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United Nations Industrial Development Organization

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Meeting of In-Plant Group
Training Directors

Vienna, 2 - 6 September 1974

ANNOTATED PRCVISIONAL AGENDA

AND

PROPOSED ISSUES FOR DISCUSSION

Item 1.   <u>Opening Address</u>

Item 2.   <u>Election of Officers</u>

The meeting shall elect a Chairman, a Vice Chairman and a
Rapporteur.

Item 3.   <u>Adoption of the Agenda</u>

Item 4.   <u>Introduction of subjects to be discussed</u>

The UNIDO Secretariat will give a short review of the
innovations introduced since February 1972, when the previous
meeting of In-plant Group Training Directors was held, will
present the status of the UNIDO In-plant Group Training
Programmes and give an introduction of subjects to be dis-
cussed.

Item 5.   <u>Organization of actual In-plant training studies</u>

1. The practical training is the most essential part of the
in-plant group training. Participants are getting ac-
quainted with the subject studied in an actual industrial
environment. The objective of this phase of the training
is not confined to increasing the knowledge of the
participants; it is intended to modify the participant's
attitude towards actual industrial problems and to provide
them with the opportunity to develop the skills to solve
these problems.

2. The most ideal condition to carry out in—plant studies
is where a participant could be given training assign-
ments which are identical or have a close resemblance to
his present or future work. It is, however, realised that
this will not be fully possible, because of a different
professional background of the participants on the one
hand, and the difference of social, cultural and tech-
nological conditions between host and home countries on the
other.

id.74-5450

3. The in-plant training phase is carried out in teams or in allowable circumstances, individually. The number of instructors/tutors and, if so required, interpretors, is proportional to the number of teams. In those host countries where the language of instruction is widely known in industry, participants can be entrusted to work and study for longer periods independently without continuous contacts through tutors/interpretors In organizing the in-plant training phase, it will be required to find the optimum solution, not only in respect to the number of teams, but also to team composition. In order to reach this optimum for several programmes, the "team specialization" is decided in advance and announced in the Aide Memoire. Candidates, in completing their application forms, already indicate their interest, and during the selection meeting and the final preparation, the design of the in-plant training phase, including team composition, is already taken into account.

(1) The meeting is invited to discuss to what extent it is possible to give participants actual study assignments. How will it be possible to encourage "active participation" of participants, rather than let them "observe passively"? What can be done in the field of simulation?

In discussing this item it will be essential to keep the objective of the training programmes in mind, namely "upgrading of the participant's knowledge and providing them with an opportunity to obtain practical experience".

Item 6. **Organization of In-Plant Group Training Programmes in Industrialized and/or in Developing Countries.**

In the annotated agenda of the Meeting of In-plant Training Directors in February 1972, the following has been stated.

4. "A principal justification for the training abroad of certain categories of middle and higher level personnel of developing countries lies in the fact that certain conditions essential for such training more generally prevail in developed countries than in developing countries. These conditions are:

- the systematic practice of advanced training of persons in employment;

- the use of relatively advanced technologies;

- recourse to developed managerial techniques;

- existence of milieux favouring innovation, taste to risk, sense of achievement, etc.

Training carried out in this type of environment in which the trainee is exposed to a substantially different milieu normally results in a number of important benefits over and above the technical skills acquired; these include formation of a more open mind, greater receptivity to innovation and change, and introduction to techniques seen as possible

vehicles for change rather than as ends in themselves. 1/"

5. "The above positive consideration may be offset by certain negative ones such as:

- the technologies used in the host country are too sophisticated to be used in the home countries of the participants;

- the participant may have difficulties to adapt himself to the milieu of the host country;

- the participant may face difficulties in "translating" the newly obtained knowledge and experience into practical applications upon return to his home country.

It may also prove that the training staff in the host country have difficulties in understanding the problems of the participants and consequently are not fully in a position to provide the kind of training to satisfy their training needs."

6. The UNIDO Secretariat has prepared a discussion paper on this subject (ID/WG.186/3).

(2) Discussion is invited on the advantages and disadvantages of different venues of in-plant group training programmes The discussion should take into account to what extent and how the accumulated experience of organizing in-plant group training programmes in industrialized countries could be utilized in organizing such programmes in developing countries.

