

WORLD METEOROLOGICAL ORGANIZATION

**THE WMO
EDUCATION AND TRAINING PROGRAMME
1988-1997**

**SECOND WMO LONG-TERM PLAN
PART II**

Volume 6



WMO - No. 696

Secretariat of the World Meteorological Organization - Geneva - Switzerland

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FOREWORD

The Second WMO Long-term Plan, for the period 1988 to 1997, was approved by Tenth Congress by its Resolution 25 (see annex). The Plan comprises Part I - Overall policy and strategy - and Part II, in seven volumes, covering the plans for the scientific and technical Programmes of the Organization.

This is Volume 6 of Part II, which deals with the Education and Training Programme. Its development was based on contributions from a number of sources which include individual WMO Member countries, the regional associations, the Executive Council Working Group on Long-term Planning and the Executive Council Panel of Experts on Education and Training. All contributors are to be highly commended on the resulting standard and value of this important work. In addition to setting out the various objectives, and the tasks to meet these objectives in education and training, this volume also provides guidance on the participating roles to be played by Members, technical commissions, regional associations and, of course, the WMO Secretariat, in the mix of activities which aim at all times to enable Members to acquire trained manpower in adequate numbers and quality.

The Plan was adopted under the provisions of Article 8 of the WMO Convention by which Tenth Congress:

- Approved the general policies stated in this Plan for the fulfilment of the purposes of the Organization;
- Recommended to all Members that they should fully take into account the Plan in developing and carrying out their national programmes in meteorology and operational hydrology, as well as in their participation in the Programmes of the Organization;
- Referred to the constituent bodies of the Organization those tasks within their terms of reference for appropriate action in order to achieve the objectives of the Plan.

Thus, the Plan has the status of a recommendation as far as Members are concerned. Nevertheless, it is understood that only with the full participation of all Members of the Organization will the long-term objectives of the Programme be achieved. Therefore, the Plan is commended to all Members as a basis for mobilizing efforts towards achieving the objectives of the Organization.


(G. O. P. Obasi)
Secretary-General

INTRODUCTION

Purpose and scope

1. One of the primary aims of the World Meteorological Organization, as laid down in its Convention, is to encourage training in meteorology and operational hydrology and to assist in co-ordinating the international aspects of such training. During the past few decades, the education and training activities of WMO have played a vital role in the development and strengthening of national Meteorological and Hydrological Services in the developing world through training of personnel of those Services.

2. With the rapid technological advances taking place in meteorology and operational hydrology, it is now more than ever essential that the Education and Training Programme should play its vital role in the overall effort to transfer technology and proven methodologies to the developing world. In this context, the Ninth World Meteorological Congress considered that there continued to be a pressing need for highly trained specialists, at all levels, to plan, direct, organize and carry out the programmes in meteorology and operational hydrology and their related fields, all of which are essential to the economic and social development of the developing nations and people. The purpose of the Education and Training Programme is to meet this need.

Overall objectives

3. Education and training activities, during the decade 1988-1997, will have to form an integral part of all WMO programmes to ensure that the national Meteorological and Hydrological Services of developing countries have the required well-trained personnel to carry out their functions and to adapt to new scientific achievements and new technologies

4. In the long term, the Education and Training Programme will have the ultimate aim of developing, in the individual countries, self-reliant training capabilities which can then be complemented, as necessary, by regional training arrangements and institutions for higher levels of training, now viable or planned.

5. The Education and Training Programme of WMO will have to grow, with the increasing needs, to achieve the following three overall objectives:

- (i) To overcome the shortages of trained staff which restrain countries from fully meeting their responsibilities to provide meteorological and hydrological information and services;
- (ii) To transfer, taking into account local conditions, knowledge and proven methodologies to enable countries to implement, and benefit from, WMO programmes.
- (iii) To increase the awareness of national authorities, institutions and bodies of the potential benefits of meteorology and hydrology through activities directed to users of meteorological and hydrological information and services.

Programme organization

6. The WMO Executive Council Panel of Experts on Education and Training serves as an advisory body on all aspects of technical and scientific education and training in meteorology and operational hydrology. Its specific functions include the co-ordination of activities of the WMO Technical Commissions in the field of education and training within their respective fields of competence. In addition, education and training matters are also considered by the regional associations and technical commissions, some of which have appointed rapporteurs, or established working groups on education and training.

7. For the decade 1988-1997 it is planned that the Education and Training Programme will consist of the four component programmes of:

- Manpower Development
- Training Activities
- Education and Training Fellowships
- Support to Training Events under other WMO Major Programmes

These components are inter-dependent and complementary and, accordingly, in this volume of the Second Long-term Plan, the Current Status and Major Influences 1988-1997 have been described below in relation to the Programme as a whole rather than its individual components. The inter-dependence of the four components is evident through the use of the results of the analyses of Members' training requirements under the Manpower Development component as inputs into the planning and execution of projects under the three other components. In reverse, the Manpower Development component is somewhat dependent on the other three components since the degree of accomplishment or success of these three components in achieving improvements in the national meteorological and hydrological services will affect, that is, should reduce, Members' future training requirements. The four components complement each other since each one contributes to the attainment by the Programme as a whole of at least two of the three overall objectives.

