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**FOLLOW-UP EVALUATION SEMINAR FOR FORMER PARTICIPANTS
IN THE IN-PLANT GROUP TRAINING PROGRAMME IN THE FIELD OF
CEMENT INDUSTRY, TURKEY, HELD REGULARLY BETWEEN 1979 AND 1985**

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Evaluation report*

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* This document has not been edited.

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SUMMARY

The group training programmes in the field of cement industry organized by UNIDO in co-operation with the Turkish Cement Manufacturer Association since 1979 appear to be highly successful in providing engineers with cement industry experience with a thorough overview and exposure to all major aspects of cement production technology.

The participants are well selected and the programme is professionally conducted with excellent course materials and lecture notes. Only the plant visits need to be carried out with a more systematic training approach. At present the programme cannot be termed as an in-plant training programme.

The amount of new knowledge and skills acquired during the short duration of the programme is considered by the participants to be great. The application of the programmes reported by the participants is remarkable.

Suggestions are provided on how to better formulate future Turkish cement group training programmes objectives and outputs.

A continuing need for this training programme has been established and it is strongly recommended that the programme continues to be conducted in the future.

The need for advanced cement industry training programmes is highlighted in this report.

1. INTRODUCTION

Background and purpose of the evaluation

Since 1979, UNIDO has organized, in co-operation with the Turkish Cement Manufacturers Association in Turkey, at the Cement Research and Development Center, regularly group training programmes in the field of cement industry. Over 215 participants from 60 developing countries have been trained from developing countries.

The financing of these training programmes was always obtained through the voluntary contribution of the Government of Turkey to the United Nations Industrial Development Fund (UNIDF).

According to the UNIDO Training Branch, the programme was designed for senior engineers and managers from developing countries with the aim of upgrading participants' knowledge and problem-solving skills through intensive theoretical and practical training related to the cement industry.

This was to be accomplished through lectures, case studies and in-plant training on basic cement production techniques which would allow participants to closely observe successful Turkish cement industries.

In view of the many years this programme has been given and the increasing number of ex-participants, UNIDO and the Turkish Cement Manufacturers Association agreed that the time has come to conduct two types of evaluation. The first type involved travel to a sample of recipient countries to interview ex-participants at their place of work and to get a better picture of the working conditions and training needs in the countries visited.

The other type of evaluation, the results of which are presented in this report, involved inviting a small sample of (twelve) participants to Turkey with two objectives in mind. First, to upgrade their knowledge through plant visits and lectures; secondly, through case study presentations and intensive discussions to learn from them how and what skills and knowledge were applied at their place of work, how their attitudes have changed, what effect the application of their new skills, knowledge and attitudes had at their place of work, how future programmes, if any, could be improved, whether the type of training provided still meets a real demand; and finally, what follow-up training programmes are required.

The evaluator, Mr. Hans H. Heep, UNIDO Evaluation Staff, led the evaluation aspects of the seminar from 3 to 6 October in a hotel conference room in Istanbul. The host training organization Secretary General, Mr. Y. Bayar, assisted by Ms. C. Becan, Director of International Relations, Director of Training Programme, chaired the discussions held with the participants during the entire seminar.

Mr. P. de Moustier, Industrial Development Officer, Training Branch, UNIDO, and Mr. K. Hussein, UNIDO Senior Industrial Development Field Adviser were able to join and actively participate in the evaluation seminar during the final two days of the seminar.

2. PROJECT FORMULATION

Before discussing how the evaluation seminar was implemented and the results achieved, it is necessary at this point to discuss the problem of the inadequate project design of the "In-plant Group Training Programme in the Field of Cement Industry, Turkey".

The present design makes it very difficult to assess project performance against planned objectives and outputs since they were incorrectly or hardly specified.

As an example, the 1987 project document will be used to discuss existing project design problems.

The immediate objective is presently formulated as follows: "- to better understand and master the whole production of cement from the analysis and selection of raw materials, technologies used in production and processes, quality control, maintenance and energy saving till the end-products; - to promote co-operation and exchange of experience between developing countries in the field of cement industry".

Comment: Although this statement of objective gives the reader an idea of why the course is being given and in what subjects a better understanding and mastery will be provided, a more correct statement should provide information on the change expected through the application by the participants of their newly acquired or strengthened knowledge and skills after their return to their home country or place of work.

An improved statement could read as follows:

Project objective

The application of skills and knowledge obtained by the participants during this course in the field of cement industry technology will lead to improved operational results at the cement plants from which the participants came. The nature and amount of improvements realized will very much depend on local conditions, the number of persons trained in any one plant and the area and level of responsibility each participant has or will achieve upon his return.

Measurable plant level improvements are expected in any one or several of the following areas: machine set-up and operations; preventive maintenance and repair; stock and inventory control; raw material exploitation, storage, handling, utilization and processing; quality systems; energy conservation; anti-pollution practices; and safety practices.

With the above objective statement plant level improvements achieved by the participants can be assessed against a much clearer set of expectations.

At the project output statement level the existing project design provides us with the following statement:

Outputs

"- thirteen trained middle and high level supervisors/technical personnel will have knowledge and skills upgraded for developing the cement industry in the developing countries".

This statement does not, as it should, provide us with a clear idea of what additional capabilities the participants will have in terms of additional knowledge and skills at the end of the programme.

A more specific and verifiable statement could read:

Project output

Thirteen cement plant engineers with two to four years in-plant experience with a thorough overview and exposure to all major aspects of cement production technology.

In each of the subjects covered by the programme the participants will be able to demonstrate a basic understanding of the subject's theoretical background; will be able to explain the advantages and suitability of different technologies and techniques currently in use; will be able to locate and analyze plant production problems and select the most appropriate methods to solve them; will be able to provide basic cost-benefit justification for improvements suggested; and fully participate in implementing the suggestions made for improvement.

The following subjects will be covered:

1. Industrial feasibility studies
2. Raw materials
3. Size reduction
4. Stock piling and blending beds
5. Raw meat grinding
6. Homogenizing silos
7. Suspension preheaters
8. Cement chemistry
9. Coolers
10. Cement grinding
11. Dedusting systems
12. Conveying systems
13. Quality control
14. Process control and automation
15. Maintenance
16. Spare parts and stock control

During the evaluation seminar participant Mr. Jorge Lemcke from Guatemala provided a very useful description of what each of the subjects covered by the course should provide in terms of new knowledge and skill capabilities. Similar course subject descriptions should be attached to all group training programme project documents as an annex and should be fully incorporated into aide-mémoires sent to the beneficiary country. See annex I for draft description of course subjects.

Improved project design and a full description of the courses offered as suggested above would place beneficiary management staff and interested cement engineers in a much better position to determine whether the programme offer will meet their training requirements or not.

The improved design would greatly facilitate end-programme and ex-post evaluations since expected programme results have been defined in a way which provides the host training organization, the participants and evaluators a reference against which an assessment of results achieved can be made.

3. IMPLEMENTATION OF EVALUATION SEMINAR ACTIVITIES

UNIDO contacted former participants by letter requesting them to prepare and send to UNIDO case studies concerning improvements and changes they were able to introduce in their plant as a result of their newly acquired knowledge and skills.

On the basis of the case studies received twelve past participants were selected to attend the follow-up seminar. Eleven participants actually arrived. The participant selected from Bangladesh had to cancel his trip at the last moment. See annex II for the list of participants.

The evaluation seminar programme consisted of two components. During the first week they visited selected factories and attended several lectures to upgrade their knowledge. This report does not cover the first week of the programme since the evaluator arrived during the second week with the express purpose of conducting the ex-post evaluation portion of the participants' programme. A copy of the follow-up seminar project document can be found in annex III, and the aide-mémoire inviting nominations for the seminar is in annex IV.

The aide mémoire includes a guideline for the preparation of the case study/personal report. The case studies prepared were extremely varied in quality and were of little use for the evaluation exercise. In future a questionnaire asking for results achieved against an improved project design, as suggested in chapter 2, would be far more useful.

The approach taken during the evaluation seminar was to place the participants at ease by explaining to them that they were selected to attend the seminar to help the Turkish Cement Association and UNIDO to learn about the successes and problems they had in introducing changes at their place of work; to re-assess the programme based on experience; to suggest ways to improve the programme so that their colleagues can benefit more from similar programmes in the future; and to help the seminar organizers to identify advanced training needs.

The participants were enthusiastic about the prospect of advising the Turkish Cement Association and UNIDO. Three days of lively discussions and debates ended in a unanimously agreed upon set of findings and recommendations.

