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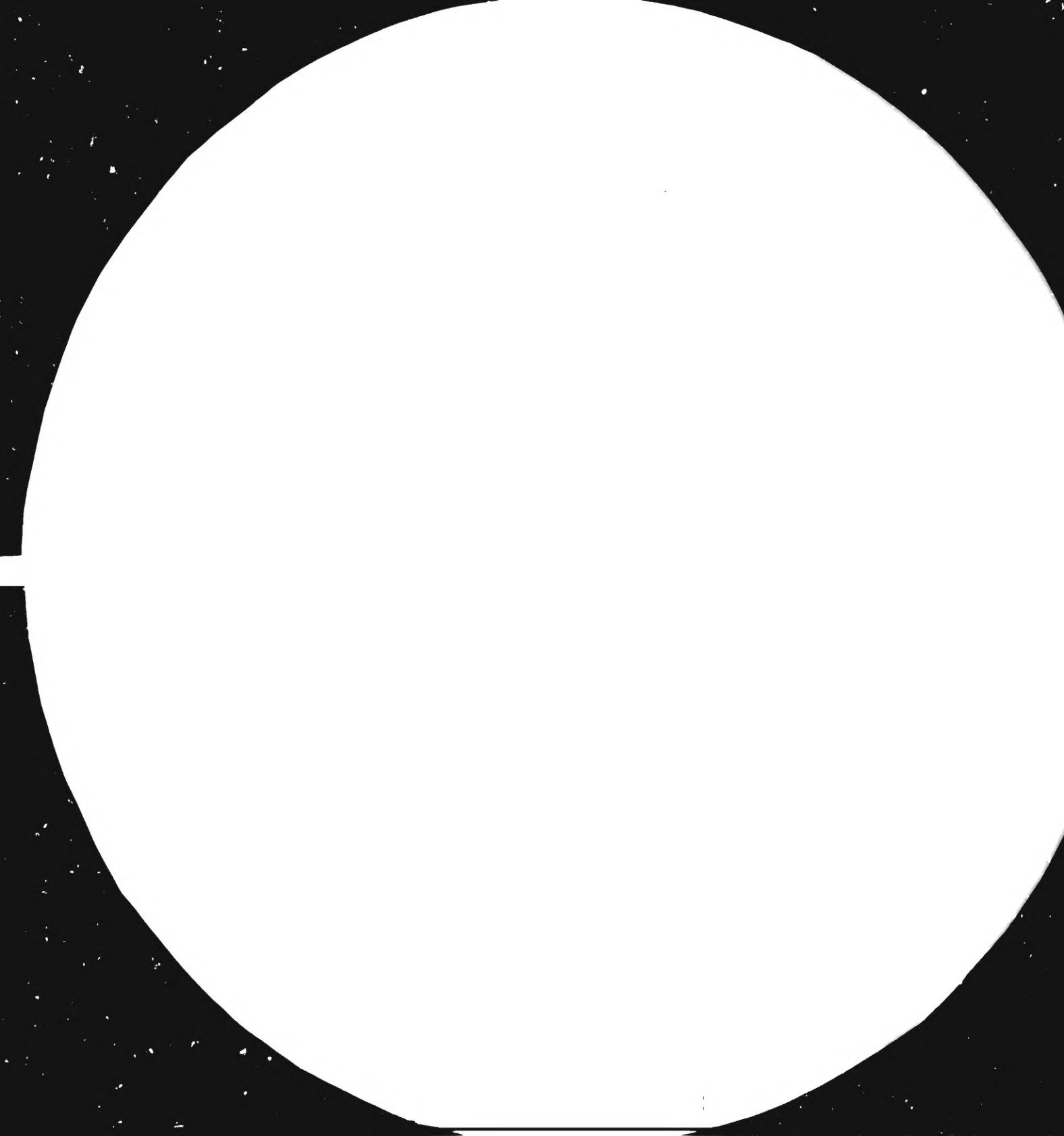
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13578-E

Distr.
LIMITED
ID/WG.394/8
30 June 1983
ENGLISH



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

**HIGH-LEVEL
EXPERT GROUP MEETINGS
PREPARATORY TO THE
FOURTH
GENERAL CONFERENCE
OF UNIDO**

*Accelerated Development of Human Resources
for Industrial Development
Yaoundé, United Republic of Cameroon,
30 May - 3 June 1983*

REPORT.

*Accelerated Development of Human Resources
for Industrial Development.*

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CHAPTER I

INTRODUCTION

1. The High-Level Expert Group Meeting Preparatory to the Fourth General Conference of UNIDO on the Accelerated Development of Human Resources for Industrial Development was held in Yaounde, United Republic of Cameroon, from 30 May to 3 June 1983. It was organized by UNIDO in co-operation with the Government of Cameroon. The Meeting was one of five preparatory meetings for UNIDO IV approved by the General Assembly of the United Nations.

2. The objectives of the Meeting were:

1. To examine in-depth the constraints and problems facing the developing countries in the development of human resources and critical capabilities required for industrial development;
2. To recommend new approaches and practical mechanisms covering the following critical aspects:
 - policies and strategies;
 - formulation and implementation of programmes;
 - mobilization and optimization of financial resources;
 - measures for more effective international co-operation;
 - assistance from UNIDO and other relevant international organizations.

Participants

3. The Meeting was attended by over 50 high level experts from 28 countries and 10 international organizations, as well as a large number of observers from the host country. The List of Participants is attached as Annex 2.

