

Needs Assessment of Education and Recommendations for German Cooperation: The Case of Yemen

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I. INTRODUCTION

The Republic of Yemen was established on 22 May 1990 following the declaration of unity between North and South Yemen. Since that date, the Yemeni government declared its development plans for the unified country covering economic, cultural, educational, health and social domains.

I.1 Population

The population of Yemen is 18,482.000 million according to 1994 census; 25% of the population lives in urban areas while 75% live in rural areas. Agriculture and fishing are the main population activities. Yemen has a high rate of population growth owing to high birth rate and the prevalence of illiteracy among male and female adults. 65% of the male children in the basic education age are in schools, while only 41% of the girls at the same age are enrolled in schools, which points to a gap between males and females on one hand and between rural and urban areas on the other. Girls' enrollment in education in rural areas does not exceed 27%.

I.2 Objectives of the Study

- Evaluating the educational needs in the primary, secondary and university/vocational training stages as outlined in the Arab Human Development Report (AHDR) with focus on the knowledge society
- Outlining areas of cooperation and appropriate mechanisms to be adopted by the German development policy in the area of education and building up the knowledge society in these countries.

I.3. Scope and Methodology

The study seeks to evaluate the educational needs in the following areas:

- -Basic and secondary education
- -Adult education and illiteracy eradication
- -Higher and vocational education and vocational training

In Yemen, the educational stages mentioned above are the jurisdiction of different ministries and are therefore subject to different decision makers (basic and secondary education and illiteracy eradication are affiliated to the ministry of education; higher education is affiliated to the ministry of higher education and scientific research and vocational training to ministry of vocational education and training). Due to these variations, the study team interviewed a wide range of officials to analyze their viewpoints and future vision on education problems in Yemen. The study team analyzed the main documents related to the study in addition to interviewing leaders in the area of education in the stages of general, vocational and higher education.¹

II. ARAB HUMAN DEVELOPMENT REPORT (AHDR)

It was issued by the UNDP and the Arab Fund for Economic and Social Development with focus on the establishment of knowledge society. The Report indicated that knowledge is the road to human development. It also pointed out that the Arab region is rich with human capital, but the socio economic and political structures in the Arab countries have not been of service to

¹ Interviews were also conducted with representatives of some NGOs listed in section 12.

knowledge, freedoms or the empowerment of women. Rather, they have been an obstacle to the enhancement of knowledge.

In order to familiarize ourselves with the reaction of the Yemeni people to the Report, we interviewed a random group of 56 males and females of different socio-cultural standings in the capital, Sanaa. They were categorized as follows:

Target group	
Number	Profession
35	Researchers and professors
11	Political leaders (deputy ministers and heads of institutions)
6	Administrators
2	Private sector and craftsmen
2	University students
56	Total

Our questions on their reaction to the AHDR focused on the following:

1. Did Report make a distinction between ministries, thinkers and civil society organizations in the area of education?
2. What is the media coverage of the report?
3. Have the media trends changed since the announcement of the report findings?

1- 40% of the group said they have not seen the report. When we showed them a copy, 30% said they had seen it before but did not read it.

Dr. Yehia Al Motawakel, Counselor to the Minister of Planning and International Cooperation, the official is responsible for activities related to the report in Yemen, justified that by saying that Yemen received only 300 copies of the report and although it is available on line, very few people have visited the site.

Only 30% had read the report , 40% of whom said that it addressed thinkers and intellectuals while 20% said it addressed ministries. None of them said that it addressed civil society. Dr. Al Motawakel said that civil society organizations had no ample opportunity to discuss the report. They were only able to organize four workshops around it.

2-On the media coverage, large numbers (80%) said it was weak and the result was that only a few knew about it. Dr. Al Motawakel said that because only a small number of workshops was organized, there was no media coverage.

3-On the change in media policy based on report findings:

40% said no change took place. Dr. Al Motawakel seemed to agree with this view, adding that the media has not been transparent and that the role of civil society organizations is still weak due to the following reasons: The limited capacity and isolation of these organizations in addition to their inability to adopt major national issues. Other objective reasons have to do with the fact that civil society organizations were generally not invited to participate.

All the above reasons contributed to the marginalization of the role of civil society organizations. The working paper presented at Eden University on 28-29 July 2004 on the role of civil society organizations was well received because it addressed reasons behind the absence of the organizations. However, despite the importance of the paper, it was not

distributed sufficiently to all participants nor did it receive any media coverage. In addition, no ministry or government institution played any role in giving publicity to the report with the exception of the ministry of planning.

We asked Dr. Al Motawakel why Yemen was not included in any substantive way in the report, in terms of figures and tables on Yemen. He said that there was little accurate data on Yemen and that work is now underway to produce the Yemen Development Report.

In general, we believe that the Report did not examine in depth the different problems such as education. It confined itself to the presentation of some comparative data for the Arab countries. Moreover, the findings of salient studies were not reflected in the report. Yemen, for example, participated in a major Arab study on the absorption capacity of children in the fourth and sixth grades of basic education in which experts from UNESCO and other funding agencies participated. And yet, the Yemeni part of the study was not referred to in the report, while the Jordanian part was mentioned.

III. GENERAL EDUCATION

The general law of education no. 45 for 1992 in Yemen indicates that the number of education years is 12, divided between basic education (nine years) and general secondary (three years).

III.1 Basic Education

Children aged 6-14 are enrolled in basic education, which is considered a long-term human developmental investment and a human right ensured by the state. Free education is guaranteed by the state in its endeavor to achieve social justice and equal opportunities regardless of socio economic conditions. The educational policy is based on scientific criteria of planning and curricula design as well as evaluation, follow up and establishing a link between theoretical knowledge and technical skills, justice in the distribution of educational services among different governorates, and finally the decentralization of educational management. (Articles 8, 6 and 14 of the Education Law)

And yet, a number of studies and field research revealed the imbalance in the application of the law as far as equal opportunities and social justice is concerned. The studies pointed to a large educational gap between males and females on one hand, and the urban and rural areas on the other. They also demonstrated that 53.3% of the girls in the age group 6-14 are outside school and that 38% of the girls enrolled in school are dropping out during the basic education stage.

III.2 Secondary Education

Article 37 of the Yemeni constitution stipulates that education is the right of all citizens and is guaranteed by the state and the cultural and educational institutes. In particular, the state is concerned with the protection of young people against deviance and ensures the provision of religious, mental and physical education and all the appropriate and conducive conditions for the development of their potentials.

Thus, the education law defines secondary education as the stage that enables pupils who have obtained their basic education to continue to develop their practical and literary faculties. The secondary stage consists of three years of general education. There is no specialization in the first year then the two following years are divided into science and literary sections. A general

national examination is held at the end of the secondary stage. The choice to join the science or the literary section is based on individual preferences.

The law referred to the purpose of secondary education as the preparation of pupils to join the labor market directly or to continue their higher education based on their tendencies, preferences and various areas of strengths (Article 20). Despite the clarity of the legal and legislative aspects of the law, reality reflects a different situation. Only 32.9% of the population aged 15-17 are in secondary schools. Only 19% of the girls and 44.9% of the boys in this age group go to school. The enrollment of girls in secondary education constitutes 26.8% of total enrollment, which points again to a gender educational gap.

III.3 Challenges Facing Basic and Secondary Education

1. High rate of population growth particularly among the young cohorts aged 15-45, which makes it hard for the state to ensure the provision of educational services for all and hinders the enforcement of social justice and equal opportunities for all.
2. Spread of illiteracy among the population particularly women and dwellers of rural areas, in addition to the low level of awareness about the importance of education.
3. Large number of children and high dependency ratio in Yemeni families
4. The prevalence of illiteracy, the large number of family members in addition to low income level have all been reflected in low enrollment rates for girls. Families prefer to send their sons, rather than their daughters, to school. Girls stay at home to help with house chores and when family resources are limited, boys are sent to schools to the disadvantage of girls.
5. Lack of desire among families to educate their daughters: Only 46.7% of the girls in the age group 6-14 are enrolled in schools compared to 86.6% of the boys in the same age group.
6. The wide scale population fragmentation (dispersion) due to the geography of Yemen increases demand on education on one hand, and undermines the quality of education on the other leading to:
 - -Prevalence of combined classes because of the shortage of pupils
 - -Presence of one- teacher and incomplete schools. Often education stops at the end of basic education because of lack of buildings and teachers.
 - -Shortage of secondary education teachers
7. Increasing pressures on the state budget for educational expenditure. From 1990 to 2000 the education budget in Yemen represented 6% of its GDP and about 19% of the state general budget, which undermines the ability of the state to address other needs such as provision of electricity, water, social insurance and medical services.
8. Poor institutional capacity of the government sector and shortage of capacities to implement developmental programs and projects such as the national strategy for basic education.
9. Drop- out in various educational stages. Only 223 pupils out of 1000 who were enrolled in a given educational stage complete that stage. Only 35 female pupils out of 100 finish basic education. Drop out rate in the secondary stage reaches 3.4% and rises to 6.9% in third secondary, in addition to failure and year repetition which accounts for 10.8%.

The Yemeni document of the Millennium Development Goals (MDGs) for 2003, issued by the ministry of planning and development cooperation (MPDC) in cooperation with the UNDP, agreed with the National Strategy for Basic Education in identifying the challenges facing education generally in Yemen, but referred very briefly to the problems of basic education. The two documents referred to poverty and the low economic standing as challenges facing Yemen

which have resulted in low rates of enrollment among pupils in the age group 6-14 in basic education as well as the age group 15-17 in secondary education. On the other hand, the national strategy for poverty alleviation issued by the MPDC indicated that low rates of enrollment and spread of illiteracy are the main challenges that contributed to increase in incidence of poverty and the widening of its circle.

In the part of the document that linked poverty to education, the strategy said that although basic education is compulsory according to law and the constitution, it is still unable to absorb all the children in the age group 6-14 particularly girls and in rural areas. The strategy also indicated that equal distribution and opportunities will not be achieved as long as the bias against the poor continues to exist. While the enrollment rates among non-poor families amount to 70.2%, it declines to 62.5% among poor families, with female enrollment rates among poor families reaching 51.7% against 59.8% in non-poor families. In addition, drop out rates increase among poor families due to absence of financial resources and lack of programs that encourage families to educate their children. Poor children drop out of education to either join the labor market or become street children. Yemeni working children amount to 5.1% among males and 17.2% among females (Strategy for lessening poverty in Yemen, page 54.)

Similarly, the population policy national document issued in 2002 identified the main challenges facing the population policy as the high rate of illiteracy, low levels of enrollment in education in the age group 6-14 as well as the poor outputs of the educational institutions.

III.4 Critical Strategic Issues Facing Basic and Secondary Education

The main national strategic education documents outlined the major issues facing the educational system as follows:

- -Higher social demand on education
- -Low absorption capacity of the educational system
- -Poor quality of education
- -Low level of training offered to teachers
- -Low rates of enrollment in basic and secondary education.
- -Gender gap in enrollment
- -Low educational efficiency
- -Poor institutional capacities of the educational structure (from ministry to schools)
- -Poor community participation and lack of trust and open dialogue between the educational institutions and society.

III.5 Government Efforts to Improve Education

III.5.1 Projects for the improvement of basic education

Implemented in cooperation with the International Development Agency (IDA) from 1992 to 2000 and included the following:

- Building 1000 classrooms in remote rural areas in the governorates of Hadramout,, Ebb, Shebwa, Al Hodaida, Al Mahwait, Al Baidaa and Ta'ez according to modern standards so they would be appropriate and accessible to girls in particular. The classrooms were supplied with appropriate hygienic facilities and had good locations to facilitate access..
- Attracting female teachers to girls' schools in the rural areas. Studies have indicated that part of the reason why girls drop out of schools is the lack of female teachers.
- Training of teachers: Providing training opportunities in remote sites, on site training and summer courses.

- Developing educational curricula. After the unity of the two parts of Yemen, it was important to unify educational curricula. In the school year 2001-2002 the process of unifying curricula was completed for the basic education stage.
- Establishing model projects to increase girls' enrollment in basic education in the primary stage
- Developing a national strategy for girls' education with three main objectives:
- 1. Providing basic education for girls so that their enrollment rate would rise from 40% to 86% in 2010.
- Reducing drop out among girls
- Improving quality of girls' education and responding to the actual needs of girls.

III.5.2 Projects for the development of secondary education

The 11th loan obtained from the IDA was allocated for the development of secondary education as follows

- -Developing the science and math curricula
- -Building schools for girls only in the secondary stage
- -Preparing a document that includes the basic principles of general education curricula in Yemen
- -Establishing pioneer projects to respond to local needs, for example house economics for girls.
- -Strengthening community participation in education to reinforce girls' education
- -Preparing a manual for school administration
- -Providing laboratories in secondary schools

Due to the limited abilities of the ministry of education, the assistance of international organizations and donor countries was solicited. These included: The Embassy of the Netherlands in Sanaa, UNICEF, the GTZ and the KFW. Their efforts focused on the following areas:

-Building new classrooms and providing school supplies (The Embassy of the Netherlands, GTZ)

III.5.3 Establishing pilot projects

Training teachers and attracting female teachers to rural areas (UNICEF, The Embassy of Netherlands, and the GTZ)

III.5.4 Organizing awareness- raising campaigns on the importance of girls' education

This project was organized by local teams in different governorates in cooperation with UNICEF and the GTZ.

III.5.5 Community based schools

UNICEF in Hodaida governorate.