Each participant gave a short presentation of his case study. The evaluation seminar co-ordinators ask questions to seek clarification of issues raised in their reports and their fellow participants were then encouraged to comment and ask questions. During these discussions participants were encouraged to provide more details concerning the training programme they had attended and results achieved in the application of knowledge and skills. Whether other participants had similar views or experiences was continuously elicited from the coordinators during these discussions.

Quite often the participants were able to help each other solve technical problems during these discussions. Originally it was planned to have a technical expert present to provide on the spot advice concerning such technical problems. All the participants would have appreciated such help. In hindsight, however, the absence of a technical expert enabled the seminar to fully concentrate on the evaluation aspect of the programme which was the main purpose of the seminar.

Towards the end of the seminar Ms. Becan, Director of International Relations, presented the findings of the survey conducted in three African countries. The findings were very much similar to the findings of the evaluation seminar. For her, both types of evaluations are very useful and mutually supportive. Travel to the participants' place of work provided fuller appreciation of existing working conditions and problems. On the other hand, the intensive dialogue during the seminar allowed a mix of experienced participants to form a consensus about the previous programme and how it should be conducted in the future.

The findings and recommendations of the seminar's deliberations were summarized by the evaluator at the end of the seminar. His presentation met with the agreement of all concerned. The participants were also requested to complete the same questionnaire used during the Africa survey. This was not planned but proved to be extremely useful since it allowed each participant to express his personal views in greater detail.

It should be noted that the seminar participants included chemical, mechanical and electrical engineers from plants of varying size, age and technologies used. Given this mix makes the unanimity of the findings and recommendations are all the more noteworthy.

At the end of the seminar two participant spokesmen gave a speech to express the participants' appreciation for having been able to freely express their views and to have been given the opportunity to advise on how future programmes can be improved. The participatory approach followed during the seminar was very much appreciated.

4. EVALUATION SEMINAR RESULTS

4.1 Results of evaluation seminar questionnaire exercise

Intensive group discussions were held with the participants on the various aspects of the courses each had attended and the experiences they had upon return to their places of work at the end of these discussions a questionnaire was handed out to each participant. The questionnaire covered questions on employment, impact of training, retrospective evaluation of training programme they had attended, and the follow-up and improvements required, if any (see annex V for a copy of the questionnaire).

Present employment

All participants are still active in cement production. Three changed companies, but they are in the same field. One changed company due to a merger. Another because he had been offered a position of higher responsibility.

Eight out of eleven have been promoted after they returned to their plant. Present posts held include:

- Project Manager of new cement plant
- Maintenance Engineer
- Production Manager
- Maintenance Manager
- Electric Maintenance Supervisor
- Assistant General Works Manager
- Head of Quality Control
- Technical Manager
- Head of Production
- Production Engineer

Why participants attend

All gave three reasons for attending the training course:

- To improve job skills
- To learn new skills that would help in their professional development
- To learn about the experience of other countries.

One participant added that he hoped to learn new techniques, and while another also came because he had technical problems in his plant.

Personal impact of training

When asked about the personal impact of the training provided 81% highlighted that they gained more self-confidence in their work. 63% also indicated that they gained more experience in own field and all learned new skills in a new field.

36% attributed increased salaries and promotions to the training. Two participants felt they had more prestige.

82% of the participants felt better equipped to do their work and 72% were in a better position to advise others. 81% were able to introduce new technologies, processes and systems at their place of work.

Changes highlighted by the participants include:

- Change in maintenance philosophy;
- Instilled confidence in company to procure blended cement;
- Able to evaluate and use low grade coal and other lower cost fuels;
- Improved supervisory skills;
- Better position to analyse M/C failures, bad burning, hard grinding and many other defects.

43% of the participants were able to use some of what they have learned immediately upon their return and 81% after ten months.

Transfer of experience and knowledge by participants

All participants were able to pass on their experience and knowledge through either lectures, reports or meetings. 81% have been engaged in some form of training activity to pass on their knowledge and skills.

Some of this training was conducted through lectures, most of it, however, was accomplished through on-the-job discussions.

Six of the eleven participants have conducted a formal training course. An average of 14 people were trained in each course.

Some examples of improvement introduced by participants

All participants, except one manager of a new project, were able to report on positive changes at their place of work as a result of their training programme experience. 36% reported an increase in product quality; 45% an increase in production quantity and 54% a reduction in production cost.

Individual examples of improvement include:

- Able to substitute imports with local raw materials;
- Improvement of subordinate performance after passing on newly acquired knowledge and skills;
- Reduction of machine breakdown and injuries;
- Saved energy costs by introducing alternative fuels and additives (2x);
- Better use of ball charge;
- Better organized storekeeping.

Difficulties encountered in introducing change

Only two indicated that they would need certain additional skills and knowledge not obtained in Turkey in order to better introduce changes at their place of work.

Another two complained about the lack of trained personnel. Two indicated that the lack of training materials was a source of problems. Whereas four highlighted the lack of machinery and equipment, moreover the same four and two others (45%) had problems of inadequate funds which delayed or hindered realization of the changes desired. Only one wrote that he had a problems with resistance to change on the part of management.

36% were able to pass on some of the newly acquired experience and knowledge outside his place of work through lectures or participation in conferences, for example during cement association conferences. Only one was formally given the opportunity to teach colleagues outside of own company. He was able to train 36 electricians and other technicians.

Evaluation of past training programmes

All participants were mostly satisfied with the training programme, whereas 36% were fully satisfied. Comments include:

- Need specialized study in specific fields (3x);
- Expected more intensive course (1x);
- Some topics not fully covered, were too basic (1x);
- Some teachers lacked practical experience (1x);
(several complained about this in other portions of the questionnaire)
- Expected more details on new technologies (1x);
- Problem with plant visits (1x).

All, except one, felt that the duration of the programme was adequate. However, six felt there was a need to change the balance of time between plant "visits" and classroom training. Basically the participants would like more time at the plants, and would like the "visits" to be transformed into proper in-plant training programmes. If this is not possible, only 1 to 2 days in a plant is adequate.

45% of participants stated that the course was not too practically oriented and 45% felt that the practical aspects were just right. However, many had suggestions for improvements:

- Not enough practical exercises in plant (3x);
- More practical work on energy saving required;
- Visits to plants was not training;
- Problems of interpretation in terms of language and experience hindered full benefit;
- Need to fully observe procedures in the plant (2x).

Generally participants were more satisfied with the theoretical component of the training programme. However, if more practical in-plant training were possible less theoretical training would be required.

All felt that the methodology of the theoretical training was satisfactory. Good training hand-outs, reference materials and notes were mentioned. Some minor problems were encountered with language and in earlier courses several lecturers had inadequate practical experience. Overall, no change is indicated.

All felt plant visits useful and necessary. Such visits were considered to be essential to see all practical aspects of modern production technology and techniques. Visits need to be better structured, organized, interpreted and made more "hands-on" oriented.

64% had the view that the course should have a few specialized elements while 36% did not. Overall the finding was that the course as it stands was all right for beginning engineers with 2-4 years cement plant experience. Some felt that splitting the maintenance and process engineers at mid-point for more detailed training would be desirable. Most felt that separate specialized courses for ex-participants should be offered. What courses should be offered will be discussed further on in this report.

72% judged the programme's technical level to be about right or above requirements, only two considered the level to have been too low. For more experienced engineers the technical level of the course, however, would be far too low.

82% found the course materials to be good or better.

Comments concerning course handouts and the need for additional material included:

- Course handouts were good; more and better graphics would be desirable;
- There is a need to send up-dated handouts from time to time since they are continuously referred to by participants at their place of work;
- More detailed information on maintenance procedures would be useful.

Participants were generally pleased with the audio-visual aids used during their training. Many indicated that videos should be introduced into the programme, especially to demonstrate how various maintenance procedures are carried out.

In the answer to the yes/no question on whether the trainers were professionally qualified, 90% said yes. There were, however, many comments provided about the importance of having lecturers with industry level experience who are able to explain and solve practical problems. In a few cases there were language problems.

90% of the participants considered the lecturers to be adequately skilled in training methods.

Again the problem of plant visits was highlighted stating that they need to be systematically organized and guided by a cement industry experienced person with a good command of English.

When questioned about the importance of subjects taught during the course over 50% of the participants found each to be useful for their work. Five courses were found to be useful by 90% or more of the participants. They are:

- Raw material (100%);
- Cement industry (100%);
- Cement grinding (100%);
- Conveying systems (90%);
- Quality control (100%).

