.

b) Weaknesses:
- Responsibility for training is not welcomed by enterprises. It is considered to be a distraction from their normal business.
- Lack of appreciation of mutual benefits derivable from such co-operation.
- Non relevance of what is being taught to what skills are required by enterprises.

10. What are the roles of the employer, educational tutor, teacher in establishing and maintaining this co-operation?

The employers' role in establishing co-operation includes the following:
- a need to articulate what skills and specialisation are required.
- communicate what numbers can be comfortably accommodated.
- provide challenges and real work experience in the planned programme for students on industrial attachment.
- provide supports services for Vocational Educational Institutions through maintenance service for training equipment, and make their own plants and equipment available to educational institutions.
- make available to the institutions specialist instruction through in-house experts and professionals.

11. What efforts have you made to overcome your problems of co-operation between technical and vocational institutions and enterprises?

No systematic approach has been taken to overcome the problems since the potential for commercial advantage is not fully apparent and recognised.

Most Blue-chip employers have their own In-house Training and Development Departments which operate in line with contemporary business requirements for skills and knowledge.

12. If it were possible what could overcome some of these problems?

More effective "marketing" of the immense potential benefits of such co-operation.

Better knowledge through "selling" of the services and facilities available for education and training in the various Vocational Education Institutions.

Offering specialist support services in special skill areas, such as setting up a machine tool workshop, to enterprises at little or no expense, to excite their interest.

The Government providing realistic and attractive incentives to Enterprises and Educational Institutions to foster co-operation such as tax rebate incentives for Enterprises, special capital allocations to "deserving" educational institutions for acquisition of required machinery and equipment.

The Government promulgating statutes that will compel Enterprises (of a particular minimum status based on size and type of operation) to participate in work experience schemes for students of vocational education. More importantly, the strict enforcement of such statutes is critical!

13. What are the attitudes of the students to such co-operation?

The current lackadaisical attitude of students may not be unconnected with the rather weak co-operation that exists.

Most students, over time, have observed the rather loose way in which the co-operation is practised. Thus, many take a work experience opportunity as a means of earning some money rather than as a major supplement to their training.

Quite a number of students have a commendably positive attitude towards the co-operation only to be let down by unfulfilled expectations in terms of challenges provided and quality of supervision during work experience attachments.

14. In your judgement what benefits do your students gain from this co-operation?

From the Employers' perspectives, those of the students whom we take on now do benefit immensely by way of skills and knowledge upgrading through practical experience. Also, they benefit from being in an environment of the real world of work which impacts on their attitudes.

15. *What co-operation among technical and vocational centres in close proximity could be given that would promote and assist this co-operation between technical and vocational institutions and enterprises?*

Such centres in close proximity should have close co-operation for purposes of synergy in terms of equipment and skills and experience sharing. Also, rather than making individual requests to enterprises, there could be a rationalisation of the groups' requests, thus enabling optimal and meaningful, positive responses.

16. *What training of teachers and training of trainers is necessary for this co-operation to be established and maintained?*

Teachers and trainers require "train the trainer" skills to enhance the delivery of their primary assignment as trainers. This is a separate skill requirement, different from their speciality (technical) area.

More strategically, they require an appreciation of the broader aspects of their role as "producers" of technicians and technical experts to the "customers" - Enterprises, the National economy. Thus, a customer services orientation is required, that is, aligning their training efforts with current and anticipated "market" requirements.

Periods of attachment of trainers (key personnel only) to Industry and Enterprises could be useful to enhance appreciation of the working and business environment and thus improve the ability to design and deliver relevant technical training programmes.

17. *What organisational procedures would need to be implemented to make it work?*

Setting up a small section in the Ministry of Education or the National Board for Technical Education to draw up what training is required for trainers, to monitor and ensure that such training is received with appropriate facilities, and to be given the authority for taking necessary action.

18. *What other institutions could assist in the process, such as the government, unions, universities, chambers of manufacturers etc.?*

The Industrial Training Fund, Employers' Associations, Universities, Management Consultancies - all these can be engaged to provide and facilitate the required training.

19. *Is it possible for technical and vocational institutions to establish small business enterprises to increase their understanding of business?*

It is possible. The challenge, however, is for such a small business enterprise to survive and produce learning opportunity over time, it must be properly run by managers with requisite skills and not by Technical Training educators.

20. *What sources of money could be tapped to assist the establishing and maintaining of this co-operation?*

Money could be tapped from:

- Government - directly through budgetary vote, or indirectly through derivation from contribution made by Enterprises to the Industrial Training fund.
- Enterprises - through their Chambers of Commerce. An "enlightened self interest" perspective can be used to elicit their support.

2.6 Uganda: Co-operation Links by E. LUGUJJO and B. M. MANYINDO

Prof. E. LUGUJJO, Faculty of Technology, Makerere, P. O. Box 7062, Kampala, Uganda could not personally take part in the Berlin seminar.

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(1) Socio-Economic Conditions

From independence in 1962 to 1971, the Ugandan economy was one of the strongest in sub-Saharan Africa. It had a relatively well developed industrial base, capable of providing a large portion of its consumer goods requirements as well as exporting coffee, textiles, copper etc.

For almost two decades following 1971, however, Uganda experienced economic turmoil and political upheaval and instability. The situation had significant adverse effects on development as a whole in Uganda. Given the unstable political conditions and repression during that period, large numbers of skilled personnel left the country. This led to serious deterioration of industrial and commercial activities.

Despite political disruption and substantial decline in the economy, the population and the education system continued to expand and grew dramatically during the 1980's. According to the 1991 census, Uganda had a population of 16.6 million with a growth rate of 2.5 % per annum. The per capita income has fallen from US$ 250 (1990) to US$ 170 and the country is burdened

with a debt of over $ 1.6 billion and yet the annual income is about $ 400 million.

Against this background, the social sector has continued to receive inadequate allocation of funds leading to deterioration in provision of services. At primary and secondary education levels the parents have come in to shoulder much of the financing gap but this is not yet the case at the tertiary level.

Although there has been some positive trends in the economy since 1987, various problems still remain. These include external trade imbalance, shallow financial markets, unemployment and general poverty within the communities. The industrial sector is beginning to take off and contributes about 13 % of GDP. Most industries are still producing below their optimum capacity and are struggling to break-even. With the liberalisation policy now in place, a number of small industries are again threatened by the multi-nationals. This has, as a result, negatively affected the efforts by training institutions to forge closer co-operation links with most of the enterprises.

(2) Technical and Vocational Education and Training

Technical education and training in Uganda is an overlapping three-tier system: craftsman level offered by technical schools and institutes, technician level offered through technical colleges and the Uganda Polytechnic and graduate engineer level offered through University programmes.

Technical schools offer three-year full time courses to primary school leavers leading to the award of a Uganda Junior Technical Certificate. Courses offered include Carpentry & Joinery, Blocklaying & Concrete Practice, Tailoring and Agriculture. Present enrolment is approximately 5,000 students of which approximately 10 % are female.

Technical Institutes offer two-year full time courses to 'O' level students with passes in Maths, Physics and English leading to the award of a Uganda Craft Certificate (Part I). Courses offered include Carpentry and Joinery, Mechanics, Plumbing, Pottery, Leatherwork, Agriculture Mechanics and Electrical Installation. The enrolment at this level is approximately 6,000.

Technician Training is carried out by Uganda Technical Colleges and the Polytechnic. These recruit 'A' level graduates with passes in Physics and Maths. Courses are of two-year duration leading to award of Ordinary Diploma in the traditional engineering disciplines of Civil, Mechanical and Electrical. The Uganda Polytechnic Kyambogo offers additional courses in Water Engineering, Architectural Draughtsmanship, Refrigeration, Science Technology, Ceramics etc. as well as a Higher Diploma. At Ordinary diploma level, the total enrolment is approximately 2,200 while there are only 100 students for Higher Diploma programmes.

The Faculty of Technology, Makerere University, offers courses in Civil, Mechanical, Electrical, Surveying and Architecture. The Faculty has a total enrolment of about 400 students with an output of 100 graduates per year.

Apart from the training offered at the institution, each student is required to undergo industrial training of three months every year.

Unlike Technical Education, Vocational Education and Training is offered through a Directorate of Industrial Training with various centres and programmes within the country. The directorate is responsible for Industrial Training, apprenticeship training, trade testing and certification and skills up-grading. The total enrolment per year is about 350 trainees. Courses offered include motor mechanics, electrical installation, welding and metal fabrication, carpentry and joinery, plumbing and pipe fitting, building and construction, forging, machining and so on. Students are trained for three years of which 9 months are spent in industry.

The major problems faced by the training institutions are:

a) Inadequate budgetary allocations and disbursements from Government.
b) Old and obsolete machinery and equipment
c) Lack of well trained staff/instructors because of poor remuneration.

(3) Co-operation with Enterprises

Context

Co-operation between educational institutions and enterprises in technical and vocational education is manifested in the form of industrial training for students, study tours, organising seminars and workshops and recently, through execution of joint projects between the small scale sector and the institutions.

Industrial training is organised in each of the technical and vocational institutions and University through the department of Industrial Training. The main duties of this department is the placement and supervision of the students during their training. In most cases the students are assigned to their supervisor for training and are fully absorbed in the operational process of the enterprise. During their training, lecturers from technical and vocational institutions visit the students to assess and discuss their training and progress in their programmes. As a result, lecturers are also given opportunities to discuss informally any technical issues which may lead to joint projects.

A second avenue of linkage between technical institutions and enterprises is through study tours which are planned on an annual basis.

Seminars and workshops are also held where workers and administrators from enterprises are invited to participate and discuss issues affecting strengthening of existing linkages. Some recommendations of these fora have been followed up. Recently, Gatsby Foundation, a UK-based non-profit organisation, in direct collaboration with the Faculty of Technology at Makerere University is funding joint projects between the faculty and the small scale sector.

While Uganda has generally recognised the need to adapt technical and vocational education and training in order to produce a proficient worker and make such education more responsive to the social and economic requirements of the country, it does not have a coherent policy to link such education and training to enterprises. Consequently, existing linkages between training institutions and enterprises are very weak and are on ad hoc basis. Enthusiasm so far shown by both training institutions and enterprises is not matched by affirmative actions from policy makers and government.

In this respect positive policies backed by tangible and interpretative actions, including preferential affirmative initiatives, are needed to accelerate actions in this sector.

Objectives and Accrued Benefits from Linkages

A country's technical and vocational training system and its subsequent linkage to enterprises is a decisive factor determining the competitive strength and level of development of its economy, production and maintenance. Skilled workers enhance the quality and efficiency of product development, usage, production and maintenance.

The establishment of linkages between technical and vocational training institutions and enterprises provides a solid basis for: curriculum adjustment and reform, student placement for practical experience, staff exchange (staff development), identification of employment opportunities, execution of joint projects, identification and selection of part-time instructors, upgrading of training officers and policy makers' knowledge about the sector, and overall assessment of the success of education and training in meeting the requirements of employers/enterprises. In terms of building national technical capacity, the accrued benefits to the students in this co-operation is the early exposure to the world of work which enables them to link theory to practical experiences in enterprises. In some cases, students also embark on practical projects to solve problems within the enterprises.

Modalities of Achieving Co-operation with Enterprises

In view of the fact that technical and vocational training is very dynamic and expensive, there is need for strong institutional co-operation. This will inevitably improve on problem identification, prioritisation and, above all, achieve optimum utilisation of scarce resources. Laboratory and workshop facilities can be selectively and appropriately shared by a number of institutions. Also human resources could be judiciously deployed.

In order to achieve all this, the following are proposed:

- Regular short term courses/seminars should be organised to orient lecturers and trainers, both in enterprises and training institutions, about the mechanisms for co-operation and linkages;
- strong viable liaison offices/committees should be created in each of the training institutions; and
- a National co-ordinating body should be established, preferably within the framework of National Commission for UNESCO.

Efforts to Establish Links

Industrial training offices, or sections operated by Industrial officers, do exist at the Faculty of Technology, Makerere University, Uganda Polytechnic Kyambogo and in each of the four government-aided technical colleges. These offices have been mainly concerned with placement of students in industry. However, of recent, the Faculty of Technology and Uganda Polytechnic, Kyambogo are progressively getting involved in linkage activities.

In 1986, UNESCO sponsored a seminar on “Engineering Education - Industry Co-operation” that brought together engineers and technologists from enterprises and educators from technical institutions. Discussions centred on how congenial and beneficial relationship between these groups could be enhanced through efficient utilisation of existing facilities and proper optimum deployment of personnel on both sides.

In 1993, the authors of this paper carried out a Pilot Project initiated by UNESCO/BREDA. This work set out to provide data and information on the nature and policies governing the University/Industry relationship and efforts being made in promoting co-operation links between institutions for technical and vocational education and enterprises in Uganda. One of the recommendations of this work was to set up a National Steering Committee to initiate firm actions that could accelerate the linkage processes between enterprises and training institutions.

In 1994, a collaboration programme between Makerere University, Faculty of Technology and small scale enterprises was drawn up. The overall development objective of this programme is to provide and enhance linkages between small scale industries, Makerere University and other centres with a capacity for technical training. This programme is currently financed by GATSBY FOUNDATION, which has considerable experience in implementing small scale enterprises.

Under this programme students are seconded to small scale enterprises for industrial training. They also work on their final year projects in enterprises, with the view of commercialising some of the projects. Lecturers from the Faculty offer on-the spot help to the small scale

enterprises in the areas of design, manufacture, troubleshooting and repair and maintenance of equipment.

Uganda Polytechnic, Kyambogo has recently held a workshop on strengthening linkages between enterprise and the Polytechnic. Engineers, technicians and policy makers attended the workshop.

Constraints in the Linkage Process

a) Information gap

There exists an information gap between training institutions and enterprises. Training institutions do not seem to know what enterprises want. The little exposure to enterprises that the students have received is not adequate to spur them into appreciating the need for linkages. On the other hand, enterprises are very critical and often expect a 'ready' graduate from institutions.

b) Attitudes

Attitudes towards institutions and enterprise linkage has not been very favourable by the stakeholders. Lecturers seem to be more concerned with their normal teaching loads. Likewise industrialists, especially in the absence of research projects, concentrate on monetary activities while the students are only interested in industrial training and subsequent employment.

c) Personnel

Personnel adequately trained to handle linkage activities are few, with the attendant result that there is poor public relations in institutions and, sometimes, in enterprises.

d) Financing

Resources to build efficient and sustainable linkage programmes are not forthcoming. Government's funds are essentially earmarked for industrial training of students and salaries. Enterprises are presently not co-ordinated and mobilised enough to fund linkage activities.

e) Policies

Until recently, Uganda did not have a coherent policy on Science and Technology. Essentially, activities and efforts so far made have been done on an individual/ institutional basis in an ad hoc manner.

f) Trainers

At present Uganda does not have qualified trainers in the area of institution/enterprise linkages. Consequently most of the activities in this area, especially public relations, is done in an informal manner.

g) Sensitisation

Lecturers and supervisors in collaborative programmes between institution and enterprises require orientation towards the subsector. There is need for sensitisation programmes whereby various issues affecting the subsector can be analysed.

h) Logistical Support

There is lack of logistical support to enhance the co-operation within the public training institutions. Office equipment and vehicles are inadequate. Laboratory equipment, especially for material testing and repair and maintenance of equipment, is in short supply. In some areas, where equipment does exist, it is old and requires replacement, or repair and calibration.

i) Poor Terms and Conditions of Science Teachers/instructors at all levels in Uganda are poorly remunerated, like their colleagues in the traditional civil service. This has been, and continues to be, a major factor in the attrition of teachers from the service. Those who enter the profession more often do it as a last resort and as a second job to supplement their incomes. Although attempts have been made to address this issue, the efforts are still far below a living wage.

Essentially the three most serious weaknesses are: lack of coherent policies, information gap, and finance.

Efforts to Overcome Identified Problems

a) Current Efforts

- Two sensitisation workshops in the area of institution/enterprise collaboration and linkage have been held. The first workshop sponsored by BREDA was held at Makerere University, Faculty of Technology (August 1993). Recently Uganda Polytechnic, Kyambogo held the second one on a similar theme (April 1995).
- Government has been urged in various fora to implement an industrial training levy that would assist in funding activities on the co-operation links.

b) Proposed Efforts

- Donor financing should be solicited for short term activities that enhance and make operational the co-operation links. Training institutions should establish formal links with enterprises, professional association and workers organisations.
- In Uganda, enterprises operate under umbrella organisations, such as Uganda Manufacturers Association (UMA), Uganda Small Scale Associations (USSIA), etc. Professional bodies for engineers, Architects and Surveyors do also exist, and need to be sensitised in this area.
- Training institutions need to establish small business enterprises within their activities. At present, the Faculty of Technology offers consultancy services where most of the clients come from business enterprises. At Uganda Polytechnic, Kyambogo consultancy work is presently done on an ad hoc basis.

Activities for Donor Support

If currents efforts are to bear fruit there is need for donor support in the area of enterprise/education co-operation. Two major areas of support include, sensitisation of policy makers in both institutions, and building of institutional capacity for creation, operation and implementation of the co-operation.

Specific areas that require support include:
(a) Training of staff in Industry/Liaison and curriculum development (especially integration of business skills in Technical education).
b) Sensitisation of policy makers, officers in charge of training, and instructors, on the need for co-operation, modalities of co-operation and so on, through regular fora like workshops, seminars etc.
c) Building of training institutions capacity for income generation in order to sustain the financing of the co-operation links.
d) Support for the identification, design and mounting of short courses, and also for building capacity in research and development areas.
e) Documentation and publication of materials for creating awareness in industry i.e. brochures, pamphlets etc.
f) Repair and re-calibration of workshop and laboratory equipment in various institutions.
g) Support to the National Steering Committee, Institutional Committees and Liaison offices in terms of logistics, such as vehicle, furniture, equipment etc.

In conclusion, the role of enterprise/education co-operation, can no longer be marginalised in the present socio-economic and technological era. For Uganda in particular, and Africa in general, the issues that arise from the desires of such co-operation cannot be separated from the broader concepts of national development, manpower requirements, industrialisation, acquisition of technology, research etc. For this co-operation to flourish there is need for support from all stakeholders. Donor support, in particular, is desirable as it will largely assist in creating a greater contribution in priming this co-operation to a level of self-sustenance.

2.7 Uganda: The Realities of Co-operation - Uganda Polytechnic Kyambogo by A. J. J. RWENDEIRE and B. MANYINDO

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(1) Introduction

This paper will examine the attempts made by Uganda Polytechnic, Kyambogo (UPK) at initiating, fostering and promoting co-operation with industry. UPK acquired its new status in 1986, being formerly a Uganda Technical College. With this new higher status, there was always a compelling need to restructure its academic programmes within the context of internal efficiency and higher quality products vis-à-vis external legitimacy and relevance.

One of the components under the ADB II Education project was a study to address the issue of UPK -Industry liaison and co-operation.

The study obtained useful information and data that were to assist in ensuring that training in industry was appropriate and that students engaged in gainful employment after their courses.

The study was carried out between March and May 1993 and revealed the more urgent need to foster the partnership. The findings of this study were discussed at the first workshop of its kind in strengthening of UPK-Industry Co-operation held on 6th April, 1995, at UPK Campus. It was organised by UPK in collaboration with the Uganda Manufacturers Association (UMA) and it brought together 36 participants from industry and 60 participants from within UPK community.

The workshop was opened by Professor Thomas Babatunde, the Resident Representative of UNDP, who urged the industrialists to support the partnership. He also pledged support from UNDP. The workshop was closed by the First Deputy Prime Minister represented by Dr Nahamya, who conveyed the Government support for the proposed UPK-Industry Co-operation that would ensure availability of the skilled workforce desired by both local and foreign investors. The government endorsed the proposal of according tax incentives to those enterprises that would contribute significantly towards the funding of training in Technical Education.

The participants discussed a variety of issues concerned with the proposed UPK-Industry Co-operation and this paper presents the main Resolutions and Recommendations that were made at the workshop. The implication of the said workshop for the way forward in forming partnerships between Educational institutions and Enterprises in Uganda are also examined.

(2) Socio-Economic Context

The socio-economic conditions in Uganda within which such Educational Institutions and Industry partnerships

ADB	African Development Bank
DIT	Department of Industrial Training at UPK
DPP	Draft Project Proposal for UPK-Industry Linkage Support
GOU	Government of Uganda
ILO	Industrial Liaison Office at UPK
IT	Industrial Training
MOES	Ministry of Education and Sports in Uganda
NGO	Non-Government Organisation
UMA	Uganda Manufacturers Association
UNCST	Uganda National Council of Science and Technology
UNDP	United Nations Development Programme
UPK	Uganda Polytechnic Kyambogo
UTF	UPK-Training Fund.

Abbreviations

can be initiated and fostered have been reviewed in several papers at this Seminar. It will suffice to mention that the vibrant and healthy economy degenerated greatly for two decades since 1971 owing to incredible economic and political mismanagement experienced in Uganda during that time.

Positive trends have begun to be manifested in the economy since 1987 although many problems and constraints still exist. The social sector was not spared from the crashing deterioration as well. The education sub-sector receives inadequate financial allocation leaving the primary and secondary education level to be supported by parents and guardians. There is a huge financing gap for the university and tertiary education level. This leaves the individual educational institutions to seek alternative funding. Hence the need to forge closer co-operation between UPK and the enterprises which also are just emerging from a period of stagnation marked by sub-optimal production levels.

Furthermore, the liberalization and privatization policy at the macro-economic level has led to extensive divestiture of numerous parastatal or economic enterprises by government. This means that the government funded educational Institutions which used to access the said parastatal organisations freely for training of their students can no longer count on government support of imposing this requirement on privately operated enterprises. Therefore, there is increasing pressure on individual educational institutions to adapt to the new situation by doing several other things, among which the forging of co-operative linkages with industry was taken as a priority by UPK.

(3) Needs Analysis

It was considered very crucial that, before embarking on the strategy for UPK-Industry Partnership, a needs analysis be conducted. This process lent itself to useful examination under an existing ADB II Education Project, of which one element was to study modalities for establishing UPK-Industry Liaison and Co-operation.

This study was undertaken between March and May 1993, and because of time constraints available to the researchers, only 78 enterprises were surveyed. The allocation of enterprises to the various sectors was done by weighing the enterprises basing on the respective contribution to GDP as follows:

(i) 32 Manufacturing Industries
(ii) 4 Utilities
(iii) 19 Construction Companies
(iv) 19 Transportation Enterprises
(v) 4 Service Enterprises (excluding education).

The methodology used to obtain information and data for the study comprised of an evaluation of secondary data, field visits and administering of two sets of questionnaires - one for the Employees, and the other one for the UPK graduates who were employees in those enterprises.

Main Findings

The findings from the Survey were as follows:

(a) Present links between UPK and Industry existed only in form of student Industrial Training placements and some one-day industrial visits/tours. Industry based student projects and short courses for personnel from industry were non-existent.
(b) There was a need to develop short courses for technicians and craftsmen, and to organise conferences and workshops for technical personnel in Industry in areas of professional development.
(c) There was a need to make use of UPK equipment and personnel in terms of technical services, such as repair, material testing, consultancy, and to offer other services that would improve on human performance, resulting in increased efficiency.
(d) That UPK should foster closer Industry Linkages and Co-operation in such areas as:
    (i) Industry-based projects for students
    (ii) Staff exchange in both directions
    (iii) Curriculum design and development
    (iv) Scholarships for students
    (v) Sponsored research and development.

Partnership Concept

It was important to examine carefully the mechanisms for implementing the above listed recommendations. However, it was considered prudent that a cautious path should be taken in developing the proposed co-operation. Some practical realities had to be taken into account, especially the following:

(a) The development of technology and increasing competition in the world markets posed great challenges to the Ugandan Educational System to provide students with superior knowledge, skills and more realistic experiences given that competence had become a crucial element offering a competitive edge.
(b) The high levels of competence among all employees of a given enterprise means high quality products and services needed in product technology, business processes and maintenance.
(c) Many industrialists were of the view that the majority of Uganda's fresh graduates were not equipped to solve problems in the developing countries.
(d) College-industry partnership was a sure way towards promotion of the industrial sector and the industrialisation of the nation.
(e) There was the need to join forces among training institutions and industries to develop long term strategies for competence development and to provide employees with life-long learning opportunities which support their current and future work.

(4) Promoting UPK-Industry Partnership

Hence the workshop to address the issue of promoting UPK/Industry co-operation was organised by UPK in consultation with Uganda Manufacturers Association

(UMA). About 80 invitations were extended to top executives of industrial and business establishments. Of these 36 (or 45 %) responded positively and participated personally, or sent high powered delegations to attend the workshop.

The fact that the UMA assisted in the organisation of, and also presented a discussion paper at, the workshop was a practical testimony that the Industrialists were keen to forge closer links with UPK.

General Observations

During the plenary discussions the following general observations were made:

(a) That all Stakeholders (Industry, Professional bodies, NGOs, Government and Educational Institutions) had a moral obligation to contribute to the formation and the development of the desired skilled workforce
(b) An appreciated that a Partnership was a reciprocal enterprise where all parties ought to assume responsibility for the partnership direction, organisation and implementation
(c) Regular follow-up workshops or meetings organised by either party were highly recommended as they were crucial for strengthening the Partnership
(d) Resource mobilisation must be an integral component of the UPK initiatives for sustaining the co-operation. The participants urged UPK to involve the Donor Community in the creation and implementation of a more sustainable mechanism of achieving industry liaison and co-operation.

Barriers to Meaningful Partnerships

During the discussions, at both committee and plenary sessions, the participants identified specific barriers which had hitherto crippled attempts at achieving meaningful UPK-Industry co-operation. These included the following:

(a) Negative attitudes on the part of Employers and students towards training
(b) Lack of formalised fora for discussion and dialogue between Training Institutions and Industry
(c) Absence of any Government Policy on industry/training institutions co-operation to cater for the mode of co-operation, training levy, and a host of incentives for complying enterprises, and for punitive measures for non-compliance
(d) Inadequate instruction for students while at the college
(e) Lack of industrial training guidelines and academic staff supervision from training institutions
(f) Lack of managerial skills by some managers in industry
(g) Poor terms and conditions of service for lecturers and support-staff of educational institutions.

Breaking of the Barriers

In order to break these barriers, the participants recommended the following remedies:

(a) Sensitisation Programmes be developed for all stakeholders through workshops/seminars, tours and so on
(b) Information exchange mechanisms be established
(c) Provision of adequate guidelines and supervision of the students during industrial training be emphasised
(d) Joint review of training programmes regularly be instituted
(e) The government should formulate a policy to cater for:
    (i) Regulations for the partnership with clear obligations for each party
    (ii) Provision of attractive incentives
    (iii) Establishment of training levy
    (iv) Total Quality Assurance.

Further Recommendations

Course Programmes:

(a) More emphasis be placed on laboratory work and practical skills.
(b) New courses to be demand-driven and the technologies market-driven.
(c) Business management skills be incorporated in technical education curricula.
(d) Practical examples relevant to Ugandan conditions be used in training programmes.

Students Training in Industry:

(a) Industries to institutionalise industrial training so that the following are observed:
- Agreed quotas
- Time schedules
- Budgetary provisions for students stipends

(b) Industry to provide competent supervisors
(c) Involve small and medium size enterprises and/or informal sector in industrial training
(d) Longer and continuous industrial training period (Six months).

Continuous Dialogue

The participants expressed their gratitude and support towards UPK initiatives and efforts to establish liaison and closer co-operation with the stakeholders. It was agreed that continuous dialogue between industry and UPK be maintained and, as a start, some organisations pledged specific support:

(a) Uganda Manufacturers Association (UMA)
- Participation in curriculum reform
- Space offered in "The Manufacture" magazine for articles on UPK
- Active advocacy of improved industrial training programmes among its members

(b) Uganda National Council of Science and Technology (UNCST)
- Sponsorship for UPK courses for small scale operators
- Financial support for innovative research and development

(c) Uganda Clays Ltd. (Kajansi)
- Support for improved industrial training programmes
- Financial support for research in material blending and testing as well as combustibles

(d) Government of Uganda

- Expedite the policy governing the training in technical and vocational education
- Tax rebates for co-operating industries.

(5) Mechanism for Support of UPK-Industry Partnership

UPK / Industry Partnership Committee

There was no doubt that the collaboration, co-operation and partnership desired, needed certain structures to be put in place for its promotion, operation and implementation. Therefore participants recommended that:

(a) There be established a 15-member UPK-Industry Partnership Committee whose composition would be as follows:
- 8 Members from Industry
- 3 Members from UPK
- 2 Members from government of Uganda
- 2 Members from professional bodies.

(b) The DIT at UPK be strengthened and transformed into a UPK Industry Liaison Office (ILO).

(c) The UPK/ILO be the secretariat for the partnership committee.

(d) That the funding for the strengthening of the UPK ILO be solicited, using the draft project proposal (DPP) as prepared by the UPK.

Funding of UPK/Industry Partnership

The maintenance of viable UPK-Industry partnership demanded provision of financial resources, material support and unwavering commitment from the stake-holders. Hence, it was agreed that there be established a UPK Training Fund (UTF) administered through a Trustee of seven prominent members, three of whom should be alumni of UPK. As a short-term measure it was recommended that the UPK-Industry Partnership Committee should solicit funds from:

- Industry
- Alumni
- Donor community (national and international)
- Government of Uganda.

However, in the medium and long term run UPK was to generate internal funds as follows:

(a) Offer services to industry and other clients

(b) Mobilise alumni to contribute to alma mater

(c) Undertake research and sale of patents

(d) Offer other consultancy services

(e) Sale of technical publications by UPK/ILO

(f) Organise fund-raising activities, but mainly through "friend-raising"

(g) Encourage GOU to implement the training levy policy.

Follow-up Activities

As a follow-up of these recommendations the participants re-iterated the need for the chairman of its workshop (Principal-UPK) together with his team to take up the task of immediately making the UPK-Industry partnership committee operational. It was crucial that no time be lost in implementing the majority of the resolutions and recommendations.

(6) Emerging Pertinent Issues

Thus far this paper has been an account of UPK experience in its attempts to develop a meaningful co-operation with industry and other business enterprises. Therefore, in conclusion the following have emerged as pertinent issues which need to be recognised as crucial in the establishment of viable linkages between educational institutions and enterprises:

- Initiative drive must come from educational institutions
- Government bureaucracy is slow to react/respond
- Initial targets are policy-makers both in industry and Government:
  (i) Industry Chief Executives
  (ii) Government Ministers and Commissioners.
- Businesses value time as a non-renewable resource. (Utilisation of one day workshops):
  (i) Educational institutions must have something to offer
  (ii) Use the right approach in marketing the linkage (friend-raiser as opposed to fund-raiser).
- Linkages with small and medium size enterprises are very important as they are likely to be future employers.
- Informal sector needs support with innovative ideas:
  (i) Removal of communication barriers (e.g. language problems)
  (ii) Students visits on problem-solving projects.
- Guided tours of institutions should be organised for industrialists.
- Continuous dialogue is essential to reduce information gap.
- Follow-up activities should be supported materially and financially:
  (i) The value system of educational institutions' output is difficult to quantify
  (ii) Enterprises are driven by profit maximisation, their production is demand-driven and they use market driven technology.
- Government must offer very attractive incentives.
- Integrated approach to these partnerships is mandatory (Must involve all stake-holders).
- Professional associations provide useful avenues for contacting potential partners.
- Sensitisation is important for changing attitudes and prejudices.

(7) Summary

The paper attempted to examine the efforts UPK has expended to initiate the co-operation between industry and itself. Efforts were directed at analysing the objective conditions that prevailed in the industries which employed UPK graduates. That the initial study identified the need to co-operate with industries in endeavours to train the engineering technicians with relevant skills.

A workshop was organised to chart out the way for formalising the UPK-Industry partnership. By and large the workshop succeeded in formulating the mechanism for the sustainability of the co-operation. A committee of fifteen members was proposed with the composition of eight members from industry, three from UPK, two from Government and two from Professional organisations. The committee was charged with the responsibilities of ensuring the success of the partnership. The principal UPK was mandated to follow up the speedy implementation of the recommendations.

To ensure the success of the venture the Government was obliged to speed up the policy initiative to regularise the co-operation. The said policy would also cater for attractive incentives to be offered to the co-operating enterprises including offers of tax rebates.

The responsibility of initiating such Educational Institutions-Industry linkages was firmly placed on the educational institutions themselves. They were encouraged to liaise amongst themselves and also target the policy-makers, be they in industry or Government. The educational institutions were also to appreciate the demand driven need for short-courses that were relevant to local conditions. The appropriate marketing strategies must be devised to sell the courses, their tax incentives and services to industry. It should be recognised that the most valuable asset, for all industrialists, next to financial capital, is time. Therefore, time, as a non-renewable resource, must be managed efficiently.

Finally, it was further stressed that educational institutions should be encouraged to establish linkages with the informal sector of the economy, especially with small scale or medium enterprises which have tremendous potential as the main employers. To foster these linkages the communication barriers should be removed by adopting indigenous languages where applicable. Furthermore, students should be assigned problem-solving projects in this informal sector.

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RWENDEIRE, A. J. J.: "Technical and Vocational Education in Uganda: A search for Liberation Education." A paper presented at UNESCO Regional Workshop, Kenya, NAIROBI, 18th-23rd October, 1993

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2.8 Uganda: Pilot Project on Co-operation by E. LUGUJJO and B. MANYINDO

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(1) Introduction

(1.1) Background to the Project

It is increasingly being recognised that universities and other technical and vocational training institutions must respond to the challenges of industry and other enterprises in the field of their training. This has, over time, been recognised as a healthy development, as training becomes more appropriate to the demands and programmes enriched by the inputs from enterprises. While such a development appears to be appropriate and necessary, there seems to be very few countries in sub-Saharan Africa that have embraced this idea and effectively implemented it. A number of countries, including Uganda, have had various experiences and reasons why this industry/enterprise partnership has not been fully exploited.

This Pilot Project, initiated by UNESCO/BREDA, sets out to provide data and information on the nature and policies governing the University[5]/Industry[6] relationship and efforts being made in promoting co-operation links between institutions for technical and vocational education and enterprises in Uganda.

5 University is used as the general term covering all types of post-secondary education.

6 Industry is used to embrace all types of economic activities in the private or public sectors.

(1.2) Methodology

The Terms of Reference for this assignment are given in the Annex (page 64). The consultants, having reviewed available literature and having had discussions with selected stakeholders in the university/industry partnership, noted the following:

- There have been recent studies made in Technical and Vocational Education and Training. Most of the studies focused on identification of the problems and on the state of the sub-sector with a view to revitalisation, in line with Government policy.
- Some limited interventions, in the form of technical assistance and limited rehabilitation, were being undertaken through loans and grants secured by Government.
- A study carried out by the Uganda Polytechnic Kyambogo in March/April 1993 had addressed the issue of University/Industry partnership.

It was therefore thought appropriate that the above data form the basis for implementing the Pilot Project.

The consultants, using the baseline data, visited key establishments for discussions on the partnership. These particular industries and organisations were invited to participate in a one day workshop dialogue in which the consultants presented a working document. A representative of the industries, Uganda Manufactures Association (an umbrella organisation), also presented a paper reflecting the views of industry. Both papers formed the basis for discussion and recommendations.

(2) Socio-Economic Conditions

(2.1) Introduction

Uganda had a population of 16.6 million and a growth rate of 2.5 % per annum for the period 1980 - 1990. Preliminary analysis of the structure of the population suggests a high dependency rate with about 48 % of the population under 15 years of age and 20 % being children. About 90 % of the population live in rural areas, depending mainly on subsistence agriculture. Agriculture accounts for about 70 % of GDP and over 95 % of merchandise exports. It provides employment for about 80 % of the population and is the economic base for much of the manufacturing and service industries. Indeed, in the early 1970s, Uganda's economy was booming with the country experiencing a budget surplus.

Following years of upheaval and destruction in Uganda, the NRM Government inherited an economy in ruins and disarray, when it assumed office in 1986. The guiding principle of economic policy put in place then is that of "building an independent, integrated, self-sustaining national economy." A number of strategies and policies were put in place, namely: Emergency Relief and Rehabilitation Plan which provided urgently needed relief to war ravaged areas. Another phase commenced in May 1987 with the launching of the Rehabilitation and Development Plan (RDP) 1987/88 - 1990/91. (RDP has now been rolled over to cover the period 1991/92 - 1994/95). These measures have now been backed up by macro-economic strategies and a medium term sectoral strategy of government, 1991-95.

Although significant progress has been made in the rehabilitation of the economy since 1986, various problems still remain. These include, inflation, external trade imbalance, inadequate domestic savings, poor private and public sector management, inadequate technological know-how, shallow financial markets etc.

Over the last one and a half decades, insecurity and poor economic management has led to major adverse structural change in the Uganda economy. Non-monetary GDP rose from 30 % to 46 % of total GDP between 1970 and 1988, while GDP fell by 11 % between 1972 and 1986. Because of population increase, GDP per person fell by more than 40 %. Between 1970 and 1988 the share of coffee in total exports went from 58 % to 97 %. While total government revenue in 1970 was 16.8 % of GDP, it is now only about 7 %.

Developments in the balance of payments during 1991-92 were marked by a reduction in the overall deficit from US$ 108.2 million in 1990-91 to US$ 101.9 million in 1991-92, an improvement in the foreign exchange reserves position and poor export performance, especially in the coffee subsector (main cash crop) which accounts for about 67 % of total export receipts.

Developments in external trade during the period 1991-92 were characterised by an improvement in the visible trade balance. The balance on the visible trade account declined from US$ 407.3 million in 1990-91 to US$ 259.9 million in 1991-92. This decline was mainly due to lower imports.

At the outset of 1991-92 total external public sector debt amounted to US$ 2.6 billion, including principle and interest arrears of US$ 372 million. This total was

ADB	African Development Bank
BREDA	UNESCO Regional Office for Education in Africa
DIT	Directorate of Industrial Training
GDP	Gross Domestic Product
GTZ	German Technical Co-operation
IT	Industrial Training
ITC	Industrial Training Council
ITEK	Institute of Teacher Education, Kyambogo
MFEP	Ministry of Finance and Economic Planning
MOWTC	Ministry of Works, Transport and Telecommunication
MUK	Makerere University, Kampala
NCDC	National Curriculum Development Centre
NRM	National Resistance Movement
UEB	Uganda Electricity Board
UMA	Uganda Manufacturers' Association
UNCST	Uganda National Council for Science and Technology
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	International Project on Technical and Vocational Education
UPK	Uganda Polytechnic, Kyambogo
UPTC	Uganda Posts and Telecommunications Corporation
URC	Uganda Railways Corporation
USSIA	Uganda Small Scale Industries Association

Abbreviations

equivalent to over 100 % of GDP. A debt strategy has been adopted by Government in order to relieve the burden on government through negotiations with the lenders, while at the same time preventing any further increase in outstanding debts.

In 1991-92 the economy of Uganda grew by 4.1 %, despite some problems, such as: An acute widespread drought, lower prices of coffee than anticipated, and slower disbursements of balance of payments support from donors. Previous trends show that the economy grew by 7.6 % in 1988, 7.3 % in 1989 and 4.0 % in 1990. Inflation fell from 243 % in 1987-88 to 29 % in 1990-91, as measured by Kampala Consumer Price Index.

Government budgets have continued to be deficit budgets, due to a number of constraints outlined above. The 1992-93 budget was no exception. Overall, Shs 703.8 billion (approx. US$ 563 million) was required to finance government undertakings. Of this Shs 287.9 billion was to be raised locally i.e. 40.9 %, leaving a deficit of Shs 415.9 billion to be financed from external sources.

The socio-economic conditions in the country can be viewed from the perspective of individual household survival as well as Government ability to provide development and social services. The trend since 1970s has been one of deterioration in both aspects. Any economic desegregation of indigenous households, whether in the rural or urban location today, must take account of the fact that, with a few notable or perhaps notorious exceptions, all are poorer than they were two decades ago, thus limiting access to education for the majority of the children. In terms of two variables of household survival strategy in the rural area, namely, ownership of land and the means to utilise it effectively, a very large proportion of rural households falls into the lowest poverty level. This is ameliorated to only a very limited extent by some subsidiary sources of income. The practical limitations imposed by the national economic and political system, particularly in the marketing sector, together with the very small size of household resources and small scale of individual enterprises, place real limitation on the range of choices open to the rural household head.

The situation regarding salary and wage earners in the public, or even private employment, is not any better. The long period of political and economic instability has taken a big toll. Salaries and incentives have become eroded by the persistent high rate of inflation.

At Government level, severe economic constraints arose out of low revenue collections, budgetary deficits and high rates of inflation. The unfavourable situation prevailing during the 1991-92 financial year largely remained unsolved. There was a shortfall in domestic revenue collections by 11 %, export revenues were much lower than the import bill, and the inflation rate stood at 63 %. The country continues to rely heavily on external assistance, in the form of loan or grants, despite the already heavy debt burden. Out of 704 billion shillings of government spending project for 1992-93, only 288 billion shillings will be raised from Uganda. The rest is expected in terms of loan or grants, thus aggravating the country's debt burden.

Against this background of increasing financial problems, the Government still faces an overwhelming task of reconstruction and rehabilitation of the various sectors of its economy, including education.

(2.2) Manpower and Employment Issues

At independence in 1962, Uganda had one of the most prosperous economies in sub-Saharan Africa. The Gross Domestic Product was increasing twice as much as the growth of the labour force with both the industrial and services sector growing significantly. The overall employment situation improved greatly such that between 1966 - 1973, the recorded increase in employment was 32 %, which is quite high.

The employment level was highest in 1971 and, as it is known, this was the year when the military took over power from the civilian government. At that time, most of the senior posts of managers, professionals and technicians were occupied by foreigners (mostly Asians and some Europeans). There was an acute shortage of skilled Ugandans in the country. As many as 74 % of the professional employees were non-Ugandans.

In 1972, Amin declared the so-called "Economic War" which led to the decline of the economy. The unplanned departure of a large number of Asians who had dominated the industrial and commercial activities and who had supplied most of professional, technical and skilled manpower, created a big gap, and the economy started to collapse. The unstable political conditions and repression led to a large number of skilled Ugandan personnel fleeing the country, and those who went out for training decided to remain outside the country.

The management of industries and business of the departed Asians was largely given to existing, as well as newly created parastatals, which had little experience and skilled manpower to manage them. Others were allocated to politically favoured Ugandans with no experience at all in business management. In addition to lack of business acumen and shortage of trained manpower, the lack of raw materials, and spare parts and improper maintenance of equipment worsened the situation in all industries and businesses.

This had an adverse impact on the employment situation in the private sector, while employment in the public sector increased, especially in the civil service. The Public Sector then became the only refuge for the absorption of the unemployed, as well as of the new entrants to the labour force. Even the parastatal organisations bloated their payrolls.

The main manpower problem during this period was the acute shortage of skilled manpower due to the departure of Asians, as well as some skilled Ugandans. Vacancies for specialised skills were not easy to fill from both internal and external sources. Non-Ugandans were not attracted to fill those posts due to the insecurity at the time, save for a few international experts.

The problem of school leavers intensified during this period, especially after the physical expansion of the educational system of the 1960s. The educational system, which was a model of the British type, continued to produce students with a bias towards white collar jobs with little contribution towards development, although government policy had emphasised transformation of the country side. The educational system over-supplied youngsters with purely academic types of education while shortages of specialised practical training persisted.

In 1977, a survey conducted by the Ministry of Planning and Economic Development revealed an acute shortage of professionals and technicians. It also revealed that the shortage was existing side by side with under-utilisation of the skills available. Most of the professionals were working below capacity.

A noticeable manpower phenomenon which was existing during the time was migration of labour from the formal sector to the informal sector (Mafuta Mingi) as it was termed. This was due to the erosion of real wages by high inflation. Wages and returns from self-employment activities in the informal sector had risen more than in the formal sector.

This resulted in:

- Salary earners in the formal sector resorting to other informal activities to supplement their incomes resulting in decline of labour productivity.
- School leavers, and other unemployed persons who were unable to get employment in the formal sector, found increased refuge in the informal sector. Thus, the informal sector temporarily solved the problem of open unemployment.

However, smuggling and other illegal activities increased. By 1980, the Ugandan skilled workers were demoralised completely due to low salaries as compared to the cost of living which had gone up tremendously. The productivity of the workers deteriorated, while, at the same time, unemployment became rampant.

(2.3) Manpower Planning and Forecasting

In practice in Uganda, enrolment in institutions of technical and higher education does not correspond to the country's manpower needs. The enrolment mechanism used is one where each institution receives its enrolment targets from the Ministry of Education and Sports. In the absence of any valid indication of manpower demand, the targets are set to the previous year's enrolment and to available training capacity. Thus, the output of the educational and training system is unlikely to be in harmony with the demand for manpower in any category of skills.

A practical difficulty is that Uganda's manpower planning does not provide a reliable framework for tackling the country's manpower training needs. Historically, it has never focused on training, but has been preoccupied with the expansion of training institutions to cater for increased population. Since the mid - 1970s, due partly to problems of methodology and data, and due to the central importance of finance in determining the actual development of education and training, manpower planning has become a residual bureaucratic activity disconnected from the country's overall development planning.

The last comprehensive study of Uganda's National Manpower was carried out in 1988. This Manpower Survey Report produced projections up to the year 1991. According to the Report of the Survey, there were 21 vocational schools, 77 technical schools and institutes and 37 business schools and institutes with a total annual output of about 5,000. Of the total number of institutions, 5 vocational centres, 52 technical schools and institutes are government-aided. The survey reveals that from 1983 to 1987 (inclusive), vocational schools graduated 3,795, technical institutions graduated 6,011 while commercial institutions graduated 11,831.

The survey shows that the manufacturing sector employed 3.6 % of the administrative, managerial and professionals enumerated; 6.6 % of the technicians and associate professional personnel and 12.7 % of the skilled workers. It is projected that the number of 5,000 artisans, technicians and craftsmen presently produced by Ugandan institutions will hardly satisfy the demand by the economy, especially during the period of rehabilitation and reconstruction.

A UNDP project - INT/89/T02: Strengthening of Endogenous Capacities in Science and Technology through National Policy Dialogues - carried out a study in 1993 on assessment of Human Resource and Institutional Requirements for Science and Technology. This study revealed that there were about 250 engineers and scientists per million of population in Uganda, compared to 1,400 per million of population in developed countries. The shortage of skills in this category is therefore critical.

Forecasts to the year 2000 indicate that many countries in this region, including Uganda, will continue to have rapid population growth. Labour supply will also grow rapidly. In the face of a relatively slow-growing demand for labour, this will lead to a substantial rise in unemployment. Since market conditions are likely to remain highly unpredictable because of the uncertainty of changes in demand and the certainty of technological change, it is advisable to put emphasis on flexibility and

the creation of a broad-based productive capability, rather than actual committed manpower capacity with narrowly specified skills. In the area of technological education and training, special efforts will be directed towards providing favourable conditions for the growth of new entrepreneurial skill to take advantage of new and emerging technologies.

The implications of these new technologies indicate that, unless vigorous steps are taken immediately to adapt our human resources development to the new realities, the development opportunities offered by modern science and technology will be lost.

(2.4) Employment and the Labour Market

The formal sector jobs are becoming increasingly limited in relation to the number of persons with technical credentials, seeking employment in these areas. This mismatch is creating a challenge to technical training institutions to produce job makers with entrepreneurial skills.

Although there is still open unemployment in the formal sector, the present Government policy of retrenchment and curbing redundancy of the workforce is reducing underemployment, which has hitherto been very rampant.

The failure of our education system to produce graduates who can generate employment for themselves has been registered with great concern. Counteracting this situation requires a new orientation in training of technical personnel, where the world of work will have to be intimately linked with educational institutions.

(3) Technical and Vocational Education in Uganda

(3.1) Goals and Aims of Education

The basic premise for designing an educational system in Uganda recognises the fundamental fact that educational development itself is an index of national development. Considering that national development aims at ensuring a meaningful life, the mandate is obvious that it will be achieved not only in terms of material growth, but through the realisation of spiritual values; ensuring the greatest number of individuals the opportunity to realise a meaningful life and providing the process for this, makes it possible to achieve true national development.

Achieving essential goals of education is facilitated by continual innovation of educational policy and practice, the success of which is largely dependent upon the co-ordination of education with other streams of development.

The goal of education for economic development is considered in the context of human resources development and the search for new knowledge and technology. Indeed, over the past two decades, emphasis has been put on the desire to lay a firm ground for scientific and technological training. In this respect, therefore, modern methods and facilities have to be introduced and educational institutions rehabilitated. For a country to be able to invest, to create and to adapt new knowledge, it must develop good scientific and technological teaching at all levels as well as research and development infrastructure. In order to guide the educational, social and economic development of the country, the Government of Uganda emphasises the principles of national unity, self-reliance and social justice.

(3.2) Structure of Education in Uganda

The basic structure of formal education in Uganda consists of four levels, namely: Primary, Lower Secondary ('O' level), Upper Secondary ('A' level) and University. The seven-year duration of the primary level is followed by a lower secondary of four years. However, the duration of these two levels is under review, and an eight-year Primary education cycle is being recommended. At the third level, post 'O' level courses are offered in 'A' level secondary schools and in Technical Institutes and various Teachers Colleges. They are generally run for two years. The fourth level includes higher institutions of learning such as the Universities, the Uganda Polytechnic, the Uganda Technical Colleges, the National Teachers' Colleges, the National College of Business Studies and the Institute of Teacher Education. With minor variations, the typical length of the courses is three years at the University and two years at the other institutions of higher learning. In summary the four levels form a single track structure of 7-4-2-3 years, with minor variations in length of particular courses after primary education.

(3.3) Technical and Vocational Education System in Uganda

Uganda is predominantly an agricultural country and may remain so for decades to come. Hence, integrated rural development is a catalyst to development in that it develops and improves the local community and builds up a reserve of skills for local enterprises and for self employment.