Item 7. Appropriate technology, environmental aspects and adaptation of programme contents to conditions prevailing in home countries of participants:

7. For the purpose of discussion one can define:

- Technology: technical knowledge and technological know-how, processes, machinery, tools and other equipment, products and their accompanying software.

- "Appropriate" Technology: is the technology which can be applied under prevailing conditions of the country concerned and in actual use is suitable to the overall economic and social environment taking into account such factors; the nature, quality and availability of indigenous raw material; the size and nature of the market; the skill and cost of available labour and the trainability of labour; the cost and availability of capital social value systems and patterns of behaviour; national goals, objectives and plans.

1/ Summary of Finding and Recommendations, UNDP Review Mission on Technical and Management Training for Nationals of Developing Countries in Developed Countries.

8. The concept of Appropriate Technology is unquestionably valid. It is also conceptually simple, but extremely complicated in implementation. The validity of the concept and the difficulty of implementation is evidenced by the multitude of examples (to be found in almost every country throughout the world) of inappropriate applications/choices of technology. Such examples mean waste of resources, misuse of capital and - al. too frequently - frustrations.

9. A brief, and admittedly incomplete, review of evaluation results of a number of in-plant group training programmes suggests that the technology transfer effectiveness of such programmes might be improved by giving attention to such questions as:-

   - to what extent are these technologies learned/observed in the training programme perceived by the participant as dependent upon raw materials, equipment, infrastructures, skills, etc., available/unavailable in the participant's home country?

   - to what extent do the necessary infrastructural conditions in fact exist - regardless of what the participant perceives?

   - to what extent does the training programme encourage the participant to think about and to discuss with fellow participant/instructors the transferability of what he is learning and the problem he might face in applying it? (It is a well-established maxim in the psychology of learning that the more the learner thinks about and/or discusses problems of transferability, the more likely transfer is to occur.)

10. In this context, the environmental aspects are to be considered as an additional aspect of appropriateness, with which the establishment of the United Nations Environmental Programme (UNEP) is becoming more prevalent.

    In one of the recommendations of the Stockholm Conference on the Human Environment, the attention of governments was drawn to the need to adopt the training for the members all professions involved in environmental planning, particularly the training of... "professional people who act directly upon the environment such as engineers, architects, town and physical planners." The recommendation explains further that "it would be necessary to introduce into the existing curricula of training for these professions a set of general notions with advanced training in the environmental management techniques associated with each of the professions concerned." 2/)

11. From 17 - 21 June 1974, the United Nations Educational, Scientific and Cultural Organization (UNESCO), in co-operation with the United Nations Environment Programme, convened in Paris and Expert Meeting on Environmental Aspects

2/ This recommendation is contained in para. 113 of the report of the Secretary-General of the United Nations Conference on the Human Environment on subject area IV: Educational, Information, Social and Cultural Aspects of Environmental Problems.

of Education and Training of Engineers. The preamble of the recommendations derived at this meeting states: "The Meeting felt that the problems brought to their consideration were urgent and of world-wide concern. In particular, the Meeting had the conviction that members of the engineering profession have a clear responsibility to their countries and to the world at large in the safeguard and improvement of the quality of the human environment. This responsibility stems from the role of the engineers as the creator of new technology and as one of the decision-makers on the conditions under which this technology is used for the ultimate progress or destruction of human society."

12. In a further recommendation the meeting states: "Most of the world's practising engineers have been educated at a time when the interactions between engineering works and the environment were less consilered by society than is now the case. Irrespective of the training programmes being developed with the environment in mind for the present generation of students the need is even more urgent for increasing the environmental awareness of practising engineers." 3/

13. UNIDO has in 1973 organized a specific In-plant Group Training Programme on Environmental Aspects of Industrial Development, in co-operation with the government of the United States of America and carried out by the University of North Carolina at Chapel Hill.

     In 1974 UNIDO introduced or will introduce in a selected number of in-plant group training programmes special sessions on environmental aspects.

     (3) Discussion is invited on the aspects of appropriate technology, environmental aspects and adaptation of programmes to the conditions prevailing in the home countries of the participants.

          Will it be required to design the entire training programme that it will suit the conditions prevailing in the home countries of the (majority of the) participants? Should the programme include aspects not (yet) applicable under these conditions and have then special sessions to discuss the applicability as well as the ways and means to introduce newly acquired knowledge and experience under the conditions prevailing in the participants home countries.