Opening of the Meeting

4. During the opening session of the Meeting, which was attended by invited guests, Dr. Abd-El Rahman Khane, the Executive Director of UNIDO, addressed the meeting. He drew attention to the current global economic crisis and its effect on the developing countries who, as the weakest element in the international community, shoulder a disproportionately high burden of its consequences. He stressed that developing countries, as a group, should undertake a self-examination, and commit themselves to making a determined effort to develop the competent and motivated personnel to absorb, innovate and apply the technology and skills necessary to bring about rapid progress and rapid transformation of natural resources - which abound in the Third World.

5. Dr. Khane emphasized that, in order to attain the Lima target of twenty-five per cent share of world industrial production by the year 2000, the developing countries would have to substantially increase and accelerate the rate of development of the wide range of managerial, scientific, technological and other capabilities required for the entire industrialization process, including the services sector. In this connection, he appealed to developing countries to take necessary measures to rectify the existing situation where there is a notable mismatch of education/training programmes and systems with the industrial human resources needs of the country. In conclusion, Dr. Khane called on developing countries to set a minimum of 2 per cent of GNP for the development of the scientific and technological capabilities required for the industrialization process.

6. In his address to the Meeting, the Cameroon Minister for Plan and Industry, H.E. Dr. G. Bol Alima, highlighted industrialization, which is the motor for overall economic development. He emphasized the role of industrialization in meeting the essential needs of the people and improving the quality of life of the entire population - both urban and rural. He referred to the Lima and New Delhi Declarations and Plans of Action, and stated that the ideas and objectives embodied in them coincide fully with those of the Lagos Plan of Action adopted

by African Governments. The Minister further emphasized that the attainment of the twenty-five per cent Lima target depended entirely on the availability of trained personnel to apply and assimilate modern technology and to master the machines, tools and processes of industrialization.

7. Referring to the industrialization experience of Cameroon, Dr. Bol Alima explained that human resources development was one of the highest priorities of the Cameroon Government, absorbing nearly twenty-five per cent of the national budget. The development and strengthening of the national technological capabilities is the ultimate objective of the Government, particularly as this applies to solving the problems of the rural population and augmenting rural productivity. He stressed that modern technology ought to co-exist with and to complement traditional technology, and emphasized the need to apply scientific and technological knowledge to upgrade traditional technology.

Election of Officers and Adoption of the
Agenda of the Meeting

8. The Meeting elected the following officers: Chairman, Dr. George Ngango; Vice Chairmen, Mr. Jacques Raison, Mr. Lloyd Stanley and Mr. Antonin Trachta; and Rapporteur, Mr. Imtiaz Ahmed Chaudri.

9. The agenda adopted for the meeting is attached as Annex 1.

10. Mr. G.S. Gouri, Chairman of the UNIDO IV Task Force, presented a brief background information to the Meeting and its relation to the preparations for UNIDO IV, which is scheduled to be held in July 1984 in Nairobi, Kenya. He explained that the High-Level Expert Group Meeting on the Accelerated Development of Human Resources for Industrial Development was one of five such preparatory meetings approved by the General Assembly, and relating to a number of critical areas to be covered by UNIDO IV; namely: industrial development strategies and policies; industrial technology; human resources development for industrial development; industrial co-operation among developing countries;

and energy for industrialization. The objective of these preparatory meetings, he explained, was to initiate a dialogue on the critical issues to be presented to the Fourth General Conference on UNIDO, and to involve the decision-makers, scientists, economists, and other experts in the preparatory activities of the Conference.

11. On the Meeting on Accelerated Development of Human Resources for Industrial Development, Mr. Gouri stressed that progress and success in achieving the objectives of industrialization depended on developing countries building up the technological and other skills requirements covering the entire industrialization spectrum, for no amount of additional industrial equipment or finance would help unless there were qualified and competent personnel to apply them effectively.

12. Mr. Gouri went on to introduce the documentation prepared for the Meeting, consisting of two Basic Papers (ID/WG.394/1 and ID/WG.394/7) and a number of background or supporting documents. He explained that the two basic papers were an attempt to present in broad terms the current situation in developing countries, possible elements of a new approach, as well as proposals for actions to be taken at the national and international levels. The two documents were complemented by several background papers, including a number of country experiences, all presenting additional supporting material pertaining to the issues covered in the basic papers. The list of documents is attached as Annex 3 of the Report.

CHAPTER II

GENERAL CONSIDERATIONS ON ACCELERATED DEVELOPMENT
OF HUMAN RESOURCES FOR INDUSTRIAL DEVELOPMENT

13. The Meeting commended the UNIDO Secretariat for the excellent documentation prepared by it. The basic papers and the supporting documentation including those on country experiences provided a useful basis for discussions. The Meeting generally endorsed the analysis and approach contained in the basic papers and felt that the total documentation prepared for the High-Level Expert Group Meeting provided useful material for further use in their respective countries.

14. The Meeting took note of the thought-provoking statements by the Executive Director of UNIDO as well as by the Minister of Plan and Industry of the host country. The Meeting also took note of the High-Level Expert Group Meetings held in Tbilisi and Lima in so far as they related to human resource development in regard to the technological advances and industrial strategies and policies respectively.

15. It was recognized that human resources are both an instrument for development as well as its objective. The dexterity and skill of the population are the foundations of national wealth. Manpower training, development, mobilization and utilization are therefore crucial to the level and rate of industrial, technological and economic growth. Efforts at human resources development (HRD) should therefore be an important component in the attempts of developing countries to achieve the Lima target of industrialization and could provide the basis for the so-called "human resources-led development strategy" in which the person is the centre of development both as a producer and consumer.

16. The concept of human resources development (HRD) would therefore involve a system to raise the skills, the productive capacities, the creative and innovative abilities and to raise the enterprising spirit of a nation's population through education, training and research. The

allocation of a nation's resources for this purpose need to be considered as investments in human capital and perhaps even more important than investment in materials and machinery.