Current status

8. The current Education and Training major Programme comprises two programmes, i.e. Training Activities and Fellowships. The Training Activities programme includes the preparation of training publications, the organization of training events, the provision of support to Regional Meteorological Training Centres, provision of advice on education and training matters to Members and the maintenance of a Training Library, while the Fellowships programme is aimed at the provision of fellowships (long-term and short-term) to students from developing countries. During the ninth financial period 24 training publications were issued while, at the end of the period, 10 others were either being written or translated; 54 training events (courses, workshops, seminars) were organized by WMO, and a further 75 were co-sponsored or assisted by the Organization; support was provided to the 17 Regional Meteorological Training Centres, advice on education and training matters was given to Members as well as material aid in the form of books, films and video cassettes. On the fellowship side, a total of 336 fellow-months of short-term, and 42 fellow-years of long-term, fellowships were made available under the regular budget to personnel from developing countries.

9. A serious problem being encountered is the discrepancy between the demands for assistance in education and training and the very limited possibilities of meeting those demands. For example, VCP and regular budget resources are able to meet an annual average of less than 50% of the demands for long-term and for short-term fellowships.

10. The meteorological training institutions which have been designated as WMO Regional Meteorological Training Centres (RMTCs) have grown during the ninth financial period from 13 to 17. This network of training centres has proved to be a convenient and effective means of training meteorological and operational hydrological personnel, and continues to play an increasingly important role in meeting the training needs of Members. However, as expressed by Ninth Congress, more emphasis will be placed on ensuring that the existing RMTCs are functioning with the required efficiency and effectiveness than on the establishment of additional centres. In particular it will be necessary to ensure that the training programmes of the RMTCs are developed or tailored to be consistent with the training requirements of Members as determined under the Manpower Development component programme.

MAJOR INFLUENCES 1988-1997

11. It is expected that there will continue to be an accelerating rate of scientific and technological developments that will affect the character of meteorological and hydrological services. Foremost among such developments are those relating to observing systems, telecommunications, computers and the innovations in communications. Consequently, a progressive pressure will emerge in many countries to find ways to keep pace with these developments. The Education and Training Programme must therefore respond to the consequential training needs of Members.

12. Certain of the developments referred to above will, at the same time, provide opportunities for furthering the utilization of alternative mechanisms for realizing the objectives of the Education and Training Programme. In a significant way, long distance study and/or self-paced training could be facilitated through the use of:

- Correspondence courses;
- Computer-assisted learning methods and techniques;
- Video-taped and other educational audio-visual packages of training materials and information;
- Satellite communication for educational purposes.

13. Due to the expected wide spectrum of training needs with regard to both areas and levels of specialization, the need for a modular approach to training will be felt even more. WMO's response in terms of assistance in the areas of training management and course development will have to be provided, especially to the WMO RMTCs.

14. The rate of such developments, as well as their utilization, in the developing countries in particular, will be strongly influenced by factors such as the economic situation in such countries and the availability of external assistance and financial support under the technical co-operation, or other aid schemes.

PROGRAMME 6.1 - MANPOWER DEVELOPMENT

Purpose and scope

15. To enable a rational and needs-oriented approach to meeting the first two overall objectives, the concept of manpower development on a global scale has been introduced. In the first instance, a comprehensive survey of the training needs, facilities and capabilities of Members was undertaken during the period of the First Long-term Plan. In addition to determining what training is needed by Members, the information from this first survey can be used as a reference level with which to compare progress at any time in the future, and hence enable a determination of the performance of the Education and Training Programme.

16. The periodic updating of the analyses of information on the training needs of Members and the utilization of the results of such analyses will form a base upon which the various projects within the Education and Training Programme will be formulated and implemented. Of equal importance, the results of the analyses will be used to determine the guidance that can be given to Members to carry out the training of their personnel in a co-ordinated manner utilizing their own resources, the Organization's Education and Training Programme, and resources that may be available to them from other sources.

Specific objectives and plans 1988-1997

17. The specific objectives of the two projects through which the Manpower Development Programme will be implemented are given below. The plans for achieving these objectives, which are detailed as Tasks and Actions in Table A, are based on the provision of information and data as an output of the first project, and the utilization of this output by the second project as well as by projects under other programme components.

Project 61.1 - Members' training requirements.

Objective: To determine the training needs of Members and use the information as a basis for project planning and implementation.

Project 61.2 - Advising Members on, and assisting them with,

training for national manpower development

Objective: To maximize the utilization and application of the results of analyses of Members' training requirements, and to establish a strategic approach towards educating and training personnel so as to meet Members' training requirements.