The aims and objectives of technical and vocational education in Uganda are:

- to stimulate intellectual and technical growth of students in order to make them productive members of the community; and
- to produce craftsmen, technicians and other skilled manpower to meet the demands of industry, agriculture, commerce and other technical services as well as the teaching of technical and vocational subjects.

Based upon these broad aims, the programmes designed for vocational education should have the following objectives:

- to facilitate interpretation, application and translation of basic knowledge and understanding of fundamental facts and principles, of scientific processes and techniques, in order to be able to

produce and use tools and labour-saving devices for productive work;
- to inculcate an appreciation of labour, and the environment as a resource base;
- to impart skills necessary for the protection, utilisation and conservation of environmental heritage;
- to refine and consolidate indigenous artistic and technological skills in order to produce things of aesthetic and cultural value;
- to consolidate, synthesise and apply the ability to use the head, the heart and the hands towards innovations, modernisation and improvement in the quality of life; and
- to broaden and increase technological awareness and the capacity of the learner to engage in productive activities for becoming self-reliant.

Uganda's development is linked with rural development. It is clear, however, that this cannot come about without technical change. The policy of government is to strengthen the role played by technical and vocational education in national development by:
- rehabilitating the existing infrastructure;
- restructuring the sub-sector, and
- reviewing curricular to align it with a production - based outlook.

Technical Education

The current system of formal technical education consists of Technical Schools, Technical Institutes, Technical Colleges, Uganda Polytechnic Kyambogo, Uganda Colleges of Commerce and National College of Business Studies. There are three levels at which technical education is offered. These are craft, technician and engineer levels. Craft training is offered in technical schools and institutes and technician training in technical colleges and polytechnics; while engineers are trained at the Faculty of Technology, Makerere University.

There are 24 Government aided Technical Schools currently operating under the Ministry of Education. These include three farm schools. The main objective of these is to train rural craftsmen (artisans). Technical schools offer three-year full time courses to primary seven school leavers leading to the award of Uganda Junior Technical Certificate (UJTC). Courses offered include carpentry and joinery, blocklaying and concrete practice, tailoring and tropical agriculture. The present enrolment is approximately 5,000 students, approximately 10 % of which are females. Parallel to technical schools, secondary schools offer general technical education which consist of metalwork, woodwork, agriculture, technical drawing electricity and basic electronics, home economics and commerce, as part of the general curriculum. The demand for technical education at this level is very high as indicated by a growing number of privately run technical schools.

At the level of technical institutes, there are 30 Government aided Technical Institutes which admit candidates with Uganda Certificate of Education ('O' level) with passes in maths, physics, chemistry and English. Holders of UJTC with adequate field experience also qualify to join the institutes. At this level two-year craft courses are offered in carpentry and joinery, block-laying and concrete practice, tailoring and cutting, motor vehicle mechanics, plumbing, pottery, leather work and agriculture mechanics and electrical installation. Successful candidates are awarded Uganda Craft Certificate (Part I). An Advanced Craft Certificate is also offered by some institutes. Besides technical institutes, craftsmen at this level are also trained by the Uganda Technical Colleges and the Polytechnic. The total estimated enrolment of craftsmen is 6,000.

Technician training is carried out by four Uganda Technical Colleges and the Uganda Polytechnic, Kyambogo (UPK). Although these institutions still train craftsmen, technical colleges are supposed to concentrate on training of Ordinary Diploma Technicians while UPK concentrate on Higher Diploma Technicians and also upgrade the training of technologists for a degree, although this is not yet the case. Technical Colleges and UPK recruit 'A' level candidates for two year programmes leading to the award of Ordinary Diploma in Electrical Engineering, Mechanical Engineering, Building and Civil Engineering. The Polytechnic, in addition, offers Industrial Ceramics, Science Laboratory Techniques and Architectural Draughtsmanship. Higher Diplomas are offered, after a two year field experience, to holders of the Ordinary Diploma in Electrical Engineering, Mechanical Engineering and Civil Engineering. The Polytechnic also runs a one year certificate course in technical teacher training. At ordinary diploma level, the total estimated enrolment is 2,200 while at Higher Diploma it is only 100 students.

Besides the pure technical subjects, the five Uganda Colleges of Commerce and the National College of Business Studies (NCBS) train business technicians. These institutions have an estimated enrolment of 4,000 students. The institutions admit holders of Uganda Advanced Certificate of Education and offer both full time and part-time courses. The courses are generally two years full time for ordinary diploma courses in business studies, secretarial studies, accounting, stenography, catering and marketing. In addition, NCBS offers a three year Higher Diploma course in marketing. The demand for business education is very high compared to the available institutions, as indicated by the growing privately owned business institutions as well.

Vocational Education

The recognition of formal vocational training started with the establishment of Artisan Training Organisations in the 1950's. The objective of these was to develop, operate and promote an efficient, system of industrial vocational training in the country. Prior to this, vocational activities were so informal and disorganised

that a negative attitude had developed, to the extent that vocational education was treated as reserved for academic failures. In order to accelerate vocational training in the country, Uganda established a Directorate of Industrial Training in the Ministry of Labour in 1974.

The Directorate of Industrial Training (DIT) operates five training centres. It is responsible for industrial training, apprentice-ship training, trade testing and certification, skill upgrading and updating courses. Its aims and objectives are to develop, operate and promote an effective and efficient system of industrial training on a national and local basis for continued and sustained manpower development in Uganda. The five Government vocational training centres are: Nakawa Vocational Training Institute, Lugogo Vocational Centre, YMCA - Jinja, IDA - Jinja and Masulita Vocational Centre. Apart from these five established centres, a number of vocational schools run on a private basis, exist in the country. Under the Directorate, candidates are required to sit for Trade Test II (Craftsman trade test) and then, after 2 years, they can sit for Trade Test I or the Master Craftsman Trade Test. The Industrial Training Council was established by decree in 1974 is to ensure quality, efficiency and effectiveness of the training programmes.

Preparation of course curricula is done by a team of selected technician experts and is based on the analysis of the trade or skill to be taught. This includes; initial level, final level, major activities of the trade skills, technical know-how, duration of course, qualities required and examination standards. The DIT, on the other hand, identifies the training needs of individuals and groups in the field, conducts occupational surveys and job analysis, and uses the information to organise and conduct courses according to specific needs at their centres. The Vocational Training Centres concentrates on traditional mechanical, civil and electrical occupations.

The main problems faced by vocational institutions are: lack of adequate funding for the training programmes they are supposed to conduct, the older institutions have degenerated and require extensive renovation and rehabilitation, and the machinery and equipment in the majority of cases are old and obsolete while in some cases require spare parts and repairs.

Technical Teacher Training

In 1972, the Government of Uganda started a department of technical teacher education at the Uganda Technical College. This Department, which is now the School of Education at Uganda Polytechnic, Kyambogo, is charged with the responsibility of training technical teachers required for technical schools and institutes. The annual output is about 30, far below the required number. The Institute of Teacher Education Kyambogo (ITEK) prepares teachers for general technical education in secondary schools. Under the ADB II Education Project, facilities will be provided for an output of about 120 technical teachers per year.

At the vocational level, there are no instructor training programmes in Uganda. Those wishing to become qualified instructors have to go abroad for training. Because of lack of manpower in this category, there is no institutional set-up for the development of training programmes and the necessary related instructional support materials. The course content is always left to individual centres to formulate.

Institutional Constraints and Future Prospects

In Uganda, education at all levels has become too academic and theoretically oriented. Consequently, the students completing general primary, secondary and even higher education, are hardly capable of coping with practical problems and doing things with their own hands. There has been too much concentration on academic learning and passing examinations to the neglect of knowledge and skills needed to solve life problems. Technical educational programs which are presently offered run counter to the necessity of meeting individual differences of interest, ability, aptitude and other personal attributes; and yet the quality of educational programmes should be measured in proportion to the extent to which they are responsive to individual needs.

While a large number of students want to acquire basic knowledge and skills from early stages of primary education, there are still negative attitudes to technical and vocational careers. The reasons advanced for this kind of thinking include:

- Technical and vocational education is considered a second-rate education compared to general education, (although this is slowly changing in Uganda).
- Technical and vocational education is generally a terminal education with no vertical mobility and access to higher education.
- There exists great disparity between technical and vocational education and general education with no formalised linkages.
- Students completing technical/vocational courses are ill-equipped for self-employment.

Between 1970 and 1985, a large number of well educated and well-trained people left the country and this reduced the availability of needed skills for the country's rehabilitation and reconstruction process. But the increasing population and its expectation created social pressure demands for the expansion of the education system. Between 1980 and 1984, there was unplanned expansion where many technical institutions were started and existing ones renamed to acquire higher status without the corresponding inputs.

The lack of foreign exchange and, to some extent, lack of adequate local funds has significantly affected the proper training in these institutions. Most of the institutions were greatly handicapped due to lack of adequate

financial resources. In general, the problems facing the institutions include low staff remuneration, lack of trained teachers, lack of staff development, lack of textbooks and instructional materials (especially for technical schools and institutes), inadequate funding, weak administrative structures, lack of equipment, tools and materials, lack of staff accommodation, dilapidated and, in some cases, inadequate buildings in terms of classrooms, library, workshops, laboratories and lack of appropriate curriculum.

The uncertainty in technical and training objectives is associated with almost all government programmes. Diversified schools have a dual purpose, to prepare students for future studies, and to equip them with employable skills. Neither is achieved satisfactorily. The post-primary centres have as their main objective to equip primary school leavers with employable skills relevant to local needs. However, the programmes are not geared to these needs and most of those who succeed leave their communities.

Weaknesses in planning and co-ordination are evident throughout the country's education and training system. Most critical are the missing development directives. A number of existing delivery mechanisms for technical and vocational education have overlapping terms of reference and unclear task delineation.

The rapid expansion which was followed by increased enrolment was not accompanied by corresponding inputs, such as trained technical teachers, adequate physical facilities, scholastic materials, tools and equipment and a favourable learning environment. Consequently, the quality of education, particularly technical education, has been steadily declining. Noting that technical, business and vocational institutions play a vital role in the training of the badly needed technicians and artisans for the rehabilitation and development of the nation, the present Government of Uganda set forth measures to correct this trend.

In July 1987, the Government set up an Education Policy Review Commission to extensively review the education programmes in the country with a view to making education more relevant to the needs of society and an effective tool for development. The Commission submitted its Report in January 1989, which led to a Government White Paper on Education of April, 1992. The White Paper agreed with the following major recommendations on technical and vocational education: Integration of technical with business education; restructuring of technical and vocational education to cater for vocationalization from primary to tertiary levels of education; re-equipping of technical and vocational education institutions with tools, equipment, scholastic materials and the training of technical teachers.

The Government further initiated a number of studies in order to assess the requirements and revamp technical education in the country. These include: Strengthening of Scientific and Technical Teacher Education, 1990; Pre-Investment study in Technical & Business Education in Uganda, 1990; Five Year Education Sector Investment Programme 1992/93 - 1996/97; and Uganda Technological Education and Training Study, 1991. These efforts have so far yielded some success. The Government has received assistance from the African Development Bank in the form of a loan (ADB II to Education Sector) as a follow up to the study of strengthening of Scientific and Technical Teacher Education while the Directorate of Industrial Training of the Ministry of Labour & Social Affairs has also received assistance from the German GTZ. The Ministry of Education & Sports has also provided technical equipment and tools to Technical Colleges and UPK.

Curriculum Development

Curriculum development in Uganda is centralised and is the responsibility of the National Curriculum Development Centre (NCDC) which was established in 1974. NCDC is mandated to play a pivotal role in improving the quality of education and re-designing the courses at various levels, other than the Universities, to meet the goals and objectives of education. It is also to carry out research and evaluation of curriculum and textbooks. The centre however lacks the necessary physical, human and financial resources to carry out its mandate. Indeed with new educational policies in place, NCDC is already over loaded with curriculum review for the vocationalisation of the primary cycle alone. This has inevitably led to little attention being paid to other levels and more so to post primary technical and vocational education to the extent that the curricula in place is basically that inherited in 1960s and early 1970s from City & Guilds of London.

To the slight extent that any syllabus has been revised, the process has been deficient in that the identification of content has rarely been accompanied by pilot testing and revision. The practice is for NCDC in conjunction with Central Inspectorate of Ministry of Education & Sports to work through subject specialists panels to develop the curriculum. However, complementing materials, such as instructors' guides, teachers training materials etc., have been lacking. Moreover, what is in the syllabus has often been included not because of its relevance to educational goals but because of amenability to existing assessment techniques.

Current issues on Curriculum Development

- The wars and civil strife during the seventies and eighties have taken their toll and led to the neglect of educational institutions and erosion in the quality of education at all levels.
- Despite the expansion that took place in the number of educational institutions, corresponding resources were not made available for the provision of necessary facilities, instructional materials and trained teachers for the fast growing student population.
- Disparities between rural and urban areas in the provision of educational facilities have increased over the years.

- Changes in curricula have not been introduced in the technical and vocational education to date.
- The curricula, both in primary and secondary schools, at present do not cater for the social and economic needs of the country. They do not adequately equip the individuals to become productive and self-reliant.
- The education system is dominated by examinations, at all stages, without any provision for assessment of other objectives of the curriculum, such as promotion of moral values, practical skills, and participation in social and cultural activities.

Curriculum Planning and Development

- This is a dynamic process and must respond both to the needs of the individual and to the technical requirements of the job, as well as the changes in job patterns caused by technological or socio-economic changes.
- A multi-disciplinary approach/effort is necessary involving professional groups representatives of industry and general educators as well as the teachers of technical and vocational education.
- Planning and development should be defined centrally in order to provide for a uniform system. Specific needs of individual industries should also be taken into account.
- Curriculum for each skilled trade should provide in-service (on the job) course towards the end of the training period aimed at preparing the trainee for specific job requirements.
- Research and Evaluation of curricula in technical and vocational education must be a continuous process.

Uganda Polytechnic, Kyambogo (UPK) has embarked on the exercise of reviewing, diversifying and updating its curricula in technical and vocational education to reflect the polytechnical nature of the institution. Essentially the revised curricula with cover a broad spectrum of studies from certificate to Bachelor of Technology levels, and also take into account the changes in job patterns caused by scientific and technological development.

Non-formal Technical and Vocational Education

Non-formal or out-of-school technical and vocational education is taken to be an organised educational activity outside the formal system. Non-formal training centres in Uganda have been very effective in establishing linkages with employers, especially in the areas of financing and labour market information. These centres, by design, are inherently better able to offer short courses based upon occupational analysis, and to use part time instructors from industry from well managed, non-formal training centres, who have the demonstrated capacity for flexible response to a changing labour market.

Throughout Uganda, technical education, in the non-formal education sector, for specific skill development, is available through a number of delivery mechanisms. These range from industry "on-the-job" training to courses provided by government ministries and private schools and centres.

Emerging Issues

When the world of work was based mainly on skilled workers and craftsmen, on-the-job training was the only method of training at the time. Since then, mass production techniques have demanded new and different skills in order to satisfy the needs of modern production and service sectors. For example, 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 science and mathematics in technical and vocational education in order to produce a labour force that can adopt quickly and be flexible enough to improve productivity.

Techniques for the modern wage sector are expected to be constantly changing, because of technological developments and the pressures of international competition to increase productivity and quality while reducing costs. This type of work environment requires employees who can design, operate, and maintain increasingly sophisticated production techniques and equipment. In Uganda, until the formal sector becomes a major factor in the economy the demand for technicians of this calibre will be limited.

The informal sector of Uganda consists of small entre-preneurs and casual workers involved in a wide array of activities, such as craftwork, workshop production, service activities, and commercial ventures. It is anticipated that agricultural products will continue to be the major export commodity of Uganda. Thus, it may be assumed that the agricultural and informal economic sectors will be the major source of employment for years to come. It is the large numbers of individuals in these sectors who will require training in the more traditional manual, production, and trade skills.

As long as labour-intensive work has a competitive advantage in the marketplace, then more technologically advanced ways of working requiring relatively large capital investments will not be attractive. In this situation, an informal worker will only profit from training directed towards enhancing the quality and productivity of his/her indigenous work techniques. Training will, therefore, be specific and refocused on improving the product, rather than on acquiring costly training tools and equipment.

An additional facet of technology is the processing of information, which has been greatly facilitated by the development of computers. Computer literacy is now a common component of elementary education in many developed countries, and an increasing number of secondary schools incorporate computer applications within most subjects. The introduction of computers into

the schools was predicated on the anticipated market demands in both the public and private sectors. The use of computers in technical programmes at the tertiary level is so well established in developed countries that University engineering students in many places are required to provide their own computers. This is however not the case in most developing countries.

While Uganda has yet to reach a stage where the market demand for computer application approaches that existing in developed countries, it would be advisable to provide some basic introductory courses in selected secondary schools and technical institutions as pilot technical programmes. The focus of these programmes would be the development of computer literacy based upon a "hands on" approach in anticipation of the inevitable expansion of computers in the private sector and in technical and vocational education.

(4) Co-operation Links with Enterprises

(4.1) Introduction

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 which justified the establishment of specialised education and training institutions in order to satisfy the needs of the modern production and service sectors.

Developments in science and technology, and their subsequent effect on production methods and the world market demands, in the last three to four decades, have been more significant than in the past. These developments have placed special emphasis on engineering, technical and vocational education and training. The main objective of this type of training is to respond to the students' needs to acquire knowledge and skills and behavioural learning patterns which will be of use in different spheres of economic and social life.

The training encompasses all forms and levels either in educational institutions on the one hand and agricultural, commercial, industrial, service or any other field related to the world of work on the other. We are in fact in the phase of development where research on "education for the world of work" is likely to concentrate on improving the deficiencies of the process or on making a more comprehensive reform of the total system. To achieve this, it is necessary that co-operation be established or further developed and strengthened with enterprises and potential employers. The effectiveness of education and training programmes is largely contingent upon the meeting the needs of industry. This requirement demands co-operation with business and industry through the creation of a variety of formalised linkages. The establishment of these linkages will inevitably provide a solid basis for curriculum development and support.

The effectiveness of the education and training programmes is contingent upon meeting the needs of enterprises. This requirement demands co-operation with business and industry through the creation of a variety of formalised linkages. These linkages will inevitably yield a number of improvements in the preparation of relevant and well qualified graduates. A satisfactory partnership, however, can only exist if the training institutions (supplier) understands fully the needs of industry (customers) and the client is aware of the constraints under which the supplier operates. This requires continuous interaction and dialogue between the two partners involved. Co-operation will only continue if the self interest of both parties is satisfied to some degree. An interface for this partnership is therefore a must for mutual benefits and national development.

Given that most technical innovations enter developing countries through changes in enterprises, technical information required for the development of new skills will over time come from these firms. Take, for example, various rehabilitation and development projects currently being undertaken in the country. In each of organisation there are a number of technologies that are being introduced and there is urgent need for skills to operate, upgrade and maintain them.

The establishment of these linkages will inevitably provide a solid basis for

- curriculum adjustment and reform,
- student placement for practical experience,
- staff exchange (staff development),
- identification of employment opportunities,
- execution of joint projects,
- selecting of part-time instructors
- assessing the success of education, and
- training in meeting the requirements of employers.

(4.2) Policies Governing University/Industry Linkages

Effectiveness of technical and vocational education is contingent upon meeting the needs of industries/enterprises. Ideally, therefore, these enterprises should also participate in the training of students who are the future workers. Presently, formal technical and vocational programmes require students to spend a fraction of their time training in industries before graduation. There is, however, no official policy governing university/ industry linkages in the country. Consequently there is no close relationship between technical and vocational education and the economic base. The absence of such a relationship gives rise to a fragmented, inefficient and poorly managed delivery system for such education.

Government is in the process of formulating an overall science and technology policy, which, among other things, will consider mechanisms for creating and strengthening university/industry linkages. It is hoped that such linkages can yield a number of improvements in the preparation of well qualified graduates and provide

facilities and avenues for instructors to gain industrial experience.

(4.3) Present Status of Co-operation Linkages

In Uganda today, the existing linkages between training institutions and industry is very weak. In the past, industries used to sponsor their personnel to educational institutions on a block release system and also accept students for Industrial training much more readily. While industrial training continues to be offered, a number of constraints have made it very ineffective. A UPK survey of 57 major enterprises in Kampala and Jinja (Uganda's main towns) in March/April 1993 by Hartmann and Manyindo showed that there were only 244 industrial training places available. These have to be competed for by all training institutions in the country that have a total capacity of over 5000 students, of whom about 500 students are from UPK alone. Suffice it to say, therefore, that the existing links between technical institutions are only partial, in terms of industrial training and limited industrial tours.

Students' Industrial Training

Industrial training is organised in each of the technical institutions and university through the Department of Industrial Training. The main duties are the placement and supervision of students during the training. The exercise is normally carried out at the end of each academic year for a duration of about 3 months (usually July - September). The student, after training, is supposed to write a report, to be endorsed by his/her training supervisor in industry, for submission to the head of department at the college.

Mode of Training

Students carry with them letters of introduction. The students are in most cases assigned to their supervisor for training and are absorbed in the operational process of the enterprises. In a number of organisations, the students are trained through the various sections and departments within the duration of their industrial attachment. During the training, the lecturers from colleges visit the students to assess and discuss the training programmes with the supervisors and the students. To date, however, there has not been any lecturer attachment to industry. At the same time, there has been almost no personnel coming from industry to offer part-time teaching and instruction at colleges and university. This crucial link and interaction calls for a concert effort, as the benefits from such an arrangement are great.

Financing of Industrial Training

Industrial training is solely financed by Government. Technical institutions get the equivalent of their capitation grants for the training! At the moment, technical colleges get Shs 370/= per student per day, which is hardly enough to cover one hot meal estimated at Shs 700/=. Lecturer's, alike, get very little funds to enable proper supervision and monitoring of the industrial training.

Constraints and Weaknesses

- *Inadequate places for all the students*

Due to the weak and the nature of the industrial base, there are normally not enough places to absorb all the students during industrial training. The reasons for this include the large number of students (all technical institutions and universities) compared to the available opportunities. Industries are also not willing to take on students when they are laying off workers, due to low economic activity. This leads to under-training and in some cases mismatch in respect to the students discipline. The growth of the industrial sector has not matched the increased student enrolment.

- *Inadequate Allowances*

The allowances given for industrial training are hardly enough to sustain the students. Most industries are willing to take on students on condition that there is no financial obligation (some industries top up the allowances). The student is therefore caught up in a dilemma as he/she can hardly survive on his/her allowance for the 3 months. These allowances sometimes are released late by Government, thus making the whole exercise difficult.

- *Assessment of Industrial Training*

Industrial training, while considered as an integral and important part of the student's training, does not form part of the overall assessment. This leads to a lack of seriousness by students during their training, leading to absenteeism or irregular attendance and, often times, the presenting of shoddy industrial training reports.

- *Negative Attitude to training by industries*

The short commercial focus by industries tends to lead to negative attitudes towards the long term investment in training.

In general terms therefore, there is a need to examine critically various parameters governing the linkages. These are, for example, policies, analysis of weaknesses in the relationship, current trends, impact of the current education and training systems and efforts being made to produce quality and relevant graduates, the role each of the partners (training institutions, enterprises, Government etc.) should play in the relationship, given the current socio-economic conditions in the country; and areas of co-operation that should be explored, strengthened and sustained.

(4.4) Issues that Affect Co-operation Links

Policy

There is no coherent and articulated policy governing University/Industry links. Various institutions establish their own operational guidelines, sometimes with very inadequate in-built assessment procedures.

Access for Students' Industrial Training and Study Tours

In order to facilitate this, there is a need for a review of policies governing this particular aspect by the various organisations concerned, in order to allow as many

students as possible to undergo industrial training. Industries could allow a certain number of places for each level of cadres every year in their budgets.

Lack of Adequate Well Trained Lectures and Instructors

The impact of resource constraint on training quality cadres is felt heavily in the qualifications of the teachers. Good vocational training requires instructors who have technical skills, industrial experience and pedagogical skills. The inability of the system to attract and retain these cadres remains a strong challenge to the system. Exposure of the lecturers to industry in the form of attachment and joint projects would go a long way in addressing this problem.

Weak Information Linkages with Employment

Improving the match between the size and occupational distribution of employment demand on the one hand, and the volume and content of training on the other, depends crucially on information linkages. Where these linkages are strong and dynamic, pre-employment training can be cost effective. Where they are weak or absent, institutional inertia, compounded by resource weaknesses, lead to routine programmes which are increasingly divorced from employment realities.

Co-operation between training institutions and employers has been difficult to establish in the public training systems. Two fundamental problems lie at the heart of this issue; these are, lack of incentives and lack of capability. These operate on both sides of the relationship. Training institutions are accountable to their respective ministries, chiefly for routine administration; effectiveness in job placement is not a criterion for budgets or promotions. Second, rigid institution controls on curricula and limited resources make it difficult for systems and institutions to respond to information from employers, even for dual training arrangements.

Institutional Constraints

The quality of education and training depends a great deal on the ability of institutions to adjust the content of training to meet changing skill needs. This is especially important in training for strategic occupations that are rapidly changing under the impact of new technology. Sustainable capacity for curriculum development and revision is a characteristic of flexible and high quality training. The rigidities of central curriculum development, coupled with a lack of adequate resources, further restrict institutions from attempting more innovative and flexible approaches to vocational instruction.

Inadequate Financing

Uganda has found it difficult to mobilise the resources necessary to build efficient and sustainable training systems. Little is left over after teachers are paid to improve systems planning and management, to provide professional services needed for effective curriculum adjustment and development, or to respond effectively to new training challenges.

Weak recurrent cost financing also leads to significant deterioration in the base of materials, equipment and facilities needed for practical training. Under such conditions, budget cuts fall most heavily on non-salary operating costs, such as maintenance, spare parts, and consumable materials and supplies. At the extreme, this leads to workshops without functioning equipment and no supplies, thus, training is reduced to lectures and the practical skills component of the curriculum, to a large extent, disappears.

Training capacity, as of now, exceeds employment demand and the capacity of Government to provide adequate financing. The result has not only been a substantial mismatch between overall supply and demand for skilled labour, and consequent low levels of external efficiency, but also a heavy burden on the scarce resources allocated to training. In order to address this constraint it is proposed that the Industrial Training Act be reviewed to cover both the students training at College as well as their industrial training. The proposed Industrial Training Fund should, with immediate effect, be made operational.

(5) Proposals for Strengthening the Linkages

It is clear that University/Industry partnership makes a healthy contribution to the development of any country. Co-operation linkages between institutions for technical and vocational education and industries can yield tangible results through:

- exchange of knowledge and know-how,
- joint undertaking of research and development projects,
- acquisition by teachers and students of the experience of life in an enterprise,
- renewal and adaptation of teaching and training programmes to suit production work.

In order to promote University/Enterprise partnership in the country the following proposals and recommendations are made:

a) There is an urgent need to formulate a coherent and explicit policy on technical and vocational education and its relation to the world of work. This policy should take cognisance of national industrialisation policy that gives medium to long term perspectives.

b) The proposed Industrial Training Act should be reviewed to pave way of the Industrial Training Fund to cover some costs for students training at college and in industry.

c) Strong permanent technical committees should be set up to constantly review training programmes at college and industry. It is further proposed that membership of such a committee comprise of training institutions, industry, Government and relevant professional bodies.

d) Individual training institutions must strengthen and expand the activities of their industrial training offices to include public relations, curriculum development and industrial services and training. These offices should become Industry Liaison Offices and be at the forefront of the partnership.

e) Training Institutions should be more flexible in their training programmes and open their gates more readily to allow use of their facilities, including the provision of continuing education to personnel from industry (this will, of course, be at a reasonable fee). Industry should, at the same time, take advantage to initiate research and development projects that training institutions (staff and students) should be challenged to find solutions to.

f) An in-depth study of successful models of University/Industry partnership in developing economies should be undertaken. A more appropriate model should then be researched and tried out in Uganda, on a pilot basis, before adaptation nation wide. In this respect, UNESCO, and other donor agencies, are requested to finance this study.

g) A workshop should be convened to deliberate on the issues pertaining to linkages and co-operation between institutions for technical and vocational education and enterprises. The latter decided to appoint a Steering Committee with the following Terms of Reference:

- follow up the deliberations of the workshop;
- work out modalities for establishment of a permanent body (organisation) for promotion of co-operation links;
- liaise with government and other relevant bodies in order to avoid duplications;
- explore ways and means of funding the activities of the organisation;
- work out specific objectives of the organisation, composition and mode of operation; and
- carry out any other activities incidental to the Terms of Reference.

Composition of the Steering Committee

1. Prof. E. Lugujjo, Makerere University, Chairman
2. Executive Director, Uganda Manufacturers Association
3. Chairman, Uganda Small Scale Industries Association
4. Chairman, Industrial Training Council
5. Eng. R. Nyakabwa-Atwoki, PAPCO, Jinja
6. Executive Director, Federation of Uganda Employers
7. Principal, Uganda Polytechnic, Kyambogo
8. Dean, Faculty of Technology, Makerere University
9. Mr J. Ogwang, Ministry of Finance & Economic Planning
10. Chief of Equipment Maintenance, Uganda Posts and Telecommunication Corporation
11. Representative of Uganda Electricity Board
12. Representative of Uganda Railways Corporation.

(6) Conclusions and Recommendations

It has been observed by many that, for the country's development, there is need to move away from an agri-culture based economy (primary production) to an industry-based economy. In Uganda today, forward and backward linkages are being emphasised, especially for agro-industries. The way forward is, therefore, to put in place institutional arrangement that will produce adequate and relevant skills, to operate, upgrade and maintain these industries.

Uganda is now at the cross roads and being opened up for domestic and foreign investment. The need for skilled personnel can, therefore, not be over-emphasised. Education and Training Institutions must co-operate in order to foster the nation's development and be able to survive into the next century. As in the case with much public service provision, isolation from market forces is the main threat to effectiveness and efficiency in public training.

Key constraints on quality and responsiveness must be addressed Chief among them are the inadequate financing, weak information linkages with employment, fragmentation of training systems, and constraints at the level of individual organisations. The modalities of co-operation is one major area that needs to be exhaustively addressed today so that a sustainable mechanism is put in place for co-operation between industry, Government and educational and training institutions.

Annex
Pilot Project on Co-operation between Institutes for Technical and Vocational Education and Enterprises

Objectives of the pilot project

Promote co-operation links between institutes for technical and vocational education and industrial firms through:

- an exchange of knowledge and know-how and the joint undertaking of research & development projects;
- the acquisition by students and teachers of the experience of life in an enterprise;
- the renewal and adaptation of teaching and training programs to suit productive work.

Workplan

(a) A concise analysis of the socio-economic context of Uganda;
(b) Place and role of technical and vocational education in the education and training systems' linkages with general education;
(c) Overview of the system of technical and vocational education;
(d) Relations between institutes for technical and vocational education and, in particular, industrial firms. Official policies governing these relations. Analysis of these relations in the present situation;
(e) Illustrate the co-operation links through case-studies, on:
- training periods spent by teachers and students in enterprises,
- the participation of staff from enterprises in teaching and training in technical schools,

- the joint design, by technical schools and industry, of research and development projects.

(f) Proposals for guidelines with a view to strengthening co-operation between technical institutes and enterprises, as well as proposals for research topics in order to renew and adapt the content of teaching and training programs, to fit the present national needs, taking into account the evolution of the national context and the advances in science and technology.

2.9 Swaziland: Co-operation by L. B. LUKHELE

Leonard B. LUKHELE, born in 1934, has served for over twenty years as the Principal of the Swaziland College of Technology. He is now retired and contracted by the National Examination Council. He holds a M.A. in Education and Educational Administration at the University of Eastern Michigan.

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(1) Introduction

The policy of education in Swaziland has always conceived the need for the educational institutions to co-operate with the world of work. If one looks back in the 1940's one realises that all schools both primary and secondary (there were not tertiary institutions then) had to provide arts and crafts, building, carpentry, agriculture and home economics. This emphasis was eroded in the 1950's in favour of theory subjects. However, this deviation was corrected in the late 1960's.

(2) Pre-Vocational Programmes

The objective of primary schools in Swaziland is to provide basic literacy with a mixed bag of work orientated attitudes. It is not to provide the youth with skills that can be employed directly in the world of work. As a concrete example of this statement primary schools provide practical arts which is a compound or a mixture of practical subjects, including those related to handwork, business environment, agriculture, home science etc.

The objective of secondary schools, at a higher level, is to provide a more diversified curriculum with a deliberate purpose to introduce to the students subjects leading to specific technologies and vocations. These subjects include technical studies, business studies, agriculture and home economics. Lately this approach has taken an interesting twist to a new pre-vocational concept. This concept advocates the need to train students in employable skills even before reaching the tertiary education and training level. This concept was originally an ambitious effort to respond to the problem of drop-outs.

As much as this pre-vocational concept seemed plausible it was found to be expensive and difficult to implement. Debate with the African Development Bank has since led to the scaling down of the practical content to a level thought to be economical - 80 % theory and 20 % practice.

(3) Technical and Vocational Programmes

Technical and vocational programmes, in this paper, refer to the programmes that are offered at certificate and diploma level in the tertiary schools. The tertiary training institutions cover a variety of programmes that prepare the students for a variety of the world of work. Among others these include engineering programmes (automotive, mechanical electrical etc.), civil and building programmes (building, carpentry, plumbing, water technology, highway technology, etc.), business programmes (accounting, office technology, hospitality etc., agriculture programmes (education, extension service, home economics etc.).

It is conceivable that training in each of the above mentioned programmes should be accompanied by industrial attachment in a qualified industry under a qualified supervisor. While this is the general expectation, not all of the programmes are covered by law in this regard. The programmes covered by law are those that are provided in the apprenticeship provisions. By law apprenticeship should be five years, unless the apprentice displays competencies that, in the opinion of the supervisor, warrant remission. Apprenticeship may take the form of attachment to the industry over the entire five years. It may take the form of the combination of the institutional training and industrial attachment. With technicians the institutional training is normally three years and the industrial attachment two years. With the craft students the institutional training is two years and the industrial attachment is three years.

The system of technical and vocational training in Swaziland recognises that, immediately after independence (this is still the case today), there were many workers that joined the ranks of industries, directly from schools. These joined industries as labourers without saleable skills. As time went on these labourers gained some skills in the jobs they performed from day to day. In order to accommodate these skilled labourers in terms of remuneration grades they are expected to under go trade testing conducted by the training institutions. Workers who have had on the job training (as is it usually termed) for at least three years and have been assessed by their immediate supervisors as competent at that level are allowed to take the elementary test. The intermediate test can be taken after another two years of competent service. The final, and the highest, test is taken after yet another two years of competent service.

(4) Need for Co-operation with Industry

For purposes of this paper the rationale for needed co-operation between training institutions and industries have been condensed and classified into three arguments namely:

- preparation of an effective technical/vocational curriculum,
- introduction of the students into the real world of work, and
- matching of the training skills with the job opportunities existing in the industries.

An effective curriculum in a technical/vocational school should adequately cover both theory and practice. The theory should be able to support the practice and the practice should be able to support the theory. In order to achieve this desired balance it is critical for whoever is designing the curriculum to look into both the world of training institutions and the world of work. What is even more critical is to reconcile the training objectives of the training institutions, which tend to be more educational and humanitarian, with the objectives of the industries, which tend to be more training and profit orientated. This does not only require the curricular expertise of the curriculum developer but also demands personality chemistry of both camps.

Secondly, the students need to be introduced into the industry of their choice smoothly and in a way that will make them fit and productive in industries. This demands the attachment of the students in industry for a reasonable length of time. This has several advantages if it is well done. The students gain in-depth understanding of what is expected of them as prospective employees of industry. The students attain that live practice that effectively supports the theory that they learned in the classroom situation. The students learn how they should relate with other people in the world of work - equals, seniors and juniors. There are many more advantages.

Thirdly, there is a need for a constant and deliberate effort to study the trends of employment opportunities that exist in industry. This constant study would be helpful in guiding training institutions in what programmes they should mount from time to time. One needs to emphasise the constant relationship of the training institutions and the industries, so far as job opportunities are concerned, because jobs can be available today but institutions train for tomorrow. Where jobs are said to be available for tomorrow there is no guarantee that these jobs will occur in the manner and shape for which the institutions will prepare its graduates. This should not be expected in our fast changing technological era. Hence, close co-operation between training institutions and industry seems nearer to the right answer.

Equally, industry should make efforts to relate to the training institutions so that it becomes aware of the manner in which it can benefit from the training institutions in terms of programmes and in terms of recruitment of personnel.

(5) Instruments of Co-operation

Technical and vocational education and training is under the Ministry of Education whilst apprenticeship and trade testing are administered by the Directorate of the Industrial Training Centre, under the Ministry of Labour and Public Service.

The Head of the Directorate of The Industrial Training Centre is the Director. He operates his mandate within the policy guidelines of a Board. The composition of the Board is modelled along the tripartite ILO model. It consists of the representatives of the Swaziland Government, including the training institutions, the representatives of the Federation of Swaziland Employers, and representatives of the Swaziland Federation of Trade Unions. Through this body, the general policy of technical and vocational training that will meet the needs of the industries is formulated.

At a lower level there are Trades Advisory Panels responsible to the above mentioned Board. The Trades Advisory Panels consist of representatives of the main industries and representatives of training institutions. The Industries Training law of 1981 provides for only four Trades Advisory Panels, namely an Engineering Advisory Panel, a Civil and Building Advisory Panel, a Commercial Advisory Panel and a Hotel and Catering Advisory Panel. The major objectives of the Trades Advisory Panels are to advise the training institutions on the nuts and bolts of the trades needed by industries. The advice is mainly on curriculum issues and job opportunities in the industries. They play a very active role in Trade Testing, but a low profile in apprenticeship.

(6) Conclusion

In conclusion, it can be said that the instrument of co-operation between training institutions and industries in Swaziland exists. However, in practice, there are numerous problems that need constant attention. These problems and possible solutions have been listed separately from this paper.

2.10 Swaziland: Connecting Schools and Enterprises - A Model for Secondary Vocational Education by C. B. S. MNDEBELE and L B. LUKHELE

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(1) Introduction and Conceptual Framework

During the past decade, an intense focus on educational reform has revealed concern among parents, educators and private enterprises about the workforce preparedness of non-college and non-university bound youth, and the concomitant role of secondary vocational (pre-vocational) education in the waves of reform movements. Yet, despite the avalanche of initiatives and reports generated from numerous education Commissions (National Education Review Commission, 1985; Vocational Training Branch International Labour Office, 1986; Special Committee to Study Pre-Vocational Education, 1990), the role of secondary vocational education in Swaziland remains unclear. Few of the reports even mentioned vocational education or discussed its role in educational reform. Further, education has not responded effectively to the needs of the Swaziland workforce or the majority of youth who, in all likelihood, will not obtain a post-secondary education.

An urgency to create new directions for Swaziland secondary vocational education has been heightened in recent years with an acknowledgement that dramatic changes are taking place in the workplace of private enterprises, in the labour market, and throughout society. It is no longer business as usual. Innovations in technology and the increasingly higher order skills required of employees in the workplace of private enterprises have affected the Swaziland education system calling for the development of futuristic approaches to the content and delivery of vocational education.

The waves of education reform, beginning with the National Education Review Commission (NERCOM) in 1985, focused on isolating the main problems associated with the relevance of education to the socio-economic needs of Swaziland. The NERCOM report recommended the establishment of alternative education, such as vocational (pre-vocational) education, that would link secondary education to the world of work, and schools and schooling, to business/industry enterprises (Mndebele, 1994).

"Skills for the Future: The Relevance of School and Tertiary Education to the World of Work" (Special Committee to Study Pre-Vocational Education, 1990) was a follow up study to the NERCOM report and recommendations. Subsequently, and as a recommendation of the Special Committee to Study Pre-Vocational Education, Educansult Limited (1992) conducted a feasibility study, under the auspices of the Ministry of Education, with a view to introducing secondary vocational education. This paper presents, in the main, their findings, recommendations, and implications.

(2) Purpose

The educational reform to vocationalise the secondary curriculum of the practical arts (agriculture, commerce, home economics, technical) in Swaziland is perceived by the policy makers as the pathway to wage employment or self-employment for the majority of youth and high school leavers who are not college bound. In keeping with this thinking, a feasibility study (Educansult Limited, 1992) with a view to reforming and introducing vocational secondary education, was undertaken. The study was guided by an (Vocational) Educational Planning Model (Educansult Limited, 1992). The purpose of this paper was to describe the Model in the Swaziland environment. The specific objectives of the paper were to:

- describe the conceptual framework and components of the Model, and
- describe the socio-economic environment surrounding the (proposed) implementation of secondary vocational education in the context (Swaziland) of the Model.

The components of the Model were fashioned after the work of Educansult Limited (1992).

(3) Procedures

This study was conducted, using what is commonly referred to as documentary or information research methodology (Fenner & Armstrong, 1981). This methodology involves pulling together relevant information bases, and other sources, to bear on a particular focal area. Slavin (1986) noted that it is important to include all studies related to the topic, and to focus upon the most relevant. The (Vocational) Educational Planning Model utilised by Educansult Limited (1992) in a feasibility study of the Swaziland education sector served as a framework for the analysis of the proposed vocational education reform. The four components of the Model constituted the following:

- Context and Output,
- Programme Design and Delivery,

- Resources, and
- Cost and Funding.

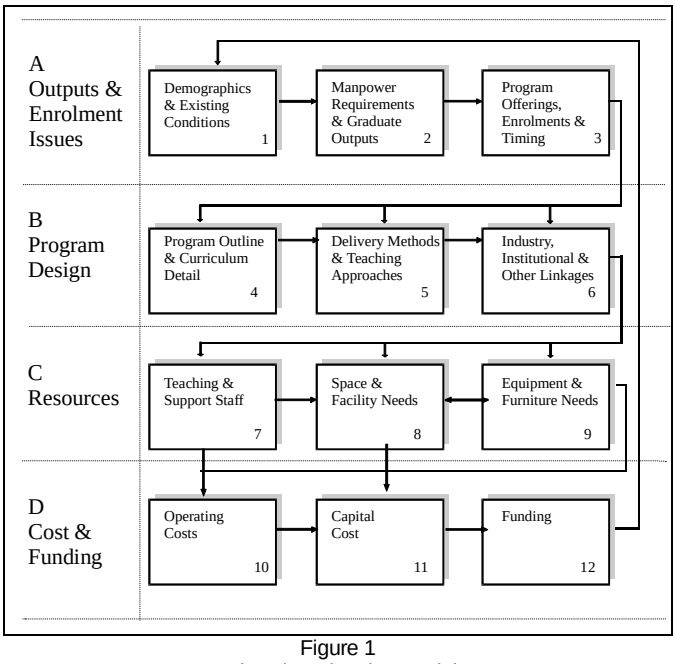


Figure 1
Education Planning Model
Source: Educansult Limited, 1992

- Programme offerings and Enrolments.

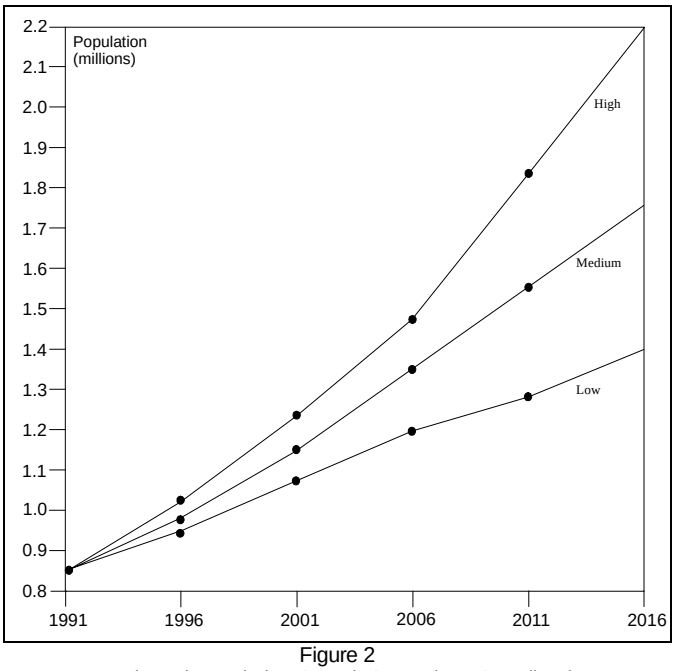


Figure 2
Projected Population Growth Scenarios - Swaziland
Source: J. G. C. Bleaker: "Fertility, Mortality and Population Growth in Swaziland, 1990" (cited in Educansult Limited 1992)

(4) Findings: Data Interpretation

The Vocational Education Planning Model that was employed (Educansult Limited, 1992) in Swaziland, as shown in Figure 1, is cyclic in structure and process. This paper highlights each of the four components and their respective sub-components. A brief conceptual description of each component precedes a discussion of its application and relevance to the Swaziland socio-economic environment. The description of the Swaziland (proposed) vocational education reform contained in this paper is a product of a feasibility study conducted by Educansult Limited (1992). The study was supported by a loan from the African Development Bank to the Swaziland Government.

(4.1) The Model: Context and Output

This component deals with the parameters and environment issues, and the prevailing socio-economic conditions. Included in this component is also a focus on goals and objectives. Context and output are employed as the curriculum is being initiated and structured (Finch & Crunkilton, 1989). It focuses on gathering information and making decisions relative to curriculum planning, that is, whether or not to offer a curriculum. Context and output may define or describe the environment in which a curriculum will be offered, identify needs that have been used as criteria, and pinpoint any constraints that may keep this need from being met (Finch and Crunkilton, 1989). The context and output environment in Swaziland, as revealed by the Educansult Limited study falls under three dimensions, namely:

- Demographics,
- Manpower requirements and Graduate outputs, and

Demographics

The 1986 census places the population of Swaziland at 681,059 persons and the current growth rate is estimated at 3.7 % with about half the population under the age of 15 years. These large and growing numbers of young people place a high demand on social institutions, such as the educational sector. The educational sector is particularly burdened by the high population growth rate with respect to the teachers, equipment, and facilities needs.

Figure 2 shows the projected increase in population. In view of the negative net social benefit of a high and accelerating population growth rate, it is vital that an explicit population policy be formulated.

The population distribution in Swaziland reveals that approximately 77 % of the total population lives in rural areas and 90 % of these persons live on Swazi Nation Land. (Such land is "held in Trust" by the Monarch, controlled and allocated by Chiefs according to traditional arrangements. Further, such land can not be used as collateral). A large proportion of the rural population is under 15 years and over 60 years. Urban areas have a higher proportion of work age inhabitants in the 15 to 59 year old age bracket" (Educansult Limited, 1992, p. 2-3). The economic activity in rural areas of Swaziland must undergo a transformation from subsistence agriculture to modern economic farming activity. Transformation associated with such a transition must be supported by a relevant vocational school curriculum.

Manpower Requirements

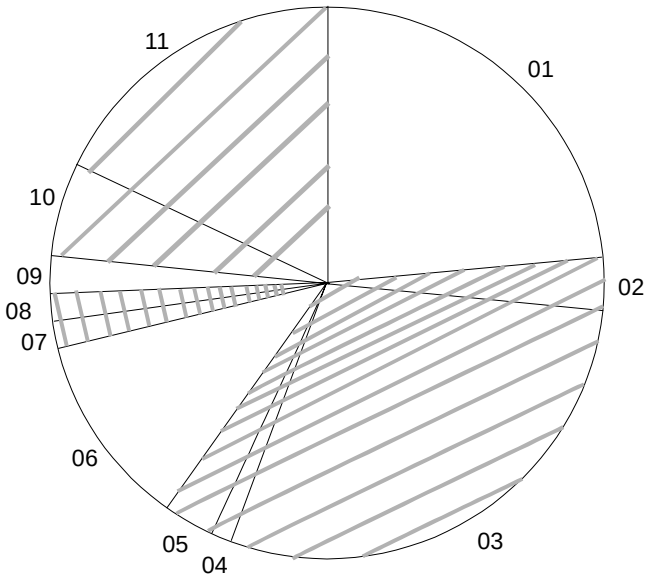
The 1991/92-1993/94 Development Plan (Economic Planning Office, 1991), estimated paid employment for 1988 to be at 98,830 positions. Of the 85,867 formal employment positions, 69.5% were in the private sector, 30.5% in the public sector. A further 12,963 positions were classified as informal paid employment (Educansult Limited, 1992, p. 2-11). The growth in employment for jobs was estimated at 4.4% for 1986, 7.7% for 1987, and 3.2% for 1988. Forecast for employment was to have grown by about 2% in 1990.

Figure 3 shows employment by economic sector. These data show the major employment sector in Swaziland:

- Manufacturing with 23,376 positions (about 30%)
- Agriculture and Forestry with 16,702 positions (about 22%)
- Government with 16,199 positions (about 21%) and
- Trade and Hotel with 7,575 (about 10%)

(Educansult Limited, 1992).

The Economic Association of Swaziland (ECAS) (1995) submission to the National Economic Review Commission revealed that external employment tends to move in an opposite direction to internal employment. That is to say, when internal employment is on the decline, external employment is on the increase. Conversely, when internal employment is on the increase, then external employment is on the decrease. This situation supports the view that the pressure to seek external employment is high when internal opportunities are limited. Hence, South Africa has provided a safety value for Swaziland's labour market pressures when internal employment opportunities are on the decline (ECAS, 1995, page 6). Other than internal employment in the formal sector and external employment in South Africa, Swazi labour has the involuntary choice of entering the informal sector which has been growing.



01	Agriculture & Forestry	16,702	21.55%
02	Mining	2,394	3.09%
03	Manufacturing	23,376	30.16%
04	Electricity	397	0.49%
05	Construction	2,742	3.54%
06	Trade & Hotels	7,575	9,77%
07	Transport	2,048	2.64%
08	Finance	1,678	2.16%
09	Business Services	2,012	2.60%
10	Other Services	2,414	3.11%
11	Government	16,199	20.90%

Figure 3
Employment by Economic Sector in Swaziland
Source: Kingdom of Swaziland: Manpower Education and Training

Figure 4 depicts distribution of employment by sector, namely, traditional sector, private sector, public sector, and informal sector. According to Matsebula (1986a:7), employment in the urban informal sector grew at an annual average rate of 15% from 1984-86. Labour that does not get employed, either externally or internally in the formal and informal sectors, joins the ranks of the unemployed.

