



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

19163

INDUSTRIAL WORKSHOP ON BUILDING MATERIALS INDUSTRY

Organized by the UNIDO-Czechoslovakia Joint Programme
for International Co-operation in the Field of Ceramics,
Building Materials and Non-metallic Minerals Based Industries
from 1 through 3 April 1985 in Pilsen, Czechoslovakia

D R A F T

F I N A L R E P O R T

This report has been prepared by:

Mr. Z. A. Engelthaler, Chief Executive of the UNIDO-Czechoslovakia
Joint Programme and Director of the
Research Institute for Ceramics,
Refractories and Raw Materials, Pilsen

Mr. J. Müller, Deputy Senior Expert of the UNIDO-Czechoslovakia
Joint Programme, Pilsen

1/2
Pilsen, Czechoslovakia
April 1985

This document has been reproduced without formal editing. The
designations employed and the presentation of material do not imply
the expression of any opinion whatever on the part of the Secretariat
of the United Nations concerning the legal status of any country or its
authorities, or concerning the delimitation of its frontiers.

I. INTRODUCTION

The Industrial Workshop on Building Materials Industry was organized by the UNIDO-Czechoslovakia Joint Programme for International Co-operation in the Field of Ceramics, Building Materials and Non-metallic Minerals Based Industries in Pilsen from 1 through 3 April 1985 as a follow-up of the First UNIDO Consultation on Building Materials Industry held in Athens from 25 through 30 March 1985.

The objective of the Workshop was to provide an overall review of development of local building materials productions including development of building materials industries based on local raw materials, identification of areas of concern for technical co-operation and training of manpower through the UNIDO-Czechoslovakia Joint Programme and energy conservation and management in the building materials industries.

II. PARTICIPANTS

Twelve participants from eleven developing countries took part in the Industrial Workshop. (See Annex I)

III. LANGUAGE

The programme was conducted in English. On their requests, several participants were provided with translation into French and Russian. Typed lectures were available to all the participants at the opening of the Industrial Workshop.

IV. ORGANIZATION OF THE INDUSTRIAL WORKSHOP

Organization of the Workshop was ensured by the Organizing Committee:

Director of the Workshop

Dr. A. Lošťák, General Director
of the Czechoslovak Ceramic Works,
Prague

Programming Director

Mr. Z. A. Engelthaler, Chief
Executive of the UNIDO-Czechoslovakia
Joint Programme and Director of the
Research Institute for Ceramics,
Refractories and Raw Materials,
Pilsen

| | |
|--------------------------------|---|
| UNIDO Representatives | Ms. S. H. Yalcindag, Industrial Development Officer, Chemical Industries Branch, Division of Industrial Operations |
| | Mr. P. Skupch, Industrial Development Officer, Negotiations Branch, Division of Policy Co-ordination |
| Secretary | Ms. E. Engelthalerová, Chief of Administration, UNIDO-Czechoslovakia Joint Programme, Pilsen |
| Technical Adviser | Mr. J. Müller, Deputy Senior Expert, UNIDO-Czechoslovakia Joint Programme, Pilsen |
| General Rapporteur | Mr. M. Nový, Expert, UNIDO-Czechoslo- vakia Joint Programme, Pilsen |
| Administration Arrangements | Ms. A. Fremlová, Administrative Clerk, Ms. V. Vohrnová, Administrative Clerk, UNIDO-Czechoslovakia Joint Programme, Pilsen |

1. Programme of the Workshop

The programme of the Workshop comprehended the presentation of different building materials productions, such as glazed and unglazed floor tiles, wall tiles, industrial floor tiles, sanitary and sewage pipes, paving and facing tiles, light-weight aggregates and insulating building blocks in four production plants. Half a day was devoted to the introduction into the Workshop. Two lectures were presented on the technological development of building materials industry in view of local raw materials and energy conservation and management. Development and research of clay building materials and inventory testing and categorization of local raw materials in the Research Institute for Ceramics, Refractories and Raw Materials were presented to the participants. Round table discussions were organized during the Workshop to exchange views and experience concerning problems of testing, evaluation, beneficiation and exploitation of raw materials, production of selected building materials and adaptation of these technologies by developing countries economically. During round table discussions, the participants also discussed the possibilities of mutual technical co-operation.

