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EVALUATION OF GROUP TRAINING PROGRAMMES
AND WORKSHOPS ORGANIZED BY UNIDO
IN CO-OPERATION WITH
THE GOVERNMENT OF AUSTRIA

US/GLO/90/246

Evaluation report*

Prepared by
Evaluation Staff
Office of the Director-General

*This document has not been edited.

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Abbreviations

| | |
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| HBLVAT | Höhere Bundeslehr- und Versuchsanstalt für Textil-Industrie |
| HTO | Host Training Organisation |
| LKT | Laboratorium für Kunststofftechnik |
| MMF | Man-Made Fibres |
| ÖCI | Österreichisches Chemiefaser Institut |
| ÖMV | Österreichische Mineralölverwaltung |
| TGM | Technologisches Gewerbe Museum |
| TOR | Terms of Reference |

I. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Participants' reactions and benefits (130-132): Participants enjoy their programmes in Vienna and benefit from them professionally; they respect and appreciate HTO staff. No additional benefit was discerned when several participants come from a single organisation.

High-quality resources (133-134): HTOs are well equipped and well supported by enterprises and organisations which are visited. HTO staff have little experience in recipient countries. HTOs are under-exploited in that they are not used for activities other than training.

Application (135): Despite some positive examples too many former participants have little or no chance to apply knowledge or skills acquired. The underlying reason is that the needs of their enterprises or organisations are not assessed.

Definition of needs (136-139): UNIDO/UNDP field offices publicise programmes; a supply-led activity. Much information within UNIDO could support needs definition. The questionnaire completed by applicants does not adequately describe their working environment. The specialised education of textile applicants may indicate a basically different kind of MMF programme from the plastics programme and refinery workshop.

Eligibility for sponsorship (140-142): Financial resources of enterprises not considered; the position of the petroleum industry as a whole needs further study. Some applications are submitted only to take advantage of free training; others are submitted even though payment is required, thus indicating a real need.

Selection (143-144): Field offices do not filter applications. The language ability question has not yet been solved.

Programme design and methodology (145): Uncertain objectives lead to crowded and rushed timetables. Methodology (especially reinforcement and confirmation) suffers. Good supporting notes much appreciated.

Information and terminology (146-149): UNIDO public information is inconsistent. The words "programme" and "workshop" are used inconsistently and "in-plant" misleadingly. The title, content and appearance of the "aide-mémoire" are unsuitable. HTO timetables and other documents not up to an adequate standard of presentation.

Evaluation (150-152): The present system is good as far as it goes but lacks crucial feed-back from recipient

countries. Field offices play no role. PER/GT unpopular with HTOs.

UNIDO organisation and procedures (153-157): IHRD branch plays a minimal role. MMF programmes belongs with textiles rather than chemical industries. Project documents and approval procedure have been reduced to a formality. Sub-contracting imprecise in some respects and lies outside project approval system. Reports are too discursive, probably because their purpose is uncertain.

B. Recommendations

Conditional continuation (1-2): Programmes and workshops should be continued provided that need for them continues to exist and financial support continues to be needed. Needs definition cannot be improved quickly, but continuation, if agreed, should be without interruption and certain steps can be taken immediately. (See 29-31 below).

Demand-led programme (3-8): Needs and participants should be redefined and expressed in project documents. HTOs should set out their capabilities. Government may wish to set out its outline sponsorship intentions. Activities should be formulated accordingly, not necessarily only in the form of short courses in Vienna. Resources of recipient organisations should be taken into account when sponsorship is offered; petroleum industry's need for Austrian sponsorship should be re-examined.

Programme design and implementation (9-11): Training objectives and target participants should be more precisely defined. Subject matter should be given simpler and more coherent pattern. Methodology should be developed especially to increase active work.

Invitations and selection (12-15): Needs definition will lead to better targeted invitations to apply. Important for applicants' enterprises to be assessed. Possibility should be examined that all participants should make at least a small payment. Nomination form should allow space for field offices' comments; government nomination should be abolished if UNIDO does not need it. Further attempts should be made to tighten up language certification.

Evaluation (16-17): The system should include feed-back from recipient countries. PER/GT should be discussed between UNIDO and HTOs.

Staff development at HTOs (18): Opportunities should be sought for HTO staff to visit, or work in, participants' countries.

Presentation of information (19-22): UNIDO should ensure the correctness and consistency of public information. Programme titles should be revised. "Aide-mémoire" should be recast and renamed. HTOS should improve presentation of their material.

UNIDO organisation and procedures (23-27): IHRD branch should contribute training expertise. MMF programme should be transferred to Agro-based Industries branch. Sub-contracts should include more precise details of HTOs' duties and should be brought within project approval procedure. Report requirement should be restated and made more schematic.

Role of field offices (28): If the above recommendations are accepted field offices will have much more active role in needs identification, filtering applications and evaluation.

First steps (29-31): Plastics and MMF programme should offer more restricted subjects to more exactly defined target group. Training objectives and design should be developed accordingly. The "aide-mémoire" should at least be abbreviated and details of the programme concerned should be given greater prominence.

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II. BACKGROUND TO THE EVALUATION

1. The **Man-made Fibres and Plastics** training programmes have been run annually with Austrian sponsorship for 17 and 21 years respectively, up to and including 1990. Each programme has had its own terminal evaluation the conclusions of which have been taken into account in the design of the following programme. This valuable process has ensured that programme design and content have evolved quite sensitively in response to the changing wishes and needs of the participants over the years. Programme content has also been subject to fairly major changes at longer intervals in response to the technological developments in the regular courses of the HTOs and to shifts in demand in developing countries identified by UNIDO and the Austrian government.

2. This is the first evaluation of these programmes which has included tracer interviews with some former participants. This element was used successfully and revealingly in a previous evaluation, that of UNIDO training programmes sponsored by the UNDP/USSR Trust Fund carried out in 1987/88. Visits to recipient countries have also allowed discussions with local officials and managers and with UNIDO, UNDP and Austrian representatives. Visits to former participants' places of work have proved particularly valuable.

3. The workshop on **Petroleum Refinery Maintenance and Inspection**, run seven times since 1981 (not always with exactly the same title), has been included in the evaluation since it is also sponsored by the government of Austria. Despite a number of differences from the two training programmes it can, as will be seen below, readily be considered together with them.¹

4. The present evaluation is in fact the first to attempt a fundamental review of the two programmes and the workshop and to assess the degree to which the Austrian financial contribution and the technical resources of the HTOs are exploited as effectively and efficiently as possible in the interests of the corresponding industries in developing countries. The evaluation has also examined UNIDO's role and some of its procedures in leading and supporting the programmes.

5. It should be noted that the evaluation has examined the training programmes run in the period 1981 to 1990, not the earlier ones. This period covers all the Refinery workshops.

Purpose

6. The TOR for the evaluation state:

¹The difference between a training programme and a workshop is not very clear. The question of terminology is considered in paragraphs 30ff below.

"Purpose: The evaluation is intended to enable UNIDO, the Government of Austria and the HTOs to better design and implement efficient and effective training programmes and workshops for participants from developing members countries of UNIDO, which have a maximum impact at the participant's place of work. Alternative training approaches will also be reviewed."

7. It is expected that the conclusions and recommendations of this evaluation will be taken into consideration (although not necessarily followed) when the design and implementation of other short training programmes and workshops organised by UNIDO come up for review. One important aspect of these Austria-sponsored activities is they are run on UNIDO's doorstep, unlike all other regularly run training programmes. This proximity allows UNIDO to have an active and continuous relationship with the sponsors, HTOs and participants not feasible when programmes are run elsewhere; it does not of course affect UNIDO's relations with participants' countries.

8. On the Austrian side, this evaluation report may be able to contribute to the present HTOs' thoughts about the design and implementation of short training programmes and workshops intended for non-Austrian participants, and about other forms of international activity. It is possible that the Government of Austria and the Federal Economic Chamber (co-sponsor of the programmes and workshop under review) may also take the report into account when considering other sponsorship proposals.

Design of the evaluation

9. As stated in paragraph 1.7 of the TOR the evaluation was designed by the Evaluation Staff of UNIDO in collaboration with the Department of Technical Cooperation of the Austrian Ministry for Foreign Affairs². It is this department which makes the principal financial contribution to the training programmes and workshops³, and is also financing this evaluation. The Chemical Industries Branch and the Industrial Human Resources Development Branch of UNIDO were consulted but the latter plays no part in the design or implementation of the programmes and workshops.

10. Phase 1 of the evaluation entailed visits to the 1990 MMF and Plastics programmes and to the 1990 Petroleum Refinery workshop while they were in progress, and the dates for this phase were decided accordingly. The duration of the phase was intended to allow time for desk research and discussion at UNIDO

²The Department of Technical Cooperation has been transferred to the Federal Chancellery since the evaluation was designed and initiated.

³As stated above, the Austrian Federal Economic Chamber (Bundswirtschaftskammer) also makes a contribution, but not the Association of Austrian Industrialists as stated in various UNIDO documents.

headquarters and for planning Phase 2. In the event the series of meetings at UNIDO was not quite completed and there was not as much time as desirable for examination of the voluminous records maintained by the Chemical Industries Branch even though the files are very well organised. The consultant thus had further meetings and referred back to the records during the final phase.

11. It was originally intended that Phase 2, comprising a tour of some former participants' countries, should start only a week or two after the end of Phase 1 and that the whole evaluation should be completed in December 1990. There was however insufficient lead time and the period available before Christmas was rather too short. Phase 2 was therefore postponed until January and February 1991, with Phase 3 following without a break.

12. The principal criterion for selecting the seven countries to be visited in Phase 2 was the number of participants they had sent to the programmes and workshops between 1981 and 1990. The calculation was weighted in favour of participants between 1986 and 1989 inclusive, although by the time other criteria had been taken into account, such as geographical location and the particular interest of the Austrian government, this weighting did not affect the final plan.

13. The eight countries in the final plan were (in the order in which they were to be visited) Yemen, Thailand, China, Vietnam, Mauritius, Tanzania, Uganda and Ethiopia. The (unweighted) number of former participants from these countries was about 121⁴, or nearly 29% of the total number of participants from 76 countries. Of the 121, 42% came from Yemen and China.

14. It will be seen that the seven countries include, as intended, an Arabic-speaking country, two SSA countries, countries of various sizes, market-economy and centrally-planned countries, and countries at different stages of industrial development.

15. In the event the Gulf war prevented the visit to Yemen. It also proved impossible to arrange more than a very short visit to Beijing to see two former participants and even this had to be called off when the UNIDO consultant's visa was not made available in time. These two cancellations, representing as they do half the tracer programme, were most unfortunate. Furthermore one particularly interesting aspect of Yemeni participation was that staff of the Aden Refinery Company have attended all seven

⁴Exact numbers were not satisfactorily established. It seems that some listed participants did not attend. A few participants are known to have attended more than one programme or workshop, not necessarily in the same series, and in the case of Yemen differences in the transliteration of Arabic names make it uncertain whether this has occurred or not. An unexpected former participant was found in Thailand.

of the Refinery workshops. This is the best example of concentrated participation in any of the programmes and it would have been useful to assess the added benefits if any.

16. The number of participants actually interviewed can be seen below:

| | <u>Number of former participants planned to be interviewed</u> | <u>Number of former participants interviewed</u> |
|-----------|--|--|
| Yemen | 27 | 0 |
| China | 24 | 0 |
| Thailand | 5 | 6 |
| Vietnam | 13 | 11 |
| Mauritius | 4 | 2 |
| Tanzania | 20 | 13 |
| Uganda | 9 | 5 |
| Ethiopia | 19 | 12 |
| | — | — |
| TOTAL | 121 (100%) | 49 (40%) |

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III. DESIGN AND DOCUMENTATION

A. Project documents

Function

17. The programmes and workshops being of a repetitive nature the project documents do not perform the function of an original expression of needs from which the subsequent project components flow. They are rather a formal justification for an activity which is already planned in considerable detail on the basis of previous experience, and an administrative prerequisite for the creation of a budget item and for approval of expenditure.

Objectives

18. Nonetheless some attention has been paid to them over the years. The objectives in the MMF and Plastics project documents have evolved from "to upgrade the professional level of the participants... and to assist them in performing their duties more efficiently..." to the current version, "The application of new professional skills and techniques...". The objective of the Refinery workshop goes further and suggests indicators: "The application of skills and knowledge [which] will lead to improved operational results... Measurable... improvements are expected in... the following areas...".

Background and participant profile

19. The background sections are the nearest approach to definitions of need and are regrettably vague. If the project document were to resume its place as the keystone of these activities these sections would need the most careful attention. They could not really be written properly except on the basis of detailed needs identification. Meanwhile although a lengthy analysis would not be productive one or two comments may illustrate the kind of area which needs care.

20. The Refinery workshop project document (1990) in its background section really offers no needs at all. The justification section points out that "many [refineries] suffer from old plant installations and consequently from inefficient performance. It is in this area where refineries... need more assistance since not only good material but also skilled and experienced workmanship is required... Special attention has to be paid to the training of such specialised technicians and mechanics..." This looks as though it will lead to a training-of-trainers course; in fact there is no further mention of training of technicians and mechanics or of their skills and it is not dealt with in the workshop.

21. The background section of the MMF project document identifies a general "need... for improving technological skill in blending of cotton yarns [with MMF]. Further on there is an implied need in the statement that the 1990 programme "will be more oriented towards improvement of operational efficiency to

streamline the capacity utilisation factor of existing plants". The participants are expected to have degrees or equivalent in chemical fibres technology and textile manufacturing and three years' experience... utilizing man-made fibres". This seems to leave an extremely narrow area between the education and experience of the participants and improved performance in existing plant. Is it really known that there are textile plants using MMF whose production is restricted by operational inefficiency, and that the Vienna programme can address the problems, and that this is the most productive use of the Austrian resources? All the same this document comes much closer to a definition of training needs.

22. On the other hand the Plastics Technology project document gets nowhere near any description of a need for the programme except to refer to "increasingly sophisticated machinery... and... new materials and modern quality control techniques requiring a training of managerial and operational personnel. The "participants' profile" specifies a degree in plastics technology or chemical, mechanical or industrial engineering (thus combining those with a plastics specialisation and those without) and a minimum of three years' experience. No details are offered of the added knowledge and skills which such highly qualified and experienced participants are presumed to lack and which the programme will give them. As with the MMF project document the entry level is so high that the possible increment seems very narrow.

Activities and workplan

23. The activities sections of the project documents start with preparatory activities which have to take place six or seven months before the programmes and workshops begin, perhaps a salutary reminder that it takes quite a lot of time and effort to organise a training programme. A little reorganisation of these sections could make them into useful checklists for new backstopping officers (when the time for them comes). Details of the training programme itself (and even the Refinery workshop document refers to "training programme" here) could well be excluded. It is doubtful whether a draft timetable should be attached as an annex: it will certainly be subject to change and ought not to go through the approval procedure at this stage - or in fact at all.