PROGRAMME 6.2 - TRAINING ACTIVITIES

Purpose and scope

18. The various projects and tasks executed under the Training Activities component are geared towards meeting the three overall objectives, but particularly the first and third of them. Through these activities, Members are assisted with the development of their cadres of teaching personnel and the development or strengthening of their training facilities. The value of the training of instructors, which cannot be over stressed, lies in the cost-effectiveness of such an activity since the benefit of having adequately and competently trained instructors has a continuous multiplier effect through the training in situ of larger numbers of staff by the trained instructors.

19. Another feature of this component is the provision of training in subject areas, such as computer science and the management of training institutions, that are not directly addressed by other major programmes of WMO. The availability of adequate training facilities and trained instructors together constitute an essential factor in the process of the attainment by Members of self-reliant training capabilities with which to meet their trained manpower requirements.

Specific objectives and plans 1988-1997

20. The specific objectives of the Training Activities Programme are listed below along with the six projects through which the programme will be implemented. The plans for implementing the projects, given in Table A, relate directly to the actual training of personnel through the provision of services to Members in the form of training syllabi, techniques and materials; training events, instructors and facilities; the better utilization of meteorological products, and weather education of the general public.

Project 62.1 - Training Publications

Objective: To prepare low cost training publications and the translation of syllabi, compendia, manuals and work books into WMO languages for use in national training institutions and WMO RMTCs by students and instructors of various subjects of meteorology and operational hydrology.

Project 62.2 - WMO Training Library

Objective: To strengthen the WMO Training Library by the addition of new texts, training aids and materials, including those for visual and audio-visual teaching aids, computer-assisted learning techniques and correspondence courses, and so enable the provision of better advice and assistance to Members.

Project 62.3 - WMO Regional Meteorological Training Centres (RMTCs)

Objective: To strengthen RMTCs through the provision of assistance and visiting scientists, and to maintain close liaison with these Centres, to enable them, in particular, to meet the requirements of Members for specialized training.

Project 62.4 - Training of trainers and instructors

Objective: To ensure that trainers and instructors are competent in their teaching skills and in the knowledge of their scientific subjects, and to promote uniformity of instruction in training institutions.

Project 62.5 - Training of operational personnel in special subject-
areas

Objective: To meet Members' training needs in those areas which would not normally be met specifically under other WMO major programmes, for example, in the management of training institutions and meteorological services.

Project 62.6 - Use of meteorological and hydrological
information by user sectors

Objective: To promote a more effective and wider utilization of meteorological and hydrological information and services by user sectors.

PROGRAMME 6.3 - EDUCATION AND TRAINING FELLOWSHIPS

Purpose and scope

21. The Education and Training Fellowships component contributes to meeting all three of the overall objectives. Its basic function is to educate and train personnel outside their home countries on individually tailored or group study and training programmes in subject areas for which the facilities, technology and teaching expertise are not available at home. This component is complementary to the other three component programmes, and particularly so to the Training Activities and the Support to Training Events of other Programmes, components. The training needs of Members to be met under Education and Training Fellowships continue to exceed the resources available for such training and strong efforts will continue to be made towards maximizing the cost-effectiveness of, and benefits from, this component. An innovation in this regard is the introduction of multi-phase fellowship programmes in which necessary preparatory and basic education or training should be accomplished at home and so reduce the fellowship duration abroad.

Specific objectives and plans 1988-1997

22. The availability and awarding of long-term and short-term fellowships have proved to be a very effective way of assisting Members to develop their required manpower. Accordingly, these types of fellowships are among the three categories of fellowship training provided in the three projects of this programme component. The specific objectives of these projects are:

Project 63.1 - Long-term Fellowships

Objective: To educate personnel on undergraduate and post-graduate study programmes through the provision of long-term fellowships of more than one year's duration.

Project 63.2 - Short-term Fellowships

Objective: To meet Members' education and training needs in specialized fields and in the applications of meteorology and operational hydrology through the provision of short-term fellowships of less than one year's duration.

Project 63.3 - Fellowships for Refugees

Objective: To educate and train bona fide refugees, identified as such by the Office of the UN High Commissioner for Refugees, in meteorology and operational hydrology through the provision of fellowships.

PROGRAMME 6.4 - SUPPORT TO TRAINING EVENTS UNDER OTHER WMO MAJOR PROGRAMMES

Purpose and scope

23. The organization and implementation of training courses, seminars and workshops in the various scientific and technical subject areas of the WMO major programmes are essential activities aimed at meeting the three overall objectives of the Programme, particularly the second which deals with the transfer of knowledge and proven methodologies. These training events are included as integral components of the various projects under other major programmes, but their organization and implementation are co-ordinated under the Education and Training Programme, which also brings to bear, on the development of plans for these training events, the outputs of the projects under the Manpower Development Programme component. The utilization in this manner of the training needs of Members as assessed under project 61.1 of the Manpower Development Component will contribute significantly to strengthening WMO's role in initiating training programmes.