III.5.6 Improving the school environment

GTZ and the KFW

- Goal: Improve the educational environment through the improvement of the environmental and health conditions in various schools
- Target group: Pupils, teachers, parents and surrounding communities
- Duration: mid 1995 to 2005
- Mechanisms: health and environmental education with emphasis on behavior change;
- Participation of pupils, parents and teachers as well as school directorates in project implementation
- Coordination between school, family and community around school maintenance.
- Establishing rules and binding regulations to organize work
- Six schools in the governorate of Ebb and six in Abeen were chosen as pilot sites
- The engagement of education bureaus in the two governorates

Project activities:

- Preparing school environment
- Continuous maintenance of schools
- Ensuring community participation in maintenance
- Forming parents' boards
- Organizing educational activities that focus on environmental and health awareness raising
- Follow up and evaluation
- Including a training component for all parties involved
- Creating a group of social workers and providing them with training programs
- Preparing a study on the level of environmental awareness among children in basic education prior to integrating new environmental concepts in educational curricula

Project outcome:

- Improved performance of school health department
- Activating parents' boards and forming mothers' boards in a number of other non- project schools
- Improving the relationship between family and school through meetings, visits and joint school improvement activities
- Increasing the rate of girls enrollment to go up to 108% in some districts of Ebb governorate.
- Improving the health and environmental reality of the schools
- Improving the performance of the administration of the project's schools
- Some neighboring schools have improved their own school environment following the example of the projects' schools

The success of this project has encouraged the ministry of education to assign to the GTZ the task of supervising the implementation of the community participation component, which is one of the main components of the basic education expansion project (BEEP). The ministry also approved of extending the project activities to two additional governorates: Mareb and Hija.

Despite the success of these efforts in achieving some remarkable progress in basic and secondary education, it could not reach the targeted goals due to the following reasons:

- High annual population growth rate and the expansion of the relevant age group in the different educational stages.
- High demand on education
- Project implementation took place in limited areas and did not go beyond them
- Impact of project diminished with the end of the project duration and withdrawal of international organizations

- Absence of project sustainability, whether governmental or non- governmental, due to lack of proper planning and funding to replace the international organizations by local institutions.
- Shortage of personnel capable of managing the projects
- Termination of financial and in- kind incentives to target groups i.e. incentives to female teachers in rural areas and food items for girls in schools in rural areas.
- Inability of ministry of education to carry the burden of the projects upon the withdrawal of international organizations and donor agencies
- Weak role of private sector
- Dispersion of projects in remote areas which makes follow up and evaluation difficult tasks
- Absence of proper approach to the implementation of pilot projects and the inability to replicate them in other areas.

Table 1: Number of pupils in secondary education in relation to classrooms and teachers: 1989/90-2000/2001

School year	Male	fem	Total	No of Sections	No. of Teachers	Pupils/ Classroom	Pupils/ Teacher
1990/89	57218	15322	72540	1728	3677	42	20:1
1991/90	106764	19936	126700	3072	2088	41.2	41:1
1992/91	127448	29316	156764	3632	6507	43.2	24:1
1993/92	116019	23600	139619	3285	7292	42.5	19:1
1994/93	155208	36446	191654	4466	10497	42.3	18:1
1995/94	183619	44427	228046	5419	12368	42.1	18:1
1996/95	204527	52890	257417	6561	14195	39.2	18:1
1997/96	224253	60739	284992	7232	17439	39.4	16:1
1998/97	225598	70796	296394	8573	17486	34.6	17:1
1999/98	242580	80544	323124	11206	27703	28.8	12:1
2000/99	324473	114656	439129	12801	33899	34.3	13:1
2000/01	354743	129830	484573	13982	35239	34.7	14:1

Table 2: Distribution of teachers according to qualifications based on findings of the educational survey for the school year 2001/2002

Stage		Post Prim.	Post Uni-fied	Post Basic	Post Sec	Univ	Abov Univ	Non-Edu.	Male	Fem	Tot'l
Secondary	No.	48	41	619	1224	15012	187	2011	13911	3724	17653
	%	0.3	0.2	3.5	6.9	8.6	101	11.4	78.9	21.1	100
Basic+ Secondary	No.	216	55	2159	3278	12975	118	2455	18770	2368	20838
	%	0.1	0.3	10.4	15.7	62.3	0.6	1.8	88.6	11.4	100
Total	No.	264	96	2778	4502	27987	305	4466	32381	6092	38473
	%	0.7	0.3	7.2	11.7	72.7	0.8	11.6	84.2	15.8	100

Table 3: School buildings in which secondary stage operates on the basis of gender of pupils and distribution of classrooms

Stage	No. of bldgs	Gender of pupils			Distribution of rooms in building						
		M	F	Mix	Class Room	Admin Room	Lab	Library	Activity Room	Teach Room	Hall
Basic+ Second	3067	439	294	2478	30424	2947	686	360	315	703	23
Second	204	107	28	114	1635	336	185	76	74	138	87
Total	3271	546	322	2592	32059	3283	871	436	389	841	110

Table 4: No. of population in the age group 6-14; number of pupils in the parallel age group and rate of enrollment in school year 2000/2001

Population in age group 6-14			No. of pupils			Rate of enrollment		
Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2853000	2604000	5457000	2185278	1216230	3401508	76.6	46.7	62.2

Table 5: Percentage of pupils' enrollment in basic education according to gender and urban area: School year 1999/2000

Urban area	No. of absorbed pupils			Percentage		
	Males	Females	Total	Males	Females	Total
Urban	566467	458217	1024684	55.3	44.7	100
Rural	1532440	649742	2182182	70.2	29.8	100
Total	2098907	1107959	3206866	65.5	34.5	100

III.6 General Education in the AHDR for 2003

The AHDR identified five cornerstones for the establishment of the knowledge society in the Arab countries, as follows:

- Freedom of opinion, expression, organization and good governance

- Spread of high quality education and continuous education for life
- Build capacities to undertake research and science activities
- Shift towards the production of knowledge in the Arab social and economic infrastructure
- Institutionalize an enlightened and open Arab epistemological model (AHDR, p. 11, 12)

Addressing basic and secondary education, the AHDR stated that development in the two areas was quantitative and that the qualitative development remains a challenge. The report attributed this situation to the poor educational allocations and policies in the Arab countries, which directly affect the conditions of teachers and educational curricula.

The report pointed to the presence of high quality teachers who have the expertise and can play an important role in developing the educational process. They, however, face the following problems:

- Low salaries
- Need to take other jobs to raise their income
- Wasting teacher's talents and energies in un-related activities and the inability of teachers to perform their job in the best possible way.
- Poor educational books and curricula
- Classrooms are over-crowded
- Lack of proper and continuous training for teachers.

In order to overcome the problem of low wages, the Yemeni government issued the teacher's law, which adjusted teachers' salaries based on their expertise and qualifications; teachers' living conditions have been improved and financial incentives, particularly to teachers in rural areas, were granted. Teachers' training has been integrated in the national strategy for basic education and various mechanisms of training (remote training, long and short term training etc) have been devised. However, other challenges outlined above, remain unresolved.

The report indicated that school curricula in most of the Arab countries are below international standards. They still reinforce principles of loyalty and obedience and do not encourage critical thinking.

In Yemen since 1990 the modification of school curricula focused on state of the art in different knowledge domains on the national, regional and international levels. Children were encouraged to find answers to their questions in sources other than the school- book. However, this development was a source of concern for many families because they were unable to help their children with their studies, which drew attention to the need to involve families in the process of educational development.

School and educational books are the responsibility of a group of distinguished researchers, university professors and teachers in addition to school inspectors. The Center for Research and Educational Development is the institution in charge of writing school books for the different educational stages. The curricula and guidance sector is one of the main departments in the ministry of education in charge of policies and orientations for school books and operates via the Supreme Committee for Curricula headed by the minister of education. In 2004-05 the process of developing curricula and school- books for all educational stages will continue along with the annual review fed by experience from the field.

III.6.1. Education policies

The AHDR indicated that the disorder in the educational policies is attributed to the lack of a comprehensive vision of the educational process, the contents of the curricula and the

examinations. The *National Strategy for Basic Education* approved by the government and the donors' forum, articulated Yemen's vision for the development of basic education in line with the Dakar Declaration and the MDGs. Moreover, in August 2004, the Minister of Education issued a decree forming a central team to draft a national strategy for the reform of secondary education.

Educational leaders also recognized the importance of knowledge of foreign languages that enables Yemeni graduates to compete on the job market and develop their capacities to open up to other cultures and foreign publications. Thus the ministry of education adopted the following steps to ensure the integration of foreign languages in educational curricula:

- Conduct a study to find out reasons for low pupils' performance in the English language, which is taught in the seventh grade.
- Undertake an exploratory study to examine the feasibility of teaching English in the fourth grade of basic education
- Begin to teach French language in a number of secondary schools as a pilot experiment in the school year 2004/2005.
- Begin to teach the German language starting the school year 2004/2005 in a number of secondary schools (4 schools) within a pilot project, in cooperation with the Embassy of Germany
- Introduce computer as an academic subject in a number of secondary schools in cooperation with UNESCO. The ministry seeks to provide computers and labs through cooperation with international organizations and donor agencies.

III.6.2. Measuring quality of education

The report pointed to the dearth of data on Yemen, which makes difficult any comparative studies. Yemen did not participate with other Arab countries in the UNESCO sponsored study to measure pupils' performance in the 4th, 5th, 6th, 8th and 9th grades in Arabic, math, science and life skills. Given the importance of measuring quality of education, the ministry of education is currently considering the establishment of a center for measurements and evaluation on the basis of up to date scientific principles.

In the second part of Chapter 9, the report pointed to the role of research and development centers in improving the educational system. The Center for Educational Research and Development established in 1999 is considered the official body in charge of developing the educational system through:

- Presenting a list of the educational problems to the Minister of Education
- Minister selects six to eight issues of priority and entrusts the Center with their study and implementation
- The Center forms research teams according to study requirements and needed specializations.
- The Center solicits the assistance of outside expertise in the implementation of the studies.
- The Center forms research teams under the supervision of a steering committee of PhD holders who will discuss the research process, research tools and target areas in light of the research objectives.
- The Center discusses suggested research tools through workshops to be held at the Center
- The Center discusses research findings in workshops
- Research findings and reports are approved by the Center's leadership
- Research studies are published annually and distributed free of charge to educational sectors, leadership of the ministry of education, other competent ministries, the Shura Council, Council of Deputies and the Ministerial Cabinet.

The above- mentioned measures clearly emphasize the importance of team- work. The Center does not implement individual research studies.

However, the question remains: who makes use of these studies and who reads them? Who takes the responsibility of implementing the findings to solve the problems of education?

It is understood that uncovering and analyzing the problems requires follow up in the implementation of findings through pilot intervention projects that will test the solutions and analyze the human and financial inputs needed for their implementation. It is important to note, however, that the Center's annual budget for research studies does not exceed 58,000 US\$ which include administrative expenses, field work, organization of workshop etc.

III.7. Future Vision for General Education

Recognizing the magnitude of the problem and given its commitment to the Dakar Declaration of April 2000, the ministry of education drafted the *National Strategy for Basic Education* in Yemen based on the following principles:

- Wide scale community participation in proposing the strategy, including civil society, educational leaders on the local and central levels, and technical educational experts in planning and funding
- Adopting a bottom-up approach to planning to provide a healthy atmosphere for the implementation of the strategy
- Adopting democratic principles and encouraging open dialogue between partners in the educational process
- Realism and ambition through outlining areas of strengths and weakness and proposing goals that can be achieved
- Adopting a comprehensive and holistic approach: establishing balance and integration between the different elements in the educational process
- Realistic scientific approach based on indicators for measurement and evaluation of the different stages of strategy implementation.

The ultimate goal of the future vision as indicated by the strategy is to have in place a system of basic education in Yemen by the year 2015, that provides every Yemeni child in the age group 6-14 with the opportunity to obtain high quality basic education, appropriate to the needs of development, and acquire the necessary knowledge and life skills to learn and grow individually and socially.

The above goal entails the achievement of two main strategic outcomes by the year 2015:

- Reforming the educational system in the following areas:
 - 1-Teachers and guidance
 - 2-Curricula and evaluation
 - 3-School administration
 - 4-Educational funding
 - 5-Decentralization
 - 6-Girls' education
 - 7-School buildings
 - 8-Community participation

- Shift in the performance and quality of basic education to provide basic education opportunities for all Yemeni children aged 6-14 by the year 2015 through improved performance on:
 - 1-Coverage and spread
 - 2-Quality
 - 3-Internal efficiency and effectiveness
 - 4-Sufficiency of funding and diversity of sources
 - 5-Openness and dynamism of the system

III.7.1 Steps to approve the strategy of basic education

- Approval by the government through the council of ministers in 2003 as a national program for the development of basic education
- Allocating 4 billion riyals to assist the government in implementing the strategy
- Presenting the strategy to the international community as an approved national document
- Forming a forum for donors to support the strategy's program and sign a partnership agreement for funding
- Endorsement by the Oslo conference in November 2003 as an official document for the development of basic education. During the conference, Yemen was granted 10 million dollars from the Katilek Fund to implement the strategy
- Endorsement by the Paris Club in October 2003 as a strategy that runs parallel to poverty alleviation
- Endorsement by the Arab Regional Conference for Education for All in Lebanon in January 2004
- Endorsement by the Second Arab Regional Conference for Education for All in Cairo in July 2004
- Forming a monitoring committee to supervise its implementation under the chairmanship of the Minister of Education.
- Forming a national technical team to implement the strategy
- Approving the detailed plans of the various areas as an executive program by the supervisory committee and the donors' forum in Yemen
- Including Yemen in the Fast Trajectory Initiative (FTI) on education for all, because of its commitment to the reform of education. Yemen is to now draft the FTI document, which is regarded as the indicator for the achievement of 100% of basic education.
- Approving current developmental programs such as the expansion of basic education (first phase BEEP) using a loan from the World Bank and two grants from the Government of Holland and the Embassy of Japan in Sanaa
- Acknowledging the Basic Education Development Program (BEDP) as a supporting program for the implementation of the national strategy for basic education.

BEDP targets all Yemeni governorates and focuses on the most deprived areas through:

- Increasing number of classrooms
- Improving quality of basic education
- Implementing Teachers' training programs
- Approving continuous evaluation programs for curricula and academic books
- Addressing the shortcomings in the administration of the educational system through capacity building programs on all levels.