B. Sub-contracts

24. The sub-contracting procedure, which establishes HTOs' duties and fees, works smoothly. It has two interesting features. One is that, at least in the case of the MMF programme, the duties of the HTO and the fee to be paid to the HTO by UNIDO are fixed between the government and the HTO., as evidenced by correspondence attached to the project document. There is nothing obviously wrong with this to the point at which unit prices (of, say, lectures or study visits) are fixed and perhaps a maximum total; but it is surely important for UNIDO to retain elbow-room

enough to adjust content and methodology within the contracted limits. As it is, the number of hours of lecture and laboratory work are specified in January for an autumn programme and it appears that UNIDO has no control. It is not clear whether transfers between cost headings (e.g. lectures and plant visits) are permitted.

25. The second point is that for purposes of the sub-contract the aide-mémoire is used to define the HTO's duties. It is very doubtful that this contains sufficient detail for a clear contractual statement of duties and it does not form a good counterpart document to the HTO's delivery report. So far no problem has apparently arisen but if any disagreement should arise, and it must obviously be hoped that it will not, the present document would form an unsatisfactory basis for discussion of what had or had not been delivered.

C. Other documentation

Aide-mémoire

26. The principal function of the aide-mémoire is to announce and describe a forthcoming programme to potential applicants. The special use of the word "aide-mémoire" as the heading or title of what is really a programme prospectus or description is familiar enough within UNIDO and no doubt amongst sponsors and amongst Ministries of Industry in recipient countries. Like any jargon word it serves very usefully to identify something, in this case a particular kind of document, quickly and precisely, but the usefulness is restricted to a particular group.

27. Once beyond the circle to whom the special use of "aide-mémoire" is familiar the word will either be taken in its normal sense of a diplomatic announcement or not be understood at all, and perhaps rather feared. It certainly does not carry the overt meaning "This is the announcement of a sponsored training programme in which you may be interested; please read on". At the level of the engineer or manager or of their managing directors this is what the document should be saying. In short the title, well used as it is within UNIDO, is most unsuitable for general use in the outside world.

28. The content of the "aide-mémoire", starting as it does with a page or more of economic and/or historical background, makes it more like an official report or an administrative circular and the points of most interest to potential readers are dispersed and almost buried. Of course a certain amount of administrative detail is essential (e.g. cost, sponsorship, how to apply). In some cases further attention should be given to English usage.

29. Together with content, the appearance of the "aide-mémoire" does not attract attention or make it readily identifiable amongst the other papers piled on the average desk. At no great cost the resources of modern design and printing technology could quickly produce an attractive, identifiable prospectus, still

retaining the decorum appropriate to an United Nations agency. (Plenty of other UNIDO documents are very nicely produced.) In fact a common "house style" for all training programmes and similar activities would have added impact and utility.

Public information

30. Details of UNIDO programmes and workshops are announced in the annual "Directory of Training Opportunities", a wall chart, and a circular letter entitled "UNIDO Industrial Training Offer Programme". These are prepared by IHRD branch and widely circulated, to field offices amongst others, and the field offices distribute them further. They do not accurately list the Austria-sponsored programmes and workshop. For example the 1991 Offer Programme includes Man-made Fibres but not Plastics Technology and a similar discrepancy is to be found in the Directory. It has been repeated for at least three years. Since these documents are widely distributed they can obviously be misleading with serious results not necessarily corrected by aide-mémoire. It is understood that IHRD branch is now aware of the problem and intends to deal with it.

Terminology

31. The Directory of Training Opportunities offers definitions of "Group Training Programmes" and "Workshops". The objectives are said to be the same and the only difference is in duration. The "Offer Programme" includes workshops as "another type of UNIDO group training", with a duration of two to six weeks as opposed to two to five months for training programmes. The manual for CTAs has a substantially identical text. It is important to note that workshops are still training activities.

32. The programmes under discussion fall into the "workshop" (or seminar) duration but are called "in-plant group training programmes". Apart from being untidy does this usage matter? One possible reason for calling a workshop a workshop is that a title with "training" in it might seem rather junior or lowly, or perhaps, if truth be told, it might imply rather too much active work, for the kind of senior and dignified participant it is intended to attract. There is no harm in this provided that the design and implementation of the workshop itself makes few, or no, concessions of the same sort. Meanwhile it is worth considering whether in normal parlance "workshop" does not mean something else: a group of experts meeting to establish some common plan of action; or a truly hands-on period of practice in some newly learned skill, in which case it might be called a training workshop. (Confusion with the still very common meaning of "workshop", a room or building in which practical manufacture is carried on, is not likely.)

33. The term "in-plant" came up for discussion some five years ago. It was decided to retain it in the programme titles on the grounds that a good number of factory visits (or plant visits) are included in the timetable. The common meaning of "in-plant training" is training by an enterprise of its own employees on

its own premises; the training may be on-the-job or off-the-job. (Much apprentice training is "in-plant".) The term can reasonably be extended to cover trainees from outside the enterprise (e.g. from developing countries) who are integrated with its regular training scheme, or who are given a period of special training probably including on-the-job experience. The short, group factory visit of the kind which forms part of the programmes under discussion does not fall within this definition nor can it be thought a reasonable extension. The usage is in fact misleading. (The Refinery workshop, which is held on the premises of an oil refinery, has better claim to the phrase, although there is no on-the-job element.)

34. The project document for the 1990 MMF programme states (under "background", which is scarcely the right place) that "The in-plant visits will be organized for purposes of practical training". Here it is the use of the word practical which is doubtful. "Practical" appears to be used, in fact, not only for the MMF programme, for any period which is not in the classroom. A laboratory or workshop session counts as "practical" even if it is a demonstration and the participants only watch. "Practical" usually implies that the participants are actively doing something, usually with tools or equipment, and the word should really be used only in this sense. It cannot properly be used for factory visits even if part of the time is devoted to enquiries and discussions; "practical training" would involve hands-on use of equipment.

35. One or two other words are used in senses which may give a wrong impression. For instance "excursion" carries a very strong flavour of leisure and amusement and is not suitable for study visits. The use of "group moderation" at LKT, on the other hand, is so idiosyncratic that it needs immediate clarification. As a private term for use within the programme it may well be useful and is certainly harmless but outsiders will not understand it at all.

Nomination forms etc.

36. It is particularly interesting that applicants for the Refinery workshop have to complete a short, special questionnaire whereas applicants for the two training programmes must complete the very much longer fellowship nomination form. The latter requires official government clearance.

37. The questions immediately arise (1) whether applicants who complete nomination forms are not being asked for a great deal of superfluous information (and it is tedious enough to complete this sort of form) and (2) whether a formal government nomination is actually necessary.

38. Obtaining government clearance can be an extremely lengthy and tiresome process. Does it serve any purpose for UNIDO or the Austrian government? If an applicant in one country or another is supposed to obtain clearance before submitting a form, that is up to him, and the field office will not forward the form to

Vienna if local procedures have not been complied with; and if a successful applicant then needs government clearance to leave his country, that again is up to him. On the face of it there is simply no need for UNIDO to require a government clearance from all applicants whether or not such clearance forms part of local procedures. The Refinery workshop seems to get along well without it.

39. Successful applicants are required to submit "country reports" setting out the state of the industry concerned in their countries. It is to be doubted that the average applicant, say a production engineer, has the knowledge or resources to compile such a paper. He is not likely to know where to obtain information, if it is available at all, nor to have time to make the enquiries. (The first source of information might in any case be UNIDO.) Is the quality of these papers really high enough to justify the demand for them? Are they useful either to training programme planners or to UNIDO in general? It might be much more profitable to ask participants for much more detailed descriptions of the enterprises or organisations in which they work.

40. More thought might be given to the requirement for multiple copies of nomination forms etc to be submitted. Copying machines are not readily available in many countries. There also seems to be no good reason for shipping three or five times the basic volume of paper through the post or pouch when the offices in the field or Vienna can make as many copies as they need.

41. The present language certificate, a questionnaire of a great many years' standing, does not truly assist a fair and objective assessment. The key question, "Is the applicant capable of following and contributing to a training programme in [English]?", is not asked. There is no scope for professional assessment of points of weakness or of the prospect that given some intensive instruction or practice an applicant can be brought up to an adequate standard in time for the programme. Furthermore it is all too often the case that certificates are signed by officials who do not have the necessary qualifications to do so, and are not challenged for fear of giving offence or losing time. The problem is of very long standing and affects other parts of the U.N. system. Perhaps UNIDO might take the lead in bringing language certification up to a fair and realistic standard.

HTO timetables

42. The timetables produced by HTOs for participants have a rough-and-ready appearance which simply does not do justice to the quality of the content and which gives an erroneous impression of the care devoted to planning and executing the programmes. The Refinery workshop timetable is nicely bound with an acetate cover and a blue spiral - but is then spoiled by misprints, including one on the cover page, and badly reproduced photographs. One of the underlying lessons of all three of these programmes is the importance of accuracy and attention to detail,

and another the correct use of modern technology. The timetables and other HTO papers should not belie these lessons.

43. It would be no great matter to bring these papers up to a high standard. Word-processors and modern reproduction equipment are readily available and relatively inexpensive, if not on the premises then in the local copy-shop. Nicely produced papers, perhaps to go in a specially stamped or printed ring-binder, would give a favourable impression of the HTOs and would be a compliment to the participants.

Reports

44. As with project documents the reports written after each programme or workshop seem to be a formality. The HTO is required by its sub-contract to submit a report to UNIDO and will not be paid until it does so. The report is countersigned by the backstopping officer, who is already familiar with the programme activities and will not need the report's contents to tell him what has or has not been done.

45. UNIDO's own report seems to have no certain purpose. The fact that some paragraphs can be re-used word for word from year to year does not create confidence in the report's utility. It is not clear to whom the report is addressed.

46. LKT produces a report on each of the Plastics Technology programmes in a smart blue cover and containing various illustrations, in particular illustrating study visits. One purpose of this report is to act as a kind of public relations document for LKT, and heavy emphasis is placed on the UNIDO connection, which can benefit both parties. However not enough attention is given to making the alterations necessary from year to year, and the various little errors will, if noticed, reflect badly on UNIDO as well as on LKT.

47. Chemical Industries branch maintains thorough and orderly records of all the programmes and workshops and it will always be useful to continue this commendable practice. In this context it ought to be possible to scale down and schematise the reports. The HTOs will continue to have to report performance of their contracts to UNIDO, and the sponsors (the Austrian government and the Federal Economic Chamber) presumably require a formal report (in addition to an expenditure account). In both cases the requirements might include comments on special features of each programme or workshop, but if the requirements were clarified a great deal of time, paper and verbiage would probably be saved. The PER/GT evaluation form, which is disliked by the HTOs, could have a useful function here.

Complementarity of documents

48. A number of more or less important discrepancies have been noted. For example: (1) the draft timetables attached to project documents bear little relation to the timetables which are executed; (2) in the case of the 1990 Refinery workshop both the

project document and the aide-mémoire (which is the public prospectus) include "Energy Conservation" in the title, whereas this does not appear in the title of the actual timetable nor is the subject dealt with in any special "Energy Conservation" sessions (as was done in 1988); (3) the MMF project document bears the title "Application of Man-Made Fibres in Textile Processing", whereas later documents add "(Blending and Quality Control)" as a kind of sub-title. This difference may in fact be less important than the possible ambiguity of the bracketed phrase itself, especially when compared with the timetable.

49. Former participants were asked during field interviews whether their programmes had turned out as expected; none of them claimed to have been misled by the aide-mémoire or other documents. All the same documents concerned with a single programme should avoid differences in basic data. Consistency in this respect is not only good administrative practice but will give the best possible chance for all concerned including participants to avoid misunderstandings and to work towards a commonly understood objective.

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IV. IMPLEMENTATION

A. Selection of countries

50. Countries invited to send participants to the Refinery workshop are those with petroleum refinery installations, including wealthy oil exporters, for whom a number of "paying" places are available⁵. A few other countries such as Viet Nam which are expected to build refineries before long are also invited.

51. Since almost all countries have more or less developed plastics and textile industries distribution of the "aide-mémoire" for the two training programmes is very wide. It goes to some countries, e.g. in Latin America, where English is not the first European language. Countries which do not respond year after year continue to be invited in case a need or interest arises.⁶ It is in fact a deliberate UNIDO policy to spread participation to as many countries as possible. Since, as will be seen below, results seem to be individual and no special benefit seems to accrue from multiple participation from a single organisation, the UNIDO policy has no effect, positive or negative, on programme results. It may however be at odds with Austrian government development assistance policy, which prefers concentration on a relatively small list of countries.

B. Recruitment and selection of participants

52. Copies of the "aide-mémoire", which comprises the invitation to apply, are sent to UNIDO and UNDP field offices; it is made clear in a covering letter whether applicants from the country concerned are eligible for full or partial Austrian sponsorship. The next step is variable and at the discretion of the field office. The aide-mémoire will be sent to the Ministry of Industry or some other designated department, and this official procedure is always followed. Copies may also be sent to other Ministries, industrial federations or individual enterprises. In rare cases UNIDO will suggest that a particular individual be invited to apply.

53. It should be remembered that the aide-mémoire for these programmes and workshops are only three amongst the many more which are sent out, as and when ready, by backstopping officers, although of course not all go to the same list of countries. The Ministries of Industry (or equivalent) may not always be able or willing to give them all very thorough treatment. The programmes and workshops under discussion are all oversubscribed but it

⁵No training fee is payable however, and to this extent all participants in the Refinery workshop are subsidised by the Austrian government.

⁶This evaluation has not attempted to establish the reasons why some countries never submit applications.

cannot be said that demand is overwhelming when, say, 50 or so applications arrive.

54. Application forms are all submitted to the field office and are processed administratively there; they are forwarded to Vienna if correctly completed and accompanied by medical and language certificates. When late, cables may precede the forms themselves. No professional assessment is undertaken by field offices.

55. Applications are assembled in Vienna and after the deadline all are examined together. HTOs, the government, the Federal Economic Chamber and UNIDO all take part and the pile of applications is in effect examined three times, with a gradually narrowing focus on the most suitable candidates. The presence of all concerned in Vienna facilitates the thoroughness of this procedure, which is not generally feasible for other group training programmes or workshops with sponsors and HTOs in other countries. As far as is understood there are no written criteria for selection, although it is understood that an age limit of 35 is applied to fully sponsored applicants.⁷ Judgements are first based on the individual's qualifications and experience, but given the need to distribute places widely and to assure a balance or professional interests and experience individual suitability may be compromised by group criteria. To judge from some of the participants interviewed, the interests of some are riskily near or even beyond the limits of the programme subject matter. It is now known whether selections of this sort are made deliberately, or because information on nomination forms is incomplete or misleading, or for want of more obviously suitable candidates from appropriate countries.