2. Documentation and Aids

The following documentation and aids were handed over to each of the Industrial Workshop participants and UNIDO Representatives:

- Industrial Workshop Time Schedule
- Set of Delivered Lectures
- Set of Questionnaires of Plants and Research Institute to Be Visited
- Technical Leaflets and Informative Materials
- Publication on the Research Institute for Ceramics, Refractories and Raw Materials, Pilsen
- Bulletins, Booklets and Other Informative Materials on the UNIDO-Czechoslovakia Joint Programme
- Multi-lingual Vocabulary for Ceramic Industry and Non-metallic Raw Materials
- Writing Materials and Handbag
- Protection Helmet (for plant visits)

3. Discussions

The participants enriched their scope of knowledge during the discussions with the following officials:

UNIDO Vienna

- Ms. S. H. Yalcindag, Industrial Development Officer, Chemical Industries Branch, Division of Industrial Operations
- Mr. P. Skupch, Industrial Development Officer, Negotiations Branch, Division of Policy Co-ordination

CSSR

- Dr. A. Lošťák, General Director of the Czechoslovak Ceramic Works, Prague
- Mr. Z. A. Engelthaler, Chief Executive of the UNIDO-Czechoslovakia Joint Programme and Director of the Research Institute for Ceramics, Refractories and Raw Materials, Pilsen
- Mr. J. Chvátal, Director, Chlumčany Ceramic Works, Chlumčany
- Mr. Z. Hruška, Chief Technologist, Chlumčany Ceramic Works, Chlumčany

Mr. J. Kasl, Economic Manager of the
Chlumčany Ceramic Works, Chlumčany

- Mr. J. Široký, Director of the West
Bohemian Ceramic Works, Horní Bříza

Mr. V. Fousek, Technical Manager of the
West Bohemian Ceramic Works, Horní Bříza

Mr. J. Engelthaler, Chief Technologist
of the West Bohemian Ceramic Works,
Horní Bříza

Mr. K. Kydlíček, Plant Director, West
Bohemian Ceramic Works, Stoneware
Production Plant at Třemošná

Mr. V. Junghans, Chief Technologist
of the Stoneware Production Plant at
Třemošná

- Mr. B. Gvoždík, Director, Keramzit
Vintířov, Civil Engineering Corporation
in Karlovy Vary

- Mr. Z. Chodora, Deputy Director,
Research Institute for Ceramics, Refractories
and Raw Materials, Pilsen

Mr. S. Hora, Head of the Division,
Research Institute for Ceramics, Refractories
and Raw Materials, Division at Horní Bříza

Mr. S. Vaněk, Chief Researcher, Research
Institute for Ceramics, Refractories and
Raw Materials, Division at Horní Bříza

Mr. Z. Štěpánek, Head of the Division,
Research Institute for Ceramics,
Refractories and Raw Materials,
Division at Karlovy Vary

Mr. M. Bareš, Chief of Laboratories,
Research Institute for Ceramics,
Refractories and Raw Materials,
Division at Karlovy Vary

V. ADMINISTRATIVE ORGANIZATION OF THE PROGRAMME

1. Administrative Work

Administrative staff was engaged in organizing and arranging lectures, plant visits in factories, board and lodging arrangements, local transportation, social events, providing of visas and air-ticket booking, etc.

2. Secretariat and Audience Room

The Secretariat of the Workshop was established in the premises of the UNIDO-Czechoslovakia Joint Programme, the Audience Room in the URAL Hotel in Pilsen.

3. Lodging and Board

Lodging and board were provided in the URAL Hotel in Pilsen.

VI. EVALUATION MADE BY THE PARTICIPANTS

The evaluation of the Industrial Workshop made by the participants was very positive. The participants appreciated that the Industrial Workshop in Pilsen complemented the UNIDO Consultation on Building Materials Industry in Athens from the practical point of view. (Annex IV)

The participants were aware that three days time was not long enough to make detailed technological and industrial studies in the Institute and in factories visited. However, all of them appreciated that they got acquainted with the basic high standard of researching and manufacturing methods applied in the building materials industries in Czechoslovakia. The participants from developing countries were enabled to negotiate the problems related to planning, industrial development of manufacturing technology, standardization, quality control testing, categorization and integrated exploitation of indigenous non-metallic raw materials. The participants from developing countries evaluated information gained during their presence in the Industrial Workshop as very useful for their further activities in their home countries.