III.7.2 The relationship between the National Strategy for Basic Education and other approved developmental strategies

- Poverty alleviation strategy: Its general goal is to reduce poverty by 13.1% from 2003-2005. This can be achieved through sectoral goals in the area of health by designing health programs that will increase the medical coverage to 65% by the year 2005.
- Raising the rate of enrollment in basic education to 69.3% by the year 2005 and reducing discrepancies between males and females
- Increasing educational financial appropriations by 15% annually.

The MDGs – Yemen Report for 2003

This document confirms Yemen's endorsement of various plans and programs that seek the development of education and enhances Yemen's strategic vision. These include universal education, and introducing structural changes in the educational system so it could cope with changes and needs. This is achieved through:

- Developing the institutional capacity of the educational sector on all levels
- Reinforcing the structural reform of the educational sector in cooperation with partners and donors
- Consolidating coordination between donors to maximize benefits from loans and grants
- Increase the number of educational institutions particularly in the needy rural areas.
- Improving the schools buildings
- Improving school curricula
- Overcoming the problem of classrooms congestion particularly in cities and urban centers

The Second Five Year Plan: 2001-2005

The plan demonstrates that the state contribution to the development of the education sector continues through providing financial resources to build new schools, increase the allocations for maintenance and operations, increase the rate of net enrollment in the first grade by 12% during the plan period, increase the total enrollment rate to 69.1% and raise the share of expenditure on basic education 10% annually.

The above demonstrates the magnitude of the current coordination between the different sectors to serve the ultimate overall goal of development.

Community participation in development:

New developments in Yemen heralding a new phase of pluralism and democracy have left their impact on the economic, cultural, health and educational life through the integration of the element of participation in development programs. This was particularly accentuated with the integration of the private sector and NGOs in developmental planning which seeks to also include them in the implementation phase.

The poverty alleviation program includes a component on community participation supported by a number of active NGOs in Yemen such as the UNDP and Oxfam. These programs point to the importance of community participation based on the principle that man is the center and core of development.

Community participation in education:

The ministry of education devised a component entitled community participation in education within its project to expand basic education. The program is supported by a loan from the USAID

and other grants from Holland and Japan. The new component seeks to find a place for community participation within the structure of the ministry of education.

The formative phase of the project began in January 2002 to August 2004 to achieve the following goals:

- Improve the quality of basic education in the target governorates (Sanaa, Al Dale', El Mahweit, Omran)
- Increase the rate of enrollment in basic education for children aged 6-14 particularly girls in the project site
- Form parents' and mothers' boards in the schools of the selected areas.
- Integrate local communities in educational process through activities addressed to parents' and mothers' boards
- Focus on capacity building through training of trainers' workshops in the four governorates. These activities included:
 - Forming units for community participation in the educational bureaus which include four male and female educational specialists with expertise.
 - Training the coordinators on community participation in the four governorates (16 persons) and providing them with the skills of community participation through 18 month training workshops in the following areas:
 - Fieldwork skills and organization of awareness campaigns for girls' education
 - Drafting questionnaires to be used in the field
 - Preparing work plans
 - Drafting reports
 - Planning, implementation, follow up and evaluation
 - Forming parents' and mothers' boards
 - Skills for performing social assessment tasks
 - Training on different roles within the educational development activities in the local communities.

These skills enabled the coordinators to implement a number of activities in the local communities under the supervision of the project's central unit, including:

- -Establishing 45 parents' and mothers' boards in the four governorates
- -Participating in selecting new schools' sites for the project
- -Field visits to raise awareness about the importance of girls' education
- -Collecting data on the new locations to form the nucleus of a data base for the project
- -The coordinators are the core of the community participation initiative and on their shoulders lies the responsibility of training new coordinators
- -Including local government leadership in the selected governorates within the activities of the community and making use of their efforts and activities in implementing other community activities in other service related domains.

III.7.3 Education for all- The Fast Trajectory Initiative in Yemen, August 2002

Educational statistics indicated that 2.5 million children are enrolled in primary education in Yemen and that 290,000 children in the age group relevant to this educational stage are not enrolled (11%). As a result of the efforts exerted by the Ministry of Education in this area during the last decade, the rate of male enrolment improved to reach 89% in 2001. Female enrollment also rose to 49% (yet clearly there is a large gap between the two in addition to the discrepancy between rural and urban enrollment rates).

Moreover, lower levels of basic education also suffer various problems. Out of 100 children who joined primary education, only 48 made it to the sixth grade, in addition to the high drop out rates, failure and year repetition, so that it takes pupils – particularly girls - 8.4 years to reach the sixth grade.

Strategy of the Yemeni Government:

The Yemeni government considers education an integral and critical part of the development strategy particularly in the area of poverty alleviation, hence its efforts to develop a basic education strategy in cooperation with the GTZ and the project for the expansion of basic education with the World Bank, which seeks to expand the educational services to all parts of Yemen through building new schools and expanding the rate of girls' enrollment particularly in rural and remote areas.

The most distinguishing characteristic of the national strategy to develop basic education is to enlarge the base of community participation in the educational process, school maintenance and the formation of parents' and mothers' boards, in addition to improving the quality of education, and ensuring that all children in the age group 6-14 are enrolled in the primary stage all by the year 2015, hence the FTI document which delineated three options towards educational reform. These are:

1. If the educational funds continue at their current level, there will be unfulfilled financial demands.
2. More intensive and forceful educational reform
3. Reform implementation, which requires additional funds.

Option I:

To meet educational needs, the number of teachers should be double the number in the year 2000. Current government funds for education amount to 293 million dollars per year i.e. 4.4 billion dollars in the next 15 years. However, to fulfill the universal education goals 6.6 billion dollars are required in the next 15 years.

Option II

Increase the pupil/teacher ration from 25% in 2000 to 35%; reduce the rate of year repetition from 7% to 3% by the year 2015, in addition to introducing the system of automatic transfer to the following class to limit the costs of year repetition while ensuring higher quality of education. Such measures would reduce the discrepancy in educational funding by 80% i.e. 442 million dollars in 15 years i.e. 28 million dollars annually.

Option III

If rate of repetition remained the same as it was in the year 2000 while the pupil/teacher ratio increased to 1:30, which would require an additional 22% of teachers and classrooms, and if the costs of refurbishing classrooms rises to 20%, the discrepancy will amount to 1.5 billion dollars in 15 years. i.e. 99 million dollars annually.

Monitoring and Evaluation:

This has recently been introduced by the government particularly in the basic education expansion project and other projects approved by donors. The government has indicators that can be monitored and should be part of any project replication.

Enrolment Expectancy:

The goal of universal education has been designed with the following two scenarios in mind:

1. Current situation - % of pupils who repeat years (7%)
2. Reform: reduce automatic transfer to next class and reduce % of pupils who repeat

- years to 3%. The expectations would be:
- 100% completion of six years of primary education
 - 100% enrollment rate for girls by the year 2010
3. 3.2% annual increase for pupils in the primary stage

According to the first scenario, enrollment increases to 5.4 million pupils by 2015 and total enrollment rate would reach 197% in the same year because of the presence of pupils who are repeating the year.

According to the second scenario, if automatic transfer to the following year takes place by 2015, total enrollment might reach 223000 and net enrollment 103% in 2015.

Table 6: Evaluation of Education for all / Development Plans

Indicator	Value in Year		Targeted point in 2015	Goals	
	2000	2001		Value	Date
1. Mobilization Source: Local generated revenues as % of GDP	38.9	35.2	30	30.6	2005
Running expenditures on primary education as % of running expenses	13.7	15.8	15	15.8	2005
General running expenditures on primary education as % of total running expenditures on education	45	48	50	48	2005
1. Indicator of Pupil flow % of the age group enrolled in the first stage of primary education	105	116	100	102	2005
% of age group that reaches grade 6 of the primary stage	58	55	100	72	2005
% of pupils who repeat years in the primary school	7	7	0	0	2005
% of retention in primary school	55	48	100	71	2005
2-Indicator of service delivery					
Pupil/teacher ratio in schools with public funding	25		40.1		
Annual rate of compensating for primary school teachers	3.2		3.2		
New teachers					
% of pupils enrolled in primary schools with private funding	1.4		1.4		

III.7.4 Recommendations in general education

Clearly the Yemeni Ministry of Education focuses all its efforts on the implementation of the *National Strategy for Basic Education* which has, as we indicated earlier, qualitative and quantitative dimensions

As researchers, we have the following recommendations:

1. Through the Donors' Forum, the German side should contribute to capacity building. This can be done through:
 - Financing training workshops for education leaders and other relevant groups on the central and local levels.
 - Offering technical assistance to train teachers particularly those who did not obtain a university degree such as holders of the general certificate (high school) who constitute more than 70% of the teachers.
 - Developing the capacities and skills of school and educational directorates.

Table 7: External funding for primary education in million US \$

	2000	2001	2002	2003	2004
Education					
Multilateral					
UNICEF			0.6	0.6	0.7
World Bank	2.8	0.5	5.4	9.7	13.7
World Food Program	4.8	4.8		6.3	6.3
Bilateral					
France					
Germany	0.6	0.6	1.2	1.2	1.2
Holland	5.4	5.7	17.6	17.6	18.6
Japan	1.5	3.0			
USA				1.5	1.5
Total	15.1	14.6	31.1	36.9	42.0
Primary education					
Multilateral					
UNICEF			0.6	0.6	0.7
World Bank	2.8	0.5	5.4	9.3	12.9
World Food Program	4.8	4.8	4.8	4.8	4.8
Bilateral					
France					
Germany	0.6	0.6	1.2	1.2	1.2
Holland	5.4	3.1	3.7		
Japan	1.5	3.0			
USA				1.5	1.5
Total	15.1	12.0	15.7	17.4	21.1

2. Develop programs similar to the program of improving schools from the environmental and health perspectives in the governorates of Ebb and Abeen, which extended recently to Maareb and Heja under the supervision of the GTZ. The most important achievement of this project is sustainability i.e. by the end of the GTZ supervision, local leadership are in charge of the project and ensure its continuation. We therefore recommend enlarging the scope of these projects in all Yemeni governorates using the same mechanism of local management and external supervision.

3. Contribute to projects that seek to introduce computers to schools. More donor agencies are solicited to contribute due to the rise in number of schools and demand on computers.
4. Develop creative projects such as the “ministry and automated administration” which links the ministry of education on the central level with the governorates through control units whereby the ministry can learn about the situation in educational directorates using a particular kind of computer software. It might also be possible to access through the computer target schools and obtain the required information on them.
5. Present proposals for projects based on German experiences or through German aid in the area of establishing evaluation and measurement centers to measure the pupils’ performance level as well as the performance of teachers and pupils in the classroom
6. Develop programs to adopt talented children in the area of sports or arts and designing programs to nurture these talents

IV. ILLITERACY AND ADULT EDUCATION

The population census for 1994 in Yemen pointed to the presence of 5,281.150 illiterate individuals in the age group 10 years and above. Education leaders believe that this figure is on the rise for the following reasons:

- High population growth rate (3.7%)
- Low rate of enrolment in basic education among males and females
- Large numbers of drop outs in basic education
- Lack of illiteracy eradication projects and inadequacy of existing ones.
- Lack of coordination between education institutions, NGOs and civil society organization.

Political concern with illiteracy and the government recognition of the magnitude of the problem, were manifested in the following measures:

- Law of illiteracy eradication and adult education no. 28 of 1998
- The *National Strategy for Illiteracy Eradication and Adult Education* issued by cabinet decree no. 196 of 1998.
- Establishing the illiteracy eradication and adult education agency within the ministry of education. Six departments are affiliated to the agency as well as several branches in the education bureaus.

IV.1 Government Efforts to Combat Illiteracy

The illiteracy eradication and adult education agency undertakes different activities to eradicate illiteracy through the following annual programs:

1. Offering educational services such as teaching how to read and write and numerical skills. This is a two year study period (the basic stage);
2. Offering educational services to young people who were liberated from illiteracy and wish to resume education. This period runs for twelve months (the follow up phase).

There are also training programs offering professional skills in building, carpentry, welding, mechanics, sanitary works... etc.) specifically designed for men. Other areas such as printing, sewing, knitting, house economics and other traditional crafts are for women. These programs are offered in 12 centers and 13 follow up units distributed over 12 governorates.

Public meetings in specialized centers in the religious, social, agricultural, health, political, population and environmental areas are meant to increase public awareness of the problem.

IV.2 Non Governmental Efforts to Eradicate Illiteracy

Given the limited resources available to the illiteracy eradication and adult education agency, the assistance of international organizations, banks and donor countries was solicited. However, none of these parties adopted a holistic approach for illiteracy eradication. Their activities covered the following areas:

- Equipping 20 centers annually in different governorates (The Arab Fund for Economic and Social Development)
- Renovating centers in different governorates and building a new center to train leaders in the capital (Islamic Bank for Development)
- Organizing ten training sessions for teachers (Social Fund for Development)
- Organizing training session for female teachers in Mareb (GTZ)
- Printing academic books (Islamic Bank for Development)
- Furnishing four illiteracy eradication centers in Mareb (GTZ)
- Operating illiteracy eradication centers in two governorates (ADRA)

IV.3 Cooperation with Local Associations, Ministries and Institutions

The Illiteracy eradication and adult education agency enhances the activities of local associations working in the same area particularly in women's centers.

With regard to cooperation with ministries, head of the illiteracy eradication and adult education center Ahmed Abdullah Ahmed said that despite appeal, ministries and institutions have not shown any readiness to cooperation with the exception of the ministries of Defence and Interior which work with the agency to eradicate the illiteracy of armed forces and security staff, as well as prisoners.

IV.4 Future Vision for Illiteracy Eradication

IV.4.1 National strategy for illiteracy eradication and adult education

The issuance of the *National Strategy for Illiteracy Eradication and Adult Education* by the Cabinet is considered a political endorsement of the issue of illiteracy eradication. However, this endorsement has not been accompanied by financial allocations to meet the challenge

Goals of the strategy:

Quantitative goal is to eradicate the illiteracy of 4,867,545 individuals in the age group 10-45.