Technical problems, follow-up achievements

When asked about the technical problems the participants had faced and what happened after they were trained, they responded as follows:

- Having commenced work on a proposal for the introduction of blended cement using volcanic tuff, the course gave one participant confidence and provided him with technical information to complete a technical report and convince management to proceed with the idea. A lot of time was saved.
- Course enabled a participant to train staff. However, since his cement plant is still in the planning phase no technical problems have arisen. Course helped participant to negotiate with sub-contractors.
- Participant was a beginner. The broad experience and knowledge gained gave him confidence to tackle day to day problems at his place of work.

- Participant knew nothing about clinker production and kilns. He is now conversant with these technologies.
- A participant was able to effect cost saving measures; introduce better maintenance planning and make various adjustments in mill auxiliaries.
- The best achievement of another participant was his ability to train staff.
- Another highlighted that he could now analyze, investigate and give advice on cement production problems and that his advice is often sought.
- This participant had no major technical problems at his place of work. However, he was able to introduce several measures to increase plant efficiency.
- With old equipment and lack of funds this participant was not able to change much. He was able, however, to significantly improve his companies production techniques.
- The last participant learned how to process raw materials, operate and control kilns.

Beside the participant whose cement plant is still in the project construction phase all participants were able to apply at least some of the skills and knowledge they acquired to solve problems.

While doing this 81% had only a few or no country specific problems which hindered the application of their knowledge and skills. While two had many problems, a remarkable 72% of the participants felt that they were able to accomplish a considerable part of what they intended to do after the end of the training programme. Only one could accomplish very little while two could accomplish everything.

Other factors which hindered full accomplishment include:

- Problems with economic conditions (2x);
- Operating a wet plant, a dry plant would have enabled greater application of skills and knowledge;
- Need more training on maintenance - one day instruction not enough;
- Need more practical training, perhaps with video films;
- Need more time to study subjects in detail;
- To solve many problems would need to be in more senior post.

Follow-up

100% would like some kind of follow-up to strengthen their capabilities.

Only two desired consultancy advice and training at their place of work. All wanted a follow-up training programme. Specific areas mentioned are given below:

Energy conservation and management	81%
Maintenance	54%
Cost reduction	27%
Pollution/waste control	27%
Kiln firing/refractory	18%
Grinding	18%

87% of the persons responding indicated that follow-up courses should have a duration of two weeks.

45% of the participants would welcome receiving additional manuals/guidelines and other training materials from time to time as a follow-up to their training programme.

Recommended participant profile for future training programmes

Under the assumption that the present general course will continue without major change, the participants were unanimous that the course is very appropriate and useful for either chemical, mechanical or electrical engineers with 2-4 years cement plant experience. Additionally a few felt that very experienced and motivated technicians, chemists and quality controllers could also benefit.

Although on occasion time was lost to explain new concepts to a very mixed group of participants they all felt that group diversity did not present a major problem. It was even felt to be beneficial since it gave everyone a unique opportunity to learn from each other and become more aware of the different facets of cement production.

Indications on who else could benefit from the training

Nine participants responded that an average of 14 engineers working in their plants could possibly benefit from also attending existing training programme. This is interesting because most of the companies represented had already sent 2-4 participants to the Turkish Cement Training Programme. Just from the small sample of companies represented the Turkish programme could continue for years to come without a chance of even coming close to meeting an apparent far greater world-wide demand for such a programme.

Suggestions for enhancing the curricula of the present programme

Participants provided the following suggestions for greater emphasis or introduction into the course curricula:

- Cement and concrete technology;
- Total quality control concepts;
- Energy conservation;
- Safety;
- Lubrication;
- Spare parts and stock control;
- Fire prevention;
- Cost saving.

Miscellaneous suggestions on how to improve the programme

- Use case studies during the programme;
- Have more homogenous groups in terms of the plant size where participants work;
- More industry experienced training staff;
- Use video films for maintenance procedures;
- Training should be truly in-plant training;
- Improve aide-mémoire;
- More practical training at the Centre;
- More visits to allied industry;
- Continuous follow-up should be given;
- Solve language problems;
- Course should have two parts - general for all, and then split into more specialized groups.

4.2 Further examples of knowledge and skill application by past participants

Beyond the examples of skill and knowledge application presented by the participants in their questionnaire returns, the following additional examples were highlighted during the discussions:

- One participant gained the confidence to purchase and, where possible, fabricate replacement parts locally, i.e. filter bags;
- Another participant was able to initiate a dialogue between the maintenance and process staff in his plant to solve technical problems, i.e. optimal chimney opening procedures - reduced downtime from two weeks to three days;
- Knowledge received during training enabled another participant to fully assist in the design and construction planning of his new cement plant;
- Another participant improved his plants belt drive system and improved plant safety;
- One participant reported that his managerial skills improved especially in the area of manpower planning, purchasing and stock control;
- One participant upon his return measured the temperature of cement and designed temperature controls resulting in production cost savings. He also expanded the plant laboratories to do sample testing. Chief of laboratory was also sent to Turkey to benefit from the training programme;
- Grinding and lining problems could be identified and solved increasing cement production and quality;
- Another participant solved a silo moisture problem by dehumidifying the air and by not filling the silos to capacity;
- In another case, a low grade limestone problem was solved by blending coal to solve a high sulfur content problem. The course gave confidence to tackle the problem.

Other problems concerning raw mill alignment were studied and partially solved. This reduced the need to replace bearing and lowered lubrication consumption. High altitude firing problems were also studied and resolved;

- By learning more about the preparation of feasibility studies a participant was able to convince management to invest in kiln tumbling lifters and to install power packs which saved \$25,000 per month.

Energy costs were lowered by using old tires and recycling of energy from the kilns. Further savings were found by introducing lump coal to the fuel. The introduction of porcelin blended cement also reduced costs. Cement plant by-products are now used to produce gypsum creating an additional source of income.

- One participant was able to convince management to establish a research and development programme for energy saving. He also introduced stand-by generators to make up for power shortages. The participant is now involved in the rehabilitation of his plant. The participant was able to play a key role in the preparation of the rehabilitation studies;
- Another participant became aware of the benefits of better inspection of electrical motors. He was able to increase the power factor from 85% to 96% which resulted in a \$35,000 monthly saving for his plant.

The participant was also able to initiate a programme to reduce heat power loss by patching and sealing the heat transfer system. Fuel consumption was reduced from 44 gallons/ton to 33 gallons/ton.

Alternative fuels were also introduced such as coffee/rice waste and peat.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Project formulation

(see page 5, chapter 2, Project formulation)

Conclusions

Existing project design is inadequate and non-specific with respect to the change expected through the application by the participants of their newly acquired knowledge and skills.

Moreover, existing project design does not specify the additional capabilities the participants will have in terms of additional knowledge and skills.

This has also caused problems with the content of the aide-mémoire which could be more specific.

Recommendations

Improve future project design as suggested in chapter 2, and incorporate the improved description of the course in the aide-mémoire.

The aide-mémoire should also include a suitably refined description of each course subject as shown in annex I.

5.2 Evaluation seminars

(see page 8, chapter 3, Implementation of seminar activities)

Conclusions

The evaluation seminar approach was found to be very useful by the host training organization and by the UNIDO evaluator. The approach allows a diverse group of participants to get together in a relaxed atmosphere over a long enough period of time, to thoroughly discuss previous programmes, training results and possible improvements for future programmes. Different ideas can be debated, and a consensus of opinion reached amongst previous training beneficiaries.

What made the seminar successful was the participatory approach followed during the seminar which resulted in a frank and lively dialogue throughout the evaluation exercise.

Recommendation

Evaluation seminars should be conducted for all repetitive UNIDO group training programmes every five years as a complement to in-depth evaluations.

5.3 Evaluation seminar results - conclusions and recommendations

General conclusions

- Basic programme provided is excellent for engineers with two to four years practical experience in cement plant. Also suitable for supervisory personnel who have worked many years in one cement production technology field and is now being considered for promotion which requires a good overview of cement plant operations.
- The more engineers trained in each plant the better so as to ensure that here is a cadre of like minded staff with the right attitude, knowledge and skills to undertake actions required to improve plant efficiency.
- A mixed composition of participants proved to be beneficial for this introductory programme. Questions and discussion amongst participants with different practical experience and fields of specialization proved to be very educational and broadening for all concerned.

In fact, the course's main benefit was that it gave each participant a very good and adequately detailed overview of the various technological aspects of cement production. This gave the former participants the confidence to tackle multi-disciplinary problems in co-operation with their colleagues from other departments and sections.