Specific objectives and plans 1988-1997

24. The programme of support to training under other WMO Major Programmes has the identical specific objective for each of the six related projects. The objective ensures the co-ordination and planning of the various training events which will be implemented under the indicated six Major Programmes. The Tasks and Actions listed in Table A indicate the plans for executing these projects.

Project 64.1 - Training Events under the World Weather Watch Programme

Project 64.2 - Training Events under the World Climate Programme

Project 64.3 - Training Events under the Research and Development

Programme

Project 64.4 - Training Events under the Applications of Meteorology

Programme

Project 64.5 - Training Events under the Hydrology and Water Resources

Programme

Project 64.6 - Regional Training Events

Objective: To ensure the co-ordination and effective planning of the Organization's training events for the transfer of knowledge and proven methodologies.

IMPLEMENTATION SCHEDULE

25. The activities under the Education and Training Programme are, in general, in the nature of services being performed for Member countries and for the benefit of Member countries. These activities also result in direct benefits and are ongoing activities.

26. Tables A and B below contain the specific objectives and, under each such objective, the tasks to be carried out to meet the objectives. In addition:

Table A indicates the roles, or responsibilities, of the various WMO constituent bodies, and the specific actions to be carried out respectively by Members and the Secretariat;

Table B indicates the scheduling (time-line chart) of the tasks, by whom the tasks will be executed, the sources of the human or financial resources to enable the tasks to be undertaken and additional comments where necessary.

27. In the Tables, reference to "EC Panel", unless otherwise specified, means the EC Panel of Experts on Education and Training. In Table A, indicated roles of WMO constituent bodies should be considered as falling within the relevant responsibilities, or terms of reference, of these bodies. In addition, references to working groups and rapporteurs of technical commissions refer to working groups and rapporteurs on education and training matters.

28. No special organizational or co-ordination features are needed between WMO and external bodies. At an operational level, such features are, however, present in connection with activities such as the co-sponsoring of training events with other UN agencies or institutions and with the relevant authorities in those countries which host or organize WMO training events and in which WMO fellows undertake their studies and training.

CO-ORDINATION WITH OTHER PROGRAMMES AND ACTIVITIES

Scientific programmes

29. The training needs of Members fall under the subject areas of a number of the major programmes of WMO and, accordingly, training events on various topics are components within the relevant scientific programmes. It is necessary that the planning of all such training activities is co-ordinated to ensure the most effective use of the financial and other resources available for the implementation of the Organization's overall training programme, and that such a programme directly addresses the training needs of Members. It is a function of the Education and Training Programme to perform this co-ordinating role as well as to provide support to the other major programmes for the planning and implementation of training events in their respective subject areas. As indicated above under the training activities component, the Education and Training Programme has the responsibility for the implementation of training events that do not fall under other major programmes, for example, the training of instructors and training in the management of training institutions and meteorological services.

Technical Co-operation Programme

30. There is also another significant area of co-ordination with the Technical Co-operation Programme in connection with the utilization of external financial and other resources for education and training purposes. Such purposes include the arranging of study programmes for fellows and the award and implementation of training fellowships, the development or strengthening of RMTCs and national training facilities, and activities of training experts, all under various technical assistance projects. The involvement of the Technical Co-operation Programme in education and training matters is reflected under the column of RESOURCES in Table B.

Regional aspects

31. The Education and Training Programme takes into consideration a number of regional aspects. Many training events are organized on a regional scale consistent with the training needs of Members as expressed by the regional associations. In addition, in accordance with the established criteria for the designation of training institutions as WMO RMTCs, a regional association must first express the need for a RMTC within its region before other actions are taken on the designation or establishment of such a centre. The regional aspects of the Education and Training Programme are indicated by the roles played by regional associations under the Column RESOURCES in Table A.

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TABLE A - TASKS, ROLES AND ACTIONS TO ACHIEVE SPECIFIC OBJECTIVES OF THE EDUCATION AND TRAINING PROGRAMME

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
PROGRAMME 6.1 Manpower Development