17. In today's world, whatever be the philosophy professed, or regime adopted, or development path selected, success, which hopefully will be synonymous with harmony and happiness, cannot be secured unless people within the whole range of skills, from the highest to the lowest, are made readily available and who, in addition to their technical qualifications, possess, to a high degree, a sense of individual and collective dignity and integrity. If it is granted that progress will also call for industrial hardware and finance, no amount of additional industrial equipment or finance can really help unless there are competent and motivated personnel to absorb, innovate and apply the technology and skills involved in today's increasingly complex productive and service industries.

18. The role of industry as the prime mover of overall economic development is well known. Industrial development, therefore, must have an adequate supply of the right kind of trained manpower, in the right numbers, at the right time, in the right place and with the right balance of technical knowledge and practical skills. Their availability determines the pace and direction of industrial growth, industrial innovation and social development.

19. In order to formulate effective policies and strategies for the human resource development (HRD) for industrialization, it would be essential to have a well defined industrialization strategy and plan. The industrialization strategy chosen by the country establishes the parameters of the human resources development strategy to be pursued. The latter is the out-growth of the former. Indeed, manpower planning must start with a clear national concept for industrial development, including a well defined plan covering the industrial sectors or sub-sectors which the raw materials endowment of the country should dictate. Industrial manpower should therefore be not only an integral part of industrial policy but also a part of total manpower and educational policy, which in turn, are integrated with national, economic, trade and other policies to meet national goals and priorities.

20. Full involvement of the concerned people in industry, government, training and educational institutions in the planning process from the very beginning will facilitate identification of manpower needs and priorities and the successful implementation of plans. It is not enough to have a clear policy. It should be backed by a political will and commitment as well as the necessary financial and material support to implement it.

21. In the national plans for industrial development and associated manpower development plans, it is considered necessary to take account of the fact that in most developing countries, at least two basic and separate economies exist side by side. These are: the rural sector where the bulk of the population lives, mostly illiterate, pursuing subsistence levels of living, engaged in agriculture and/or some rural industries. There is also the modern or organized sector with a population educated to various levels including some technical training and higher education, engaged in industrial activity of varying complexity, ranging from the relatively high technology to small industries.

22. Considering the importance of the informal sector, especially for the development of manpower qualified to be used in industry, the meeting recommended that governments should pay special attention to the role that this sector may play in the mobilisation of all human resources with a view to accelerating their industrial development. It was suggested that the multilateral and bilateral agencies concerned should pursue their efforts to assist governments in the promotion of the said sector.

23. It is also necessary to take account of women who constitute a larger segment of the population. Policies for industrial manpower development should therefore pay special attention to the need for fuller development of their potentialities and to make them effective partners in industrial development. This matter needs special emphasis and UNIDO should pursue the matter further and draw the attention of UNIDO IV to this subject.

24. The meeting noted the challenges being faced by the "information society" and "bio-society" undergoing major revolutions as a result of technological breakthrough in genetic engineering and bio-technology, microprocessors, etc. As these emerging technologies offer new opportunities for revitalizing the process of industrialization and improving the quality of life, it would be desirable for education and manpower training programmes to take them into consideration. New types of institutions have to be evolved and existing ones re-oriented to meet the requirements of new technologies which are transdisciplinary in character. Existing educational and training facilities have to be reviewed to take into account the changing profiles of skills required to operate industrial and other equipment.

25. As a guide to human resource development (HRD), reference needs to be made to the capabilities, based on the functions required, and to the types of persons to fulfil those functions. With regard to the critical capabilities required, attention needs to be accorded to planning and policy-making capabilities as well as to entrepreneurial and managerial capabilities required for the planning and management of the process of industrialization. There is also a need for scientific, technological and engineering capabilities to provide a sound basis for the growth of industry. At the micro level there is a need for capabilities to design, direct and operate industrial plants efficiently. The classification, it should be noted, could be arbitrary, but suitable classification could be evolved according to the needs of the country. The meeting thus generally endorsed the suggestions contained in Document ID/WG.394/4, paras 18 - 29.

26. It was noted that the present educational system in most developing countries has been patterned on the basis of a number of industrialized countries. While these countries themselves regularly review their systems in response to their ever-changing industrial manpower requirements and in the face of their changing industrial structures and activities, most developing countries have not often done so. The existing system has not proved to be sensitive and responsive to the

changing, diverse and complex needs of industry. There is often a mismatch between the output of the educational and training system and the immediate and specific needs of industry. This mismatch has helped to perpetuate heavy reliance on outside expertise. It is therefore considered necessary to dynamise the existing educational and training systems in accordance to national needs.

27. It was noted that hitherto human resources for industrial development have not, in most developing countries, been developed along lines that would permit the countries to acquire those skills required for industrialization. This deficiency has been perpetuated by the type of human resources development programmes often carried out in developing countries. There is a need for action to be directed towards correcting the education and training curricula in human resources development institutions, and to create the infrastructural capability to develop those skills relevant to industrialization. Further, it was recognized that the principal deterrent to the development of human resources for industrialization in developing countries was the weak capacity to provide such training and development.

28. Much attention seems to be devoted to cater for the current and short term needs rather than to anticipated requirements. It is therefore considered necessary to give some serious thought to the preparation of young men who are just entering the school system if they have to contribute effectively to the building of science, technology and the industrial system of tomorrow. It is in this context that some possible elements of new approaches with regard to reorientation of education, productivity of the population and particularly the need to recognize emerging technologies have been identified.