Item 8. **Validation (verification of knowledge acquired through the training programmes).**

14. The verification of knowledge acquired through the training could be achieved by different means such as:

     - formal individual examination on (a) selected topic(s);

3/ Proceeding of the Expert Meeting on Environmental Aspects of Education and Training of Engineers......... (not yet published).

- completion of a questionnaire with multiple choice questions;

- individual studies on selected topics;

- preparation of an individual annalysed final report;

- individual discussion with participants;

- presentation of experience obtained by individual or team in (a) plenary session(s) followed by discussion;

- project work followed by presentation and disoussion.

The effectiveness of the verification of the acquired knowledge of the examples given above is in a descending order.

15. As a second objective validation can and should also be used to judge the efficiency of instructors and tutors. The end-programme evaluation (by questionnaire) provides UNIDO and the programme staff with a general overall assessment of the training programmes. In a number of instances, the participants are also requested to give their opinion on the performance of individual instructors. The latter is mainly confined to obtaining the participants views on the presentation by the instructor, his proficiency in the language of instruction and whether the subject was of interest to the participant. In some instances also, the participant's view is sought on the level of the instruction. This information is useful, and should be taken into account when designing a repeated programme. However, it does not provide the required information as to whether a participant has actually been in a position to digest his newly acquired knowledge.

16. Moreover, the training instructor himself should be in a position to judge whether the participant(s) have been able to absorb the new knowledge and experience. While the validation during or at the completion of the training programme provides some insight into the effectiveness of the training, it does (in general) not take into account whether the participant will actually be in a position to apply his newly acquired knowledge upon return home. As he has been abroad for several months, the participant may wrongly estimate the difficulties he expects to encounter in "translating" the newly acquired knowledge into action under conditions which he probably has not fully assessed.

(4) Discussion is invited on the experience obtained with different validation systems, the advantages and disadvantages of systems, and the desirability of having such systems incorporated in the in-plant group training programmes. Should the participant be told beforehand of the system and be given the possibility to prepare himself, should the validation be direct or indirect, individully, teamwise, or in plenary sessions, etc.

Item 9. <u>Evaluation and appraisal of effectiveness of In-Plant Group Training Programmes.</u>

17. Evaluation of the training programmes are carried out at different stages of execution, namely during the programme (e.g. after each lecture, during the in-plant work), at the completion of the programme. The different approaches and questionnaires used in the UNIDO In-Plant Group Training Programmes are described in documents ID/WG.117L4 and Add.1. While in ID/WG.117/3, the SIDA evaluation is described.

18. Some of the evaluations are carried out by the programme management, particularly those who are to be made during the training programme itself and which require direct actions if the outcome proves not to be satisfactory. Other evaluations e.g. the evaluation upon completion of the training programme, is in almost all instances carried out by UNIDO.

19. Further to the evaluations during the programme and the end-programme evaluation, UNIDO has initiated an appraisal of effectiveness of the training programmes by questionnaire to be completed by former participants one to two years after completion of the training programmes. The outcome of such a survey is presented to the meeting in paper ID/WG.186/4.

(5) Discussion is invited on the adequacy of the present evaluation system and proposal for improvements or adjustments are appreciated. Should the evaluation carried out during the training programmes be standardized and should UNIDO give in this respect guidance and directives? Is the evaluation method used on completion of a training programme adequate or should revisions in the questionnaires be made? Would it be advisable to have comparative studies on the evaluation made at the completion of the training programme. Is the present system adequate as a feed back for corrective actions?

Item 10. <u>Follow-up Activities</u>

20. The training does not end at the completion of the programme; in fact, the actual work of the then former participant starts upon his return home. He will be required to apply his newly acquired knowledge and experience, this, however, without the possibility of consulting the training staff. He may face difficulties, some of them beyond, other within, his control. Proper follow-up activities may in this respect have a positive influence and increase the effectiveness of the training.