Qualitative goals are:

- Eradicating the alphabetical and cultural illiteracy by providing teachers with skills, knowledge and expertise in addition to opportunities for training
- Improving not only reading and writing but also numerical skills
- Knowledge of the Islamic faith and general knowledge
- Basic skills in different fields to solve everyday problems

Phases of the strategy

The strategy has several phases which end in 2020.

- *Phase one* ended in 2000 during which illiterate individuals were listed and categorized. The program and the draft budget were also laid.
- *Phase two* runs from 2001 to 2005, It targets illiterates in main city centers, security and armed forces staff,

- *Phase three* will run 2005-2015: It targets illiterates in rural areas as well as those who were not included in the first stage.
- *Phase four* will run 2015-2020 and will seek to eliminate remaining pockets of illiteracy in remote areas in addition to modernizing the centers and diversity the training programs and the activities.

Mr. Abdullah Ahmed declared that despite all the illiteracy eradication efforts, the number of illiterates is still high. On his future vision, he stated that with more collaborative efforts, this percentage can be reduced to 25% if the following projects are implemented:

- Developing the capacities of the illiteracy eradication agency through the training of teachers and inspectors.
- Encourage women to join literacy centers
- Providing the requirements of the center and increasing financial allocations
- increasing the number of illiteracy eradication centers in the governorates since the existing centers are not able to absorb the number of enrolled individuals
- Providing students with the educational kit
- Providing the necessary food materials particularly in the rural areas as an incentive to join the courses
- Enhancing the role of the media in raising awareness and introducing the experiences of other countries
- Closing the sources of illiteracy for basic education
- International organizations and donor agencies should realize that not success can be achieved without support to the illiteracy eradication programs
- Forging cooperation programs between the agency and the ministries given that this is an issue of national concern

IV.4.2 Illiteracy and poverty alleviation strategy

The poverty alleviation strategy considers illiteracy a major obstacle hindering development plans. Thus, it requires prompt action and solutions. In addition, when it comes to unemployment, illiteracy makes things more intricate and complicated. The percentage of illiterate individuals who are working amounts to 48%: 37% males and 83% females which reflects deficiency in training and technical capacities.

The rate of illiterate individuals who are unemployed reaches 66.2% of total unemployed. These are difficult to integrate in the labor market because of lack of reading and writing skills. They always fall within the vicious circle of poverty.

The Yemeni MDGs document issued by the Ministry of Planning indicates that illiterate populations suffer higher degrees of poverty than groups that are able to read and write.

The National Strategy for Basic Education also pointed to illiteracy as a major challenge that hinders the development of education. However, the strategy did not include illiteracy as a development area to help achieve the goals of basic education by the year 2015.

IV.4.3 Recommendations

To contribute to illiteracy eradication and achieve the target goals, the following is needed:

- Develop literacy programs in accordance with the national strategy for illiteracy eradication and adult education issued by the cabinet in 1998

- Implement literacy programs together with educational programs such as the project of increasing girls' enrollment in schools. This requires that families, and mothers in particular, encourage their daughters to go to school, through the participation of the former in parents' and mothers' boards. This will also require opening literacy classes for mothers in addition to training programs on life skills such as knitting and sewing and other projects relevant to the life of women in rural areas.
- Establish literacy and adult education centers within vocational training centers where participants would have the opportunity to eradicate their illiteracy and also acquire training that helps them find a job
- Focus on literacy programs for rural women where the rate of illiteracy is high and consequently pushes up the rate of illiteracy on the national level
- Make use of the experience of other countries in launching integrated literacy programs which ensure job opportunities at the end of the literacy program
- Coordinate with the agency for the eradication of illiteracy and get acquainted with successful experiments in Yemen to apply in other places and regions.
- Enhance successful Yemeni associations working in the area of illiteracy eradication and expand their activities by providing the necessary funds, as well as monitoring and evaluation.

V. VOCATIONAL EDUCATION AND VOCATIONAL TRAINING

Vocational and technical training provides the workforce that is capable of absorbing the mechanisms of change. However, unlike the pyramid of manpower determined internationally by specialists and manpower planners, the Yemeni pyramid is characterized by a large base of unskilled manpower, a large summit of specialists in arts and humanities, and remarkable absence of skilled technicians and workers.

V.1. History

Vocational and technical training developed in three main stages from 1895 to 2004 as follows:

- Pre September and October revolutions (1895 to 1961). This period witnessed the establishment of some technical schools in Sanaa and Eden. It was characterized by the absence of plans and educational and training goals.
- Post September and October revolutions (1962 to 1989). This period witnessed increased progress in the area of vocational training represented in the establishment of administrative agencies concerned with technical education. Technical and vocational training prospered with the establishment of 47 institutions north and south of Yemen covering the industrial, agricultural, veterinary, commercial and health domains.
- Yemeni unification (1990 to 2004): In 1995 the technical and vocational training fund was set up as well as the national council for training. The Ministry of Technical and Vocational Training was established in 2001 to design governmental policies in the area of vocational training and labor market. In 2002 the national council for technical and vocational training was established and entrusted with determining the goals of vocational training, suggesting general policies, unifying criteria, and presenting recommendations for the supply of necessary financial resources.

In the following section we shall focus on the organizational structure of the ministry and patterns of training, prevalence of vocational and technical institutes and number of individuals enrolled in them.

V.2. Ministry of Technical Education and Vocational Training

Among the goals of the ministry is to draw technical educational policies in Yemen and plan, manage, implement, and evaluate this area of training on all levels and across different specializations, towards developing the inputs and outputs of technical training and education to ultimately meet the demands and needs of the Yemeni labor market.

The ministry includes four sectors as follows:

1. **Criteria and quality:** lays criteria and technical specifications for vocational training and technical education. It monitors and supervises the outputs of institutions of technical training. This sector includes four general departments: criteria and vocational specifications, examinations, students' services and activities and the general department for inspection and overall quality.
2. **Continuous education and curricula:** presents technical education curricula - both regular and irregular - and focuses on continued education. It includes three departments: curricula and educational materials, rehabilitation and training of personnel, and the general department for scientific research and libraries.
3. **Labor market and private sector relations:** fosters joint relations between the ministry and other parties, with the ministry acting as a technical party specialized in technical and vocational education, and the private sector as a main partner in development. This sector includes the four departments of training services, technical education and vocational training councils, women and gender training and the general department for vocational guidance.
4. **Planning and projects:** responsible for planning and implementation of all construction projects of vocational educational and technical training institutions and forging technical cooperation between the ministry and other countries and international organizations. It includes four departments of planning and technical cooperation, construction projects, Statistics and information systems and equipment and maintenance.

Five general departments are also affiliated to the ministry. These are legal affairs, inspection and monitoring, public relations and media, financial affairs, and personnel.

V.3. Patterns of Technical Education and Vocational Training

- Institutional vocational training and education for employees and personnel of a particular institution. This type of training runs for a period of two to three years after the high school or equivalent general certificate
- Cooperative vocational education and training: It is the kind of training that takes place in cooperation between the training institution and the labor and production site. The period which the trainee spends on the work and production site is considered part of the program's study plan
- Vocational apprenticeship: This is the training that provides trainees with the skills or crafts needed for the performance of a job. It entails specific training in a particular area for a specified period of time.

V.4. Prevalence of Technical Education and Vocational Training Centers and Institutes

Table 8 shows the number of technical and vocational training institutes as well as the number of enrolled individuals during the academic year 2003-2004. Table 8 shows a total of 12,401

individuals enrolled in technical institutes and vocational centers. The table also points to the variations in the number of enrolled as well as institutes and centers according to governorates.

Table 8: Technical and vocational institutes and training centers and Enrolled in 2004

No. of Institute/ Governorate	Technical Institutes		Three –Year Type Vocational Institutes		Two-Year Type Vocational Training Centers		Total	
	Institutes	Enrol't	Institute	Enrol't	Center	Enrol't	Institute and Center	Enrol't
Al-Amanah	1	85	6	1182	3	1384	10	2651
Eden	5	1037	3	575	3	1037	11	2649
Taez	3	1413	4	540	3	899	10	2852
Al Hodayda	-	-	4	543	2	651	6	1194
Hadramout	1	95	1	275	2	414	4	784
Heja	1	201	2	55	1	219	4	475
Ebb	-	-	2	163	3	417	5	553
Abeen	-	-	1	25	3	417	4	442
Zemar	1	173	-	-	2	327	3	500
Lahag	-	-	-	-	1	126	1	126
Omran	-	-	-	-	1	60	1	60
Mareb	-	-	-	-	1	52	1	52
Sanaa	-	-	-	-	1	63	1	63
Total	12	3004	23	3331	26	6066	61	12401

Source: Ministry of Technical Education and Vocational Training, Statistical Bulletin, 2003.

V.5. Continuous and Cooperative Training

Table 9 below shows the number of graduates of the continuous education system and trainees who benefited from vocational and technical institutes and vocational training centers in 2003.

Table 9: Number of graduates of continuous training, and those who benefited from cooperative training in technical and vocational institutes and vocational training centers in 2003

No. of Institutes/ Governorates	Technical Institutes	Vocational Institutes	Vocational Training Centers	Short term courses in work and production	Cooperative training	Total
Al-Amanah	-	140	-	-	49	189
Eden	180	80	20	97	-	377
Taez	-	177	-	-	172	349
Al Hodayeda	-	62	-	-	327	389
Hadramout	-	94	305	-	53	452
Heja	85	83	-	11	-	179
Ebb	-	68	190	20	-	278

Ebeen	-	223	120	253	-	596
Zemar	-	-	43	-	-	43
Lahag	-	-	57	-	30	87
Al Dale'	-	-	71	-	-	71
Mareb	-	-	60	-	-	60
Total	265	927	866	381	631	3070

Source: Ministry of Technical Education and Vocational Training, Statistical Bulletin, 2003

V.6. Changing Role of Governments and Other Partners

Since its establishment, the vocational training and technical education sector has been burdened with problems and relied on foreign aid and assistance. Efforts exerted by the government have been limited and partial.

Developing countries, including Yemen face the challenges resulting from economic development and technological advances witnessed by the world in the last 25 years. Among these challenges are:

- The information revolution: It puts pressure on workers and employees to upgrade their skills or change their professional trajectory altogether.
- Globalization: With the resulting economic and social transformations and impact on freeing international trade, movement of manpower and capital and the resulting competition in the production and marketing of commodities.
- Economic restructuring: Arab countries have to adjust their economies to the market, revise their legislative and legal structures, address the repercussions of the retreat of the role of the state and face its implications in the area of employment.
- Women and work: As women are increasingly joining the job market, problems surface given the rising unemployment, thus, the importance of self employment, expansion in the programs of productive families, and women's increasing contribution to agricultural activities

UNESCO organized an international conference in cooperation with the Korean Government in April 1999 to address the issue of the changing role of governments and other partners vis a vis vocational and technical training. Among the main recommendations of the conference are:

- The responsibility for vocational training falls primarily on the shoulders of governments, and yet the design and implementation of vocational training policies, within contemporary market economies, must be achieved through partnership between government, businessmen, trade unions and civil society.
- Government and private sector must realize that vocational training is an investment and not a cost. It raises productivity, ensures welfare of workers and promotes competitiveness.
- All parties to vocational and technical training must upgrade their knowledge and skills. Appropriate mechanisms must be put in place for sharing experience on public policy issues. Data-bases and multi media as well as regional and international cooperation should also be promoted.

V.7. Problems of Technical Education and Vocational Training

V.7.1 Academic curricula and books

Curricula still need revision. Some studies assert that most curricula are traditional in their approaches and the pedagogic methods they adopt. Moreover, some important specializations, such as computer science, are taught in one technical institute only in Taz and the number of individuals enrolled in it did not exceed 178 persons in 2002-2003

V.7.2 Teachers of vocational and technical training

There are no specialized institutes or colleges to train teachers. Statistics indicate that a number of the teaching staff do not have preparatory or even primary school certificates. The total number of teachers in technical and vocational institutes is 497. Thus, there is a dire need to train high quality teachers who can take the lead in training the technical and administrative personnel of the institutes. Criteria and specifications must be drawn to determine the training needs and means of implementation

V.7.3 Problems in the Yemeni society

Vocational and technical training did not receive adequate attention in the past, which contributed to a very low rate of enrollment ranging between 2-4%. This is due to the following reasons:

- Ignorance and illiteracy in the pre September and October period. Moreover, the ensuing conflicts, wars and security disorders were generally reflected on education and vocational and technical training in particular.
- High population growth rate. The annual growth rate in Yemen is 3.7%. Individuals aged less than 15 years form 50.3% of the Yemeni society, which also means a high dependency ration. Thus, skilled labor is required to ensure high productivity to support these families.
- Findings of the 1992 and 1998 family expenditures surveys and the poverty survey of 1999 point to the aggravation of the problem of poverty in Yemen. The nutritional condition of the Yemeni family is getting worse. 27.3% of Yemeni families suffer food poverty according to the poverty survey of 1999.
- Yemen faces increasing unemployment among unskilled and unqualified labor and holders of the high school certificate and university graduates. Unemployment reaches 14.6% and 4.1% among the two respective groups.
- Annual increase in the number of individuals deprived of education who do not own the necessary skills to join the labor market. In addition, state agencies do not provide the economic base that absorbs university graduates.

V.7.4 Problems of technical and vocational training institutes and centers

- Around 2% of the graduates of basic education join technical institutes and vocational training centers
- Graduates of vocational and technical training are not allowed to resume their studies in the university. Also, government jobs do not absorb these graduates
- Lack of coordination between needs of employers and vocational and technical training centers.
- There is a large gap between numbers of vocational training institutes and technical centers and the number of general secondary schools. Despite the increase in number of individuals enrolled in technical and vocational institutes from 6407 in 2000 to 9745 in 2004, the number is still limited.

- Technical and vocational institutes cannot absorb all the applicants due to the institutes' limited number compared to the number of students qualified to join them.
- Status of training institutes and centers is ambivalent, as their affiliation to ministries changes from time to time. First they were part of the ministry of education, then the ministry of manpower and vocational training and finally the ministry of vocational training and technical education.
- Most students prefer to join general secondary education instead of vocational and technical institutes
- Many institutes and centers still suffer shortage of workshops and equipment, which undermines their ability to implement curricula.