29. References have been made to the emergence of a knowledge industry. These are accompanied by new approaches and methodologies such as the introduction of computers in schools, effective exploitation of satellite and TV for education and utilization of educational kits, teaching and learning aids as well as the creation, where necessary, of new educational institutions such as technological universities with multi-disciplinary approaches, etc. In this connection, the Meeting noted

with interest the country experiences of some of the selected developed countries and their preoccupation with the subject since the 1960s, to cope with the fast changing industrial scene.

30. While emphasizing the need to build a strong science and technology base to accelerate the process of industrialization, the dangers and weaknesses of imposing alien technology on a society and in a milieu that is not yet prepared for it has to be recognized. It is for this reason that care has to be exercised in the choice of technology.

31. In the rural sector such existing rudimentary technology should not be swept aside but should be analysed to identify any developmental potential. In the modern sector, it should be emphasized that comprehensive training components should be negotiated as part of the purchase of new plant and equipment. Those elements of training which can be undertaken locally should be properly constructed and planned on a timely basis, while those elements which have to be undertaken overseas should be identified during negotiations and properly time-tabled. The collaboration of equipment suppliers in making such plans, preparing the relevant training programmes and implementing the training agreements, is vital and could well be made one of the conditions of the purchase of plant and equipment. Safe-guards such as systematic registration and monitoring of technology packages introduced and associated technical assistance are also necessary at the national level.

32. Attention needs to be given to the problems involved, at the present time, in obtaining financing on reasonable terms for implementation of the training component of technological projects.

33. Great emphasis needs to be laid on the importance, especially in a period when access to funds for financing the purchase of new plants and equipment is difficult, of cultivating good maintenance practices at the factory floor, preferably on the basis of planned programmes of maintenance systematically applied. To this end, skills and competence should be acquired in adequate quantity and quality to be capable of preserving the capital stock installed, i.e. plant and equipment, throughout its useful life. It needs to be pointed out that there are opportunities

for the establishment by trained and experienced skilled workers of service and repair shops which could be run as a business enterprise in the small scale sector to provide such services to industry. An understanding of the importance of maintenance of plant and equipment has therefore to be seen as being capable of providing an avenue for entrepreneurship.

34. It should be noted that in the development of human resources special attention needs to be accorded to the problems of attitudes, social and cultural environment. Attitudes and motivation, in a sense, are inherited from the colonial times in several countries. These often affect perceptions of mobility and values relating to certain professions and skills.

35. Action will also have to be taken to provide a suitable environment to change social values and attitudes towards various job types. The traditional respect for academic education and academic achievement and the greater salary, status and prestige for white collar jobs and similar value systems, have to be changed to overcome the shortage of technicians, on the one side, and unemployed graduates, on the other. Governments and society will also have to create a suitable environment with built-in incentives and social recognition to stimulate creativity and innovation and to foster entrepreneurship and self-employment. It is only through such steps that human resources development in its fullest sense, can be achieved. The Meeting emphasized that successful development of human resources for industrialization was not solely a matter of money and materials. There are also intangible aspects without which these can achieve nothing. The Meeting considers these invisible components of successful human resources development (such as attitudes and motivation, incentives and rewards) to be extremely important, and requests UNIDO to devote further study to them, if possible in time for the results to be taken into account at UNIDO IV.

36. In order to deal more adequately with Agenda items 6 and 7, two working groups were established: One dealing with national level actions and the other dealing with international level actions. The reports of the Working Groups were adopted by the Plenary and constitute the basis for Chapters III and IV. of this Report.

CHAPTER III

NATIONAL LEVEL ACTIONS

Introduction

37. The Terms of Reference assigned to the Working Group No. 1 dealing with national level actions was as follows:

"Working Group No. 1 will, on the basis of the discussions in the Plenary Sessions on Agenda items 4 and 5, essentially cover the items listed under Agenda item 6. The Working Group will, in particular, be required to put forward practical recommendations within each of the following subject areas:

- Policies and strategies;
- Programme formulation and implementation;
- Institutional infrastructure;
- Mobilization and optimization of financial resources

to which governments, individually and collectively, may wish to give high priority in the light of the current international situation.

Documentation for Working Group No. 1 consists of ID/WG.394/3 as well as basic papers ID/WG.394/1 and ID/WG.394/7. References should also be made to specific country papers as well as supporting documentation prepared for the First Consultation Meeting on Training of Industrial Manpower."

38. The List of Participants in Working Group No. 1 is attached as Annex IV. The Report of the Working Group was adopted and forms a part of the Report of the Meeting.

39. The deliberations on national level actions took note of the opening addresses which stressed that in the present world economic climate, developing countries must look increasingly to self-help. It was noted that financial aid, welcome as it is, must be seen as an interim measure as developing countries move to self-sufficiency. The same point was made in relation to the large sums of money spent on

training overseas, which would be better directed towards developing national capabilities rather than simply importing highly trained individuals. It was also stressed that any support from the international community should not at this stage increase the dependence of developing countries, and that international organizations should assist in decreasing such dependence.

40. In discussions on Agenda item 6, the question of a data base and information flow was also considered. It was also agreed that the formulation and implementation of policies were separate issues, and that motivation factors be included as an additional item. In fact, the Working Group did not have sufficient time to debate motivation factors, but its inclusion on the Agenda suggests that such matters as general motivation, productivity, attitudes, incentives and rewards, should be seen as an integral part of a human resources development policy, as a means of ensuring that people are properly utilized, as well as adequately trained.

41. The Meeting in general endorsed the documents ID/WG.394/1 with particular reference to paragraphs 42 to 59 as well as the supporting documents ID/WG.394/3 and ID/WG.394/4, and the relevant recommendations contained therein.