There appears to be a discrepancy between employment opportunities and output of the educational system as shown in Figure 5, which compares skilled job opportunities and output of the educational system by skill category for 1986-1993. It is clear that over this period the number of qualified school graduates exceeded the estimated number of employment positions available by a ratio of approximately 4:1 (Educansult Limited 1992). Manpower and educational planning must take into consideration the relatively small size of the labour market in proportion to the fast growing population. The education sector must develop viable options to provide career prospects for the increasing number of school leavers. Vocationalisation of the secondary education curriculum could be one viable option. This option could be considered in the light of the growing informal urban sector and self-employment job opportunities.

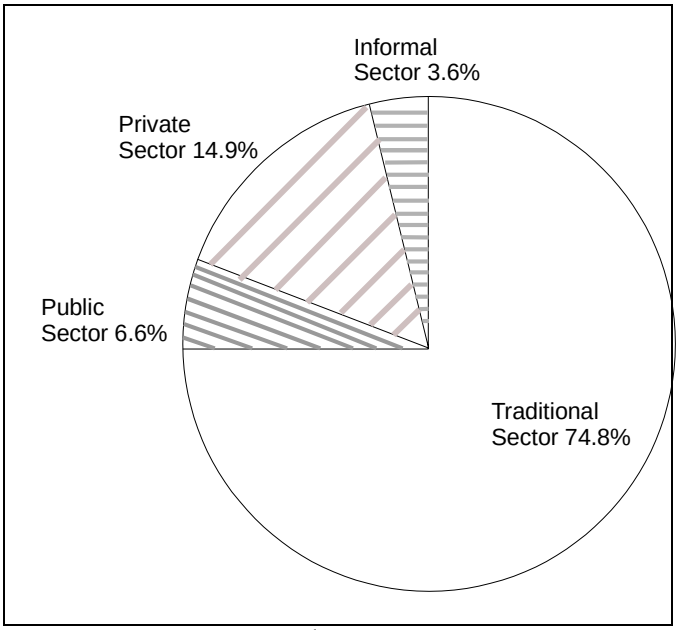


Figure 4
Distribution of Employment in Swaziland
Source: CSO - Employment and Wages Survey, 1986
(cited in Capricorn Africa Economic Associates, 1990)

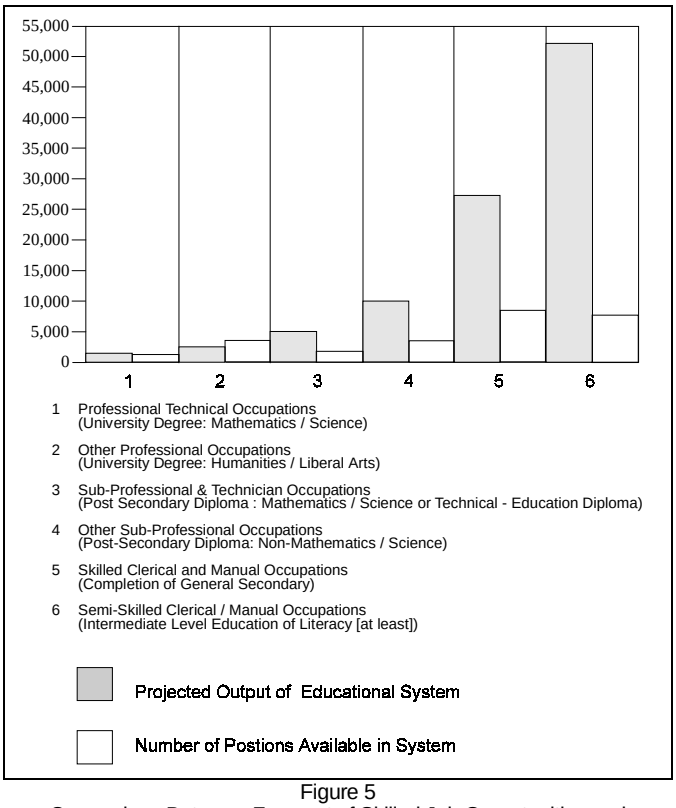


Figure 5
Comparison Between Forecast of Skilled Job Opportunities and Projected Output of the Educational System by Skill Groups for 1986 - 1993
Source: Educansult Limited, 1992

Graduate Outputs

Figure 6 shows students enrolment pattern in each level of primary and secondary education. The appreciable difference in the size of the cohort of each successive grade is reflective of the high birth rate.

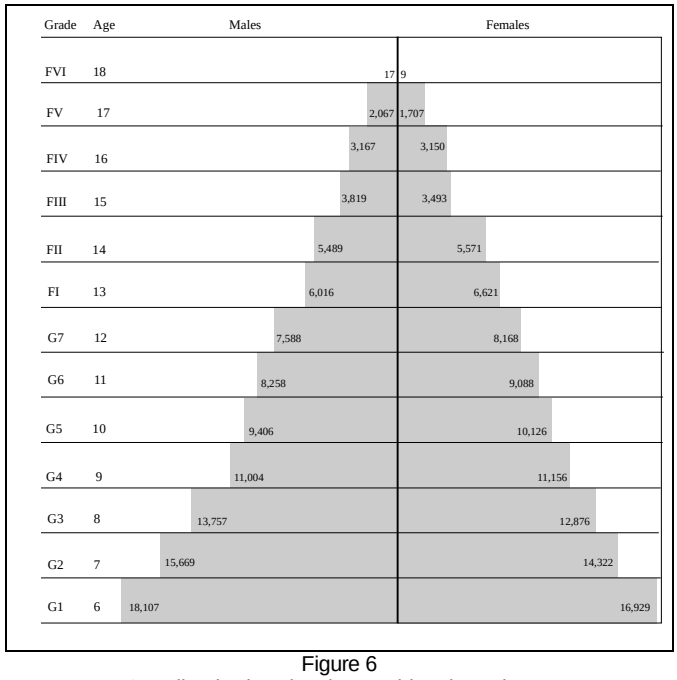


Figure 6
Swaziland Educational Pyramid and Enrolment by Gender and Grade Level.
Source: Education Statistics 1990, Central Statistical Office, Government of Swaziland (cited in Educansult Limited, 1992)

Further, the shape of the pyramid is indicative of the tremendous inefficiency in the education process with extremely high drop out and repeat rates. Table 1 depicts the repeat and drop out rates.

Grade	Appropriate Student's Age	Number Enrolled	Percentage Repeaters	Percent Drop-Out
Form VI	18	26	0.0%	0.0%
Form V	17	3774	0.2%	98.9%
Form IV	16	6319	12.7%	25.7%
Form III	15	7312	6.0%	21.3%
Form II	14	11060	14.0%	24.4%
Form I	13	12637	9.0%	19.2%
Grade 7	12	15756	11.0%	13.5%
Grade 6	11	17346	11.0%	3.1%
Grade 5	10	19532	12.0%	5.4%
Grade 4	9	22160	13.5%	7.6%
Grade 3	8	26633	17.3%	5.4%
Grade 2	7	29991	18.3%	2.1%
Grade 1	6	35036	19.0%	4.3%

Table 1
Number of students repeating and dropping out of school at each level

Dropping out of school affects the level of the skills acquired, in both quantitative and qualitative terms assessment. From a vocational perspective, premature school leaving means that the students do not reach an educational level at which sufficient basic literacy, numeracy, and occupational skills have been acquired for successful entry into the labour market assessment (Educansult Limited, 1992). Further, the lower the level at which students drop out, the higher the probability that the skills acquired will not be retained.

Improving the efficiency of the school system ought to be the major aim of the Swaziland Government. Restructuring and, thus, strengthening the system at the secondary level to prepare students for gainful wage

employment and self-employment, can enhance the efficiency of the school system. Vocational secondary education is economic because it is geared to the needs of the job market by preparing youth for initial entry into employment or self-employment (Mndebele, 1994).

Programme Offering and Enrolment

Improvement to the programme offering to reform education and training to enhance the efficiency of the school system and prepare school leavers for employment or self-employment are highlighted in the paragraphs that follow (Educansult Limited, 1992).

There is a need to lengthen basic education from 7 to 9 years. First, this initiative has the potential advantage, among others, of the additional time in primary school that will allow the curriculum to be "vocationalised" to cater to the different abilities, talents, and interests of students, and to develop these skills to a reasonable degree of competence.

Secondly, at the senior secondary high school level, general (academic) and vocational subjects can then be offered. Students can be exposed to "exploratory" activities in vocational subjects in grades 8 and 9 and gradually narrow their focus in grades 10, 11 and 12 to more specific competencies for chosen occupations.

As regard tertiary institutions, improvement to post-secondary education would entail reorganisation of the Faculty of Agriculture at the University of Swaziland to offer management skills and hands-on practical experiences for all graduates. At the Gwamile Vocational and Commercial Training Institute-Matsapha (VOCTIM), a pilot project on small-scale entrepreneurial training in cabinet-making will be introduced. VOCTIM is funded by the European Communities (EC), the German Government, through GTZ, and the Government of Swaziland. GTZ is the implementing agency, providing technical personnel, professional training, and supplementary equipment as well as advise on management and administration.

For the Swaziland College of Technology (SCOT) a proposal to introduce degree-level programmes in technical subjects will be considered. A major programme of in-service training will be introduced for reorientation of teachers to the instructional delivery and assessment of a vocational curriculum. Adults and non-formal education programmes (e.g. Rural Education Centres; School of Appropriate Farm Technology; Manzini Industrial Training Centre (MITC); Nhlangano Agricultural Skills Training) will be encouraged and supported. The Directorate of Industrial and Vocational Training will develop training schemes for specific occupations, and continue to prepare standards for trade testing.

Figure 7 indicates the size of the entry cohort and the flow of students through the educational system in 1990. These data reveal, and indeed confirm, the need for educational planning to ensure that the number of enrolment positions available at tertiary institutions somewhat match the manpower requirements for specific job categories (Educansult Limited, 1992).

> *"It is important to note that most students will not proceed through to tertiary education (nor should they). The secondary school should be an instrument to prepare the largest proportion of students for direct wage employment, self employment or apprenticeship-type activities within the labour market. In this way, the educational system operates in a most efficient manner to meet the needs of the economy and of the students." (Educansult Limited, 1992, page 2-25)*

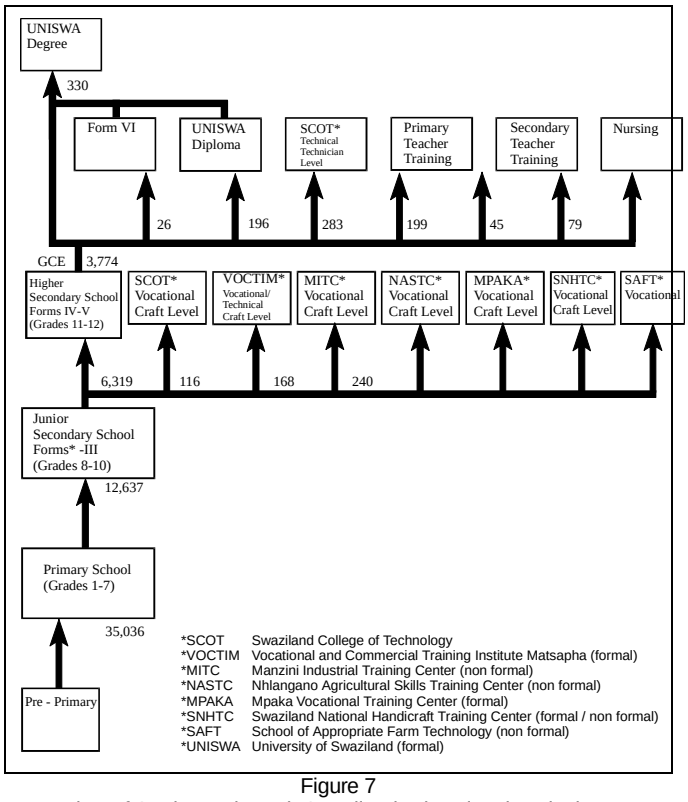


Figure 7
Flow of Students Through Swaziland Educational Institutions
Showing First Year Intakes
Source: Educansult Limited, Project Preparation Study - Phase 3, 1992 (adapted)

(4.2) The Model: Programme Design

This component of the Model deals directly with the operation of the proposed vocational curriculum. The information in this area is most meaningful for instructional staff. Further, this area deals with curriculum improvement. Some of the questions associated with this component are:

- What is the quality of instruction?
- Which, if any, of the curriculum components are deficient?

The programme design proposed for the Swaziland secondary vocational education as described in this paper falls under the following areas (Educansult Limited, 1992):

- Programme outlines and the curriculum;
- Delivery strategies and teaching approaches; and
- Business, industry, institutional, and other linkages.

The proposed programme and curriculum reforms are supported by the findings revealed by the review of the socio-economic context prevailing in Swaziland, which was reported earlier.

Programme Outline and the Curriculum

The secondary reform programme consists of four subject areas, or clusters, namely, Agriculture, Business and Commerce, Home Economics/Hospitality, and Technical. Vocationally prepared students in these subject areas will be in a better position to undertake entrepreneurial activities for self support, and for stimulation of economic activities. Two alternative programme models have been developed for consideration to introduce vocational subjects at the secondary level, and the tracking of students to various post-secondary institutions, as well as into the work force (Educansult Limited, 1992). These proposed programme models signify a major change in emphases away from the current focus on academic subjects towards a vocational education focus. In the words of Educansult Limited, (1992, page 3-4):

> *"These models have been developed with the conviction that it is not possible to achieve the dual goals of adequate vocational training and academic instruction to a level appropriate for university and college admission in the same time span. Neither model suggests a system in which students complete vocational and university level training within the five years of secondary school. In support of this conviction, it is difficult to identify an educational system in either the developing or developed world in which such an objective has been successfully achieved"*

Model 1: One Stream Option, Secondary School Offer Forms I to IV

This programme model is depicted in Figure 8. All students receive the same proportion of instruction in both vocational and academic subjects at all levels. A notable advantage of this model is that there is no informal segregation of some students into an "elite" academic stream. Vocational education is a compulsory component of education for all students.

Further, the model provides for students to keep their career options open for a longer period of time. The vocational curriculum is first introduced in Form I as an integral part of the daily curriculum. At the Form IV and V levels, students take one major vocational activity together with one minor related activity. Students wishing to gain admission to a university will take one more year, Advanced Academic Year (Form VI), to accommodate the additional instruction required by these students.

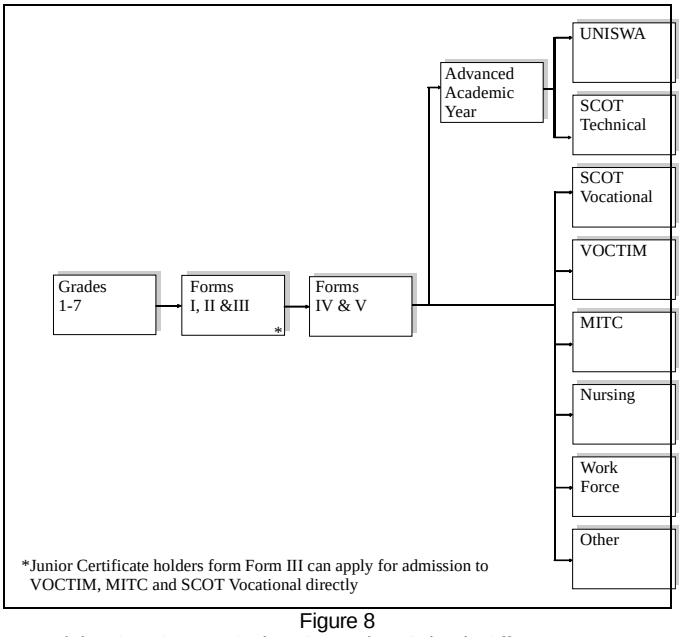


Figure 8
Model 1: One Stream Option, Secondary Schools Offer Forms I to V
Source: Educansult Limited, 1992

The proportion of academic and vocational content in the curriculum is shown below:

Form	Academic Subjects	Vocational Subjects
I (Grade 8)	75%	25%
II (Grade 9)	75%	25%
III (Grade 10)	50%	50%
IV (Grade 11)	50%	50%
V (Grade 12)	50%	50%
Advanced Academic Year	100%	0%

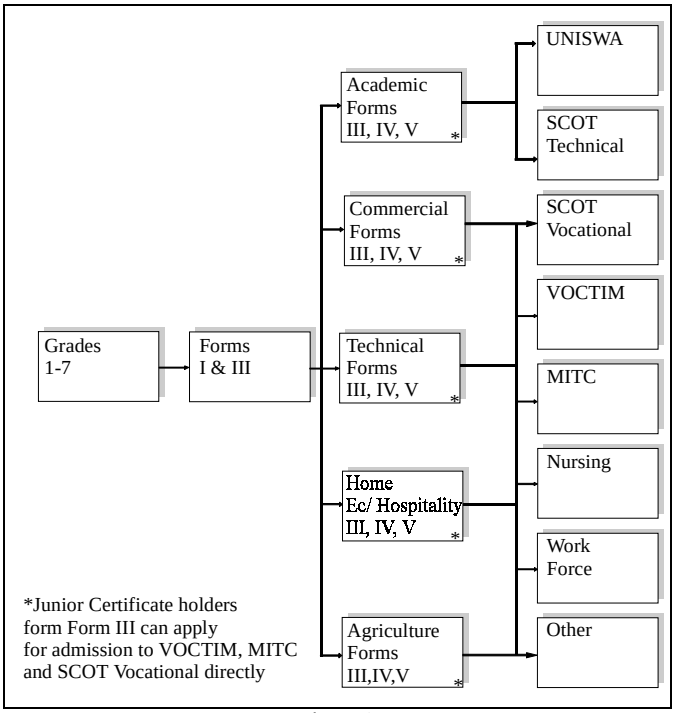


Figure 9
Model 2: Multi Stream Option, Secondary Schools Offer Forms I to V

Model 2: Multi-Stream Option, Secondary School Offering, Forms I to V

This model, which is depicted in Figure 9, proposes separate streams for students focusing on academic subjects and for those focusing on vocational subjects. Separate streams are proposed for Agriculture, Business and Commerce, Home Economics/Hospitality, and Technical.

However, streaming does not begin until Form III. This allows students a number of years of general education and common vocational education in which to explore interests and abilities prior to selecting a specific career path.

The proportion of academic and vocational subjects is given below:

Form	Academic Subjects	Vocational Subjects
I	75%	25%
II	75%	25%
III Academic Stream	80%	20%
III Vocational Stream	40%	60%
IV Academic Stream	80%	20%
IV Vocational Stream	40%	60%
V Academic Stream	80%	20%
VI Vocational Stream	40%	60%

Students graduating from the academic stream, more than likely, will seek admission to university/college whereas those from the vocational stream will, more than likely, seek admission to vocational/technical institutions, or enter the work place directly (Educansult Limited, 1992, page 3-8). The model allows students to switch from the vocational stream to the academic stream and vice versa. This "bridging" is possible if students complete the pre-requisite course work for the selected subjects. By streaming at the Form III level, students are able to gain specific employable skills sooner and become productive members of society.

Delivery Strategies and Teaching Approaches

The proposed instructional delivery strategies and approaches are expanded methods for integrating academic and vocational education, and work-based learning experiences, such as high quality co-operative education and apprenticeships. The approaches provide:

- opportunities for guided learning provided by enterprises for the development of the students' work experiences,
- opportunities for hands-on learning experiences and applications of theoretical information,
- ongoing planning and collaboration between school and business/industry personnel in support of the curriculum and instructional practices, and
- opportunities for students to combine work experience and education as a means of career planning.

Business/Industry, Institutional, and Other Co-operative Efforts

Co-operative work placements may not be possible at every school and for every student since there are more students than enterprises. However, this activity is proposed for incorporation into the secondary school vocational curriculum. Among other advantages, co-operative work experiences may lead to the creation of relationships between the students and prospective employers which may facilitate future entry into wage employment or self employment. Further, participation in real work may help students to better see the value of learning. The end results may be in an improvement in the efficiency of the educational system, and a fall in the rates of repeating grades and dropping-out.

In order to develop a co-ordinated and effective educational system that meets the needs of students and the economy, communication, co-operation, and linkages between educational institutions and enterprises is critical. Linkages among the various educational institutions, at primary, secondary, and tertiary, are essential in ensuring that the vocational curriculum, pre-requisites, and standards of achievement are appropriately articulated.

(4.3) The Model: Resources

Resources and strategy decision-making have important implications for vocational curriculum development. As the curriculum of practical arts subjects is being reformed, every effort ought to be made to ensure that the best resources, both physical and personnel, are chosen and that provision is made for their proper use (Finch and Crunkilton, 1989). This can be achieved by systematically identifying and assessing relevant capabilities of the resources for accomplishing curriculum objectives and alternative plans for their implementation. "Resources can range from teaching media, modules and learning environments to teaching strategies and learning experiences" (Finch & Crunkilton, 1989, page 277). Hence, the extent to which resources are relevant and effective depends on their true relationship to the curriculum process and product. Vocational curriculum questions related to personnel and material resources may include:

- What materials might be most useful in a given educational setting ?
- Which materials will be most acceptable to students and instructors?
- What will be the effects of different materials on students achievement? and
- How adequately are the vocational instructors prepared to work with the equipment and deliver the vocational curriculum?

The impact that vocational education teachers may have on the successful delivery of a vocational programme cannot be over-emphasised in this Swaziland educational reform (Mndebele 1994). This role expectation leads to the issue and problem of what professional vocational teacher competencies are needed by teachers to fulfil this

expectation" (Mndebele, 1994, page 6). The educational reform movement in Swaziland has pointed to the need and value of vocationalisation of the secondary school curriculum in the practical arts, and the need to identify the professional vocational competencies required by vocational teachers (Mndebele 1994). As further explicated by Educansult Limited (1992), the success of the plan to introduce vocational education at the secondary schools in Swaziland is largely dependent on the quality and commitment of the headmasters and headmistresses, teachers, curriculum developers, and other Ministry of Education personnel who will be responsible for implementing these programmes.

In Swaziland, there is a need for a training programme to bring vocational teachers on stream prior to successfully introducing vocational subjects in the 16 selected pilot schools. Further, a decision must be made with respect to the practical subjects (agriculture, commerce, home economics, and technical) currently offered at the schools. There are two options proposed (Educansult Limited, 1992, page 5-10):

- If the vocational programme is to be introduced in addition to the Cambridge curriculum subjects, then additional vocational teachers will be required at these schools, or
- If the vocational programme is to replace the current practical subjects, the teachers offering these subjects can be retrained to understand the special need of delivery for the vocational curriculum.

Facility Needs

It is recognised that many school facilities in Swaziland are basic structures needing renovation and/or redesign. However, for those facilities that are more developed, the design lay out of buildings can assist in minimising operating costs to make the facility an efficient place for students to study and staff to work. The general guidelines to assist in the planning of new school facilities or the renovation of existing facilities are highlighted here.

Classrooms should be properly sized to meet the number of students for the subject. This will allow maximum utilisation of space and also create a comfortable environment for students and teachers. **Laboratories** should be furnished with appropriate facilities to meet the requirements of the vocational curriculum. Similarly, **workshop** lay out of work benches, etc., should be arranged with sufficient space to suit the equipment. **Technical books** and manuals pertaining the work should be located in convenient places for students and teachers. **General storage** facility should be provided for the storage of educational materials, furniture, and equipment. **Equipment** maintenance in good working order is a major problem facing a few schools in Swaziland. There is a great need to formulate some mechanism to ensure repair of equipment by persons with appropriate skills.

(4.4) The Model: Cost and Funding

The delivery of vocational education is an expensive undertaking. As vocational education is being introduced in Swaziland secondary schools, it is important throughout the planning that costs for each operation are estimated so that budgets are not exceeded. Once the Ministry of Education has selected the most appropriate model, model 1 or model 2, work will proceed to determine the operating and capital costs based on the prototypical 16 schools. However, if the current funding and costs continue with no change in policies, operations, and allocations, there would be insufficient money for proper programme implementation (Educansult Limited, 1992).

To significantly alleviate the problem of costs, there is a need to put in place improvements that will enhance efficiency such as to (Educansult Limited, 1992, page 5 to 26):

- implement effective budgeting and cost control;
- purchase local materials, equipment, furniture and supplies;
- improve student selection for streaming to avoid repeating and attrition;
- introduce accelerated programmes and year-round programmes;
- specialise programmes by regions so that there is no regional duplication.
- improve vocational teacher competence.

Additional funding resources, along with the reduction of operating and capital costs, might be necessary. Some possibilities that warrant further investigation may include (Educansult Limited, 1992, page 5 to 27):

- gaining funds from enterprises/employers (shifting the burden to the employers);
- mobilising local communities to provide land, materials, and labour;
- introducing fees or levies for education and services in addition to those already in place or collecting fees in kind where possible (passing more of the cost burden for vocational education onto the students);
- realising funds from the sale of products or services provided by the schools.

It should be mentioned at this juncture that, in developing and developed countries, unit costs increase with the level of education. Hence, it is far more efficient to train for vocations/occupations at lower levels, hence, the introduction of vocational studies at the secondary school level (Educansult Limited, 1992).

(5) Conclusions and Implications

This paper sought to describe an (Vocational) Educational Planning Model (Educansult Limited, 1992) that guided a feasibility study conducted with a view to introducing vocational education in the secondary schools of Swaziland. The paper attempted to present proposed reforms in the content and delivery of a

vocational programme in which collaboration between schools and enterprises is fostered. The findings of this paper, as well as proposed directional statements, must be interpreted relevant to the appropriate literature and research on employment and self-employment.

Under the guidance of the Ministry of Education, a specific curriculum programme model will be selected to articulate the proposed vocational education reforms within the context of the secondary education system in Swaziland. The Swaziland strategic approach to vocationalising a practical arts curriculum may be useful and, indeed, be adapted by other developing nations desiring to reform secondary vocational education.

Finally, the reader should keep in mind that the findings and related discussion presented in this paper represent one country's vision for secondary vocational education. As such, it may not represent the ideal situation that is, perhaps, distanced from reality. Even so, it does provide a solid picture of how a reformed secondary vocational programme may look like in a developing country in Sub-Saharan Africa.

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2.11 Swaziland: Enhancing Co-operation by C. B. S. MNDEBELE and L B. LUKHELE

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Quotation

"The hypothesis upon which formal vocational education everywhere is premised is that it results in an economic return on investment to the learner and to society. This hypothesis can also take the form that vocational education reduces unemployment and leads to productivity. In the Third World countries, the hypothesis links vocational education with economic development" (Lewis, 1990, page 1).

(1) Preface

(1.1) Purpose

The purpose of this document was to examine the economic and social context of vocational and technical education, identify constraints on vocational and technical education, and suggest improvements to vocational and education in the light of the prevailing economic potentials and challenges in Swaziland. In an attempt to address these areas, the following were highlighted:

- the economic and labour market relevance of education;
- small business development and entrepreneurship education;
- constraints to small business development;
- national policy on vocational and technical education;
- profiles of selected major formal and non-formal vocational and technical education institutions and programmes, including vocational special needs education; and
- constraints on, and suggested improvements to, vocational and technical education

(1.2) Methodology

This study was conducted using what is commonly referred to as documentary or information research methodology (Fenner & Armstrong, 1981). This methodology involves the pulling together of relevant information bases and other sources to bear on a particular focal area. As regard this methodology, Slavin (1986) noted that it is important to include all studies related to the topic, and to focus on the most relevant. The procedures employed in the compilation of this document included, on-site visitations of the institutions and personal interviews, and an extensive review of the related literature, research studies, and commissioned studies with a focus on vocational and technical education. We will hasten to say that this document does not pretend either to present answers or to prescribe policy. However, it does attempt to address areas which appear to hold the key to fostering and promoting the role of vocational and technical education in socio-economic development, which may result in an economic return on investment to the learner and society.

(2) Background of Vocational and Technical Education

Vocationalisation policies in Swaziland are directed towards a greater labour market relevance of education and better articulation between the content of schooling and the subsequent application of acquired skills in the world of work. The contemporary thrust to curriculum vocationalisation is perceived as the potential for providing the pathway to wage employment or self employment for the majority of youth who are not college or university bound. Vocational and technical education has the task of equipping the youth and school leaver with the competencies called for by the labour market. Such a thrust and focus represent an educational reform which, in turn, suggests a new educational mission for Swaziland. This educational reform implies a mission whose goal is that all students be prepared by the educational system for wage employment or self-employment. Furthermore, such an educational mission acknowledges that the educational institution is not separate from the world of work. Indeed, it is time now to bring these two worlds of work and education together into one (Mndebele, 1993).

In the last decade and a half, reviews of research, literature, and commissioned studies in the education sector of Swaziland have continued to point to the urgent need to address the issue of the relevance of education to the Swaziland economic and socio-political context (Atherton, Duff, and Gailer, 1981; 1987; National Education Review Commission (NERCOM), 1985; Vocational Training Branch International Labour Office, 1986; The Special Committee to Study Pre-Vocational Education, 1990). Highlights of some of the more recent and relevant education sector reviews and commissioned studies and findings related to the need for a vocationalised secondary school curriculum and the critical need for an effective vocational teacher education program in Swaziland schools follow.

In the *"Education and Training Sector Review"* on Swaziland by Atherton, Duff, and Gailer (1981), a recommendation was made for the "expansion of secondary level education closely tied to employment possibilities" (page v). Furthermore, they predicted, and warned against, unemployment of school leavers. They called for adding training in a wide range of technical and vocational education, diversified activities, and alternative programmes of study, to the formal academic education system.

The *"National Education Review Commission"* (NERCOM), appointed in 1985 to isolate the main problems associated with the relevance of education to the national manpower and economic needs, recommended the establishment of alternative education, such as vocational education. Such an education would link education to the world of work, and schools and schooling to business and industry. Such a diversification of the secondary curriculum would cater for the different aptitudes and talents of students in the selection of subjects in schools offering suitable choices of academic and vocational subjects.

Educansult Limited (1992) clearly indicated the need for a study, the findings of which will identify the professional vocational technical education competencies needed by teachers. Furthermore, the study urged that teacher training programmes at the University of Swaziland (UNISWA) and the Swaziland College of Technology (SCOT) must be significantly expanded to provide vocational technical teacher education for secondary and primary teachers for the vocational areas of Business and Commerce, Home Economics/ Hospitality and Technical subjects. The launching of a vocational secondary school curriculum entails the participation and involvement of business and industry in terms of curriculum input, work-based experiences for students, and an advisory responsibility. Swaziland, with an economy characterised by specialisation, openness and free-market, has the potential for a successful vocational education curriculum.

(3) Economic and Social Context

(3.1) The Economy and Labour Market Relevance of Education

The Swaziland political rhetoric for labour market relevance of the secondary education curriculum remains a major item of the Government's educational agenda. Swaziland, as a developing nation, with an economy characterised by specialisation, openness, free market and dualism, has curriculum vocationalisation policies that are a quest for greater labour market relevance of education. Such a quest may provide for better articulation between the content of schooling and subsequent application of acquired skills, attitudes and knowledge in the world of work.

The economy of Swaziland comprises four defining characteristics (Capricorn Africa Economic Associates, 1990, page 3):

- a specialised economy in which much of the activity is either directly related to or depends on the goods produced by the agriculture or forestry sector;
- an open economy in the sense that the small scale of its domestic market means that much of what is produced locally finds its way into external markets;
- a free-market economy in which the direct role of the government in the economy is limited;
- a dualistic economy with a modern sector (where most of the production for the market originates) and a traditional sector (where most of the people produce for their own consumption).

The modern sector of the economy of Swaziland, in contrast to the traditional sector, can further be categorised into two distinct sectors, namely, the private sector of large and small firms, and small business enterprises. The small business enterprises link themselves to entrepreneurship education by the nature of their activities. Entrepreneurship education is a programme that prepares individuals to undertake the formation and operation of small business enterprises for self-employment; whereas the purpose of vocational technical education is the preparation for employment. Entrepreneurship activity is a by-product of the vocational education experience leading to self-employment, for those who create their own employment. Hence, small business management and entrepreneurship has strong implications for vocational education, with respect to smaller firms and businesses in Swaziland.

Small businesses, which are within the private sector of the Swaziland economy, are characterised by the following features which link them to vocational and entrepreneurship education (Capricorn Africa Economic Associates, 1990, page 1):

Ownership
The majority of the small business enterprises are owned by Swazi Women.

Labour Mix
Smaller businesses are more likely to employ female labour. They are also more likely to employ Swazis in all skill areas than are the large businesses.

Experience
In general, smaller businesses have less business experience than the larger businesses.

Marketing and Demand
Smaller businesses have difficulty improving sales volume primarily due to the difficulty in getting products to the market, and a lack of adequate market information.

Access to Production Inputs
Small businesses are more likely to experience difficulty in accessing raw materials, due to difficulty in obtaining credit and transport.

Organizational Infrastructure
In general, small businesses do not belong to business associations, and there is very little contact between large businesses and smaller ones.

Swaziland has a population of about 681,059 with an average annual growth rate of 3.3%. Figure 2 (page 68) shows the projected population growth for Swaziland.

Population by Region	1976	1986	Average annual growth rate (%)
Manzini	139,538	192,596	3.3
Hhohho	133,493	178,936	3.0
Shiselweni	117,172	155,569	2.9
Lubombo	104,331	153,958	4.0
Total	**494,534**	**681,059**	**3.3**

Table 1
Population by Region - Swaziland
Sources: Department of Economic Planning and Statistics, CSO, Annual Statistical Bulletin
(cited in The Economist Intelligence Unit, 1991-92)

Table 1 shows population by region. According to United Nations estimates and the Economist Intelligence Unit Country (EIU) Profile, 1991/92, 82% of the primary school age group were enrolled in 1989; 43% of secondary school age group with some 4% of 20-24 year group were undergoing some post secondary education. In Swaziland, education is the largest element of recurrent government expenditure with its share of the total budget of 33% in the 1991/92 budget.

The pivotal sector of the country's economy is agriculture. Swaziland is heavily dependent on the agro-industrial production of sugar and timber. Land tenure and use in Swaziland remains a big issue. Under the prevailing system of land distributing, some 45% is held on a freehold basis as Individual Tenure Farm (ITF) sometimes called Title Deed Land (TDL). The remainder of the land is "held in trust" by the Monarch, but controlled and allocated by Chiefs according to traditional arrangements (The Economist Intelligence Unit, 1991/92).

Swazi Nation Land (SNL) in 1986 accommodated 69.5% of the country's population, although most of the people are engaged in wage employment somewhere else. About 60% of the country's cropland covers production on SNL land where maize and cotton are the main crops grown for subsistence. About 75% of families on SNL are partially dependent on wage income, and about 65% own cattle (The Economist Intelligence Unit, 1991/92).

About 25% of the country's economically active population is employed in the modern wage sector (Capricorn Africa Economic Associates, 1990), and the 75% remaining are subsistence farmers on Swazi Nation Land (SNL).

Figure 3 (page 69) indicates employment by economic sector, whereas Figure 4 (page 70) shows distribution of

employment in Swaziland. However, it must be noted that both urban and rural dwellers in Swaziland actively participate in the money economy. Table 2 portrays estimates of paid employment.

While Swaziland has a surplus of unskilled and semi-skilled labour there are acute shortages of technical, managerial and supervisory skilled personnel. Although the abundant labour pool is unskilled, it is literate, numerate and can speak English. A labour pool of this mix has strong implications for vocational technical education at the secondary/high school and post secondary education levels. Figure 5 (page 70) is a comparison between forecast of skilled job opportunities and projected output of the educational system by skill groups.

To this end, the *"National Development Plan, 1993/98"* (pp. 116-117) states that there exists a demand/supply disequilibrium with respect to trained people and the type of available employment opportunities. Thus manual workers and those qualified for clerical positions will be over-supplied while scientific and technical professionals will be under-supplied during the coming decade.

(3.2) Small Business Development and Entrepreneurship Education

The social and economic environment in Swaziland, with respect to vocational technical education, calls for the creation of a full partnership between employers and educators in preparing individuals for the workforce. This is particularly true for those looking forward to wage employment. However, for those who may finish with the hope and desire for self-employment, then the involvement of small businesses in vocational education programmes becomes an absolute necessity. Vocational education can expand its horizons to provide new options for students and contribute to increased productivity through involvement in entrepreneurship education. If entrepreneurship education is to permeate all of education, this suggests that teacher training efforts should include preparation in the concepts and practices of entrepreneurship education.

Swaziland, like many African developing nations, has a limited industrial base with 25% of the country's economically active population employed in the modern wage sector (see Figure 4, page 70). With a limited industrial base, entrepreneurship education and self-employment should be presented to students as a career option. Processes for entrepreneurship should be initiated at both the secondary and post-secondary levels. The term “entrepreneurship” describes individuals who have economic opportunities for themselves and others through their ability to look beyond what presently exists within the job opportunity arena.

Entrepreneurs create "new" businesses, and can also reshape jobs into positions which are more productive. The need to expand individuals’ abilities to analyse their own generic occupational skills inorder to create and expand the present economic base, is critical for a sustainable economic growth.

Swaziland has a free market economy, thus creating a business environment favourable for small business development and entrepreneurship. Small businesses have a major role to play in responding to the problem of youth unemployment. Small business enterprises, and entrepreneurship as by-products of the vocational education experience, have been perceived as having a business environment conducive to their operations and development.

Potentials for Small Business Development

Some of the potentials which Swaziland offers to foster and facilitate small business development and entrepreneurial business activity for growth and expansion in Swaziland are briefly discussed below, as expressed by Capricorn Africa Economic Associates (1990).

Political Stability

Swaziland has enjoyed place and stability for an extended period of time. Furthermore, Swazi people are a single ethnic group posing no concern for tribal rivalry. Such an environment is conducive to business activity thriving.

Network of Services and Markets

Because of its proximity to South Africa, Swaziland presents an business environment that has a wide variety of services and markets that are easier and less expensive to access relative to business environments of their African countries;

Educated and Inexpensive Labour Force

The labour pool in Swaziland is better than functional-literate, numerate and able to communicate in English.

	1985	**1986**	**1987**	**1988**	**1989 a**	**1990 b**
Formal employment	72,884	76,405	82,744	87,888	91,531	95,951
of which:						
Private Sector	50,533	52,970	58,313	61,751	64,452	68,553
Public Sector	22,351	23,435	24,431	26,137	27,079	27,398
Informal Employment	12,341	12,546	12,800	13,100	13,493	13,898
Totals	**85,225**	**88,951**	**95,544**	**100,988**	**104,374**	**109,849**

Table 2
Estimates of Paid Employment
Source: Department of Economic Planning and Statistics (cited in the Economist Intelligence Unit, 1991-92)
a: Revised; b: Provisional

Wages are relatively reasonable in Swaziland. This enables small business entrepreneurs to engage such a labour force in their enterprises.

Small Business Support Organizations

In Swaziland four bodies represent employers who are engaged in commercial activities, namely: The Federation of Swaziland employers, the Swaziland Chamber of Commerce and Industry, the Commercial Amadoda, and Sibakho. Small business enterprises, which are primarily owned by Swazis, are represented by Commercial Amadoda to a lesser extent and Sibakho to a greater extent. Although these business associations represent the interests of small business enterprises, they have received low effectiveness ratings from their constituents (Capricorn Africa Economic Associates, 1990). Development assistance organisations, non-governmental organisations (NGOs), support small business enterprises. Swazi Business Growth Trust (SBGT) serves the purpose of boosting Swazi owned businesses which usually fall under small business enterprises.

Policy to Assist Small Business Development

The Swaziland Government has initiated development assistance programs for the purpose of promoting small business development. In the recent past, the Government has begun to delineate large scale businesses as distinct from small business in character, services offered and target population. Such a distinction is critical to the success of the small businesses, for competition is eliminated between the large scale business and small business entrepreneurs.

Constraints to Small Business Development

There are constraints to the development of small businesses in Swaziland. These pose as bottlenecks in the promotion and development of small business enterprises. These enterprises, by the nature of their entrepreneurship education, are by-products of the vocational education experience.

Lack of Access to Credit

With all the Government enthusiasm and political rhetoric in support of small business development, financial assistance of credit to small business enterprises does not reach the small enterprise business person who needs it the most. Many of them lack adequate security as collateral. Small business entrepreneurs are also of the opinion that formal banking institutions are not interested in their size of operations. This perception has an element of truth in it. However, the Business Management Extension Programme serves in an advisory capacity. Asikhutulisane Credit Society caters to the credit needs of small business entrepreneurs and is stretched out thinly in view of the numbers of entrepreneurs needing credit.

Land Tenure System

Land ownership in Swaziland is primarily divided into two, namely: Title Deed Land (TDL) and Swazi Nation Land (SNL). Swazi National Land is not develop to its full potential, hence, it is lagging behind Title Deed Land in productivity and output. Furthermore, SNL can not be used as collateral posing a constraint to those with vocational agriculture skills and training wishing to obtain credit to finance their farm enterprises. Commercial agriculture production for small business entrepreneurs is indeed constrained by the land tenure and use in Swaziland. Small farm business entrepreneurs with vocational agricultural training are left with cattle as collateral, which encourages the expansion of livestock sizes contrary to the Ministry of Agriculture's de-stocking policies.

Lack of Business Managerial Skills

Small business entrepreneurs not only lack business management skills, but also show very little interest in acquiring accounting, marketing and financial management skills. Their failure to follow basic and sound business management practices often affect the growth of their businesses. These entrepreneurs, because of their size of operation, can not afford the services of an accountant or bookkeeper.

(4) National Technical and Vocational Education Policy

As a matter of policy, the Ministry of Education (Swaziland) has selected priority project components with respect of spear heading vocational technical education in line with the educational reforms and restructuring under way. Such structural adjustments in the education sector of Swaziland are a response to the public outcry for the lack of relevance of school and tertiary education to the world of work.

For many years in Swaziland education reform efforts have focused on toughening academic requirements for students. The goal was to prepare students for higher education. Then in 1985 the National Education Review Commission (NERCOM) released their report which pointed to the need to diversify the primary and secondary school curricula to strongly emphasise vocational technical subjects including agriculture, business home economics and technical trade skills. This further pointed out the need to maintain a close link between educational planning, and economic and manpower planning by the Swaziland government.

The "*NERCOM study*" marked a turning point in the education reform movement. It spawned a series of reports stating that schools should prepare students for the world of work as well as college/university. Hence, leaders in education, business and politics have trumpeted the restructuring of schools as a key to: (skills for the future, 1990)

- harmonising manpower demands with education;
- improving occupational-educational linkages;
- confronting the problems of the educated unemployed;
- contributing to rural transformation in Swaziland.

These structural adjustments call for an educational reform that equips students with the competencies

needed by the future workplace. Among the competencies implied are:

- basic skills in reading, writing, mathematics, speaking and listening;
- thinking skills, creativity, and decision making;
- reasoning and problem solving;
- personal qualities of individual responsibility and integrity;
- resources allocation of time, money and people;
- interpersonal skills of working in teams, negotiating, and serving customers, and
- information technology in acquiring, evaluating, and processing data, as well as selecting, using and applying technology.

The National Education Policy of the Ministry of Education (MOE) as it relates to vocational technical education in Swaziland places focus on the diversification of the curriculum, particularly at the primary and secondary school levels. Below are excerpts from the "*Swaziland National Development Plan" 1993/98"*, a Government of Swaziland official publication:

In order to make the most of pupils' diverse talents and to enable them to make appropriate choices for higher education and careers, a wider curriculum will be offered in the proposed nine-years basic education programme. Efforts have been made with donor assistance to diversify the curriculum at the lower grades but less progress has been made at higher grades. At the end of 1992, approximately half of all primary schools were offering the diversified curricula. This exposes students to a number of practical subjects, such as agriculture, home science, technical and commercial studies (page 114).

After the seven years of primary (elementary) education, the secondary level offers both academic and practical subjects under the present system. The proposed pre-vocational (vocational) education programme will offer academic and pre-vocational (vocational) courses. The pre-vocational (vocational) education programme will begin with exploratory activities in practical subjects at Grades 8, 9 and 10, then gradually narrow the focus in Grades 11 and 12 to more specific skills for distinct vocations. This programme will include a combination of academic subjects and performance activities geared towards enabling the high school graduates to enter the job market at a basic level or to initiate a self-directed enterprise. The programme should further enable students to proceed to vocations and higher technical education closely reflecting the changing conditions and demands of the labour market (page 115).

A major objective is to diversify the curriculum at secondary level and increase the number of schools offering practical subjects. The Schools' Agriculture Programmes, which are aimed at teaching the value of sound agricultural practices, have already started on a pilot basis in a few selected schools, such as Mpaka, Ngwane High Schools. During the Plan period (1993/98), it will be expanded to 16 pilot high schools in the four Regions. This type of education is intended for children whose basic education is likely to be the terminal point. The purpose is to increase their skills and potential when they enter the labour market (page 115-116).

In order to prepare school leavers better for opportunities in the labour market or self-employment, Government decided to offer an alternative to academic education and established The Vocational and Commercial Training Institute - Matsapha (VOCTIM) to teach technical and vocational subjects. The policy of this institute is to survey the needs of industries and mount courses to satisfy these needs (page 117).

All available information suggests that there exists a demand/supply disequilibrium with respect to trained people and the type of available employment opportunities. The disequilibrium varies according to level and type of skill. Thus manual workers and those qualified for clerical position will be over-supplied while scientific and technical professionals will be under-supplied, during the coming decade. In order to off-set this problem, Government is committed to an appropriate expansion of post-secondary facilities which includes both an expansion of University facilities to accommodate the more highly qualified Swazi school leavers, and the creation of opportunities to pursue more technical and vocational subjects through institutions such as Vocational and Commercial Training Institute - Matsapha and Swaziland College of Technology (pp. 116-117).

The *Industrial and Vocational Training Act* enacted in 1982 established the Directorate for Industrial and Vocational Training. The Act, when it was enacted, had the following as its major objectives:

- promotion of industrial and vocational training in Swaziland;
- dissuasion of employers from employing apprentices and trainees as a form of open-ended cheap labour;
- establishment of a training levy system which would provide funds for the promotion of industrial and vocational training;
- introduction of a regulatory system for the proper monitoring and control of industrial and vocational training in Swaziland.

The Industrial and Vocational Training Board is an advisory body the main function of which is to advise the Minister of Labour on policy matters. With its limited executive authority, the Board's function is implemented through the office of the Director. The Directorate is the Industrial and Vocational Training Board's executive arm providing for the Board's administrative needs. The chairman of the Board, a representative of vocational/technical institutions and selected representatives from business and industry, constitute the Industrial and Vocational Training Board. The Director, who serves as the secretary to the Board, is responsible for the day to day operations of the Directorate. Linked to the Board through the office of the Director are Advisory Committees provided for in the Act.

(5) Formal Vocational and Technical Education

(5.1) Background

The impetus for vocationalisation of the secondary and post-secondary curricula in Swaziland emerged as a socio-economic response to lack of linkages between education and occupations in the workplace. Vocational and technical education drives in Swaziland are a quest for greater labour market relevance of education for better articulation between the content of schooling and subsequent application of acquired skills, attitudes and knowledge (competencies) in the world of work (Mndebele, 1993). Subsequently, concerned about labour market relevance of education, the Swaziland Government, through the Ministry of Education (MOE), appointed a National Education Review Commission (NERCOM) in 1985.

As pertaining vocational technical education, the purpose of the Commission was to isolate the main problems associated with the relevance of education to the national needs. Having identified such problems the Commission recommended the establishment of alternative education, such as vocational education, to the world of work, and schools and schooling to business and industry. In particular, the focus was on the secondary curriculum in respect to this recommendation.

Such a diversification of the curriculum, it was envisaged, would cater for the different aptitudes and talents of students in the selection of subjects in the schools offering suitable choices of general (academic) and vocational subjects. The NERCOM findings constituted the basis for the recent developments in the Swaziland vocational technical education.

As a follow up to the NERCOM report findings and as well as a strategy for the implementation of such recommendations, the Ministry of Education appointed the *Special Committee to Study Pre-Vocational Education* (1990). In the main, the terms of reference for the Special Committee to Study Pre-Vocational Education (1990, page 1) were:

- to define the problems presently concerning pre-vocational/vocational education, placing these in the wider context of the mutual adaptation of the educational system and the macro-economic environment;
- to define the relationships between school vocational technical education in the context of the development of a broader curriculum and greater degree of preparation of students for the world of work;
- to review:
  - the primary and secondary school curricula;
  - curricula of vocational technical institutions; and
  - the school curriculum and how it relates to vocational technical institutions.
- to recommend structures for the delivery of a vocational/pre-vocational education programme which will fit into the existing educational system;
- to provide details of resource requirements in order to implement the recommended programme.

In launching a vocational/pre-vocational education programme in Swaziland, certain requirements in respect of structures, facilities, equipment, and personnel were identified and recommended. Identified as some of the requirements for starting a vocational/pre-vocational education were the following: (Special Committee to Study Pre-Vocational Education, 1990, page 15)

- conducting needs assessment studies with industry, the informal sector and committees to determine the demand for vocational/pre-vocational education;
- undertaking a feasibility study and determining the level of training;
- working out a network of specific subjects that should constitute a cluster of competencies compatible with the school curriculum;
- developing curricular and teaching materials;
- developing a scheme for teacher training to upgrade experienced teachers in specific competencies;
- determining the size and scope of workshop facilities and equipment;
- conducting a school mapping exercise to determine which school should feed specific vocational institutions, and which skills shall be taught in each institution;
- developing a plan of operations for follow-up in relation to the private sector (business and industry, small scale enterprises) and the public sector (Government, Directorate for Industrial and Vocational Training).