56. It is important to note that for all the care and thoroughness of the selection process in Vienna it is greatly weakened by the lack of comment from field offices and of information about applicants' workplaces except for what they provide themselves. And as noted earlier the programme design is not based on identified need of any well-defined category of applicant.

57. Eligibility of an applicant for full or partial Austrian sponsorship is decided on the basis of his or her country; it is not clear how these lists are established. The ability of an applicant's employing enterprise to finance participation, fully or in part, regardless of the general economic indicators for the country concerned, is not known by the selection panel and cannot be taken into consideration. This question in fact involves the whole petroleum industry and it is questionable whether petroleum corporations even in least developed countries truly need the level of Austrian support which they receive. It was pointed out

⁷It is not clear how some countries have come to build up a much greater number of participants than others; nor on what basis a few applicants have been accepted for more than one programme or workshop, not always in the same series.

at OMV itself that the oil industry throughout the world is fairly well integrated as far as the exchange of technical information is concerned; a great deal of mutual support goes on and technical conferences are continually being held in one country or another. In Tanzania it was noted that the oil refinery is a joint venture of long standing with an Italian group. This group, ENI, has not provided technical support for some years. It is at least arguable that Austria should not be picking up what might be thought an Italian responsibility.

C. Content

58. The MMF and Plastics Technology programmes are modified from year to year on the basis of evaluation of the previous year's programme and of other information and proposals from UNIDO, the Austrian sponsors and the HTOs themselves. In the case of the MMF programme a major shift in subject matter, from production to application of man-made fibres, took place five years ago. It is understood that this was initiated by the Austrian Department for Technical Cooperation. A number of other changes, e.g. in duration and intensity, have also been introduced from time to time, as well as various peripheral subjects which take up single sessions.

59. The series of Refinery workshops started in 1981 with a short (10-day) programme on petroleum processing. In the following year a rather longer workshop dealt with production planning and energy management. Since then the workshop has settled down to a three-week duration and concentrates on maintenance and inspection. Energy conservation was introduced as an additional subject in 1988 and was the subject of a special session, but although it appears in the aide-mémoire for the 1990 workshop it does not seem to have been included in the actual programme of work. (There was no workshop in 1989.)

60. This readiness to introduce changes demonstrates that all concerned - HTOs, UNIDO and sponsors - are anxious to ensure that the content of the programmes and workshops remains relevant and up-to-date. The fact is that in the absence of objectives, in turn the result of the lack of defined needs, the timetables inevitably lack coherence and sequence. It is too easy to introduce or eliminate a particular subject, perhaps on the basis of comments from the previous year's participants, when it does not form part of an interlocking pattern which has a definite end in view. The best that can be done is to try and cover the whole field. The result, however high the quality of individual sessions, is crowded and rushed. As a former participant in the Plastics programme said, "In seven weeks they tried to cover everything I did in a ten-month course." In the same way the MMF programme, despite its sub-title "(blending and quality control)", deals briefly with all textile processes right up to laundry, and quality control gets little specific attention.

61. The content of the Plastics Technology programme has to accommodate participants not only with different work

specialisations (such as injection moulding or extrusion, or more rarely compounding of materials or materials research) but also with different educational backgrounds. For example chemical engineers will find it much easier than mechanical engineers to follow discussion of plastic materials and their behaviour.⁸ Here again pressure to cover too much ground in the time available is reinforced. The IMF programme does not suffer so much in this way to the extent that previous textile studies will have covered a common body of knowledge.

62. Similarly the shorter Refinery workshop can only touch briefly on a few of the components of what are two major and separate subjects, inspection and maintenance, which are the responsibility of different technical groups and entail different, if overlapping, knowledge and skills. Energy conservation is above all a management subject and does not fit easily with inspection and maintenance, especially in so short a timetable.

D. Methodology

63. One aspect of all three programmes which participants very much appreciate is the opportunity to ask questions and enter into discussions with session leaders; the interactive nature of the classroom sessions was commented on favourably in a good number of field interviews. Session leaders of course have to be able to control this interaction, firstly so that they can complete a unified piece of exposition without interruption, and secondly to avoid or reduce the questions which are irrelevant, or which are designed to demonstrate the questioner's own knowledge, or which take up too much time and irritate the rest of the group. This general point is made here because during observation of one or two sessions it was clear that session leaders have to cope in all these ways.

64. On the other hand, despite this free interaction, each session is as crowded and rushed as the programme as a whole and is dealing with a volume of subject-matter which requires a great deal more time for any treatment in depth. It is in particular impossible for time to be spent on confirming that participants have correctly understood and absorbed the subject. One former participant in the Plastics programme, however, contested the view that sessions were too densely packed and too rushed: the session discussed as an example was perfectly comprehensible for

⁸Contrary to expectations former participants in production jobs were not found to need a greater knowledge of chemistry than they would have acquired in the course of, say, a mechanical engineering degree course, or even at school. Raw materials were generally found reliable. If they or finished products need analysis they will be taken to a university or government testing facility. Factories do not seem to have their own laboratories. Plastics technology cannot however be discussed without reference to chemistry and the subject is an essential background to the LKT programme.

those who could read engineering drawings, and the hand-outs, which included the drawings, would serve well for further study or reference. Despite this positive view it cannot be thought ideal for a speaker to hurry through a dozen different mould designs, or to show some 18 textile testing instruments, demonstrating a few of them, in a couple of hours.

65. Regarding laboratory or workshop sessions there is a possible danger that the member of a small group who takes the most active part is the one who already knows how to operate the machinery in question, and to conduct the associated tests and measurements: it is important for the session leader to share out the work evenly, and to ensure that the laboratory technician does as little as possible. Here again the doubts raised as a result of brief observation in Vienna were dismissed by a former participant, who said that in his programmes all group members were brought into practical work on an equal basis.

66. Factory visits are very popular and found to be very good sources of practical information. Obviously for each participant some visits are more interesting than others but in the Plastics and MMF programmes there seem to be enough visits to cover everybody's primary interests at least once. The timetables show that sometimes up to four visits are packed into a single day and it seems very unlikely that they could each be long enough, or that participants could absorb so many. No criticisms were made by former participants along these lines. It appears that visits are very well organised, and that the host companies are very welcoming and open. To the extent that language allows, participants may sometimes have individual discussions with technicians and operatives⁹ (in addition to the normal group discussions with management). Commercial benefit to the host companies is very improbable and it is most gratifying that they continue to cooperate year after year.

67. Participants in the Refinery workshop do not have so many visits in their short programme, outside the Schwechat refinery itself that is. The few that they have are necessarily peripheral and there is a lower chance that all members of the group will have at least one visit that truly interests him. However the visits are equally well organised. A visit to the Federal Economic Chamber takes the form of a kind of private trade fair at which a number of Austrian enterprises present their wares. The commercial nature of this visit was the subject of some disapproval but this did not lessen interest.

68. The volume and quality of lecture notes and other literature, such as company brochures, given to participants are much appreciated. The papers taken home are evidently treasured,

⁹More than one former participant commented on the high standard of knowledge and skill of shop-floor workers and their conscientious attention to their duties. This kind of impression might be as valuable as the technical content of a visit and is an important benefit of a programme in Austria.

sometimes kept at home to prevent unauthorised "borrowing", and quite often referred to. They evidently constitute quite an important reservoir of knowledge, and although they might sometimes replace notes which participants could well have taken for themselves it has already been noted that more material is dealt with in the programmes than can reasonably be absorbed, so that the documentation is essential back-up. In addition to take-home documentation LKT has built up a small technical library for reference by participants.

69. It is worth noting that in all three cases a special classroom is devoted to the participants for the duration of their programmes. At LKT an ordinary classroom is used with two rows of tables and chairs much as in a school; the walls are imaginatively used for pinned-up large-size paper on which (when observed in the course of this evaluation) participants themselves had written various details of their technical backgrounds¹⁰. The MMF group uses a rather grander, but darker, conference room belonging to the Austrian Textile Institute, housed above the main premises and workshops of HBLVAT. The tables are arranged in a single flat semi-circle and did not comfortably accommodate all the 1990 participants. At the Schwechat refinery the group is given the use of a spacious classroom in the training block. As at LKT the tables are arranged in two rows but they are larger and giving more the impression of a conference room of a school.¹¹

Active work

70. Detailed analysis was not feasible but it does not appear that participants are given active work such as might be an effective method or reinforcing learning, and indeed ensuring concentration, especially after lunch. This active work would not only comprise practical machine or instrument operation as does take place in the Plastics and MMF programmes, but also classroom exercises, report writing, group or individual projects, or preparation of action plans. It may be that there simply is no time for this kind of activity despite its advantages, and perhaps the plentiful opportunities for discussion reduce the need.

¹⁰This is one of several ways in which the Plastics programme fostered active and open participation and group collaboration, notwithstanding cultural differences. One afternoon is devoted to a particularly imaginative method of group decision-making (on a technical matter), which may or may not be transferable.

¹¹The group at Schwechat is given a large and elaborate lunch, with wine for those who want it, as though they were indeed at a conference; not necessarily conducive to afternoon concentration, but apparently the workshop goes on well just the same.

Pressure of work

71. Former participants were asked their opinion of the volume and pressure of work during their programmes. The general view was that they were kept busy enough, but not overworked. In the days when the MMF programme included Saturday-morning working it was thought to be too full. If there were language difficulties a good deal of evening study of documents was necessary, but this was in effect self-imposed. It would again need more detailed examination to judge whether pressure of work could effectively be geared up, especially with some of the active work mentioned above.

Individual training needs

72. These are all supposed to be group programmes, but all participants are invited to bring and present their own technical problems. These have to be dealt with, and participants in any case have widely heterogeneous technical interests. Programme directors thus have to devote a good of time and effort to accommodating these wishes, and they do so as comprehensively as possible. It is particularly notable that at LKT the so-called "group" virtually disintegrates for the last two weeks, and smaller, variable groups pursue their own interests in an elaborate modular timetable. "At last", as one 1990 participant put it for whom the earlier more general phase of the programme had not been very interesting. There will always be this kind of tension within a group programme and it may in fact be a very valuable phenomenon even if it places a gratuitous strain on the programme staff. The danger comes when a participant uses the modular format as a reason or excuse not to turn up for a particular session at all.

Programme and workshop staff

73. It has been said elsewhere in the report, but is worth reiterating, that the staff put a great deal of effort into these programmes and workshops with quite extraordinary enthusiasm, all the more commendable since they never see the end results of their work. It must be remembered that they are working for a substantial period in a foreign language. Furthermore the kind of high-pressure training is quite unlike their regular programmes; in the case of the Refinery workshop staff they are not even trainers at all, but operational engineers. Comments on their activities and methods must be read in the wider and inescapable context of programme design, outside their control. (In other words if they are expected to teach a ten-month course in seven weeks they will certainly have to skip some of the finer aspects of training methodology.)

E. Language

74. As mentioned immediately above, the staff conduct the programmes and workshops in English, for them a foreign language. No participants reported any difficulty in understanding them.

75. On the other hand programme directors report that in every group there are one or two participants who have difficulty with English. In 1990 there was certainly one who could not or would not utter a word in English, although he claimed (through an interpreter) to understand lectures and demonstrations to some extent and to be able to study lecture notes etc. His silence and lack of active participation were clearly oppressive both to staff and other members of the group. This case was apparently exceptional but it also appeared from observation that some participants have to rely on compatriots for whispered interpretation from time to time. Some interviews with former participants were greatly hampered by their lack of English; it must be remembered in this connection that they may have had no practice in English since their period in Austria.

76. Poor language ability reduced the volume and quality of information transferred by the spoken word. Some information, very important technical information at that, is transferred numerically or graphically or by demonstration, and study of lecture notes can partially compensate for lack of understanding of the lectures themselves. So all is not lost if spoken communication is difficult. All the same, participants who can speak and understand freely are obviously in a position to pick up far more information with more details and accuracy; they will tend to dominate discussions and to take the lead in group activities, as compared with fellows participants of an equal level of application and enthusiasm but weaker language. The fluent speakers are indeed likely to be held back by communication difficulties elsewhere in the group.

77. It is clear without further argument that those completely unable to communicate should not be put forward, let alone accepted. Although those with a basic ability in English will be able to benefit to some extent the potential advantage to all participants of reasonably high and uniform language ability cannot be denied. It might be added that the programme staff will also find their work easier and more productive if they are more or less equally understood.

78. One additional point is that participants' safety is compromised, especially in the proximity of machines, if they cannot readily understand instructions and warnings.

79. It is well known, and an old story, that the language certificate is quite often signed by officials who are not themselves qualified to assess language ability, but are of high enough status to make a challenge embarrassing. Furthermore the U.N. certificate itself does not ask questions or invite grading which truly describes relevant language ability. Some applicants are not required to be certified on the grounds that their higher or technical education was through the medium of English, even though they might not have used the language for many years since they graduated. The Thai authorities, however, now require their own certification before government clearance is given. One interesting aspect of their system is that applicants have a

second chance if their tests show that a period of instruction and practice could bring them up to a "pass" level.

F. Administration

80. The process of notifying selection, providing air tickets, arranging accommodation, paying allowances, taking out insurance, sending parcels of documents home, and so on, works very well. The various procedures have been developed over the years but close attention to detail is required every year and for every individual participant. This attention is evidently given very meticulously.

81. Some former participants from earlier years were not happy with their accommodation but no unfavourable comments were made about current arrangements. Participants are free to move to alternative accommodation and this lack of compulsion is appreciated. Contrary to expectation no unfavourable remarks were made either about the amount of the daily allowance in relation to the cost of accommodation, meals, etc, and seems that the amount is pitched at a generous level.

82. In past years some participants arrived in Vienna late, occasionally very late. The problem seems to have been almost entirely eliminated, partly, perhaps, through the use of a new travel agent. Difficulties with local clearances and other non-travel arrangements will always crop up, as well as flight delays. No participant complained of receiving notification of acceptance too late for normal departure procedures.

83. One 1990 participant said that better arrangements could and should be made for participants' first arrival; it was quite a confusing business especially if you had not been to Europe before. The point could not be pursued in the time available and it is not certain whether this was a question of more detailed instructions or of a warmer welcome (even on paper), or some other difficulty. It might be worth examining arrival procedures to ensure that details are comprehensive and reassuring.

G. Monitoring and evaluation

84. A mid-term review is held in the MMF and Plastics programmes, presided over by the backstopping officer. Although it takes up some valuable hours, the review provides a good opportunity for participants and programme staff alike to take a step backwards and see how the programme is going. It is also a useful opportunity for UNIDO to demonstrate its interest in the programme and in the individual participants.