42. The Meeting noted that the United Nations has declared the 1980s as the Industrial Development Decade for Africa. To this effect it was agreed that Africa should be accorded special attention. It was further noted in this connection that:

1. The tertiary education capacity in Africa falls far short of industrial targets;
2. Most countries of Africa are still at 'first base' of industrialization and the problem is how they can build and improve their industrial technological capacities;
3. There is a case in Africa for regional collaboration between countries on the lines of the three institutes which have been initiated for design, technology and industrial training research;

4. The priorities of Africa are the development of skills with immediate useable value at high and middle levels with the policy based on the identification of critical skill levels. Technology and literacy programmes should support these priorities.

43. With regard to Planning and Information Base, the Meeting endorsed paragraph 16 of ID/WG.394/1, but warned against the introduction of over-elaborate systems which make information difficult to digest. It thought it right to recommend a basic framework but it should be left to each country to elaborate on this in ways that it will find helpful. There was a strong plea for the standardization for occupational/job categories, and for the streamlining of information gathering and processing, to allow for comparable measurement in manpower planning and human resources development. It was emphasized that data should in all cases relate to particular situations with levels of disaggregation, which will be of real assistance to planners.

44. The following recommendations were made:

- 1) Industrial Manpower Planning and Development policy should be an integral part of industrial development policy;
- 2) There should be clear policies relating to human industrial development of rural and non-rural areas;
- 3) UNIDO, in co-operation with other international organizations, should initiate the development of methodologies and standard definitions for collecting information needed for industrial manpower development.

45. The Meeting emphasized that short-term results can be achieved through the use of such techniques as vacancy surveys and following up salary movements, particularly in relation to local labour markets and special situations.

46. Finally, the Meeting noted the equal importance of assembling training information.

47. With regard to planning information bases, the meeting warned that over-reliance on mechanistic planning techniques might not cope adequately with changes in skill patterns.

48. With regard to policies and strategies, and drawing on the experience of other industrialized countries, the Meeting noted that in certain situations, legislation could be useful in bringing about innovation at an accelerated rate.

49. The Meeting recommended:

1. That it is necessary to formulate human resources development policies in respect of contractual arrangements with overseas suppliers of technology and industrial plant.
2. That the disadvantages of fragmentation in training should be overcome through a system of certification.
3. That policies should take note of the need to develop an integrated training system to combine both theoretical and practical training at all levels.
4. That consideration should be given to overcoming weaknesses in links between manpower utilization and the output of the education system. In this regard it was considered necessary to ensure the involvement of industry and educational training institutions in the formulation and implementation of production and training policies, plans and programmes.
5. There should be fuller utilization of qualified technical personnel through government provision of realistic incentives to persuade them to take "production" rather than "administration" jobs and to reduce "brain drain".

50. In regard to policies relating to rural areas, the Meeting recommended:

1. That special attention should be given to the development and implementation of special education and training programmes for industrial manpower in the rural areas.

2. The consideration of support measures for rural and indigenous enterprises with a view to developing entrepreneurial skills.
3. Attention be paid to the introduction and development of local and simple technology improvements to increase the effectiveness of rural enterprises.

51. It was further recommended that:

1. More resources should be concentrated on the training of trainers.
2. Closer links should be established between employment needs and the school curriculum.
3. There should be a re-examination of existing educational systems which tend to develop imitative capabilities rather than creative and imaginative ones.
4. Greater attention should be given to the question of "learning to learn" and that this recommendation be considered in the context of the use of educational technology including teaching/learning aids as a means of supporting mass educational programmes.
5. Particular attention should be given to women in the accelerated development of human resources for industrial development.
6. Steps to intensify the flow of technical manpower between industry and training institutions should be taken.
7. Policies be devised for co-ordinating training with export of skills to neighbouring countries, and policies for rehabilitating returning migrants.

Programme Formulation

52. A key point was made that it is most important to bring all the actions together in formulating programmes in order to enhance the level of co-ordination and to ensure that programmes are coherently designed and presented. The analysis and suggested actions contained in Document ID/WG.394/4 were considered particularly relevant. The Meeting emphasized the need for programmes that have a high practical content. Attention was also drawn to the availability of basic texts which readily translate and accelerate programme development. As one participant said "There are areas in which knowledge knows no frontiers". It was emphasized that such education and training programmes should accord special priority to the critical capabilities required for industrial development as identified in Document ID/WG.394/3.

1. In programme formulation there should be movement from non-technical to technical and from theoretical to practical content in programmes, developing the complementary aspects of institutional and on-the-job training.
2. Consideration should be given to merit-based reward systems.
3. Mechanisms should be established to identify, develop, adopt and exchange training material needed in industrial manpower development.
4. UNIDO should, in co-operation with other international organizations, consider producing a methodological handbook on the formulation of programmes for the accelerated development of human resources for industrialization.

Institutional Infrastructure

53. In the discussion, it was emphasized that coherence between institutions was important and that there was room for improvement in co-ordinating the work of institutions and agencies in developing countries. It was also stressed that the institutional infrastructure

should be capable of developing people at different levels of skill. Concern was expressed that the fragmentation of the institutional infrastructure resulted in uneven standards. The point was made that Africa was particularly weak in having few institutions for training and education.

54. The Meeting recommended that:

- i. The possibility that each developing country establish a single agency to co-ordinate training programmes should be considered. Such an Agency could organize and stimulate a national strategy in the development of human resources.
- ii. It should be given authority to collect all financial resources needed for this development (National Fund for the Industrial Training of Human Resources).
- iii. Planning institutions should include a section for human resources development planning.
- iv. UNIDO should provide moral, technical and financial support to joint institutions, with priority being given to such institutions developed by groups of countries in the Third World. Such a joint institute might, for example, promote and co-ordinate the use of educational technology.
- v. Industry should become increasingly involved in the formulation and implementation of training programmes.
- vi. Consideration should be given to the development and possible use of the concept of teaching companies.
- vii. UNIDO should collect and circulate information on successful schemes in rural areas together with their institutional arrangements.
- viii. The extension and development of educational and training institutions should be in terms of contemporary needs.

ix. Industrial representation should be included in the management structure of educational and training institutions.

x. The Least Developed Countries should collaborate through TCDCs in identifying joint strategies for improving facilities for human resources development.