TASKS	ROLES	ACTIONS
PROJECT 61.1 - Monitoring of Members' training requirements		
<p>(a) Develop survey questionnaires and mechanisms for determining Members' training requirements.</p> <p>(b) Implement surveys.</p> <p>(c) Collate and analyse information from all sources.</p> <p>(d) Utilize the results of the analyses.</p>	<p>Regional associations and technical commissions to indicate needs for surveying Members' training requirements for identified subject areas and categories of personnel. EC Panel to monitor and advise on the methodology of surveys.</p> <p>Regional associations and technical commissions to note the results of the surveys. EC Panel to review the results and make recommendations as necessary to EC.</p>	<p>Members to draw up plans for manpower development in their national Services. Secretariat to co-ordinate and prepare the surveys - written questionnaires and survey missions.</p> <p>Secretariat to implement the survey activities. Members to provide the information requested by the surveys and provide consultants or experts to assist the Secretariat.</p> <p>Secretariat to make analyses.</p> <p>Secretariat to inform all concerned of results of surveys and use results for planning the Organization's overall education and training programme. Members to use the results to draw up schemes for training national and foreign personnel utilizing one or more of national training programmes and facilities, WMO's education and training programme and resources or facilities from other sources.</p>
PROJECT 61.2 - Advising Members on, and assisting them with, training for national manpower development		
<p>(a) Arrange for the provision of information and advice to Members by Secretariat staff and seconded experts as appropriate.</p> <p>(b) Assist Members to meet their training needs, as identified by the survey.</p>	<p>Technical commissions and their working groups and rapporteurs to advise on specific training programmes. EC Panel to monitor activities under this task.</p> <p>EC Panel to monitor activities under this task.</p>	<p>Members to develop training programmes for courses, seminars and workshops to be conducted in national training centres and WMO RMTCs. Secretariat to assist Members by providing, on request, information and guidance on the above actions. Members to provide seconded experts to assist the Secretariat.</p> <p>Secretariat to support the implementation of Members' training programmes under other relevant projects of the Long-term Plan.</p>

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.1 Manpower Development (cont'd.)

TASKS	ROLES	ACTIONS
(c) Review of classification of meteorological personnel.	EC Panel to consider and advise EC accordingly.	Secretariat to examine, with Members, the suitability of the classification scheme and report accordingly to the EC Panel.
MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME PROGRAMME 6.2 Training Activities		
PROJECT 62.1 - Training publications		
(a) Identify subjects and categories of personnel (e.g. Class I to IV) for which publications are to be written or revised. (b) Arrange for scientists to write, revise and scientifically edit syllabi and texts. (c) Arrange for the translation of materials. (d) Linguistic editing, typing and production of publications.	Regional associations, technical commissions and their working groups and rapporteurs, and EC Panel to recommend subject areas. EC to decide on priorities. Technical commissions to assist with the identification of suitable scientists. EC Panel to review syllabi. EC Panel to monitor and advise on scheduling. Involvement of EC through its directives on the WMO publications programme.	Secretariat to make relevant proposals and implement final decisions. Members to assist through the provision of scientists and experts. Co-ordinating actions and assistance by the Secretariat. - ditto - Implementation by the Secretariat.
PROJECT 62.2 - WMO Training Library		
(a) Acquire, or arrange for the preparation of, texts and training aids including those in the areas of correspondence courses, computer assisted learning (CAL) and video-cassettes with training materials. (b) Provision of advice, information and assistance to Members.	Technical commissions and their working groups and rapporteurs to advise on the development of the library's holdings. EC Panel to monitor and advise on the library's development and functions.	Members able to do so to make available to the training library texts and materials as well as seconded experts for the development of special activities such as correspondence courses and CAL techniques. Relevant co-ordinating and acquisition actions by the Secretariat. Members to make their needs for advice, information and assistance on training matters and training libraries known to the Secretariat who will arrange for the necessary services to be rendered.

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.2 Training Activities (cont'd.)

TASKS	ROLES	ACTIONS
PROJECT 62.3 - WMO Regional Meteorological Training Centres (RMTCs)		
<p>(a) Provide, or arrange for the provision of, assistance to RMTCs.</p> <p>(b) Arrange for roving experts, visiting scientists and Secretariat, including Regional Offices, missions to visit RMTCs.</p> <p>(c) Arrange for assistance for foreign fellows to attend RMTCs.</p>	<p>EC Panel to monitor developments, or deteriorations, operational aspects and facilities of RMTCs, and to make relevant recommendations to EC.</p> <p>Technical commissions to assist with the identification of scientists and the priority areas in which their services are needed. Regional Associations to identify subject areas for specialized courses.</p> <p>EC Panel of Experts on the WMO VCP to consider provision and utilization of resources for this purpose.</p>	<p>Secretariat to meet as far as possible requests from Centres for training materials and to support project requests and arrange for the provision of equipment, additional programmes, and fellowships tenable at RMTCs.</p> <p>Members to provide, including under TCDC arrangements, seconded experts and scientists for liaison, teaching and advisory activities at RMTCs. Secretariat to co-ordinate and implement relevant visits and missions, and assist scientists in their functions.</p> <p>Secretariat to investigate all possible sources of funding for this purpose.</p>
<p>PROJECT 62.4 - Training of trainers and instructors</p> <p>PROJECT 62.5 - Training of operational personnel in special subject areas</p>		
<p>(a) Organize training courses, seminars workshops and symposia.</p> <p>(b) Co-sponsor or assist with the organization of training events of Members, national institutions, and international agencies.</p>	<p>EC Panel to review and comment on Secretariat's plans for training instructors and for training in specialized areas.</p> <p>EC to approve, as may be requested in specific cases, necessary financial support.</p>	<p>Members to nominate suitably qualified candidates to attend the training events. Members to assist by financially supporting the participation of their accepted candidates, by providing lecturers or instructors on invitation and by hosting training events. Secretariat to plan, organize and implement the training events, co-ordinating as necessary with the host country, lecturers/instructors and any involved institutions.</p> <p>Members, national institutions (through respective Permanent Representatives) and international agencies to request the Secretariat's collaboration with the organization and implementation of their training events. Secretariat to assist with the organization and provide support as may be available.</p>

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.2 Training Activities (cont'd.)