85. In programmes of such short duration the scope for modifying the timetable as a result of the mid-term review is very limited. Programme directors will make such adjustments as are feasible and commonly thought desirable, and it is understood that the

practical element of the 1990 Plastics programme was reinforced as a result of comments made in the mid-term review.

86. Participants complete an evaluation questionnaire at the end of the programmes and workshops and backstopping officers discuss the remarks made with the group. The opinions of the participants thus expressed form one of the most important contributions to the meetings held between UNIDO, HTOs and sponsors some weeks after the programmes and workshops have ended at which adjustments are decided upon for the following year.

87. This evaluation is thorough and useful as far as it goes but lacks the essential dimension of feed-back from former participants and their employers.

88. The PER/GT form, which is intended to form a comprehensive and standardised method of recording the opinions of all concerned, including participants, is disliked by programme directors both for its content and for its very existence. It is not understood how UNIDO can expect HTOs to indulge in self-criticism on the one hand, nor how the form adds to the usefulness of the existing procedures in any case. The nature and purpose of the PER/GT obviously needs to be discussed and explained; it might be productive to bring the whole reporting system, as well as evaluation, into any such discussion.

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V. RESULTS

A. Outputs

89. The result in terms of output is that approximately 422 individual participants have in total attended the ten annual Plastics Technology and Man-Made Fibres training programmes and the seven Petroleum Refinery workshops in the ten-year period 1981-1990. Although the limited nature of this evaluation does not permit a general conclusion which can be proved or defended it seems possible, to judge from the fairly consistent comments of former participants interviewed, that a high proportion of all former participants returned from Vienna with enhanced knowledge, skill and/or attitudes. The programmes and workshops do not have general objectives or exit standards applicable to all participants against which enhancement can be assessed: the benefit derived by a participant is personal and may be quite different to his or her neighbour's benefit.

90. Of the 422, 176 participants from 58 countries attended the Plastics Technology programme, 117 from 44 countries the Man-made Fibres programmes and 129 from 42 countries the Refinery workshops. The numbers are approximate because an unknown, but small, number has attended more than one programme or workshop, not necessarily in the same series. A further unknown number, also thought to be small, arrived so late in Vienna that attendance is scarcely valid. Other errors may have crept into the numbers from the use of incomplete or uncorrected lists and/or from inaccurate counting. The figure of 422 gives a good indication all the same of the scale of these Austria-sponsored activities.

91. The total number of countries involved was 76. About a quarter of the participants came from five countries, and another quarter from ten more countries; thus about a half from 15 countries. The highest number from any country was 27 from Yemen, including 25 from the former PDRY and 2 from the former YAR. (However two of these may each have attended two Refinery workshops.) The number of participants from each of the last four countries on the "top fifteen" list was in single figures and 21 countries have sent only one or two participants in the ten-year period.

B. Objectives

92. Results in terms of the objective (that knowledge and skills acquired in Vienna should be applied in participants' working situations) has been assessed on the basis of tracer interviews with 37 participants in five countries, and of further interviews in those countries with managers and officials. Interviews were loosely structured around a prepared list of questions (Annex 5 of this report), but this was used more by way of a check-list to ensure that all main points had been covered than as a formal questionnaire.

93. The small number of interviews and countries does not allow any numerical generalisation. This report can indicate the nature of some satisfactory and unsatisfactory results and the conditions in which they were achieved but it would be quite wrong to attach numbers or proportions and to extrapolate to the generality of participants and countries. Some general conclusions are of course necessary in a report of this kind but it will be important to verify them.

94. It should be noted that results seem to be entirely individual. No cumulative effect was noted arising from the participation of several people working in the same enterprise.¹² Although the general economic and social situation of a country may affect the possibility of successful application, participants are affected individually: there is no interaction between them. The point is that there is no reason to suppose that participation in ones or twos from this country or that is less effective than if higher numbers had attended. It is the individual participant and his or her working situation which are the crucial factors.

Kinds of application

95. The most easily identifiable application of information acquired in Vienna is the specific technique:

"I have introduced a new yarn identification system."¹³

"I am starting to keep maintenance records in the computer."

"I learned how to x-ray pipes without removing the insulation and we now do this."

"I have introduced a system of code numbers for the various production faults."

"The closures of our plastic liquid containers tended to crack. I found out why and solved the problem."

96. Rather more continuous applications can also be identified:

"Electrical fault-finding techniques have proved very useful. The faults occur quite often."

"I understand more about the design of mould runways."

¹²It is possible that some cumulative "Vienna effect" may have occurred in countries not visited, e.g. the Aden Oil Refinery, but there are few examples of concentrated participation.

¹³Reconstructed remarks, not necessarily direct quotations.

"Use of machines was improved: we make better and more competitive pipes."

"We make better use of our [project-supplied] testing equipment."

"I can deal with suppliers [of raw materials and equipment] better."

I can select [project] equipment."

97. Some participants felt that they benefited in a more general way: as a result of the programmes/workshops they were able to find their bearings in an unfamiliar technical world and thus tackle their work effectively and with confidence. As mentioned elsewhere this phenomenon applies to the plastics programme and the refinery workshop. Generally speaking MMF participants have textile degrees or diplomas which cover the general area of the Vienna programme and they do not need introductory surveys.

"I had just been appointed to my first maintenance job. I knew in theory what had to be done but the workshop gave me a lot of confidence."

"I came back [from France] with a degree in mechanical engineering and took over as production manager. The plastics programme was a good introduction."

"I learnt how to go about things the right way."

"LKT makes you feel a better person and gives you technical prestige."¹⁴

98. One participant started manufacture of a new plastic product as a direct result of a study-visit in Austria and of the acquisition of corresponding technical information at LKT. Furthermore his company purchased Austrian machinery for the purpose. Another participant's company has made purchases in Austria as a result of a study-visit. (It should be re-emphasised that these examples give no indication at all of the total number of this kind of programme result.)

99. It is not possible to assess the relative importance of these kinds of application. Participants are invited to bring technical questions with them or to send them in advance. These questions guide programme staff in timetable design by indicating areas of common concern. Questions are dealt with in class or group sessions or sometimes one-to-one as a sort of consultancy session. In this way the programmes very commendably assure that express problems are addressed. It is not certain that solutions are always adopted. Even if they are adopted the relative importance of the problem and solution in the context of the

¹⁴Personal development, but the implication was that this was translated into more effective work.

participant's working environment is not known: some apparently small change in working practice can have major effects on operational efficiency, sales volume and financial results - or negligible effects.

100. When it comes to the more general applications and the almost personal benefit of confidence-building, in an ideal world the results should be measurable in the context of a performance improvement programme. This would imply that performance before the Vienna programme had been measured. No examples of this formal approach were found and it seems unlikely, to say the least, that it is common. The fact that it is not measured does not of course mean that the performance, be it of a person or operating unit or enterprise, is not improved. Indeed it seems quite probable that, other factors being favourable, a boost in technical confidence and allied personal self-assurance will make itself felt in more effective and faster decision-making and practical skill. Although very hard to quantify the result should not be undervalued.

Factors favouring application

101. As to the factors favouring application of knowledge and skills acquired in Vienna probably the most obvious are that the participant has the appropriate technical background and that he or she is in the relevant kind of job. These conditions are worth restating since, as will be seen below, they do not apply in every case. It is also important that the former participant has the authority to introduce change or at least effective influence at the decision-making level; personal drive and initiative is also important in this organisational context. Lastly the organisation or enterprise must have the willingness and the resources, in terms of materials, equipment, skills or money, to accept the change.

102. It was expected that change would be harder to introduce in public-sector corporations. What was noted instead was devolution of decision-making responsibility - and freedom of action - to the operating units of public-sector corporations. In this way public-sector practice comes to resemble that of the private sector, or at least what is commonly supposed to be that of the private sector. Change is in fact no less difficult to initiate and manage in the private sector.

Defective application

103. A certain number of former participants have not been able to make use of the knowledge and skills acquired in Vienna, or in some cases only tangential or contingent use. They provide some indications of the factors which inhibit or prevent application. Some of the factors might well have been known at the time of the participant's application, and acceptance might have been in the expectation that the situation was to change, and that the programme in Vienna would become more relevant.

104. For example it emerged that man-made fibres are not used in the textile industry in Uganda and have not been used for at least twenty years or perhaps ever, (not even by Uganda Rayon Textile Manufacturers). Why were participants proposed and accepted for the MMF programme every year from 1983 to 1989 ? At least in the case of Nyanza Textile Industries Ltd, (NYTIL), a large state-owned enterprise, plans were made some years ago to introduce man-made fibres, (which have to be imported from outside Africa). It is only now, in 1991, that these plans are coming to fruition: a small quantity of fibre has been purchased for initial trials. Meanwhile participants' Vienna-derived knowledge lies fallow and probably deteriorates. To some extent lecture notes and other documents will help to bring it back to mind.

105. The 1989 NYTIL participant is now in his first year of a two-year British-financed textile course in the United Kingdom. NYTIL itself is the recipient of a British aid project and an expatriate adviser has just started his duties. Another former participant, from African Textile Mill Ltd in Mbale, recorded as having attended the MMF programme twice, in 1984 and 1988, is said to be in the United Kingdom for a long course at present. It is not clear whether these activities complement the Vienna programmes or simply upstage them. It is certain that UNIDO has not been a party to any coordination of the Austrian and British programmes.

106. It was also found that out of the 14 companies which form the state-owned Textile Corporation (TEXCO) in Tanzania, only one, Polytex, uses man-made fibres in spinning. A number of MMF participants come from other companies in the group which use cotton only. At one plant, Kiltex Arusha, weaving of ready-blended polyester/viscose yarn will be resumed in 1991 after a break of about seven years.¹⁵

107. One former TEXCO participant was in fact Spinning Manager at Polytex at the time of his programme in Vienna. (He is now Senior Textile Technologist, Spinning, at group headquarters.) However he had graduated with a B.Sc. degree in textile technology from Manchester University, United Kingdom, with fibre science and quality control as his special subjects. Since there was five-year interval before Vienna he had expected to find some new technology, but did not do so. It was this participant who subsequently introduced the yarn identification system mentioned above; he had noticed it during a factory visit. This case demonstrates two points: the first is that participants can be overqualified and too experienced for a course programme of a particular level and kind; secondly that the productive usefulness of a programme can be reduced to one small event, governed as much by luck as by design. There are other examples

¹⁵TEXCO is to undertake a development programme financed by the World Bank. The usefulness of past MMF programmes may not be great in such a context, and the value of any future participation will need careful assessment.

of over-qualification, in the Plastics Technology programme as well as in the MMF programme, and of practical usefulness being derived from single sessions. This latter phenomenon is really the obverse of the (desirable) application of specific techniques.

108. A number of former participants were found to be occupying jobs that have little or no connection with the subject matter of their programmes or workshops. As, examples, two work in a tyre factory making rubber tyres, albeit with man-made fibre cords. One of these participants attended a MMF programme, the other a Plastics Technology programme. Another MMF participant works in a paint factory. A Refinery workshop participant worked at the time in a government oil-industry planning department and has no interest at all in the engineering aspects of inspection and maintenance. The principal professional interest of another recent Refinery workshop participant is in automatic controls; he works for a subsidiary of the Vietnamese Oil and Gas Corporation, and has no connection with the one very small refinery in the country. A major refinery is to be built and the time may come when there will be an important role for UNIDO/OMV collaboration.

109. As may be expected some former participants move from relevant jobs to other jobs of a wholly different kind. This kind of change is of course most unlikely to be predictable.

110. Two former participants in the Plastics Technology programme had educational backgrounds which did not interconnect properly with the LKT subject matter. One was an electrical engineer, with subsequent training and many years' experience as a printer, and the other an electronics engineer. Although the Plastics Technology programme is indeed an extension into areas not covered by unified university courses it does assume some previous knowledge of chemistry and mechanical or process engineering in some combination or other. It cannot possibly cover enough ground in seven weeks to bring those without this kind of background up to a functional level of knowledge.

111. A number of participants work in non-production organisations, and the usefulness of their programmes has been tenuous, sometimes to the point of invisibility. A factory inspector on the Refinery workshop has only visited his local refinery once in the last seven years; although he picked up some useful hints, of general application, concerning fire services and the rescue of workers he has not been able to do anything with this information. A technologist in a standards institution attended the MMF programme (in the days when it dealt with production, and man-made fibres are not produced and scarcely used in his country) and was not able to do much with it. In this case the problem overlaps with the fact that he had already attended a four-year textile programme in the United Kingdom.

112. Former participants with research and development responsibilities can find the Vienna programmes too general for their specialised interests: only one small part of the subject

matter interests them, and that in insufficient depth. This case can arise in the kind of technology centre supported by UNIDO projects, examples having been found both in the textile and the plastics fields. A UNIDO programme in Vienna does not necessarily meet the needs of a UNIDO project in the field, although this does not by any means exclude the possibility or value of specially designed collaboration.

113. The low state of the factories in which some participants work can severely restrict the application of knowledge and skills brought from Vienna. This low state can take the form of operating well below capacity, caused by shortage of raw materials, lack of spare parts, lack of liquid money or credit for purchase of raw materials or other supplies, lack of sales, or a combination of these.¹⁶ Such problems may beset enterprises which are well equipped with modern machinery; other enterprises still struggle on with elderly machines, perhaps so old that spare parts are no longer made, and lack the capital, or access to capital, for re-equipment.

114. In such enterprises the need or incentive to make use of the efficient procedures and time-saving techniques observed in Vienna is sharply reduced. It is not only an objective lack of need, for instance to get a machine back into operation quickly or to organise an uninterrupted flow of material, but a lack of pressure and urgency which reduces the will to gear up working methods to more productive levels.

115. The wrong organisational position of a former participant may hinder the application of Vienna information, but there is no example in the group interviewed in which this problem can be clearly disentangled from other inhibiting factors. One of these factors, not so far mentioned, may be the personal qualities of the participant concerned, perhaps a lack of drive and enthusiasm.

116. The question of language ability should also be added to this list of inhibiting factors, although any deficiency in this area operates at the acquisition stage rather than application. It seems unlikely that incompletely understood information can be effectively used after the programme.

C. General assessment of results

Sustained demand

117. In general terms demand for the programmes and workshops self-evidently exists: year after year applications for them arrive in Vienna, if not in enormous numbers, at least in greater

¹⁶It was found in Tanzania and Uganda that shortage of foreign exchange was no longer a problem. Under the adjustment programmes foreign exchange is freely available - provided you can pay for it. After devaluations it is very expensive and effectively rationed by shortage of cash.

numbers than can be accepted. Existence of real demand is confirmed by the applicants who are paid for from their own or their companies' resources. Furthermore applications from the same countries and the same enterprises as "repeat business", although it must be admitted that this evaluation is biased in favour of such countries. This continuing demand can be considered one positive result of the previous years' programmes and workshops.