In fulfilling its commitment to strengthening the educational system to better serve the needs of students and the economy, and in pursuit of the recommendations of the skills for the future report (1990), the Government of Swaziland instituted a Project Preparation Study, to be conducted by Educansult Limited, funded by the Africa Development Bank in 1991/92. The purpose of the study was to examine a number of potential projects for future funding by the Bank. In the context of educational and economic imperatives the potential project areas appraised and prioritised were (Educansult Limited, 1992):

- procurement of equipment and facility construction for 16 pilot secondary schools to support the introduction of the vocational/pre-vocational curriculum;
- strengthening the National Curriculum Centre to provide for curriculum and learning materials development for the vocational/pre-vocational programme implementation;
- technical assistance to support the implementation of in-service teacher training programmes at the University of Swaziland and the Swaziland College of Technology (SCOT) for training vocational

technical teachers in the delivery of vocational technical education instruction;
- identification of the career and life paths of graduates of the vocational/pre-vocational programme for purposes of determining whether the objectives of the programme were achieved.

Year	Number of Pupils	Number of Teachers	Pupil/Teacher Ratio
1986	142,206	4,290	33.1
1987	147,743	4,462	33.1
1988	152,895	4,665	33.1
1989	157,345	4,890	32.1
1990	166,454	5.083	33.1
1991	172,908	5.584	30.9
1992*	176,248	5,852	30.1
1993*	181,359	6,133	29.6
1994*	186,618	6,427	29.0
1995*	192,030	6,737	28.5
1996*	197,599	7,059	28.0

Table 3
Number of Pupils and Teachers in Primary Schools, 1986-1996
Source: Economic Planning Office, 1993 (Ministry of Education)
*Projections

In order to make the most of pupil's diverse talents and to enable them to make appropriate choice for higher education and careers, the Government is proposing a diversified curriculum to expose students to number of vocational subjects such as vocational agriculture, vocational home economics, vocational business, and vocational technical studies. Table 3 and Table 4 present numbers of pupils and teachers in the primary and secondary schools, respectively.

Year	Number of Pupils	Number of Teachers	Pupil/Teacher Ratio
1986	30,489	1,617	18.9
1987	32,914	1,760	18.7
1988	32,942	1,906	17.3
1989	41,881	2,088	20.1
1990	41,128	2,213	18.9
1991	42,405	2,430	17.5
1992*	47,259	2,668	17.7
1993*	50,662	2,927	17.3
1994*	54,310	3,211	16.9
1995*	58,220	3,523	16.5
1996*	62,412	3,865	16.1

Table 4
Number of Pupils and Teachers in Secondary Schools, 1986-1996
Source: Economic Planning Office, 1993 (Ministry of Education)
*Projections

(5.2) Organization and Structure

Organization and structure of vocational/pre-vocational technical education within the formal school system in composed of four programme clusters, namely
- Agriculture
- Commerce
- Home Economics and
- Technical Studies.

These programme clusters are deemed appropriate on the basis of national manpower needs, and pedagogical, and cost factors. With respect to the agriculture cluster, Swaziland has an agro-industrial based economy, thus agriculture remains a pivotal sector of the country's economy.

Commerce is intended to provide students with accounting and business experiences as well as entre-preneurial (small business management) skills. Home Economics which is inclusive of textile sciences, hospitality/hotel and catering, is a cluster that provides students with skills to be translated to a commercial context. Finally, the technical studies cluster, which is inclusive of woodwork, metalwork, and technical drawing, provides students with skills in design and construction technology.

Though these four "clusters" are currently offered in selected secondary schools, they are not taught as vocational subjects but rather as "academic" subjects bearing very little, if any at all, relation to the world of work. These subjects are taught, under the existing organisation, in grade 9 through grade 12 (Form I to V).

Figure 6 (page 70) presents Swaziland Education Pyramid and enrolment by gender.

The structure and organisation, and the flow of students through the educational system are presented in Figure 7 (page 71).

Current practice in so far as the examination of these practical subjects, as well as the other general (academic) subjects, is concerned, it occurs at two exit points, namely, the Junior Certificate (J.C.) at the end of grade 10 and the Ordinary School Leaving Certificate ("O" levels) at the 12th grade. These examinations are set by external (to the school) examining boards. The current approach is subject based rather than competency-based as now proposed. The proposed competency-based format of evaluation of student learning provides a continuous assessment system thus providing an opportunity for the instructor to monitor the learner's progress as remediation as the need arises.

The Swaziland education system is experiences inefficiencies which are both internal and external that put constraints on the performance of formal and non-formal education. These inefficiencies manifest themselves in the high proportions of students that either drop out of school or repeat classes. Data from the Central Statistical Office (cited in Educansult, 1990) indicated that 25 % of the students that begin school, in a given cohort, reach the last year of primary (elementary) school; 18.7 % enter secondary; and 3.6 % get to grade 12. Analysing these data in terms of repeat and dropout rates for the year 1989/90, the repeat rates of 19 % (grade 1) and 11 % (grade 7) were observed. Repeat rates at the secondary for the same year were:
- 9 % (grade 8);

- 14 % (grade 9);
- 6 % (grade 10): and
- 12.7 % (grade 11)

(Educansult Limited, 1990).

The three major reasons for dropping out of primary (elementary) school reported in "*Wastage in the Education System: Survey on the Causes of Repetition and Drop-out in Primary and Secondary Schools in Swaziland*" as reported by teachers, parents, and drop-outs in the order of importance were (Educational Research and Planning Department, 1986):

- "financial difficulties"
- "lack of interest in studies" and
- "dissatisfaction with education".

At the secondary level, reasons for dropping out given by the same respondents, in order of importance, were:

- "lack of interest in studies"
- "a higher grade is too far from home"
- "financial difficulties"

Teacher respondents reported: "Lack of interest in studies" as the most important cause.

"Lack of interest in studies" and "Dissatisfaction with education", as major causes of dropping may have a direct causal relationship with respect to the curriculum's relevance to the personal needs of the students and the labour market/job prospects upon completion of high school.

All curriculum development, for general and practical subjects, falls under the auspices of the National Curriculum Centre (NCC). The current curriculum development process activities entail production of teacher and student materials. In the production of these materials Subject Associations and Subject Panels are major participants.

The proposed vocational curriculum development approach for the secondary vocational programme in Swaziland takes a modular approach or format. This approach is preferred because of its advantages over the traditional approach. The continuous assessment evaluation system which is also being introduced in the Swaziland education system, links well with a modular curriculum development approach.

Unlike with other programme clusters (Commerce, Home Economics and Technical), agriculture has already been introduced as a pre-vocational/ vocational subjects. Pre-vocational/ vocational in agriculture is in place at six schools in Swaziland. Although the programme is called "pre-vocational," the instructional approach, delivery, and assessment procedures approximate vocational level of some sort. The programme alludes to providing students with the knowledge, skills, and experiences to initiate their own self-sustaining and entrepreneurial enterprises. Note should be taken of the fact that the programme is devoid of some major vocational aspects. This work has been funded by the European Community.

Along with the launching of a pre-vocational agriculture program in the six secondary schools, a one-year pre-vocational teacher education programme was mounted at the University of Swaziland (UNISWA), Faculty of Agriculture. A technical assistance post funded by the European Community was established for the purpose of training pre-vocational agriculture teachers in the delivery of pre-vocational/ vocational instruction.

(5.3) Vocational and Commercial Training Institute-Matsapha (Gwamile)

The Vocational and Commercial Training Institute - Matsapha (VOCTIM) offers technical and commercial training with two main objectives (Vocational and Commercial Training Institute, Prospectus, 1992):

- enabling Swaziland's public and private sector establishments recruit skilled manpower at craft level from the labour market.
- Providing secondary school leavers/graduates with training at craft level. The training emphasises the development of practical skills in close co-operation with employers in the development of the apprentice-ship programme.

The central concept is *Theory through Practice* thus the training is interwoven offering training at the institute as well as training on the job *(Dual Training System*). The training at VOCTIM offers courses in Woodwork; Building and Construction; Electrical Engineering - craft; Mechanical Engineering - craft; Automotive Engineering - craft; Secretarial Studies, and Business Administration. Secretarial Studies and Business Administration are considered commercial courses therefore located in the commercial department whereas the other remaining courses are considered technical courses and are accommodated in the various technical departments. Commercial courses have a training duration of three years with the second year being on-the-job training. Technical courses on the other hand are four years in duration, two of which are at the Institute. Completion of training is to Government Trade Test Grade II.

(5.4) Swaziland College of Technology

The Swaziland College of Technology (SCOT) is the second largest tertiary/post-secondary institution in the country. With considerable adaptation in the recent past to meet the changing needs of the labour market, the College offers technician level and craft level courses in Engineering Sciences (Automotive, Biomedical, Civil, Electrical, Mechanical) Commercial/ Business, Secretarial, Hotel and Catering, and Building and Construction areas. It also offers diploma level courses in Secondary Technical Teaching and Secondary Commercial teaching. The College offers Vocational and Technical (craft and technician) programmes with Junior Certificate and Ordinary Level administration requirements, respectively.

The teacher education programmes in Commercial studies and Technical studies are each three years in duration. With the introduction of a vocationalised curriculum in the secondary schools, the teacher education programmes at the SCOT will need to change to fall in line with vocationalised secondary curriculum of the commercial and technical studies.

A Vocational Instructor Diploma (VID) programme, one year in duration course of study, is housed in the teacher education department. This programme targets post-secondary instructors in vocational/technical institutions whose training is deficient in professional education. This programme provides them with the pedagogy that goes along with their subject matter area.

The Swaziland College of Technology targets secondary and high school graduates with little or no prospects for admission into the University of Swaziland. Students seeking admission to the College must have good passes in English, Mathematics, and Physical Science. SCOT, as observed in Table 5, had a total enrolment of 677 in 1992.

Department	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**
Mechanical	43	59	35	19	56	48
Automotive	65	63	61	89	74	78
Construction	47	157	103	101	156	124
Hotel Catering	21	24	22	23	24	24
Commercial	123	153	136	157	170	161
Teacher Training	4	59	79	92	96	126
Woodwork	26	18	12	2	6	15
Total	**443**	**636**	**561**	**553**	**683**	**677**

Table 5
Enrolments at SCOT by Department, 1987-1992
Source: Economic Planning Office, 1993

(5.5) University of Swaziland

The University of Swaziland, Faculty of Agriculture has a one-year Post-Diploma Certificate in Pre-Vocational (Vocational) Agriculture to train Pre-Vocational Agriculture (PVA) teachers. The enrolment in the year 1992/93 was 1730, projected to be 2311 by the year 1995/95 (see Table 6).

Faculty	**1992/93**	**1993/94**	**1994/95**	**1995/96**
Agriculture	373	277	287	314
Education	165	182	200	220
Humanities	252	295	295	334
Science	298	300	300	300
Social Science	773	940	1001	1143
Total	**1730**	**1960**	**2083**	**2311**

Table 6
University of Swaziland Student Enrolment 1992/93-1995/96
Source: Economic Planning Office, 1993

The introduction of PVA (Vocational) was in accord with the priorities of the National Education Review Commission (1985). This in-service course for teachers of "Modern Agriculture" who already hold a Diploma in Agricultural Education and a minimum of 2 years of teaching experience is to enable such teachers to teach a vocational agriculture curriculum at the secondary and high schools.

Unlike Modern Agriculture, a programme that has been in existence in the school system for the past 20 years, whose aim was to create a better understanding of agriculture among high school students, PVA/Vocational agriculture has the potential for providing the pathway to wage or self-employment for the school leaver. For high school students, vocational agriculture would equip them for the reality of rural life and contribute to a gradual movement from subsistence farming to commercial farming.

The vocational agriculture project which was introduced in 1990 in six high schools has a home-based student project component. The home-based student projects may entail raising of crops or small livestock on a small scale. These enterprises, it is hoped, will be continued by the students upon high school graduation/completion.

One of the achievements of the vocational agriculture project is the production of a modular vocational curriculum for grades 11 and 12. This curriculum affords students acquisition of practical agricultural skills which lean more toward vocational agriculture than Modern Agriculture. However, the curriculum, by and large, is not vocational in terms of content, instructional delivery, and assessment procedures. In that respect, the curriculum is not relevant to the labour market needs of the Swaziland economy.

Cited (Brewin, 1993) as the most complex and controversial, and yet fundamental to the success of the programme, was the home-based project. According to the evaluation report, home-based student projects were found to be expensive to initiate, and demanding a lot of time for adequate guidance/supervision on the part of the teacher. The report also pointed out that there was a great need to prepare students for an encounter with real life through home-based student project. Only in this manner can students prepare themselves to establish and operate enterprises with which they would be able to continue after high school graduation. Observed and noted in the report as major constraints on the home-based enterprises were:

- access to productive agricultural land;
- inability to use land as collateral; and
- access to credit facilities.

A Pre-Vocational (Vocational) Agriculture teacher education programme in the Faculty of Agriculture of the University of Swaziland was introduced alongside teacher education programmes in agricultural education and home economics at both the diploma and degree levels. The content of, the instructional delivery approaches employed in, and the assessment procedures engaged in the two later teacher education programmes

are traditional and conventional, not vocational. With the introduction of a secondary vocational curriculum, it is hoped that these teacher education programmes will be revised to reflect vocational technical teacher education orientations in content, delivery, and assessment procedures.

(5.6) Mpaka Vocational Training Centre

The Centre which is situated on the same grounds with Mpaka High School, was established in 1984 with technical assistance from the Canadian International Development Agency (CIDA). Mpaka Vocational Training Centre offers vocational training in the following trades:

- Cabinet-making
- Clothing and Textiles
- Motor mechanics
- Block laying and concreting
- Welding and fabrication.

In addition to the trade subjects, trainees take supporting subjects which are:

- Technical English
- Technical mathematics
- Technical drawing
- Physical science
- Auto-electricity.

All the trade courses, except clothing and textiles, are operated for City and Guilds accreditation. The programme of study in each of these trades extends for a duration of 2 years. Entrance requirements are that trainees must be below 24 years of age, passed Junior Certificate (Grade 10) and passed both the written and verbal interviews. The maximum number of trainees admitted in each trade area does not exceed 15, and the total current enrolment is 86, with 9 females. For City and Guilds accreditation, the Centre uses the Swaziland College of Technology (SCOT). Accreditation is at craft-part I level. However, at the end of the program of study, trainees are examined in both the trade subjects (theory and practical) and supporting subjects. Upon successful completion, and passing the examination, the trainees are awarded a Certificate by the Ministry of Education reflecting the trade area specification.

Mpaka Vocational Training Centre has undergone curriculum development changes. In 1988 the Ministry of Education invited the Government of Canada, through the Canadian International Development Agency (CIDA) to conduct an evaluation of the program. The end product was the development of a competency-based training system under a new name, "Pre-Vocational" replacing "Vocational." The program had the following objectives:

- to develop a systematic approach to skill training;
- to provide students enrolled in the Swaziland high school system, with an opportunity to acquire skill training, which may lead to self-employment, employment or entry into Vocational Training Institutions;
- to implement, in association with industry and institutions, a comprehensive student record of achievement, of skills and knowledge associated with a particular trade;
- to utilise the students' record of achievement as a method of certification with a trade;
- to utilise the DACUM Skill Profile as a means to establish a direct link with the City and Guilds Certification system for each trade area.

Though the competency-based training system with a competency profile was developed under the new name, "Mpaka Pre-Vocational High School Curriculum Development Project" the project never took off (Dlamini, 1993, Personal interview). Instead the old curriculum and programme established in 1984 was allowed to continue by the Ministry of Education. Mpaka teaches vocational but is labelled pre-vocational which is in line with the Ministry of Education's understanding. Mpaka Vocational Training Center faces an "identity" problem with respect to its name. There appears to be lack of consensus on whether Mpaka has a "Pre-Vocational" or "Vocational" programme.

Mpaka Vocational Training Centre faces constraints and some of the major ones are given below (Dlamini, 1993, Personal Interview):

Mpaka teaches vocational though labelled pre-vocational, and this calls for a need to define in clear terms the nature of the programme.

Advancing to Part II of the craft level at SCOT for Mpaka graduates is constrained by limited facilities at SCOT. SCOT is the only institution in the country that offers part II craft level course for all vocational training centres in Swaziland, including SCOT's own graduates.

Mpaka vocational/trade graduates have difficulty getting jobs as the programme is geared more towards wage employment than self employment.

The administrative structure at Mpaka High School and Mpaka Vocational Training Centre is such that the Headmaster (Principal) of the High School is also the head of the Vocational Training Centre. The Centre has features of a tertiary institution quite different from the general/academic education characteristics of the high school.

(5.7) Swaziland National Handicraft Training Centre

The Centre was established in 1974 to provide formal and non-formal handicraft technical training, and thus creating an awareness to young and adult Swazi of opportunities for wage and self employment. The target population for the Centre consists of school leavers, and men/women leaving in rural areas who desire to acquire handicraft skills. Admission of school leavers for the

long term training program of 10 months (1 year), requires that they be post-primary and preferably having taken technical subjects at school. Total enrolment in 1990/91 was 29, which is about average. The Centre receives technical assistance from the Government of the Republic of China through the Chinese Handicraft Technical Co-operation, and are partners with the Government of Swaziland, Ministry of Commerce and Industry. All training costs at the Centre are paid for by these two governments, including tuition and fees. The Centre has residential facilities for the students.

The full time courses offered at the Centre which extend for one year at level I-craft are (Swaziland Handicraft Training Center Handbook, 1993):

- Home craft and clothing design
- Wood carving
- Stone carving
- Leather craft
- Ceramic
- Metal work
- Fine art
- Dressing and fashion design.

Students who do well in the level I-craft program proceed to level II in the second year. Students with good passes at the Junior Certificate level (grade 10) and Ordinary level (grade 12) are encouraged to enrol in the second year of the advanced courses. Upon successful completion of the course of study, at each level, students are awarded a certificate.

The Centre also offers "General Hobby Courses" for commercial rural producer groups which extend for a period of not more than a month each course. The courses are:

- Wood carving
- Stone carving
- Basket weaving
- Tapestry weaving
- School uniform construction
- Jewellery
- Macrame knotting
- Industrial machinery
- New design table mats
- Traditional clay pot.

Rural handicraft development, yet another activity of the Centre is a training programme designed for men/ women leaving in the rural areas who are commercial handicraft producers. Rural commercial handicraft producers are brought in for a short courses/workshops of under a month. Courses are designed for beginners as well as advanced groups of trainees.

(6) Non-Formal Vocational and Technical Education

(6.1) Background

In 1974 the Ministry of Education developed vocational programmes to serve out-of-school youths and adults. With respect to policy measures and institutional reforms, the purpose of such non-formal vocational programmes for adult and out-of-school youth is to provide an opportunity to those who were unable to avail themselves of educational opportunities. The objective is to provide vocational training, along with basic literacy and numeracy skills, so that each individual can participate and contribute more effectively to his/her well-being and to society. Such adult/youth and non-formal vocational technical education is conducted on a non-formal basis through programmes offered by Rural Education Centres, School of Appropriate Farm Technology, Manzini Industrial Training Centre, to name a few. The following comprise some of the major adult/youth non-formal vocational and technical education training centres.

(6.2) Manzini Industrial Training Centre - Emakhonweni

As a result of the pressing need for skills training as an alternative form of education, Manzini Industrial Training Centre (MITC) was established with the aim of giving its trainees useful and practical skills in a trade or craft which may help them find a job upon completion. The MITC provides skills training for out-of-school and unemployed Swazis between the ages of 18 and 25 years (Judith, Personal interview). Fundamental to the programme is the acquisition of basic skills training which will enable a young person to earn his/her own living either by wage employment or self employ-ment/entrepreneurship .

In most of the courses offered, upon completion of the two year course in basic skills, the trainees can take the relevant Swaziland Government Trade Test - Grade III accredited by SCOT. This enables those who have not had the opportunity to complete schooling (high school) to obtain a qualification which is recognised for pay purposes. However, for those trainees whose desire is to become self employed, they can apply for assistance to start up their own small businesses. Business Manage-ment Extension Programme (B.M.E.P.), a business training establishment, affords prospective entrepreneurs facilities and training under the "sheltered workshop concept" for one year.

Course	Trainees Male	Trainees Female
Agriculture	9	7
Building	28	0
Carpentry	21	0
Electrical Repairs	10	0
Metal Work	20	0
Motor Mechanics	21	1
Panel Beating/ Spray Painting	9	0

Plumbing	6	0
Printing	4	5
Sewing	0	28
Upholstery	5	3
Subtotal	**133**	**44**
Upgrading trainees to Trade Test Grade II level	14	0
Total	**147**	**44**

Table 7
MITC Enrolment - 1990/91

The MITC has an enrolment of over 200 trainees receiving skills training in thirteen trades. Agriculture, Sewing, and Upholstery are one year courses in duration whereas Building, Carpentry, Electrical, Metal work, Motor Mechanics, Plumbing, Printing, Panel Beating, Small Engine Repair, and Spray Painting are two years in duration. The approach employed in the training utilises a combination of **on-the-job training** and **theory lectures**. Remaining as the principal training approach is "**Training Through Production**" (Manzini Industrial Training Centre, Annual Report, 1990/91).

(6.3) Business Management Extension Programme

In 1986 the management of Manzini Industrial Training Centre (MITC) established the Business Management Extension Program (BMEP). The Business Management Extension Program is an indigenous small enterprise development project set up to combat the problem of unemployed youth who have already acquired a practical/vocational skill. With a grant from United States Agency for International Development (USAID), an administration building, warehouse, and eight workshops were built. BMEP is a unique institution in Swaziland that fills a specific niche: training and technical assistance to small and micro-businesses and the development of new small enterprises (Gamedze, 1993, Personal interview).

BMEP's mission is to promote small enterprise development by providing trade and business skills training, individual business consultancy, and financial assistance to persons who are mature, have job experience and vocational skills, work for themselves full-time and exhibit entrepreneurial traits. The mission statement contributes to the goal of increasing employment generated by Swazi-owned and/or managed section of the economy and expand the Swazi-owned or managed small business sector.

The primary goal of BMEP is to assist its clients in transforming income generating activities into small enterprises which are operated as economic entities. In doing so, BMEP seeks to improve its clients' ability to produce quality products/services and to effectively manage their business activities.

BMEP is governed by a Board of Directors, however the day to day operations are the responsibility of the Director assisted by a Program Manager responsible for training and extension, and a Finance Manager who oversees the functions of the organisation and administration of the Loan Scheme.

BMEP extension officers are serving a total of 94 clients (Gamedze, 1993, Personal interview). The services to these clients can be broken down as:

- business assistance to 47 clients who have loans;
- 16 clients who are receiving business assistance only; and
- 31 clients who are in the assessment phase. BMEP is providing business assistance to seven tenants under the sheltered workshop concept (Gamedze, 1993, Personal interview).

BMEP has established linkages with other organisations that are involved in some kind of economic activities. BMEP has formal strong linkages with other organisations involved in both urban and rural economic/business activities. These include among others: Women in Development (WID), Rural Education Centres (REC), and Swaziland Farmers' Development Foundation (SFDF). BMEP has established linkages with financial institutions (e.g. Banks) where their representatives participate in BMEP training sessions as resource persons.

(6.4) Nhlangano Agricultural Skills Training Centre

The Nhlangano Agricultural Skills Training Centre (NASTC) is an institution with an agricultural focus but supported by other four technical training programmes, namely, Carpentry, Building and Construction, Motor Mechanics and metal work. When the Centre is in full swing, a business management programme will be put in place to develop entrepreneurial skills. Aimed at the persons usually referred to as "Street Kids," which include the under-privileged, the unemployed youth, and school dropouts, Nhlangano Agricultural Skills Training Centre (NASTC) has given the youth of Swaziland another lease of life. This recently constructed skills training centre offers training over a duration of two years.

Modelled after the Manzini Industrial Training Centre (MITC), Nhlangano Agricultural Skills Training Centre (NASTC) has the objective of training people toward self employment or earning a wage in the agricultural sector of the economy. The establishment of such a centre that provides "on-the-job training" in Swaziland is of significance in that it plays a major role in promoting self employment opportunities, self-sufficiency, and independent living among young people who are **at risk**. On the other hand, the under-privileged young person, those with limited formal education, are catered for in so far as skill acquisition is concerned (Swazi Observer, October, 1992).

(6.5) School of Appropriate Farm Technology

The School of Appropriate Farm Technology (SAFT) is a non-formal vocational agriculture institution that

targets secondary/high school leavers/dropouts and drop-outs who are **at risk**, and can not proceed to post-secondary education for one reason or another. The aim of the School of Appropriate Farm Technology (SAFT) is to provide these high school leavers and graduates with relevant vocational agricultural skills and experiences to enable them to increase agricultural production at home and thus earn an income from sales of produce. The school leavers/dropouts and graduates catered for by this school are those with little, or no prospect of either getting a job or proceeding to post-secondary education. This is a rapidly growing group of the unemployed youth who may soon dominate the population of Swaziland in numerical terms (Cousins, 1983).

Entrants to the School need a minimum of education, in the sense that they are expected to have completed primary school (Grade VII). However, those responsible for admissions have stressed motivation toward farming as one major requirement. The enrolment of the School averages 20-25 students, the majority of which are boys. The age range of students is between 18-25 years. The School has a capacity to enrol 40 students. Although the applications may range from 100 to 200, and admission may approximate the full capacity of 40 students, after the Pre-Entry Course of two weeks duration, students drop-out as they experience difficulty coping with the practical/hands-on demands of the course.

(6.6) Rural Education Centres

In pursuance of the policy on the improvement of the quality of life and the general standard of living of the rural people, the Government of Swaziland established eight Rural Education Centres in 1978. Aiming at improving the socio-economic status of the rural people in Swaziland, the Rural Education Centres were established with the following specific objectives in mind:

- to provide formal schooling to rural youth, and non-formal instruction to adults and unemployed school leavers;
- to instruct in vocational education through training in appropriate skills which may lead to self-employment and self-reliance;
- to assess needs and initiate projects;
- to co-ordinate services, resources, and activities of Government and Non-Governmental Organisations involved in rural development;
- to serve as a community resource centre where educational, economic, and social activities may be developed and focused thus providing facilities that may be used for non-formal education purposes.

Seven of the Rural Education Centres (RECs) were built at secondary schools whereas the eighth one was built at a primary (elementary) school. In practice, REC programmes have primarily served rural women, especially in skills training for income generating rural activities. The direct beneficiaries in the main have been rural women, and also some men, and school leavers, who enter vocational training courses and participate in community social and economic development projects.

(6.7) Bosco Skills Centre

Bosco Skills Centre is a Youth Enterprise Scheme for Self Employment with the goal of:

- Providing suitable workshop space for the development of small business enterprises; as well as
- Providing suitable training in technical and business management skills primarily for those needy young people, who are **neglected and forgotten, and thus at risk**, but wish to be self-employed.

The mastercraft small business person (the entrepreneur) makes an application to the Skills Centre to operate his/her business enterprise utilising, on a low rental basis, the Skills Center's facility. Once accepted, the mastercraft entrepreneur is requested to make a contribution by training (similar to an apprenticeship) three apprentices for two years. In addition to the training provided by the mastercraft entrepreneur, the apprentice/trainee attends afternoon classes in basic Mathematics, English and Business Management. Mathematics and English are each taught two hours a week, whereas Business Management is taught one hour a week by Business Management Extension Programme (McDonnel, 1993, Personal interview).

The Skills Centre has 60 small business trainees for its first group of intake who undergo technical training under 21 mastercraft entrepreneurs. The admission process entails interviews conducted by the mastercraft entrepreneur who selects three apprentice/trainee business persons to train. Once admitted, the apprentice/trainee receives an allowance of E10.00 (about US$ 2.70) a week for off-pocket expenses. The allowance is drawn from the apprentice/trainee Fund to which the mastercraft entrepreneur has contributed as part of the agreement to use the Skills Centre workshop and facilities. The fee (tuition) for one year is E150.00 (about US$ 40.00) payable in three instalments of E50.00 (About US$ 13.5) by the apprentice/ trainee business person (McDonnel, 1993, Personal interview).

The apprentice/trainee, who must be at least 18 years upon admission, is given a three months probation to decide whether the trade selected indeed suits his/her interest and aptitude. During this period of time, the apprentice also works in close co-operation with the Training co-ordinator at the Center, who provides counselling services (McDonnel, 1993, personal interview).

The Skills Centre has eight workshops for vocational/ skills training under mastercraft entrepreneurs who are self-employed in the in the following trades:

- Motor mechanics
- Auto electrical
- Panel beating and spray painting
- Upholstery
- Carpentry

- Welding/Metal work
- Plumbing
- Dressmaking and Tailoring
- Sewing
- Pottery
- Refrigeration repair
- Radio and TV repair
- Printing
- Hairdressing.

Upon admission to the Skills Centre to operate a small business enterprise, the mastercraft entrepreneur takes on the following financial commitments with the Skills Center:

- contribution to the cost of electricity;
- contribution to the cost of water;
- contribution to the salary of the show room manager;
- contribution to a trainee fund;
- payment for telephone use;
- payment for transport use.

Currently each mastercraft entrepreneur makes an agreed upon contribution of E165.00 (about US$ 45.00) a month meet the above mentioned financial commitments. The amount to be paid for the above mentioned costs are established by the Executive of the Skills Centre Management Committee which reports to the Bosco Centre Board.

Unlike Manzini Industrial Training Centre (MITC), or Nhlangano Agricultural Skills Training Centre (NASTC) whose main target group is school leavers with a Junior Certificate (grade 10) or there about, Bosco Skills Centre reaches out to the young people with much less formal education, possibly below grade 10 or even grade seven, who have no hope of anything else. They constitute the very bottom group of young people with very little schooling. They comprise the majority of the young and unemployed whose hope for making living lies in self-employment since their formal schooling leaves them with little or no prospect of getting a job in the formal sector of the economy.

(7) Special Needs Vocational Education

(7.1) Background

Provision of vocational and technical education opportunities to special needs learners is supported by economic reasons. "It is more cost effective to educate special needs students than to provide high cost public support for these individuals" (Sarkees & Scott, 1986, page 1). However, barriers including attitudinal and physical obstacles, have prevented the participation of special needs learners in regular school programmes and in the workplace. The prejudices often levelled against these individuals have led to a situation whereby they are "treated as surplus citizens who are incapable of becoming contributing and productive members of society" (Sarkees & Scott, 1986, page 3). It is commendable that the Swaziland government is making some attempts to address the plight of these citizens, though much remains to be done beyond just scratching the surface. In the Development Plan (Economic Planning Office, 1993/96), "the purpose of the Special Education Programme is to provide educational opportunities for the physically disabled and the mentally handicapped children who, for one reason or another, cannot undertake a normal school programme" (page 119).

There are ten special needs categories that vocational education can serve (Sarkees & Scott, 1986, page 29):

- Mentally handicapped;
- Learners with emotional problems;
- Visually handicapped;
- Hearing-impaired learners;
- Learning disabled learners;
- Speech-impaired learners;
- Health-impaired learners;
- Physically handicapped learners;
- Multi-handicapped learners; and
- Disadvantaged learners assessment.

"Disadvantaged learners are individuals (other than handicapped) who are economically or academically disadvantaged and require special services and assistance to enable them to succeed in vocational education" (page 29), general education and subsequently in the workplace.

Vocational teachers working with special needs learners need to be in possession of specific competencies. Some of the competency areas include personal-social qualities such as patience, perseverance, open-mindedness, adaptability, and pride in their occupational areas as role models. "These qualities are just as important as a good command of the knowledge and skills of an occupation" (Sarkees & Scott, 1986, page 15). Currently, special education in Swaziland is delivered in a number of special schools. A brief description of vocational education for special needs learners in Swaziland is in order at this juncture. The School for the Deaf offers a formal primary/elementary school curriculum in general and pre-vocational education. Ekwetsembeni School for the Mentally Handicapped, which also offers a regular formal elementary curriculum, has constructed pre-vocational education workshops which await installation of facilities and equipment. The Vocational Rehabilitation Center, is a non-formal vocational training institution for the disabled. The following paragraphs highlight some of the major schools/centres that instruct in pre-vocational education.

(7.2) Vocational Rehabilitation Centre:

Vocational Rehabilitation Centre (VRC) is a non-formal vocational institution whose purpose is to:

- assess the abilities of persons with disabilities; and

- train such persons in suitable vocational trades, in Phase one and Phase two, respectively.

The vocational assessment phase employs various techniques to determine the physical capacities, vocational interests, and aptitudes, work habits, job endurance, and other attributes of trainees. The Centre admits persons who are physically disabled, deaf, dumb, and mentally disabled. Facilities at the Centre do not provide for the admission of the blind. Persons with disabilities are in the working age group are eligible for admission for the purpose of vocational assessment which is then followed by vocational training if the person is deemed trainable (Ministry of Interior, n.d.).

Persons with disabilities are admitted initially in the first Phase of vocational assessment for a period of four to six weeks during which time the person's physical capacities and vocational interests are assessed and determined. Case conferences are conducted weekly to determine the person's progress during the vocational assessment phase and the vocational training phase. The duration of vocational training, in a given trade, is up to two years, depending upon the nature of the craft/trade and residual abilities of the person with the disability (Ministry of Interior, n.d.).

The Vocational Rehabilitation Centre has facilities for skills training in the following trades: Agriculture; Commerce; Electrical; Leather craft; Metalwork; Sewing and Knitting; and Woodwork. The enrolment at the Centre averages 30 resident and non-resident persons (Mavimbela, 1993, Personal interview).

Placement and counselling services are also provided by the Centre. Upon completion of vocational training, job placement assistance is extended to completing trainees by the placement service office. Personal adjustment, counselling, and follow-up services are also available. For persons who can not be placed immediately, they are taken on by the Centre to work at the Transition Production Workshop. This affords them the opportunity to keep practising their recently acquired skills, meanwhile a job is being sought for them by the placement service office of the Centre. Plans are under way for the construction of sheltered workshops for use by graduates of the Vocational Rehabilitation Centre (Mavimbela, 1993, Personal interview).

(7.3) Siteki School for the Deaf

Siteki School for the Deaf has an enrolment of 105 students, 50 girls and 55 boys. Admission to this primary/elementary school (grades 1-7), with a regular curriculum, requires that the students undergo testing to establish if they are deaf (Gilbert, 1993, Personal interview). Students are admitted on the premise that they need special education because they are deaf. Those who are deaf but are considered to be able to cope in a "normal/regular" school are not admitted. The school has residential facilitates and all the students are resident.

For purposes of accommodating vocational needs of deaf students, the school offers pre-vocational subjects in Carpentry, Needlework, and Agriculture. Home economics and Keyboarding are underway. These subjects are offered in addition to the general/academic subjects (Gilbert, 1993, Personal interview).

The School has 16 teachers who are all certified to teach in a normal/regular school, and 11 of them are certified to teach students who are deaf. For formal training in teaching students who are deaf, teachers are normally sent to Malawi for period of about nine months. When teachers join the School, and before they are sent away to Malawi for training in teaching students who are deaf, they undergo an in-service, in-house special teacher education training in the afternoons of selected week-days. Furthermore, while undergoing special teacher education programme, they are expected to have worked for a minimum of two years before they are sent to Malawi for further training in special education (Gilbert, 1993, Personal interview).

Upon successful completion of grade 7 at this School, students who desire to continue with prevocational subjects spend an additional year at the School specialising only in a pre-vocational subject(s) of they have chosen. After completion of the additional one year, students proceed to Ekululameni Adult Rehabilitation Centre at St. Joseph's Mission for further vocational training.

(7.4) Ekululameni Adult Rehabilitation Centre

Ekululameni Adult Rehabilitation Centre at St. Joseph's Mission offers vocational training with residential facilities for persons with disabilities. The trades consist of (Swaziland National Society for the Handicapped, 1987/88):

- Carpentry
- Grasswork and Basketry
- Shoe Repair
- Tapestry
- Sewing
- Handicraft for the Blind, and Fencemaking
- Domestic skills

The major Production Units are Carpentry, Tapestry, and Handicraft. These units engage in small scale entrepreneurial activities for commercial production.

(8) Constraints on Vocational Technical Education

In this document thus far, we attempted to describe and share with the reader data from research, commissioned studies, and personal long interviews pertaining the role that vocational and technical education can play in, and the major impact it can make on, the economic development of Swaziland. This document presents a brief profile of vocational and technical education in Swaziland. As manifested in this document, and perhaps the

most compelling pressure on the Government of Swaziland, is to engage in an **education and training reform** and a **structural adjustment** in favour of vocational and technical education that focuses on the increasing numbers of young persons/adults who can neither proceed to obtain a post-secondary education nor find a job in both the formal and informal sectors of the Swaziland economy. These persons, in the majority of cases, are deficient in the vocational and technical skills that the labour market economy requires. Sustainable economic growth can not be attained without adequate skilled labour pool for the business enterprises. In a situation where the economic-industrial base is small (as the case in Swaziland), possession of vocational and entrepreneurial skills becomes relevant and critical in respect of non-college bound high school graduates, the "educated" unemployed youth, and school dropouts. These are young persons **at risk**.

Restructuring and reforming vocational and technical education to enhance economic development in Swaziland will require changes in the existing educational structures and policies. However, there are **constraints** on vocational and technical education that restrict its contribution to economic development. This study has revealed the constraints highlighted below.

One of the major problems facing the Swaziland Education system, formal and non-form, is the inefficiencies of the school system in particular and the non-formal in general. Another area of inefficiency lies educational planning and manpower requirements where discrepancies exist. These inefficiencies put constraints on the performance of the formal and non-formal vocational technical education. Some of the major constraints on general education and vocational technical education are highlighted below:

High Repat and Drop out Rates

Swaziland formal school education is experiencing high repeat and drop-out rates. Dropping out tends to occur at an early stage of general education before students have reached a point of acquisition of literacy, numeracy, and vocational skills (if offered at all) adequate for initial job entry into the labour market. The lower the grade level at which students drop out, the less likely are the acquired basic skills retained by the learner. Contributing to the high rate of dropping out is the problem of relevance of the formal schooling to the needs of students and the labour market.

High Costs of Delivery

The Swaziland education system is experiencing high costs of delivery of formal general education which have implications for dropping out in terms of affordability and Government recurrent budget allocations and expenditures. About 35 % of the 1991/92 recurrent budget was allocated to education. A greater proportion of this budget went to formal general education. There is a great need to strengthen vocational technical education, formal and non-formal, to combat the inefficiencies of the education system thus lowering the drop out rate by preparing students, as much as possible, for gainful employment as education remains relevant to their personal needs as well as that of the Swaziland economy.

Unsynchronized Educational Planning and Manpower Needs

The discrepancy between formal employment opportunities and number of school leavers (Figure 5, page 70) is an indication that planning for the educational system does not take into account the relatively small size of the labour market in proportion to the growing population and the need to develop alternative programmes of study.

Emphasis on General Education

The primary and secondary school curriculum places emphasis on general education at the expense of vocational technical education and entrepreneurship education and yet a very small proportion of the population of students benefits from tertiary education at the University and vocational/technical colleges of higher learning.

Lack of Career counselling Services

Career counselling and development services enhance sustainable economic growth by providing, among other things, counselling services that are needed to assist vocational technical students, or any other group of persons, in making the transition from school to the world of work. Career counselling services are lacking and are further constrained by:

- lack of a national data bank and knowledge on available occupations;
- unavailability of school-to-work transition programmes and services at both secondary and post-secondary institutions; and
- lack of integration of school-based and work-based learning.

Lack of Access to Credit

Vocational students are in a better position to undertake entrepreneurial activities for purposes of self-employment to stimulate the economy. But lack of access to credit for small-scale businesses/ enterprises poses a major constraint to potential entrepreneurs. Small scale business entrepreneurs have difficulty obtaining credit, primarily because they can not meet collateral requirements.

Lack of Access to Productive Land

The sector of the economy that offers opportunities for productive self-employment is agriculture and rural-based industries. Lack of access to productive land poses a problem. Swazi Nation Land is communally owned thus can not be used as collateral. Ownership of this land rests with the King, who holds it in trust for the Nation. In that case, there is no security of tenure. A policy to expand self-employment opportunities in the rural areas needs to be formulated to overcome this constraint.

Weak Co-operation

Occupation and education linkages to enhance school performance and workforce preparation are weak, unstructured, and uncoordinated. For education to be relevant to the needs of individuals and society, co-

operation between educational institutions and enterprises in vocational and technical education need to be strengthened. Appropriate models that link schooling and workforce preparation need to be developed.

Exclusion of Female Youth

The majority of female youth are still doing what has traditionally been considered "women's work" and this poses a major constraint particularly in respect of the fact that small business entrepreneurs in Swaziland comprise women. Women need to be fully informed about any and all jobs in which they may be interested including non-traditional careers for them.

Lack of Curriculum and Structural Articulation

- Lack of curriculum and structural articulation of secondary/high school pre-vocational/ vocational education and tertiary/post-secondary vocational technical education programmes leads to a mismatch of the tiers of education. Much of the secondary school and post-secondary/college pre-vocational/ vocational education is disconnected and therefore does not flow or link. There is a need to deliver an articulated vocational and technical programme.
- Lack of curriculum and organisational/ structural articulation at tertiary institutions of craft level training and technician level training poses constraints to students/trainees wishing to acquire advance vocational technical training. There is a need for post-secondary vocational technical institutions to co-operate and liaise in the delivery of vocational and technical education.

Low quality of Education Programmes

The quality of vocational technical education programmes leaves much to be desired. There are no (national) performance standards to control quality. Swaziland needs to establish content and performance standards that benchmark what secondary and tertiary/post-secondary students/ trainees should possess as they move from secondary school, post-secondary education to the world of work. These standards must be based on mastery (competence-based/performance-based), and the determination of which should reflect what prospective employers (business and industry), and small business entrepreneurs consider relevant to Swaziland social and economic needs. There is a need for a national vocational and technical qualification framework for all trades.

Inadequate Recognition of Prior Learning

Recognition of prior learning is relevant to vocational education. Non-formal vocational education is not given the place it deserves to redress the short comings of formal education/schooling as the later remains out of touch with post-school realities. Efforts must be made to support non-formal vocational and technical education programmes that recognise prior learning.

(9) Suggestions and Recommendations

"Historically the development and availability of vocational education, as a source of labour supply, has paralleled economic growth" (Calhoun and Finch, 1982, page 69).

Vocational technical education is economic education that is geared to the needs of the job market and thus contributing to national economic growth (Calhoun and Finch, 1982, page 66). It is education oriented towards the manpower needs of society. At the secondary level, vocational technical education is concerned with preparation of the individual for initial entry employment (Calhoun and Finch, 1982, page 66). Constraints, in the context of the Swaziland economy, on vocational technical education to achieve its goal have been discussed. Suggestions for the improvement of vocational technical education, in the Swaziland context, that take into consideration the socio-economic environment, the need to educate and train for the world of work, and the rapid evolution of technology are outlined below. The rationale and basis for these suggestions and recommendations are guided by the following approaches utilised to collect information contained in this document:

- review of the related literature and research on vocational (pre-vocational) technical education;
- on site visitations of the institutions, institutes, colleges, organisations, and centres that offer training/services that pertain vocational technical education and skill training; and
- personal long interviews with Directors, Headmasters, Instructors, Principals, etc. of institutions, institutes, colleges, organisations, and centres offering training/services in vocational technical education.

Recommendations

Measures must be taken toward the improvement of the internal and external efficiencies of the education system and to reduce the high repeat and drop-out rates which are a waste of limited economic resources. Education must be relevant to the needs of students as an incentive for them to have a gainful purpose for staying in school rather than dropping out.

Educational planning and national manpower needs ought to be synchronised. Measures must be taken to narrow the discrepancy between the content and delivery of the educational service and employment/self-employment opportunities.

Measures must be taken toward the development and implementation of career counselling and development services centres for school-to-work transition of secondary and post-secondary students. In addition to career counselling services, the centres could provide career assessment and job placement services. Furthermore, there is a need to integrate school-based and work-based learning through interagency collaboration and co-operative planning with both public and private enterprises.

Measures need to be taken to introduce and integrate vocational technical education and entrepreneurship education in both the formal and non-formal education sectors. Hence, teacher training colleges and the

University must reform their teacher education programmes to enable their graduates to deliver an academic and vocational/entrepreneurship integrated instructional approach.

Whiles ensuring that Title Deed Land is used efficiently, Swazi Nation Land needs to be developed to its full potential. Agriculturally useful land should be made available to young people (prospective entrepreneurs, may be as settlement schemes) for commercial agricultural enterprises.

Credit schemes for small-scale enterprises and young entrepreneurs should be expanded. Swaziland has a small and limited formal/wage economic base and labour market, and thus sustainable economic lies in encouraging small entrepreneurial economic activities for self-employment.

Articulation of the vocational technical education curricula and delivery systems at the secondary and post-secondary level has to be initiated and implemented. This may require competency-based education (CBE) as a means of determining mastery of critical competencies for progression to the next grade level and finally for job entry into the labour market.

Women need to be fully integrated into occupations traditionally male-dominated. Women in Swaziland constitute a major work force that occupies small entrepreneurial economic activities. Rather unfortunately, these economic activities are traditionally female-dominated because of sex stereotyping, and are reaching saturation points.

For the improvement of the quality of vocational technical education both in terms of content and delivery, there is a need for the establishment of national performance standards as benchmarks for skills/competencies that must be possessed by students/trainees in the different vocational trade and levels. These performance standards must reflect Swaziland economic needs as articulated by prospective employers, labour unions, and small business entrepreneurs.

Formal and non-formal vocational technical education sectors must be complementary and articulated. Non-formal vocational and technical education Centres should be given the credit and support they need. They need to be expanded as a matter of priority in redressing the needs of the at-risk youth. Delivery of vocational and technical education does not have to be school-based. Out-of-formal school vocational and technical education can be a viable alternative.

The rapid change and application of technologies driven by international competition will continue to have significant effects on the vocational and technical education skills required for the workplace. Since technology is universally and instantaneously transportable across national and international boundaries, countries with less industrialised economies like Swaziland, should restructure their delivery of vocational and technical education programmes to incorporate state-of-the-art technologies to meet the present and future workplace needs. Consideration to regionalize the content, delivery, and assessment of vocational and technical education place the Southern Africa region at an economic advantage in so far as possessing a skilled work force.

Policy measures and resource allocations ought to be considered such that:

- vocational education special needs learners as well as disadvantaged learners are educated in the "least restrictive" environment to meet individual educational and related needs; and
- efforts are increased toward the preparation of vocational special needs students and disadvantaged students for employment.

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2.12 Kenya: Co-operation in Technical and Vocational Education by B. W. KERRE

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(1) Introduction

Technical and vocational education (TVE) in Kenya has grown and expanded rapidly (Kenya, 1988) in response to:

- the need at the national level for the middle and higher level cadre of technical manpower;
- the demand for further education and training by the majority of youth who qualify to proceed with further education but cannot get places in the formal education system due to limited opportunities;
- the demand for vocational preparation by a growing number of youth who opt out of the formal education system at various levels for a variety of reasons, including rising costs of education, and seek employ-ment.

Today Kenya has a network of technical and vocational institutions providing a wide range of programmes for all categories of school leavers.[8]

For Primary school leavers, there are over 600 Youth Polytechnics offering artisan courses country-wide. The Government supports about 300 of them with staff and some grants in aid for equipment and facilities. They are

8 Source of information: Ministry of Research, Technical Training and Technology, Kenya, 1994

mainly community managed and funded. They enrol about 40,000 trainees.

At the post secondary level, there are 20 Technical Training Institutes and 17 Institutes of Technology enrolling about 3,000 and 6,000 trainees respectively. These institutions offer craft, technician, diploma and certificate commercial courses.

At the higher level in technical and vocational training, there are three National Polytechnics and one Technical Teacher Training College altogether with an enrolment of about 10,000 trainees. The polytechnics offer advanced courses leading to diplomas in technology. A Bachelor of Technology degree (B. Tech.) has been proposed in one of the National Polytechnics. The Technical Teachers College offers pedagogical training to qualified and experienced technical personnel who eventually qualify as teachers in their specialised areas.

At the University level, Kenya's five public Universities also offer a wide range of technological programmes and technical and vocational teacher education.

Besides the formal TVE institutions above, there are several non-formal institutions run by government and parastatal departments[9] as well as private TVE institutions and universities[10] involved in the vocational and technical education and training to supplement government efforts.

(2) Co-operation with Enterprises

The Need for Co-operation

The recognition of the important role that TVE plays in the nation's development has been echoed in several Government sessional papers in Kenya (Kenya, 1986, 1988, 1992). The call by students, parents and employers, for quality and relevant TVE programmes is becoming louder each passing day. In order to meet this demand, both TVE institutions and industry have to co-operate. The institutions are best placed to provide quality, utilising the human resources and facilities they have, whilst industry is best placed to provide relevance through the necessary input into TVE curricula and the industrial experience through attachment.

The benefits for both TVE institutions and enterprises are many. Institutions benefit when students and staff get opportunities to experience the latest practices in industry. Institutions also benefit from industrial donations and consultancy contracts. Enterprises benefit by using professional staff in research and development activities. This will enhance their production capacities and markets. Since they are in most cases the eventual consumers of TVE graduates they benefit from well qualified manpower.

Legal and Policy Frameworks

In Kenya, the only existing legal frameworks within which industry participates in technical and vocational education and training are:

- the Industrial Training Act (Cap 237) of 1960 amended in 1971, and
- the Education Act (Kenya, 1968) revised in 1980.

The Industrial Training Act was promulgated to make provision for the regulation of training of persons engaged in Industry. The amendment of 1971 created the Industrial Training Council and introduced the Industrial Training Levy System (Kenya, 1971).