During the visits to the Research Institute, factories of the Czechoslovak Ceramic Works as well as during round table discussions conducted in the UNIDO-Czechoslovakia Joint Programme in Pilsen, the participants expressed their recommendations and wishes as for the co-operation with the UNIDO-Czechoslovakia Joint Programme in Pilsen in the field of training, non-metallic raw materials testing and evaluation for the industrial application and commercial exploitation, energy conservation, technical assistance and assistance to establish laboratories and research facilities in their home countries. Publications of the UNIDO-Czechoslovakia Joint Programme were of a great interest for the participants. Some in the Joint Programme available publications were submitted to the participants during the Workshop, the other will be requested from INTIB, UNIDO Vienna.

The participants, high qualified and positioned persons, evaluated the Industrial Workshop and pointed out facts important for further training programmes. The UNIDO-Czechoslovakia Joint Programme, with its Headquarters in Pilsen, which is the centre of Czechoslovak non-metallic industries, backed by the Czechoslovak Ceramic Works, was the very institution to organize and handle this type of workshop.

The scope of the programme was considered adequate with the view to limited time and the Workshop itself contributed to the knowledge of participants. The participants agreed that the principal merits of the Workshop concerned the overall review of the situation in building materials industries which participants could gain, particularly the possibility of comparing what is realizable and adequate with respect of their home conditions and what is not. They were enabled to judge and assess possibilities of technology adaptation in this sector.

The participants recommended to repeat organization of industrial workshop on other specialized topics, especially those of supreme concern of developing countries - production of red bricks, roofing tiles, hourdis and other fired-clay prefabricates. They recommended that not only technology but

also technical design, projecting and planning supported by detailed flow sheets of production and equipment descriptions and characteristics should be included in the future programme.

The participants in the Workshop also presented individual requests and recommendations that expressed the needs of their home countries in the industrial development of building materials, ceramic and non-metallic industries. They wished to see UNIDO be informed of it under separate reference.

The participants from developing countries expressed their thanks to

UNIDO for arranging the Post-Consultation Industrial Workshop in Czechoslovakia and for getting advice from its Representatives on proper submitting of requests,

Dr. A. Lošťák, General Director of the Czechoslovak Ceramic Works and Director of the Industrial Workshop, for active engagement in the Workshop and for permission to visit selected plants of the Czechoslovak Ceramic Works,

Mr. Z. A. Engelthaler, Director of the Research Institute for Ceramics, Refractories and Raw Materials and Chief Executive of the UNIDO-Czechoslovakia Joint Programme in Pilsen, for well prepared programme of the Industrial Workshop, personal involvement into plants' and Research Institute's visits as well as for leading round table discussions during the Industrial Workshop,

UNIDO-Czechoslovakia Joint Programme staff members for arranging smooth and successful implementation of the Post-Consultation Industrial Workshop in Pilsen.

The participants from developing countries recommended to organize similar Industrial Workshops as the Post-Consultation's industrial implementation in the future.

Industrial Workshop on Building Materials Industry
Pilsen, Czechoslovakia, 1 - 3 April 1985

List of participants

Mr. Joseph NGOLE
Director
Department of Building Materials
Ministry of Industry
Bangui
CENTRAL AFRICAN REPUBLIC

Mr. Abraham WORKINEH
General Manager
Ethiopian Construction Materials Corporation
P. O. Box 5303
Addis ABABA
ETHIOPIA

Mr. Abdul R. COLE
Senior Planner
Industrial Development Unit
Ministry of Economic Planning and
Industrial Development
Banjul
GAMBIA

Mr. Louis JADOTTE
Director
EPPLS
c/o UNDP Office,
P. O.Box 557
Port-au-Prince
HAITI

Mr. Fulgencio MAGAIA
Director
Small-scale Building Materials Department
Ministry of Construction and Water
Maputo
MOZAMBIQUE

Mr. Fernando MONTES OROZCO
Director General de la Rama Materiales de Construction
Ministry of Industry
Managua
NICARAGUA