Personal benefits

118. It was particularly gratifying to hear from former participants, time after time, how much they enjoyed being in Vienna (except in winter) and how much they appreciated the friendliness and helpfulness of the staff of the HTOs. This open and helpful approach was also found during study-visits to factories and other organisations and much impressed participants. Although not a formal objective this highly favourable view of a country which will have been entirely new to many participants can reflect well on Austria and on the U.N. system which creates the opportunity for this reinforcement of international relations.

119. From the professional standpoint the participants generally asserted that they personally benefited from the programmes and workshops, although there were some expressions of disappointment concerning content and methodology. ("Too short and too general", "nothing new", "two courses in one", "too crowded".) There is no external method of assessing this benefit.

120. On the other hand there were also expressions of great satisfaction with the programmes and workshops and enthusiasm for them. These generally related to rather general professional reinforcement and increase in confidence. Although again this result is not an objective in itself it can be highly beneficial and lead to better work results. Some participants claim general improvement in this way but it has not been demonstrated or observed. It was pointed out that former participants often work in isolation from fellow professionals in their fields: they have far fewer, if any, opportunities to attend exhibitions, conferences, seminars or short courses, or even to receive technical journals, than their counterparts in industrialised countries, and they are much less likely to be kept up to date by salesmen and sales literature. Exchange of views and problems in an international group of fellow engineers, the very experience of being with a peer group for a few weeks can well revitalise and strengthen professional competence and personal assurance.

121. Of course none of the participants interviewed articulated these points so explicitly, and they were in fact expressed most fully in another conversation, but a good number of participants had something to say in this area of personal benefit. It may be a very important result and although this report recommends that other forms of technical assistance should be considered the

positive aspects of international group activities should not be discounted.

Application

122. Application of knowledge and skills acquired in Vienna is stated in project documents, at least the more recent ones, to be the objective of the programmes and workshops. This is assumed throughout this report to be the correct objective and is indeed the normal objective of training programmes.

123. The view is not necessarily shared by all concerned, and is not, as far as is known, backed up by any authoritative UNIDO document or agreement between UNIDO and the sponsors. It could be held that even for group training programmes personal and professional benefits to individual participants may be considered an adequate outcome, whether or not they are applied. Similarly a workshop may have that name, not only to attract more senior participants who may be put off by the word "training", but with the deliberate implication that there is no training objective, not even a concealed one: it is more an exchange of views amongst professionals of equal standing some of whom work at the host organisation and may dispose of newer technology. Participants are not required to come up with any individual or collective action plan. It would be a matter of chance if an idea or practice seen or discussed found an application, unless it came up in response to a specific query. (This distinction between a training programme and a workshop is not supported by UNIDO documents, which merely distinguish them by duration, workshops being shorter. In fact the training programmes under discussion come within the timeframe of workshops.)

124. A subsidiary view, clearly expressed in Viet Nam and probably held elsewhere including perhaps UNIDO headquarters, if not as official policy, is that it does not matter if knowledge and skills are not immediately put to use. The potential usefulness remains as a kind of reserve pool of information which can be exploited when the time comes.

125. If these views, which diminish the importance of application to the point where it becomes no more than contingent benefit, are accepted then the results of the programmes and workshops can equally be accepted as by and large quite satisfactory. However these views should surely not be accepted: in the context of the urgent need for industrial development, or rehabilitation, technical assistance must be given the clearest possible focus and an immediate and practical result. There is of course a case for personal development or educational programmes, but in the face of the pressing economic situation of recipient countries neither UNIDO, nor, it is assumed, the Austrian government intends to run such programmes.

126. The number of places on the programmes and workshops is tiny in comparison with the size of the industries concerned on the developing world; all the places must be used as productively as possible and "productively" must mean that acquired knowledge and

skills are transformed into improved working practices. It is not enough to say that participants might be able to make improvements in some uncertain future; the places should go to those who have a very high likelihood of doing so in the immediate future.

127. Furthermore if application is not given due priority as the basic objective it becomes extremely hard to maintain any kind of clarity and rigour in programme design and implementation. Training objectives have little or no external reason for being written in one way or another and once training objectives are fudged it becomes possible to put almost any subject you like into the timetable in the hope or expectation of interesting at least some of the audience. There is no target or challenge to participants; it begins to matter less whether they actually do any work or learn anything, or even whether they can speak English enough to understand the lectures and discussions. And all this will feed back into even less application.

128. Of course this is a caricature of the present situation but the conclusion of this evaluation is that application of knowledge and skills is not given enough attention and that in this areas the general results are not satisfactory. There are simply too many examples, of too many kinds, of a mismatch between the participants' programmes in Vienna and their working environment at home. There are always bound to be some misfits and mistakes, and the world-wide picture may be more favourable than the evaluation sample indicates; but there must surely be scope for obtaining better results than have been achieved so far.

129. Why are the results unsatisfactory? In operational terms the basic defect in the system is the lack of identification of training needs in the context of the enterprise or the organisation. The present forms and questionnaires do not give a true picture (not, it must be emphasised, though any deception on the part of applicants, who are not the right people to describe their own working contexts anyway) and are neither preceded by a needs assessment or supported by local enquiries.

130. Underlying this systemic defect there us probably a lack of clear, common understanding amongst all the parties concerned - sponsors, executing agency, HTOs, recipient governments and enterprises, applicants and participants - of the basic purpose of the programmes and workshops.

VI. CONCLUSIONS

Participants' reactions and benefits

131. Participants unquestionably enjoy attendance at the programmes and workshops and appreciate the experience, technical knowledge and helpfulness of the staff of the HTOs. This positive personal reaction was so nearly unanimous amongst the admittedly small number interviewed that it seems safe, in this case, to assume that it is very general amongst all the participants at least in the last ten years. Participants also go home with favourable impressions of Vienna and other parts of Austria, especially, but not only, when they were outside their own countries for the first time. (Cold weather was disliked but programmes have not been run in winter for some years now.)

132. Despite some criticisms of programme structure and content practically all participants interviewed claimed to have drawn professional benefits from attendance. The benefits may take the form of increased knowledge, skills or confidence, and/or an awareness of high standards and conditions of work, and may be derived from formal activities at the HTOs, interaction between participants, or study-visits.

133. When several participants from the same organisation had attended programmes in Vienna some kind of "Vienna effect" derived from their common experience might have been expected, but it was not found. It would still be interesting to find out whether there is any "Vienna effect", beneficial or otherwise, at the Aden Oil Refinery, which has had the most concentrated participation in any of these programmes.

High-quality resources

134. It is understood that the HTOs are well and comprehensively equipped for the purposes of the respective programmes. (One former participant observed that the Plastics Technology Centre in Singapore was more modern than LKT and geared more to production than to academic studies.) However it seems that the staff of the HTOs have little or no direct professional experience of recipient countries. The HTOs do not take part in other modes of technical co-operation, or in commercial training or advisory activities in other countries.

135. The HTOs in Vienna are well supported by factories and other organisations which in the eyes of participants are impressively modern and well-organised; once again the friendly and helpful welcome extended during study visits is frequently commented on and much appreciated.

Application

136. When it comes to application of knowledge or skills interviews with former participants revealed much weaker results. Despite some striking examples of specific benefits or improvements based on Vienna programmes and the strong chance

that some general, not-easily-defined improvements have also resulted there were so many cases of little or no application that the results in this highly important respect cannot be considered satisfactory. Underlying the various specific reasons for participants' inability to make use of their newly-acquired knowledge and skill the basic reason is the lack of definition of training needs in the context of the enterprise or organisation. This context is just as important as the individual's needs and includes its present condition and its technical, organisational and commercial development plans. Assumptions concerning the operating environment (such as adequate supplies of raw material or money) are also necessary. During interviews at enterprises various themes were mentioned several times, such as "computerisation" and "quality assurance", but it remains to be seen whether these reflect genuine requirements and achievable aims.

Definition of needs

137. UNIDO and UNDP field offices disseminate information about forthcoming programmes in various ways; in some cases the local procedure is highly centralised, in others extra unofficial information channels are allowed or even welcome. (In Mauritius the Ministry of Industries places advertisements in the newspaper, presumably an exceptional practice.) When using unofficial channels field offices will try to ensure that enterprises in the relevant sector are informed, perhaps through an industrial federation or association, but are not in a position to discriminate between enterprises. This is in fact a supply-led exercise in promoting a ready-made programme.

138. More co-ordination between the various parts and activities of UNIDO would facilitate the definition of needs and objectives. Various papers and programme and project information which have come to light during the evaluation, more or less by chance, indicate that a wealth of relevant and high-quality knowledge and experience could be brought to bear on the subjects in question.

139. The questionnaire which applicants must complete as an annex to their nomination forms elicits information about their places of work, but this information does not seem sufficient to create a coherent expression of common needs which can be transformed into project or training objectives. It should be noted that at this stage the application is already a response to a particular offer and there will be a natural tendency to respond accordingly. The questionnaire is certainly useful when individual applications are considered but it does not even set out to be an objective needs survey.

140. For the Plastics Technology programme and the Refinery Maintenance and Inspection workshop a need might be established for general introductory courses since in neither case do specific professional qualifications exist which precede the respective subjects. In the case of the Man-made Fibres programme (which is essentially a textile programme not a chemical one) participants are quite likely to have a four-year textile

technology degree to their name. Although there may be some general updating to be done it is much more probable that participants need highly specialised supplements to their previous education.

Eligibility for sponsorship

141. Concerning the award of fellowships (i.e. sponsorship by Austria of individual participants) criteria for eligibility do not adequately identify real financial need, or more particularly weed out lack of need. To come from a LDC does not necessarily mean that you cannot find the money for a Vienna course, especially if your enterprise is being launched, and training funded, by a well-heeled partner from Europe. It similarly puts Austria and UNIDO in an unsuitably auxiliary, almost subservient, position to offer sponsored training to enterprises or organisations which are recipients of technical cooperation programmes funded and executed by others. (It would be a different matter to offer training places against payment, or to co-finance the technical cooperation programme on an equal footing.)

142. In the particular case of the petroleum industry the whole rationale for sponsorship is not very clear. The industry is apparently well integrated, at least as regards exchange of technical information, on a world-wide basis, and commands substantial resources. In the countries visited during this evaluation the Tanzanian refinery is 50% owned by the Italian state petroleum organisation ENI; in Vietnam any future refinery will similarly be a joint venture. In such circumstances the position and responsibility of UNIDO and Austria are not clear. Further study is needed on this point.

143. It is clear that in some cases advantage is taken of the offer of entirely free training whether or not there is a genuine and immediate need in the organisation concerned. On the other hand a positive view of the programmes is reinforced by the fact that year by year fee-paying applicants continue to present themselves.

Selection

144. UNIDO and UNDP field offices do not filter applications, except to ensure that they are complete, before forwarding them to Vienna: they are dealt with entirely administratively¹⁷.

145. Adequate control of language ability has still not been established. Time and again one or more participants come to Vienna with insufficient English not only to understand but to contribute to programme activities. Even from the point of view

¹⁷Administration of applications and of selected participants before and during programmes appears to be handled very carefully and thoroughly and to work very well.

of safety at work this situation is not satisfactory. The problem is of course many years old.

Programme design and methodology

146. The absence of clear objectives has negative effects on programme design. HTOs are obliged to crowd their timetables with a great variety and quantity of information in order to ensure that at least some of this information meets each participant's individual needs and interests. In all the courses there seems to be some conflict between general and specialised subject matter and it is not always clear how the various subjects relate to each other. Much effort is devoted to arranging small group or individual sessions to deal with particularly specialised requirements. The subject matter as a whole cannot have adequate coherence or sequence in these circumstances, and even individual sessions are so compressed that there is insufficient time for practice and other means of assuring that subject matter has been grasped. This difficulty is partially overcome by the liberal and comprehensive notes which are issued, and which are much appreciated.

Information and terminology

147. It must be noted that UNIDO does not present a clear and accurate picture of its own training activities. Quite apart from questions of public image and general utility, comprehensive information on allied training activities will constitute useful guidance as to the specialised areas which can best be dealt with by the present HTOs.

148. The use of the words "training programme" and "workshop" in the programme titles does not correspond to the usage and descriptions in other UNIDO documents. It would be useful to clarify the difference especially since there is an important need to establish whether a "workshop" has a different kind of objective from the training objectives of a "training programme". The use of the phrase "in-plant" is also ambiguous or incorrect: it really implies active participation in the day-to-day operations of an enterprise or organisation. At the very least it implies training physically within an enterprise or organisation. It is straining the meaning beyond anything normally understood to use "in-plant" on the grounds that programme activities include a good number of study visits to factories etc. In fact the Refinery workshop is more of an "in-plant" programme than the two "IPGTPs".

149. Information concerning specific programmes and invitations to apply are contained in the "aide-mémoire". The "aide-mémoire" usually contains a great deal of other information, e.g. concerning the Lima Declaration, which is not relevant or interesting in the context and is given excessive prominence. Furthermore the title "aide-mémoire" is diplomatic jargon which has no place in a training programme description, and the appearance of the "aide-mémoire", under a new title, could well

be a great deal more attractive, without losing dignity, with the application of design skills and modern technology.

150. The timetables given to participants by HTOs are poorly produced and cannot create a good impression; even the Refinery timetable in its spiral binding has a misprint on its front cover, a number of other typographical errors, and poorly reproduced photographs of the workshop staff. The annual report produced in a blue cover for PR purposes by LKT has not always been prepared with adequate attention to detail, although the 1990 edition may have been corrected. Since all the programmes deal with high-technology, high-precision subjects the corresponding documents should be produced in an equivalent style. The skills and equipment for doing so are presumably available quite readily and at no great cost. This is more than a question of public image: it would be very natural for participants to draw conclusions from the quality of presentation about the quality of the content.

Evaluation

151. As to evaluation, the opinions of each group of participants are assessed thoroughly and taken into serious consideration when the following year's activities are planned. The regular annual meetings between government representatives, programme directors and UNIDO backstopping officers (facilitated by everybody's presence in Vienna) constitute an excellent review and decision-making system. The information available to the meeting does not include feedback from recipient countries and is thus weakened; there is furthermore no basis on which to consider other modes of making effective use of the HTOs' resources. (The present evaluation is not a needs-identification mission and will not of course solve this problem.)

152. Field offices have no responsibility for routine follow-up or evaluation after participants have returned from Vienna.

153. The PER/GT form is much disliked by programme directors and its purpose and benefits do not appear to be understood. It is generally completed reluctantly and minimally.