21. Follow-up activities may comprise:

- follow-up missions, in order to visit the former participants, for evaluation purposes and/or to give him on-the-spot assistance. These missions also

allow for interviews with the superiors of the former participants;

- providing former participants with technical literature, reports, etc.;

- follow-up seminars, for a group of former participants organized on a regional basis;

- seminars for the superiors of former participants, organized on a national or regional basis;

(6) Discussion is invited to the different aspects of follow-up activities. What measures have to be taken to keep the former participants informed on the latest developments in their field of interest? What activities will be the responsibility of the host authorities and which are those of UNIDO? Should the activities for different programmes be co-ordinated or be carried out independently?
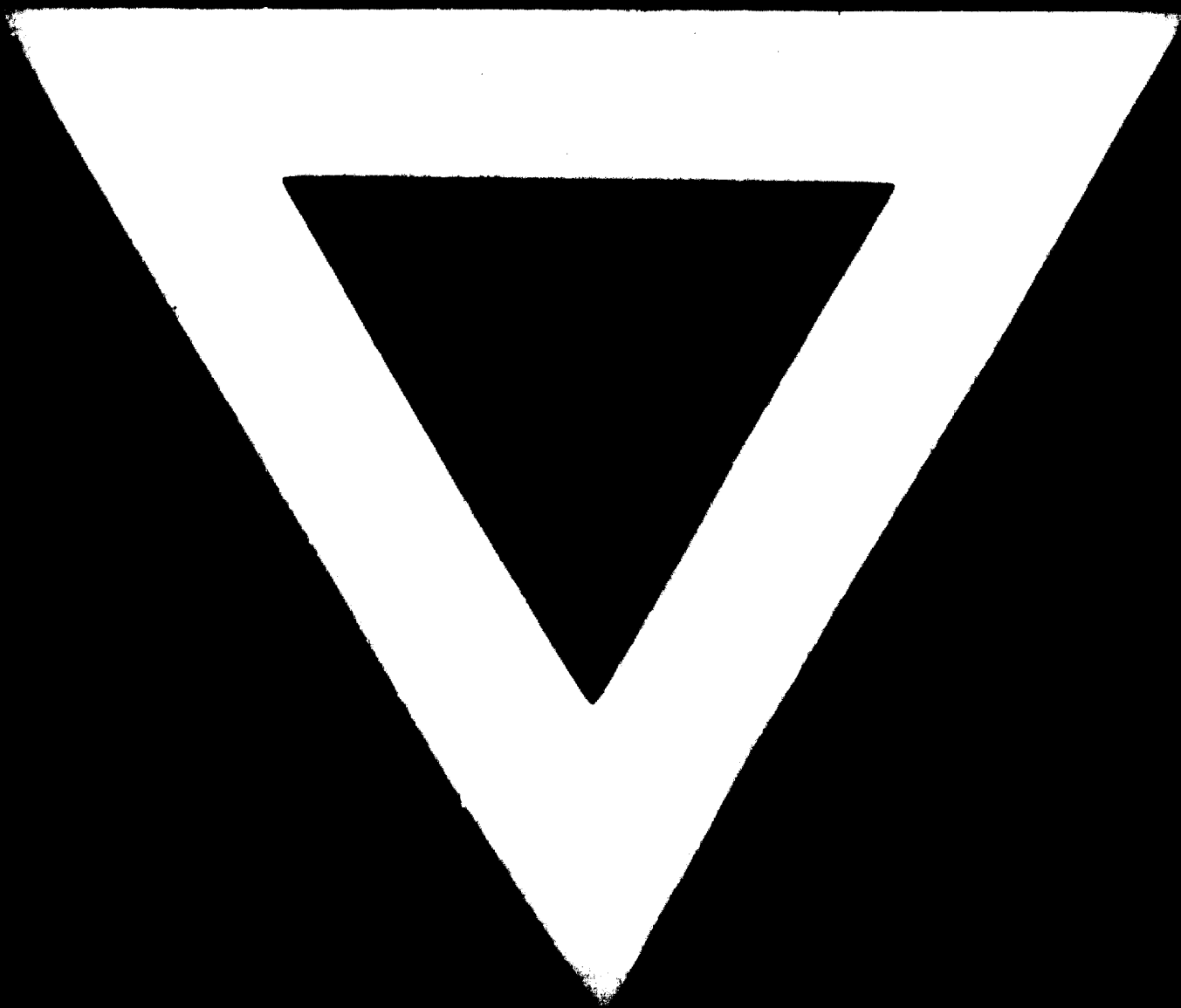
Item 11.   Adoption of general conclusions

22. The Meeting is invited to adopt the general conclusions derived from the meeting and to be incorporated in the final report. The conclusion may be grouped into the following categories:

- suggestions for action by UNIDO;

- suggestions for action by the organizers of the training programmes in the different host countries;

- suggestions for implementation in the home countries of the former participants.

Item 12.   Concluding address

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