- The participants were able to benefit in all areas covered by the training programme. Maximum benefit was achieved in subject areas where the participant had no previous formal training and/or little practical experience.
- Contacts made and informal discussions held with the participants were very rewarding. Many technical problems were solved in this way.
- The Turkey cement programme is very important since many plants do not have the foreign exchange to send their staff abroad for training and equivalent training opportunities are not available locally.
- Course hand-outs and reference materials were universally considered to be extremely useful from training colleagues, to plan and organize work, solve operational problems and to provide guidance when taking on new responsibilities.
- Generally, the participants wanted more case studies to practice decision-making on practical problems.

Participant profile

All evaluation seminar participants are still active in cement production. All participants wanted to improve job skills, help their professional development and learn from another country's experience.

Personal impact of training

Eight of the eleven evaluation seminar participants were promoted and most felt better equipped to do their work. Most were able to introduce new technologies and techniques at their place of work.

Transfer of skills and knowledge

All participants were able to pass on their experience and knowledge.

Evaluation of past training programmes
(see pages 10-15, chapter 4)

All participants concluded that the programme they had attended was excellent. According to the HTO most of the problems and shortcomings of past programmes which were highlighted during the evaluation seminar have been taken care of in more recent programmes (see chapter 4).

The HTO, however, continues to have difficulties to organize structured training programmes in Turkish cement plants.

Recommendations

If the HTO continues to have problems in organizing training programmes in Turkish cement plants, the time spent to visit them should be reduced. The time thus made available could be used for case studies and training conducted with the help of video cassettes which demonstrate production techniques and procedures.

It is also recommended that the present programme be continued since there is a continuing need for this level and type of training.

Application of knowledge and skills

Since there were not too many problems connected with the conduct of previous training programmes discussions during the evaluation seminar focussed on what happened after the training programme. The results which are recorded in chapter 4.1 and detailed in chapter 4.2 are remarkable.

Beyond the specific changes participants were able to make at their place of work (chapter 4.2), the participants spoke of: greater self-confidence; increased managerial capabilities; better communication with colleagues from different departments; being the centre of knowledge in their company, ability to plan better; ability to do sound pre-investment research; widened knowledge of other disciplines, i.e. maintenance, energy saving; and a new ability to assess production problems.

Further training requirements
(see pages 14-15, chapter 4)

All participants made a strong case for advanced follow-up training programmes. Priority training requirements include the following subjects:

- Energy conservation and management
- Maintenance
- Cost reduction
- Pollution/waste control
- Kiln firing/refractory techniques
- Grinding.

Recommendation

UNIDO should make every effort to develop advanced training programmes in covering the subjects listed above in co-operation with the Turkish Manufacturers Association.

Annex I

Draft description of course subjects

1. Industrial feasibility studies

The participant will be able to interpret simple economic analyses of cement production projects and estimate the cost-benefit for various investment alternatives. He will have learned how to calculate the pay back period of the investment. He will be conversant with the net present value of money methods and other time value of money concepts.

2. Raw materials

The participant will be able to display knowledge of the different kinds of raw materials for cement production and their properties. He will know the chemical and mineralogical influences in different stages of the production process.

The participant will understand the importance of minor elements, their effect on the burning process and their behaviour in cement application.

3. Size reduction

The participant will understand the different theories of reduction of mineral materials and the importance of energy consumption during crushing and grinding of raw meal and cement.

The participant will have a working knowledge of the different types of control for granulometry or fineness, and how to compare different samples of ground or crushed materials.

4. Stock piling and blending beds

The participant will be able to distinguish between the different systems and the advantages of pre-homogenization of raw materials, prior to the grinding process.

5. Raw meal grinding

The participant will have a working knowledge of grinding technology in ball and roller mills. Different aspects regarding the advantages and limitations of each kind of mill will be known.

This will include an ability to select different types of process for raw meal grinding and appreciate their effect on energy consumption. The advantage and disadvantage of different type of classifiers in the market will be known.

6. Homogenizing silos

The participant will know how to measure the efficiency of homogenizing silos and will have a good understanding of the damping effect on the variations of the raw meal produced by the raw mill.

The problems in the kiln operation caused by variations in the kiln feed will be clearly understood as a problem of bad homogenizing.

7. Suspension preheaters

The participant will be able to display knowledge of the advantage of suspension preheater over long kiln or lepol systems as well as the problems and sensitivity to volatile elements in the raw meal (alkalies, chlorides and sulfur compounds).

The participant will be conversant with the problems in the operation of kilns with suspension preheaters. Through discussion of different alternatives to solve them the participant will be able to evaluate his own plant's problems and recommend correct process procedures.

8. Cement chemistry

A good understanding of the different reactions during the formation of clinker as well as the reactions during the hydration of the cement with water and gypsum will be given. The participant will have a thorough knowledge of the parameters of the final product and their problems during application and end-use.

The participant will be knowledgeable of energy consumption control and its relation to the efficiency of the chemical reactions during the clinker formation. Participant will be able to conduct analyses of total thermal energy required for a cement plant.

9. Coolers

The participant will be conversant with the different types of clinker coolers in the market and their advantages among them. The participant will understand the importance of the speed of cooling of clinker to avoid the formation of crystals deleterious for the stability of cement during its setting.

The participant will also have an appreciation of the maintenance and operational problems of each kind of cooler.

10. Cement grinding

The participant will have knowledge about the importance of proper grinding for quality cement. He will be able to identify different points of control and make adjustments based on control data feedback. He will be able to sample a mill, evaluate it and to make recommendations on how to improve it.

The participant will be able to demonstrate an appreciation of the effect of different ball charges, mill ventilation and separator efficiency for grinding. The participant will have a working knowledge of how to plan and carry out efficient grinding operations.

11. Dedusting systems

The participant will appreciate the general principles of different systems for air pollution control. The participant will understand main differences and advantages of the most common system.

12. Conveying systems

The participant will have a working knowledge of the different types of mechanical devices for transportation. He will be able to select the correct equipment required for different minerals based on mineral size, moisture and physical properties and determine the best solution to transport minerals in the different steps of the cement production process.

13. Quality control

After covering this section, the participant will know how to interpret correctly any analysis of samples taken from different parts of the process. From the information of the sample, he will be able to foresee any potential problem for further steps in the process.

The participant will be fully aware of the importance of quality control and all the procedures involved in quality control. He should be able to evaluate and perform changes in the process to correct any deviation from the required quality.

14. Process control and automation

The participant will be familiar with the principles of different kinds of instruments used in a cement plant for process control. He will have knowledge of the most important features of thermocouples or thermopairs for temperature monitoring inside the equipment and different types of pressure transmitters for measurement of degree of draft or vacuum in kilns and or mills; also the types of instruments for gas analysis for control of the combustion in the kiln or boilers.

The participant will know the advantages and disadvantages of process automation.

15. Maintenance

The participant will understand the maintenance principles of kiln, mill, bag filter and other main equipments. He will be aware of the critical points of mechanical and electrical equipment.

The importance of preventive maintenance will be understood. Different techniques for machinery evaluation will be known.

Working knowledge of the effect of the quality of the kiln shell on the refractory life and how to avoid and/or correct this problem will be provided.

16. Spare parts and stock control

Participant will have an overview of different methods to determine the best economic size of a production run and the stock required to quickly and efficiently fill orders. A better understanding of modern spare parts and stock control concepts and practices will have been given.

Annex II

List of participants

	<u>Name of cement plant</u>
1. Atif Mohed A/Gadir P.O. Box 96 Atbara, Sudan	Maspio Cement
2. Ku Ishak Ku Ismail Cement Industries of Malaysia 02450 Cuping, Perlis, Malaysia	Cima Cement
3. Richard Turkson Teah P.O. Box 50 Monrovia, Liberia	Cemenco
4. Kiros Haile Eritrea Cement Plant P.O. Box 108 Massawa, Ethiopia	Eritrea Cement
5. Johnny Dambio P.O. Box 74 Tororo, Uganda	UCI, Tororo
6. Mustafa Shaher Al-Muheisin Rashadya Cement Plant P.O. Box 093 Tafila, Jordan	Rashadya
7. Cataumo M. Leyva Solid Cement Corporation Tagbag, Antipolo, Rizal Philippines 3103	Solid Cement
8. Edmund Julius Adatsi Ghacem Ltd. P.O. Box 646 Tema, Ghana	Ghacem
9. Jorge Lemcke Cementos Progreso S.A. Finca La Pedrera Zona 6 Guatemala City, Guatemala	San Miguel
10. Saleh M. Al-Aosh Ministry of Industry, Trade and Supply P.O. Box 300 Aden, People's Democratic Republic of Yemen	n.a.
11. Shiromani Dhakal Hetauda Cement Industries Ltd. P.O. Box 1020 Lazimpat, Kathmandu, Nepal	Hetauda

Annex III

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT PROPOSAL

PART A - BASIC DATA

Country/Region: Interregional

Project Number: UT/INT/88/147/Rev.1 + XP/INT/88/079

Project Title: Follow-up Evaluation Seminar for Former Participants in the IPGTP in the Field of Cement Industry held regularly between 1979 and 1985

Scheduled Start: 26 September 1988

Scheduled Completion: 08 October 1988

Origin and Date of Official Request: Request of the Turkish Government on basis of the mission report of end evaluation mission in May 1987 and Fourth Session of the Joint Turkish/UNIDO Committee held in Vienna on 1st and 2nd June 1987

Government Counterpart Agency: Turkish Cement Manufacturers Association, Ankara, Turkey

UNIDO Contribution:

Government Contribution:

Currency required:

For UNIDO Input:

Convertible: US\$ 10,222

Other: TL 33,000,000 (equivalent US\$ 27,500)

UNIDO Substantive Backstopping Branch: Industrial Training Branch

Programme Component Code: ZZ-J-14200

PART B - NARRATIVE

1. Objective

(a) Development Objective

N.A.