UNIDO organisation and procedures

154. The IHRD branch, apparently for historical reasons, plays a surprisingly unobtrusive role in the implementation of the programmes and workshop under discussion. It might be thought that the professional expertise of a training department would play an important part in training system and programme design.

155. On another organisational point, it appears that the MMF programme is essentially a textile, rather than a chemical programme. In earlier years it concentrated on production of Man-made Fibres, but for some time the emphasis has been switched to application and subject matter covers the range of textile operations from blending, by way of spinning and weaving, to dyeing and finishing. Blends which include natural fibres such as

wool and cotton are considered. Furthermore other UNIDO textile programmes are handled by the Agro-based Industries Branch and this seems more natural location for the MMF programme.

156. At present the only purpose of the project document and the project review and approval system related to these programmes and workshops is the create the necessary UNIDO accounting activity and to make it possible to incur expenditure. Even though objectives are correctly expressed in project documents they are a formality and are not used as yardsticks of achievement; other deficiencies in the project documents are a priori irrelevant. There is much to be said for bringing back the project document as the central definition and control document: it will become easier and more fruitful to do so as and when the system of needs definition is enhanced and is able to provide the basis of logical design. Meanwhile project document could already make a braver attempt at assumptions, the conditions under which participants will be able to apply knowledge and skills acquired.

157 The sub-contracting system (under which the duties of HTOs are set out and their fees agreed) works smoothly. However the use of the aide-mémoire as the specification of the work to be done by the HTO may turn out to be regrettably imprecise should any disagreement unfortunately arise. If the project review and approval system is strengthened it may be desirable to bring the terms of the sub-contract within the system to ensure coherence.

158. There is a certain amount of repetitiousness and unnecessary verbiage in reports probably derived from uncertainty as to their purpose. The schematic PER/GT, which works well elsewhere, could serve a more useful purpose if it came to be accepted by HTOs.

VII. RECOMMENDATIONS

Conditional continuation

159. Recommendation 1. UNIDO should continue to invite the three HTOs to contribute to the development of the corresponding industries in recipient countries provided that (1) the HTOs are technically able to meet clearly defined needs and (2) enterprises or organisations in recipient countries require the financial support of an international technical assistance programme.

160. Recommendation 2. Collaboration between UNIDO and the HTOs, if continued, should not be interrupted, so that the long experience and keen interest of staff members of the HTOs and of UNIDO officials are not attenuated. It will not be possible for all the following recommendations to be introduced suddenly; in particular it will be a relatively lengthy and gradual process to improve needs identification, which is the most important requirement. Meanwhile it should be possible to take some steps immediately: these are suggested in Recommendations 29ff.

Demand-led programme

161. Recommendation 3. To the greatest extent possible the activities of the HTOs should be designed in response to repeatedly redefined needs. The redefinition will entail more detailed and sensitive enquiries by UNIDO. The information available in all parts of UNIDO should be utilised, related UNIDO field activities should be taken into account, and the assistance of UNIDO Country Directors and Programme Officers in UNDP field offices should be enlisted. The needs should be expressed in a project document. The project document would then resume its correct and useful position as the basic control document for the subsequent activities.

162. Recommendation 4. In order to assist UNIDO to match identified needs with the HTOs' technical resources the HTOs should be invited to restate their capabilities, with due emphasis on their special expertise and interests, and to outline the nature and volume of the services they are able and willing to provide.

163. Recommendation 5. The Government of Austria and the Federal Economic Chamber may also wish to indicate the general level of financial support they expect to be able to offer, subject to later approval of detailed proposals as required, for forthcoming financial periods.

164. Recommendation 6. In the context of Recommendations 3, 4 and 5 UNIDO and the HTOs should formulate objectives and design programmes of activities. Although these activities may well comprise or include international training programmes or workshops in Vienna, the benefits of which should not be lost sight of, consideration should always be given to alternative or

additional means of transferring knowledge or skills. These may include:

Training programmes or workshops run in recipient countries or regions;

Short-term consultancy services in recipient countries;

Longer-term relationships with recipient enterprises or organisations, entailing training, advisory services and correspondence;

Recall of selected alumni for further specialised training;

Issue of technical bulletins to alumni.

The subject of training programmes may of course differ from year to year, (as was the practice with earlier Refinery workshops) or some recurrent cycle may be developed.

Assessment of financial resources

165. Recommendation 7. When selecting enterprises or organisations for assistance UNIDO should take into account not only the economic status of the countries concerned but also the specific status and resources of the enterprises or organisations. Generally applications should not be accepted if an enterprise is a joint venture with major inputs from an industrialised country, except on a full fee-paying basis. Similarly if an enterprise is receiving bilateral or international assistance applications should be accepted only on a full fee-paying basis. Alternatively the Austrian Government and UNIDO may wish to co-finance an assistance programme and make the services of the HTOs available in this way. (The Austrian Government may wish to restate its policy in connection with this recommendation.)

166. Recommendation 8. In connection with Recommendation 7 the requirement of the petroleum industry in recipient countries for the kind and volume of assistance offered by the Government of Austria and ÖMV should be reassessed taking into consideration the internationally integrated nature of the industry and the large resources it commands as a whole.

Programme design and implementation

167. Recommendation 9. Training programmes or workshops to be run by the HTOs for UNIDO should have more tightly drawn objectives and more precise indications of the participants for whom they are intended. (Both objectives and participants will be easier to define if needs are clarified first.) Regarding participants, not only their personal qualifications and attributes should be specified but also the nature of the enterprise or organisation where they work and their position in

it. It may improve definition to specify, in addition, the kind of participant or enterprise/organisation for whom the programme would not be suitable.

168. Recommendation 10. It is to be expected that if training objectives are established as recommended above the content of the programmes or workshops will fall more easily into a more coherent and sequential pattern than is the case under the present system. It should in any case be an aim of course design that the components all contribute to achievement of the objectives.

169. Recommendation 11. Clarification of objectives may also be expected to result in a less crowded programme. This in turn should leave scope for development in training methods, including a higher proportion of active work, both in workshops and on paper. It should also allow time for training staff to confirm that subject matter has been adequately grasped. Study-visits to factories or other organisations should similarly be regarded as a methodology rather than a separate component, although it must be recognised that they are very popular and may have generally educative benefits not strictly related to programme objectives.

Invitations and selection

170. Recommendation 12. Programmes with more exactly defined objectives and participants as recommended are likely to respond to needs in known locations and a very wide distribution of invitations will be unnecessary or unwise. However it is still to be hoped that applications will be received in competitive numbers. When considering applications for places UNIDO and the HTOs should pay as much attention to the suitability of the applicant's workplace as to his or her qualifications. In addition to the financial status of the enterprise as mentioned above, the nature and state of its activity and equipment and its development plans (technical or other) should be examined. In practice it will be necessary, in this connection, for applications to be filtered by UNIDO or UNDP representatives in applicants' countries rather than passed directly into the fellowship administration system. It is appreciated that precise or reliable information may not always be readily available but experience and background data will complement specific enquiries.

171. Recommendation 13. The Government of Austria and UNIDO may wish to consider whether it would be effective and desirable to institute a control on the seriousness of applications by requiring a minimum contribution to programme costs from all participants. This contribution could be waived if convincing justification were adduced.

172. Recommendation 14. UNIDO should consider modifying the application form to allow space for comments and recommendations by field offices. In addition UNIDO should consider whether, from UNIDO's own point of view, a formal government nomination is

necessary. It would be greatly preferable for the requirement for clearances to be minimised.

173. Recommendation 15. Although it is a very old problem UNIDO should pay further attention to the language ability of applicants. In this connection the standard U.N. certificate could well be revised to incorporate elements from bilateral British or American certificates (or perhaps others), and greater insistence should be placed on the independent and professional status of the examiners. It should also be recognised that even if an applicant's secondary or tertiary education was at an English-medium establishment he or she may not have used the language for many years, and recertification may be appropriate. If lessons and practice might bring the applicant's ability up to scratch in the time available the opportunity for a second examination should be given, as in the Thai Government's official certification system.

Evaluation

174. Recommendation 16. The present system of end-of-programme evaluation should be continued. However a feed-back mechanism from the final users is an extremely important element, indeed an essential one, in an effectively controlled training system, and a complementary procedure for later evaluation of results at participants' workplaces should be built up. Establishment of a system will not be quick or easy, and it will require specific resources. The active co-operation of UNIDO Country Directors and Programme Officers will be required. The presence of headquarters officials on mission in recipient countries should be systematically exploited for evaluation enquiries whenever feasible.

175. Recommendation 17. UNIDO Evaluation Staff should arrange a meeting with programme directors of the HTOs to discuss the PER/GT self-evaluation form and its potential benefit for all parties.

Staff development at HTOs

176. Recommendation 18. UNIDO should facilitate visits by staff members of HTOs to recipient countries and to former or prospective participants' enterprises, in order to broaden their experience and to give them greater appreciation of technical and physical conditions of work. Where feasible the staff members should be employed as consultants or trainers for such missions, so that the basic costs are met from project or other sources, but the Austrian Government may wish to finance all or part of some familiarisation missions separately.

Presentation of information

177. Recommendation 19. UNIDO should ensure that information about Austria-sponsored programmes and workshops is correctly and consistently presented in the annual "Directory of Training

Opportunities" and other circulars. (It is understood that IHRD Branch has this matter in hand.)

178. Recommendation 20. UNIDO should give further consideration to the titles of the programmes and workshops. In particular the phrase "in-plant" should be dropped; unless the programmes are given training objectives as recommended above the word "training" should also be dropped. The use of "training programme" and "workshop" should be consistent with the definitions given in the "Directory of Training Opportunities", and this in turn should be consistent with any terminological authority in use in UNIDO, and preferably elsewhere in the U.N. system. (Given the multiple uses of the word "programme" the phrase "training workshop" might be considered for all the three activities under discussion - if it does not have some other specialised use.¹⁶)

179. Recommendation 21. UNIDO, in collaboration with the HTOs, should redesign the aide-mémoire in the form of a programme (or workshop) prospectus, making use of modern design, illustration and reproduction techniques. Background information and any other text not strictly necessary should be eliminated. The term "aide-mémoire" should be dropped.

180. Recommendation 21. HTOs should enhance the appearance of the weekly programmes and other documents issued to participants. Due attention should be paid to the use of English and to proof-reading.

UNIDO organisation and procedures

181. Recommendation 23. UNIDO should re-examine the role of IHRD Branch in relation to the programmes and workshops sponsored by Austria. This branch should be in a position to contribute professional expertise to the design of the training system of which the programmes and workshops form parts, and, in collaboration with the HTOs, to the design of the programmes and workshops themselves.

182. Recommendation 24. Since the present "Man-made Fibres" training programme covers a range of textile-industry operations and is concerned with blends with natural fibres relations on technical matters between UNIDO and the HTOs concerned (ÖCI and HBLVAT) should be handled by the Agro-based Industries Branch to ensure co-ordination with UNIDO's other textile-industry activities.

183. Recommendation 25. In the contracts between UNIDO and the HTOs the work to be performed by the latter should be described with greater precision. The details in any preliminary agreement

¹⁶The word "training" could be dropped if it would really deter senior managers or officials from applying; but dropping this word should not provide a reason for relaxing the objectives or methodology of the workshop.

between an HTO and the Austrian Government should form an integral part of the contract. Furthermore the HTO should be required to report its performance in a form which corresponds to the contract and can thus be readily checked. The number of copies should be reduced as far as possible.

184. Recommendation 26. The HTO should also submit a brief commentary to UNIDO on completed programmes, highlighting particular novelties, successes, difficulties etc. (The PER/GT is intended to provide a schematic opportunity for such comments, but is not perceived as such. See also Recommendation 13.) If an HTO (as in the case of LKT-TGM) wishes, for its own purposes, to publish a further report which emphasises the role of UNIDO, the report should be submitted to UNIDO for clearance before publication.

185. Recommendation 27. The Government of Austria and the Federal Economic Chamber may wish to restate their requirements for reports by UNIDO on the programmes and workshops which they sponsor. While comprehensive records should continue to be kept UNIDO should not write any report except as required by the sponsors.

Role of field offices

186. Recommendation 28. As indicated in Recommendations 3, 12 and 16 UNIDO Country Directors and Programme Officers in UNDP field offices should play a greater role than hitherto in identifying training needs, filtering applications and evaluating results. In order to reduce the volume of work involved it will be necessary to develop concise and schematic systems. The systems may be usable for programmes other than those sponsored by Austria and indeed by promoters of training programmes other than UNIDO. UNIDO may thus wish to discuss the role of field offices in connection with training programmes on an inter-agency basis.

First steps

187. Recommendation 29. On the basis of experience and information readily available UNIDO should appraise needs in the areas of expertise of the Plastics Technology and Man-made Fibres HTOs and select more limited subjects for training programmes to be offered this year. The following are suggestions¹⁹ for the kind of restricted subject which might be considered:

¹⁹but not recommendations. The evaluation did not have the function of a needs identification mission and the wider experience of the substantive branches of UNIDO should be brought to bear on actual subject selection. For example quality assurance when using man-made fibres may not differ from quality assurance when using natural fibres only, and this in turn may already be covered by other courses.

Introduction to plastics manufacturing: a training workshop for engineers assuming responsibility for the manufacture of plastic products. (? 6 weeks)

New techniques and equipment in injection moulding: a specialised training workshop for engineers with experience of the manufacture of plastic products by injection moulding. (? with mould design and handling. ? 4 - 6 weeks)

Man-made fibres: a review of recent development in fibres and textile applications: a training workshop for textile engineers. Particularly indicated for engineers who expect to introduce man-made fibres into textile production in the near future. (? 5 weeks)

Quality assurance in textile manufacturing with man-made fibres: a specialised training workshop for experienced textile engineers. (? 3 -4 weeks)

In regard to the two "MMF" suggestions it would be essential to consult Agro-industries Branch at least to ensure that there is no duplication with their programmes, but preferably to elicit their positive advice.

188. Recommendation 30. Once a decision is made on subjects ensuing work on training objectives and programme design can be initiated.

189. Recommendation 31. Preliminary re-editing of the "aide-mémoire" could be tackled without delay. As a first step all or most of the historical background could be jettisoned, and greater prominence given to the subject and target participants.

VIII. LESSONS LEARNED

The importance of a professional approach to training

190. The principal theme of this report is the importance of the identification of training needs, an essential component of an effective training system; this will apply to all UNIDO's training programmes, and to seminars and workshops which have a training function. Training system design does not fall within the professional scope of industrial development officers, who are specialised in various kinds of industrial production, but not in industrial training. The application of professional capability in training design - and implementation - would complement the knowledge and experience of the industrial development officers. This point could be examined in relation to other UNIDO training activities.