The Act covers the following areas which govern all forms of industrial training:

- The Directorate of Industrial Training, its management structure; duties and responsibilities of the Director and his officers;
- Training committees, their composition, duties and responsibilities;
- Training Levy orders, mode of payment rates and

No.	Legal Notice - Historical Flow	Industry	Amount
01	133/1980 - 237/1971: 8/1981	Build. Const. Civil Eng.	0.25 % of Contract Value in excess of 50,000/=
02	123/1980 - 68/1973: 9/1981: 12/1982: 115/1987	Motor Eng. & Transport	100/= per employee per half year
03	128/1980 - 4/1974: 9/1981: 258/1993	Print. Pub. Paper Man.	200/= per employee per half year
04	129/1980 - 60/1974: 112/1975: 256/1993	Engineering	250/= per employee per half year
05	127/1980 - 197/1975: 45/1976: 17/1987	Food Processing	150/= per employee per half year
06	126/1980 - 170/1975: 9/1981	Sawmilling Timber Furn.	0.25 % of Turnover in Excess of 20,000/= per each quarter
07	125/1980 - 195/1975: 9/1981	Textile	125/= per employee per half year
08	130/1980 - 196/1976: 52/1976: 7/1985: 12/1982	Chemical Man. Gen. Proc.	125/= per employee per half year
09	132/1980 - 46/1976: 141/1976: 150/1982: 257/1993	Plantation Agric.	9/= per metric ton of final product per month
10	124/1980 - 8/1981: 12/1982: 116/1987	Banks & Other Fin. Inst.	125/= per employee per half year
11	131/1980	Commercial Distributive	50/= per employee per half year

Table 1
Legal Notice and Industrial Sector Contribution to the Levy Fund
Source: Directorate of Industrial Training, Kenya

9 Such institutions include Agricultural Colleges (Ministry of Agriculture and Livestock), Kenya Railway Training School, and Kenya Institute of Mass Communication (Ministry of Transport and Communication)

10 University of Eastern Africa, Baraton (Eldoret)

disbursement;
- Training schemes and procedures of administration and certificates;
- Trade Test, rules and certification procedures.

At present there are eleven committees representing eleven industrial sectors and four more committees representing all industries in management, overseas training, trade testing and curriculum, and investment. The sectors and their amount of contributions are indicated in Table 1.

The skills acquired in the process of training under the Act include:
- (i) Local management and supervisory courses
  (ii) Overseas courses
- Technician courses
- Craft courses
- Indentured learnership
- Skill upgrading course.

There is no legal provision bringing TVE institutions into the Act except that Industry uses the facilities and lecturers from these institutions at a fee.

The Kenya Institute of Education is the National Institution empowered by the Education Act to develop curricula for schools and TVE institutions in Kenya. The curricula are developed by subject specialists through subject panels and course panels and approved by the Academic Board. The panels and the board have, amongst their membership, personnel from industry in the technical area of subject specialisation. Their input is valuable in ensuring that the curriculum developed is relevant to the needs of industry.

Since no legal provision exists to guide TVE institutions and enterprises in their co-operation, a common practice is where individual TVE institutions approach individual enterprises, and mutually agree on some formula of co-operation where students are placed on what is commonly known as industrial attachment. The duration of attachment varies from one institution to the other ranging from short periods of three months to six months and up to one year.

No.	**Industry**	**1988**	**1989**	**1990**	**1991**	**1992**	**30.09.93**	**Total**
01	Banks Other Financial	466	417	285	224	224	303	1,919
02	Building Construction	2	6	11	6	26	3	54
03	Chemical & General Processing	571	465	387	478	901	647	3,449
04	Commercial Distributive	560	303	253	218	249	451	2,034
05	Food Processing	340	213	228	230	277	248	1,536
06	General Engineering	316	297	217	150	129	162	1,271
07	Motor Transport	113	82	91	93	193	188	760
08	Plantation & Agriculture	394	91	76	96	148	69	874
09	Printing & Publishing	111	98	69	90	100	54	522
10	Sawmilling, Timber	23	22	35	51	50	18	199
11	Textiles	275	175	112	75	86	50	773
12	Others	0	0	0	0	0	0	0
	Total	**3,171**	**2,169**	**1,764**	**1,711**	**2,383**	**2,193**	**13,391**

Table 2
Management and Supervising Courses 1988-93
Statistical on Local Management & Supervisory Courses as from 1988 to 30th September, 1993
Source: Directorate of Industrial Training, Kenya

In an effort to get closer to the world of business and industry, the government has introduced entrepreneurship education in all TVE institutions and established Small Business Centres through which entrepreneurs and educational personnel interact sharing experiences and bridging the gap between education and the world of work.

Whilst statistics are not easy to obtain especially from institutions about industrial attachments (because this has often been conducted on an informal basis), industry has to some degree played a major role in the recruitment of craft and technician apprentices as seen in Tables 2 and 3.

These types of training have been conducted in the industrial training centres, and in National Polytechnics (DIT, 1993)[11].

No.	Industry	1988	1989	1990	1991	1992	30.09.93	Total
01	Banks Other Financial	0	0	0	0	0	0	0
02	Building Construction	118	45	29	12	9	7	220
03	Chemical & General Processing	13	38	30	18	30	8	137
04	Commercial Distributive	5	22	8	0	0	3	38
05	Food Processing	19	36	5	1	2	0	63
06	General Engineering	222	159	410	89	88	36	1,004
07	Motor Transport	60	163	173	238	86	208	928
08	Plantation & Agriculture	69	69	57	94	108	37	434
09	Printing & Publishing	16	34	19	19	15	5	108
10	Sawmilling, Timber	52	18	19	7	30	11	137
11	Textiles	19	51	43	18	27	26	184
12	Others	5	0	3	0	0	0	8
	Total	**598**	**635**	**796**	**496**	**395**	**341**	**3,261**

Table 3
Recruitment of Craft Apprentices 1988-93
Recruitment of Craft Apprentices as from 1988 to 30th September, 1993
Source: Directorate of Industrial Training, Kenya

11 Directorate of Industrial Training, 1994

No.	Industry	1988	1989	1990	1991	1992	30.09.93	Total
01	Banks Other Financial	0	0	0	0	0	0	0
02	Building Construction	4	12	4	3	5	1	29
03	Chemical & General Processing	15	9	2	8	13	4	51
04	Commercial Distributive	1	1	0	0	0	0	2
05	Food Processing	4	5	3	2	7	0	21
06	General Engineering	112	180	276	8	85	5	666
07	Motor Transport	13	78	78	37	78	0	284
08	Plantation & Agriculture	9	24	12	40	12	7	104
09	Printing & Publishing	2	5	2	6	3	0	18
10	Sawmilling, Timber	11	13	0	91	16	2	133
11	Textiles	33	44	36	28	40	23	204
12	Others	0	0	0	0	0	0	0
	Total	**204**	**371**	**413**	**223**	**259**	**42**	**1,512**

Table 4
Recruitment of Technician Apprentice
Recruitment of Technician Apprentices as from 1988 up to 30th September, 1993
Source: Directorate of Industrial Training, Kenya

(3) Major Constraints

Despite the efforts to bring together technical and vocational institutions and industry, in the production of qualified manpower for Kenya's economy, several constraints have emerged which seriously challenge this important relationship.

Reluctance of Enterprises in Co-operation

In Kenya, only medium and large scale enterprises have been found to have some interest in training. However, this has been on a decreasing level as a result of the slump in the economy. Since training is expensive, and most of these enterprises are foreign owned, they are more conscious about the profit margins and would thus avoid any cost. Quite often trainees are viewed as risks to the organisation and a possible interruption in the production lines.

Information about Benefits of the Co-operation

In most cases, enterprises struggle with problems pertaining to production, marketing or even quality, without realising that they could enlist the support of existing professional expertise found particularly in universities and technical colleges. Co-operation is of mutual benefit, as institutions get their students and staff to be updated on latest trends in their fields of specialisation. Institutions also do benefit from donations and trophies from industry in terms of scholarships, equipment and tools, and of latest technology demonstrations.

Lack of an Effective Industrial Attachment Management Mechanism

The growth of institutions and enrolment in certain programmes, especially the trade and service sectors, means that proper co-ordination of attachment programmes is essential. At present, individual arrangements are causing fraction, especially when they are so regular that enterprises are approached almost on a daily basis for such co-operation.

Inappropriate Methods of assessment

Industrial attachment should be well planned and assessed to contribute towards the final grade. Quite often this is not the case. As a result both trainees and their supervisors do not take the exercise seriously.

Inequitable Training Plans

In the utilisation of the training levy, it is noted that supervisory and managerial staff, who are proportionately fewer in the enterprises, use up the bulk of the training opportunities, whilst the lower cadre staff including artisans, craftsmen and technicians have not benefited as much (see Table 5).

Distribution of Expenditure	Ksh. (million)	%
Enterprise rebates		
Direct: Management Courses	14.11	25.2
Overseas Courses	3.55	6.3
Indentures/Craft apprentices/technicians	21.13	37.7
Indirect: Course fees. Polytechnic	8.15	14.5
General Training Support: Skill Improvement	2.72	4.9
Trade Testing	4.94	8.8
Seminars	1.05	1.9
Administration: Advertisements	0.19	0.3
Committee expenses	0.25	0.4
Total	**56.08**	**100.0**

Table 5
Distribution of Expenditure on Industrial Training (1993)
Source: Directorate of Industrial Training, Kenya

(4) Future Prospects

A casual observer may be overwhelmed by the above constraints impinging upon the co-operation between TVE institutions and enterprises. However, prospects do exist where these constraints can be eliminated or at least be minimised.

Industrial Training Levy Fund

The Industrial training levy fund has been effective in mobilising funds from enterprises for the purpose of training. The levy fund account has a huge surplus indicating that the enterprises are not using it effectively. There is a need therefore to introduce alternative management strategies, so that the levy fund can be used for various training programmes including industrial

attachment, apprenticeships, bursaries, loans for business start-ups and payment of salaries and allowances for teachers and students involved.

The training levy should be expanded to include all enterprises that have a certain level (to be set) of income and member of employees.

Incentives for Co-operation

To encourage more participation by enterprises, more innovative alternatives besides paying of rebates should be explored. Some of this may include:

- honouring those companies that are active by awarding scholarships or research grants in their names;
- naming buildings or laboratories after them;
- recognising their contributions on graduation days;
- allowing them to advertise by exhibiting their products or services in institutions.

Participating institutions should allow teachers paid leave to be attached to enterprises to gain more experiences in their specialised areas.

Trainees should be given decent allowances to enable them meet their transportation and subsistence costs while on attachment.

Proper Management of Industrial Attachment

The current practice should be reviewed in order to institute a well planned National System for industrial attachment. This should include specified responsibilities by

- co-operating enterprises and their personnel;
- co-operating institutions and lecturers;
- trainees on attachment.

The attachment exercise should be assessed and its results used in the final grading of concerned trainees.

Involvement of Craft and Technician Apprentices

At present, supervisory and management courses are taking up about 31.5 % of the training levy direct expenditure while indentured crafts and technician courses take 37.7 %. Enterprises should be encouraged to engage more craft and technician apprentices to reverse the current inverted pyramid where more engineers work with too few technicians and craftsmen but with a large number of semi-skilled operatives.

Need for Industrial Training Authority

In order to manage more effectively and expand Industrial Training Levy and to co-ordinate industrial training in Kenya, there is a need for an Industrial Training Authority with the autonomy to carry out its responsibilities. The present Directorate of Industrial Training which now falls under the Ministry of Research, Technical and Training and Technology is incapacitated to perform such duties.

Need to Enforce the Industrial Training Act

The present Act is not enforceable. Many potential enterprises do not comply. There are no specific grounds for enforcement or prosecution of those who refuse to co-operate. However, the approach should be to exhaust all available mechanisms before enforcing the Act in order to create a positive image and relationship between educational institutions and enterprises.

(5) Conclusion

Technical and vocational education in Kenya has developed rapidly in response to the demand of skilled manpower in the work force and the need to prepare youth for the world of work.

This response is welcome and indeed commendable. However, increasing technological changes in industry and shifting needs of modern society demand that such preparation be carried out in closer collaboration, if not consultation, with enterprises which are the final consumers of graduates of TVE.

It is critical, therefore, that all parties concerned i.e. stake holders (trainees, communities, enterprises and government) identify and envelope and effective mechanism where enterprises and communities will play a major role in the development and sustenance of technical and vocational education if their respective needs are to be effectively addressed.

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3 Dual, Co-operative Training Systems - An Alternative for Advanced Developing Countries in Asia?

by M. WALLENBORN

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(1) General Information

Charged by the German Federal Ministry for Economic Co-operation and Development (BMZ) the "Industrial Occupations Promotion Centre (ZGB)" carries out dialogue and training programmes for experts and executives of Technical and Vocational Education and Training (TVET) from developing countries.

The programmes are carried out in the Federal Republic of Germany and in the partner countries. In its activities ZGB distinguishes between three levels of experts in TVET for which it offers relevant programmes. These are:

- the implementation level: teachers and trainers receive further technical and vocation-specific pedagogic training in the vocational fields of metalworking, automotive and electrical engineering as well plumbing by ZGB.
- the management and planning level: here ZGB offers foreign-language programmes for vocational education planners, school principals, vocational education counsellors, curriculum and personnel developers.
- the policy-makers level: with this target group from ministries, large vocational training institutions, chambers and associations of industry, ZGB holds dialogue meetings to facilitate an exchange of experience on fundamental questions of TVET and, where it becomes apparent, deduces a potential need for upgrading of skills.

ZGB is divided into three Departments, which are named after the essential learning-places of TVET. These are:

- Department 61 "Education in Vocational Schools",
- Department 62 "Vocational Training in the Industrial Sector"
- Department 63 "Vocational Training in the Crafts and Service Sector".

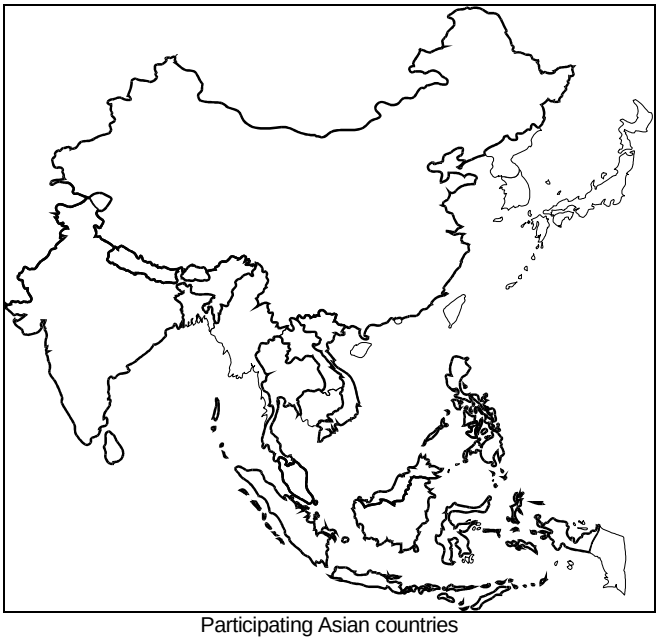
Annually about 1,100 guests participate in the further training programmes of the "Industrial Occupations Promotion Centre" in the Federal Republic of Germany and in partner countries.

(2) Outline of the Seminar

ZGB and UNEVOC, the project for vocational education of UNESCO, organised a meeting on TVET with policy-makers from Asian and African countries from May 2 to 12, 1995. ZGB invited the 13 Asian participants to Mannheim for the first week of the seminar, UNEVOC carried out the first week of the seminar in Berlin for the nine African participants. The programme structure for the second week of the seminar, during which the Asian and African participants held joint meetings in Berlin, was mapped out jointly by ZGB and UNEVOC.

The following report concentrates on the Asian group invited by ZGB. The documentation makes essential statements on:

- the objectives and the contents of the seminar
- the events scheduled and the results as well as
- the perspectives of further co-operation between ZGB and the participating partner countries after the seminar.



Participating Asian countries

The countries participating were: China, India and Indonesia (two experts each), Malaysia and the Philippines (one expert each), Sri Lanka and Thailand (two experts each) as well as Vietnam (one expert). For ZGB the purpose of the seminar was to pursue the following objectives:

- to familiarise participants during the first week, by way of examples, with the structures and the mode of operation of co-operative systems of initial vocational training in the Federal Republic of Germany, so that

- possible adaptations and improvements of their own TVET systems would become more transparent to the participants, and
- as a result of a problem analysis of the TVET systems of the partner countries participating, the facets of a potential need for further education during the second week could be spelled out more precisely, which could in turn be translated into appropriate programmes by ZGB.

In connection with the documentation submitted further statements are made in particular on the third objective and its resultant fields of action.

The objectives of the seminar were pursued during the first week for the Asian participants by the following contents: during the first four days the Dual System with its individual elements was presented. After an introduction, the second and third day were devoted to a visit to the two learning places of the Dual System - a large company and a vocational school. During the afternoons the experiences gained during the visits in the morning were passed in review and further clarified. While discussing the company-related aspects the presence of the Manager heading the Department of "Personnel Training" of the firm visited in the morning proved to be beneficial. In the opinion of those responsible for the programme his inputs are important in this context, since they contain implicit aspects of TVET policy which might be of interest for the participants in handling systematic options for their TVET systems.

The relevant five theses as presented by Dipl.-Ing. J. Iwanowitsch, Head of Training of the Freudenberg Co., will be presented more in detail under Section 4.2 (page 112).

Against this background, the second week of the seminar was to elaborate an outline of possible solutions for the problems of vocational education and training in the partner countries. Thus, after two days of joint discussions between the African and Asian participants, region-specific working groups were set up; their objectives were:

- as a first step to sketch in more detail the core problems of TVET systems in the participating partner countries, so that thereafter
- the essential areas for country-adapted solutions could be identified which could be supported by training programmes of ZGB.

(3) Core Problems in the TVET Systems of Asian Countries

After intensive discussions in the working groups five main problems took concrete shape. These five essential problems can be further differentiated into individual dimensions. The participants of the Asian group specified

- financing problems of vocational education and training,
- management and implementation problems of educational measures,
- labour market and employment problems,
- lack of co-operation among possible providers of education, and
- the absence of an adequate infrastructure.

For all problem areas further multi-layered differentiations can be made which are of different importance in the participating countries.

3.1 Financing

Particularly under the central topic of the seminar - co-operation between public and private providers of training - the participants complained that in most countries the institutions of TVET within the formal field of education - more often than not - must be supported entirely by the state, because the private sector is not willing to make funds available.

Consequently, the state is mostly left with the sole responsibility for TVET. It is obvious that sophisticated educational offers in fields of technical occupations tie up a lot of public funds (Bolina 1994). On account of their objectives of educational and social policy, developing countries endeavour to create - wherever possible- nation-wide education systems. Since funds are scarce, however, this is done at the expense of TVET Centres with a sufficiently high quality level.

This problem is also felt in the private sector. For a variety of reasons companies lack the financial funds for vocational training. In small firms this can often be attributed to the dearth of capital of the individual companies which restricts their financial leeway. Medium-sized and large companies, which tend to have the necessary financial means, have often not yet grasped the eminent importance which vocational training has for productivity-boosting and quality-enhancing measures.

The same also applies to a possible participation of companies in co-operative forms of training. In Vietnam, for example, only 30% of the costs are borne by the public sector, with the balance being defrayed by private industry, which, as is known, also has to shoulder the bulk of the expenses for the German Dual System. Yet obviously, only very few Vietnamese firms are in a position or willing to assume the costs for such qualification schemes.

3.2 Management and Implementation Problems

A serious problem seemed to be the fact that many training centres are failing to respond to the real needs in their training. Training programmes are offered for occupations for which there is often no demand in the labour market. To compound matters, there is a gender-specific component: many measures are offered which are predominantly taken up by male youngsters while

there are no or too few offers for women and girls in their principal areas of activity.

Such a mismatch and such structural shifts are, among other things, attributable to a lack of information on the labour market and the employment system. There is neither any information on the opportunities and perspectives in specific segments of the labour market nor are systematic data, e.g. on the gainful employment of women and their qualification needs, available.

A key role in this core problem is also played by the teaching staff in schools as well as in companies. Their pay is too low and often they have to look for a second occupation which in turn has a detrimental effect on their teaching activities. Moreover, quite often no adequately qualified teachers and instructors are available. Good experts who could assume such tasks in firms and schools tend to migrate into the areas of production where pay prospects are better.

Apart from management problems complaints were voiced about the frequent lack of a policy for TVET. To be precise, it is not accorded the priority in the partner countries which it should receive for the economic and social development of the country. This is also reflected in the renewed explicit mention by the participants of the preference for white-collar jobs in their home countries. A more efficient policy should not only propagate a boosting of the prestige of TVET, but the wage and salary prospects should also become attractive for those who have successfully concluded such training.

3.3 Labour Market and Employment Problems

In the participating partner countries, too, the paradoxical situation arises that on the one hand many job-seekers look in vain for employment, while at the same time in specific segments qualified skilled workers are in demand which cannot be found in the labour market. The explanation lies in the fact that often training was offered in the wrong occupations or that in those occupations which are in demand on the labour market, the training does not meet the requirements of the firms, and that, therefore, graduates who have been trained remote from shop floor practice are not accepted by industry.

As a general trend it is true that there is an increasing demand for labour in industry and the crafts sector. Independent of the fact whether sufficiently qualified skilled workers really can be demanded and recruited through the labour market, another problem continues to exist: the demand for labour does not increase in step with the demographic development and thus is not in line with a very young population offering its productive capacities. In the foreseeable future the number of jobs which are on offer in the modern sectors of industry and the crafts will not be able to solve the employment problem which is a natural corollary of all countries with a very young population seeking employment.

3.4 Lack of Cooperation among Providers of Education

Co-operation in the past between public and private providers of vocational training was described as totally insufficient by the participants. Yet it is not always the same causes that lie at the root of the problem in the various partner countries. However, there is a series of largely typical causes.

In the first place bureaucratic procedures and jurisdictional disputes between public and private authorities were mentioned. In the ultimate analysis this is conditioned by the completely insufficient legislative stimuli to promote co-operative forms of training by the corresponding governments. Conditions such as these gave rise to the demand voiced by the African group of participants that the image and the status of TVET in developing countries must be raised - also and particularly for vocational education and training carried out in co-operation.

The causes of lacking co-operation between private firms and state-operated schools continue from the policy level right to the implementation level: there are no effectively working institutions which could promote, monitor and guide this co-operation.

3.5 Insufficient Infrastructure

The forms of training, but above all the available supplementary equipment and the machinery used for training were described as obsolete. One contributing factor was that there is no adequate maintenance of the machinery and facilities available for training purposes.

Apart from that there is no long-term planning in place for various systems of further training nor for the replacement purchases of the machines and equipment necessary for vocational training.

In the same order as the five most important problem areas in vocational training, the participants developed solutions or possible options in the working groups to solve the problems identified.

(4) Solutions for the Improvement of Vocational Training

4.1 Insufficient Funding

Production schools would be suited to partly solve the budgetary difficulties of the institutions: the sales proceeds of the products manufactured could serve to mitigate the financial bottlenecks of the partner institutions. This possibility was even mentioned before the alternative of taking up loans for an improvement of TVET. An argument that can be advanced against production schools is that the market often has an overbearing influence on the range of vocational training: if only a few easily marketable products are produced no broad-based vocational qualifications can be acquired.

Nevertheless public expenditure for training schemes should be increased by the governments in question, a solution which is admittedly not a viable alternative for many developing nations.

The participants also considered tax incentives and other financial relief to be granted to companies engaged in training: thus the expenses spent by firms on training should either be made tax-deductible or - as in the case of Malaysia where the state has recognised the important function of vocational training for the development of the country - the public sector should shoulder 80% of the costs which companies defray to qualify people.

For particularly disadvantaged target groups scholarships, loans and grants are also deemed to be a viable option.

4.2 Management and Implementation Problems of Training

In this area it is urgent in the opinion of the participants to improve the skills and the knowledge of the teaching staff both in companies and in vocational schools - a task for which ZGB with its continuing education programmes is particularly challenged. Adequate professional organisations - still to be founded - of, let us say, the teaching staff would have to exact a greater commitment from the national authorities in charge of training to cater to such needs.

In general a stronger awareness must be created both for the development of human resources and a more efficient management of TVET so that scarce resources can be better utilised.

Increased promotion of vocational qualification measures needs as a prerequisite better information campaigns at institutions of primary education. It is there, in the opinion of the participants, that in the context of a "stronger industrial orientation" of societies in the partner countries much can be done to raise the prestige of TVET. Furthermore, systematic information on concrete training schemes could be disseminated enabling the young pupils to gain some initial vocational orientation.

4.3 Labour Market and Employment Problems

In order to improve the labour market opportunities of future graduates of vocational training, participants believed that above all an early integration of the industrial sector and its associations into the training measures is necessary. This was specified by the participants as one of the most important forms of co-operation between the state and private industry. This also helps to restructure the contents of existing training schemes: i.e., to have the qualifications profile demanded by companies integrated into the training programmes offered.

In the opinion of participants national and international donors are more willing to support such training schemes, i.e. if they are in line with the shop floor requirements and hence open up the opportunity to those who have undergone training to successfully integrate into the employment system.

In order to solve the labour market and, above all, the employment problems it is also necessary to carry out a greater number of training programmes. If these are carried out in co-operation with private industry then training facilities within the companies frequently have to be revamped.

4.4 Lack of Cooperation

For an improvement of co-operation between public and private providers of TVET it is often necessary to inform and motivate companies more strongly. Besides campaigns aimed at enhancing the prestige of TVET also concrete incentives can be used. Proposals for financial incentives were already made in a previous sub-section.

In addition more chambers of industry should either be founded or strengthened. These could take over responsibility in TVET. As a result more training schemes could be carried out in which the state and industry co-operate with the chambers acting as an additional partner.

Improved co-operation and the inclusion of, e.g., the chambers in the training schemes also calls for the elimination of bureaucratic obstacles. In many instances responsibility for matters of TVET is solely vested with the state authorities which leaves no legal scope for systematic training programmes in the private sector. The dual system of initial vocational training in Germany - according to the judgement of the participants - has assigned the terms of reference in an exemplary way.

4.5 Infrastructure

If public institutions are expected to be a reliable partner in co-operative qualification schemes they have to rely in many countries on donations from the industrial sector. The machines and equipment as well as teaching aids which are needed for effective training programmes can, in the opinion of the participants, not only be provided by the public sector. Admittedly the available machines and equipment - and hence the entire infrastructure of educational facilities - must receive more careful maintenance. Yet this does not solve the problem that industry as a whole should be exacted to make a greater contribution. Of course, also other donors should participate in the improvement of the infrastructure in the partner countries.

In connection with the existing infrastructure the training capacities should be better planned also in the medium and long term so that existing facilities can be used at an optimum.

(5) Perspectives of Further Co-operation

The participants elaborated multidimensional problem descriptions of their TVET-systems and, in part, of the underlying causes. The five core problems were in turn

juxtaposed with five areas/fields of action of potential solutions. The envisaged improvements and the attendant efforts and activities range from national strategies to targeted aid from bilateral or multilateral donors.

This also includes that part of these problems can certainly be tackled with better trained experts of vocational education. It is here that ZGB can bring its activities into full play. The participants mentioned explicitly this need for the upgrading of skills of teaching staff in companies and vocational schools. As already initially mentioned, ZGB cannot confine itself with its programmes to the implementation level of TVET. The problems and weak spots in the TVET-systems of the partner countries are mostly that complex - as was evidenced by the results of the working groups - that a solution can only be attempted with programmes of further training that try to overcome these problems with a holistic approach.

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4 International Co-operation - Contributions of International and German Experts

4.1 An Analytical Framework

A Comparison of the Main Types of Vocational Training Systems by W.-D. GREINERT

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It seems as if there are as many different vocational training systems as there are states on this planet. Trying to compare them direct, as they stand, soon turns out to be a hopeless undertaking. I have therefore developed a typology covering the main types of initial vocational training systems which makes it possible to classify and analyse these different national systems.[12] As this typology is generally well known, I will address it only briefly in this presentation so as to be able to concentrate on my main concern today, namely, the difficulties which arise with this basic classification of vocational training in connection with the general expansion taking place in the education sector: a problem of current and menacing concern for virtually all countries today.

(1) Three Basic Types of Vocational Training Systems

To streamline the classification of initial vocational training systems I have developed the criterion: "The role of government in vocational training", i.e. how does the state define its role in the process of training the majority of its citizens for an occupation? Using this criterion one can identify three main models:

Model 1:
The government plays a minor role or no role at all in vocational qualification processes

This model could be called liberal. It is, however, better to term it a market economy system or market model. Such systems can be found in the United Kingdom, in the USA and in Japan.[13]

Although the systems of technical and vocational education in these countries differ considerably, above all their socio-economic origin has been entirely different, they have one thing in common: Vocational education is not related to general education, for example in the form of vocational schools, nor is there a separate system which would guarantee minimum vocational qualifications for the majority of young people.

The above-mentioned countries have well-developed general education systems which, as a rule, involve 11 or 12 years[14] of compulsory schooling and are rather strongly influenced by the government. All young people in these countries attend what is called a high school. The number of high school graduates going on to college and university is very high in these countries as compared with the situation in the Federal Republic of Germany.

Technical and vocational education for its greater part is not, however, under government influence. It is directly related to the productive factor of work and to the labour market. Its development and Organization is left to the citizen's own initiative and to the commitment of enterprises, local authorities, and other training providers who offer and organise, practically without having to comply with government regulations, vocational education and training geared to practical work situations.

There are usually also school and government programmes (for marginal and problem groups) providing vocational qualification; however, the historically evolved traditional structures still dominate. Enterprises are major training providers. Above all, big enterprises usually achieve an outstanding position in the market owing to their economic superiority, as is the case for example in Japan.

What are the mechanisms responsible for the functioning of these market-oriented systems of technical and vocational education? The following is a list of mechanisms, which does not, however, claim to be complete:[15]

12 An International Comparison of Systems of Technical and Vocational Education - An Attempt at Classification, in: Innovative Methods of Technical and Vocational Education. Report of the UNESCO International Symposium. Hamburg, June 5-9, 1989 (= Bildung Wissenschaft International 2/89, Bundesminister für Bildung und Wissenschaft, ed.), Bonn 1989, pp. 15-19

13 Cf. Egloff, G./ H. Fenger a. o.: Berufsbildung und Gewerbelehrerausbildung in England, Stuttgart o. J.; Nibbrig, B./ U. Ziolkowski: Die wirtschaftliche und beruflich-ökonomische Bildung in Großbritannien, Köln 1982, Münch, J.: Berufsbildung und Bildung in den USA: Bedingungen, Strukturen, Entwicklungen und Probleme, Berlin 1989; Lang, D.: Bildung und Berufsausbildung in Japan. Ein Orientierungsmodell für die Bundesrepublik Deutschland?, Konstanz 1984; Georg, W.: Die geteilte Reform: Bildung und Berufsbildung in Japan, in; Die berufsbildende Schule 39 (1987), pp. 642-654

14 In Japan only 9 years, but 95 % of the pupils attend volontarily the Senior Secondary School

15 Cf. Ingo Richter: Öffentliche Verantwortung für die berufliche Bildung, Stuttgart 1970, p. 14

- The market model determines the quantitative relations between qualification requirements and vocational education. Vocational qualifications are provided according to demand. Demand is determined by the customers, i.e. the enterprises.
- The type of qualification (qualitative aspect) is determined exclusively by the presumed applications in the enterprises. Inter-company qualification transfer depends on the market, but it is usually not very strong.
- The market mechanism of vocational qualification functions best when the potential customers provide training themselves and control the results.
- In this case, training is financed by the customers, i.e. it is governed by the principle of cost minimisation. It will usually be related more to productive than to pedagogical principles (on-the-job training).
- Providers of vocational training select the trainees irrespective of superior social values (e.g. equal opportunities); trainees, in principle, have the same legal status as regular workers.

Model 2:

The government is the sole authority responsible for the planning, organisation and control of technical and vocational education

For logical reasons, this model should be termed bureaucratic; in view of its predominantly institutional form it may, however, be called the school model. It can be found in France, Italy[16] and Sweden and also in various countries of the Third World. Bureaucratic systems of technical and vocational education can, however, also be found in former socialist countries, where enterprise training played an important or even central role (e.g. in the former German Democratic Republic, in Poland and in Hungary).

School-based systems of technical and vocational education are similar to a great extent in structure and origin. Their special feature is a graded vocational school system closely linked with general education, in developed countries always at the upper secondary level.

Access to the different training courses which provide qualification at clearly defined levels is determined by the applicant's completion of lower secondary level education. This link between school education and technical and vocational education is also demonstrated by another feature of the system, namely the direct connection of school leaving qualifications with vocational qualifications (often included in wage agreements), which may even result in a real double qualification (e.g. university entrance and skilled worker qualification).

School-based systems of technical and vocational education are in principle hierarchical elite systems and are to be found mostly in countries with a centralised administration. Owing to their elitist character, they usually involve an education monopoly in the field of technical and vocational education which virtually precludes the development of competing forms of training, e.g. "dual" systems.

Private enterprise does not play a role in such systems of technical and vocational education, except perhaps as provider of places for students who are required to spend practical work periods in industry. The stronger the government's claim to the sole responsibility for technical and vocational education, the more the bureaucratic system of planning, organisation and control is closed. Nevertheless there are cases in which enterprises co-operate indirectly in these systems: In France, for instance, the major chambers operate vocational schools which are subsidised by the government and therefore required to observe the training rules and regulations issued by the government.

What are the mechanisms underlying such school systems? In the following, some important mechanisms are listed:

- The quantitative relations between qualification requirements and technical and vocational education are determined by public planning authorities. Demand-oriented planning is most efficient when it refers to a limited number of established basic occupations.
- The type of vocational qualification (qualitative aspect) is not primarily determined by practical work situations, but usually also takes account of individual and social requirements. The more the vocational schools are related to general education including its performance and selection criteria, the more their technical qualification function is influenced by the system-related problems encountered by general schools.
- Planning, organisation and control of the process of technical and vocational education are determined to a great extent by bureaucracy; the implementation of the related universal principles tends to guarantee the provision of systematic training strongly influenced by teaching theory.
- School-based technical and vocational education is financed from public funds. Since such funds are, by definition, limited, there are usually no national training models aiming to provide vocational qualification for an entire age group.
- School models function best for occupations and occupational fields which do not involve much

16 Cf. Schriewer, J.: Alternativen in Europa: Frankreich. Lehrlingsausbildung unter dem Anspruch von Theorie und Systematik, in: Enzyklopädie Erziehungswissenschaft, Vol. 9: Sekundarstufe II, Part 1: H. Blankertz a. o. (ed.), Stuttgart 1982, pp. 250-285; CEDEFOP (ed.): Vergleichende Studie über die Finanz-, Rechts- und Organisationsstruktur der Berufsausbildung. BRD, Frankreich, Italien, Vereinigtes Königreich, Berlin 1981; ISFOL: Das berufliche Bildungswesen in Italien, Europäisches Zentrum für die Förderung der Berufsbildung (CEDEFOP) (ed.), (Luxemburg 1988)

training of psychomotor skills, e.g. commercial occupations.

Model 3:

The government provides a more or less tight framework for technical and vocational education in private enterprises or other private training institutions

This system could be called a government-controlled market model; however, it is precisely what we call a dual system. It can be found in the Federal Republic of Germany, in Switzerland and in Austria.[17]

Such systems are commonly called dual because two places of learning, enterprise and (government-supported) vocational school, co-operate with the common aim of providing the trainees with vocational qualifications. The dual structure may, however, vary. South American dual systems of technical and vocational education, for instance, mainly involve inter-company training centres as the second place of learning; these centres are financed by the enterprises as a whole.[18] The system of technical and vocational education which German industry intended to establish in the 1920s and 1930s, apprenticeship in industry involving instruction at a (private) industrial vocational school, can also be considered a "dual" system.

Government-controlled market models are characterised by the strong dividing line drawn between the system of technical and vocational education and the public general school system. This is demonstrated above all by the existence of a more or less detailed specific technical and vocational education law, which cannot be categorised as school law. The legal responsibility for technical and vocational education under such systems therefore lies, as a rule, with the department of economics or labour.

Government-controlled market models of technical and vocational education can be found above all in places which have traditionally had an advanced trade culture. Small businesses and the tradition of training provision by the crafts are not, however, indispensable prerequisites for dual technical and vocational education. As is demonstrated by the German example, the system can also be adapted by industry. What is essential for the model's functioning is neither the place of learning nor a specific enterprise structure, but rather the existence of a training sector which is designed according to private enterprise (i.e. free-market) rules and which can be modified by rules issued by the government.

The dual system can be defined as a system involving two places of learning only with regard to its institutional form. With regard to function, the dual character depends on the integration of two different sets of regulations governing technical and vocational education. This integration is reflected most clearly by the law on technical and vocational education, e.g. by the 1969 Vocational Training Act of the Federal Republic of Germany (Berufsbildungsgesetz, BBiG), which, in a target-oriented approach, combines the private law sphere of the market with the public law sphere of the government.[19]

What functional criteria can be derived from this basic pattern? The following are important:

- The quantitative relations between qualification requirements and technical and vocational education depend on the market (which provides the training opportunities); however, enterprises which offer training accept government-issued rules.
- The type of vocational qualification (qualitative aspect) is determined primarily by practical work situations in the enterprise. The definition of qualification goals involves not only the enterprises but also the government and other interest groups (e.g. trade unions, professional associations).
- The enterprises are the training providers. However, vocational training processes have to be organised according to government rules and are subject to direct or indirect government control.
- The costs of training are, in principle, borne by the enterprises. Dual training models are, however, characterised by the application of regularised financing models[20] (e.g. fund financing) and/or co-financing of technical and vocational education by the government to a greater or lesser extent, as is the case, for instance, in the Federal Republic of Germany for the financing of part-time vocational schools.
- In dual systems of technical and vocational education, the extent to which vocational training is designed systematically and governed by pedagogical principles can be modified according to demand. The most important instrument in that respect is the modification of financial incentives.

The above analysis could create the wrong impression that the dual training model is an optimised system, particularly designed to avoid the disadvantages and one-sidedness of the other two models. It is obvious that this is not the case. Variants of all three systems originated at about the same time as a result of long historical growth

17 Cf. Münch, J.: Das berufliche Bildungswesen in der Bundesrepublik Deutschland, CEDEFOP (ed.), 3rd Edition, (Luxemburg 1987); Schermaier, J.: Die Formen der gewerblichen Berufserziehung bis zum Facharbeiterniveau in Österreich. Unter besonderer Berücksichtigung des Duo-Systems, Wien 1970; Wettstein, E./ R. Bossy a. o.: Die Berufsbildung der Schweiz. Eine Einführung, Luzern 1985

18 Cf. Arnold, R. a.o.: Duale Berufsbildung in Lateinamerika, Baden-Baden 1986; Schleich, B.: Förderung der beruflichen Bildung in Lateinamerika, Berlin/ Mannheim 1985

19 Cf. Frey, K./ W.-D. Greinert: How can Vocational Education be regulated by Law? (= Writings of the German Foundation for International Development, DOK 1373 C), Mannheim 1986

20 Cf. Hegelheimer, A.: Finanzierung der beruflichen Ausbildung, (Writings of the German Foundation for International Development), Mannheim 1986

processes, and all models proved their efficiency in the industrialisation of certain countries.

Another matter to be considered is the following: One should not make the mistake of regarding the basic types of formalised vocational training as being direct reflections of real types of national vocational training systems. All the vocational training systems in existence are to our knowledge variants and/or combinations of the three basic types. The basic types thus serve as models; presumably no country has adopted any one of these basic types in its pure form as a stand-alone system. Bearing this in mind, it is not fully admissible that in the foregoing Japan was cited as an example for the market model and the Federal Republic of Germany for the dual system model. Reality is more complex: like all highly developed vocational training systems, the Japanese system and the German system are complex combinations of two or three basic types, though one organisational form is absolutely predominant in each one: in Japan the market model, in the Federal Republic of Germany the dual system model.

I must add something to this typology:

- It was my first attempt; and unfortunately in this form I published the typology in several books!
- In March of this year, as a result of studying the vocational training systems of some North-African Arab States, I concluded that my typology was not quite correct. The German dual system is a mixed system; but it is not a basic type of vocational training. Rather, it is a combination of the bureaucratic and the market model.
- I also realised that the criterion "the role of government in vocational education and training" is not the point that is the most relevant. The real question is how vocational training systems are generally regulated. From this perspective there are three main models:
  1. regulation by the market
  2. regulation by bureaucracy/government
  3. regulation by tradition

  This third model I overlooked.
- It is now possible to add three pure models of vocational training systems to these three forms of regulation. These are:
  1. the market model, which is vocational training as a private responsibility in firms or other organisations,
  2. the bureaucratic model, which is school based vocational education/training, and
  3. the traditional model which consists of traditional crafts training.

By studying the reality of these vocational training systems it is probable that one would conclude that the application of only one of these models in order to direct the vocational training system, is not very efficient. The list of their disadvantages is long.

A more efficient approach is that of a combined or mixed systems. For example, the combination of regulation by market and bureaucracy.

One can find three well-known and successful vocational training systems that apply this principle of combination. These are:

- The French model of "formation en alternance" This is a combination of secondary-vocational-school-training and training in private companies.
- The Latin-American model of inter-company-training. This training model is characterised by systems of collective finance within the different economic sectors (industry, commerce, agriculture) while the national training institutions are controlled by government, employers and trade unions.
- The German "dual" system of vocational education and training. This is regulated by a central law.

Each of these training systems integrate two different sets of regulatory control. These are the private sphere of the market and the public law of government. The dual system is the only vocational training system which integrates the three types of regulatory control. This is the basis of its efficiency; but also the reason for its very complex structure.

(2) Vocational Training Systems and the Education Boom

If one examines the historical development of vocational training systems which readily fit into the basic classification given above - with the corresponding relativizations - one finds that these systems are mainly the result of two variants of a global education strategy which I would like to characterise with the terms meritocratic and dichotomous.[21]

Education systems organised along meritocratic lines make access to elevated positions in society and working life more or less conditional on holding a formal qualification certificate from an institution of general education, access to which latter is in principle open to all strata of society. These systems document the attempt, very widely undertaken in Europe for example, to replace the feudal distribution of social opportunity based on birthright and wealth with the bourgeois principle of merit: "education" or certified superior intellectual ability.[22]

But for the bourgeois nation states, as they industrialised and moved into the modern era, this was not enough to really banish the structures of social inequality inherited from their pre-industrial past, as making higher education institutions accessible to all strata of society has in

21 To the notions "meritocratic" and "dichotomous" cf. Teichler, U.: Das Dilemma der modernen Bildungsgesellschaft, Stuttgart 1976

22 Cf. Lutz, B.: Herausforderungen an eine zukunftsorientierte Berufsbildungspolitik, in: Bundesinstitut für Berufsbildung (ed.): Die Rolle der beruflichen Bildung und Berufsbildungsforschung im internationalen Vergleich, Berlin/Bonn 1991, pp. 27-36

fact created new barriers, including an ever more stringent selection of those admitted to study for higher education qualifications; schooling degenerates into an instrument of selection while promotion and education have become overshadowed by competition and pressure to achieve.

More importantly, however, all other educational subjects - in particular those which develop practical, vocational skills - have found themselves devalued because they then accommodate only those who would be the losers in the competitive struggle for higher qualifications. The culmination of this development, Burkart Lutz predicts, will undoubtedly be a situation "in which the ability to work on one's own responsibility and fully master skills unsupervised as is (...) required from virtually all workers by trends on the skill demand side will exist among only a small fraction of young people, and this fraction will be found only in the upper levels of a strictly hierarchical, highly selective education system, e.g. in the higher education engineering colleges, in the natural science faculties of top-rate universities or in medical schools. Within such a situation, the mark of the majority of young people would be their having failed in the competition for access to the higher-ranking education and training opportunities, while on the other hand they would then at best be able to acquire a vocational training in the form of the school-based acquisition of abstract knowledge which can alone by no means guarantee practical mastery of any (even the narrowest) occupational field".[23]

Dichotomously organised education systems distinguish between two institutionally separate courses of education: an educational path for academic occupations, which takes the learner through upper secondary education and on to university, and a trajectory for so-called skilled worker occupations, which prepares the learner for assuming a position within the employment system via a mode of training which offers a high practical content and provides for the involvement of (private-sector) industry.

The problem with this type of education system is that the two courses of education are also distinctive to a greater or lesser degree in terms of the privilege structure associated with each of them. The path to prominent positions in society and working life is virtually exclusively the academic path, while the so-called "vocational" path resembles a cul-de-sac when measured in terms of the associated entitlements.

Wherever such education systems are found in modern industrial states, they owe their existence to the ongoing influence of traditional social structures, of a dualistic economic structure which - rather like in developing countries today - accommodates side by side both a traditionally structured sector and an industrial, market-economy sector. If during the process of socio-economic modernisation the traditional sector is absorbed by the industrial, market-economy sector, the non-privileged education trajectory finds itself in danger of being bled to death. Large segments of the population no longer act in conformity with tradition when making their educational and occupational choices, and a general run on the privileged education courses becomes standard practice in the educational and occupational choices made by all strata of society. The logic of the meritocratic style are thus able to impose themselves via what one might call a detour.[24]

To my mind it is readily apparent that the basic types of vocational education and training system correspond specifically with the meritocratic and dichotomous models of education: the market model and the bureaucratic model with the meritocratic strategy, the government controlled market systems with the dichotomous strategy. In the international discussion, this mix of education and vocational training models has today been accepted as orientation patterns which are referred to in unduly abridged form as the "Japanese" and the "German" models:

- the meritocratic model, associated with the market system as the basic type of vocational training (= the Japanese model); and
- the dichotomous model, associated with the dual system as the dominating type of the government controlled market system of vocational training (= the German model).

Interest in school-based vocational training systems is rapidly waning because of their costliness, their remoteness from working life and their susceptibility to becoming unduly bureaucratic.

The decisive difference between the German and the Japanese models, however, is to be found at a level below the organisational: whereas the German model is centrally defined by a specific type of manpower concept, the skilled worker or skilled person in general, the Japanese model does without this occupational aspect of work altogether to represent - so to speak - a "vocational training devoid of occupational fixation".

The skilled worker or skilled person in general stands for an occupation-based work pattern which in Germany can be traced back to medieval times. This pattern essentially determines the recruitment and employment policies of the German business community and is additionally the all-important point of reference for government and trade union social and labour market policy. "On the labour market, the certificate held by a skilled worker (or any skilled person in general - W. D. G.) informs the prospective employer about the applicant's technical knowledge and skills and his social behaviour patterns. By earning his or her final certificate, a fully trained skilled worker acquires a document which guarantees the

23 Cf., p. 33

24 Cf. Lutz, B.: Der kurze Traum immerwährender Prosperität, Frankfurt/ New York 1984

expected performance quality, rather in the same way as a brand name does for a manufactured article. Any prospective employer can assume that skilled workers who were trained at different places and by different companies will have acquired a standard and generally known minimum qualification. Skilled worker certificates are thus the main control instrument in this occupationally structured labour market".[25]

The "German model" is today generally regarded as exemplary in international vocational training circles by virtue of its reasonable cost, its proximity to the realities of working life and its vast absorption capacity - currently some 70 % of each school-leaver cohort. In Germany, however, there is concern over a number of initial signs of decay: crisis at the traditional training venues (workplace and vocational school), a boom in the academic secondary and higher education sector at the expense of the dual system of vocational training - signs of decay which will undoubtedly shortly precipitate a massive crisis in the entire education and training system.[26]

What has occurred is precisely that which I described earlier as the fundamental problem of dichotomous education and training systems, namely that by the end of the 1960s the progressive fracturing and absorption of traditional modes of production - in the craft sector, in commerce (including primary services), in family farming and in domestic management - by the industrial, market-economy sector which had taken place during the period of post-war prosperity had injected a desire for dynamic change into the hitherto stable patterns of educational and occupational choice among large segments of the population.

The associated rapprochement of the lifestyle of virtually all population groups, until then unprecedented in history, projected the still remaining forms and causes of inequality of social opportunity and situation into the public awareness with an unusual clarity; reducing or legitimating these inequalities became a political problem. Reforming the traditional education system, where one of the main causes for the inequitable distribution of social opportunity was seen to reside, offered the best possibility of scaling down or circumventing criticism of existing social inequalities without endangering established power and interest structures.[27]

This criticism concerned the vocational training system in (West) Germany in twofold manner. Firstly, it became clear to the public at large that the traditional division of the German education system into a "general education" section and a "vocational education" section was a patently obvious sign of a social class division. "General education", as a frequently cited comment of those years argued, "is the vocational education of the rulers, vocational education the general education of the ruled". Removing the differences between these two sections of education in terms of pedagogy, organization and curricula - the "integration of general and vocational education" - therefore became one of the fundamental demands articulated in the public debate on education.

The second criticism of the dual system of vocational training was directed towards its shortcomings in terms of its capability to develop skills and competence. The dual system had been developed around the turn into this century on the basis of a traditional sector of the economy, technologically limited and with comparatively rudimentary forms of work organization, which has since disappeared; the technological and economic adjustment of the craft sector, the commerce sector, family farming and domestic management to the industrial, market-economy sector demanded that the workforce employed there be better equipped with skills which the traditional mode of training could no longer generate. As numerous empirical studies undertaken during the early 1970s unambiguously show, this traditional mode of training had largely deteriorated into nothing more than an instrument of exploitation.

The educational reform undertaken in West Germany during the 1970s, however, was piecemeal: access to higher education was broadened considerably, but vocational and general education were still not put on an equal footing from the social entitlement viewpoint. The action was confined to rationalising the initial vocational training system anew.