TASKS	ROLES	ACTIONS
<p>(c) Arrange for new trainers and instructors to gain teaching experience in established training institutions alongside experienced trainers and instructors.</p> <p>(d) Examine reports on, and recommendations from, the training events organized, co-sponsored or assisted by WMO.</p>	<p>Secretariat to assist with the identification of Members' needs and suitable institutions for instructor placements. EC Panel of Experts on the WMO VCP to consider provision and utilization of resources for this purpose.</p> <p>EC Panel to review the reports and recommendations from training events and make recommendations, if necessary, to EC.</p>	<p>Members to nominate new instructors and trainers who do not have access to, or support from, other suitably experienced instructors and trainers. Members to assist by accepting nominated candidates into their training institutions. Secretariat to assist with arrangements and match the needs of trainers and instructors with available institutions. Secretariat to investigate all possible sources of funding for this purpose.</p> <p>Secretariat to obtain reports and recommendations from organizers, lecturers and participants, prepare reports for EC Panel, and take necessary follow-up actions with a view to improving future events.</p>
<p>PROJECT 62.6 - Use of meteorological and hydrological information by user sectors</p>		
<p>Provision of support to activities: (i) of user groups on the utilization of information from Meteorological and Hydrological Services, and (ii) on weather education of the general public.</p>	<p>EC Panel to monitor activities and make recommendations if necessary to EC.</p>	<p>Members to develop relevant activities, including seminars or workshops involving meteorological and operational hydrological personnel, along with the users, and to seek information or assistance from the Secretariat as may be needed. Secretariat to provide advice, information and assistance to Members.</p>
<p>MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME PROGRAMME 6.3 Education and Training Fellowships</p>		
<p>PROJECT 63.1 - Long-term Fellowships PROJECT 63.2 - Short-term Fellowships PROJECT 63.3 - Fellowships for Refugees</p>		
<p>(a) Make arrangements for and award long-term fellowships of more than one-year duration, and short-term fellowships of less than one-year duration.</p>	<p>EC Panel of Experts on the WMO VCP to consider provisions and utilization of resources to be made available.</p>	<p>Members to submit long-term and short-term fellowship nominations to the Secretary-General on the prescribed forms and through the appropriate channels. Members to maintain fellows with a salaried employment status and to utilize trainees on their return to enable their national Meteorological and Hydrometeorological Services to derive maximum benefits from the training received. Members to include provisions for training fellowships in their technical assistance project requests. Secretariat to arrange for suitable study programmes at appropriate institutions, arrange for the necessary financial support and to implement and service the fellowship awards.</p>

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.3 Education and Training Fellowships (cont'd.)

TASKS	ROLES	ACTIONS
<p>(b) Make arrangements for and award fellowships to bona fide refugees.</p> <p>(c) Examine reports on and from fellows.</p>	<p>UNHCR to certify refugee status of applicant.</p>	<p>Secretariat to seek certification of refugee status of applicants, arrange for suitable study programmes at appropriate institutions, provide necessary financial support, implement and service the fellowship awards.</p> <p>Secretariat to obtain reports on fellows from institutions or programme supervisors and obtain reports from fellows. Consider problems and recommendations in consultation with all persons or agencies concerned and take appropriate actions aimed at solving problems and making improvements in study programmes and fellowship arrangements.</p>
<p>MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME PROGRAMME 6.4 Support to training events under other WMO major programmes</p>		
<p>PROJECTS 64.1, 64.2, 64.3, 64.4, 64.5 and 64.6 - Support to training events under the major Programmes of WW, WCP, RDP, AMP, HWRP and to Regional training events</p>		
<p>(a) Co-ordinate the planning and scheduling of the Organization's training events (courses, seminars, workshops).</p> <p>(b) Assist departments with the organization and implementation of their training events.</p> <p>(c) Examine reports on, and recommendations from, the training events.</p>	<p>Regional associations and technical commissions to indicate priority subject areas and categories of personnel for which training events should be planned. EC Panel to review and comment on Secretariat's plans for training events. Congress to approve plans for training events for financial period, and EC on annual implementation basis.</p> <p>EC Panel to review the reports and recommendations and make recommendations, if necessary, to EC.</p>	<p>On the basis of the results of surveys of Members' training requirements (see Project 61.1), the indications of regional associations and technical commissions and other relevant information or directives (e.g. from Cg, EC) the Education and Training Department to carry out this task in collaboration with other departments of the Secretariat.</p> <p>The Education and Training Department to collaborate with other departments of the Secretariat to ensure the organization and conduct of training events consistent with efficient and effective educational and training management practices and standards. Other specific actions are as for Members and the Secretariat in Task (a) under Projects 62.4 and 62.5.</p> <p>Secretariat to obtain reports and recommendations from lecturers and participants, prepare reports for EC Panel and take necessary follow-up actions with a view to improving future events.</p>