191. It is common practice within the U.N. system to treat fellowship management as an administrative matter which requires no professional consideration once a nomination form has been despatched by the CTA or project director or equivalent, at least until it reaches the host country agency or training organisation. Applications for UNIDO training programmes are thus treated administratively by UNDP and UNIDO field offices. While this approach persists it is all the more important that within UNIDO headquarters training management is recognised as a professional activity, not simply a matter of ordering air tickets and other administrative details. Officials in field offices are of course (a) busy and (b) jacks-of-all-trades, but it is much to be hoped that they too will come to give some professional attention to training matters, under guidelines from Vienna.

192. It might be said - in fact has been said in relation to evaluation in the field - that there is no money available for what might be thought a perfectionist and luxurious approach to training design, incorporating much field work as it does. Certainly a reallocation of funds is likely to be necessary, perhaps resulting in a lower volume of training, but the quality of the results might well be much improved.

193. The danger might arise that by concentrating on defined needs and measurable results the less easily identifiable affective benefits of training programmes would come to be ignored or discarded. (Examples of such benefits are acquisition of confidence, general widening of experience, appreciation of high working standards and conditions.) These contingent benefits should certainly not be ignored, but neither should they constitute a reason for not giving high priority to the achievement of observable and measurable improvements and thus maximising the chances of utility and cost-effectiveness.

The relationship of projects and training programmes

194. The position of project documents on the sidelines of these activities, rather than in a pivotal position, makes it difficult, and not very useful, to assess how they ought best to relate to or incorporate a training proposal. The view is held within UNIDO that the project approval system as applied to group training programmes is tiresome and overweight and that it ought to be simplified, perhaps by having one document cover three years' programmes, or by having an altogether simpler document to establish expenditure approval. The virtually opposite view is taken in this report, viz. that the project document constitutes the best method of controlling technical cooperation activities so far devised and that it should be restored to its central position: it ought to be the project document that justifies running a training programme at all (rather than tackling the identified need with some other kind of activity, or not at all). The applicability of the particular headings of the standard project document to international activities is not however certain, and in UNIDO at least certain changes, e.g. the elimination of the development objective, have already been introduced. The relationship of project objectives with training objectives may not always be clear. Further study is needed on these points, if, that is, the project document is indeed given renewed importance. The actual procedure for writing, appraising and approving documents would equally need attention, and the number of steps and signatures and the volume of paper should be reduced as far as possible. The question of course concerns programmes and workshops other than these Austria-sponsored ones under evaluation.

Evaluation

195. The present evaluation has taken a long time and has been costly; it would certainly not be feasible to undertake this kind of exercise very often - nor ought it to be necessary. It has already been stated in this report, and is implicit in a properly conducted training system, that evaluation should be field-based and should provide continuous feed-back. Field missions for other purposes should be exploited for evaluation whenever feasible, and project evaluation missions should pay specific attention to project counterparts who have participated in UNIDO training programmes. All the same special evaluation missions will probably continue to be necessary from time to time.

196. For future evaluation missions it might be preferable to concentrate on a single professional or technical specialisation, and to add a corresponding specialist to the evaluation team. A third team member, as in normal project evaluations, would also be desirable both to provide an additional viewpoint and to spread the workload further. It may of course be difficult to set up this sort of arrangement if programmes in a single professional area are financed by more than one sponsor.

197. When it comes to drafting the TOR for future evaluation missions for training programmes careful thought should be given to the relative importance of results compared with, say, methodology or procedure, in order to avoid overloading either the mission or its report. Indeed it might be desirable to conduct separate evaluations of methodology or of UNIDO procedures across the full range of UNIDO training programmes.

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Joint UNIDO/Government of Austria evaluation of
Group Training Programmes and Workshops
organized by UNIDO in co-operation with
the Government of Austria

TERMS OF REFERENCE (2nd revision)

1. Background

1.1 Each year UNIDO offers over 85 group training programmes in various technical and industrial subjects, each for about 15-20 participants from developing countries. The programmes are run in a number of European countries and in some countries elsewhere; they are individually financed by a number of donor countries and multilateral aid agencies.

1.2 In this context, UNIDO has organized seventeen annual group training programmes on the subject of man-made fibres and twenty-one annual group training programmes on plastics technology (including the 1990 programmes), all with the financial support of the Government of Austria and the Austrian Federal Economic Chamber.

1.3 In addition, UNIDO has organized seven workshops on various aspects of petroleum refinery operation between 1981 and 1990. All have been financially supported by the Government of Austria; the first four were also supported by the OPEC Fund for International Development.

1.4 All the programmes and workshops have been carried out in Austria by Austrian host training organizations (HTOs).

- The Man-Made Fibres programmes have been conducted by the Höhere Bundeslehr- und Versuchsanstalt für Textilindustrie (HBLVAT) (Higher Federal Training and Research Centre for the Textile Industry) and in the last three years by the Österreichisches Chemiefaser-Institut (ÖCI) (Austrian Man-Made Fibre Institute).
- The Plastics Technology programmes have been conducted by the Laboratorium für Kunststofftechnik (LKT-TGM) (Laboratory for Plastics Technology).
- The Petroleum Refinery Workshops have been carried out by Österreichische Mineralölverwaltung AG.

1.5 Within UNIDO, the Chemical Industries Branch and the Industrial Human Resource Development Branch (IHRD), both in the Department of Industrial Operations, are responsible for

administration, monitoring and (in collaboration with the Evaluation Staff) evaluation. UNIDO's Area Programme Division is responsible for drafting and obtaining approval of project documents.

1.6 Terminal evaluations are carried out by means of discussions and questionnaires in respect of each programme and workshop. The evaluation procedure has been further developed over the years by the Evaluation Staff, through the introduction of a group training project evaluation report (PER/GT). The Evaluation Staff examines and comments on the quality of the report prepared by the Host Training Organization, IHRD and the technical branch. The information derived from these evaluations is taken into account when the following programmes and workshops come to be designed. However the basic design, implementation and results of these programmes and workshops have not been the subject of independent in-depth evaluation; in particular, evaluation which incorporates contact with former participants has not been undertaken. The professional experience of former participants in the months and years after their programmes, which should constitute an important component of the feedback link in the training system, is thus missing.

1.7 UNIDO and the Government of Austria have accordingly decided that an in-depth evaluation of these programmes and workshops should be undertaken in three phases between October 1990 and February 1991 and that the evaluation will be designed by the Evaluation Staff with the collaboration of the Government and in consultation with the Chemical Industries Branch and the Industrial Human Resource Development Branch.

1.8 Four other group training programmes, financed by the UNDP/USSR Trust Fund and conducted in the USSR, were evaluated in 1987/1988. The report and recommendations of this in-depth evaluation were found to be useful inputs to the development of the design and implementation of later programmes in the same series. A similar evaluation approach will be followed for this evaluation.

2. Scope and purpose of the evaluation

2.1 Scope: The evaluation will examine the design, implementation and results of the Man-Made Fibre and Plastics Technology Programmes and the Petroleum Refinery Workshops which have been held in the period 1981 to 1990. A total of 422 participants from 76 countries attended the programmes from 1981 to 1990 inclusive.

2.2 Purpose: The evaluation is intended to enable UNIDO, the Government of Austria and the HTOs to better design and implement efficient and effective training programmes and workshops for participants from developing member countries of UNIDO, which have a maximum impact at the participant's place of work. Alternative training approaches will also be reviewed.

3. Issues to be covered

3.1 The principal issue to be addressed by the evaluation is the extent to which participants have been able to make productive use of the knowledge and skills acquired during their programmes or workshops and to transmit their knowledge and skills to others. It will be important to identify the conditions in which the knowledge and skills are or are not effectively applied or transmitted. These conditions may include: the duties of the participant; his or her personal or organizational ability to influence decisions; the number of participants from the same organization or enterprise; the operational or financial autonomy of the organization or enterprise and its position in the public, parastatal or private sector; its size and technological level; the stage of economic and technological development of the participant's country; the nature of its economic management (centrally planned, mixed or market). This list is not exhaustive: other conditions may be identified.

3.2 The evaluation should also examine and assess:

- The policy for selection of countries to be invited and the procedure for publicizing programmes and workshops within the selected countries;
- The methods of recruitment and selection of participants by government departments or other organizations and by UNDP or UNIDO representatives in invited countries, and the complementary selection methods practised by UNIDO and HTOs.

3.3.1 The design of the programme and workshops should be examined with particular reference to their objectives. The project documents through which programmes and workshops are financed should similarly be examined. Evolution of objectives and other aspects of programme and project design should also be assessed.

3.3.2 The relationship between the project documents, aide-mémoire and operational descriptions of training objectives and content should be examined and the complementarity and precision of the various documents should be assessed.

3.4 The content and methodology of the programmes and workshops should be assessed in relation to training objectives. Particular attention should be given to: establishment of individual training needs and the response to these needs; the proportion and nature of active work undertaken by participants; the volume and pressure of work as perceived by participants and by training staff; and progressive checks on participants' understanding and skill. Any repeated or persistent problems with language should be noted.

3.5 Any common problems concerning administrative or logistic support of participants should be identified. (These may be related, inter alia, to notification of selection, travel arrangements, financial arrangements, food, accommodation, leisure time.)

3.6 Monitoring and evaluation procedures and their effectiveness as feedback to training design and implementation should be assessed.

3.7 The evaluation team will draw up conclusions and make recommendations directed to the purpose of the evaluation.

4. Report

4.1 The evaluation report should be written in English and should adopt the following main headings:

1. Summary of conclusions and recommendations
2. Background to the evaluation
3. Design and documentation
4. Implementation
5. Results
6. Conclusions
7. Recommendations
8. Lessons learned

Annexes: I. Terms of Reference
 II. Evaluation team
 III. Work programme and itinerary
 IV. Persons consulted
 (other annexes ad lib.)

4.2 The evaluation team's report will be submitted to the Director-General of UNIDO and to the Austrian Government. The evaluation team may be required to make one or more oral presentations.

5. Evaluation team and working programme

5.1 The evaluation will be carried out by a core team comprising one representative of UNIDO and one representative of the Government of Austria. The work will take place in three phases, the first in Vienna while the 1990 programmes and workshops are in progress, the second in a number of developing countries and the third in Vienna, for report completion. While in Vienna, the core team will be assisted by a consultant specialized in the subject matter of each of the three areas of study. Neither the members of the core team nor the specialized consultants should be directly involved with the programmes or workshops.

5.2 The detailed timetable and itinerary of the evaluation are attached as Appendix A. They are subject to the approval of the authorities and former participants' employers in the

developing countries concerned and may also be modified for administrative or logistic reasons. A total of 104 participants, or 24.6% of the total, came from the seven countries to be visited during the period 1981 to 1989 inclusive. It is not expected that the evaluation team will be able to meet all of them.

5.3 While in Vienna, the evaluation team will maintain close liaison with the Evaluation Staff of UNIDO and the Directors of the HTOs, and, in the countries to be visited subsequently, with the UNIDO and/or UNDP representatives who will arrange the team's programme of visits and interviews.

5.4 Although the evaluation team should feel free to discuss anything relevant to the evaluation with officials and others concerned, it is not authorized to make any commitment on behalf of UNDP, UNIDO or the Government of Austria.

Appendix AWORKING PROGRAMME AND ITINERARY OF THE EVALUATION
(as originally planned)Phase 1

- | | |
|------------|--|
| Mon 22 Oct | 1. Briefing, interviews, desk research at UNIDO headquarters. |
| to | 2. Discussions with Austrian authorities and sponsoring organizations. |
| Fri 9 Nov | 3. Discussions with directors, staff and participants in the three current programmes. |
| 1990 | 4. Observation of programmes. |
| | 5. Preparations for Phase 2. |

Phase 2 - Interviews with former participants and their supervisors, government officials and UNIDO/UNDP officials in selected countries

- | | |
|--------------------|--|
| Mon 7 Jan | Interviews with former participants and their supervisors, employers, government officials and UNIDO/UNDP officials in Yemen, Thailand, China, Vietnam, Mauritius, Tanzania and Uganda* (subject to confirmation). |
| to | |
| Wed 13 Feb 1991 | |

Phase 3

- | | |
|--------------------|--|
| Thu 14 Feb | Report completion and presentation at UNIDO headquarters |
| to | |
| Wed 20 Feb 1991 | |

*Later a decision was taken that the Austrian Government team member would visit Ethiopia, from 13 to 16 February 1991, to interview former participants.

Evaluation team

1. **Mr Charles Manton**, UNIDO Consultant, worked on all three phases of this evaluation and travelled to the all countries listed in Annex 3, except Ethiopia. He also wrote this report and is responsible for the views expressed in it.
2. During Phase 1 Mr Manton was advised, and accompanied during visits to Host Training Organisations, by **Mr Werner Pilz** of the Austrian Department for Development Cooperation.
3. The evaluation also benefited from the advice of **Dipl.-Ing Gottfried Steiner**, Head of Research and Development in Plastics Technology for HTM Sport- und Freizeitgeräte GbmH, and lecturer in plastics technology at Leoben University. Mr Steiner assessed the technical content of the UNIDO programme and the quality and comprehensiveness of LKT's facilities.
4. During the field mission to Tanzania and Uganda which formed the latter part of Phase 2 Mr Manton was accompanied and advised by **Mrs Brigitte Dekrout**, Head of Evaluation and Controlling in Austrian Department for Development Cooperation. Mrs Dekrout also travelled on her own to Ethiopia to interview participants.

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Work programme and itineraryPhase 122 October to 9 November 1990

Interviews and desk research at UNIDO headquarters; discussions at Ministry for Foreign Affairs and Federal Economic Chamber; discussions with programme and workshop directors and staff and with participants in the 1990 programmes and workshop; observation of programmes and workshop; preparations for Phase 2.