(b) Immediate Objective

Enable UNIDO and the Cement Research and Development Centre to redesign their group training programmes in the field of cement industry based on feed-back and lessons learned from case studies prepared by the participants.

To enable UNIDO to up-date the knowledge of the participants by providing them with information on recent developments in the above field (refresher aspects). Precalcination systems, energy and cost saving measures, maintenance management will be the specific field where they will improve their knowledge.

To revise and adapt existing curricula for future training programmes in the above field in accordance with the insights gained thereby.

2. Special Considerations

The Turkish authorities have already agreed to provide all the required non-convertible financing through a special purpose contribution to UNIDF and the logistical support and facilities.

3. Background and Justification

Since 1979, UNIDO has organized in co-operation with the Turkish Cement Manufacturers Association in Turkey at the Cement Research and Development Center regularly in-plant group training programmes in the field of cement industry, and has trained, by now more than 215 participants from developing countries. The financing of these training programmes was always obtained through the voluntary contribution of the Government of Turkey to the UNIDF.

The programme was designed for senior engineers and managers from developing countries with the aim of upgrading participants' knowledge and problem solving skills through intensive theoretical and practical training related to cement industry which is necessary to enhance technical level of production and market acceptance. This was accomplished in a relatively short time by providing participants with lectures, case studies and in-plant training on basic cement techniques and by enabling them to make close observations in successful Turkish cement industries.

As many as 215 participants from 60 developing countries in Africa, Asia and the Pacific Region, Europe and the Middle East, and Latin America were trained in the past courses. Reflecting on the repetitions of the programme as well as on the increasing number of ex-participants, in response to their growing needs for further training and enhancement of professional capabilities, both UNIDO and the Turkish authorities agreed in principle to organize a follow-up and evaluation seminar for selected former participants from 26 September - 08 October 1988 in Ankara primarily to assess the impact of the previous programmes and to re-design future programmes based on the findings of the seminar and on participants' present and future needs in the field of cement industry.

4. Project Outputs

After completion of the seminar, 12 former participants of previous training programmes from developing countries will have updated and enhanced their knowledge and skills in the subject field (English-speaking).

A project report which contains the following sections:

- a) Introduction
 - Background of case study evaluation exercise
 - Purpose of case study/evaluation exercise
- b) Implementation of case study exercise
 - Description and discussion of the case study outline sent to each participant
 - Response from participants and adequacy of case studies prepared
 - Short narrative of case study presentation and formulation of recommendations proceedings
- c) Findings - discussion and analysis of case study findings
- d) Recommendations for future programmes

Furthermore, the participants in co-operation with the organizers will have re-designed and adapted the curriculum in accordance with the knowledge and insight gained in the course of the seminar for use in future programmes.

12 engineers in cement industry with up-dated knowledge of the latest developments in the cement industry such as precalcination systems, energy and cost saving measures will improve their activities in this particular sector.

5. Project activities and modalities of implementation

UNIDO will contact former participants by letter requesting them to prepare and send to UNIDO case studies concerning improvements made on basis of their previous attendance as well as on the changes introduced in their company/factory as a result and, generally, on how they are utilizing the knowledge and experience gained from the training received. For this purpose, invited former participants will receive a detailed outline of the case study to be prepared. Guidelines are included in the aide-mémoire.

On basis of the case studies received, UNIDO, in co-operation with the organizers will select participants for this seminar. The selected participants will be requested to make case presentations placing emphasis on their personal professional experience following their attendance of the programme.

An outline of the tentative schedule of activities may be found herewith.

Project workplan

March 1988	Invitation letter including outline for the preparation of case studies to be mailed to former participants by UNIDO
June 1988	Review of case presentations received
June 1988	Selection of participants
26 September 1988	Start of seminar

Project activities

- Preparation and sending out of invitation letters	UNIDO
- Scientific programme	UNIDO/Association of Turk. Cement Manuf.
- Selection of candidates	"
- Realization of scientific programme 26.9-8.10.88	Association of Turk. Cement Manuf.
- Participation in evaluation, and closing ceremony	UNIDO
- Organization of group training programme on cement technologies based on redesigned curriculum in 1988	

6. Project Inputs

a) Host authorities will provide in kind

Logistical support, training staff and provision of training facilities.

b) UNIDO inputs

UNIDO, partly through a special purpose contribution of the government of Turkey to IDF and partly through other sources, will provide the financing of the project (budget estimates attached).

- UNIDO s/m participation in the programme including end-term evaluation
- International travel for 12 participants
- Ad-hoc subsistence allowance for the duration of the programme
- Lecturers, instructors

UNIDO will also provide the necessary logistical support for the co-ordination of the project activities, i.e. recruitment and selection of participants, organization, monitoring and evaluation of the programme and follow-up activities.

7. Evaluation

A group training self-evaluation report will be required in accordance with the requirements of UNIDO's group training evaluation system at the completion of the training programme.

8. Envisaged follow-up

The future training programmes in the field of cement industry shall use the re-designed training curriculum arrived at during the seminar to the maximum extent taking, however, into consideration the individual needs of participants of future training programmes.

These future training programmes shall be evaluated regularly through the foreseen end-evaluation, and after a number of repetitions a similar evaluation exercise should be carried out, whenever deemed beneficial to the organizers and UNIDO.

**Evaluation/Follow-up Seminar in the field of cement industry (English)
from 26 September to 8 October 1988, for 12 participants
16 days including travel days**

	TL	US\$	
16-00 2 missions of two UNIDO s/m for participation in the programme			
travel VIE-ANK-VIE		1,968	1)
DSA for 2 missions 16 days US\$ 108x2 s/m		3,456	2)
34-00 International travel for 12 participants	16,472,800	4,798	3)
Ad-hoc subsistence allowance 12x16 days 4) x 27,000	5,184,000		
Lecturers, instructors; including group leaders for specialized subgroups for in-plant training, study visits and interpreters	3,000,000		
Organizational costs	5,543,200		
Training/reference materials	2,800,000		
	33,000,000	10,222	

Non convertible currency: TL 33,000,000 = US\$ 27,500 5)

Convertible: US\$ 10,222

-
- 1) Includes terminal expenses.
 - 2) Calculated on the basis of the Ankara DSA rate, although part of programme to be held in other provincial areas.
 - 3) Includes stopover DSA.
 - 4) Includes early arrivals and late departures.
 - 5) US\$ = 1,200 TL.

PART C - CLEARANCE AND APPROVAL

Proposal submitted by:

Ph. de Moustier
.....
Ph. de Moustier

Date: 3.3.88

Cleared by:

I. Lorenzo
.....
I. Lorenzo, Head
Industrial Training Branch

Date: 3.3.88

A. Tcheknavorian-Asenbauer
.....
A. Tcheknavorian-Asenbauer, Head
Chemical Industries Branch

8.3.1988

G. Patterson
.....
G. Patterson, Director
Industrial Operations Support Division

Date: 19/4/88

Approved by:

.....
B. Andrasevic, Chief
PRC Secretariat and
Funds Administration

Date:

.....
A. Hacini, Chief
Project Review and
Appraisal

Date:

Convertible Currency:
Others:
Source of funds:
Date PAD issued:



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE
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March 1988

**FOLLOW-UP AND EVALUATION SEMINAR FOR FORMER PARTICIPANTS
IN THE IN-PLANT GROUP TRAINING PROGRAMME IN THE FIELD
OF CEMENT INDUSTRY
HELD REGULARLY IN TURKEY BETWEEN 1979 AND 1985**

**Organized by the United Nations Industrial Development Organization
in Co-operation with the Government of Turkey**

**to be held in Ankara, Turkey
from 26 September to 08 October 1988**

AIDE MEMOIRE

Background and purpose of the seminar

UNIDO has organized in co-operation with the Association of Turkish Cement Manufacturers in Turkey regularly in-plant group training programmes in the field of cement industry products, and has trained, by now, more than 215 participants from developing countries. Financing of these training programmes was always obtained through a voluntary contribution of the Government of Turkey.