WW = World Weather Watch
 WCP = World Climate Programme
 RDP = Research and Development Programme
 AMP = Applications of Meteorology Programme
 HWRP = Hydrology and Water Resources Programme

TABLE B - TIME-LINE CHARTS AND RESOURCES TO ACHIEVE SPECIFIC OBJECTIVES OF THE EDUCATION AND TRAINING PROGRAMME

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
PROGRAMME 6.1 Manpower Development

PROJECT 61.1 - Members' training requirements													
TASKS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	BY WHOM	RESOURCES	COMMENTS
(a) Develop survey questionnaires and mechanisms for determining Members' training requirements.	P		P	Cg	P		P	Cg	P		Members, Secretariat	Members, RB	Comprehensive survey on global scale once per financial period. Ad hoc specific surveys as required at other times.
(b) Implement surveys.											Members, Secretariat	Members, RB	- ditto -
(c) Collate and analyse information from all sources.											Secretariat	RB	- ditto -
(d) Utilize the results of the analyses.											Secretariat, Members	RB, Members	- ditto -
PROJECT 61.2 - Advising Members on, and assisting them with, training for national manpower development													
(a) Arrange for the provision of information and advice to Members by Secretariat staff and seconded experts as appropriate.											Members, Secretariat	Members, UNDP, VCP, RB	Ongoing, but actual activity subject primarily to receipt of requests of Members.
(b) Assist Members to meet their training needs, as identified by the survey.											Members, Secretariat	Members, UNDP, Funds-in-trust, VCP, RB	Ongoing activity but dependent on initiatives of Members.
(c) Review of classification of meteorological personnel.		-									Members, Secretariat	RB	Once per financial period.

P = expected meeting of EC Panel of experts on education and training
Cg = expected meeting of Congress

MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
PROGRAMME 6.2 Training Activities

PROJECT 62.1 - To arrange for the preparation of training publications (syllabi, training manuals and compendia of lecture notes)													
TASKS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	BY WHOM	RESOURCES	COMMENTS
(a) Identify subjects and categories of personnel (e.g. Class I to IV) for which publications are to be written or revised.	P		P	Cg	P		P	Cg	P		RAs, TCs, EC Panel Secretariat	Members, VCP, RB	Ongoing activity
(b) Arrange for scientists to write, revise and scientifically edit syllabi and texts.											TCs, Members, Secretariat	Members, VCP, RB	Ongoing activity
(c) Arrange for the translation of materials.											Members, Secretariat	Members, VCP, RB	Ongoing activity
(d) Linguistic editing, typing and production of publications.											Secretariat	RB	Ongoing activity
PROJECT 62.2 - WMO Training Library													
(a) Acquire, or arrange for the preparation of, texts and training aids including those in the areas of correspondence courses, computer assisted learning (CAL) and video-cassettes with training materials.											Members, Secretariat	Members, VCP, RB	Ongoing activity
(b) Provision of advice, information and assistance to Members.											Members, Secretariat	Members, UNDP, VCP RB	Ongoing, but actual activity subject primarily to receipt of requests from Members

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MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.2 Training Activities (cont'd.)

PROJECT 62.3 - WMO Regional Meteorological Training Centres (RMTCs)													
TASKS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	BY WHOM	RESOURCES	COMMENTS
(a) Provide, or arrange for the provision of, assistance to RMTCs.	P		P	Cg	P		P	Cg	P		Secretariat	UNDP, VCP, RB	Ongoing activity
(b) Arrange for roving experts, visiting scientists and Secretariat, including Regional Offices, missions to visit RMTCs.											TCs, RAs, Members Secretariat	Members, UNDP, VCP, RB	Ongoing activity
(c) Arrange for assistance for foreign fellows to attend RMTCs.											Secretariat	UNDP, VCP, RB	Ongoing activity
PROJECT 62.4 - Training of trainers and instructors PROJECT 62.5 - Training of operational personnel in special subject areas													
(a) Organize training courses, seminars, workshops and symposia.											Members, Secretariat	Members, UNDP, VCP, RB	Ongoing activity
(b) Co-sponsor or assist with the organization of training events of Members, national institutions and international agencies.											Members, Secretariat	Members, UNDP, VCP, RB, national institutions, international agencies	Ongoing activity
(c) Arrange for new trainers and instructors to gain teaching experience in established training institutions alongside experienced trainers and instructors.											Members, Secretariat	Members, UNDP, VCP, RB	Ongoing activity
(d) Examine reports on, and recommendations from, the training events organized, co-sponsored or assisted by WMO.											Secretariat, EC Panel	RB & other sources depending on the follow-up actions being taken	Ongoing activity

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MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.2 Training Activities (cont'd.)