Mr. Ekachai SUNTORNPONG
Acting Director
Building Industrial Research Department
Thailand Institute of Scientific and
Technological Research
Ministry of Science, Technology and Energy
Bangkok
THAILAND

Mr. Mohamed Habib GUETARI
Directeur Général
Centre Technique des Matériaux de Construction,
de la Céramique et du Verre
Rue 8201 no. 5
Cité El Khadra
Tunis
TUNISIA

Mr. Adiel Abraham NYITI
Head of Building Materials Sector
Ministry of Industries and Trade
P. O. Box 9503
Dar es Salaam
UNITED REPUBLIC OF TANZANIA

Mr. Nguyen VAN THIEN
Director of the Division of the Manufacture
of Building Materials
Hanoi
VIETNAM

Mr. Abdul Rahman C. SHAMSAN +/
Deputy General Manager of Technical Department
Ministry of Public Works
Sana'a
YEMEN ARAB REPUBLIC

Mr. Ali M. AL-THULAYA +/
Technical Department,
Ministry of Public Works
Sana'a
YEMEN ARAB REPUBLIC

+/
Participants from the Yemen Arab Republic attended the
Workshop at their own costs.

Annex II

List of Lectures and Lecturers

1. Development of the Building Materials Industries
in Czechoslovakia

Dr. Alois Lošťák
General Director,
Czechoslovak Ceramic Works

Trojská 13
182 00 P r a g u e
Czechoslovakia

2. Technological Development of the Ceramic Industry
in View of Local Raw Materials and Energy Conservation

Mr. Z. A. Engelthaler
Chief Executive,
UNIDO-Czechoslovakia Joint
Programme and
Director,
Research Institute for Ceramics,
Refractories and Raw Materials

P. O.Box 211
305 11 P i l s e n
Czechoslovakia

Annex III

Industrial Visits

Manufacture of glazed and unglazed
floor tiles

Chlumčany Ceramic Works,
Chlumčany

Ceramic wall tile production,
problems of evaluation of local
clays in the stoneware building
products manufacture, in the
production of sanitary and
sewage pipes, industrial
floor tiles, paving and
facing tiles, bricks,
comparison of continuous and
periodical firing conditions

West Bohemian Ceramic Works,
production plants at Horní Bříza
and Třemošná

Problems of exploitation of
local clays in the manufacture
of light-weight aggregates,
insulating building blocks
manufacture

Civil Engineering Corporation,
Karlovy Vary,
production plant Keramzit at
Vintířov

Development and research
of clay building materials,
inventory testing and categorization
of local raw materials

Research Institute for Ceramics,
Refractories and Raw Materials,
Pilsen
Division at Horní Bříza and
at Karlovy Vary

Round table discussions

UNIDO-Czechoslovakia Joint Programme,
Pilsen



UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE

P.O. BOX 300, A-1400 VIENNA, AUSTRIA

TELEPHONE: 26 310 TELEGRAPHIC ADDRESS: UNIDO VIENNA TELEX: 136012

REFERENCE:

EVALUATION OF IN-PLANT GROUP TRAINING PROGRAMMES

Name of participant:

Home country:

Programme: Industrial Workshop
on Building Materials Industry,

Host country: Czechoslovakia

Year: 1 - 3 April 1985

I Pre-programme information

1. What is your opinion about the advance information on the programme received in your home country? (Please indicate with an X in the appropriate box).

| | Sufficient | Too little | None |
|-----------------------|-------------------------------------|-------------------------------------|--------------------------|
| Aim of programme | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Contents of programme | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Level of programme | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Do you think that additional information should have been provided? If so, please state your suggestions:

II Concept and organization of programme

2. What is your opinion about the contents of the programme?

appropriate

not appropriate

If not appropriate, please state why:

Lot subjects for three days

3. What is your opinion about the level of the programme?

- too high
- sufficient
- too low

4. Is, in your opinion, the programme:

- too specialized
- too broad (covering too many subjects)
- correct in its concept

5. What is your opinion about the total duration of the programme?

- much too short
- too short
- correct
- too long
- much too long

If too short or too long what should have been the duration?

2-3 weeks.