Financing

55. With regard to financing, the point of view was expressed for redirecting funds towards innovative projects. This does not imply seeking additional finance but optimising the use of what is already available. In this regard, the use of educational technology is one area which might attract support and, in general, there may be more benefits in increasing resources for structures. There is a need for governments to consider establishing a legislative framework to provide financing for development. Funding by industry was also considered. It was emphasized that the move towards self-help included industry and that industry should expect to accept an increasing measure of responsibility for financing skills it required.

56. The following recommendations were made:

1. Developing countries should seek to generate funds internally rather than depend solely on outside sources of funding.
2. The evaluation of programmes and assessment of their cost effectiveness should be given more prominence.
3. In-company resources should be mobilized for training and, where necessary, financial awards should be made towards the costs involved.
4. There should be a greater allocation of financial resources to technical education, as well as among the various aspects of education and training programmes such as infrastructure, scholarships, teachers and instructors and the development of educational technology, etc.

57. The Meeting noted the relevant recommendations of the Stuttgart Consultation Meeting on this subject.

CHAPTER IV

INTERNATIONAL LEVEL ACTIONS

58. The terms of reference assigned to the Working Group No. 2 dealing with international level actions were as follows:

"Working Group 2 will, on the basis of the discussion in the Plenary Sessions on Agenda Item No. 4 and 5, deal with measures for developing more effective international co-operation. Documentation for Working Group No. 2 will consist of ID/WG.394/2 as well as basic papers contained in ID/WG.394/1 and ID/WG.394/7. Reference should also be made to the supporting documentation prepared for the First Consultation on the Training of Industrial Manpower and to the specific country papers.

The Working Group is required to identify the areas in which international co-operation can most effectively supplement the efforts of developing countries in the development of human resources for industrialization.

Having regard to the long-term objective of developing countries of mastering their industrialization process, the Working Group may wish to consider the following:

- government to government co-operation with a view to establish/strengthen national education and training systems in the light of manpower requirements of industrialization (ID/WG.394/2, para. 20).

With regard to the short-term objectives, international co-operation would be required to meet the needs of industry which cannot be met in the short-term from national sources. The Working Group may wish to consider:

- enterprise to enterprise co-operation : the need to improve contractual arrangements (ID/WG.394/7, para 8 Notes 2 iii); the need to improve the terms and conditions of the financing of the training component of an industrial project (ID/WG.394/7, para. 10)."

59. The list of participants of the Working Group is attached in Annex IV.

60. The report of the Working Group was adopted by the Plenary and is included in the chapter dealing with International Actions.

A. GOVERNMENT TO GOVERNMENT CO-OPERATION

61. During the meeting it was pointed out that a major effort should be made to identify training institutions that could become "centres of excellence" serving not only their own country, but other developing countries as well. Such institutions could include industrial training centres, research and development institutes and universities which have achieved a certain level of competence but which, with additional investment or other assistance, could achieve recognized standards of competence in their particular fields.

62. Thus, certain institutions in developing countries could become not only "centres of excellence" for technological development and spin-off for specific sectors, but also "centres of excellence" for industrial training and skills in those sectors. The meeting recommended the following:

- (1) On the basis of the New Delhi Declaration (UNIDO III), that efforts should be made to identify potential and strengthen existing centres of excellence (including industrial training centres, research and development institutes and universities) which have attained a certain level of competence.

- (2) that an information system on training needs and training facilities be established as an integral part of the programme of centres of excellence so as to provide, on a continuous basis, timely and relevant information on training needs and opportunities in developing countries.
- (3) the development of regional, sub-regional and international networks to develop channels of communication for professional exchanges and establish possibilities for mutual assistance between training institutions, including research centres in developing countries.

53. With regard to special training needs, the Meeting recommended that:

- (1) Given the fact that the prime responsibility for training lies with the developing countries, that the existing capacity in these countries could be better utilized and that there is considerable potential for increasing co-operation among developing countries in the field of managerial and technical training, governments should examine the need to strengthen existing managerial and technical training institutions or to establish new ones, where they do not exist.
- (2) Special attention should be given to the development of the critical capabilities for industrial development identified in document ID/WG.394/3 including, in particular, the following target groups:
 - industrial entrepreneurship;
 - training managers;
 - trainers;
 - engineers;
 - technicians;
 - managers and supervisors;
 - industrial economic administrators and planners.

- (3) The realization of an industrial project requires identification and careful planning; the lack of national cadres with these capabilities obliges recourse to foreign expertise: special international co-operative training programmes should be elaborated in order to train engineers and other project team members in project management.
- (4) that given the pace of technological change on the one hand and the relative isolation from new technologies for industrial technical and management cadres in developing countries on the other, special education programmes should be organized by UNIDO in co-operation with other multilateral and bilateral agencies to update skills and knowledge in those sectors in which technological changes are most significant.
- (5) that governments look into the possibilities of increasingly associating the formal institutions of learning with industrial enterprises.
- (6) that governments should also take account of the value of utilizing fully the technical resources of national universities and polytechnics for policy making, planning, project design, consultancy, research and development.

Maintenance of Industrial Plants and Equipment

64. The maintenance of industrial plant and equipment acquired by developing countries is of prime importance.

65. The absence of such maintenance has manifold consequences: it impedes the smooth functioning of installations and shortens their life span; it increases the need for spare parts which are generally paid for in foreign exchange and, finally, it "de-motivates" and discourages personnel.