These programmes were designed for engineers from developing countries with the aim of upgrading participants' knowledge and problem-solving skills through intensive theoretical and practical training related to cement industry, which is necessary to enhance the technical level of production and market acceptance. This was accomplished in a relatively short time by providing participants with lectures, case studies and in-plant training basic techniques and by enabling them to make close observation of company-level activities in successful Turkish industries.

As many as 215 participants from 60 developing countries in Africa, Asia and the Pacific Region, Europe and the Middle East, and Latin America were trained in the past courses. Reflecting on the repetition of these programmes as well as on the increasing number of ex-participants, in response to their capabilities, both UNIDO and the Turkish authorities agreed to organize a follow-up and evaluation seminar for selected former English-speaking participants from 26 September until 08 October 1988 in Ankara, Turkey primarily to assess the impact of the previous programmes and to re-design future programmes based on the findings of the seminar and on participants' present and future needs in the field of cement industry.

Activities of the Seminar

Lectures

Theoretical lectures will be presented to participants at the beginning and during the course of the seminar to up-date their knowledge by providing them with information on recent developments in the field of cement industry.

Case Presentations

Case presentations by participants will constitute an integral part of the seminar programme and shall center around the professional experience of participants following their previous attendance of the programmes in Ankara. Case studies will be presented by participants throughout the seminar and will be summed-up and evaluated in group discussions between lecturers, course management and participants.

Plant visits

There will be plant visits during the programme to selected cement and allied industries plants, where participants will be acquainted with the Turkish capacity.

Evaluation and Report Writing

At the end of the seminar, participants will discuss, together with the trainers, the insights gained during the seminar, make proposals on the re-design and adaptation of the curriculum in accordance with the knowledge gained in the course of the seminar for use in future programmes, and prepare a final report.

Please, also refer to the attached tentative seminar schedule.

Date and Place of the Seminar

The seminar is scheduled to take place in Ankara, Turkey from 26 September until 08 October 1988.

Participants

Fifteen former English-speaking participants of the In-plant Group Training Programmes in the Field of cement industry coming from developing countries will be selected to attend the seminar.

Participants in the seminar will be selected by UNIDO in co-operation with the Turkish host authorities on basis of criteria developed by UNIDO and Turkish Cement Manufacturers Association.

Case Presentation (Individual Report)/Questionnaire

Former participants interested in attending the follow-up and evaluation seminar are requested to prepare and send to UNIDO a case study reflecting the improvements made on basis of their previous attendance of the group training programme, the changes introduced in their company/factory as a result of their attendance and, in general, the use made of the knowledge and experience gained from the preparation of the case presentation/individual report, detailed guidelines on its preparation are attached.

It is also requested that former participants interested in attending the seminar submit to UNIDO nomination forms and complete the questionnaire attached to the aide-memoire.

It should be noted in this connection that selected participants will attend the seminar in their individual capacity and not as representatives of their respective countries or Governments.

Candidates selected for participation are expected to arrive in Turkey on the date to be designed. They should attend the whole of the seminar according to the schedule prepared by the organizers and comply with the rules and regulations set forth.

Certificates

Former participants in the programmes need not to submit a language certificate, however, in all cases an up-dated medical certificate should be submitted together with the nomination forms.

Financial and Administrative Arrangements

UNIDO, through a special purpose voluntary contribution of the Government of Turkey will provide:

- (a) Round-trip economy class air transportation between the international airport of departure in the participant's home country and Turkey in accordance with the existing arrangements between UNIDO and the host authorities;
- (b) Ten kilos accompanied excess baggage allowance for the homeward journey only;
- (c) An ad-hoc daily allowance of approximately US\$ 6 (at the present UN rate of exchange) for dinner and out of pocket expenses will be provided in cash;
- (d) all other training expenses, such as interpretation during the seminar, training materials, internal travel, lecturers, etc.
- (e) Accommodation, breakfast and lunch;

The participant's Government or employer will be required to bear the following costs:

(a) All expenses in the home country incidental to travel abroad, including expenditure for passports, required medical examination, vaccinations and other such miscellaneous items, as well as internal travel to and from the international airport of departure in the home country;

(b) Regular salary and allowances for the participant during the period of the seminar, in accordance with generally applicable rules and regulations of the Government concerned.

Neither UNIDO nor the host authorities will assume any responsibility for the following expenditures in connection with the participant's attendance of the seminar:

- a) Expenses incurred with respect to any insurance, medical bills or hospitalization fees
- b) Compensation in the event of death, disability or illness of participants
- c) Purchase of personal belongings and compensation for damage caused to them by climatic or other conditions.

NOTE: Participants are strongly advised not to have members of their family accompany them as no accommodation for family members can be provided.

FOLLOW-UP AND EVALUATION SEMINAR OF FORMER
GROUP TRAINING PROGRAMMES ORGANIZED IN ENGLISH IN THE FIELD
OF CEMENT INDUSTRY

QUESTIONNAIRE

1. Family name - first name - other names

2. Country of birth - date - nationality

3. Education - Profession

4. Date of IPGTP attended by the participant

5. Experience from/to Employer Job Description

Post held before IPGTP

Post after IPGTP

GUIDELINES FOR PERSONAL REPORT

1. Have you, by any means, happen to transfer the knowledge received in IPGTP?
(by giving lectures, organizing seminars, training fellowships etc.)

2. Have you produced any documents and/or handout materials after attending the IPGTP with the knowledge and experience received during training?

3. Did you have any opportunity to apply the acquired knowledge/experience in your home country? If so, please state the case precisely.

4. Do you feel your participation in IPGTP has benefitted you professionally?
If so, in what ways?
If not, please state reasons.

Guidelines for personal report

5. Has the actual technical functions of your company showed any improvement as a result of your attendance at IPGTP?

If so, in what ways?

If not, please state reasons.

6. Taking the time element and the practical benefits obtained from the training into consideration, how would you evaluate the same program today? Please fill in the evaluation form attached.

7. Please state your suggestions for future IPGTP (theory-practice-technical visits-duration-etc.)

26 September - 8 October 1988
Follow-up Evaluation Seminar for Former
Participants
TURKEY
Draft Programme

- 25 September, Sunday : Arrivals (ANKARA)
- 26 September, Monday : Opening session, general information on Turkey
and Turkish cement industry
Background note on the objectives of the programme
- 27 September, Tuesday : Expectations of the participants
Presentation of personal and country reports
- Evening : Dinner with representatives of cement industry
- 28 September, Wednesday : Presentation of personal and country reports
- 29 September, Thursday : Latest developments in Turkish cement industry
with emphasis on prehomogenization and
precalcination systems, energy and cost saving
measures
- 30 September, Friday : Briefing on the activities of CITOSAN
Afternoon free
- 1 October, Saturday : Departure for Istanbul
- 2 October, Sunday : Sightseeing tour in Istanbul
- 3 October, Monday : Visit ASLAN CIMENTO
- 4 October, Tuesday : Visit SIRVAN Machinery Production Plant
- 5 October, Wednesday : Lecture on maintenance management
Round table discussion with representatives of
cement industry on selected topics
- 6 October, Thursday : Lecture on UNIDO
Evaluation session
- 7 October, Friday : Closing ceremony

GENERAL INFORMATION ON TURKEY

THE TURKISH HISTORY

The oldest homeland of the Turks is Central Asia. Bringing various tribes under one rule, they founded the first Turkish State, Huns, in 228 B.C.

The history of the Oghuz tribes dates back to the reign of the empire of the Huns. The first Oghuz tribes expanded towards Khorasan, Persia and started infiltrating Anatolia through Van and Kars regions in 1018.

The Seljuks, originally a Turkish tribe, defeated the Byzantine army on the plains of Malazgirt (Manzikert), thus facilitated the Turkish expansion in Anatolia in 1071.

One of the chieftains Osman Bey and his sons founded a new state in 1299. With the assemblance of other Anatolian states to the Ottomans, the Turkish being in Anatolia and in the Balkans was fortified during the reign of Sultan Beyazid.

This new state became an empire with the fall of Istanbul into the hands of Turks in 1453 during the rule of Fatih Sultan Mehmet.