VI.7.5 Funding of vocational training and technical education

- Financial resources allocated to technical and vocational education are very modest. In addition, existing resources are mis-managed. Moreover, the vocational training and technical education fund has not performed its task of developing skills the way it was planned to.
- Financial problems are a stumbling block facing the continuation of the short training courses, despite their importance in meeting the needs of the market
- There is a strong need to supply the training centers with modern equipment which are very costly.

V.7.6 Status of Yemeni women in the area of vocational training and technical education

The rate of girls' enrollment in vocational training and technical education is very low in general although it rises a little in the area of health and tourism and fine arts. The slim representation is due to the following reasons: lack of coordination between authorities in charge of women's training; programs are not designed to meet women's needs; rough topography of Yemen and difficulty of accessing women where they live.

V.8. Future Vision and Recommendations

V.8.1 The future vision for technical and vocational education

The future vision employs a strategy that seeks to achieve the following:

- Improve and raise the efficiency of training and administrative personnel
- Illicit changes in patterns of behavior among administrators and technicians and empower them to perform their tasks
- Promote the level of personnel efficiency through developing their knowledge and skills
- Maximize use of qualified personnel to implement professional training and rehabilitation first on the job using individual facilities and resources.
- Promote self-reliance in training through the establishment of local training centers.

The strategy defined some policies and measures that ensure the achievement of the above goals, as follows:

- Providing data on technical and administrative personnel and ensuring their follow up and update.
- Analyzing the capacities of individuals in order to determine their suitability to their jobs and tasks

- Studying current work situation in the ministries to identify obstacles and problems that hinder work performance
- Reviewing the current organization of work in administrative institutions and identifying points of strength and weakness
- Identifying training needs:
 - a. Normal training needs: improve the capacities of employees
 - b. Job descriptions according to qualifications
 - c. Analysis and identifying training needs.
 - -Studying the available data on administrative and technical personnel
 - -Analyzing data for institutions, individuals and workplaces
 - -Listing the goals that represent the training needs and prioritizing them according to their importance to use them as the bases for the training program.
 - -Laying down a plan to develop the capacity of teachers and trainers in vocational training and technical education institutions
 - -Implementing programs to train trainers and administrators before taking up the job, and on the job, and continue to offer them training according to their needs.
 - -Designing training programs according to training needs and taking into account changes and priorities.
 - -Expanding the establishment of trainers' training centers through the selection and training of personnel, providing the necessary supplies, preparing curricula and educational materials and securing the funds for their operation.
 - -Training administrative personnel in the ministry and its bureaus in the governorates, as well as field managers using local and external training programs, and ensuring the provision of adequate financial resources for their implementation
 - -Providing financial incentives for trainers to adjust their income and make it comparable to the income of their counterparts in other sectors
 - -Devising a job chart that allows for promotions in the area of vocational training.
 - -Create positions for university graduates and post- graduates so they could be recruited as teachers and trainers after receiving training in pedagogy and teaching methods, in order to meet the shortage in personnel.
- Continue to follow up changes including:
 - a. Changes in personnel data
 - b. Changes in specializations in the institutes and centers
 - c. Technological developments
 - d. Urgent training needs according to academic plans and programs
 - e. Training needs according to the needs of the job market
 - f. Changes resulting from the directives of the ministry.

V.8.2 Future vision of role of vocational training in poverty alleviation

The technical cooperation agreement signed between the ILO International Training Center in Italy and the Ministry of Vocational Training and Technical Education stipulates that the World Bank funds be used to develop a comprehensive system of training in Yemen within the following areas:

- Management, funding and the establishment of a fund to provide financial support for vocational training and drawing policies
- Improving the outputs of vocational training quality in curricula and educational materials in addition to training trainers.
- Rehabilitation of handicapped individuals through vocational training

Since its establishment, the ministry has introduced some amendments including:

- Building the ministry's institutional capacity to enhance its role in implementing the national strategy of vocational training.
- Expanding the training of individuals with special needs.
- Reconsidering the vocational training centers for hand- made and traditional crafts so they would generate new work opportunities.
- Providing sufficient funds for the general department of self employment and integrating graduates into the labor market
- Including the fund among institutions that should receive support from the technical cooperation program
- Expanding media campaigns towards the enhancement of vocational training in order to contribute to social mobility.

V.8.3 Recommendations

Future vision:

- Need to exchange technical expertise with planning, research and funding agencies and with the educational research centers and colleges of Sanaa university that are concerned with vocational and technical education.

Personnel:

- Focus on training personnel, activate their performance and upgrade their skills; devise a system for wages and financial incentives within technical and technological institutions.
- Implement strategy for the rehabilitation and training of teachers and trainers in vocational and technical centers
- Appoint managers of technical and technological education institutions who are highly qualified and have successful administrative expertise.
- Activate the role of inspectors and develop their technical skills in the area of educational supervision and monitoring.

Students and Admission system:

- Individuals who wish to enroll in vocational education should take qualifying tests and interviews to determine their abilities, preferences and tendencies
- Issue a law that will allow distinguished students to continue their higher education

Professional awareness:

- Agencies of the ministry of technical education and vocational training - in coordination with the ministry of education and official media agencies – should raise awareness about the importance of technical and technological education so as to change its social image and the public attitude towards it.
- Organize periodic meetings to discuss issues of education with parents of students in order to solve problems related to students' failure, absence and drop out.
- Assert the importance of application and practice in educational curricula and vocational and technical training, in work and production site.
- Pay attention to new specializations and disciplines in the area of computer science, information and communication technology and other areas needed by the job market.
- Develop educational curricula and vocational and technical training according to major developments in the area of science and technology to meet the demands of development and the job market in Yemen.
- Evaluate curricula and training programs periodically and ensure their link with the development needs and job market

Institutes:

- Expand the establishment of vocational and technical institutes according to the required specifications and continuously encourage males and females to join them.
- Introduce modern technology into the institutes.

Funding:

- List the requirements that will enable education and training to cope with the accelerated changes in professions and skills needed by the job market and meet the demands of socio economic development
- Search for funding sources among the private sector agencies

Private sector:

- Build an effective partnership between technical and vocational institutes and the private sector. The latter should participate in:
 - Effective preparation for cooperative training of the students in the private sector units.
 - Selection and acceptance of students in technical education institutions
 - Design educational curricula.
- Ministry of technical education and vocational training and other competent agencies should coordinate with the private sector towards:
 - Enhancing employers' belief in the outputs of vocational and technical education
 - Offer facilities and services that help produce a conducive investment climate
- Seek to involve the private sector in identifying needs of skills and specializations
- Undertake field studies to assess the market needs and future job opportunities.

Poverty reduction:

- Issue a law that will encourage / facilitate the establishment of projects that would lessen unemployment among graduates of vocational and technical educational institutes through offering easy term loans
- Design effective national policies that will promote vocational training for women
- Make available work opportunities to absorb the unemployed through:
 - An investment climate and economic growth that encourages large and medium companies and institutions.
 - Facilities and services that will help develop private sector activities
 - A policy to substitute foreign labor by Yemeni workers
 - A policy of loans to graduates and micro enterprises as well as cooperatives for young producers and investors.

VI. CURRENT SITUATION OF UNIVERSITY EDUCATION IN YEMEN

The ministry of higher education and scientific research was re-constructed in 2001. It has jurisdiction over issues related to higher education and scientific research and implements and follows up the state's policy and plan in this domain. It is also responsible for universities.

Higher education in Yemen witnessed remarkable quantitative growth in the number of institutions, students, professors and graduates, in addition to the volume of expenditure on this type of education. The number of universities rose from two in 1970 (Sanaa and Eden) to 15

universities: seven public and eight private universities distributed over the different governorates as indicated by tables 10 and 11.

Table 10: Public universities

Name	Date Of Estab't	Location	No. of colleges			Teaching Staff		Graduate studies		
			Science	Literary	Total	Yemen	Other	High Dipl	MA	Ph.D
Sanaa	1970	Sanaa	6	14	20	1242	278	Y	Y	Y
Eden	1970	Eden	4	13	17	792	46	Y	Y	Y
Ta'ez	1995	Ta'ez	2	5	8	167	104	-	-	-
Hodayda	1996	Hodayda	3	7	10	178	85	-	-	-
Ebb	1996	Ebb	4	4	8	120	87	-	-	-
Hadramot	1996	Almakla	4	6	10	267	126	-	-	-
Zemar	1997	Zemar	5	6	11	140	85	-	-	-
Total			28	53	84	2906	811			

Sources: Central Statistics Office, Annual Statistics Book 2002, Sanaa University, University Admission Manual 2004-2005

(-) No graduate studies

Table 10 shows the following:

- Public university education in Yemen is recent.
- Literary colleges represent 64.5% of the colleges.
- Graduate studies are mainly in Sanaa and Eden universities, the two oldest universities
- Private universities absorb between 8% and 10% of the outputs of education. They are mostly concentrated in Sanaa as shown in Table 11 below.

Table 11: Private universities

Name of University	Year Of Estab.	Location	No. of colleges	No. of registered Students	No. of graduates	Higher diplom	MA	Ph.D
Univ. of Science and Technology	1994	Sanaa	19			Y	Y	Y
Al Iman Univ.	1993	Sanaa	4			-	-	-
Yemeni Univ	1995	Sanaa	8			Y	Y	Y
Sabaa Univ.	1994	Sanaa	4			Y	Y	-
National Univ	1995	Ta'ez	11			Y	Y	-
Univ. of Applied Sciences	1995	Sanaa	10			-	-	-
Al Ahkaf Univ.	1995	Saioun	13			-	-	-
Univ of Queen Arwa	1996	Sanaa	7			Y	Y	Y

Total			76	8821	1399			
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Source: Central Bureau of Statistics, 2000; Al Aghbary 2003; Ahmed El Haj (n.d)
 Central Bureau of Statistics 2002 (Registered and graduate students in some private universities, Science and Technology, Sabaa, The Yemeni Univ, the National Univ and Al Ahkaf)
 (-) no graduate studies or no available data.

The number of science and literary colleges in public universities is indicated in table 12 below:

- All public universities have medical colleges
- All public universities have schools of engineering and some of them have specific specializations like the university of Hadramout (oil engineering) and Al Hodayeda (computer science)
- All public universities have schools of education distributed over the main cities in some governorates
- There are schools of agriculture in the universities of Sanaa, Eden, Ebb and Zemar

Table 12: Science and literary colleges in Yemeni universities

1	Name Of Univ	Science colleges											Literary colleges											
		1	2	3	4	5	6	7	8	9	10	11	12	13	1*	2	3	4	5	6	7	8	9	10
2	Sanaa	Y	Y	Y	Y	Y	Y	-	-	-	-	Y	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-
3	Eden	Y	Y	-	-	Y	-	-	-	Y	-	-	-	-	Y	Y	Y	-	-	Y	-	-	-	Y
4	Ta'ez	Y	-	-	-	-	Y	-	-	-	-	-	-	-	Y	-	Y	-	-	Y	-	-	Y	-
5	Hodayeda	Y	-	-	-	-	-	Y	Y	-	-	-	-	-	Y	Y	Y	-	-	Y	Y	Y	-	-
6	Ebb	-	Y	-	Y	Y	Y	-	-	-	-	-	-	-	Y	Y	-	-	-	Y	-	-	-	-
7	Hadramout	Y	-	-	-	-	-	-	-	-	Y	Y	Y	-	Y	-	-	-	-	-	-	-	Y	-
8	Zemar	Y	Y	-	Y	Y	-	-	-	-	-	-	Y	-	Y	Y	-	-	-	Y	-	-	-	-

Under Science colleges, 1=Medicine; 2=Engineering; 3=Pharmacy Sciences; 4=Dentistry; 5=Agriculture; 6=Sciences; 7=Maritime Science; 8=Information Sciences; 9=Petrol and Minerals; 10=Oil Engineering; 11=Infrastructure Science; 12=Applied Sciences. Under literary colleges, 1=Pedadogy; 2=Commerce & Economics; 3=Law; 4=Languages; 5=Mass Communication; 6=Arts; 7=Sports; 8=Fine Arts; 9=Business & Management.

The number of students has grown steadily to 183706 students in the academic year 2001-2002 including 44884 female students (24.43%) and 138822 male students (75.57%). See table 13.

Table 13: Registered students in Yemeni public universities 2001-2002

Nationality Gender University	Yemeni			Non Yemeni		
	Males	Females	Total	Males	Females	Total
Univ of Sanaa	71250	16327	87577	515	343	858
Univ of Eden	14389	8412	22801	292	54	346
Univ of Hodayeda	9326	4443	13769	27	7	34

Univ of Taz	19982	9808	29790	0	0	0
Univ of Ebb	8029	2172	10201	0	0	0
Univ, of Zemar	10872	2093	12965	0	0	0
Univ, of Hadramout	4103	1219	5322	37	6	43
Total	137951	44474	182425	871	410	1281

Source: Central Bureau of Statistics, Annual Statistics Book for 2002.

-Data for Hadramout University is estimated from the previous academic year 2000-2001

The number of graduates from public Yemeni universities for the academic year 2001-02 reached 19038, including females (29.74%) and males (70.26%) as shown in table 14.

Table 14: Graduates of Yemeni public universities 2001-2002

Nationality Gender University	Yemeni			Non Yemeni		
	Males	Females	Total	Males	Females	Total
Univ of Sanaa	6186	1855	8041	40	35	75
Univ of Eden	3067	1661	4728	48	4	52
Univ of Hodayeda	492	480	972	6	1	7
Univ of Taz	1721	1080	2801	-	-	-
Univ of Ebb	752	260	1012	-	-	-
Univ, of Zemar	1064	284	1348	1	1	2
Univ, of Hadramout	-	-	-	-	-	-
Total	13282	5620	18902	95	41	136

Source: Annual Statistics Book for 2002

-No data available for University of Hadramout

-Graduates from University of Sanaa for the academic year 2000-2001

Table 15 (in Annex) shows the increase in number of teaching staff in Yemeni public universities, and yet there is still a shortage and mal-distribution of teaching staff. In some colleges, there isn't a single instructor who is a professor (Ebb and Zemar). When comparing the number of students in university education with the number of teaching staff, one notices the large number of students compared to the number of teachers, in addition to the shortage of supervisory, guiding, technical and administrative personnel in most of the Yemeni universities (Poverty strategy, 2003-2005)

Table 16 (in Annex) shows the distribution of students across different specializations in all Yemeni universities for 2001-2002 and underlines the imbalance in their distribution. Enrollment in the literary sections and humanities is much higher than the scientific sections (88.9% compared to 11.05%). This may be attributed to weak performance in the basic and secondary stages, poor academic advising to new students or the lack of interest among in scientific sections.