Phase 212 January to 13 February 1991

Discussions with former participants, UNIDO Country Directors and Programme Officers, UNDP officials, government officials, Austrian Trade Representatives and other persons concerned with the programmes and workshops.

| | | <u>Team Member</u> |
|---------------------------|-----------|--------------------|
| <u>14 to 21 January:</u> | Thailand | Manton |
| <u>25 to 30 January:</u> | Vietnam | Manton |
| <u>1 to 2 February:</u> | Mauritius | Manton |
| <u>4 to 9 February:</u> | Tanzania | Manton/Dekrout |
| <u>11 to 12 February:</u> | Uganda | Manton/Dekrout |
| <u>13 to 16 February:</u> | Ethiopia | Dekrout |

Phase 318 to 22 February 1991

Report completion and final discussions at UNIDO headquarters

Persons consulted

Participants in the 1990 programmes and workshop

Mr Werner Pilz
Ministry for Foreign Affairs
Government of Austria

Dr H. Rampitsch
Federal Economic Chamber

Mr K. Laaber
Federal Economic Chamber

Dr H. Hubeny
Director, LKT-TGM

Ms W. Michel
Assistant Programme Director, LKT-TGM

Dr J. Lenz
Österreichisches Chemiefaser Institut

Prof. Dr. L. Machherndl
HBLVATI

Dr P. Schrefl
HBLVATI

Mr J. Maier
Head, Maintenance Department
ÖMV Refinery, Schwechat

Mr H. Miglitsch
Head, Inspection Department
ÖMV Refinery, Schwechat

Mr O. Hornasek
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ÖMV Refinery, Schwechat

Mrs A. Tcheknavorian-Asenbauer
Director, Industrial Operations Technology Division
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Mr V. Bysyuk
Industrial Development Officer
Chemical Industries Branch
UNIDO

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Chemical Industries Branch
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Mr M. Youssef
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Chemical Industries Branch
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Mrs U. Schandl
Chemical Industries Branch
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Mr O. Gonzalez-Hernandez
Head, Evaluation Staff
Office of the Director General
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Mr H. Heep
Senior Evaluation Officer
Evaluation Staff
Office of the Director General
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Thailand

Former participants

Mr Chuchate Chaisudhiphongsul
PVC Pipe Production Section Head
The Siam Fibre-Cement Co. Ltd.
(Plastics 1987)

Mr Anusak Intiyanaravut
Petroleum Authority of Thailand
(Refinery 1984)

Mr Sonchai Pinyo
Quality Control Senior Manager
Thai Plastic and Chemical Co. Ltd.
(Plastics 1984)

Mr Payong Padanupong
Kurusapha Press
(Plastics 1983)

Mr Salee Patcharat
Maintenance Engineer
BP Oil (Thailand) Co. Ltd.
(Refinery 1986)

Mr Syamrath Suthanukul
Planning Office, Pulp and Paper Group
The Siam Cement Co. Ltd.
(Plastics 1986)

Mr Songkram Thamagasorn
Director
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Ministry of Industry

Ms Achariya Tepatanapong
Foreign Relations Division
Ministry of Industry

Mr Satit Sirirangkamanont
Textile Industry Division
Department of Industrial Promotion
Ministry of Industry

Ms Lalita Kitkrailard
Standard and Quality Sub-Division
Textile Industry Division
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Mr Sirichai Pothitapana
Chief of Industrial Development Sub-Division
Industrial Service Division
Department of Industrial Promotion
Ministry of Industry

Mr Aran Wasantakorn
Engineer
Industrial Service Division
Department of Industrial Promotion
Ministry of Industry

Mr Virat Tandachanurat
Chief of Workshop Sub-Division
Machinery Industries Development Institute (MIDI)
Department of Industrial Promotion
Ministry of Industry
(Chairman of Thai Tool and Die Industry Forum)

Mr Soodsakorn Putho
 Industrial Counsellor
 Royal Thai Embassy, Vienna

Dr Franz Schröder
 Commercial Attaché
 Austrian Embassy, Bangkok

Mr Nils Ramm-Ericson
 UNIDO Country Director, Thailand

Mr Roeland Korsat
 UNIDO Programme Officer, Thailand

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Vietnam

Former participants

Ms Le Thi Phan
 Head of Quality Control
 Sao Vang Rubber Products Company
 (Plastics 1987)

Ms Hoang Quynh Kha
 Head of Planning and Technical Section
 Synthetic Paint and Printing Ink Factory
 (MMF 1989)

Ms Tran Thi Hanh
 Chemical Fibre Engineer
 General Chemical Company No. 2
 (MMF 1990)

Mr Quang Tran Han
 Research Engineer
 Institute of Industrial Chemistry
 (Plastics 1983)

Mr Nguyen Cong Thu
 Research Engineer
 Institute of Industrial Chemistry
 (MMF 1986)

Mr Cao Tien Huynh
 Director General
 CAPIT Company
 Vietnam Oil and Gas Corporation
 (Vice-Chairman, Vietnam National Scientific
 Program "Automation")
 (Refinery 1990)

Mr Le Dang De
Director, Spinning Department
Textile Research Institute
(MMF 1985)

Ms Hoang Xuan Lai
Spinning Engineer
Textile Research Institute
(MMF 1987)

Mr Duong Phuong Hong
Vice-Director
Plastics Enterprise No. 6
Union of Plastics Enterprises
(Plastics 1988)

Mr Le Huong Duong
Head of Materials Research Laboratory
Plastics Technology Centre
Union of Plastics Enterprises
(Plastics 1990)

Mr Huynh Sau
Vice-Director and Head of Processing Department
Plastics Technology Centre
Union of Plastics Enterprises
(Plastics 1988)

Mr Nguyen Huy Chong
Deputy Director
Foreign Economic Relations Department
Office of the Council of Ministers

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Department for Multilateral Economic and
Cultural Co-operation
Ministry of Foreign Affairs

Mr Pham Hong Nga
Ministry of Foreign Affairs

Mr Nguyen Luu Nghia
Ministry of Light Industries

Mr Nguyen Xuan Xuong
Ministry of Light Industries

Mr Tran Van Dac
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State Committee for Sciences

Mr Tran Viet Man
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State Committee for Sciences

Mr Mai Huu Dua
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State Committee for Sciences

Mr Do Van Loc
Specialist in R & D Management
Department of Industrial Development
State Committee for Sciences

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Mr Chu An Lai
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Ms Luong Bach Van
Director
Plastics Technology Centre

Mr Tran Trong Phung
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Mauritius

Former participants

Mr Jacob Pin Harry
Manager
Plastic Industry (Mtius) Ltd
(Plastics 1982)

Mr Georges Sheng Chun
Director
Paris Shoes Ltd
(Plastics 1983)

Mr Marcel Chowmah
Public Relations Officer
Ministry of Industry and Industrial Technology

Ms Ase Smedler
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Tanzania

Former participants

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Lube Oil Blending Plant
Agip (Tanzania) Ltd
(Refinery 1990)

Mr Thomas Masili
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(Refinery 1982)

Mr Yusuf O. Mlungura
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Mr Maliki R. Said
Senior Textile Technologist, Spinning
National Textile Corporation (TEXCO)
(MMF 1989)

Mr Clement N. Mzava
 Production/Quality Controller
 Kilimanjaro Textile Corporation Ltd, (KILTEX),
 Arusha
 (A TEXCO company)
 (MMF 1984)

Mr Edward J. Ngomuo
 Proprietor of small spinning and weaving
 enterprise, Arusha
 (MMF 1981)

Mr Ernest Mbago
 Textile Standards Officer
 Tanzania Bureau of Standards
 (MMF 1983)

Mr Charles Y. Senkondo
 Factory Manager
 Anche Mwedu Ltd
 (Plastics 1989)

Ms R.L. Mlaki
 Production Controller
 Tanganyika Tegry (Plastic) Ltd
 (A National Chemical Industries company)
 (Plastics 1990)

Mr E.M. Hanti
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 Ministry of Industries and Trade

Mr Dismas A. Fuko
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Mr Thomas A.K. Nara
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 Tanzania Petroleum Development Corporation

Mr G. Mayaka
 Manpower Development Officer
 TIPER

Mr Angelo Mori
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 AGIP (Tanzania) Ltd

Mr E.M. Banduka
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 TEXCO

Mr S.A. Sadallah
Director, Manpower Development and Administration
TEXCO

Mr Adam Zuku
Mill Manager
KILTEX, Arusha

Mr B. Sagatwa
Technical Manager
KILTEX, Arusha

Mr Aloyce Godfrey
Personnel Department
KILTEX, Arusha

Mr Faustin Masaga
Senior Standards Officer
Tanzania Bureau of Standards

Ms Joyce Luhanga
General Manager
Anche Mwedu Ltd

Mr K.J. Kunolilo
General Manager
Tanganyika Tegry (Plastics) Ltd
(Participant in Plastics programme c. 1979)

Mr Charles Mamuya
Factory Manager
Tanganyika Tegry (Plastics) Ltd
(Participant in Plastics programme 1973)

Mrs Olive D. Luena
Manpower Development and Administration Manager
Tanganyika Tegry (Plastics) Ltd

Mr T. Vissers
Deputy Resident Representative
United Nations Development Programme

Mr A. Krassiakov
UNIDO Country Director

Mrs Elly Mlay
Programme Assistant, UNIDO

Mr V.I. Akim
Project and Programme Assistant, UNIDO

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UgandaFormer participants

Mr Eddie Senkumba
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 House of Plastics
 Ship Toothbrush Factory Ltd
 (Plastics 1986)

Mr John Katumba
 Production Manager
 House of Plastics
 Ship Toothbrush Factory Ltd
 (Plastics 1990)

Mr Edward Kadumakasa
 Production Director
 Nyanza Textile Industries Ltd (NYTIL)
 (MMF 1983)

Mr Michael Mudumi
 Assistant Manager, Spinning
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 (MMF 1986)

Mr Emanuel Ntandayarwo
 Head of laboratories
 NYTIL
 (MMF 1987)

Hon. Elly K. Rwawakooko MP
 Chairman
 Nyanza Textile Industries Ltd

Ms Barbara Mulwana
 Director
 House of Plastics
 Ship Toothbrush Factory Ltd

Dr Simon Kagugube
 General Manager, Finance
 House of Plastics
 Ship Toothbrush Factory Ltd

Mr A. Udo
 Deputy Resident Representative
 United Nations Development Programme

Mr B. Larsen
 UNIDO Programme Officer

EthiopiaFormer participants

Mr Yifru Fikre
Deputy General Manager
Development
Ethioplasic
(Plastics 1982)

Mr Workneh Tigabe
Head, Technology and Production Department
National Chemical Corporation
(Plastics 1989)

Mr Shiferaw Worku
Salt Plant Manager
National Chemical Corporation
(Plastics 1986)

Mr Haile Georgis Mulugeta
Production Manager
Ethioplasic
(Plastics 1981)

Mr Gebre Michael Tewelde
Production Head
Ethioplasic
(Plasticss 1987)

Mr Fesfu Fanfaye Tesfu
Senior Instrumentalist Specialist
National Chemical Corporation
(Plastics 1988)

Mr Kebede Minassie
Spinning Manager
Dire Dawa Textile Factor
(MMF 1989)

Mr Beyene Sahle
Head/Acrylic Spinning Mill
Dire Dawa Textile Factory
(MMF 1981)

Mr Girmaye Eshetu
Production Manager
Ethio-Japanese Synthetic Textiles S.C.
(MMF 1985)

Mr Ladjeso Taddele
Finishing Section Head
Ethio-Japanese Synthetic Textiles S.C.
(MMF 1986)

Mr Habtewold Mesfin
Unit Chief, Finishing Department
Ethio-Japanese Synthetic Textiles S.C.
(MMF 1987)

Mr Mulu Tilahum
Acting Deputy General Manager
Ethiopian Petroleum Corporation
(Refinery 1988)

Mr Wondinu Worku
General Manager
National Chemical Corporation

Mrs Shijerow Messeret
General Manager
Ethio-Japanese Synthetic Textiles S.C.

Mr Zerai Menassie
Head, Administration Department
National Textiles Corporation

Mr Hailu Teferri Gelahun
Head, Manpower and Training Department
National Textiles Corporation

Mr Assefa Demissachew
Head, Planning and Project Development
Ministry of Industry

Mr Amara
Section Head, Manpower Training
Ministry of Industry

Dr Peter Manoranjan
UNIDO Country Director, Ethiopia

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Questions to former participants

The mission used the following list of questions as a guide to their interviews with former participants. The questions were not necessarily put in the order or in the exact words shown. Some were followed up with supplementary questions. Not all questions were put to all the participants interviewed.

Interviews were kept as informal as possible, and participants were encouraged to speak freely.

1. Which programme did you attend and when ?
2. What were your professional qualifications at that time ?
3. What enterprise or organisation did you work for then, and what was your position in it ?
4. What kind of enterprise or organisation was it ?
Manufacturing, process, research, training, advisory, government department, other. Independent, privately owned, parastatal, government.
5. Are you still with the same organisation or enterprise ?
6. If so, what is your position in it now ?
7. If not, what enterprise or organisation do you work for now, what kind is it, and what is your position ?
8. Concerning your programme in Austria, has it had any influence on your personal and professional development ?
9. Have you been able to apply knowledge or skills acquired during the programme ?
10. Can you give us an example of a specific technical change (new process, new product, new procedure, new equipment) which has been introduced by or through your enterprise or organisation on the basis of information acquired during the programme ?
11. If the answer is no, why not ? Did the programme not set out to give you the kind of information you could use in practice ? Was the programme content irrelevant to your work ? Lack of financial or other resources ? Lack of interest on the part of decision-making authorities in your enterprise or organisation or elsewhere ?
12. Did you go to Austria with any particular technical problem for discussion there ? If so, did you come away

with a solution ?

13. Did you have an opportunity for individual consultations during the programme ? If so, were they connected with the technical questions mentioned in 12, or with questions arising during the programme, or both ?
14. Have you had any subsequent contact with UNIDO, the host training organisation, Austrian enterprises, Austrian trade representatives in your country, participants from other countries ?
15. Have you attended any further formal courses of training or education since your programme in Austria ? If so please give details.
16. What was the principal benefit you derived from the programme ?
17. What good points and bad points stick in your mind concerning the programme in Austria ?
18. How much of the subject matter of the programme has proved useful to you ?
19. Was the duration of the programme about right, too long, or too short ?
20. Do you think the information was well presented, in lectures, demonstrations and study visits ?
21. Were factory visits interesting ? Were they also useful ?
22. Did you have enough work to do ? Did you get enough practical work, in the form (for example) of manual work or operation of machines, drawing or planning work, or report writing ?
23. Were there any language difficulties ?
24. Were there any tensions or difficulties within your group caused by divergent technical interests ?
25. Have you conducted any formal training on the subject of the programme since you attended it ? If so please give information. (Numbers, standard, frequency, duration, method.) If no, why not ? (Not part of your duties, lack of opportunity, lack of superiors' interest, lack of your own confidence ?)
26. Would you have found lessons on training management and methods useful ?
27. Were you given reference or training material during the programme ? If so have you made use of it for reference or training ?

28. When you returned from Austria did you have technical discussions with your superiors or colleagues at which you set out information or ideas acquired in Austria ?
29. Have you or has anyone else in your organisation or enterprise attended other training or fellowship programmes organised by UNIDO in countries other than Austria ?
30. Was your enterprise/organisation receiving international technical assistance from UNIDO or other organisations at the time of your programme, or before or since ?
30. Have you any recommendations for improvements in the kind of programme you attended ?
31. Would you recommend your colleagues or others to attend a similar course ?
32. Were you satisfied with the information you received about the programme at the time you submitted your application, and did your experience in Austria correspond with the information ?
33. How did you hear about the programme ? Who suggested or decided that you should apply for it ?

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