During the reign of Kanuni Sultan Süleyman (The Magnificent), the Ottoman empire, stretching from the Indian Ocean to the Atlantic, the Baltic Sea, became a political power.

However, failing to keep pace with the European in development, the Ottoman empire began to recede. This recession continued until the division of the Ottoman territories in 1918 by Entente Powers at the end of World War I.

The Turkish nation started its War of Independence under the leadership of Mustafa Kemal Atatürk, the founder of the new Turkish Republic, in 1919, which resulted in liberation of Anatolia and a certain portion of Thrace where Turks most densely inhabited.

The Turkish Grand National Assembly met in Ankara on 23 April 1920, abolished the Ottoman Sultanate on 1 November 1922 according to the principle of the indivisibility of the country in line with the National Pact of 1920 and promulgated the republican regime for the administration of the country on 29 October 1923.

The establishment of a secular state instead of theocratic one, acceptance of the Civil Code instead of canonical laws, the recognition of women's rights to vote or to be elected in particular, the dress reform, adoption of Latin alphabet instead of the Arabic one and application of modern principles in education are among Atatürk's reforms.

GEOGRAPHY

Turkey has a land mass of 780.576 sq. km. 97% is in Asia (Anatolia) and 3% in Europe (eastern Thrace). Turkey in Europe is separated from Anatolia by the Bosphorus, the Sea of Marmara and the Dardanelles. Anatolia is a high plateau covering the greater part of the peninsula with mountains encircling this plateau and is broken by various rivers including Tigris and Euphrates. In the north, the eastern Black Sea mountains and in the south Taurus mountains sweep down to the narrow coastal plains.

Turkey enjoys a variety of climates, changing from the temperate climate of the Black Sea region to the continental climate of the interior and to the Mediterranean climate of the Aegean and the Mediterranean coastal regions. The coastline of Turkey's four seas is more than 8.000 km. in length.

POPULATION

Turkey has 51 million inhabitants 50% of whom live in the countryside. The major cities are Istanbul (5.500.000), Ankara (2.500.000), Izmir (1.500.000), Adana (776.000) and Bursa (650.000). These figures are based on the 1985 census.

LANGUAGE

The Turkish language belongs to the Ural-Altaic group and has an affinity to the Finno-Hungarian languages. In Turkey, Turkish is written with Latin characters. Turkish is spoken by some 150 million people in the world.

RELIGION

The Turkish population is Moslem.

ECONOMY

Agriculture: this plays a very important role in Turkish economy. The main crops are wheat, cotton, tobacco and fruit. Sheep are Turkey's most important livestock, and Turkey is a major European wool producer.

Natural resources: the principal minerals extracted are coal, chrome (an important export), iron, copper, bauxite, sulphur, oil.

Industry: in Turkey, industry is relatively developed and is self-sufficient in agro-industrial products, metallurgy, textiles, cement and building materials. There are iron and steel combines which facilitates the production.

of heavy machinery, automobiles, agricultural machinery, vehicles and devices of electrical supplies, hydroelectric stations, transport and communication network.

Tourism: tourism is one of the major income sources of Turkey. In recent years, foreign investment companies started to construct and run touristic establishments.

POLITICAL STRUCTURE

The political structure of the Turkish Republic is parliamentary democracy. The people exercise sovereignty through the Grand National Assembly, elected by universal suffrage. The executive power is exercised by the Prime Minister and the Council of Ministers. Turkey is a member of NATO, OECD, and the Council of Europe and is an associate member of the EEC.



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

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FOLLOW-UP EVALUATION OF UNIDO IN-PLANT GROUP TRAINING PROGRAMMES

A. Background:

1. Name:
2. Home country:
3. Mailing address:
4. Programme: In-plant Group Training Programme in the field of Cement Industry, Turkey, 1979 - 1987
5. Host Training Institution and country: Cement Research and Development Centre, Ankara, Turkey

(Please read carefully the whole questionnaire before you start providing your answers and comments).

B. Present employment:

6. Are you employed with the same company (agency, institution etc.) as during the time you participated in the training programme?

Yes No

If no: Where are you at present employed?

Same field but different company (agency, institution)

Different field (please specify)

Please state reason for changing company (agency, institution or field)

7. Have you been promoted since your return to your home country /holding a more important position?

Yes No

8. What is your present position? Please be as specific as possible.

9. Why did you attend this course? (check main reasons)

- To improve job skills required for my job.
- To learn new skills that would help me in my professional development.
- To learn about the experience of other countries
- Other reasons, please explain:

C. Impact of training programme on yourself and on company (agency, institution):

10. What do you consider as the effect of the training programme on yourself (mark all that apply):

- more experience in own field
- more self-confidence in own work
- learned new skill, new field
- moved to higher position
- received higher salary
- more prestige
- no change
- negative impact (please explain)

11. In which way did you make use of the experience gained through the training programme (mark all that apply):

- better equipped for my own work
- in a better position to advise others
- able to introduce new techniques, processes, systems in my company (agency, institution)
- other (please specify)

12. After you returned from your training programme were you in a position to make use of your newly acquired knowledge and experience immediately?

Yes No

If no, how much time elapsed before you were able to make use of your newly acquired knowledge and experience?.....months.

13. Could you pass on your experience/knowledge through lectures, reports or meetings within your company (agency, institution)?

Yes No

14. Have you been engaged in teaching or training other persons in the company (agency, institution) in the field of your study?

Yes No

If yes, please indicate:

- approximate number of persons trained:

- average length of training period:

15. If you have introduced new techniques, processes, systems, what are the benefits?

increase of quality (of products/services)

increase of quantity (of products/services and/or output)

reduction of cost

other, please specify:

16. Were there any difficulties that prevented you from introducing new techniques, processes, systems involved within your company?

Yes No

- a) If yes, what were the difficulties? (mark all that apply):

Need of certain additional skills and knowledge which you could not get through the UNIDO training in Turkey

lack of trained personnel

lack of adequate training materials

lack of machinery, equipment

resistance to change within company (agency, institution)

lack of funds

Other, please specify:

b) If not, why?

Need to acquire additional skills and knowledge

Lack of trained personnel

Lack of adequate training materials

Lack of machinery, equipment

Lack of funds

Resistance to change within the company(agency, institution)

Other, please specify:

D. Impact outside of your own company(agency, institution):

17. Could you pass on your experience/knowledge through lectures, reports of participation in conferences?

Yes No

18. Have you been engaged in teaching or training other persons in the field of your study?

Yes No

If yes, please indicate:

- approximate number of persons trained:

- average length of training period:

19. Could you advise other companies, agencies, institutions in the field of your study?

Yes No

E. Evaluation of training programme:

20. In retrospect, did the training programme meet your expectations?

Fully Partly Not at all

If partly or no, what are the reasons?

21. Do you consider the length of the training period was:

Too short Adequate Too long

a) If too short or too long, what in your opinion would be the suitable length of training?

Please indicate the number of weeks:.....

b) Please comment why:

22. Was the training too practically oriented?

Yes No Just right

Did the practical training fulfil your expectations?
Please comment:

23. Was the training too theoretically oriented?

Yes No

Why, please comment:

24. Was the methodology of the theoretical training satisfactory?

Yes No

Please comment:

25. Did you find the study visits beneficial and adequate?

Yes No

Please comment why:

26. Do you think that the training should be more specialized and that the second part should be organized to meet the specific training needs of sub-groups?

Yes No

Please comment:

27. What was the technical level of the training as far as your training needs were concerned and in meeting those training needs?

Too high High About right
(very good) (good)

Low Too low

Why, please comment:

28. a) Did the services such as transportation and facilities such as board and lodging provided by the organizers:

presented serious problems

did not present serious problems

presented a few problems

no problems encountered

b) Please comment on problems, if any, concerning services and facilities and provide suggestions for improvements:

29. In order to enable you to review the course/training and to train your colleagues, do you think that additional UNIDO training/reference materials should be given to supplement the course outlines, charts and the text and to reflect the lectures and professional discussion of the actual training instead of the training materials provided at the beginning of the course?

Yes No

Please comment:

30. The training materials used during the programme were:

Excellent good average more training materials required

Please explain why:

31. What is your opinion about the audio-visual aids used during the training such as video, overhead projector, charts, use of blackboard, etc., please comment:

32. Concerning the training staff:

a) Do you consider the trainers professionally qualified in the respective technical fields?

Yes No

Please explain:

b) Were the training staff adequately skilled in training methods and techniques?

Yes No

c) Did the trainers have problems with the language of training?