66. At the national level, there are different aspects of maintenance programmes, for example:

- the training of engineers and technicians capable of designing and executing maintenance programmes and appraising the "exploitability" of projects;
- the establishment of standards for equipment;
- the definition of the various obligations of suppliers, for instance with regard to technical documentation;
- the setting up of workshops for the manufacture of spare-parts;
- the organization of sub-contracting;
- the design of appropriate maintenance systems.

67. The Meeting recommended that:

1. The year 1986 should be proclaimed as the International Year for the Maintenance of Industrial Plant and Equipment in order to focus international and national attention on the problems of maintenance of industrial plants and equipment with a view to developing appropriate capacities and capabilities in industrial maintenance. To this effect, UNIDO is invited to launch, in collaboration with other relevant international organizations, as appropriate, a programme for the year.
2. The establishment of multi-purpose industrial maintenance institutes capable of ensuring training, research, counselling, assistance in the maintenance of industrial equipment and the manufacture of certain spare parts.

Production of Education/Training Programmes,

Facilities and Aids

68. The Meeting recognized the great potential for international co-operation not only among the developing countries but also between the developed and developing countries in the development of education/training programmes, facilities and aids for use in developing countries. This includes the carrying out of research into teaching/learning processes and techniques and the application of the results of such research already carried out in the developed and more advanced developing countries. In the light of the above, the Meeting recommended that UNIDO should develop, in co-operation with other relevant international organizations, special programmes to promote concrete projects in this area.

Financing of Training

69. Other possibilities of enlarging the supply of funds for training which were mentioned include the need for legislative, financial and administrative measures, imposition of surtaxes of various kinds, the proceeds of which would be strictly reserved for financing industrial training or the use of tax incentives, levies on industries, etc.

70. The Meeting noted that the inadequacy of financial resources provided on bilateral and multilateral arrangements had led to the closure of important national training projects.

71. Again, there seemed to be a case for pressing upon governments to use public funds for financing training schemes and to reserve a portion of UNDP-provided funds for industrial training.

72. There was also the possibility of bilateral and multilateral agencies providing funds to cover the foreign exchange component of training opportunities provided by developing countries to each other under ECDC/TCDC arrangements.

73. Attention was also drawn to the need for mobilizing additional funds for UNIDO's technical assistance programmes which could be applied to industrial training.

74. Although numerous other comments were made, the Meeting finally put forward the following recommendations:

1. That consideration be given to resorting to legislative, financial and administrative measures as a means of acquiring additional financing for industrial training, including the use of surtax, tax incentives and levies on industries;
2. That consideration be given by bilateral and multilateral agencies to the financing of the foreign exchange costs of training opportunities offered by one developing country to another.

B. ENTERPRISE TO ENTERPRISE COOPERATION AND THE
NEED TO IMPROVE CONTRACTUAL RELATIONS

75. The Meeting discussed at considerable length the provision of industrial training for developing countries incorporated in contracts for suppliers of plant and equipment, etc. Among the considerations taken into account as important were:

- the determination in concrete and quantitative terms of specific training needs;
- selection of trainers and trainees.

76. It was essential in this connection that defects identified in such contracts, for instance with case studies carried out by UNIDO, should as far as possible be eliminated and that a number of points set out in paragraph 234 of UNIDO Document ID/WG.381/2 should be given special attention.

77. The Meeting fully supported the recommendations adopted by the First Consultation on the Training of Industrial Manpower requesting that UNIDO prepare a checklist of clauses relating to training for inclusion in contracts for an industrial project.

78. The Meeting recommended that:

1. In addition to those points described in the background documentation, training in repair and maintenance be specifically covered by the checklist;
2. UNIDO should elaborate programmes for the training of contract negotiators;
3. Training institutions in recipient countries should be involved in the technological know-how and training programmes provided by suppliers of equipment, thereby strengthening the developing countries. UNIDO should examine the possible modalities of such involvement;
4. Special attention should be given to the importance of the adequacy of technical documentation relating to the operation and maintenance of equipment and to the need to make such documentation more adequate for use by local personnel in developing countries;
5. Developing countries should make full use of opportunities arising from major engineering contracts (including civil engineering), to gain valuable practical experience for young engineers in training and for local consulting firms.

The Financing of the Training Component of an Industrial Project

79. In the discussions of the subject of financing industrial training, attention was drawn to several elements, for example, that proposals to improve the terms of financing the training component of an industrial project had not been agreed upon by the Consultation on the Training of Industrial Manpower.

80. Again, attention was drawn to the critical role of specialized expertise in negotiating all aspects of financing industrial projects

and to the need for special programmes to strengthen such capabilities in both the public and the private sectors. It was agreed, however, that in general, training of such persons was not really enough and that it always required to be supported by experience.

81. It was also pointed out that where individual enterprises were required to provide training beyond their own immediate requirements, a possible source of additional funds was mixed credits, i.e. public sector aid supplementing private sector investment. The Meeting recommended that:

1. The questions related to the provision of funds for training as an essential part of the capital cost of a project should be submitted to UNIDO IV for further consideration;
2. Steps should be taken by UNIDO and other international organizations to introduce programmes to strengthen the capabilities in public and private sectors in developing countries to master the mechanics of financing of industrial projects and of borrowing in international markets;
3. Mixed credits (public and private sources of finance) should be used where it was beneficial for training to be undertaken beyond the needs of an individual enterprise or contract.