VI.1 Quality of Graduates

While figures and statistics call for optimism, the qualitative side does not. Both the public and private sector are dissatisfied with the quality and efficiency of graduates of higher education.

They all complain of the lack of skills and practical experience among them. The higher education institutions still follow the traditional western model in as far as structure, contents and methods are concerned. There is a wide scale duplication of colleges in new universities (for example medicine and education), with little coordination and integration between them. Moreover, most of these universities concentrate in overcrowded cities. The role of higher education in rural development is limited. There is no policy that guides the establishment of new universities, particularly since the ministry of higher education and scientific research is only four years old.

On the organizational and administrative side, universities are characterized by their traditional old structures. In addition to the large duplication of colleges, there is a sharp shortage in educational services (libraries, labs, workshops) accompanied by large administrative centralization, absence of innovation on the administrative and academic and technical sides, lack of a clear policy for admission, and general detachment from the needs of development and the job market, and finally the large number of students in the theoretical colleges compared to applied colleges.

On the human resources side, the increasing number of students is met by sharp shortage of teaching staff, particularly in specific disciplines and specializations. Moreover, the budget of Yemeni universities is characterized by large deficit on one hand, and mis-management and lack of proper distribution of resources on the other. The number of university buildings and utilities is also limited.

Curricula and pedagogical methods are characterized by the absence of a conceptual framework that guides curricula design and implementation. There is no clear educational philosophy that will reflect on the contents of curricula, pedagogy, evaluation methods as well as educational activities. Curricula lag behind knowledge generation. Practical applications and field training are weak and the contents of curricula is imported and taught without amendments or modifications; they are totally detached from Yemeni realities. Teaching relies on lectures, which do not encourage individual learning or consulting external sources. Evaluation of students is rigid and mainly based on route learning.

Scientific research and studies are the weakest of all university activities. They represent just a little portion of the teaching staff activities and are mostly undertaken individually for promotion purposes. There is no clear strategy for research, which has resulted in limited production of the teaching staff and shortage of specialized research centers or the lack of coordination between them.

Higher education is unable to undertake community service and its contribution to the development of the Yemeni society is limited.

VI.2 Problems of Higher Education

Review of literature on Yemeni higher education shows that it encounters difficulties and problems that hinder the achievement of its goals and undermines its role in the service of society. Among the main problems it faces are:

- Traditional administration characterized by centralization, red tape and weak communication
- Limited university funds and poor investment of university resources
- Rigid laws and regulations

- Weak relationship between needs of society on one hand, and the numbers and specialization of students on the other.
- Problems of graduate studies and research and teaching assistants
- Problems of goals, quality, funding and legislation guiding research and absence of a strong link to the needs and of society
- Problems related to the selection, tasks, duties, preparation, salaries, concerns, evaluation, promotion and ethics of the teaching staff
- Problems of libraries: acquisition of books and periodicals and channels of communication with international libraries
- Poor material resources, buildings, equipment etc..
- Lack of coordination between universities and their academic isolation from each other, in addition to the difference between them with regard to guiding laws, instructions, regulations, programs and specializations, and facilities.
- Problems of the educational outputs: quality of graduates, technical competence, variety and level of specializations and professions needed by society and their ability to develop production.
- Problems of educational inputs such as educational planning, admission policy, quality of students, large numbers of high school graduates, universities' absorption capacity, academic programs, laboratory equipment and university environment.
- There is no policy guiding university admission, which means the separation between the admission system and needs of development and labor market. No attention is paid to the absorption capacity and available facilities for students' admission and distribution in universities as well as the procrastination of the private sector in determining its needs of graduates and offering training services
- Problems of students such as abilities, preferences, tendencies, programs, concerns, examinations, missions, work and academic guidance.

VI.3 AHDR 2003 and Higher Education in Yemen

Despite some positive achievements with regard to figures of university education in the Arab countries including Yemen, the general condition is still modest compared to the achievements of other developing countries. Educational policies lack a comprehensive vision of the objectives of the educational process; and measuring quality of education is problematic because of the scarcity of data and available information and comparative measurements between the Arab countries on one hand and between them and the outside world on the other. Commenting on the quality of higher education, the AHDR said that most of the higher education institutions are new. In Yemen, for example, three quarters of the universities were built in the last 25 years of the last century. However, the quality is generally affected by lack of clear vision and independence in universities and the fact that they are the arena for ideological and political conflicts; over-crowdedness, modest budgets and poor resources.

The report divides the production of knowledge into three areas: natural sciences and technological development; humanities and social sciences, and art and literary production. In the first area, the report pointed to the difficulty of obtaining data on the outputs of research; however, if this is to be measured by the number of publications, patents, and innovations, then the picture is bleak. Expenditure on scientific research is low constituting 0.2% only of the national product; 89% of the funding comes from governmental sources and 3% from the industrial sector.

In the area of humanities and social sciences, the report pointed out that products mostly focus on the local and Arab scene and the 'red lines' imposed by governments greatly limit freedom of

thinking. Lack of freedoms also limits public access to literary and artistic products. In addition, the Arab countries' production of books in the area of religion is abundant, while the production of art and social science publications is limited.

On freedom of research and expression, the report commented that rules regulating universities curb the independence of academic institutions and make them dependent on political regimes. This undermines their freedom and puts pressure on teaching staff to refrain from discussing controversial issues that might give rise to political problems. Finally, individuals who excel, do that on their own without institutional support.

VI.4 Strategic Vision: Cornerstones of Knowledge Society

In chapter 6 the AHDR presented a strategic vision for the establishment of a knowledge society and human development. Building knowledge society is based on five main cornerstones:

- Freedom of opinion, expression and organization, all within the context of good governance.
- High quality education and continuous education for life
- Building individual capacities in research and technological development
- Creation of a pattern of knowledge production within the Arab socio-economic structures
- Establishment of an enlightened Arab epistemological paradigm.

VI.4.1. Management of higher education

For the higher education institutions to succeed in performing their mission in the knowledge society, they must liberate themselves from the domination and control of the government and profit making. Moreover, the state should not relinquish its responsibility in promoting higher education, but it should encourage private higher education institutions that are not profit-seeking. The AHRD suggested a model for the management of higher education institutions that involves a four-party board of directors including the state, business sector, civil society and academics. Promoting higher education also requires independent institutions to evaluate the higher education institutions and programs to ensure their high quality.

VI.4.2. Higher education reform

It is crucial to establish a higher education body characterized by diversity, flexibility and the ability to cope with the ever-changing needs of knowledge acquisition and development. Reforming the higher education structure entails opening the door to joining higher education institutions without imposing rigid rules and restrictions, to allow continuous education for life.

On the institutional front, flexibility requires that institutions and their programs as well as the contents of curricula be subject to periodic revision through the boards of directors, so they would promptly respond to the international and local developments and changes. It is also important to focus in higher education on natural sciences and technological development. In addition to structures that enhance the knowledge society such as boards of directors, channels for joint work between institutions of higher education on one hand, state agencies, and private sector projects and civil society organizations on the other must be established. Such channels could contribute to training and re-training of employees, and to research and development required for the promotion of societal productivity.

VI.4.3. Dissemination of higher education

To establish knowledge society in the Arab countries in general and Yemen in particular, it is important to continue to enhance higher education, taking into account the deprivation of the most vulnerable social groups, particularly women and girls particularly in the areas of science and technology. Also, it is important to avoid the problems of uncalculated expansion of current institutions so that higher education institutions would maintain their high quality.

VI.4.4. Enhance quality of higher education

The goal of higher education in Yemen and the Arab countries should be to prepare citizens, who are capable of individual and continuous learning, for the knowledge society. It is therefore important to ensure the provision of facilities, resources and equipment required for a high quality and distinguished education, in addition to rich libraries, well-equipped laboratories and information and communications technology. Teaching staff should be financially compensated and their working conditions improved. The strategic visions mentioned in the report for the development of higher education in the Arab countries are applicable to Yemen and the above measures will not contribute to promoting the quality of education in Yemen unless the educational curricula are developed to cope with the requirements of the knowledge society.

VI.5. Recommendations and suggestions

To achieve overall development in Yemen, the state must collaborate with the private sector, civil society and individuals on the different levels to make the maximum use of the assistance and aid offered by donor countries and international organizations.

Although Yemen has achieved remarkable progress in some areas of human development, education indicators still do not help achieve the economic growth aspired for. The rate of reading and writing among adults does not exceed 47.3%, which means that 52.7% are illiterate. School enrollment in all stages of education has risen to 54.5% which again means that a large percentage is still out of school, particularly girls.

Recommendations on the level of governance:

- Activate the role of the higher council for universities in supervision and monitoring various aspects of higher education, both public and private, according to standards of performance evaluation.
- Given that universities are not able to meet the needs of society, the current study recommends the establishment of a committee or council, above the level of universities, to coordinate between universities and the local community.
- Establish a higher council for scientific research under the supervision of the ministry of education, to supervise scientific research on the level of all Yemeni universities. The council would also win the trust of the private sector by winning contracts to undertake research in industrial areas in order to accelerate economic growth in Yemen.
- The study recommends the preparation of a clearly defined national strategy to develop higher education with due coordination among general, vocational and technical education. The strategy should be revised periodically.
- Prepare and implement a national strategy for the reform of higher education and enhance the institutional capacity of the ministry of higher education and scientific research.

Recommendations to improve input & link with market needs:

- Laying down a policy of admission based on the needs of development and labor market as well as the absorption capacity of each university

- Strike a balance between the different specializations and enlarge the absorption capacity for specializations for which there is growing demand, while satisfying their needs of teaching staff, laboratories, and education materials.
- Limit international fellowships to rare scientific specializations.
- Introduce a new model for the management of higher education institutions i.e. a four party board of directors including the state, the business sector, civil society and academics.

Recommendations to improve output, especially research:

- Establish a unit on the level of each university to take charge of scientific research. An adequate part of the budget of each university should be devoted to scientific research
- Since fellowships for graduate studies take up 20% of the annual budget of Yemeni universities, the study recommends that no such fellowships be granted as long as there is an opportunity for study and research in the country. This measure should be accompanied by an increase in the financial allocations to members of the teaching staff who wish to undertake research.
- The study recommends introducing controls and rules to regulate the participation of the teaching staff in activities outside the realm of the university. The administration should also introduce performance criteria to decide on the promotion of members of the teaching staff, in addition to the applicable criterion of published research.
- Establish a project for quality management in higher education institutions

Recommendations on Networks:

- The study recommends linking universities with a more advanced and speedy information network.
- Link public universities with information networks and train personnel and students in the area of computers and information technology.
- Establish an Arab institution to evaluate higher education institutions to become the nucleus of cooperation between the Arab countries in this area

Suggestions on issues of language and gender:

- Provide university books in the Arabic language by encouraging publication and translation in the different fields.
- Introduce English language curricula and computers to Yemeni universities.
- Provide financial incentives to encourage families to send their daughters to universities.

VII. THE ROLE OF THE PRIVATE SECTOR IN DEVELOPMENT

In 1995 the Yemeni government adopted a program for administrative and financial reform which resulted in major changes in the economic policy and a greater role for the private sector in economic, social and cultural development.

Fadl Al Shoeiby, professor of economics in Sanaa University, said that the private sector is ready at this stage to contribute to development but it still faces external difficulties related to the investment climate, weak institutional structure as well as other legislative and legal problems. He affirmed that time is ripe to have politically and economically-integrated cooperation, control the judiciary, combat corruption and establish a conducive investment climate.

Dr. Mohamed El Hawry professor of economics, Sanaa University, said that the private sector in Yemen is facing new realities, which necessitate that it reaches out to outside and foreign

markets and not limit itself to the local market. It is acquiring new roles in education, health and public services, which it has not performed before, especially with the retreat of the state which has been limiting its role to drawing the general policies. He discussed the role of the private sector in poverty alleviation by adopting students from poor families and helping them continue their education. Other ways of involvement by the private sector include funding places for poor students in university, encouraging talented students, and establishing a fund to support the poor and train them on income-generating skills.

VII.1. Problems Facing Private Sector

Mansour Al Beshry, economic researcher, believes that within the framework of the administrative and economic reform program, several issues impacted the private sector such as the increase in taxes, the elimination of subsidies, and increase in interest rate (which the government resorts to in order to reduce the budget deficit). All these factors lead to decline in private sector sales and aggravation of problems of funding. Banks have stopped funding the private sector, thus reducing its production and the work opportunities it used to generate. At present, the problem is whether the private sector is qualified to play the role expected of it. It lacks creativity and innovation as well as studies and research to guide its work, in addition to problems of bureaucracy, deficiency in the enforcement of law, weak human capabilities, and corruption of the judiciary and absence of an attractive investment mechanism that will recognize the role of the private sector as a partner in development.

VII.2. Government and Private Sector

Ali Al Siaghi, Deputy Minister of Industry and Trade, said that the government has issued several laws and legislations that empower the private sector to play a prominent role in development. However, the private sector has not grasped its role and investments have not reached the expected level. The contribution of the private sector in the social realm is very limited and depends on unorganized individual initiatives. Also, the private sector still wishes to have the protection of the state within globalization and membership in the WTO.

He further pointed to the government's recognition of the role of the private sector in development and in drawing social and economic policies. The ministerial cabinet, he said, does not amend or issue a new economic or commercial law without consulting the private sector, which indicates that there is a genuine partnership and the private sector must understand its role and overcome its shortcomings to enhance its social developmental role.