Yes No

d) Comment on training staff improvements required, if you feel this is important for improvement of future programmes:

33. On the basis of the subjects covered by the programme you participated in, please mark to what extent were they useful for your work:

<u>Subject</u>	<u>To a great extent</u>	<u>To a sufficient extent</u>	<u>Very little</u>
- Industrial feasibility study	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Raw material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Size reduction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Stock-piling and blending beds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Raw meal grinding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Homogenizing silos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Suspension preheaters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Cement chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Coolers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Cement grinding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Dedusting systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Conveying systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Quality control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Process control and automation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Spare parts and stock control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. What were the technical problems you were facing before the training? Have you been able to find any solutions to any of the problems? What was your best achievement? Please comment:

35. Did the economic conditions or the situation in your country/company allow you to apply or use the skills and knowledge required to solve the above problems?

No problem A few problems Many problems

No application possible

If important, how should the course be changed to match the conditions in your country? Please explain:

36. In terms of what you intended to do after the end of the training programme how would you evaluate your accomplishments within your field of study?

could accomplish nothing or only very little

could accomplish a considerable part

could accomplish nearly everything

If you checked "nothing or very little" or "a considerable part", what do you believe are the most important reasons that you could not accomplish nearly everything you intended to do?

G. Follow-up:

37. Is follow-up desired to strengthen your capabilities?

Yes No

If yes, what kind of follow-up?

- Consultancy advice/expertise and training at your workplace by UNIDO experts
- A follow-up training programme to update your training needs. If yes, please indicate specific area of interest

Please mark duration: 1 week 2 weeks 3 weeks 4 weeks

Provision of additional manual/guidelines, training and demonstration equipment

Other:

Please explain:

38. What should be the qualifications (professional and educational) of future participants in order to fully benefit from the training programme?

a) Academic qualifications in:

- | | | |
|-----------------------------------|------------------------------|-----------------------------|
| 1. Chemical engineers | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Mechanical engineers | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. Electrical and instrumentation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Others, please specify: | | |

b) Years of professional experience:

2 to 5 years 6 or more

c) Was the professional and educational background too mixed, what problem did it create, if any?

39. Would you recommend this training programme to staff responsible:

1. For supervisory personnel:

Yes No

2. For engineering personnel actively engaged in specific production activities

Yes No

Please comment:

40. Do you recommend a more specialized programme?

Please specify:

a) specialization:

b) suggested duration:

41. A rough estimate of the number of people in your country who could benefit from this training programme totals:

A. Please list number of personnel in your company/plant:

Number

- a) Engineers
- b) Senior technicians
- c) Technicians/operators
- d) Workers

B. How many of the engineers require training to update their skills and knowledge and in which fields:

42. Do you suggest introducing new subjects into the programme?

Yes No

Please specify:

43. After how many years do you recommend a follow-up to assess the impact of skills and knowledge acquired during the training?

a) Within one year

b) 1 to 2 years

c) 2 to 4 years

d) 5 years

Why:

44. Do you think that a technical report of a case study as well as an overall assessment report on the application of the acquired technical knowledge should be submitted to UNIDO within six months after the completion of the programme?

Yes No

45. Do you have any suggestions for making the programme more effective?

Annex VI

Technical parameters of participants' cement plants

COUNTRY	*	Guatemala	Philippines	Ethiopia	Malaysia	Ghana	Liberia	Jordan	Nepal	Sudan	Uganda
NAME OF PLANT	*	SAN MIGUEL	SOLID CEMENT	ERITREA CEMENT	CIMA CEMENT	GHACEM LTD	CEMENCO	RASHADYA	HETAUDA CEMENT	MASPIO CEMENT	UCI, TORORO
TOTAL PLANT CAPACITY	MT-Cem/yr	700,000	832,000	60,000	1,000,000	800,000	200,000	2,000,000	750 TPD	150,000 TPY	150,000
TOTAL COUNTRY CAPACITY	MT-Cem/yr	900,000	6 million	740,000	7.8 mill	1.5 mill	-	4 mill	1100 TPD	500,000	600,000
PRICE OF ELECTRICITY	\$/KWH	0.07	0.07	0.14	0.04	-	0.06	0.038	0.042	0.19	0.04
SPECIF. ELECTRIC CONSUMPT.(ALL PLANTS)	KWH/MT-Cem	113	120	120-125	115	45 KWH	40	120 T.C.	170	150	200
TYPE OF FUEL (MAIN)	*	Bunker	Coal	Furnace fuel	Coal	-	-	Bunker	Coal	Furnace	Furnace
PRICE OF FUEL (MAIN)	\$/MT	195.00	40.00	0.2/litre	51.00	-	-	125.00	71.00	-	300.00
CALORIFIC VALUE (Hu)	KCAL/Kg	9,600	12,000	9,600	6,500	-	-	-	4800-5000	9,600	8,000
USE OF THIS FUEL	%	92	100	-	100	-	-	100	100	100	100
TYPE OF FUEL (SECONDARY)	*	Tires,saw- dust, etc.	Tires	-	Charcoal	-	-	-	-	-	-
PRICE OF FUEL (SECONDARY)	\$/MT	40.00	33.00	-	18.5	-	-	-	-	-	-
CALORIFIC VALUE (Hu)	KCAL/Kg	6000/4000	4000	-	3500	-	-	-	-	-	-
USE OF THIS FUEL	%	8	10	-	10	-	-	-	-	-	-
NUMBER OF KILNS	#	2	2	1	2	-	-	2	1	2	2
TYPE OF KILN (BIGGEST)	*	A-SP	Wet	Dry	Dry	-	-	Dry-pre calcine	4-SP Dry	Dry	Semi- dry
TYPE OF COOLERS (THIS KILN)	*	Planet.	Grate	Grate	Grate	-	-	Grate	Grate	Plan.	Grate
CAPACITY OF THIS KILN	MT/day	1600	1300 x 2	240	2000	-	-	3200	750	500	450
DIAMETER Ø	MT	4.55	4.85	2.8/3.15	4.0	-	-	4.5	3.8	3.5	2.8
LENGTH L	MT	68	180	85	57	-	-	70	56	125	54
CALORIFIC CONSUMPTION	KCAL/Kg-Cli	825	1450	1100	760	-	-	820	980	1200	1100
NUMBER OF RAW MILLS	#	2	23 OH	1	2	-	-	2	1	2	3
TYPE OF MILL (BIGGEST)	*	Ball-1 Ch.	Ball	Ball	Double koya ton	-	-	Pfifer	Ball mill centr.disc.	Ball	Ball

COUNTRY	*	Guatemala	Philippines	Ethiopia	Malaysia	Ghana	Liberia	Jordan	Nepal	Sudan	Uganda
NAME OF PLANT	*	SAN MIGUEL	SOLID CEMENT	ERITREA CEMENT	CIMA CEMENT	GHACEM LTD	CEMENCO	RASHADYA	HETAUDA CEMENT	MASPIO CEMENT	UCI, TORORO
TYPE OF SEPARATOR	*	Mech.stur- tev.	-	Static.	Cyclone separator	-	-	Classifier	D.A.S.	Cyclone	Sieve
CAPACITY	MT/hr.	165	117	-	200	-	-	250	70	50	60
ELECTRICAL CONSUMPT. (ALL SECTIONS)	KWH/MT	28	25	-	30	-	-	22	50	-	-
NO. OF CEMENT MILLS	#	2	2	1	3	3	2	4	1	1	2
TYPE OF MILL (BIGGEST)	*	Ball-2 Ch.	Ball-2 Ch.	Ball	Ball	Ball	Ball	KSL	Ball	Ball	Ball
TYPE OF SEPARATOR	*	Mech.stur- tev.	Mech.	Dynamic	Cyclone separator	Vibrating screen	Air classif.	Cyclone separator	D.A.S. double drive	Cyclone	Cyclone
CAPACITY	MT/hr.	36	73	-	115	120	30	85	-	60	40
ELECTRICAL CONSUMPT. (ALL SECTIONS)	KWH/MT	42	44	-	35	45	40	48	60	-	50
TYPES OF CEMENT	*	I-PM II V, H	I,P26	Portland	Portland masonry	Ordinary Portland	Portland type	Type I+ V	OPC	Portland	OPC
PRICE OF NORMAL CEMENT	\$/MT	40.00	64.00	70.00	70.00	90.00	116.00	85.00	125.00	50.00	100.00
PERSONNEL IN PRODUCT.	#	95	} 305	} 200	} 340	} 297	} 105	170	200	450	200
PERSONNEL IN MECH. MAINTENANCE	#	95						75	100	90	60
PERSONNEL IN ELECT. MAINTENANCE	#	30						46	50	70	60
PERSONNEL IN SERVICES MAINTENANCE	#	30						50	350	300	80