PROJECT 62.6 - Use of meteorological and hydrological information by user sectors													
TASKS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	BY WHOM	RESOURCES	COMMENTS
Provision of support to activities (i) of user groups on the utilization of information from Meteorological and Hydrological Services, and (ii) on weather education of the general public.	P		P	Cg	P		P	Cg	P		Members and Secretariat	Members, UNDP, VCP, RB, national institutions, international agencies	Ongoing activity
MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME PROGRAMME 6.3 Education and Training Fellowships													
PROJECT 63.1 - Long-term Fellowships PROJECT 63.2 - Short-term Fellowships PROJECT 63.3 - Fellowships for Refugees													
(a) Make arrangements for and award long-term fellowships of more than one-year duration and short-term fellowships of less than one-year duration.											Members, Secretariat	Members, UNDP, VCP, bilateral aid, RB	Ongoing activities. Some co-ordination with technical co-operation activities essential to ensure the consideration of training fellowships components for inclusion in technical assistance projects.
(b) Make arrangements for, and award fellowships to, bona fide refugees.											Secretariat	RB	Ongoing activity
(c) Examine reports on and from fellows.											Secretariat	RB or other sources depending on the action being taken	Ongoing activity

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MAJOR PROGRAMME 6: EDUCATION AND TRAINING PROGRAMME
 PROGRAMME 6.4 Support to training events under other WMO major programmes

PROJECT 64.1, 64.2, 64.3, 64.4, 64.5 and 64.6 - Support to Training Events under the major programmes of WW, WCP, RDP, AMP, HWRP and to Regional training events													
TASKS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	BY WHOM	RESOURCES	COMMENTS
	P		P	Cg	P		P	Cg	P				
(a) Co-ordinate the planning and scheduling of the Organization's training events (courses, seminars, workshops).											Secretariat	RB	Ongoing activity
(b) Assist departments with the organization and implementation of their training events.											Secretariat and Members	Members, UNDP, VCP, RB	Ongoing activity
(c) Examine reports on, and recommendations from, the training events.											Secretariat	RB & other sources depending on the follow-up actions being taken	Ongoing activity

P = expected meeting of EC Panel of experts on education and training
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 WCP = World Climate Programme
 RDP = Research and Development Programme
 AMP = Applications of Meteorology Programme
 HWRP = Hydrology and Water Resources Programme

A N N E X

Res. 25 (Cg-X) - SECOND WMO LONG-TERM PLAN

THE CONGRESS,

NOTING Resolution 34 (Cg-IX) - WMO Long-term Plan, that implemented the long-term planning process in the WMO system,

CONSIDERING:

(1) That the challenges facing the world today - such as the rapidly increasing world population requiring ever-increasing supplies of food, water and energy; the devastating effects of tropical cyclones, floods, droughts and desertification; the potential effects of the changing balance of minor constituents of the atmosphere; the threat of climate changes; and the environmental effects impinging on a variety of human activities - place increasing demands upon Members to provide more extensive, more effective and more diverse meteorological and hydrological services,

(2) That, because the atmosphere and hydrosphere are global in extent, the services that are needed to enable nations to meet those challenges require the co-ordinated efforts of Members within a framework of strengthened international co-operation in meteorology and operational hydrology,

(3) That the introduction of long-term planning is enabling WMO to play a more active and effective role in the international co-ordination of activities and facilities needed to provide the services that will assist Members to meet these challenges,

ADOPTS, under the provisions of Article 8 (a), (b) and (c) of the WMO Convention, the Second WMO Long-term Plan (hereinafter called "the Plan") for the period 1988-1997 consisting of:

Part I - Overall policy and strategy;

Part II - Programme plans:

- Vol. 1 - The World Weather Watch Programme;
- Vol. 2 - The World Climate Programme;
- Vol. 3 - The WMO Research and Development Programme;
- Vol. 4 - The WMO Applications of Meteorology Programme;
- Vol. 5 - The WMO Hydrology and Water Resources Programme;
- Vol. 6 - The WMO Education and Training Programme;
- Vol. 7 - The WMO Technical Co-operation Programme;

REQUESTS the Secretary-General to arrange for the publication and distribution to all Members and constituent bodies of WMO - and to other international organizations as appropriate - of Parts I and II of the Plan;

STRONGLY URGES Members to take the Plan into account in developing and carrying out their national programmes in meteorology and operational hydrology, as well as in their participation in the programmes of the Organization;

REQUESTS the Executive Council, the regional associations, the technical commissions and the Secretary-General to adhere to the policies and strategies set forth in the Plan and to organize their activities to achieve the main long-term objectives as defined in the Plan;

FURTHER REQUESTS the Executive Council to use the Plan as a benchmark to monitor progress and performance in the implementation of the scientific and technical programmes of the Organization and to submit a report to Eleventh Congress.