VIII. THE ROLE OF NGOS

There are around 4000 NGOs in Yemen active in the area of community development that receive support from the government and international NGOs. Following are some of these organizations:

1. Union of Yemeni Women

It is a public organization concerned with women; it cooperates with ministries and institutions to implement development programs for women and children and has a remarkable outreach facility and the ability to implement projects in all governorates.

2. Soul Organization for the development of women and children

It works in the area of women and children and is also concerned with training and education.

3. Association for the Development of Women

It focuses on eradication of illiteracy among women and targets marginalized groups to reintegrate them in society and enroll them in schools.

4. “Sada” Association

It is active in the area of illiteracy eradication and focuses on the capital, Sanaa.

5. Al Saleh Social Development Organization

It seeks to reduce poverty, improve and expand education, combat illiteracy, care for individuals with special needs, offer charitable services, and raise the level of health awareness. Because it has just been established, its achievements in the area of education are still limited. It is currently active in the implementation of a project for the eradication of illiteracy within the project for the development of popular areas.

IX. ROLE OF DONORS IN PROGRAMS OF DEVELOPMENT COOPERATION

The donor community has been active on the policy and project levels.

IX.1 Policy Level

1. European Commission

The official heading the European commission in Yemen stated that the European support to Yemen will continue in the coming years in appreciation of the role played by Yemeni government in combating poverty and enhancing democracy and human rights. The European Commission will grant Yemen € 30 million to support development efforts in Yemen from 2005-07. It is hoped to increase the sum in the future. He also hailed the measures undertaken by the government of Yemen to promote security and stability and disseminate education, which indicates that the government is on the right path to democracy, human rights, women’s rights, and economic reform

He finally said that funds are going to Yemen in the form of grants and not loans, and depending on the results, these financial allocations might increase in the future. He delineated the areas of cooperation as follows:

- Economy: support Yemen to join the International Trade Organization
- Vocational training
- Fish and maritime surveillance
- Support to Social Fund for Development
- Enhancing social care
- Enhancing the role of NGOs

2. Support to MDGs program

Dr. Tareq Youssef professor of economics in Georgetown University and the liaison between the UN and Yemen said that Yemen has been chosen among the eight countries which will implement the MDG project. Specialists and competent authorities in Yemen are asked to present a clear program by mid 2005. He said that there is a great deal of confidence in Yemen’s desire and ability to deal with this historic event, adding that it has a big chance because of its geographic location and the clarity of its goals and identification of challenges.

3. GTZ

The official responsible for education in the GTZ in Yemen said that for years the GTZ has been working on a bilateral program of cooperation with Yemen as well as through developmental projects and building of schools. He added that this cooperation will continue particularly in the aftermath of the recent collaboration in developing the *National Strategy for Basic Education*.

The GTZ will continue its work for the improvement of education through:

- Building capacities of the ministry staff on the central and non- central levels in the areas of planning, information systems, and educational management
- Developing community participation in education
- Developing and improving girls' education
- School buildings and equipment
- Technical assistance and consultations on the central and non- central levels

IX. 2 Projects

Several donor countries and international organizations participate in the programs for the development of education in Yemen. Some of these programs are undertaken within large projects, such as the poverty reduction projects, while others are implemented through the competent ministries or the Social Fund for Development. Among these countries and organizations are:

1. The World Bank:

It has been active since 1990. It loans have focused on the development of education and improvement of its quality. Some projects have been completed, while others, such as BEEP is still going on. It includes three components:

- Building schools in needy areas
- Building a community participation in education unit
- Training teachers

2. Basic Education Development Project (BEDP)

The project will be implemented in 2005 and is an extension of BEEP

3. Childhood Development Project

It is implemented by UNICEF with funds from the World Bank in nine governorates. It has health, education and social awareness components.

4. Vocational Training Projects

Various donor agencies are active on all levels of education. In the area of vocational training, European Union, Care International, and GTZ are active.

5. German Basic Education Projects

The GTZ and KFW are active in the area of improving basic education in Ebb, Abeen, Heja and Mareb.

6. American Illiteracy Projects

USAID works in the area of illiteracy eradication and improving the quality of education through teachers' training programs.

7. Shebwa Projects by Dutch Government

The government of Netherlands implements programs of the National Strategy for Education through the implementation of a number of educational projects in Shebwa.

8. British Projects in Girls' Education and Community Participation

The United Kingdom is active in the area of girls' education, community participation in education, and illiteracy eradication and adult education (DFID in Sanaa)

X. VISION OF DECISION MAKERS OF BILATERAL COOPERATION PROGRAMS WITH DONOR COUNTRIES

Dr. Abdel Wahab El Akel, Deputy Minister of Education said that Yemen's experience with international organizations and donor countries has been successful and has had an impact on the development of a national strategy of education in Yemen and especially on the technical and vocational training in Yemen. He also said that the technical assistance represented in resident and short-term experts has helped the ministry develop the trajectory of vocational and technical education. In this context, he referred in particular to cooperation with the German government.

To the National Strategy

Abdel Aziz Saleh Ben Haptour, Deputy Minister of Education, said that the ministry will exert all efforts to execute the activities of the *National Strategy for Basic Education* in order to achieve its goals by the year 2015. However, this does not contravene with previous commitments to other projects and activities listed in the ministry's plan.

He explained that the government has allocated 4 billion riyals as a first payment to implement developmental projects in 2004-2007. There is also the donors' forum which comprises all states and organizations that support education in Yemen who seek to determine areas of support based on the interests and concerns of these states and institutions, organize funding and avoid duplication of efforts. According to the partnership declaration signed in November 2003, donors have the right to be informed about the results of projects, evaluate these results and pinpoint areas of weakness and shortcomings.

Dr. Haptour said that the development of the *National Strategy for Basic Education* was a result of the cooperation with the GTZ and the Dutch Embassy in Sanaa. The success in planning and implementing this strategy encouraged the ministry to prepare a similar strategy for the development of secondary education.

To Vocational Training

Mr. El Akel believes that decision makers are now certain about the need to develop aspects of this cooperation by designing long-term projects towards the enhancement of capacities in short and long term training programs. These programs will run parallel to the establishment of 50 educational institutions of vocational and technical training, which will continue for four years. It will also coincide with the graduation of a new generation of Yemeni graduates from the universities of the donor countries.

The Deputy Minister of Education added that developments in the area of vocational and technical training came as a result of the technical assistance offered by Germany both in the form of resident and visiting expertise in the following areas:

- Consultations to staff and leaders
- Technical consultations to leadership of vocational training

- Developing evaluation programs
- Preparing practical training programs
- Laying down work plans
- Assisting in drawing up the broad lines of the strategy of technical education and vocational training
- Laying down programs to enhance the role of technical and vocational education in alleviating poverty.

He said that he sees a role for Germany in the development of the schools of engineering with regard to:

- Content of curricula
- Equipment
- Capacity development of teaching staff to provide knowledge and performance skills
- Building capacity in computer science and internet
- Support to technical and administrative departments in public universities that do not receive sufficient training such as:
 - Financial and administrative departments
 - Registration
 - Students' affairs
 - Laboratories
 - Libraries
 - Computer and other equipment maintenance

Finally, it was mentioned that cooperation with Germany in the past ten years has resulted in tangible improvements in school buildings, teachers' training and linking schools with the local communities. Thus, it is believed that this cooperation should expand to include all Yemeni governorates to enable Yemen to achieve its strategic goals.

Dr. Ali Mansour, Minister of Vocational Training and Technical Education, said that political leadership in Yemen pays special attention to vocational training in order to create a balance between the needs of individuals and the needs of society, ultimately seeking social and economic development. This interest has also entailed a focus on the role of women and their active participation in vocational and technical training by providing training programs appropriate for women.

To Gender Issues

Dr. Habtour stated that the government's concern with education includes eliminating the gap between males and females on one hand and rural and urban areas on the other. All educational projects include a special component for girls' education that avoid mixed schools and respect local customs and traditions. This has not been always easy, he said, because of the limited number of girls in the age group corresponding to specific educational stages. The ministry has also approved of a community participation component that seeks to integrate local communities in education through the formation of parents' and mothers' boards.

XI. ASSESSMENT OF THE AUTHORS OF THE STUDY OF DONOR PROJECTS IN THE AREA OF EDUCATION

While the above projects have achieved remarkable progress in the different areas of education, the following remarks can be made:

- These projects did not take into account the principle of sustainability; change ends with the termination of the project and end of foreign financial support. Concerned parties did not discuss project continuation after foreign financial support comes to an end. Projects are not included in the government budget
- Some of these projects did not contribute to building local capacities and have used foreign technical capacities
- A number of these projects do not get along well with the government sector; thus they end up working in isolation and do not reach their goals.
- A number of projects included various activities that are not well integrated and did not work in harmony with the plans of the competent sector.
- Some projects did not consider evaluation indicators to improve the project and if such indicators existed, the results of the evaluation were not enforced.

Some projects achieved remarkable success and have been able to expand their activities to other governorates, such as the project to improve the school environment implemented in cooperation with the GTZ. From its start, this project took into account dependence on local personnel and integration with the government. It did not work in isolation from the government planning and its indicators were reached in consultation between project officials and the government.

XII. ASSESSMENT OF GERMAN FUTURE ENGAGEMENT

XII.1 In the Area of Basic Education

No	Project type	Ability to intervene	Remarks
1	Capacity building in the area of education	√	
2	Projects to equip schools, institutes and educational institutions	√	
3	Projects to develop educational curricula	x	Curricula are considered an internal matter and their contents a question of sovereignty
4	Pilot developmental projects	√	More negotiations and clarity are required on the central and non central levels
5	Developmental projects in the area of girls' school enrollment	√ x	Depends on acceptability to local community, on the basis of customs and traditions
6	Projects for developing the capacities of pupils in the classroom	√ x	Based on vision of education leaders and national bases, and criteria
7	Project to develop contents of training institutes	√ x	Based on government leaders' view of institution in question and according to need.
8	Project to develop university faculties	√	
9	Developmental projects for	√ x	In accordance with a clear vision

	young people in university		that is approved by the University leadership
10	Developmental projects for applied schools (engineering)	√	
11	Technical assistance and supplying experts	√	Based on approval of the leadership of the competent ministry; according to need and approval of expert (through CV)
12	Adopting model schools	x	This is a matter of absolute sovereignty
13	Inviting experts without consulting the competent leadership	x	Through pre-agreements that determine the type of expert and scope of work
14	Offering financial gifts to individuals or groups to be used for a developmental purpose	x	Interpreted as ambiguous projects or claim that the money will be used for other purposes
15	Projects that require local expertise to develop rural areas or cover translation needs	√ x	Through contracts and the approval of the local party with the provision of CVs and TORs
16	Buildings for schools and training institutes.	√ x	Based on existing models or creating new models to be approved by the competent ministry
17	Projects that require interaction with local community	√ x	Through clear agreements that indicate type and limit of intervention as well as results with the consent of local authorities
18	Religious or political projects	x	Impossible to interfere in them

Code:

√ = positive intervention

√ x = possible intervention after negotiations

x = no intervention

XII.2 In the Area of Secondary Education:

It is foreseen that the German side will play a prominent role in implementing the *National Strategy for Secondary Education* in addition to its role in the promotion of basic education. We therefore suggest that it adopts a project for an integrated secondary school in different governorates whereby it focuses on:

- Building capacities
- Introducing computers
- Extracurricular activities
- Improving the school environment
- Monitoring pupils' performance
- Improving teachers' performance
- Developing school administration
- Providing continuous evaluation programs.

These types of long-term multi- purpose projects have not been implemented before in the area of secondary education. They will rely on local capacities which will receive continuous training from German specialists

XII.3 In the Area of Vocational Training

The German side will continue to support the ministry of vocational training particularly in the area of technical assistance and capacity building. We suggest that the German side focuses on:

- Improving of a number of vocational training institutes particularly those that suffer deterioration or lack equipment.
- Provide support for the training of trainers in specializations required by the job market in order to generate work opportunities for graduates. In this regard, we suggest the adoption of a number of institutions to undertake:
 - Maintenance of buildings
 - Provision of equipment and training needs
 - Training trainers
 - Supervision of performance.
- Participate in determining qualifications of applicants according to rules to be agreed upon with the governmental side
- Training focuses on specializations required by the job market and private sector through coordination with these parties
- Focusing on the provision of practical training
- Careful selection of efficient trainers
- Monitoring the performance of trainers
- Guiding trainers on the importance of training and educating them about the expected results if they are successful in their endeavor.
- The project duration is four years; the first three for training and the fourth for distributing graduates to the job market and the private sector, while ensuring performance supervision and non drop out, in cooperation with competent ministries.
- An agreement has been reached with the government to implement the project in other institutes and governorates to maximize the use of graduates and help with the poverty alleviation programs.
- The German side should establish a training marketing project to build the capacities of specialists in the area of planning, marketing, training as well as training surveys in order to identify training needs in the different specializations to produce training programs and market them among different institutions and the private sector.

XII.4 In the Area of Higher Education:

We suggest that the German side adopts engineering colleges in all public universities in accordance with the vision of decision makers in the following areas:

- Maintenance of buildings
- Providing equipment and labs
- Providing libraries
- Building capacities of professors through continuous training programs
- Providing computers
- Support projects for groups of young people to train them on maintenance of buildings
- Providing supporting technical assistance through visiting professors who will give lectures or offer practical training.
- Provide continuous evaluation and ensure government commitment to its results.

XII.5 In the Area of Capacity Building:

Since there are numerous projects to build capacities on the central level, we suggest that the German side focuses its attention on building capacities on the local levels through an integrated program in all governorates with focus on continuous evaluation, and government commitment to a system of reward and punishment.

XII.6 In the Area of Kinder-Gardens

This is an area that has not received prior attention. We therefore suggest the adoption of a department for kinder gardens, publication of manuals and books and financing the training of care takers and administrators for kinder gardens to introduce model kinder gardens. Prior agreements should determine the project sites and assert government commitment to provide buildings and other basic facilities.