A general run on academic secondary schools and universities did not materialise in the 1970s and 1980s in (West) Germany simply because the deteriorating employment situation in the wake of the world economic crisis and the problem of providing education for the youngsters of the baby boom years slowed down if not totally stopped the education expansion intended to accompany the less restricted access to higher education. Today, in the early 1990s, with cohorts from the lower-birth rate years who can move around the existing educational institutions in relative freedom, the "logic of the meritocracy" can develop themselves to the full and are indeed beginning to threaten the dual system: for Germany, 1990 was the first year when there were more students enrolled at universities than trainees employed in companies.[28]

25 Georg, W.: Zwischen Markt und Bürokratie: Berufsbildungsmuster in Japan und Deutschland, in: Georg, W./ U. Sattel (ed.): Von Japan lernen?, Weinheim 1992, pp. 42-69, p. 47

26 Cf. Greinert, W.-D.: Hat das duale System der Berufsausbildung seine Zukunft bereits hinter sich?, in: Berufsbildung 46(1992), pp. 69-72

27 Lutz, B.: Die Interdependenz von Bildung und Beschäftigung und das Problem der Erklärung der Bildungsexpansion, in: Sozialer Wandel in Westeuropa, J. Matthes (ed.):, Frankfurt/ New York 1979, pp. 634-670

28 Cf. Greinert, W.-D.: The Dual System of Vocational Training in the Federal Republic of Germany. History - Structure - Function

Concluding, I would say: The increasing erosion of the dual system, which is so noticeable today, is caused not so much by changes in the employment system but by changes in the entire education system. We should proceed with the utmost caution, however, in any attempt to reduce to a common denominator the co-ordination problems of the general education system, the vocational training system and the employment system. No successful industrialised country can claim to have derived its vocational training system systematically from the functional requirements of industrial development and optimised it according to objective and logical criteria. Of all systems the German example in particular shows that quite different aspects moulded the basic structure of the dual training system at the turn of the century. And a glance at other countries, e.g. Japan, makes it clear that many of our firmly established ideas about occupations and vocational qualification processes cannot claim universal validity.

4.2 Selected Examples from the German Dual System

A Critical Analysis of Some Prerequisites and Features of the German Dual System by J. IWANOWITSCH

Dipl. Ing. Jakob Iwanowitsch is head of the training department of FREUDENBERG, a large company in Weinheim, Germany, which produces goods for the automotive industry and for domestic applications.

During the first week of the seminar, Mr Iwanowitsch presented his point of view on the German Dual System to the Asian participants of the event. Due to the significant implications of this presentation for the reform of technical and vocational education in other countries, Mr Wallenborn has arranged this text in order to explain the following five statements of Mr Iwanowitsch.

In examining the Dual System the following theses should be borne in mind:

- it is largely based on full employment, with an unemployment rate of 10% at the most,
- it is geared to a pyramid-shaped company hierarchy and qualifies youngsters for the level of skilled workers
- the service sector continues to grow
- as a complement to the first thesis it must be remembered that the nation-wide application of the Dual System depends vitally on the preparedness of companies to offer training jobs
- and, finally, the choice of an occupation as well as the educational behaviour of pupils and parents alike have for years undergone a drastic change of pattern.

In the early 80s the Dual System of vocational education and training could not satisfy the demand of school-leavers for training jobs. This led to a drastic increase in the number of youngsters who could not be provided with an adequate training position and at times to an emotionally charged political debate in the Federal Republic of Germany. The strong increase in youth unemployment was the result of two opposing trends: numerically strong groups of school-leavers were hunting for training jobs precisely at a time when companies had lowered the number of such jobs in response to a major downturn of the business cycle (Wallenborn 1987).

At that time the Dual System had to be flanked by an expansion of full-time state-run vocational school programmes, since in mere quantitative terms - but also on a structural and regional basis - the Dual System was not capable of meeting the demand for training positions. This is the gist of Mr Iwanowitsch's **first thesis:** during cyclically unfavourable times it may happen that measures adopted by the state have to complement the vocational education and training programmes of private companies within the Dual System.

Time and again the latter fact is adduced as an argument in favour of state-run programmes. Since the private sector of companies is either not sufficiently developed, it is alleged, or firms do not consider the training of youngsters as their task or firms shy away from the additional costs, the state must continue to bear the main responsibility also in vocational education and training. As a result, large sums of money are tied up which are missing in the public sector for other tasks.

Mr Iwanowitsch's **second thesis** purports that above all the Dual System covers the demand for well-trained skilled workers. In the future; however, hierarchical levels in companies are going to change, and, even earlier, the organisation of work (e.g. group work). Novel information and communication technologies will also continue to flatten existing hierarchies.

As a result, in-company education and training schemes are bound to change. Besides the job-related technical qualifications additional capabilities, among others, in the area of methodological and social competence will be required to organise group work as effectively and smoothly as possible. In these fields various forms of further training will constantly gain in importance after the completion of initial training in a company.

Large industrial corporations in developing countries are facing the same problems: although there are often insufficient schemes of initial training - in most cases only at an in-company workstation - technological development demands an ever increasing pace to master new machines and plant and hence additional knowledge and skills. Some Asian development countries try to overcome this problem with the help of another strategy: instead of building on a broad base of vocational skills in their further training - as in the Dual System - these companies prefer to hire youngsters who have completed a higher level of general education. These young people are in a position of meeting rather flexibly in-company challenges which are the result of technological innovations.

Mr Iwanowitsch's **third thesis** points out that the tertiary sector (trade, banks, insurance companies, etc.) is expanding. Physical goods and products are made nowadays by less and less people through more productive processes. This was bound to impact the structural pattern of occupations within the Dual System. Among the approximately 350 recognised training occupations many of those in manufacturing-related and technically-oriented industries are losing in terms of their numerical strength.

In the service sector more training jobs will be demanded in the existing occupations due to an increasing white-collar mentality. As a result of the structural change of

entire segments of the service sector, entirely new occupations might have to be created. The more exacting qualifications needed in this sector make co-operative forms of learning/studying almost a must in the tertiary education sector. New ways have been opened up in Germany by the Vocational Academies to cater to this need. In each of their three years of training students are studying half a year at the academy and the remaining six months are spent in a company.

The **fourth thesis** reads that the substantial quantitative training achievements of the Dual System - close to two thirds of youngsters of an age group undergo vocational training in the Dual System! - depend on the preparedness of companies to train young people. This, in turn, is not a steady parameter to count on: during economically difficult times companies are less willing to offer training jobs because of the high costs per training position. In 1991, annual net costs per trainee amounted to DM 17,862 in industry, while the crafts sector's expenditure was DM 6,340 (von Bardeleben et al., 1994).

Even when we bear in mind: "During their generally utilizable training and in a well-functioning labour market, apprentices receive allowances which are lower than the value of the marginal product generated by their labour. Thus, expenditure for training is self-supporting" (Schaufelberger 1989, p. 40). Nevertheless, due to short-term cost pressure many firms are disinclined to maintain the quantitative scope of their training efforts during times of economic crises and, as a result, reduce the number of apprenticeships in the Dual System.

In developing countries, too, the costs of training are always cited by companies as an obstacle for in-company training. Often the firms there even have to contribute to the funding of public vocational training institutes by means of a training levy, e.g. a payroll tax. At the same time the private sector complains about the sub-standard achievements of these centres.

Even though there are instruments and funding mechanisms in some countries (e.g. Brazil and Chile) which grant companies tax relief for amounts they spend on training schemes, these incentives have not yet led to more training activities. Apparently for the majority of firms it takes too much effort to recoup the training levy - already paid as a payroll tax - by engaging themselves in training activities.

The **fifth thesis** on the Dual System runs as follows: for a number of years the educational behaviour and the choice of occupation by pupils and parents has been undergoing a drastic change: more and more young people prefer to engage in academic studies instead of undergoing an apprenticeship in the Dual System. At the same time an ever increasing number of graduates from other types of higher learning start competing with the master craftsmen and technicians by choosing a lateral entry into these careers. One has to bear in mind that the positions of Master Craftsman and Technician constitute the preferred and most obvious opportunities for climbing the career ladder. Thus, occupations that can be learned in the Dual System suffer a dual loss of attractiveness:

- initial training in the Dual System become less attractive in comparison to higher echelons of education, since only these hold out the promise of academic studies and hence greater prestige and a higher level of income;
- more and more the chances of qualifying for the title of Master Craftsman or Technician, which used to be the domain of people who had successfully undergone training under the Dual System, are now taken up by graduates of higher centres of learning.

Our partner countries are facing similar problems. It was a recurring concern among the participants from Africa as well as Asia that potential improvements of practice-oriented education has something to do with the social prestige of vocational education and training. If a reversal of public opinion cannot be brought about in the partner countries, vocational education is bound to stay behind the offers of general education in the foreseeable future.

Particularly as a result of the issues raised by the last thesis organisers and participants from the partner countries were agreed that in this respect the Federal Republic of Germany tends to approximate the developing nations: what in the past used to be a meaningful option for young people to plan their life and to map out their perspectives of earning a living - namely training and education in the Dual System - is discarded more and more often in favour of institutes of higher learning which offer eligibility for academic studies. Thus already today there are many German companies in less attractive lines of industry which - even in times of a contracting market situation - complain about a shortage of fully qualified skilled staff.

In spite of these difficulties the Asian participants of the seminar, at the end of the first week in Mannheim, evaluated the Dual System of vocational training as an efficient system. It had served as an example to highlight the co-operation between private companies and public education centres. During their visits to the various teaching places participants became aware of the substantial expenditure for the co-ordination of company-run training and classroom instruction. Yet they thought these expenses are more than offset by the enormous financial relief for the public sector in the field of vocational training.

Even though this system - as it was expressed in a discussion which rounded off the first week - has its historical and socio-cultural roots in the Germany-speaking area and, therefore, a transfer of this system can be ruled out, a closer co-operation between public and private partners in vocational training and education constitutes the only way to remain competitive in an economy undergoing increasing globalisation in which

technological innovations take place at successively shorter intervals.

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Standards in Vocational Training - Development of Vocational Curricula in Germany

by H. TUTSCHNER

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(1) Introduction

The Dual System

In particular two characteristic features distinguish the dual system from the exclusively in-school vocational training systems customary in many countries:

- Training is split between two training locations: the firm and the part-time vocational school. In Germany, on-the-job training is subject to federal law, whereas classroom instruction is subject to the laws of the individual Länder.
- Learning takes place to a greater extent on the premises of private and public manufacturing plants or service enterprises - sometimes supplemented by interplant training centres - rather than in schools.

The main pillars of on-the-job vocational training are the Vocational Training Act (BBiG), the Act on the Promotion of Vocational Training (BerBiFG) and the Crafts Ordinance (HwO).

School-based training is regulated by the school laws of the individual Länder.

Vocational Training Promotion Act (BerBiFG)
Chapter Two: Federal Institute of Vocational Training
Section 6: Establishment and Tasks

(1) The tasks of vocational training pursuant to this Act shall be implemented under the education policy pursued by the Federal Government. A Federal Institute of Vocational Training shall be set up with legal status and directly owned and operated by the Federal Government for the purpose of executing vocational training tasks.

(2) The Federal Institute of Vocational Training shall be entrusted with the following tasks within the framework of the Federal Government's educational policy:

1. in accordance with the instructions of the competent Federal Minister

a) to co-operate in the drafting of training regulations and other statutory ordinances which are to be enacted under this Act (or by virtue of Part Two of the Handicrafts Regulation Act,

b) to co-operate in the drafting of the Vocational Training Report (cf. section 3),

c) to co-operate in the preparation of vocational training statistics in accordance with the provisions of section 4,

d) to promote pilot experiments supported by scientific studies,

e) to participate in international co-operation in the field of vocational training

Vocational Training Act (BBiG)
Part I: General Provisions
Section 1: Vocational Training

(2) The object of initial training shall be to provide through a systematic training programme, a broadly conceived basic preparation for an occupation and the necessary technical abilities and knowledge to engage in a skilled form of occupation activity. Initial training shall also enable a trainee to acquire the necessary occupational experience.

Vocational Training Act
Division 2: Recognition of Trainee Occupations; Alternation of Periods of Training
Section 25: Training Regulation

(1) As a basis for an orderly and uniform system of initial training and the adaptation of that system to technical, economic and social requirements and changes in the same, the Federal Minister of Economic Affairs or such other minister as may be competent, acting in agreement with the Federal Minister of Education and Science, may by ordinance, which shall not require the approval of the Federal Council, officially recognise trainee occupations, cancel such recognition and issue training regulations for such occupations.

(2) The training regulations shall specify at least:

1. *the name of the trainee occupation;*
2. *the period of training, which shall not normally be more than three or less than two years;*
3. *the abilities and knowledge to be imparted in the course of training (occupation description);*
4. *an outline of the syllabus and timetable to be followed for the purpose of imparting the relevant abilities and knowledge (overall training plan);*

5. *the examination standards;*
6. *(environmental protection)*

The responsible Minister, e.g. the Federal Minister of Economic Affairs or of Agriculture, issues training regulations with the approval of the Federal Minister of Education and Science. As legal directives, these are binding for company-training.

(2) New Demands - New Contents

The requirements in the training regulations are derived from the requirements of the professional and working world and are combined to form occupational profiles. This is mainly a question of minimum requirements which generally guarantee a uniform level of training for all trainees in a given occupation.

When formulating the actual contents of training, it must be kept in mind that qualification requirements are in a constant state of flux. For this reason, the content of training programmes is no longer fixed, but is formulated so as to remain open to technical trends, to enable adjustments to new technical developments to be accomplished as quickly as possible. This gives the training company the opportunity to update its training programme at any time in accordance with its changing production conditions.

New, complex vocational requirements are included in the more recent training regulations. Trainees are to be put in a position to perform 'independent planning, execution and checking' of the given activity.

Thus, training is intended to go one step further than the isolated acquisition of specific skills and knowledge. Alongside planning-oriented thinking, elements worth mentioning in this context are team-work and the ability to co-operate, the inclusion of environmental aspects, or a willingness to undergo subsequent further training to permit a flexible response to technical change.

When designing the content of dual training, increasing consideration must be given to the consequences of European co-operation, as well as economic, technical and social developments. The preconditions for freedom of movement within Europe must be improved.

It was trade unions and employers who in 1978 described the profile of future skilled workers in a joint document entitled 'key data for reforming traineeships for metalworking occupations in industry'.

A qualified skilled worker will be able

- to practice his occupation in different companies and industries and also to carry out related skilled work after acquisition of any hitherto lacking skills;
- to adjust flexibly to new work structures, production methods and technologies with a view to maintaining his occupational proficiency;
- to participate in continuing training, skill updating and retraining measure in order to ensure occupational proficiency and mobility.

(3) State-Recognized Traineeship Occupations

(See Hermann Benner: The dual vocational training system in Germany and considerations to its further development in the light of European integration)

The traineeships offered by the dual system prepare trainees for employment in state-recognised traineeship-occupations.

State-recognised traineeship occupations are constructs with a significance for both the training and the employment system. They are instead oriented towards entire fields of activities and groups of functions and are designed to prepare the trainee for a range of skilled activities which are not specific to any single company profile and also help promote the process of personality development.

The dual system minimises the problems at the interface between training and employment.

All parties involved in training are responsibility-bound contributors to the process whereby traineeship for skilled occupations are regulated (principle of consensus).

The so-called principle of consensus guarantees acceptance for state-regulated traineeships among those economic agents who are to offer such traineeships.

There are no statutory eligibility requirements for traineeships in a state-recognised skilled occupation.

Anyone who has completed compulsory schooling, irrespective of his or her school attainment record, can be trained for a state-recognised traineeship occupation. From the structural viewpoint thus, these traineeships meet the fundamental demand for equality of opportunity.

Equivalent qualifications from all state-recognised traineeships.

Irrespective of differences in training content, the regulatory framework laid down in the Vocational Training Act applies to all state-recognised traineeships and equivalence is assumed to obtain for the final qualification awarded after any such traineeship.
Compared with international standards the German skilled qualification has a relatively high ranking.

Below higher education level, a state-recognised traineeship is the main access to skilled employment in the occupational field concerned.

Qualification for a state-recognised skilled occupation is automatically associated with social and remuneration entitlements.

The social security of an employee depends partly on the type, duration and scope of his or her vocational training. Persons who have qualified for a state-recognised skilled occupation have a right to be refereed for suitably skilled jobs in the event of unemployment, to government

support for participation in retraining or continuing training schemes, to a pension in the event of incapacity to work, and to a given remuneration grade for employment in a post appropriate to the traineeship undergone.

Qualification for a state-recognised skilled occupation brings only limited entitlements regarding access to the education system.

Access to qualifications above the skilled worker/ employee level (except at higher education level) generally presupposes the successful completion of a state recognised traineeship.

Summary: All young school leavers in the Federal Republic of Germany should receive vocational training offering them the best qualifications possible. Therefore, an adequate, varied and regionally-balanced supply of trainee positions is necessary. Access to vocational training is open to all, it is not conditional on any specific school-leaving certificates.

(4) Development of Training Ordinances: the Procedure

When the contents of a traineeship are in need of updating or a new traineeship is required for a newly emerging occupation, the initiative for taking the corresponding action generally comes from the apex organisations of employers' associations, trade unions, or the Federal Institute of Vocational Training. Decision-making power rests with the competent Federal Minister, who exercises that power after having heard the views of all parties concerned. The Institute usually submits an expertise on the matter or, particularly in the case of major reform plans, investigates these in a full-scale research project.

New traineeships are developed and existing ones updated on the basis of a standard procedure adopted in 1978 which involves the two sides of industry and practitioners and researchers engaged in the field of vocational training.

The regulatory work had to give due consideration on the one hand to the binding nature of the future statutory instrument which will lay down the goals and content of the training but on the other hand also take account of the pace of technological, economic and societal change. A training ordinance does not describe the application of any particular methodology or system. Instead, it remains open for future developments by merely describing the skills to be developed during the traineeship.

Additionally a number of important criteria - e.g. the macroeconomic significance of an occupation and adequate employment prospects - have to be met before the competent minister can give the go-ahead for reform.

(4.1) Principle of Consensus

The work on training ordinances is governed by the principle of consensus: in order to secure the highest possible acceptance by industry of the resulting traineeships and training ordinances, the sectoral ministers do not issue any legal regulations which have not previously received the consent of the social partners.

The 'consensus' of all parties involved in vocational training is a political maxim to which the Federal Government has subscribed since the mid-1970s. The social partners thus have a decisive participatory role to play in designing training ordinances and are therefore more inclined to accept full responsibility for their implementation in the field.

Summary: The dual system of vocational training presupposes the joint responsibility and co-operation of all those involved: employers, employees, state and education authorities co-operate at all levels, bearing joint responsibility. Such co-operation is subject to legal regulations and has proved to be successful.

(4.2) Criteria for the Recognition of Traineeship Occupations

On 25 October 1974, the Federal Vocational Training Committee adopted a recommendation on criteria for the recognition and derecognition of traineeship occupations which contains important findings concerning the design of new traineeship occupations. The recommendations lists the following criteria for recognition:

- Sufficient, non-finite demand within the economy as a whole for the associated skills
- Initial training for skilled activities carried out independently and covering the widest possible field
- Emphasis on sustainable occupational activity irrespective of work
- Broad based vocational foundation training
- Possibility of regulation to ensure orderly implementation of the training
- Sufficient demarcation vis-à-vis other traineeship occupations
- Attainability of the training goals
- Duration of training between two and three years
- Basis for continuing training and occupational advancement
- Acquisition of ability to reason and act independently in applying knowledge and skills.

Developing a training ordinance is often a laborious process which can take several years to complete, especially as the social partners are concerned to a not insignificant degree not only with training policy aspects but also with much broader matters such as social insurance, collectively negotiated entitlements, etc.

(4.4) Procedure for the conception and harmonisation of training regulations and general curricula

Phase 1: Research and Development

with findings from:

- problem analyses
- case studies
- activity analyses (definition of occupational requirements)

- development of the draft

The research and development phase is used to clarify whether a state-recognised skilled occupation and the corresponding traineeship should be discontinued, retained as it stands or updated, e.g. by surveys among employers and trade unions, and possibly large-scale empirical studies on the occupational field or situation concerned (e.g. investigations into the state of art, work organization, the skill requirements of industry...) The resulting information is taken as the basis for drawing up hypotheses on which activities have to be carried out and which skills are needed to carry them out and therefore to be covered by the training.

All this work is ultimately synthesised to produce a draft decision document calling for the discontinuation, retention or updating of the traineeship occupation.

Phase 2: Preliminary Phase
Establishing the main parameters for the training ordinance

The parameters for the training ordinance are determined in a so-called application consultation with the competent sectoral ministry (usually the Federal Ministry of Economic Affairs).

The application consultation for the new office occupations was held at the Federal Ministry of Economic Affairs on 24 May 1988. The following parameters were adopted:

1. Designation of occupation:
   - office communication clerk
   - office organization clerk (working titles)
2. Duration of training: three years for each occupation
3. Occupational field category: business and administration
4. Structure: traineeships with no specialisation
5. Catalogue of skills
6. Structure of timetable: a new way of determining the contents to be covered in a given training period is to be developed (development commission).

Phase 3: Development and Co-ordination
Co-ordinating company-based and school-based training.

During the development and co-ordination phase, training specifications and skeleton curricula are developed, co-ordinated with each other to ensure consistency and finalised ready for adoption.

The BIBB requests the apex organisations of employers and employees to appoint experts who, as federal government consultants (represent the in-company training component), assist the Institute in redesigning the occupation and training regime concerned.

Drawing on the work of the federal government consultants, state government consultants develop a skeleton curriculum for the school-based component of the traineeship.

The two draft documents and the contents and time concepts presented therein are then discussed and co-ordinated at joint meetings of the consultants.

The co-ordinated draft training ordinance is communicated to the Board of the BIBB. The Board's approval of the working documents is a recommendation to the Federal Government to 'enact' the draft training ordinance.

Phase 4: Issuance of the Training Ordinance
The competent ministry subsequently issues the training ordinance and has it published, together with a notification of the date on which it is to take effect (usually the commencement of the following training year).

The skeleton curriculum is adopted by the federal states either as it stands or with modifications which are then applicable to vocational schools in the federal states.

BIBB - Common Address for Technical and Vocational Education by U. LAUR-ERNST

Dr Ute LAUR-ERNST is Head of the Department for Educational Technology and Comparative Studies in Technical and Vocational Education in the German Federal Institute for Vocational Training (BIBB) in Berlin.

1. The Federal Institute for Vocational Training has quite a long history. It was founded 1970 under the provisions of the Vocational Training Act and has a legal mandate to carry out several tasks (research, development, consulting) to improve initial and further vocational training for skilled workers and skilled employees in different occupational sectors.

2. The Institute's activities concern two main fields:
   - planning and policy support in vocational training and
   - help for practionneers in organising and delivering vocational training.

   Therefore the target groups of its products and recommendations are: federal and state ministries, employers' associations and trade unions, professional bodies and chambers on the one side and on the other: companies which are engaged in vocational training (training managers), supra-company training centres, vocational schools, teaching staff, trainees (youth, adults).

   Beside this, the Institute has many contacts with the scientific community and co-operates with universities, Fachhochschulen, private research institutes.

3. BIBB has a self-governing and decision making body ("Hauptausschuß"), in which the four social parties responsible for VET in Germany are equally represented: employers, employees, governments of the states ("Bundesländer") and the federal government.

4. The Institute is funded by the Federal Government. Beside financing the costs of the personnel and the main research and development activities of BIBB, the Federal Government (Ministry of Education, Science, Research and Technology) provides for several national and international programmes to support vocational training in Germany, in some states of Central and Eastern Europe and to improve the co-operation between Germany and the other member states of European Union.

5. Since vocational training (initial, continuous training and retraining) is an important factor for the economy and the labour market as well as for individual development and professional career - all the activities of BIBB must be seen in the frame work of different policies and interests. Therefore conflicts are inevitable and a quite normal part of our every day life. But conflicts have always two sides: they limit activities in some way and they stimulate to find innovative and consensus based solutions.

6. The dialogue with the different reference and targets group is essential for our work. Therefore BIBB organises many workshops, discussion forums, conferences and congresses to exchange information and experiences, to discuss problems and solutions, to identify coming challenges and approaches to cope with them. Communication and co-operation are principles of our work and our self-understanding as a "common address" for all actors engaged in vocational education and training.

Pilot Schemes: The Example of Women in Male Dominated Vocations by B. WOLF

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(1) Introduction

Since more than twenty years pilot schemes in the vocational training, here being understood to cover initial and continuing training, have become an indispensable instrument for the development in the fields of vocational training politics, practice and research.

Main goals of the pilot schemes are the development, testing and dissemination of innovative solutions for actual and medium-termed problems in the field of vocational training. Through public funds for pilot schemes, nearly 20 millions German Marks every year, companies are encouraged to improve their in-company training. The funding covers the larger part of the additional costs incurred by developing and testing new training concepts. The companies have to apply for the funds by submitting their concepts to the Federal institute for Vocational training, where they find assistance and advice as how to implement their ideas.

The institute is currently monitoring Pilot Projects, run by the Federal Government in over 200 companies, in the following development areas:

- improvement, updating and testing of training courses and training contents in initial vocational training,
- new technologies in vocational training,
- testing of new training methods,
- continuing skill development measures for training personnel,
- improvement of vocational examinations,
- work preparation and initial vocational training schemes for problem groups of young people (slow and impaired learners),
- initial vocational training for girls in industrial and technical occupations,
- initial vocational training for young people from ethnic minority backgrounds,
- continuing and skill update training,
- environmental protection in vocational training.

As an example for the working method of pilot schemes, I will give you a brief presentation of the pilot schemes for opening up industrial-technical training occupations for girls and young women.

(2) Goals

The main goals of the Pilot Projects in this area were:

- the expansion of real occupational opportunities and training prospects for girls,
- reduction of the one-sided concentration of women in training and employment in only a few female dominated professions and occupations with short training periods,
- equal opportunities for girls and young women in qualified but hitherto male dominated professions,
- investigation of constraints in the access of women to male dominated professions,
- the recruitment of a large group of women as skilled workers instead of isolated individual cases as hitherto.

(3) Structural Data

Number of Pilot Projects:	29 in 21 regions
Duration of the	7 years, as a rule 2 training cycles in each

whole programme:	project
Number of firms:	217 of all sizes
Occupations:	75 industrial-technical training occupations, mostly in metal and electronic professions
Participants:	1232 girls and young women, 1186 of them with contracts in vocational training in the dual system; of these 963 (81.1 %) passed their final examination as skilled workers or craftswomen;
After their final examination:	647 (76.2 %) participants were employed by their training firms; 80 (8.3 %) changed their firms, but continue to work in the profession they were trained; 84 (8.7 %) are undergoing further training or study, 140 (14.5 %) were unemployed, housewife or worked in other professions.

(4) Results

- During the 7 years of the programme the rate of female trainees in male dominated professions increased from 2.5 % to 8.4 %.
- Women are able to meet the demands of vocational training and occupation in male dominated professions as well as men. There are in general no specific training problems.
- The employment of female skilled workers is possible to a greater extent also from the physical aspect. Problems do seem to arise in the field of maintenance and upkeep. This type of work is often required when the places of work must be changed frequently (technical aids to ease heavy physical labour are not always available) and outside the usual working hours.
- Most of the participants are content with their untypical vocational choice and their decision for apprenticeship training in traditionally male dominated professions. They see their occupational work as a long-term proposition which will, however, be interrupted by a period of child-caring. About 70 % would recommend their occupation to other interested women.
- The firms participating in the Pilot Projects have offered jobs to trained women in the same way as young men if skilled workers were recruited at all. Companies with more than 1000 employees offered more frequently jobs to skilled women than smaller companies. The transfer rate of women in the electronic sector from vocational training to employment was higher than in other sectors. The lowest transfer rate was detectable in the craft enterprises participating in the programmes. The owners of these enterprises took a rather more critical view of the occupational opportunities for women in male dominated, technical professions. The reasons given for this reluctance included the physical demands made by such work and the expected difficulties in the case of pregnancy and maternity.

A panel-survey two years later of former participants of the Pilot Projects and their superiors and foremen pointed to the following results:

- The skilled female workers and craftwomen were to a higher rate still working in their professions as expected (59.1 %). Proportional low is the rate of participants being housewives (10.8 %). Extraordinary low was the rate of unemployed (1.1 %).
- Women who were still working in their untypical professions were meanwhile accepted - both professionally and socially - by their colleagues and superiors.
- More than 80 % were still content with their decision for an untypical profession in regard to the work contents and the income - more than the majority of women in traditional female professions.
- The superiors and foremen praised the skilled female workers as being very good workers and colleagues. However most of them saw problems if the rate of skilled women in their fields of competence would rise higher than 20 or 30 %. Their reasons for that point of view were the physical demands of some occupations in their professions and problems with female labour-protection regulation. However, most of all they feared the absence of their skilled female workers for an unknown period in case of maternity.
- Two thirds of the companies which had participants in the Pilot Projects trained women in male dominated professions in the years after and gave their results and experiences to other companies.

(5) The Role of Pilot Schemes in Labour Policy

The pilot schemes in this action area have successfully drawn the attention to the problems of access to male dominated professions for women. They did prove that women are able to meet the demands of vocational training and occupation in technical male dominated professions as well as men and encouraged companies to train women in these professions and to give them job opportunities. Information and motivation campaigns to interest girls for technical professions have taken place continuously. Pilot schemes are not an instrument to solve problems in the field of labour policies immediately but they can give examples for a good practice and innovative solutions. An important condition for the success of pilot schemes is the dissemination of their results.

Training of Trainers by the German Federal Institute for Vocational Training (BIBB) by R. SELKA

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The training of trainers is essentially determined by their participation in continuing training programmes. This can be explained by the fact that it is their task to prepare young people for the current demands of working life. However, in the light of the constant changes in job content and demands at the workplace, trainers must not only be oriented towards job content, but also towards the extension and change of their training resources. The following article describes the contribution of the Bundesinstitut für Berufsbildung to the solution of these problems.

(1) Trainer-Related Tasks of the BIBB

The German Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung, BIBB) is engaged in research and development in the field of out-of-school vocational training. At the same time it offers service and advisory functions to the Federal government and in-company vocational training practice. The Institute's research activity provides the basis for the implementation of these services and advisory functions. The aim of our activities is to develop foundations for the initial and further training of skilled blue- and white-collar workers and journey men in industry and commerce, the crafts, agriculture, the liberal professions and public administration and to update and upgrade vocational training in the light of technical, economic and social development. Co-operation with vocational training practitioners constitutes an essential element of our research and development activities.

A number of the Institute's key fields of activity are aimed at gaining an insight into the role, activity and attitudes of trainers from different point of view:

- Structural research examines the educational/training and occupational careers of individuals and the training behaviour of firms. The subject of research in this context is training programmes and the conditions of the utilisation of skills in the firm including, in particular, research on the role of trainers and their influence on training processes for trainees.
- Research into training and learning processes: The key areas of research are on-the-job-training, organisational forms of in-company training (e.g. training networks) and questions relating to assessment and examinations. Here again, trainers' activities are naturally the focal point of interest so that the results often constitute concrete aids for trainers.

Finally, the Institute has a specific "training personnel" department which is chiefly involved in research into questions relating to the activities of the various groups of training personnel and the framework conditions of their work.

Other key activities of the Institute are directly geared towards trainers, offering them concepts and material for their work:

- Design, follow-up and evaluation of Federal government Pilot Project programmes in various key areas: the individual Pilot Projects serve to test new concepts in the field of initial and continuing in-company training in the firms or non-school-based training institutions, directly involving trainers as players in this context.
- The development of placement concepts and training aids for in-company initial and continuing training: so far some 800 training aids have been developed in printed or audio-visual form, primarily for industrial and technical occupations (metal-working, electrical, civil engineering, joinery, etc.) Training aids for new technologies and commerce meet with particular interest.

Finally, the "training personnel" department's activities known as the "promotion of trainers" cover activities which serve to promote the continuing training of trainers. In this context the essential results of all above-mentioned activities are centrally pooled and - insofar as they are suitable for continuing training in the framework of seminars for trainers - processed, tested and disseminated in an appropriate form.

A more detailed description of these activities follows below. However, for a better understanding of the following, a number of preliminary comments are necessary to elucidate the changes mentioned at the outset and to provide some points of reference on the continuing training of trainers, at the same time highlighting how the research activity of the BIBB serves the continuing training of trainers.

(2) The Context of Vocational Training is Changing

New Demands on Trainers in a Changing World

Changes have taken place in many sectors of the economy in recent years leading to an extension of trainers' tasks:

- The process of technological change is shifting the job spectrum of skilled workers and commercial clerical staff from implementation tasks to tasks involving more planning, control and evaluation functions. New, extended skills must therefore be imparted.
- The process of technical and organisational change now demands a greater degree of independence and a higher sense of responsibility from skilled workers. This also has to be imparted.
- On account of demographic and political developments, present-day trainees are characterised by a variety of previous educational/training routes and tend to be older than before. The counselling of individuals with respect to their learning process, as

opposed to the classical form of group instruction, is gaining ground.

The Continuing Training of Trainers must offer Resources to Cope with these Complex Tasks

A process of adaptation is taking place at the level of the organisational structures of training.

Two developments can be observed in this context:

- Trainers can only impart process-oriented knowledge if they themselves are practitioners. Their task is therefore moving away from the imparting of content, towards the organisation of learning processes. If consistently applied, this process has an impact on the organisational structures of training departments. Training phases are increasingly being transferred "into the job", i.e. the workplace, the shop floor or the office. The development towards the centralisation of training over recent decades is therefore losing ground. This shift in training activities is not only accompanied by a change in the above-mentioned task structure of full-time trainers (towards the function of organisers of learning), but also of the part-time trainers at other places of learning in the company; their task is no longer merely to impart practical experience at the workplace: they now also have to elucidate the underlying theoretical training aspects.
- Specialisation in the field of technology is generating a new type of in-company trainer: the technology expert with a qualification in pedagogic. Thanks to his expertise and in some cases cost-intensive facilities, he is no longer specialised in a specific target group (trainees), but is active in both initial and continuing training. The separation between initial and continuing training departments which tended to be the rule in most large-scale companies in the past is thus overcome.

New Concepts in the Field of Training

In the course of the developments of recent years, in-company vocational training has begun to become more independent of concepts of school-based education or instruction. Project-based training, "guide texts", self-organisation and problem-solving at the workplace (the Lernstatt approach) stand for this development. However they also demonstrate that they are more than simply new methodical or didactic approaches. The implementation of the above-mentioned aims presupposes a changed field of organisational action which must be developed and shaped by the trainer.

(3) The Trainer's Basic Knowledge

In-company vocational education in the framework of the dual system essentially takes place on the job. The members of staff entrusted with training tasks are therefore skilled workers who have a varying degree of pedagogical knowledge. Most of them are designated as "skilled workers responsible for training/with training functions" (see table); as a rule they have not acquired a training qualification and are therefore not responsible for training. Responsibility for training falls on the shoulders of part- or full-time trainers (according to the size of the company) who, apart from technical skills, have also acquired basic knowledge of labour and vocational pedagogic. They have often taken further-reaching specialised certificates (some are, for example, master craftsmen, generally a precondition in the craft sector) and in larger companies the heads of training departments nearly always have a diploma in higher education.

The common pedagogical foundations of these trainers are described in a skeleton curriculum which provides the basis of training programmes. This plan, now considered to be out-of-date, is currently in the course of revision. This field also constitutes one of the tasks of the Bundesinstitut, whereby, as is the case of many other activities, co-operation takes place between the social partners, central government and regional administrations.

The guiding principles of these activities are the new demands of working life described above.

Even when the updated version of this skeleton curriculum comes into force, it will no longer be suitable as a common platform for all trainers. Despite its importance as a "tool" for trainers, it can nevertheless not be a substitute for ongoing continuing training.

(4) Continuing Training of Trainers

Like continuing training in general, the continuing training of trainers is not regulated. Course content and forms may be freely designed by the providers, whereby the market has a regulating function.

Due to their high degree of specialisation and the constraints stemming from changes at the workplace, the demand for training courses among trainers is first and foremost for specialised vocational knowledge and only secondarily for training organisation, didactic or methodology. A combination of technical and pedagogical content is very seldom to be found in the courses offered.

The reason for this lies in the structure of continuing training which is geared towards the principles of the market economy: the level of demand for certain courses - mainly from full-time trainers - is not very high due to the existence of a whole series of sub-markets, i.e. at the level of the individual training occupations, or at least the individual vocational groups. The high development costs for training programmes can therefore not be financed by private providers so that the development of courses necessarily becomes a public task. This is where the BIBB comes into play, for example, in the field of Pilot Projects or educational technology and in particular in the framework of the development of innovative "promotion of trainer" courses.

(5) Concepts of Promotion of Trainers Seminars

Framework conditions

The contents and design of the promotion of trainer seminars are focused on innovation, the object being to offer instruments of an exemplary character to organisers and course officers in the field of the continuing training of trainers and heads of training and further training departments in large-scale enterprises. These instruments should not only serve as direct tools but also provide an incentive for individual further development. Apart from pilot testing, the BIBB is not involved in the application of these concepts in training courses. The demands on the concept, content and design of these seminar materials are therefore high.

- Because of the innovative character of the material, it cannot generally be presented building on familiar approaches. The input necessary for explanatory purposes is therefore high and must moreover take account of the different backgrounds of the participants (seminar organisers, initial/continuing training trainers).
- Since the sources of this innovation are frequently the results of the research of the BIBB or other bodies (see the key activities of the Bundesinstitut), the instruments for their practical application, which form the very core of continuing training, frequently have to be developed from scratch.
- Although only subjects of particular relevance to vocational training are covered, the resistance to change at the level of the organisations in which they are implemented in company practice must be taken into consideration. A phenomenon generally observed in the field on continuing training is that the impetus triggered off by continuing training is of less practical importance, the less it is supported by the working environment of the continuing training participant. It is therefore of particular importance to prepare the trainers for the concrete situation "back home" in the course of their continuing training and to offer them practical resources they can actually use.

For these reasons, a uniform structure, known as the "seminar package", has been devised for continuing training materials.

Structure of the Seminar Packages

The seminar packages each cover a complete subject. In the light of their innovative character, it is not generally possible to refer to other literature. A comprehensive description addressed to the appropriate target group is therefore necessary, whereby since it is assumed that the packages are in the final analysis directed towards trainers, they are formulated with specific consideration for trainers' understanding, language and working environment.

Documents drafted in written form and then disseminated to other persons for further use - such as this one - may naturally be integrated into other contexts. This factor cannot and should not, however, be taken into consideration; the buyers can use the package as they wish. It is available for a fee and no royalties are envisaged.

To make them as user-friendly as possible, the seminar package are divided into three volumes with specific information and aids directed towards the various players in the continuing training process:

An *organiser's package* is offered to the potential implementing bodies of continuing training. This package presents in detail the objectives, target groups and framework conditions of seminar implementation. Specimen tendering specifications are included. In the case of subjects requiring implementation at the level of an individual company with organisational counselling, information brochures are included as a guide for approaching company decision-makers and heads of training departments; these guides outline the advantage to the company of the relevant concept, expected input and risks, presented in the appropriate language of the target persons.

The second volume is the *guide for course officers.* On account of the innovative character of the subjects to be covered, it must be assumed that the course officer will require more than the usual information. This volume, therefore, gives proposals for seminar design and specimen worksheets and transparencies which can be duplicated; it also provides documentation on experience gained in the testing of the seminar files. References are made to the various approached, media and methods. References and materials are also indicated for organisational counselling, as appropriate.

A third volume contains the *participant's file*. This file is focused on providing information on the subject, so that seminar participants can expand on the knowledge acquired in the course of the seminar. This information is on the one hand designed to promote understanding of the subject which is nevertheless not suitable for use in the course of the seminar itself and on the other hand it provides material for direct implementation by the seminar participant in his own field of activity. The aim of these "organisationally neutral" tools is to back up the transfer of the content of the seminar on the job. This is prepared in the course of the seminar itself as follows:

- the seminar should not so much serve the purpose of information intake, as provide the seminar participant with an insight into his own behaviour;
- the relevance and practical use of the above-mentioned documentation for the "back home" situation should be perceived.

The files can be obtained for a fee offering the possibility of wide dissemination. The fee for a seminar package, depending on the number of pages, is below DM 60. The participants' files can also be acquired separately. The materials are fully set and designed in two colours;

also the documentation for transparencies or worksheets can be duplicated.

Packages Available

Seminar packages are currently available on six subjects.

Two of these topics concern training methods offering assistance in reacting to the new demands of the world of work. The packages illustrate how trainees can be guided towards independent action, planned problem-solving work and monitoring of the results of their own work. The packages are entitled:

- *Leittexte - ein Weg zu selbständigem Lernen (Guides - a path to independent learning)* and
- *Kreative Aufgaben zur Förderung der Motivation und Selbständigkeit (Creative tasks for promoting motivation and independence).*

The participants' files of both these packages are also available in English.

- The seminar package *Türkische Jugendliche ausbilden (Training Turkish youngsters)* has been developed to help cope with the social problems which may occur in the training of the largest group of migrant workers in the Federal Republic of Germany.
- On the basis of the example of key changes in training in the wake of technological change, the packages entitled *CNC-Technik: Ausbilden - aber wie? (CNC technology: training - but how?)* and
- *Die neuen industriellen Metallberufe (New industrial metal-working occupations)* offer assistance on how to react to technical, methodological and organisational changes.
- Finally, the package *Aus der Situation lernen (Learning from the situation)* offers a concept for more realistic and target group-specific course design.

4.3 International Assistance - The Concepts of Some Donors

Abstract of the ILO Study "Toward Strategic Training Partnership between the State and Enterprises" by A. MITCHELL

The author of the full study, Ms Ayse G. MITCHELL, is a Senior Training Adviser in the ILO. Since the results of the study were not yet officially available, an abstract of its first part is presented.

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The current radical change of economic, technological, social and political factors is fundamentally transforming the world of work. At the time of change human capital is a nation's major asset and driving force. Consequently this puts new challenges on the role of technical and vocational education in this scenario. Not surprisingly all the actors in training, the State, employers, workers and their organisations manifest a renewed interest in training[29].

The implications for technical and vocational education are: Workers need to be prepared for employability and not only for a specific job. Thus

a) training becomes a lifelong activity. Recurrent learning needs to be facilitated;

b) the demand for training increases and diversifies, both for initial entry into employment and for retraining the current workforce.

Training demanded broadly falls into:

- basic academic skills (e.g. reading, writing and arithmetic) as the essential foundation for all subsequent training;
- social skills (e.g. communication, decision making, teamwork, adaptability)
- intellectual skills (e.g. ability for analysis, synthesis, innovation and learning to learn);
- technical skills (use of information technology and occupational skills), and
- business and entrepreneurial skills (ability to set up and sustain self employment).

Entrepreneurial skills, however, are being required on a much wider basis in the recent years which imply developing in all workers, the ability to be enterprising, to create opportunities, take risks and to innovate. Some of these skills are considered as core or transferable which the worker carries from one job to another. Others are more job specific and often require recurrent training because of the rapid change in technology.

The ILO considers strategic partnership between the state and enterprises as essential to develop and implement technical and vocational education systems that meet the ever changing and increasingly sophisticated needs of the labour market. Alliances between the State and enterprises are most likely to produce the innovative solutions needed to meet the requirements of a sound technical and vocational education system:

- relevance (to market demand);
- effectiveness (producing the skilled manpower in the quality and numbers required);
- efficiency (making the best use of the available resources);
- equity (access for all citizens); and
- sustainability (sustain and improve the systems' performance and integrate it into the national development plans).

The training systems should encourage the development of a learning culture in enterprises and an enterprise culture in learning institutions.

Targeting on decision makers in the technical and vocational education systems the aim of the study is to identify

- policies which create an enabling environment for enterprise and state partnerships in training and
- strategies, processes and practices to implement these policies.

The preliminary draft of the study presented at the UNEVOC seminar suggests a three-step-approach in promoting partnership:

- analysing the current policy environment
- identifying the best practices of partnerships
- redefining the respective roles of the State and enterprises in critical areas for partnership

(1) The Policy Environment

The first step of the strategy for promoting systematic partnership between the State and enterprises will be to review the current policy environment to assess its effectiveness in conducing to enterprise participation in training. The questions to be addressed include:

a) What policies, legislation, incentives (such as tax rebates, etc.) and measures exist which help or hinder creating an enabling environment for greater enterprise participation in training and lead to enterprise and state partnerships to improve the training system? Is there an absence of policies and strategies and particular gaps in the policy environment?

29 In this summary, the terms "training" and "technical and vocational education" are used interchangeably.

b) What is the process by which the State and enterprises develop strategic training partnerships, how do such practices initiate and operate?

c) Are enterprises and training institutions generally aware of such policies or conscious of their absence?

d) What are the criteria for Strategic Partnerships? Is there a potential for replication and significant impact? For instance, partnerships in the following areas could be considered critical:
   - support major economic or employment policies,
   - concern a critically important or strategic economic sector(s), branch(es) of economic activity, regional or local area;
   - relate to critical issues relevant to national economy, such as: international competitiveness, public sector retrenchment, technology, industrial restructuring, delocalization, decentralisation, foreign investment, privatisation, structural adjustment;
   - address strategic social problems, e.g. diminish social exclusion, structural or conjunctural unemployment;
   - address the issue of equity, i.e. increase access to training and employment of specific target population such as: minorities, women, youth, unemployed micro or small entrepreneurs, disabled persons;
   - concern a depressed geographical area for local revitalisation, combat environmental degradation, land recuperation;
   - demonstrate enterprise initiative, and commitment to long term economic and social development beyond its immediate profit and productivity (social responsibility of enterprises, long term economic gain, training in anticipation of lay-offs, training for employability, etc.).

(2) Practice: Policy Implementation

The second task is to identify specific strategies, processes, mechanisms, measures, incentives and practices to implement policy. This will also include an analysis of the most significant and innovative examples of partnerships from which lessons could be drawn in designing policy. The following points could assist in the analysis of best practice with respect to the nature and extent of each partners' role:

- policy formulation, legislation, standard setting and certification
- financing of training
- non-financial resources provision such as infrastructure, technology,
- equipment, materials etc.
- assessment of training needs in line with labour market demand
- training of trainers
- establishment of curricula and training methodology
  - delivery of training for:
  - youth for initial entry into employment
  - retraining or upgrading of currently employed workers
  - including those threatened by redeployment
  - unemployed workers for re-entry into employment
- research, information sharing and networking
- evaluation of training.

(3) Final Analysis: Redefining the Role Sharing

The primary or core function of the state consists of:

- policy formulation,
- setting the legislative and normative framework of the training system, establishing quality standards, testing and certification to ensure consistency
- planning of training, ensuring the availability of relevant information to trace market signals, assessment of the training needs at national, sectoral levels and policy adjustment to meet market demand
- securing financing of the training system directly or indirectly
- ensuring the effective functioning of the system by providing delivery directly or by others conforming to established standards, and developing institutional capacity for:
  - curriculum development
  - training of trainers and managers of training
  - testing and certification
- evaluating the overall performance of the system to ensure application of the standards and policies
- promoting active participation of the social partners in training, partnerships through incentives.

The second function relates to delivery of training. While the first function of the government is essential and cannot be transferred to the private sector, the second function, delivery of training is being rapidly transferred to the private sector in many countries in the recent years. If the core functions of the State is left entirely to private operators without adequate control, the quality, consistency and equity aspects of training may be compromised. The critical issue therefore is determining the degree of State control which will undoubtedly vary according to the circumstances prevailing in each country.

For instance in Chile, the delivery of vocational training evolved from a public sector concern, into a system whereby the State does not offer training activities but finances and controls the use of public funds according to market demand.

Redefining the roles of partners in a country will involve not only how much will be left to the private sector but also enterprise behaviour, i.e. how much enterprises are willing to take on. A basic guide to follow would be leaving the primary responsibility or the lead role for matters requiring systems development to the State with the maximum involvement of the workers and employers in this process. Delivery of training by enterprises and

other private providers of training should be sought with the support, guidance and critical control of the State to ensure smooth functioning of the system. Measures to enhance the participation of other actors in training such as NGOs, private training providers, employers' and workers organisations and individuals should also be addressed in this process, based on their comparative strength and advantage.

A number of factors could be determinant in maintaining State support for delivery. For instance:

- the complexity and difficulty in providing a specific type of training;
- the issue of equity: addressing the needs of specific groups which have difficulty in access to training and employment opportunities;
- to overcome the difficulty of small and medium enterprises in meeting their training needs. Inter-firm collaboration, especially between large and smaller firms may be worth exploring;
- pilot training.

Finally, it would be advisable to identify practical action for capacity building among a network of institutions, concerned with training, enterprises, NGOs community, and research and development institutions.

(Summary by M. Reichel)

Some Guidelines for Enhancing Co-operation with Enterprises by J. REICHLING

Dr Joachim REICHLING is the Director of the Training Department in the International Labour Organization (ILO).

Because there exists a wide variety of education and training system world-wide, it is not possible to use terminology that is immediately or uniformly understood by all. Profound difficulties also arise when translating specific national concepts into another language. My purpose in mentioning terminology at the very beginning of my talk is to avoid any misunderstanding of some of the terms I shall be using.

When returning to the learning process in general, the terms "education" and "training" are used interchangeably. Initial vocational education refers to various national systems of professional schools, technical and vocational programmes and recognised initial apprenticeships. Placement means a period of supervised training in an employment situation as a formal part of an education programme; continuing education and training refer to all knowledge and skill acquisition after obtaining of a first qualification or degree, but also include the retraining and upgrading of the unemployed.

No real distinction is made between the terms "companies", "firms" or "enterprises". The word "employer" is used to designate all organisations which employ people, whether in the public or private sector. Similarly, "industry" often refers to whole of the private sector and includes both the manufacturing and service industries. "Employees", "personnel" and "staff" are used interchangeably for employed people.

The main questions which arise when discussing training are:

- How can the quality of vocational training can be improved and the needs of the economy be more effectively met?
- How can education systems be made more responsive to the rapidly changing, and often unpredictable, needs of the labour market?
- How can the efficiency of these systems be enhanced with the same, or often fewer, resources from the State?

Overall, an adequate response to these questions - which is my first answer - can only be achieved through enhanced collaboration between governments and the social partners, between educational institutions and enterprises in industry, crafts, trade and the services.

In its 1989 policy paper, the World Bank addresses the State's role in vocational training. It underlines the importance of the private sector from the viewpoint of needs, efficiency and cost, recommending that more vocational training activities be implemented by private institutions. By establishing incentive schemes and bringing about changes in legislation, the State should strengthen and develop the existing training potential of the private sector. These recommendations are a turning point in World Bank policy in that, up to 1989, the Bank had concentrated on giving its support to government institutions.