6. Do you consider the size of the total group of participants:

- too large
- adequate
- too small

7. Give your opinion about the composition of the group of participants (homogeneity as to cultural background, profession, age, etc.). Where there too many under-qualified or over-qualified participants? Did you personally feel integrated in the group or, if not, why?

8. What is your opinion about the general character of the programme? Should it, in your opinion, be:

- More practical
- more theoretical
- as it is

9. How was, in your opinion a) the amount of practical training?

| | |
|------------|-------------------------------------|
| too much | <input type="checkbox"/> |
| adequate | <input checked="" type="checkbox"/> |
| too little | <input checked="" type="checkbox"/> |

b) the amount of theoretical studies (lectures):

| | |
|----------|-------------------------------------|
| too many | <input type="checkbox"/> |
| adequate | <input checked="" type="checkbox"/> |
| too few | <input checked="" type="checkbox"/> |

c) the number of study visits:

| | |
|----------|-------------------------------------|
| too many | <input checked="" type="checkbox"/> |
| adequate | <input checked="" type="checkbox"/> |
| too few | <input type="checkbox"/> |

Please state your suggestions for changes, if any:

10. What is your opinion about the time allotted to language studies?

| | |
|--------------------------|--------------------------|
| absolutely indispensable | <input type="checkbox"/> |
| useful | <input type="checkbox"/> |
| unnecessary | <input type="checkbox"/> |

Please indicate to what extent you could communicate with the personnel of the factories where you had your in-plant training:

11. What is your opinion about the training material used?

12. Did you have sufficient time for a professional exchange of views with instructors:

| | |
|-----|--------------------------|
| yes | <input type="checkbox"/> |
| no | <input type="checkbox"/> |

with fellow participants:

| | |
|-----|--------------------------|
| yes | <input type="checkbox"/> |
| no | <input type="checkbox"/> |

with staff of the factories:

| | |
|-----|--------------------------|
| yes | <input type="checkbox"/> |
| no | <input type="checkbox"/> |

13. Did you benefit from that exchange

| | | | |
|-----------------------------|-----|--------------------------|---|
| with instructors: | yes | <input type="checkbox"/> | 6 |
| | no | <input type="checkbox"/> | |
| with fellow participants: | yes | <input type="checkbox"/> | 2 |
| | no | <input type="checkbox"/> | |
| with staff of the factories | yes | <input type="checkbox"/> | 2 |
| | no | <input type="checkbox"/> | |

14. Did you feel that you could influence the programme content?

| | |
|----------|--------------------------|
| much | <input type="checkbox"/> |
| somewhat | <input type="checkbox"/> |
| little | <input type="checkbox"/> |

III Relevance and applicability of the programme

15. Did you find the programme as conducted relevant to the conditions in your home country:

| | |
|------------------------|--------------------------|
| to some extent only | <input type="checkbox"/> |
| to a sufficient extent | <input type="checkbox"/> |
| to a great extent | <input type="checkbox"/> |

16. Do you think this programme should be repeated?

| | | |
|-----|--------------------------|----|
| yes | <input type="checkbox"/> | 10 |
| no | <input type="checkbox"/> | |

17. If yes, do you think it should be held

| | | |
|---------------------------------------|--------------------------|---|
| in the same country and place | <input type="checkbox"/> | 8 |
| in the same country but another place | <input type="checkbox"/> | 1 |
| in another developed country | <input type="checkbox"/> | 1 |

Please state the reasons for your answer:

18. Do you feel that your participation in this programme has benefitted you professionally?

- to a very small extent
- to some extent 9
- to a sufficient extent 1
- to a high extent
- to a very great extent

19. Do you think that the qualifications you have acquired will be recognized in your home country?

- yes 4
- no

20. Will you have the opportunity to pass on the acquired knowledge in your home country?

- to a very great extent
- to a great extent 2
- to a certain extent 1
- to a limited extent
- to a very limited extent

21. How ill the transfer of knowledge be made?

- a) during daily work with colleagues and personnel 3
- b) during meetings organized for this purpose in your company 1
- c) during meetings organized on a bigger scope:

Are you of the opinion that you might encounter difficulties in passing on the knowledge obtained. If so, what are the problems you are anticipating?

22. Other suggestions:

Note: It was agreed that participants would respond only questions which they considered relevant with regard to the three-day programme.