XII.7 In the Area of Women's Enhancement:

Women are the social group most stricken by poverty. We suggest the establishment of projects to train women to generate a monthly income to help alleviate poverty, taking into account the geographical diversity of the country. Women living on the coast should receive appropriate training such as the preservation and marketing of fish, and in agricultural areas, they should be trained on food manufacturing and marketing; in mountains and deserts, women should be trained on manual manufacturing of textiles

We also suggest adopting the new department of girls' education, to raise the capacities of its staff in planning, implementation, supervision and follow up

ANNEX

Table 15: Faculty Members Academic Year 2001-02

Not Yemeni										Yemeni												
Assis s		Assistan t Prof		Assoc Prof		Adjunct Prof		Prof		Total		Assistant		Assistant Prof		Assoc Prof		Adjunct Prof			Prof	
F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M		F	M
0	2	8	36	7	104	5	68	4	44	163	1079	76	190	35	85	46	543	3	167	3	94	Uni Sanaa
0	0	2	3	1	10	0	9	1	20	200	592	83	250	50	155	62	99	4	66	1	22	Uni Eden
0	0	6	4	6	35	3	31	0	18	31	136	25	56	1	10	5	57	0	7	0	6	Uni Ta'ez
0	0	0	4	3	39	2	24	1	7	144	164	8	101	4	28	2	29	0	5	0	1	Uni al- Hudayda
0	0	0	15	0	34	0	25	0	12	0	120	0	71	0	19	0	29	0	1	0	0	Uni Eb
0	0	1	22	6	40	3	31	0	23	14	253	9	74	1	37	4	130	0	9	0	3	Uni Hadram Uni Mar
0	0	5	13	4	21	5	23	3	7	8	132	7	73	1	22	0	36	0	1	0	0	
0	2	22	97	27	283	18	211	9	131	560	2476	208	815	92	356	119	923	7	256	4	126	Total

Table 16: Registered students in various colleges (public) according to nationality and gender - the academic year 2001-2002

Nationality College Gender	Yemeni			Non Yemeni			Total	
	Males	Females	Total	Males	Females	Total	Males	Females
Sharia and law	17848	1392	19240	47	7	54	17895	1399
Literature	11533	6268	17801	61	52	113	11594	6320
Science	3477	2264	5741	41	30	71	3518	2294
Education	51059	22869	73928	44	66	110	51103	22935
Commerce and Economics	24019	4307	28326	145	36	181	24164	4343
Medicine and health sciences	2595	2238	4833	263	103	366	2858	2341
Engineering	4442	573	5015	124	62	186	4566	635
Agronomy and Veterinary medicine	835	96	931	21	5	26	856	101
Physical Education	264	0	264	0	0	0	264	0
Fine Arts	111	93	204	0	0	0	111	93
Engineering and computer	736	147	883	6	1	7	742	148
Education, arts and sciences	6822	239	7061	13	1	14	6835	240
Administr. Sciences	6922	1121	8043	0	0	0	6922	1121
Mass comm.	819	119	938	7	9	16	826	128
Applied Science.	183	115	298	0	0	0	183	115
Linguistics	841	905	1746	15	18	33	856	923
Maritime and Environmental sciences	160	31	191	2	0	2	162	31
Oil and minerals	406	0	406	0	0	0	406	0
Pharmacology	374	191	565	31	39	70	405	230
Dentistry	402	276	678	14	11	25	416	287
Total	137951	44474	182425	871	410	1281	138822	44884

Source: Statistics Book, Ministry of Planning and International Cooperation, 2002, p. 190

UNESCO Study of 4th and 6th Grades Student Performance

Tests in 4th and 6th grades

The aim of this study was to monitor the proficiency of children in the 4th and 6th grades in life skills, science, mathematics and Arabic language. A test to measure the basic proficiencies was developed and three levels of performance were delineated as follows:

- Level 1- Non proficiency: where children respond to 30% or less of the questions in each subject
- Level 2 – Partial proficiency: children give right answers to more than 30% but less than 70% of the questions
- Level 3 – High proficiency: children answer 70% or more of the questions.

Test results indicated the following:

- 1. A large percentage of the 4th and 6th grades fell within the second level. In the 4th grade: 58.9% for life skills, 76.9% for science, 63.6% for mathematics and 56.8% for Arabic language. For the 6th grade, the percentages were: 57.1%, 57.9%, 58.7% and 85.9% respectively.
- 2. Children in the 4th grade fell within the first group (non-proficiency) in mathematics (29.5%), followed by Arabic (29.2%) then life skills (10.7%) and finally science (10.4%).
- In the 6th grade, mathematics ranked first (32.3%), followed by science (30.6%), Arabic (22.4%) and finally life skills (21.5%).
- 3. Areas where 4th grade pupils ranked in the third group (high proficiency) were as follows: life skills (30.5%), followed by Arabic (14.0%), then science (12.6%) and finally mathematics (6.9%).
- In the 6th grade children's ranking in the four areas was as follows: life skills (21.3%), Arabic (18.7%), science (11.4%) and finally mathematics (9.0%).
- The general performance in the main areas for each of the four subjects was generally weak in science and mathematics for the 4th grade, when measured against the average performance for the total sections of each subject. The averages were 43.35 and 42.84 respectively and 41.2 and 44.46 for mathematics and Arabic in the 6th grade.
- Children's performance in life skills and Arabic in the 4th grade, and their performance in life skills and science in the 6th grade were acceptable with an average of more than 50.

With regard to difference in pupils' performance based on gender and rural/urban status, following are the relevant results:

- **Gender:**
 - No statistically significant differences attributed to gender in all subjects in the 4th grade.
 - Statistically significant differences in life skills in favor of males and in Arabic in favor of females and no differences attributed to gender in science or mathematics.
- **Urban/rural:**
 - No statistically significant differences attributed to rural/urban status in life skills, mathematics or Arabic in both 4th and 6th grades.
 - Statistically significant differences in science in the 4th grade in favor of urban areas and in the 6th grade in favor of rural areas.
- **Gender in rural and urban areas:**

- The T test showed statistically significant difference in life skills in the 4th grade attributed to gender in urban areas, favoring girls.
- No statistically significant differences attributed to gender in 4th and 6th grades in urban areas in all other subjects: science, mathematics and Arabic.
- Statistically significant differences in science in 4th grade in rural areas favoring males.
- Statistically significant difference of 0.01 in the performance of 6th grade pupils in rural areas in life skills favoring males.

Questionnaire of school directors: Major findings

The survey of school directors in the rural areas pointed out that their schools suffer - more than urban schools – a shortage in non- academic rooms (such as rooms for school administrators, laboratories, libraries and activities).

The percentage of schools that work for two shifts is high in the urban areas and exceeds 82% of the total number of schools. It decreases to 16% in the rural areas of the total rural schools.

There are more rooms for teachers in the urban areas than in the rural areas.

School directors also explained that among the problems they suffer from in general is the shortage of classrooms and labs, the small size of the school building and the fact that the school needs are not fulfilled at the beginning of the school year. In the urban areas, more intense problems are represented in classroom congestion, lack of maintenance, absence of cooperation between parents and school, small courtyards, and teachers are late for school. In rural areas, the problems are: lack of adequate number of classrooms, small school building, shortage of labs, school needs are not met in the beginning of the school year, long distance between school and children's houses, absence of school building.

Findings of teachers' questionnaire

Female teachers do not exceed 30.3% in the 4th and 6th grade and are mostly present in urban areas.

The percentage of teachers with high degrees (high diploma, university) rises in urban areas compared to rural areas. The number of hours teachers spend in performing administrative tasks and supervising school order is also higher in rural schools.

Teachers in both rural and urban areas spend the same period of time (one to two hours) outside school hours, to prepare their work and correct exams.

The majority of teachers said they ask pupils to do homework after each class period (80%) and that the time the children need to do the homework does not exceed 15 to 30 minutes.

The activity most practiced by teachers was to collect, correct and grade homework assignments.

Homework assignments focus on solving problems/answering questions in the school- book and reading. Other activities include outside readings, preparing reports, collecting data, and preparing experiments. Work in teams is practiced but not often.

Practiced pedagogic methods revolve around lectures by teachers with the children listening. Work in teams with help from the teacher is the least practiced classroom activity.

Evaluation of pupils is based on objective examinations, following up homework and discussions in the classrooms. The objective of these evaluation processes is to follow up the achievements made by the child and they are not used to diagnose or evaluate the educational process.

Findings of parents' questionnaire

Forty percent of the parents said that their homes consist of two rooms only; 30% said they had four to five rooms. Families who own houses tend to appear more in the rural areas compared to urban areas. Rented houses are the norm in urban areas.

More than 52% of the families have 7 to 10 members. Families with other relatives living in, such as grandfathers, grandmothers and aunts, account for 57%. The phenomenon of large- size families and relatives living in is more pronounced in rural than urban areas.

Parents who can read and write only- who have obtained basic education - constitute 56%. Illiteracy among parents reaches more than 17%. Parents with general secondary certificate or above form 25% and the number of illiterate parents or those with low level education is higher in lower than urban areas.

Parents in rural areas are engaged in agricultural activities, followed by holding government jobs in urban areas. Private business ranks third. Most of the mothers (84%) don't work outside home.

Generally, television sets and calculators are more available than non- academic books and computers. They are also less in number in rural areas. The same can be said about services such as water, electricity and telephones. Electricity is more available than water, followed by telephones. Services are generally more available in urban than rural areas.

Families who help their children assist them with their studies. More than 14% do not offer help to children and families generally rely on older children to help their younger siblings with their studies.

Around 40% of the parents said they visited their children's schools more than three times; 22% of the parents said they never visited schools while most parents (70%) said that no school officials ever visited them at home to discuss a matter related to their children. More parents in rural areas said that the school informs them of their children's grades and performance level.

Pupils' questionnaire

More than 80% of the children said they had a quiet place at home to study and that they also have someone to help them with their studies. Very few children take private lessons.

A large percentage of children said that science, mathematics and Arabic teachers correct their homework, write remarks for them, discuss the homework in class and give them back their homework and exam papers. The least practiced teachers' activity reported by the children was writing remarks on mistakes.

A large number of children (88%) said that they don't like to go to school and are afraid of exams (more than 40%). They also don't appreciate the grades they receive (75%).

On the link between the school and home environment on one hand and children's performance on the other for the 4th and 6th grades children, following are the results:

Home environment:

- No statistically significant relation between home environment and children's performance in the four areas in the 4th and 6th grades.
- No statistically significant relation between level of parents' education and performance of children except in mathematics in the 6th grade (0.05)
- No statistically significant relation between profession of parent and children's performance in 4th grade in all four subjects and in mathematics and science in the 6th grade.
- Statistically significant relation (0.05) between the parents' profession and the level of child performance in life skills and Arabic in the 6th grade.
- No correlation between parent's profession outside home and children's performance in all subjects of the 4th and 6th grades except for Arabic where there is a statistically significant relation of less than 0.05.
- No statistically significant relation between availability of mass media and children's performance in all subjects in the 4th and 6th grades except for life skills for the 6th grade with statistical significance of 0.01.
- Statistically significant relation between availability of home facilities and the performance of children at different significance levels in all subjects in the 4th and 6th grades except for science in the 6th grade.
- No statistically significant relation between parents' relationship with school and number of visits to it, and child's performance in all subjects in 4th and 6th grades.
- Statistically significant relation between helping children with studies and their performance with different significance levels in all subjects in the 4th grade except for Arabic and science and mathematics for the 6th grade.
- No statistically significant relation between helping children to study and their performance in life skills in the 6th grade and Arabic in 4th and 6th grades.

School environment:

- No statistically significant relation between performance of teachers in science, math and Arabic, and the performance level of children in the 6th grade in the three subjects and in math and science in the 4th grade.
- Statistically significant relation between the performance of teachers in science and the performance of children in the 4th grade at 0.05
- No statistically significant relation between pupils' feelings towards school and their performance level in the four subjects in the 4th and 6th grades.

Recommendations

- More studies to determine reasons affecting children's performance in order to design appropriate plans to address them and correct the educational path.
- Activate the role of parents' boards and teachers and emphasize the importance of communication between families and school to focus on issues that enhance children's performance and provide a conducive environment for the children to learn.
- Schools and media institutions should prepare and implement programs to raise the awareness of parents about their role in socializing children

- Pay attention to individual differences; training teachers to follow proper pedagogical methods to deal with children each according to his/her abilities and needs, and help them develop self- learning.
- Pay more attention to school renovation and increase the number of classrooms to reduce congestion in urban areas and provide a better learning environment in the rural areas.

To improve the performance of children, the study recommends the following:

- Review competence and proficiency standards for each level of education that are suitable to child mental abilities and mental growth.
- Determine the basic proficiency standards for each academic year and publish them in booklets
- Develop educational curricula in light of pre-determined proficiency standards, focus on children's acquisition of these proficiencies and avoid unnecessary theoretical information in school books that children tend to forget by the end of the school year.
- Link evaluation methods with the goals and required proficiency standards, and use these methods to determine how much children have grasped what they learned and reasons why they have difficulty acquiring those skills.
- Revise the program of rehabilitation before the job and training on the job to allow teachers to use up to date pedagogical methods
- Provide continuous support to teachers to help them address the needs of children
- Enhance the role of educational guidance in providing the appropriate support to school administration on one hand, and in performance evaluation on the other.
- Pay more attention to applied activities in school- books, as well as curricular and extracurricular activities organized in schools in order to enhance new skills among children
- Emphasize practical education during pilot rehabilitation in order to improve the rehabilitation process and enhance pilot rehabilitation programs.
- Focus on the provision of educational materials to reduce the emphasis on theoretical curricula
- Train teachers on the job on how to measure pupils' performance and absorption capacity and use the findings to develop the learning and educational process
- Integrate school performance into the teachers' preparation programs before they take the job
- Conduct more exploratory studies to diagnose the problems of learning on the basis of gender and rural/urban variables and undertake in depth studies on the difficulty of learning main skills in specific subjects and suggest solutions.