This also points to a more demand-oriented form of vocational training. Apart from examples like the "dual system" practised in the German-speaking countries, there are several general recommendations as regards vocational education:

- The "academic drift" (i.e. to become more academically oriented and less vocationally so) must be strongly resisted. Vocational education is not inferior, but different and complementary to general and academic education. Society needs a broad spectrum of graduates with different combinations of knowledge and skills. Variety and flexibility in form, content, duration, access and output should be the characteristics of a differentiated education's system;
- Improved quality and responsiveness to industrial needs and change require increased collaboration between education and industry. Industry/school partnership in favour of education can take many forms and serve many purposes. Such partnerships are not only importunate from a purely economic point of view, they can also turn out to be very enriching for all concerned, not least for the pupils or students, and are therefore an vital stimulus to the improvement of education. By facilitating the

transfer of teachers, methods and training experience, the overall supply of education not only improves in quality, but also in flexibility;

- Problem-solving capacities should be encouraged in students at an early stage. They should be brought into contact with uncertainty and their curiosity stimulated. It is therefore or crucial importance that students understand the relevance of their studies. The best way is through placement in industry as an integral part of their education which provides an environment for necessary skills and personal development that an institution, alone, cannot create;
- It is amazing to observe that most institutions do not really know what happens to their graduates once they have finished their programmes, let alone accept that such knowledge should influence current practice. Every educational institution should seek to know what happened to its graduates and use this information to adapt its structures and curricula accordingly. In this context, employers in industry and the public sector also need to assume responsibility by providing more career guidance and information, crating a more visible and realistic image of job content and being more explicit about what is required of graduates;
- High quality education requires high quality teaching. Teaching should be exemplary and it is in the teacher's or lecturer's own interest to make appropriate evaluations and assessments of his own teaching, which should naturally form part of a quality-based education strategy. At a time of great industrial change, the lack of relevant industrial experience in lecturers seems to be increasingly counter-productive and could undermine the quality of the education thus delivered. It may not be feasible to require industrial experience of all staff, but it is still absolutely essential that strong ties be maintained with employment in order to keep education both relevant and up-to-date;

- Vocational education and training systems in individual states have been developed through a long historical process and are rooted in national socio-cultural, economic and political contexts. It is therefore unlikely that the future will see a situation in which certain national systems, considered as successful, are simply adopted by other states. However, one can profile some features of such a system in order to furnish a better national response to some of the obvious challenges:
  - given the existing situation in international competition, what requirements should a national training system fulfil?
  - what is the appropriate balance between the economy-related and the society-related functions of a vocational education system?

My task has been to give some guidelines for further discussion. I can assure you that the ILO will continue to support the promotion of competitiveness and social integration through vocational education in order to realise sustainable human resource development, in line with the policies of the country concerned.

I thank you for your attention.

Sector Concept - Vocational Training of the Federal Ministry for Economic Co-operation and Development

Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung, Division 310, Bonn, January 1992

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(1) Function of the Sectoral Concept, Fields of Application

The present sector concept is as a decision-making aid for staff members of the Federal Ministry for Economic Co-operation (BMZ) and implementing organisations in connection with vocational training projects. It relates to the various phases of a project in the scope of bilateral and multilateral co-operation, from project finding through appraisal, planning, implementation, management and monitoring, up to evaluation of completed activities.

For independent, non-governmental organisations it is an orientation aid for their own development-policy activities in the field of vocational training.

Simultaneously, it provides interested third parties with information on the BMZ goals in the vocational training assistance sector and on the contents of the work involved.

This sectoral concept is a revision of the previous sector concept on development co-operation in vocational training dated July 1, 1986 which is hereby rescinded.

As vocational training assistance is closely associated with other promotion areas, supplementary information should also be drawn from the BMZ concepts on: basic education, rural development, alleviating poverty by helping people to help themselves, promotion of the private sector and women in development.

Vocational training is geared to acquiring technical skills and knowledge and to imparting social and political attitudes and behaviour patterns which are decisive for people to successfully undertake economic activities, either as employees, as entrepreneurs or in a subsistence economy.

Vocational training can be organised as:

- school-based training (in state or recognised private schools)
- regulated off-school training (in industry-wide centres or as controlled, in-company vocational training)
- co-operative training (organised on an in-school, in-company and inter-company basis)
- non-regulated off-school training (traditional, informal apprenticeship and training arrangements)

It can take the form of initial vocational training, advanced vocational training, retraining or be part of social rehabilitation measures.

(2) The Importance of Vocational Training

Vocational training is an essential but not in itself sufficient condition for the development of the economy and society. It can only contribute towards this development when embedded in social, cultural, economic and political structures. It should not, therefore, be an isolated effort, but must be viewed in the context of the specific educational, economic and social policy of the given country.

Qualified vocational training brings benefit not only to the individual but also to the industrial sector, the economy and society as a whole. The development policy rationale for vocational training measures and their alignment to overall goals can only be determined in this context.

The formal vocational training activities available in many developing countries are, however, very limited and fragmentary: school education offering a transfer from general education to vocational training for only a very small minority of a given age group. There are even less opportunities available for adult education where persons already employed or seeking employment vainly look for vocational training and further education programs.

When such programs do exist, they are faced with heavy competition and selection mechanisms: tight admission rules, high costs coupled with extensive social and individual constraints are often insurmountable handicaps for many people. Inadequate general education, particularly basic education, is a further impediment, particularly for women and girls who are often not sent to primary schools, meaning that they have diminished chances from the outset.

(2.1) Capability for the Individual

Vocational training can enhance the individual's personal development, open up opportunities for successful economic activity and improve the individual's life situation. Development potentials are thereby generated at several levels:

- Physical security for the individual and his family: He/she no longer fights to survive but begins to design his/her life. In favourable circumstances, doors open towards prosperity, formation of assets and improved security for old age. This becomes possible through income, revenue, savings or a more effective subsistence economy.
- Identify finding: The individual becomes more self-confident, gains dignity and opens up a new scope of action form him/herself. Success and pleasure in work and creativity all promote this process.
- Social integration: Solidarity, social responsibility, help towards self-help and societal emancipation are all able to develop further. Affiliation to a company, a production community, a professional group, a social class, the life community and the family on a regular, consolidated basis are all factors promoting integration.

However these potentials are off-set by some risks generated by the general social-economic situation and which may make vocational training seem to be an investment with uncertain chances of success for the individual:

- no suitable jobs available, lacking opportunities for independent entrepreneurship despite qualified training
- difficult living, housing and working conditions meaning that available jobs cannot be taken advantage of discrimination of specific groups, e.g. women, which generally prevents access to employment.

Vocational training assistance must recognise these risks and counter them either through the specific design of the vocational program or through flanking measures in the social and economic environment.

(2.2) Qualified Manpower for Industry and Business

Vocational training has a basic influence on the quality and efficiency of the production factor "labour", and therefore on

- productivity and quality (of goods and services)
- the type and scope of division of labour/integration of labour
- the potential for technical change and product innovation
- problem-solving potentials and improvisation skills
- improved in-company organisational structure.

Qualified manpower often has a more decisive impact than any other production factor on the long-term economic viability and, consequently, the long-term competitiveness of companies on the national and international markets. At the same time, it is a major precondition for setting up successful companies.

A company wanting to operate successfully cannot manage without qualified manpower, the number and qualifications of the personnel required depending on the size of the company, the production program, the

operational organisation, the long-term planning, cost structures and market conditions. Qualification requirements vary depending on the company:

- Operations with a simple structure, a short planning horizon, low capital inputs and low storage needs - the type of enterprise often found in developing countries - require manpower with specific, directly usable qualifications combined with high flexibility and improvisation capability. Very often, the skills required do not match traditional vocational profiles but are qualification-elements from different professional, vocational fields plus additional areas (e.g. management). The "latest state-of-the-art" may play but a subordinate role; the development and further dissemination of specific, appropriate, technological processes are of decisive importance. Demands of this type can be typical for many companies in the informal sector.
- Companies in the modern sector, on the other hand, are often able to identify their qualification requirements over a longer term and define them on the basis of "classical" individual professions. The company's degree of division of labour in its operations determines whether manpower with a specialised or more generalist qualifications are needed. Comparatively highly industrialised countries, e.g. the so-called take-off countries, often have a considerable, steady demand for manpower in the new modern professions. Orienting qualifications to the state of the art in industrialised nations is frequently a decisive factor in competitiveness.

Personnel in the key middle-management technical and commercial levels with practical professional experience are particularly important. Advanced vocational training to update skills plays a major role in this context.

(2.3) "Human Capital" for Society

Vocational training is an investment in the potentially economically active members of a society. It is a major precondition for economic growth, equal social opportunities and societal change.

If the overall efforts to tap the existing economic potential of a population are thwarted - for example by neglecting complete sectors (e.g. the informal sector or groups, particularly women) possessing a high economic potential - this serious error in educational training policy will have heavy consequences for the economy.

By means of expedient siting, target group orientation, organisation of programs, appropriate program contents and certificates, and by correspondingly distributing costs and competencies, vocational training can directly or indirectly impact on the following political areas:

Economic Policy
Improving entrepreneurial competition and promoting technical change geared to the given development status, with the aim of, amongst other things, strengthening the position of a country's own products on the domestic and export markets, thereby improving the balance of trade.

Social Policy
More equitable distribution of educational opportunities, overcoming discrimination and exploitation of labour on the labour market, alleviating unemployment, more equitable distribution of income and assets.

Structural Policy
Creation of a balanced economic structure based on a spectrum of efficient branches and sectors.

Regional Policy
Reduction of regional economic imbalances, construction and maintenance of an efficient infrastructure (transport, communications, energy and water supply, social services), with the aim of improving living conditions, conserving settlement areas and reducing economically generated, long-term migration movements (rural-urban exodus).

Environmental Policy
More efficient utilisation of energy and natural resources with the aim of preserving the environment and raw-material resources.

Regulative Policy
Establishment and further development of an economic order based on a social market economy.

In doing this, the performance capability of vocational training policies should be realistically assessed and not overburdened. All the policy goals in the above-mentioned areas cannot be pursued simultaneously to the same degree, particularly when goals may conflict. Priorities must be set within the national context.

(3) The Developing Country Context

(3.1) Economic and Social Aspects

The economic situation of developing countries and their prospects for the future shows an extremely heterogeneous picture. Whereas at the end of the Eighties the countries of Southern and Eastern Asia were undergoing periods of real economic growth, the economies of many African and Latin American countries were in a state of stagnation ore were even shrinking. The standard of living in Latin America has returned to the level of the Seventies and in some Sub-Saharan countries it is dropping to the level of the Sixties. Not even the favourable economic development in certain countries of South and Eastern Asia has changed the fact that this region has the highest concentration of poor people in the world and that economic property is still very unequally distributed.

Many developing countries are confronted with the situation that the economic development of their modern industrial sector will not suffice in the long term to provide employment for all people seeking jobs. The informal sector which has untapped economic potential and a considerable employment reserve, often offers

worse working conditions than the modern sector (labour exploitation, low quality of life, low job security and negligible rights). The subsistence economy will continue to be the only means of survival for many people.

(3.2) Qualification Demands

Vocational training lies in the field of tension between society's demand for vocational qualifications and the labour market's demand for qualified manpower. There may be conflicting goals as to the qualifications and numbers to be catered for when designing a vocational training system. Many developing countries are faced with the following dilemma:

On the one hand, society's demand for vocational training is steadily growing: the high population growth results in a great increase in graduates and drop-outs from the different levels of the general schooling system, who are increasingly demanding vocational training: this part of the demand is "manifest", i.e. it is visible in the corresponding application figures. There is also an assumed, even larger number of latent demanders - e.g. youths with little or no schooling who satisfy none of the regular admission requirements for formal vocational training. These make up 90 % of an age group in many countries.

On the other hand, the number of jobs available remains very limited: the demand for qualified manpower, particularly for the modern sector, is lower than the number of people seeking jobs. However, the companies are demanding higher qualifications. The informal sector's needs are not usually statistically recorded and do not even enter into account when planning training courses.

Numerous developing countries have reacted to this situation by expanding their capacity (mostly school based) for vocational training and financing this by restrictions in quality (e.g. less practical training). At the same time, the higher formal criteria for enrolment become a barrier for many would-be trainees, meaning that the higher entrance qualifications are a further discrimination against already neglected groups.

Many graduates possessing formal certificates, then no longer satisfy the demands of industry and commerce because their training is not geared to practical application. Thus, despite existing vacancies, numerous trained persons remain unemployed or carry our work not matching their qualifications.

Very few countries purposely gear vocational training to the needs of the overall economy and to promoting the creation of additional earning opportunities.

Such solutions are often pursued because training has a one-sided bias geared to the trades required by the modern sector in urban areas. The potential in the informal sector, particularly that of discriminated groups, is often not even recognised.

In general, vocational training should be kept flexible and capable of reacting to changing circumstances, enabling training courses to cater for the changing needs of the overall economy and to earning opportunities as yet unexploited. Most developing countries hesitate in this respect, because this type of system is expensive to develop and difficult to handle in practice.

Widely-based initial training courses offering high professional flexibility are a halfway solution. These can be followed by a range of differentiated flexible training courses providing any necessary specialised, extended, adapted and adjusted qualifications. Short term surveys of companies' needs and graduate tracer studies are important instruments in this process. Manpower planning methods to forecast manpower needs in the long term have proven to be far too inexact, undifferentiated and inflexible, even when a favourable data basis was available. Moreover the informal sector was almost always ignored in such forecasts.

(3.3) Form of Training

The numerous demands made on vocational training in developing countries is covered by a wide range of training forms with different sponsors, target groups and objectives, forms of organisation and places of learning. The vocational training system comprises all government and private establishments directly or indirectly involved in providing vocational qualifications.

In most developing countries, the core coverage is provided by the state-run vocational training establishments which are integrated into the formal schooling system (for example as technical secondary schools under the responsibility of the Ministry of Education) or set up parallel to this system (e.g. vocational training establishments under the purview of other ministries). These training courses typically have a heavy theory content. Such establishments only offer limited potential for practical instruction (training workshops, training offices etc.).

In addition, various traditional and modern forms of in-company vocational training exist which can comprise simple work experience in learning semi-skilled activities, apprenticeship training and staff upgrading courses. Apprentice training can range from volunteer agreements, traditionally-based forms, through to comprehensive legal training contracts. The typical place of learning is the in-company workplace; in addition, large companies in particular offer separate courses for training in practice and theory. In-company training opportunities are often underestimated, and not taken advantage of because, in the first instance, they only serve in-company needs.

Many developing countries and donor organisations are becoming increasingly interested in co-operative forms

of training, which are characterised by the joint responsibility of industry and state and a combination of different places of learning (on-the-job, school and industry-wide training establishments). Such co-operative training schemes are anticipated to bring about sustained improvement and consolidate the quality and financing of vocational training, faced with a situation in which:

1. the state is often not in a position to provide sufficient self-managed, good quality vocational training because it lacks the financial and manpower capability to gear the training offered to the needs of the economy;
2. the private sector is also not able to provide this comprehensive service on its own, because, amongst other things, companies do not gear their training decisions to the needs of the overall economy and are often not willing or in a position to provide, implement and finance training to meet the qualifications they need.

Only co-operative efforts offer a potential towards solving these problems. Successful interaction between the state and the private sector in the field of vocational training requires, however, that:

- generally - i.e. from both the regional and sectoral aspects - sufficient companies exist who are suitable to implement vocational training,
- recognised private-sector organisations (chambers and associations) and possibly also trade unions, already exist which are sufficiently mature that they can effectively represent the interests of their members,
- these organisations recognise their responsibility in the field of vocational training, are willing to bear this responsibility and make the financial commitments involved,
- the state recognises the training performance of the private sector and is willing to cooperage and permit a shift of competencies.

In addition to the state and industry, numerous non-governmental organisations also offer basic training and upgrading in various forms. They work either on a commercial or non-profit making basis, or may represent the interests of specific groups. In many countries, these organisations are responding to the deficits of training offered by the state and industry.

A major aspect of non-governmental organisations' work are vocational training activities specifically tailored to neglected target groups. They address actual earning opportunities and the living conditions in the individual's direct local environment, and are specifically geared to the participants' given start conditions, timing and locations and also to their learning opportunities. They do not necessarily provide access to the regulated (modern) labour market but - more probably - to other form of economic activity. In future, the state will so be required to intensify its commitment in the form of specific vocational training in this area.

(3.4) Frequent Weak Points

Experiences in vocational training assistance to date have pinpointed the following typical weak points which can be classified under the categories: "policy", "institutions", "companies" and "participants".

At the level of vocational training policy, planning and monitory (by the state, national associations and trade unions) deficits are often experienced in:

- defining an independent vocational training policy which addresses basic issues (e.g. orientation to "social" or "economic" demands, environmental protection, conservation of resources, equal opportunities, transition from general education to vocational training, relationship between private-sector and state vocational training, desired technology level),
- the political will raise the status of vocational training compared with academic training, and provide the amount of funding necessary,
- the state's willingness to permit a shift of competencies (participation by different groups of society),
- private-sector associations and trade unions who are willing and capable of providing competent inputs and funding for designing vocational training and work with the state in planning and implementing such training (e.g. vocational profiles, curricula, place of learning, place of work, examinations),
- sufficient capacity for research and development activities and for effective management and administration,
- effective co-ordination and co-operation between the responsible bodies (e.g. in regard to flexible, interdisciplinary training courses, career counselling, recognition of certificates and diplomas),
- greater emphasis on qualifications required by the informal sector and neglected groups.

At the level of training institutions and the courses they offer, there is often a lack of:

- qualified management of training institutions,
- qualified instructors and trainers (sector-specific and teaching qualifications),
- an adequate budget and the necessary autonomy on budget issues in regard to procurements, income management and expenditure policy,
- training contents aligned to the practical work situation, having, for example, a flexible, modular structure geared as necessary to any new technical developments in the country,
- co-operation with local companies,
- methods which promote motivation and independent learning, problem solving capabilities and effective use of information,
- appropriate infrastructure and maintenance.

Non-governmental vocational training organisations often suffer from similar weak points, frequently coupled with additional obstacles caused by lacking access to the services available in the public educational system (e.g. information system, staff training, supplies of teaching and learning aids), because they receive less support from external donors and are left to represent their own interests.

At the company (off-school) level there is often a lack of:
- realisation of the economic advantages of self-trained skilled workers,
- a special budget for systematic, in-company vocational training,
- suitable framework conditions for training, for example, suitable production procedures or premises, lack of time,
- in-company instructors possessing the necessary sector-specific and teaching qualifications,
- willingness to provide trainees with qualifications which exceed the specific company or product requirements and
- acceptance of regulations and controls from outside sources.

At the level of the individual (trainees, participants) there are often deficits in regard to
- a regulated and secure living environment necessary for continuous and successful participation in training measures,
- employment and income prospects,
- financing (training costs, foregoing income during the period of training),
- general basic education, particularly for women and girls,
- favourable personal learning conditions,
- identification with the acquired vocation.

(4) Goals, Promotion Principles

(4.1) Goals

The Federal Government's development policy guidelines state the goal of German development policy as improving the economic and social situation of people in developing countries and developing their creative capabilities. German development policy, therefore, aims to:
- assist in securing people's elementary living conditions and help them to help themselves,
- assist in developing an efficient economy and societal diversity as a precondition for self-sustained development,
- promoting regional co-operation between developing countries and their integration into the world economy.

The goal of assistance in the field of vocational training is to improve and expand the performance capability of existing vocational training systems in order to efficiently impart vocational skills and know-how and social behavioural patterns geared to the changing demand situation in the different fields of the economy and of life in developing countries.

Two approaches are followed in this context:
1. The need for specialists and management manpower in the different sectors and branches of the economy is to be met by co-ordinated, practice-oriented initial training and further education. The training courses offered are to prepare the individual for a vocation as qualified semi-skilled workers, skilled workers, middle management manpower or independent entrepreneurs.
2. Special vocational training courses are to address the needs of target groups in the informal sector, particularly the neglected groups of the population, in order to help them to improve their earning potentials and life situation. This training must specifically target the participants' learning capabilities, their living environment and the resulting "hands-on" qualifications they need. The training offered should lead to additional or better opportunities for employment, independent entrepreneurship or allow an effective livelihood in the scope of the subsistence economy.

It is not always possible or desirable to clearly separate these two approaches. Training activities addressing small scale enterprises, for example, fall under both categories.

(4.2) General Promotion Principles

Co-operation in the vocational training sector generally requires that the partner country's vocational training policy is eligible for support. Furthermore, the partner must already be marking visible efforts in this sector and give high priority to co-operation with Germany in the field of vocational training.

If these conditions do not exist, for example because certain basic educational policies are not accepted or desired, such as equal access to training courses to women and girls, there remains the possibility of co-operation with private organisations and non-governmental organisations (NGOs). In these cases participation in sectoral adjustment programs of the World Bank, may also be possible.

a) If vocational training is to be included as a key area of development co-operation with the specific country, a widely-based sector analysis is to precede any long-term commitment. In principle these studies should investigate not only the formal vocational training system and its sub-systems but also the informal training courses available, particularly those offered by non-governmental organisations, and the overall relationships with the general educational, economic and social system. The analysis is to be carried out on a gender specific basis, in order to ensure that the requirements of women are taken into account.

Together with the partner country, therefore, an outline is to be drawn up of the potential overall development of vocational training desired in the medium term. This is then the baseline for selecting and designing individual projects promising a high impact.

b) Promotion measures are to be networked to a maximum, i.e. they should
- simultaneously approach different levels of vocational training: the policy and opinion-making level, the planning and development of training level and the implementation level of the different training courses;
- co-ordinate with promotion activities in other sectors such as promotion of small- and medium-sized industry, regional rural development or urban development and - if possible - be designed together with them. This applies particularly to efforts to promote target groups in the informal sector.

c) Complex projects or those aiming to modify the existing system should be preceded by an orientation phase, during which the project goals are realistically defined, pertinent interested implementing organisations, possessing the necessary performance capability, are identified, target group participation is assured and activities are appropriately geared to the country's economic, cultural and social conditions.

During the actual project term, its operations must retain scope for adjustment and change. Such projects are to be geared to long term co-operation from the beginning. Follow-up assistance plays a major role in this context.

d) Particularly when promoting target groups in the informal sector, especially neglected groups of the population, project design and planning should be aligned to the principles of the intersectoral concepts "Alleviating poverty by helping the people to help themselves - self-help movements as partners in development co-operation work" and "Promoting women in developing countries". The participative planning approach is to be given higher priority. More than before, project planning must be based on open directives which allow activities to be concretised and designed on the spot and over the course of time. Germany's role in the scope of such projects should be limited to back-up consultancy and assistance for the local implementing organisations. A continuous, long-term commitment is absolutely essential. These projects place high demands on the project staff; the assigned experts must possess a high capability for intercultural communication.

e) Co-ordination of vocational training measures by different donors is expedient and often essential, particularly when system developments and not individual projects are involved. This is a joint task for the developing countries and the donors, and should take place on the spot. For the German side, donor co-ordination also includes the willingness to support more comprehensive efforts (for example Sectoral Adjustment Programs of the World Bank) in the scope of Financial Co-operation measures.

f) The different Financial, Manpower and Technical Co-operation measures must also be co-ordinated to ensure consistency of goals for the given developing country and a complementarity of activities. Country concepts are very useful in this context.

(4.3) Fields of Activity, Target Groups, Implementing Organisations and Instruments

Vocational training assistance can address various areas which are described in detail below: the pertinent fields of activity are to be selected and combined in the scope of an overall, country-specific strategy and co-ordinated with the partner.

Supporting System Development

From the institutional-organisational aspect, the vocational training system covers all public and private establishments involved directly or indirectly in providing vocational qualifications.

Systems-support in this widely-defined sense means responding to the trends and objectives of vocational training policy in the given country, through systematic planning and development work. This can take the form of supporting political opinion-making through dialogue, of consultancy activities on legal, procedural or training aspects, of developing research, planning and management capacities, or participation in Sectoral Adjustment Programs.

Assistance in system development requires that favourable educational policy trends already exist, such as:
- stronger integration of societal groups (including NGOs) in planning, implementing and monitoring vocational training (e.g. in dual systems),
- introducing financing for vocational training on a secured and sustained basis,
- raising the status of vocational training in society,
- orienting training to the needs and potential applications, by gearing courses more to practical work.

In this context, system development refrains, in principle, from targeting a centralist or bureaucratic approach to vocational training: it is often expedient to promote individual sub-areas under the responsibility of effective organisations, or to orient efforts towards single sectors or regions, because these activities are manageable and frequently closer to actual needs.

Technical Co-operation projects are particularly suitable for establishing and developing research and development organisations. Attention should be paid to ensuring

that the personnel assigned to these institutions possesses the necessary experience in practical training - both in-school and in-company. Consultative bodies should incorporate representatives from politics, industry and science with practical experience.

If possible, system development should always be carried out in co-operation with actual training and upgrading measures of a model character, thereby effectively raising the equity, demonstrability, credibility and accountability of advisory services provided in the scope of Technical or Manpower Co-operation.

System development should also be intensified in non-governmental or parastatal areas, e.g. the vocational training work of chambers, professional organisations and non-commercial private organisations.

System development is a long-term process. Planning directives and expectations must, therefore, provide wide scope for manoeuvre. The structure of advisory services, information and upgrading must allow the recipient private or state organisations sufficient time and scope to design developments in accordance with their own rules and measures.

Financial Co-operation is an expedient solution when implementing wide ranging infrastructural changes to a vocational training system and making the necessary investments. Infrastructural rehabilitation measures come to the foreground in this context. Greater focus is to be placed on rural areas.

Wherever there are no acceptable starting points for vocational training efforts, or the will to initiate changes is lacking, a careful dialogue can be commenced with the countries concerned in order to encourage a process of discussion. In such cases support in the scope of the Technical or Financial Co-operation schemes should not be commenced.

In the promotion of neglected target groups, system development means supporting local organisations with grassroots structures, promoting their networking, and sensitising political decision-makers towards changing the existing unfavourable framework conditions and assuming greater responsibility for these target groups. Excessive external government regulations and interventions into the specific autonomy of the implementing organisations would be characteristic for a misunderstood system development to this end, as they would negatively impact on the implementing organisations' flexibility in designing target-group-specific training courses.

Training Establishments and Training Programs

The establishment and development of training institutions, including capability upgrading for the project executing organisations, are a key activity of Technical Co-operation work. Human resources development projects, (particularly counterpart upgrading in a wider sense) integrate Manpower Assistance components, and larger projects can combine financial assistance for building measures and for equipment procurements. Priority is given to rehabilitating existing training establishments. Promotion of training centres (mostly industry-wide facilities) are geared in principle to covering a country's needs for specialist and management manpower and corresponding instructors on a sustainable basis. As far as possible, innovative concepts, or at least exemplary qualifications for specific vocations, are to be tested and introduced.

In exceptional cases, limited-life training and upgrading measures to remedy an acute bottle-neck on the labour market can also be supported if these are essential in order to generate further developments.

Assistance to private, semi-state or state institutions and their training establishments and programs can contain several of the following aspects, depending on the existing deficits:

- Forms of organisation and financing
  - Integration of companies in the decision-making and consultative bodies of training establishments
  - Testing of alternative, possibly autonomous executing organisations, e.g. associations of different companies, in setting-up co-operative training or the establishment of productive schools
  - Diversified forms of financing, which secure the sustained survival of training establishments (state budget, contributions by industry and participants, income earning activities)
- Expanding the training offered
  - Expanding or adjusting training in favour of girls and women
  - Integration of those target groups often neglected to date, e.g. small entrepreneurs, rural village craftsmen or unemployed juveniles
  - Widening the training opportunities for decentralised locations, e.g. small rural centres, and the specific demand there
  - Widening the offer of vocational upgrading courses
  - Training in additional vocational areas (e.g. in the service sector and agriculture)
  - Qualification/upgrading concepts
  - Training in vocations with a sure future, for example in new, appropriate of low-energy technologies and environmental protection
- wide-based general vocational training for men and women, followed by specialised training, instead of a narrow-based initial training
- modular training concepts with interim qualifications oriented to the labour market
- practice-based training, by incorporating and developing in-company workplaces as places of learning or by combining training with production
- special qualifications, e.g. key qualifications (problem-solving capabilities, specific information procurement and evaluation capabilities) and particularly those necessary for setting up business

- integration of commercial and technical training
- training in application-oriented subjects for activities important to the subsistence economy.

The above list only contains examples and is a guide when evaluating a project's basic eligibility for promotion.

Technical Co-operation projects should largely avoid simply "duplicating" existing training capacities and courses already available in the project country, but rather be designed as a model projects in a system building context; they should have

- a pioneer function: the development, testing, demonstration and conviction activities lead to the wider availability of improved vocational training courses - also for neglected groups;
- a complementary function: by providing an important vocational training element previously lacking, or covering a specific qualification need (e.g. environmental specialists);
- an efficiency raising function: in which already-existing but inadequately functioning training areas are rehabilitated and restructured.

Model projects serve as a platform on which to base decision-making and reforms in vocational training policy. Which educational policy decision will later be taken and whether the corresponding reforms are carried out are not part of the model project but are a matter for the pertinent authorities in the given country. Should the model approach be implemented on a wider scale, financial assistance can be considered, as long as in the long term, self-reliant continuation of the activities is assured.

When designing, planning and implementing a model project a review should be made of whether the proposed innovations and improvements, when introduced on a wider scale, would:

- be compatible with the system; i.e. whether they relate at a bridgeable distance to the legal, organisational, technical and methodological environment of the regular training institutions and regulations,
- be fully financeable in the long term (investments, running operations, staffing),
- harmonise with the performance capability and self-image of the management, training and administrative personnel in the long term,
- not trigger-off serious negative side-effects in other areas (e.g. from the sociological or ecological aspects).
- It is not desirable for individual projects to radically restructure existing training system, nor does this bring success.

When establishing larger basic training and further training establishments a sufficiently long take-off phase should be planned, in which the personnel can be gradually trained for their activities and the curricula jointly developed on the spot. Teaching activities should be geared to the capabilities of the counterpart personnel and be commenced gradually (in phases). Short courses should be held as early as possible, on the one hand to advertise the project and on the other hand to give basic training and upgrading to in-company instructors.

Promoting Target Groups from the Informal Sector

Target groups from the informal sector are often discriminated against because of their social, cultural or economic situation; consequently, they are largely excluded from formal vocational training; the task, therefore, is to create training courses which are accessible to them and will bring them benefits. The custom-tailored training and upgrading measures addressing this section of the population are to enable them to improve their living conditions and raise their income opportunities.

With these target groups in particular, basic training and upgrading measures should not only impart technical and craft skills, but also encourage personality development and promote social rehabilitation. The subjects and methods of training have to relate to the fields of activity of the target groups. "Traditional" vocational profiles rarely cater to this demand.

Employment oriented training and upgrading for these target groups requires holistic concepts and methods which take account of their specific learning conditions and other characteristics (e.g. time and place of availability) and the fact that the "trainees" have rarely received any sort of general school education. Some elements from basic education must, therefore, be integrated into the training concept.

The target groups must feel that the contents of the courses offered are practicable and beneficial to them. Newly acquired vocational skills and know-how must open up new opportunities (e.g. by tapping income-niches) and techniques (e.g. bring about savings in raw materials or enable material recycling) and be understandable, masterable and financeable within the given environment.

A further training goal is to give the trainees the capability to independently overcome day-to-day problems arising in their "new" economic activity (e.g. for small entrepreneurs: procuring raw-materials, organising transport, access to and expedient use of loans, book-keeping, securing access to the market). Appropriate training and upgrading measures must also provide these qualifications just as they provide the capability to independently procure and utilise relevant information.

Basic training and upgrading of suitable instructors, promoters, advisors and "wise village women" who are accepted persons of authority in their given social environments and who can transfer the training contents

to the actual target groups, hold a key role project implementation.

Project executing organisations - usually private - in the direct vicinity and social environment of the target groups are best suited to implement projects addressing neglected target groups. They are often committed to locality for the long term, are accepted by the target group and possess the necessary insight into the local situation and conditions.

Many of these organisations suffer similar structural deficits to those listed above for "traditional" training institutions. Assistance in the form of management consultancy, organisational development or help with teaching and learning aids are also required, although via different concepts and contents. It must be assumed in general that organisations involved in training economically weak target groups often require not just financial assistance for investments but also subsidies towards operating costs such as school meals, books or travelling expenses. Encouraging a South-South exchange of experience between organisations with similar tasks would possibly be a further, promising approach.

To be an independent partner in the scope of development co-operation, however, these organisations must have a sufficiently organised structure.

Co-operation in this context requires very sensitive interaction, in which the principles of participation and partnership are taken very seriously. The assistance offered should never exceed the performance capability of the organisation nor intrude on its independence.

In many countries, however, the work of such organisations is hindered by unfavourable framework conditions which the state has often neglected to develop because of fear of contact, uncertainty and lacking representation of the interests of the concerned groups of the population.

Even though the informal sector is a sensitive area, attempts must be made to improve the general framework conditions and the conditions for vocational training in particular, through a dialogue with political decision-makers. The state should not shirk its responsibility for these sections of its population.

Manpower Upgrading and Provision of Learning and Teaching Aids

An essential precondition for providing efficient training courses is that qualified vocational training teachers and instructors are available together with suitable teaching and learning aids and an executing organisation possessing the necessary capability.

- *Human resources development*

Basic training and upgrading for school and in-company instructors and teachers are of key importance. Manpower Co-operation can only partly cover these needs. Basic training and upgrading programs and program elements in the scope of Manpower Co-operation should be shifted more to the developing countries. By transferring training programs or program elements to the countries involved and increased partner participation in planning and evaluating measures and longer term co-operation arrangements, activities will better match the demands of the market. Training programs or program elements carried out in Germany will continue to be in demand, wherever new technologies, procedures, processes and models are to be experienced on the "living" example in the Federal Republic of Germany (e.g. in-company vocational training, organisation of dual vocational training). Attention should be paid to ensuring that female manpower can also access pertinent training and upgrading.

The long term goal is for the individual countries to have their own instructor and teacher training institutions providing basic training and upgrading both at university and non-university levels. Technical Co-operation can provide support in this area and achieve a high multiplier effect.

Together with adequate qualifications, the motivation of teaching personnel is also a decisive factor. The very low salary scale in many countries must, therefore, be overcome by status upgrading, higher salary grades or additional income opportunities.

Adequately qualified personnel for research and development (e.g. curricula development, development of vocational profiles), for consultancy task (e.g. training consultancy, career counsellors) and for management tasks at all levels in the vocational training system, is available in very few countries. Increased attention must be paid to this upgrading need. Assistance in the form of Manpower Co-operation is particularly suitable when it is not expedient to establish national training and upgrading capacities (e.g. in smaller countries).

- *Availability of Teaching and Learning Aids*

Appropriate, effective low-cost teaching and learning aids are in great demand. To raise the quality of training by simply providing material and equipment is an effective approach only in exceptional cases; it is more expedient to combine these activities with teacher training and curricula development measures. Quality teaching and learning aids should be simple to manufacture, store and use. Useful advice and feedback can be obtained by involving users in the development work. Technical Co-operation activities are suitable for the establishment and promotion of corresponding development institutions.

The procedure applied in the scope of Manpower Co-operation, through which scholarship holders are provided with teaching and learning aids (mainly print media) during their training and also by follow-on contact, is expedient, individual and cost-effective.

Promoting Small Scale Industries

Assistance in the field of vocational training aid has a value of its own, and can be granted as an independent measure; whenever possible, however, it should be embedded in wider industrial promotion measures. This especially applies to the promotion of small scale enterprises.

Vocational training institutions (in-school, in-company or industry-wide) can also provide other services within their institutional framework and in their local environment which go beyond the area of basic training and upgrading measures:

Some potential activities are:

- placing of training graduates in accordance with their skills and needs; pertinent follow-up contacts (free of charge),
- consultancy services on human resource development of their employees (free of charge),
- further training courses enterprises on technical and commercial subjects and aligned to solving company-specific problems (custom-tailored courses for individual companies; against payment),
- consultancy services on technical and business management issues, when these are covered by the institute's training and upgrading capability and the equipment level of the training institute (against payment) and
- technical services as far as these are possible using the institutions equipment base (against payment).

For the above activities to run successfully, however, there must be regular exchange of experience between the institution and the local private-sector, and such co-operation must be desired by both sides.

For more complex consultancy and development services aiming to transfer technologies to special enterprises, it is usually necessary for the training establishment itself to become a producer and enter the market as a recognised supplier of goods and services. Otherwise it will hardly be taken seriously by the companies in its environment. Production activities of this type will enable the institution to earn income to cover part of its own running costs.

Further promotion activities for small and medium-sized enterprises could cover subjects involved in company establishment and consolidation. This requires additional key services which may not be directly integrated into the usual structures of a vocational training institute and may overtax its capability. Legal issues, market research, business management and procurement of investment capital are wide-ranging areas which can only partly be covered by basic training and upgrading institutions. They also require a considerable professional consultancy capability combined with specific promotion instruments (joint-venture openings, company co-operation and sponsoring, establishment loans and possibly participation capital). Promoting enterprises in this way requires integrated and co-ordinated projects with competent, independent executing organisations working together to achieve the common goal.

(5) German Assistance in the Vocational Training Sector - a Comparison with the Major Vocational Training Concepts on the International Scene

The promotion policy described in this sector policy paper agrees with the basic concepts presently discussed on the international level. The chief demands are also to be found in the policy papers of the World Bank, the International Labour Organisation (ILO) and partly also in the UNESCO papers:

- gearing vocational training to the needs of the employment system, while simultaneously ensuring equal opportunities,
- participation by the private sector in vocational training,
- definition of appropriate, country-specific vocational training strategies,
- diversification of the sources of financing for vocational training,
- raising the efficiency of state vocational training systems,
- targeted support to neglected groups of the population,
- environmentally related teaching contents,
- access to training for women and girls and
- donor co-ordination.

In its policy paper (1989) the World Bank chiefly addresses the state's role in vocational training within varied framework conditions. It underlines the highly important role of the private sector from the viewpoint of needs, efficiency and costs, recommending that more vocational training activities be implemented by private institutions. By establishing systems of incentives and bringing about changes in inadequate legal framework conditions, the state should strengthen and develop the existing training potential of the private sector. These recommendations are a turning point in World Bank policy, in that up to then the Bank had concentrated its support on governmental institutions. However, in countries with only a small potential for private-sector vocational training - chiefly countries with a rurally-structured economy and a small modern sector - the state should continue to implement and finance training. The vocational training systems of these countries are frequently also in need of reform in order to better adapt the state's training system to the needs of the employment system.

There are number of potentials for co-operation between German vocational training aid and the World Bank in the scope of sectoral programs because Germany

possesses long years of experience in such co-operative form of training (state and the private sector).

Co-operation with the ILO is particularly expedient in projects to improve the productive employment of the poorer and neglected sections of the population. Promoting the informal sector has been a major activity of ILO work for many years. Good working contacts already exist with the ILO on the development of concepts and instruments (e.g. sector analyses) for system development and consultancy.

UNESCO plans to expand its vocational training activities in the future. The "Agreement on vocational training" (1989) considers vocational training as a major component of general education and does not link it sufficiently with the employment system. Even though UNESCO supports the participation of the private sector in vocational training it sets different accents to the ones laid down in the present concept. However, good co-operation potentials exist in the fields of educational research and planning.

5 Conclusions and Recommendations from the African Group

The methodology of the event gave room for the participants to produce a catalogue of the major problems, desired solutions, and possible strategies to be applied. This process had been prepared and facilitated by prior exchange of participants' discussion papers on problems and possible solutions.

During the first week, African and Asian participants met separately. This paper has emerged from the activities of the African group, and was supplemented after discussion with the Asian group.

(1) Background of the Seminar

Co-operation between educational institutions and enterprises is an important concept for the development of technical and vocational education. UNEVOC, the International Project on Technical and Vocational Education of UNESCO, therefore convoked, in co-operation with the Industrial Occupations Promotion Centre of the German Foundation for International Development a seminar for key personnel from Africa and Asia on Co-operation between Educational Institutions and Enterprises in Technical and Vocational Education.

The purpose of the seminar was to make participants familiar with various concepts of co-operation between educational institutions and the world of work, and to provide an opportunity to exchange experiences made in various countries on the functioning of this co-operation. This was achieved on one hand by the presentation and discussion of country studies and by introducing the German model of technical and vocational education on the other.

(2) Previous Efforts of UNESCO

(2.1) Audience Africa

The participants took note of the Final Report of the "Audience Africa" meeting held in Paris from 06 to 10 February 1995, in which African Heads of States, or their representatives, examined the question of the development priorities in their continent in the light of the new challenges facing the world.

In particular, participants appreciated the Audience Africa statement "... that secondary education should give **a prominent place to technical and vocational education**, with emphasis on the variety of options and the professionalisation of training on the basis of a highly detailed entry and exit profile" (para 32).

(2.2) Convention on Technical and Vocational Education

The participants took note that hitherto only a small number of Member States of UNESCO has ratified the Convention on Technical and Vocational Education that was adopted at the 25th session of the General Conference of UNESCO in 1989. They recommended that the convention be examined and discussed by the competent national bodies in order to promote in particular its application in the following:

- that **policies should be framed** and **strategies should be defined** for technical and vocational education within the education systems (Article 2 para 1);
- that the framework for the development of technical and vocational education should indicate the roles **not only of public authorities** responsible for economic, social and development planning**, but also of those of professional associations, workers, employers and other interested parties** (Article 2 para 2 d);
- that the structure of technical and vocational education be reviewed periodically, **including the forms of co-operation between the school system and the world of work** (Article 4).

The convention applies to all forms and levels of technical and vocational education provided in educational institutions or through co-operative programmes organised jointly by educational institutions, on the one hand, and industrial, agricultural, commercial or any other undertaking related to the world of work, on the other.

It was the firm belief of participants that any strategic action aimed at raising the status of technical and vocational education in Member States should **take full account of the role of company-based vocational training** as well.

(2.3) General Conference Resolution 27 C/1.11 on UNEVOC

The participants took note of Resolution 27 C/1.11 of the General Conference in 1993, inviting the Director-General

a) to give greater priority to technical and vocational education in the 1994-1995 biennium, on the basis of proposals from the International Advisory Committee for the UNEVOC Project;
b) to provide member countries, notably the developing countries, with the necessary support for drawing up objectives and means of training, together with study programmes and evaluation activities they require;
c) to implement at the regional level co-operative projects on the place and role of technical and vocational education in society on the threshold of the twenty-first century, as part of the UNESCO/ ILO co-operation;
d) to undertake, in particular, a co-operation project intended to help rebuild technical and vocational education systems in countries undergoing economic transition, following the European symposium on education, training and employment organised by UNESCO in 1991;

e) to establish intersectoral collaboration taking account of the interdisciplinary nature of the UNEVOC project;

and **expressed concern on the apparent lack of progress in its implementation**. They further took note of the "Recommendations to the Director-General" of the UNEVOC International Advisory Committee (12-14 December 1994) which substantiates this concern.

(3) Challenges

The participants brainstormed on the issues and problems in technical and vocational education. Bearing in mind the above recommendations, participants expressed an overwhelming agreement that technical and vocational education in many African countries **lacked a definitive policy and vision**.

It was noted by a majority that many government officials, including ministers, were not fully conversant with the meaning, purpose and function of technical and vocational education. As a consequence, it was neglected, or implemented in a most inadequate manner.

It was therefore agreed that this problem should be addressed in practical terms, so that **the status and relevance of technical and vocational education can be raised** in the various regions around the world.

(4) Proposals for Action

(4.1) Changing the Image and Status of Technical and Vocational Education: Attention-Focusing Events

The underlying philosophy of the mobilising attention-focusing initiative is that the present incumbents in technical and vocational occupations, e.g. artisans, should be considered and included as key players in the efforts to enhance the image of technical and vocational education. Related UNEVOC initiatives should not be seen as something that is done by others for technical and vocational education, but rather **what technical and vocational education is doing for itself to enhance its image and status**.

It is also desirable for UNESCO and each African country to **identify champions to lead the image enhancement initiative** in the particular country. Such a champion will ideally be a highly respected person in that country who is a product of the technical and vocational education system, e.g. an artisan.

The first suggestion that was unanimously agreed to was that a year ought to be set aside for focus and emphasis on technical and vocational education. It was suggested that UNESCO should declare 1997 as the **year of technical and vocational education**.

However, it was also suggested that a more comprehensive group of significant stakeholders be included. Donor agencies, such as the ILO, the World Bank, UNDP, as well as chambers of commerce, institutions of higher education, professional bodies, and leaders of other significant institutions be convinced to recognise the vital importance of technical and vocational education, and use their political and economic influence to thrust technical and vocational education forward in the community and in the world of work.

It was suggested that a **Skills Olympics** could be used as a benchmark exercise to rate systems of technical and vocational education in order to focus the attention of various nations on the function of technical education and the standards that needed to be reached therein.

(4.2) Critical Issues Requiring Attention

- *Training of trainers*

It was suggested that emphasis be placed upon training of trainers as a primary means of development and quality assurance of technical and vocational education.

- *Access and equity*

Participants expressed the pertinent desire that, in all programs related to technical and vocational education, measures should be taken to address the concept of access and equity.

- *Recognition of prior learning*

Recognition of prior learning represents a recognition of the value of previous learning and experience that contributes to the effectiveness and efficiency of a person fulfilling their occupational responsibility.

Consideration should be given to the development of a system that credits prior learning to enable individuals to gain access to and continue within the formal education system. Considerable research has been done in the USA, Australia and Ireland in this area.

- *Opportunities to higher education*

The participants noted that in some African countries technical and vocational education is terminal and discourages career choice in this field. In order to make it a more attractive option, the participants recommended to those countries that technical and vocational education should be made more flexible in order to provide opportunities for further education and training at all levels including the university level.

- *Data base development and advocacy processes*

It was further recognised that there was a need to establish and utilise adequate data bases. It was considered of little consequence to seek to draw the attention of regions around the world to the importance of technical and vocational education if there was not the data available to highlight its neglect and its importance. The **network of the UNEVOC Centres** is therefore to be used for networking to the full extent possible. At the institutional level, data bases are important in the area of co-operation between education providers and enterprises as well as manpower planning.

Case studies that have been undertaken were seen as useful tools to highlight the function and importance of technical and vocational education.

◆ *Institutional co-operation*

The issues of external efficiency and relevance on one hand, and internal efficiency and quality on the other, were recognised. Closer collaboration and co-operation among all stakeholders was greatly supported in the area of technical and vocational education.

◆ *Funding*

The participants noted the low budgetary allocations to technical and vocational education and urged the providers of these funds to provide and/or solicit for funds to cover recurrent and development budgets commensurate with the importance attached to technical and vocational education. Other avenues for funding on a more sustainable basis needed to be explored.

(4.3) Development of Regional Strategic Plans

It was realised that there is a requirement for a critical analysis of the needs of technical and vocational education if the regional requirements are to be met. This could commence with a series of national, subregional and regional **strategic planning seminars** and work-shops under the auspices of UNEVOC, with the purpose of:

a) **Defining the vision, aims and objectives of technical and vocational education on national, subregional and regional bases**
Working sessions on a national, subregional and regional basis addressing the function of technical and vocational education, its role, its needs, its potential, and its value to production and productivity should be held in relevant regions, especially the African region.

b) **Determining how the vision is to be achieved**
In this respect, aspects such as the development of principles, relevant standards, qualification needs, funding, trainer development, co-operation between stakeholders etc. should be emphasised. Also covered could be practical aspects such as
- emphasising the year of 1997 as the year of technical and vocational education,
- harnessing the resources of industry,
- sharing equipment with industry,
- encouraging technical colleges to be entrepreneurial and obtain some financial assistance from such entrepreneurship,
- establishing twinning arrangements among strong and weak technical colleges in the same or different countries,
- including industry leaders to join curriculum development panels,
- drawing on the expertise of master craftsmen in industry,
- inviting master craftsmen from industry to join the staff of a technical college for some time to assist the development of the teachers and the curricula, and
- giving sabbatical leave for technical college teachers to upgrade their skills in industry.

c) **Determining and deriving plans for the implementation of the vision, aims and objectives**
It was recognised that these plans are of little worth unless they are implemented in a sound and continuous way. It was recognised that co-operation was vital in implementation and that institutions could assist each other in such implementation. It was also recognised that the support of industry leaders was necessary for effective implementation, and that governments must have a commitment in this area and give tangible support to it.

d) **Monitoring progress of the implementations of the derived plans**
As with all effective education, it was universally agreed that all this activity must be monitored, both as it proceeds and in its conclusion. Thus formative and summative evaluation was recommended. At the end of each project a comprehensive review would be undertaken.

(5) The role of UNEVOC

The participants noted the role played by UNEVOC in technical and vocational education with particular emphasis that UNEVOC is mandated to work in three programme areas, namely:
- Programme Area A: International exchange of ideas and experience and studies on policy issues;
- Programme Area B: Strengthening of national research and development capabilities;
- Programme Area C: Facilitating access to data bases and documentation.

It was the firm belief of participants in the seminar that all of these programme areas are highly relevant to the development of technical and vocational education in their countries.

UNEVOC Centres have recently been nominated by Member States. Their responsibilities include:
- developing and leading a national network;
- ensuring information flow to and from UNESCO and other UNEVOC Centres;
- ensuring that expertise is shared among UNEVOC Network members;
- providing research as requested by the UNESCO Secretariat;
- contributing to UNESCO publications and data bases;
- updating the UNEVOC Directory.

Participants stressed the need to establish national UNEVOC Centres in more countries, to strengthen the existing ones, and to develop their networking activities. In this context, the establishment of four subregional centres (Western, Central, Eastern, and Southern Africa) could contribute to the effective functioning of the UNEVOC Network.

The need to strengthen the Regional Office for Education in Africa (BREDA) in its capacity as a UNEVOC focal point was also recognised.

(6) Recommendations for Action

Following is a list of priority activities that should be carried out within the general framework of UNEVOC and the donor community:

a) **Strengthening of UNEVOC Centres** in communication and networking through provision of the necessary equipment (computers, printers, fax, modems etc.);

b) **Sensitising of stakeholders** through facilitation of seminars/workshops at the national, subregional and regional levels:

Regional level

- developing the abilities to devise strategic plans for systems of technical and vocational education;
- training of facilitators for the system design process, project management and advocacy/ marketing process;
- developing criteria for data compilation and analyses.