C. ROLE OF UNIDO AND OTHER INTERNATIONAL ORGANIZATIONS

82. The Meeting recognized the important role which UNIDO and other relevant international organizations such as the ILO and UNESCO could play in promoting international co-operation through direct technical assistance and other supporting activities in favour of the developing countries. In the light of the above, the Meeting endorsed the recommendations contained in Chapter IV of Document ID/WG.394/2.

CHAPTER V

CLOSURE OF THE MEETING

83. At the closing session, the Chairman of the Meeting, Prof. George Ngango, gave a brief resumé of the proceedings of the Meeting, highlighting the major conclusions and recommendations. The Report of the Meeting was then formally presented to the Honourable Minister of Plan and Industry, Dr. Bol Alima, and was subsequently endorsed by the Meeting.

84. Mr. G.S. Gouri, Chairman of the Task Force for UNIDO IV, expressed UNIDO's gratitude and thanks to the President, the Government and the people of Cameroon for their support of the Meeting. He extended special thanks to the Honourable Minister of Plan and Industry, Dr. Bol Alima, and to the Vice-Minister of Plan and Industry, Mrs. Elizabeth Tankeu, for their personal interest in the Meeting and for all the services and logistics support provided to ensure its success. Mr. Gouri noted that the Meeting had been a great success and a very refreshing and enriching professional experience to all participants. He also thanked members of the Bureau and all participants for their high level contribution to the Meeting.

85. In his closing statement, Minister Bol Alima stated that human resources development was a subject of paramount importance to Cameroon and to all developing countries. He acknowledged that technology and industry were the main elements in restructuring the national economy, increasing productivity and improving the quality of life of all, including the rural population. He emphasized, however, that the effective application of technology depended upon the availability of a trained and competent manpower, endowed with a creative and innovative spirit. The Minister reviewed the conclusions and recommendations of the Meeting and noted that they covered all the important questions facing developing countries. He concluded by thanking UNIDO for giving the Government of Cameroon the opportunity to host this very important Meeting.

86. The Meeting, through its Vice-Chairmen and Rapporteur, expressed its appreciation to the President, Government and people of Cameroon for the hospitality and kindness accorded to participants and for the efficient services and excellent facilities provided for the Meeting.

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After the conclusion of the Meeting, the Rapporteur, Mr. Imtiaz Ahmed Chaudri, suffered a fatal heart attack. His passing away is mourned by all participants. The Report of the Meeting stands as a testimony to his scholarship, hardwork and devotion to international co-operation.

HIGH-LEVEL EXPERT GROUP MEETING
PREPARATORY TO THE
FOURTH GENERAL CONFERENCE OF UNIDO
ON
ACCELERATED DEVELOPMENT OF HUMAN RESOURCES
FOR INDUSTRIAL DEVELOPMENT
Yaounde, Cameroon, 30 May - 3 June 1983

AGENDA

1. Opening of the Meeting
2. Election of the Chairman, Vice-Chairmen and Rapporteur of the Meeting
3. Adoption of the Agenda
4. General Considerations on Accelerated Development of Human Resources for Industrial Development
5. Critical Capabilities required for Industrial Development
6. Actions for Accelerated Development and more Effective Utilization of Human Resources for Industrial Development:
 - (a) policies and strategies;
 - (b) programme formulation and implementation;
 - (c) institutional infrastructure; and
 - (d) mobilization and optimization of financial resources.
7. Measures for More Effective International Co-operation for Accelerated Development of Human Resources for Industrial Development
8. Adoption of the Report of the Meeting
9. Closure of the Meeting

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LIST OF DOCUMENTS

1. Basic Papers

- ID/WG.394/1 - Accelerated Development of Human Resources for Industrial Development: Some issues for consideration
- ID/WG.394/7 - First Consultation on the Training of Industrial Manpower

2. Background Papers

- ID/WG.394/2 - Measures for More Effective International Co-operation for Accelerated Development of Human Resources for Industrial Development
- ID/WG.394/3 - Critical Capabilities Required for Industrial Development
- ID/WG.394/4 - Actions for Accelerated Development of Human Resources for Industrial Development
- ID/WG.394/5 - Engineering, Technical Education and Industrialization, prepared by Prof. Göran Ahlström
- ID/WG.394/6 - Recent and Current Changes in the U.K. Education and Training System to Meet Human Resources Requirements as a Result of Changes in Industry and Technology, prepared by Mr. Peter Haxby
- CRP.2 - Tapping human resources for China's industrial development, prepared by Mr. Su Liuye
- CRP.3 - The Korean Industrialization Experience: With emphasis on the development of scientific and technological capabilities and human resources, prepared by Mr. Jung Man Suh
- CRP.4 - Development of human resources for industrial development: The example of Japan, prepared by Prof. Toshio Toyoda
- CRP.6 - Manpower for industrial development, prepared by the ECA Secretariat
- CRP.9 - The Experience of Cameroon in the development of human resources for industrialization, prepared by Mr. Alphonse Tabi Abondo
- CRP.14 - Notes about Industrial Development in Cost Rica, prepared by Mr. Numa Estrada

- CRP.15 - Information Systems for Training Needs and Opportunities in Developing Countries, by UNIDO Secretariat
- CRP.17 - The Experience of India in the development of human resources for industrialization, by Dr. (Mrs.) A.R. Rajeswari
- CRP.19 - Problems of National Economy Industrialization in Developing Countries: Human Resources Issues (paper prepared by Mr. Vladimir Murin)
- CRP.20 - Activities of UNESCO related to human resources development for industrialization, prepared by Mr. Insa Issa
- CRP.21 - The Experience of Angola in the development of human resources for industrialization, prepared by Mr. C. Zassala
- ID/WG.394/8 - Report of the High-Level Expert Group Meeting Preparatory to UNIDO IV on Human Resources Development for Industrial Development

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