Subregional level

- consolidating national and subregional aspects of technical and vocational education;
- developing action plans and projects at the subregional level;
- undertaking advocacy processes and marketing activities in technical and vocational education.

National level

- developing a national consensus and a strategic vision for technical and vocational education;
- drawing up action plans and projects for the technical and vocational education system;
- advocacy system among stakeholders, policy makers etc. for policy formulation and implementation;

c) Promoting co-operation between educational institutions and enterprises;

d) Supporting the improvement and reform of curricula;

e) Assisting in the mobilisation of resources.

(7) Dissemination of Conclusions

In order to facilitate fast implementation, participants recommended that this document be circulated for attention as follows:

- Director-General of UNESCO
- International Advisory Committee of UNEVOC
- national UNEVOC Centres
- other UNEVOC focal points
- relevant Ministers and National Commissions.

Appendices

Agenda

1 Opening of the Seminar

2 Presentation of UNEVOC

3 Introduction to the Seminar

4 Co-operation between technical and vocational education institutions and enterprises in selected African countries (Presentation and discussion)

5 German experience in co-operation between technical and vocational education institutions and enterprises:
Pilot schemes; development of vocational curricula; training of trainers (Presentations, discussion);
An industrial and a school training environment (Field visits)
Institutionalised Co-operation between government, employers and trade unions - the German Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung, BIBB)

6 School based and industry based training systems:
Presentation and Discussion

7 Strategic training partnership between enterprises and state - the ILO approach

8 The UNESCO Convention on Technical and Vocational Education

9 International co-operation as a means to enhance co-operation between vocational education institutions and enterprises - ways, means, perspectives; follow-up activities

10 Conclusions and recommendations

11 Evaluation of the seminar

12 Closing of the Seminar

Programme

First week: Group B in Berlin (organised by UNEVOC);
Second week: Groups A and B in Berlin (organised jointly by UNEVOC and DSE)

Day	Time	Activity	Site
Monday 01 May 95		Arrival of participants	
Tuesday 02 May 95	09:30	Registration	UNEVOC
	10:30	Opening ceremony Presentation of UNEVOC Presentation of Participants Introduction to the Subject of the Seminar Procedural matters	UNEVOC
	14:30	Presentation and discussion of African cases	UNEVOC
	20:00	Informal Meeting with Participants	DSE
Wednesday 03 May 95	09:30	Presentation and discussion of African cases	UNEVOC
	14:30	Pilot schemes; Example: Women in male dominated vocations (Ms Wolf, BIBB)	UNEVOC
	16:30	Co-operative development of vocational curricula (Mr Tutschner, BIBB)	UNEVOC
Thursday 04 May 95	09:30	Visit to an industrial training site AEG Bildungszentrum, Sickingenstraße 71, Mr Leider	AEG
	11:30	Visit to a vocational school Oberstufenzentrum Maschinen- und Fertigungstechnik, Mr Bleiber	OSZ
	15:30	Working groups: Preparation of summaries and conclusions	UNEVOC
Friday 05 May 95	09:30	Discussion of summaries and conclusions from 1st week	UNEVOC
	14:30	Adoption of reports and recommendations from 1st week	UNEVOC
Saturday 06 May 95			
Sunday 07 May 95		10:00 Departure for Sightseeing Tour (afternoon: Asian participants travel to Berlin)	
Monday 08 May 95	09:30	Presentation of African and Asian Participants Brief presentation of ZGB/DSE and UNEVOC Presentation of major findings of first week (Africa, Asia)	DSE
	14:30	Prof. Greinert: School based and Industry Based Training Systems - Advantages and Disadvantages ②	DSE
	16:30	Ms Mitchell, ILO: Presentation of ILO study "Enterprises and State seek Strategic Training Partnership" ①	DSE
Tuesday 09 May 95	09:30	Panel with Employer's Representative, Trade Union Representative, BIBB (Mr Rath, Ms Brodde, Ms Dr Dybowski-Johannson) ①	UNEVOC
	14:30	The BIBB: Common Address for Vocational Training in Germany. (Ms Dr Laur-Ernst, BIBB) ①	UNEVOC
	16:30	Training of trainers - Organisational Development (with film), Mr Selka ①	UNEVOC
Wednesday 10 May 95	09:30	Working Groups	UNEVOC
	14:30	Working Groups	UNEVOC
	16:30	Group Photo	UNEVOC
	17:00	Informal Reception for Participants, given by the Representative of the UNESCO Assistant Director General for Education, with the Director-General of the German Foundation for International Development (DSE), the German Commission for UNESCO, the Berlin Committee for UNESCO, and Resource Persons ①	UNEVOC
Thursday 11 May 95	09:30	The Role of Donor Assistance: Sector Concept "Vocational Training" of the German Federal Ministry for Economic Co-operation (NN) ②	DSE
	11:30	Development of UNEVOC: The German Perspective (Federal Ministry for Education, Science, Research and Technology, BMBF) ①	DSE
	14:30	Role of UN and other agencies in enhancing co-operation between technical and vocational education institutions and enterprises Dr Joachim Reichling, Director, Training Department, ILO ① Mr Wolfgang Reuter, Chief Executive, Qualifikationsverband ① Address by Dr Heinz Bühler, Director General, DSE	DSE
	16:30	Presentation of conclusions and recommendations	DSE
Friday 12 May 95	09:30	Evaluation of the Seminar Follow-up Closing ceremony	DSE
	13:00	Farewell Lunch ②	DSE
Saturday 13 May 95		Departure of participants	

① organised by UNEVOC
② organised by DSE

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Guidelines for Case Studies by R. B. HOBART

Prof. Dr R. Barry Hobart is Professor for Human Resource Development at the University of South Australia, Adelaide, and has been appointed Consultant to UNEVOC Berlin.

This document is designed to give assistance to those preparing case studies in two areas of human endeavour relevant to technical and vocational education. These areas are:

- Policy and legislation in technical and vocational education to enhance co-operation with the world of work, and
- Co-operation between educational institutions and work enterprises at the training level.

General principles are enunciated that are relevant to both areas. Then each area is addressed. The information for each area tends to be similar as many of the issues are common to both. It is, however, repeated here because compilers of the case studies receive the general information, and only the guidance relevant to the particular case study they are addressing.

The Role of Case Studies within the UNEVOC Project

UNEVOC is an international project dedicated to developing and improving technical and vocational education in UNESCO's Member States. As one means of doing this it focuses on information exchange.

An important means of disseminating information about countries that are exploring and trying out new ideas is the means of case studies. These can contain information from many sources concerning innovations in technical and vocational education which may be of wide international interest. A clear and well constructed case study can give inspiration to others who are seeking innovations and, when appropriately adapted, contribute significantly to the development of technical and vocational education within a region or country.

Important elements of different case studies will later be synthesised. This enables the case studies to be compared so that commonalties and differences can be noted. There will be different types of case studies according to the area of technical and vocational education that is the particular issue being described.

Basic requirements to be met by case studies

A good case study in technical and vocational education will present clear and practical information backed up with theory and research data as necessary. In general, it will present a concise analysis of the socio-economic context of the country, the relevant policies, the political situation and the educational structure. It will give some basic information on the population, the Gross National Product, and its economic structure. Obviously, it is very difficult to get value from a case study that is not thoroughly placed in these contexts.

An important part of this context is the place and role of technical and vocational education in the education and training system of the country as a whole. This will include an analysis of the linkages with general education and higher education, giving a thorough overview of the technical and vocational education system existing in the country.

Another aspect of the context which is vital to the effective working of technical and vocational education in a country is its relationship with industry and the interrelationship between technical and vocational institutions and industrial firms and enterprises.

Finally, the place of the government and its policies and an in-depth analysis of these and the present policy situation within the country is important.

Having established the particular aspects of technical and vocational education that are being described, it is important that the case study highlights the issues that are significantly operating in technical and vocational education and in the enterprises that are the focus of the study. Not all of the following issues will be relevant to every study, but they each need to be considered for its relevance.

The issues that should be the focus of the study and will be the descriptors of the case study itself are the following:

- The agents that are actively involved in the country's system of technical and vocational education, and, more particularly, in establishing links between technical and vocational education and the enterprises at the policy, legislation and training level.
- The entities that are involved in implementing the various aspects of the links between the technical vocational institutions and the enterprises.
- The barriers that may work against the links, and frustrate some of their intended outcomes.
- The incentives that will assist the working of various factors that encourage the achieving of the outcomes.
- The advantages that are expected to be achieved from the linkages between technical and vocational institutions and enterprises.
- The outcomes that may be expected from the approaches that are described within the study.

Case Studies on "Policy and Legislation in Technical and Vocational Education to Enhance Co-operation with the World of Work"

The following is a check list of essential elements that should be considered in case studies on **"Policy and legislation in technical and vocational education to enhance co-operation with the world of work"**. Not all elements of the check list may be relevant in any particular situation, but each should be considered in order to ensure that the case study is comprehensive and sufficiently descriptive to give clear guidance to others who may wish to apply some of it in their own situation.

Legislation that can influence the co-operation between technical and vocational education institutions and business enterprises.

- The enterprise either pays reduced tax or no tax at all for co-operating with the government in exchanging students for work experience and exchanging employees for training experience.
- The enterprise receives investment incentives; that is, it is refunded by the government a percentage of the money it spends on investment in a year.
- The government pays the enterprise a certain amount of the wages paid to the trainee student for allowing the student to undertake work experience in the enterprise.
- The government gives preferential purchasing to the co-operating enterprises.
- The government creates a region, termed a Industrial Park, in which the enterprises that choose to establish themselves in it have certain privileges (such as tax relief) for so doing. This is often used to encourage decentralisation of the population and increased competitiveness in international trade.
- Government and enterprises must work together in formulating legislation in order to establish good working relations.
- Preferred employment for union members if the student is willing to undertake work experience within the enterprise and agree to become a member of the relevant union.
- Preference in employment when the work experience is completed as a consequence of the work experience.
- Fringe benefits, such as increased superannuation, medical benefits, and legal protection, granted to the student when he/she undertakes work.
- Discounted travel expenses for the student undertaking work experience.
- Subsidised living expenses for country students attending work experience in the cities.
- Assistance given to the farmer whose son or daughter has to leave the farm for work experience.

Policy that can influence the co-operation between technical and vocational education institutions and business enterprises.

- All enterprises must either co-operate in educational exchange or pay a levy on each employee.
- Enterprises that co-operate receive preferential treatment in government processing of their documents.
- Enterprises that co-operate may receive preferential treatment with respect to transport facilities.
- Educational institutions that co-operate may receive preferential treatment in the receipt of equipment.
- Educational institutions that co-operate may receive preferential treatment in staffing.
- It is becoming increasingly the case that states only recognise technical and vocational qualifications when they ensure a national-wide, uniform, intersectoral vocational qualification, that guarantees the occupational mobility and flexibility of the trainees and that takes into account the requirements of more than one company or industrial sector.
- All school leavers should receive as good a vocational training as possible.
- Vocational training must enable young people to adjust to occupational changes and developments as smoothly as possible.
- Some countries are moving towards the requirement that in the first year of vocational training a broad-based basic education covering an entire vocational field (e.g. metal working occupations) is offered. From the second training year on there is increasing specialisation leading to the qualification of a skilled worker. In the labour market this will permit immediate qualified employment in one's trained occupation and provide the basis for future continuing vocational training.
- Vocational training should be geared to practical needs to the extent that is appropriate. A major part should consist of on-the-job training in firms and administration.
- An example of the close proximity of the technical vocational institution and the enterprise in both policy and legislation is that of Germany. The German dual system ensures young people are trained three to four days on the job and one to two days at the part-time vocational school. The advantages of this system are that training takes place under conditions and on machines and equipment that represent the state of the art. Also, the in-firm instructors who are constantly confronted with new technical requirements can immediately incorporate them into the training programme. Further it is possible for training largely to involve productive activities. This reduces costs and enhances the learning motivation. Finally, in the case of smaller and medium sized firms, compensation can be made by the temporary use of larger firms.
- A firm will only be admitted as a training firm, if it has technically and pedagogically qualified instructors who meet government requirements. Also, it

	Government	Enterprises	Employers	Unions	Employees	Trainees	Teachers
TVE Institutions	greater productivity co-operation with industry and training institutions	better workers investment incentive greater motivation for employment of trainees	supplement trainees wage higher standard employee retention of good workers	conditions of employment greater power over worker and industry	training experience employment opportunity job security	real world experience disciplines of the world of work greater demand in the work place	upgrading of work practice greater flexibility in the work place greater work mobility
Field of Policy Incentives	participation in co-operation compulsory participation closer relationship with the government	preferred tenders government purchases expanded market reduced tax for a period of time	preferred tenders government purchases	more influence on government more chance of a political career	special holiday conditions stimulating working conditions	subsidised travel subsidised board diversified experience broader job possibility	upgraded superannuation compulsory superannuation
Economic & Fiscal Policy	fiscal and monetary policy more control over employment better job placement	tax incentives	tax incentives interest relief better choice of employee better employee discipline	tax incentives economic influence more influence over the govern-ment	tax incentives broader possibilities of jobs more stable employment	subsidised wage More interesting work quicker promotion	tax deduction more realistic tasks broader possibilities of jobs
Labour Market	better labour market planning greater control over employment	more efficient worker greater productivity	better employee planning getting the best employees	more control over employees greater power within the industry	broader scope for job change greater diversity of work within an enterprise	greater potential for a job more diversified employment	greater job potential greater job skill more relevant experience
Social Security	additional cost	Compulsory Greater protection of workers	additional cost	social benefit for trainees more control over work conditions	additional benefit greater future security	protection greater security of job	increasing social security greater protection in work
Normative	legislation not co-ordinated thus legislation relating to one section such as teachers contradicts legislation relating to another i.e. students not allowed to be trained in a hotel in the evenings whereas trainers are allowed to train in the evening. Also some trainers may also not have the opportunity to participate and would loose the benefit.						

Overview of Agents and Factors in Policy and Legislation

must be able through its equipment and programmes to teach the contents laid down in the government training directive, either completely on its own, or in complementary co-operation with other firms or inter-firm training centres.

- In some countries, technical and vocational training is becoming so popular that, although it is not compulsory and firms are not obliged to provide such training, many school leavers apply for occupational training and almost all suitable firms are involved in it.
- Continuing technical and vocational education is becoming increasingly important.
- Continuing technical and vocational education that begins after the completion of initial vocational training and after some years of practical work in one's occupation, has two aims:
  - to ensure the adaptation of vocational qualifications to new technical and occupational developments, and
  - to prepare people in in-firm, inter-firm and school courses for promotion to higher qualifications as middle-level skilled workers or managers.
- Retraining is necessary when the labour market no longer offers any opportunities to find a job in one's trained occupation. Also it is essential if comple-mentary continuing training does not offer further employment in a related occupation.
- The different nature of company training centres leads, despite all standardised regulations, to training taking place under widely varying conditions. The courses provided are determined by
  - the size of the company,
  - the nature and manner of the production or the service,
  - the state of the applied art,
  - the organisational forms of the company,
  - the abilities and commitment of the instructors,
  - the facilities of the company learning centres,
  - the company's expenditure on training,
  - the individual learning possibilities.
- The planning of technical and vocational education must provide the bases for the co-ordinated develop-ment of occupational preparation corresponding to technical, economic and social requirements.
- The planning of technical and vocational education will help to ensure, in particular, that the nature, size and location of training establishments are such that a qualitatively and quantitatively sufficient supply of vocational training places is guaranteed.
- The responsible Minister in many countries keeps a constant watch on the developments in technical and vocational education and submits a corresponding report to the Government (Vocational Training Report) each year.
- The statistics that are collected in many of these countries comprise the following:
  - for trainees: date of birth, sex, nationality, general and vocational background, trained occupation, training year, location of training firm, prematurely cancelled training contracts - indicating trained occupation, sex, training year and reason for cancellation - new contracts - indicating trained occupation, reduction or extension of training period - slow-up contracts - in the case of multi-phased training indicating trained occupation,

- for instructors: date of birth, sex, technical and teaching aptitude, full-time instructor activities including indication of trained occupation,
- for vocational training examinees: date of birth, sex, nationality, educational background, vocational field, reduction or extension of training period, procedure of admission to examination, examination results and title of examinations passed,
- for training advisors: date of birth, sex, educational background, full-time activity, technical competence and visits paid to training institutions, other advisory activity.

The UNESCO Convention on Technical and Vocational Education

In 1989, the General Conference of UNESCO adopted the Convention on Technical and Vocational Education. This convention furnishes a broad definition of technical and vocational education. It "... applies to all forms and levels of technical and vocational education provided in educational institutions or through co-operative programmes organised jointly by educational institutions, on the one hand, and industrial, agricultural, commercial or any other undertaking related to the world of work, on the other" (Article 1).

After the reference to the agents responsible for providing technical and vocational education, the concept of co-operative programmes between educational institutions and the productive sector is explicitly introduced. In fact it is claimed that systematic, institutionalised interaction between education and training on one hand and the world of work on the other can only have positive returns for both sectors. In each particular case, the prevailing context shapes the way in which interactions may take place.

In any case study on "Policy and legislation in technical and vocational education to enhance co-operation with the world of work", the Convention should be taken into account. The situation in a particular country or setup should also be illustrated against the background of the standards set in the Convention. (See page 170 of this document for a full statement of the Convention)

Agents that can influence the policy and legislation in technical and vocational education to enhance co-operation with the world of work

In considering the policy and legislation that influences the co-operation between technical and vocational institutions and business enterprises it is important to examine the agents that can increase the co-operation between technical and vocational institutions and enterprises in the world of work.
These agents might be the following:

- *Governments,*

(especially those departments responsible for education/training, economic affairs, labour ...)

- *Employers*

and their associations.

- *Chambers*

such as Chambers of Commerce and Chambers of manufacturers.

- *Management of enterprises*

This will vary considerably according to the size and age of the enterprise and also to the degree that the enterprise may be international or have international elements in it.

- *Human Resource Developers in enterprises*

that are responsible for the training of the students in those enterprises.

- *Trade unions*

the trainers/workers co-operating with their industrial leaders.

Factors relating to Policy that may enhance co-operation between educational institutions and enterprises

The elements applied to promote and enhance co-operation may be of different types for institutions and enterprises.

- *Finance*

This may include private finance as well as government finance. It may be that a student is encouraged to undertake such an exercise because of a salary factor whereas the enterprise may be encouraged to co-operate because the government is ready to meet the costs.

- *Infrastructure*

In many cases there is not sufficient infrastructure in a country to support the exchange of technical and vocational teachers with human resource developers in an enterprise. With the high level of unemployment existing around the world at the moment, there may not be sufficient places for co-operation between educational institutions and enterprises for providing work experience places.

- *Legislation*

Legislation may include reduced taxes for the enterprise, investment incentives, subsidised wages, preferred prices, industrial parks where the enterprises within them are exempt from tax for a certain period of time. These industrial parks are designed to enable the firm to be strongly established before it has to face the rigorous competition of the world of work.

- *Advice*

Some firms will require advice from experts in the government and in private enterprise institutions or universities. This should enable them to build a strong base for their firm and increase its competitiveness through better productivity. This advice can result from co-operative ventures between educational institutions - with their research, and business enterprises.

- *Logistic support*

Some countries can have a significant lack of infrastructure and the logistic support they need for effective trade. Governments may assist them in this way.

◆ *Certification*
The government may give special certification to firms in order to facilitate their growth.

◆ *Status and recognition*
Status and recognition may be limited by the general status accorded technical and vocational education in the society. On the other hand, students may receive certification that encourages participation in the scheme, as this may lead to greater status and promotion.

◆ *Compulsory training sessions*
There might be an obligation for students to spend a period of time in enterprises. An arrangement for co-operation between technical and vocational education institutions and enterprises at the training level ensures that the student has valid experience in the world of work and that the enterprise has the opportunity to shape the training and skills of the students. This should encourage a greater harmony between the educational institutions and the world of work.

◆ *Personal incentives*
Such incentives might include international exchanges, special study, overseas study and overseas visits.

Factors that may inhibit the effective co-operation between technical and vocational education institutions and enterprises
Some of the following may act as barriers in one particular situation, but as an encouragement in another. For example, if the enterprise is very small this may deter the employer from taking on an employee. However, it may encourage others because any particular firm may need only a small amount of employee assistance.

- Financial difficulties may prohibit either the educational institution or the enterprise. Workers in enterprises often obtain better wages than their counterparts in educational institutions. Some enterprises are reluctant to pay full wages to some technical and vocational teachers who are of limited use because of being out of date in their knowledge and experience.
- The curricula may not cater for the social and economic needs of the country.
- The business sector may not have a long-term concept of training and so be unwilling to invest in it.
- Some enterprises may be inadequate for providing a sufficiently comprehensive and up-to-date experience to technical and vocational teachers. There may even be a lack of certain enterprises. This will prevent technical and vocational teachers from obtaining profitable, world-of-work experience.
- Technical and vocational teachers who are out of date may deter the enterprises from including them on their staff. They may find that their productivity is low because of the out-of-date knowledge and experience. Also, sometimes the conditions of work in a work enterprise are more demanding than in an educational enterprise. Thus, the technical and vocational teachers may be reluctant to take on the additional responsibilities of working in an enterprise.
- In some cases an enterprise may be too small for an employer to take on just one student. On the other hand this may be an advantage.
- Trade unions may resist the idea of technical and vocational teachers coming in and taking over union jobs, especially if it causes a change in the conditions of the jobs, such as wages and holidays. On the other hand they may be supportive of the exercise if they see that their members will benefit from it.
- It is one thing to be able to organise the exchange of technical and vocational teachers with human resource developers in enterprises. However, it may be that the human resource developers in the enterprises are inadequate trainers and will therefore be unable effectively to fulfil the role of a technical and vocational education teacher. They may even be inadequate in knowledge and experience for certain specialised parts of the curriculum. Equally, it may be that the technical and vocational teachers do not get sufficient experience in the industrial setting to make their time there worth while.
- There may be inadequate equipment and facilities, either in the educational institutions or in the enterprises.
- Competition among firms can make trade secrets an important part of the assets of the firm. Thus, the enterprises may be reluctant to bring in technical and vocational teachers because of their exposure to the trade secrets of the firm.
- Employers may not have sufficient confidence in the knowledge and ability of the technical and vocational teachers to trust them to perform at a high enough standard.
- There may be insufficient industrial training places in the world of work for all students to obtain a work placement.
- The training of technical and vocational teachers may not have included a true exposure to the world of work. Thus they may be inadequate in their knowledge of the world of work.
- The education that has been given the technical and vocational teachers may be inappropriate in that it may be too academic, too theoretical, or out of date, to allow them to function effectively in the enterprise.
- The curriculum that is used by the technical and vocational teachers may be inappropriate for the enterprise. Likewise the instructors from the enterprises may not be familiar with the curriculum they must use in the exchange.
- There may be very little mobility in terms of a career for a technical and vocational teachers. Thus, the human resource developers from the enterprises may not wish to sacrifice the mobility available to them in their private enterprise employment. The technical and vocational teachers may need the possibility of proceeding to university education as a result of their industrial experience for there to be sufficient mobility of career to attract them.

- The resistance to women and minority groups may deter employers from exchanging such people for experience in the enterprises.
- Students completing technical vocational education may be ill-equipped for self-employment and therefore they may not have the entrepreneurial skills required by an enterprise for the co-operative exchange between educational institutions and enterprises at the training level.
- Excessive population growth causes unemployment to be so high that there may not be sufficient places for technical and vocational institution students to obtain a placement in the world of work.
- The increased mobility given to technical and vocational education teachers because of the additional real world experience in the enterprises may encourage them to abandon their teaching posts as soon as they have completed their work experience. This represents a loss to the educational institution and the working district.
- The employment conditions of either the educational institutions or the enterprises may be inadequate.
- The objectives of technical and vocational curricula may not be determine by job specifications and the measuring of industry needs. They may be determined theoretically from foreign text books. This will make the students' study of little value.
- Rural areas may be more difficult to organise than urban areas for the exchange of students. It may be necessary for urban students to travel a long way into the country to obtain work experience. Likewise, rural students may find it very difficult to obtain accommodation for job experience in an urban area. Thus, the work context may, in some cases, be a barrier to the effective working of this co-operation.
- There may be insufficient financial support for travel and accommodation for the student to attend both the enterprise and the technical and vocational education institutions. It may also be that the rural student is not able to abandon the farm where help is needed every day.
- Industry experience may not form part of the evaluation of the subject and so may not be taken seriously by the student.
- The status of students in enterprises may not be clear. Thus they may run the risks of not being insured for accidents.

Incentives relating to legislation and policy that can promote the co-operation between educational institutions and enterprises

Once again, what may be an incentive in one situation may be a disincentive in another situation. Thus, each one of the following needs to be carefully analysed to examine whether it is a real benefit or not.

- The government may require less taxation from those firms that are willing to co-operate with educational institutions at the training level.
- The government may give investment incentives to those firms that co-operate in this way.
- The government may be willing to subsidise training so that the firm receives cheaper labour.
- The firm may be required to pay only a reduced salary while training, or even no salary at all. However, this may not be an incentive to the student to participate in the scheme.
- It is also possible that no salary need be paid during training in exchange for facilities offered by the enterprise.
- Firms that agree to co-operate in this way may have preference in obtaining government tenders.
- This may allow flexible entry and exit to training which means a student will have greater flexibility in both training and job change.
- Such co-operation is essential if the principles of life-long learning are to be established.
- With genuine work experience it is possible for technical and vocational education institutions to recognise the learning through credit and exemption in their further courses.
- If students work in an enterprise for a certain length of time, it is possible for the enterprise to identify the young people with the greatest potential and thus offer them a job. In so doing they are selecting the best employees.
- The enterprise has the opportunity to contribute significantly to the work attitudes and ethics of the student and thus, once again, employ the best students.
- The enterprise has an opportunity to know the sorts of employees available for employment.
- The student may be willing to co-operate with the planned exchange if the enterprise is willing to offer transport to assist the student to get to the school and to return home.

Advantages and arguments that are being used to support legislation and policy that will encourage the co-operation between technical and vocational institutions and enterprises

- Such an exchange of knowledge and know-how and the joint undertaking of research and development projects have potential for lifting the productivity of the firm.
- An exchange of knowledge and know-how relevant to the industry are valuable.
- The acquisition by students and technical and vocational teachers of a much broader experience of life in an enterprise.
- The possible renewal and adaptation of teaching and training programs to suit productive work.
- Learning periods spent by technical and vocational teachers and students in enterprises and universities enhance their value.
- The participation of human resource development staff from enterprises in teaching and training in technical and vocational institutions is valuable to that staff.

- The joint design and co-operation by technical and vocational institutions and industry of research and development projects.
- The developing by employees of enterprises and technical and vocational teachers, of research and development skills.
- The acquisition by students and teachers of the experience of life in an enterprise and in the world of work.
- The renewal and adaptation of teaching and training programmes to suit productive work.
- Developing knowledge and skills in the latest classroom and enterprise technology.

Outcomes/Findings from the application of legislation and policies that enhance co-operation between technical and vocational educational institutions and enterprises

- The place and role of technical and vocational education in the education and training system and its linkages with general education is enhanced.
- The relations between institutes for technical and vocational education and industrial firms, and the official government policies governing such relations, may be clarified.
- Research topics that are aimed at renewing and adapting the content of teaching and training programmes in order to fit the present national needs, taking into account the evolution of the national context and the advances in science and technology, will be more valuable to the world of work.
- The participation of staff from enterprises in teaching and training in technical and vocational educational institutions gives that staff a perspective of the educational institutions that is valuable to them.
- The joint design of projects increases the possibility of more useful and productive projects being undertaken.

Case Studies on "Co-operation Between Educational Institutions and Enterprises at the Training Level"

The following is a check list of factors that should be considered in a case study dealing with **"Co-operation between educational institutions and enterprises at the training level"**. Not all elements of the check list may be relevant in any particular situation, but each should be considered in order to ensure that the case study is comprehensive and sufficiently descriptive to give clear guidance to others who may wish to apply some of it in their own situation.

Agents that can influence the co-operation between technical and vocational education institutions and enterprises at the training level

It is important that a case study takes into account the role of the various agents of co-operation in training between technical and vocational institutions and enterprises in the particular setup.
These agents might be the following:

◆ *Governments*
(especially those departments responsible for education/training, economic affairs, labour ...)

◆ *Employers*
and their associations.

◆ *Chambers*
such a Chambers of Commerce and Chambers of manufacturers.

◆ *Management of enterprises*
This will vary considerably according to the size and age of the enterprise and also to the degree that the enterprise may be international or have international elements in it.

◆ *Human Resource Developers in enterprises*
that are responsible for the training of personnel in those enterprises.

◆ *Trade unions*
of trainers/workers co-operating with the educational institutions.

◆ *Technical and Vocational schools*
Care must be taken to ensure a match of equipment between the vocational schools and the enterprises. This may be difficult in that the range of equipment within the various enterprises may be considerable and not be matched by the technical and vocational education institution. The opposite may also be the case.

◆ *Teachers at technicaland vocational schools*
They may be out of date in the most contemporary knowledge of the subject and their ability to use the latest equipment.

Factors relating to Training that may enhance co-operation between educational institutions and enterprises

The elements applied to promote and enhance co-operation in training may be of different types for technical and vocational institutions and enterprises.

◆ *Finance*
This may include private finance as well as government finance. It may be that a student is encouraged to undertake such an exercise because of a salary factor whereas the enterprise may be encouraged to co-operate because the government is ready to meet the costs.

◆ *Infrastructure*
In many cases there is not sufficient infrastructure in a country to support the exchange of technical and vocational teachers with human resource developers in an enterprise. With the high level of unemployment existing around the world at the moment, there may not

be sufficient places for the co-operation between technical and vocational educational institutions and enterprises for providing work experience places.

◆ *Legislation*

Legislation may include reduced taxes for the enterprise, investment incentives, subsidised wages, preferred prices, industrial parks where the enterprises within them are exempt from tax for a certain period of time. These industrial parks are designed to enable the firm to be strongly established before it has to face the rigorous competition of the world of work.

◆ *Advice*

Some firms will require advice from experts in the government and in technical and vocational education institutions or universities. This should enable them to build a strong base for their firm and increase its competitiveness through better productivity. This advice can result from co-operative ventures between educational institutions - with their research, and business enterprises.

◆ *Logistic support*

Some countries can have a significant lack of infrastructure and the logistic support they need for effective trade. Governments may assist them in this way.

◆ *Certification*

The government may give special certification to firms in order to facilitate their growth.

◆ *Training of agents*

The co-operation in training between educational institutions and enterprises allows for both the training personnel in the enterprises to be trained by the educational institutions and also the staff in the educational institutions to have real work experience in their disciplines.

◆ *Status and recognition*

Status and recognition may be limited by the general status accorded technical and vocational education in the society. On the other hand, students may receive certification that encourages participation in the scheme, as this may lead to greater status and promotion.

◆ *Compulsory training sessions*

There might be an obligation for students to spend a period of time in enterprises. An arrangement for co-operation between technical and vocational educational institutions and enterprises at the training level ensures that the student has valid experience in the world of work and that the enterprise has the opportunity to shape the training and skills of the students. This should encourage a greater harmony between the educational institutions and the world of work.

◆ *Personal incentives*

Such incentives might include international exchanges, special study, overseas study, overseas visits, and the recognition of industrial experience for further study in a university.

Barriers that may work against the effective co-operation between educational institutions and enterprises at the training level

Some of the following may act as a barrier in one particular situation, but an encouragement in another. For example, if the enterprise is very small this may deter the employer from taking on an employee. However, it may encourage others because any particular firm may need only a small amount of additional employee assistance.

- Financial difficulties may prohibit either the educational institution or the enterprise. Workers in enterprises often obtain better wages than those in educational enterprises. Some enterprises are reluctant to pay full wages to technical and vocational teachers who are of limited use because of being out of date in their knowledge and experience.
- The curricula may not cater for the social and economic needs of the country.
- The business sector may not have a long-term concept of training and so be unwilling to invest in it.
- Some enterprises may be inadequate for providing a sufficiently comprehensive and up-to-date experience to technical and vocational teachers. There may even be a lack of certain enterprises. This will prevent technical and vocational teachers from obtaining profitable, world-of-work experience.
- Technical and vocational teachers who are out of date may deter the enterprises from including them on their staff. They may find that their productivity is low because of the out-of-date knowledge and experience. Also, sometimes the conditions of work in a work enterprise are more demanding than in an educational enterprise. Thus, technical and vocational teachers may be reluctant to take on the additional responsibilities of working in an enterprise.
- In some cases an enterprise may be too small for an employer to take on just one student. On the other hand, this may be an advantage.
- Trade unions may resist the idea of technical and vocational teachers coming in and taking over union jobs, especially if it causes a change in the conditions of the jobs, such as wages and holidays. On the other hand, they may be supportive of the exercise if they see that their members will benefit from it.
- It is one thing to be able to organise the exchange of technical and vocational teachers with human resource developers in enterprises. However, it may be that the human resource developers in the enterprises are inadequate trainers and will, therefore, be unable effectively to fulfil the role of a technical and vocational teacher. They may even be inadequate in knowledge and experience for certain specialised parts of the curriculum. Equally, it may be that the technical and vocational teachers do not get sufficient experience in the industrial setting to make their time there worth while.
- There may be inadequate equipment and facilities, either in the technical and vocational educational institutions or in the enterprises.

- Competition among firms can make trade secrets an important part of the assets of the firm. Thus, the enterprises may be reluctant to bring in technical and vocational teachers because of their exposure to the trade secrets of the firm.
- Employers may not have sufficient confidence in the knowledge and ability of the technical and vocational teachers to trust them to perform at a high enough standard.
- There may be insufficient industrial training places in the world of work for all students to obtain a work placement.
- The training of technical and vocational teachers may not have included a true exposure to the world of work. Thus, they may be inadequate in their knowledge of the world of work.
- The education that has been given the technical and vocational teachers may be inappropriate in that it may be too academic, too theoretical, or out of date, to allow them to function effectively in the enterprise.
- The curriculum that is used by the technical and vocational teachers may be inappropriate for the enterprise. Likewise the instructors from the enterprises may not be familiar with the curriculum they must use in the exchange.
- There may be very little mobility in terms of a career for technical and vocational teachers. Thus, the human resource developers from the enterprise may not wish to sacrifice the mobility available to them in their private enterprise employment. The technical and vocational teachers may need the possibility of proceeding to university education as a result of their industrial experience for there to be sufficient mobility of career to attract them.
- The resistance to women and minority groups may deter employers from exchanging such people for experience in the enterprises for training.
- Students completing technical and vocational education may be ill-equipped for self-employment and, therefore, they may not have the entrepreneurial skills required by an enterprise for the co-operative exchange between educational institutions and enterprises at the training level.
- Excessive population growth causes unemployment to be so high that there may not be sufficient places for students in technical and vocational institutions to obtain a place in the world of work.
- The increased mobility given to technical and vocational education teachers because of the additional real world experience in the enterprises may encourage them to abandon their teaching posts as soon as they have completed their work experience. This represents a loss to the educational institution and the working district.
- The employment conditions of either the educational institutions or the enterprises may be inadequate.
- The objectives of technical and vocational curricula may not be determine by job specifications and the measuring of industry needs. They may be determined theoretically from foreign text books. This will make the students' study of little value.
- Rural areas may be more difficult to organise than urban areas for the exchange of students. It may be necessary for urban students to travel a long way into the country to obtain work experience. Likewise, rural students may find it very difficult to get accommodation for job experience in an urban area. Thus, the work context may, in some cases, be a barrier to the effective working of this co-operation.
- There may be insufficient financial support for travel and accommodation for the student to attend both the enterprise and the technical and vocational education institution. It may also be that the rural student is not able to abandon the farm where help is needed every day.
- Industry experience may not form part of the evaluation of the subject and so may not be taken seriously by the student.
- The status of students in enterprises may not be clear. Thus, they may run the risks of not being insured for accidents.

Incentives that can promote the co-operation between educational institutions and enterprises at the training level

Once again, what may be an incentive in one situation may be a disincentive in another situation. Thus, each one of the following needs to be carefully analysed to examine whether it is a real benefit or not.

- The government may require less taxation from those firms that are willing to co-operate with educational institutions at the training level.
- The government may give investment incentives to those firms that co-operate in this way.
- The government may be willing to subsidise training so that the firm receives cheaper labour.
- The firm may be required to pay only a reduced salary while training, or even no salary at all. However, this may not be an incentive to the student to participate in the scheme.
- It is also possible that no salary need be paid during training in exchange for facilities offered by the enterprise.
- Firms that agree to co-operate in this way may have preference in obtaining government tenders.
- This may allow flexible entry and exit to training which means a student may have greater flexibility in training and job change.
- Such co-operation is essential if the principles of life-long learning are to be established.
- With genuine work experience it is possible for technical and vocational education institutions to recognise the learning through credit and exemption in their further courses.
- If students work in an enterprise for a certain length of time, it is possible for the enterprise to identify the young people with the greatest potential and thus, offer them a job. In so doing they are selecting the best employees.

- The enterprise has the opportunity to contribute significantly to the work attitudes and ethics of the student and, thus, once again employ the best students.
- The enterprise has an opportunity to know the sorts of employee available for employment.
- The student may be willing to co-operate with the planned exchange if the enterprise is willing to offer transport to assist the student to get to the school and to return home.

Advantages and arguments that are being used to support such co-operation

- Such an exchange of knowledge and know-how and the joint undertaking of research and development projects have potential for lifting the productivity of the firm.
- An exchange of knowledge and know-how relevant to the industry are valuable.
- The acquisition by students and teachers of a much broader experience of life in an enterprise.
- The possible renewal and adaptation of teaching and training programs to suit productive work.
- Training periods spent by technical and vocational teachers and students in enterprises and universities are valuable.
- The participation of human resource developers from enterprises in vocational and technical teaching is valuable.
- The joint design and co-operation by technical and vocational education institutions and industry of research and development projects, is valuable.
- The developing, by employees of enterprises and technical and vocational teachers, of research and development skills.
- The renewal and adaptation of teaching and training programmes to suit productive work.
- Developing knowledge and skills in the latest classroom and industry technology.

Outcomes/Findings from the application of co-operation between educational institutions and enterprises at the training level

- The place and role of technical and vocational education in the education and training system and its linkages with general education is enhanced.
- The relations between institutes for technical and vocational education and in particular industrial firms, and the official government policies governing any existing relations may be clarified.
- Research topics that are aimed at renewing and adapting the content of teaching and training programmes, to fit the present national needs, taking into account the evolution of the national context and the advances in science, will be more valuable to the world of work.
- The participation of human resource developers from enterprises in teaching and training in technical and vocational educational institutions gives that staff a perspective of the educational world which is valuable to them.
- The joint design of projects increases the possibility of more useful and productive projects being undertaken.

Convention on Technical and Vocational Education

Adopted by the General Conference of UNESCO at its twenty-fifth session
Paris, 10 November 1989

Preamble

The General Conference of the United Nations Educational, Scientific and Cultural Organization, meeting at Paris from 17 October 1989 to 16 November 1989 at its twenty-fifth session,

Recalling that it is the Organization's constitutional duty to promote and develop education,

Recalling also the principles set forth in Articles 23 and 26 of the Universal Declaration of Human Rights which relate to the right to work and to education, the principles contained in the Convention against discrimination in Education, adopted in Paris on 14 December 1960, the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights, adopted in New York on 16 December 1966 as well as the Convention on the Elimination of All Forms of Discrimination against Women, adopted by the United Nations General Assembly on 18 December 1979,

Recognizing that the development of technical and vocational education should contribute to the safeguarding of peace and friendly understanding among nations,

Having noted the provisions of the Revised Recommendation concerning Technical and Vocational Education, and the Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms, both adopted by the General Conference at its eighteenth session in 1974,

Having noted further the provisions of the Recommendation on the Development of Adult Education, adopted by the General Conference in 1976 and the Recommendation concerning the Status of Teachers, adopted by the Special Intergovernmental Conference in 1966,

Taking into account the relevant recommendations of the International Conference on Education,

Bearing in mind the provisions of the Convention (No. 142) and Recommendation (No. 150) concerning Vocational Guidance and Vocational Training in the Development of Human Resources, adopted by the International Labour Conference at its sixtieth session in 1975,

Noting further the close collaboration between UNESCO and the International Labour Organisation in drawing up their respective instruments so that they pursue harmonious objectives and with a view to continuing fruitful collaboration,

Considering the need to make a special effort to promote the technical and vocational education of women and girls,

Paying special attention to the diversity of education systems and socio-economic and cultural conditions, in particular those in developing countries which need special considerations and provisions,

Considering that, in spite of this diversity, generally similar objectives are pursued and that similar problems arise in many countries, making it desirable to develop common guidelines in technical and vocational education,

Recognizing that the pace of technological, social and economic development has considerably increased the need to expand and improve the technical and vocational education provided for both young people and adults,

Recognizing that technical and vocational education meets the global aim of developing both individuals and societies,

Convinced of the need for the exchange of information and experiences in the development of technical and vocational education and of the desirability of strengthening international co-operation in this field,

Convinced of the utility of an international legal instrument to reinforce international collaboration in the development of technical and vocational education,

Adopts the present Convention this tenth day of November 1989:

Article 1

The Contracting States agree that:

(a) for the purpose of this Convention 'technical and vocational education' 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;

(b) this Convention applies to all forms and levels of technical and vocational education provided in educational institutions or through co-operative programmes organised jointly by educational institutions, on the one hand, and industrial, agricultural, commercial or any other undertaking related to the world of work, on the other;

(c) this Convention shall be applied in accordance with the constitutional provisions and legislation of each Contracting State.

Article 2

1. The Contracting States agree to frame policies, to define strategies and to implement, in accordance with their needs and resources, programmes and curricula for technical and vocational education designed for young people and adults, within the framework of their respective education systems, in order to enable them to acquire the knowledge and know-how that are essential to economic and social development as well as to the personal and cultural fulfilment of the individual in society.

2. The general framework for the development of technical and vocational education shall be determined in each Contracting State by appropriate legislation or other measures indicating:

(a) the objectives to be attained in technical and vocational fields, taking into consideration economic, social and cultural development needs and the personal fulfilment of the individual;
(b) the relationship between technical and vocational education, on the one hand, and other types of education, on the other, with particular reference to horizontal and vertical articulation of programmes;
(c) the structures for administrative organization of technical and vocational education defined by the responsible authorities;
(d) the roles of the public authorities responsible for economic, social and development planning in the various sectors of the economy and, where applicable, of professional associations, workers, employers and other interested parties.

3. The Contracting States shall guarantee that no individual who has attained the educational level for admission into technical and vocational education shall be discriminated against on the grounds of race, colour, sex, language, religion, national or social origin, political or other opinions, economic status, birth, or on any other grounds.

The Contracting States shall work towards the right to equal access to technical and vocational education and towards equality of opportunity to study throughout the educational process.

4. The Contracting States shall pay attention to the special needs of the handicapped and other disadvantaged groups and take appropriate measures to enable these groups to benefit from technical and vocational education.

Article 3

1. The Contracting States agree to provide and develop technical and vocational education programmes that take account of:

(a) the educational, cultural and social background of the population concerned and its vocational aspirations;
(b) the technical and professional skills, knowledge and levels of qualification needed in the various sectors of the economy, and the technological and structural changes to be expected;
(c) employment opportunities and development prospects at the national, regional and local levels;
(d) protection of the environment and the common heritage of mankind;
(e) occupational health, safety and welfare.

2. Technical and vocational education should be designed to operate within a framework of open-ended and flexible structures in the context of lifelong education and provide:

(a) an introduction to technology and to the world of work for all young people within the context of general education;
(b) educational and vocational guidance and information, and aptitude counselling;
(c) development of an education designed for the acquisition and development of the knowledge and know-how needed for a skilled occupation;
(d) a basis for education and training that may be essential for occupational mobility, improvement of professional qualifications and updating of knowledge, skills and understanding;
(e) complementary general education for those receiving initial technical and vocational training in the form of on-the-job or other training both inside and outside technical and vocational education institutions;
(f) continuing education and training courses for adults with a view, in particular, to retraining as well as to supplementing and upgrading the qualifications of those whose current knowledge has become obsolete because of scientific and technological progress or changes in the employment structure or in the social and economic situation, and also for those in special circumstances.

3. Technical and vocational education programmes should meet the technical requirements of the occupational sectors concerned and also provide the general education necessary for the personal and cultural development of the individual and include, inter alia, social, economic and environmental concepts relevant to the occupation concerned.

4. The Contracting States agree to tender support and advice to undertakings outside educational institutions which take part in co-operative programmes of technical and vocational education.

5. At each occupational level, the competence required must be defined as clearly as possible and curricula must be continuously updated to incorporate new knowledge and technical processes.

6. In assessing the ability to carry out occupational activities and determining appropriate awards in technical and vocational education, account should be taken of both the theoretical and practical aspects of the technical field in question, and this should apply both to persons who have received training and to persons who have acquired occupational experience in employment.

Article 4

The Contracting States agree to review periodically the structure of technical and vocational education, study programmes, plans, training methods and materials, as well as forms of co-operation between the school system and the world of work, so as to ensure that they are constantly adapted to scientific and technological progress, to cultural progress and to changing employment needs in the various sectors of the economy, and that advances in educational research and innovation are taken into account with a view to application of the most effective teaching methods.

Article 5

1. The Contracting States agree that all persons teaching in the field of technical and vocational education, whether working full time or part time, should have adequate knowledge, theoretical and practical, of their professional field of competence as well as appropriate teaching skills consistent with the type and level of the courses they are required to teach.

2. Persons teaching in technical and vocational education should be given the opportunity to update their technical information, knowledge and skills through special courses, practical training periods in enterprises and any other organised form of activity involving contact with the world of work; in addition, they should be provided with information on and training in educational innovations that may have applications in their particular discipline and be given the opportunity to participate in relevant research and development.

3. Equal employment opportunities should be offered, without discrimination, to teachers and other specialized staff in technical and vocational education and their employment conditions should be such that it is possible to attract, recruit and retain staff qualified in their areas of competence.

Article 6

To facilitate international co-operation, the Contracting States agree:

(a) to encourage the collection and dissemination of information concerning innovations, ideas and experience in technical and vocational education and to participate actively in international exchanges dealing with study and teacher-training programmes, methods, equipment standards and textbooks in the field of technical and vocational education;
(b) to encourage the use in technical and vocational education of international technical standards applied in industry, commerce and other sectors of the economy;
(c) to promote approaches to achieving the recognition of equivalencies of qualifications acquired through technical and vocational education;
(d) to encourage international exchanges of teachers, administrators and other specialists in technical and vocational education;
(e) to give students from other countries, particularly from developing countries, the opportunity to receive technical and vocational education in their institutions, with a view, in particular, to facilitating the study, acquisition, adaptation, transfer and application of technology;
(f) to promote co-operation in technical and vocational education between all countries, but in particular between industrialized and developing countries, in order to encourage the development of the technologies of the countries;
(g) to mobilize resources for strengthening international co-operation in the field of technical and vocational education.

Article 7

The Contracting States shall specify, in periodic reports submitted to the General Conference of the United Nations Educational, Scientific and Cultural Organization at the dates and in the form determined by it, the legislative provisions, regulations and other measures adopted by them to give effect to this Convention.

Article 8

The following provisions shall apply to those States Parties to this Convention which have a non-unitary constitutional system:

(a) with regard to the provisions of this Convention, the implementation of which comes under the legal jurisdiction of the federal or central legislative power, the obligations of the federal or central government shall be the same as for those States Parties with a centralized system;
(b) with regard to the provisions of this Convention, the implementation of which comes under the legal jurisdiction of federated States and constituent countries, provinces, autonomous communities or cantons that are not obliged by the general or basic constitutional system of the federation to take legislative measures, the central government shall inform the competent authorities of such States, countries, provinces, autonomous communities or cantons of the said provisions, with its recommendation for their adoption.

Article 9

Member States of UNESCO may becomes Parties to this Convention, as well as non-Member States of UNESCO which have been invited by UNESCO's Executive Board to become Parties, by depositing with the Director-General of UNESCO an instrument of ratification, acceptance, accession, or approval.

Article 10

This Convention shall enter into force three months after the third instrument referred to in Article 9 has been deposited, but solely with respect to the States that have deposited their respective instruments by that date. It shall enter into force for each other State three months after that State has deposited its instrument.

Article 11

1. Each Contracting State shall have the right to denounce this Convention by formal notification in writing to the Director-General of the United Nations Educational, Scientific and Cultural Organization.

2. The denunciation shall take effect 12 months after the notification has been received.

Article 12

The Director-General of the United Nations Educational, Scientific and Cultural Organization shall inform the Member States of the Organization, the non-Member States covered by Article 9 and also the United Nations of the deposit of all the instruments referred to in Article 9 and the denunciations provided for in Article 11.

Article 13

1. This Convention may be revised by the General Conference of the United Nations Educational, Scientific and Cultural Organization. Such revision shall, however, be binding only on States Parties to the revised Convention.

2. Should the General Conference adopt a new Convention entailing a total or partial revision of this Convention, and unless the new Convention otherwise provides, this present Convention shall cease to be open to new States Parties from the date of entry into force of the new revised Convention.

Article 14

This Convention has been drawn up in Arabic, Chinese, English, French, Russian and Spanish, the six texts being equally authoritative.

Article 15

In conformity with Article 102 of the Charter of the United Nations, this Convention shall be registered with the Secretariat of the United Nations at the request of the Director-General of the United Nations Educational, Scientific and Cultural Organization.

Done in Paris, this sixteenth day of November 1989, in two authentic copies bearing the signature of the President of the twenty-fifth session of the General Conference and of the Director-General of the United Nations Educational, Scientific and Cultural Organization, which shall be deposited in the archives of the United Nations Educational, Scientific and Cultural Organization, and certified true copies of which shall be delivered to all the States referred to in Article 9 as well as to the United Nations.