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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

TRAINING WORKSHOP
ON
APPLICATION OF COMFAR III Expert FOR PROJECT APPRIASAL

UNIDO
TEHRAN
ISLAMIC REPUBLIC OF IRAN

23 January-11 February 1999

FINAL REPORT

Prepared by: J. Lukasik UNIDO Consultant
Back-stopping Officer: J. Moongananiyil

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* This report has not been cleared with UNIDO and may not therefore necessarily represent the views of this Organisation.

I. PROJECT BACKGROUND.

Training Workshop on the Application of Computer Model for Feasibility Analysis and Reporting COMFAR III Expert For Project Appraisal was organised by UNIDO in co-operation with the National Petrochemical Company (NPC) in Teheran, Islamic Republic of Iran over the three-weeks' period from 23 January to 11 February 1999.

I.1. Objective.

The main objective of the workshop was to develop and/or upgrade the skills of the group of 15 participants from National Petrochemical Company, most of whom are actively involved in the process of preparation and appraisal of investment projects and have some practical knowledge of the previous versions of the software.

I.2. Location.

The workshop was held in Tehran, at the premises of NPC.

I.3. Facilities.

Training facilities, provided by the host institution, included eight personal computers, LCD screen and overhead projector, whiteboard and photocopying services.

COMFAR III Expert software has been loaded on all computers by the NPC staff prior to commencement of the exercises and case studies. The Organisers arranged highly efficient logistic support, including transport, photocopying services and computer technical assistance.

II. DESCRIPTION OF THE WORKSHOP.

II.1. Workshop Preparations.

Prior to the commencement of the workshop's activities the instructor has been thoroughly briefed by the backstopping officer on the overall objective of the workshop. Selection of the additional training materials was also discussed in detail prior to the commencement of the mission. The materials were shipped to NPC in advance so as to secure the smooth implementation of the workshop. The programme and timetable are appended in Annex 1.

In order to spread the daily load more evenly, the introduction to COMFAR III Expert was done early in the first week of the training. Thus, throughout the whole of first week the daily workload was divided into the presentations of the underlying theories and concepts (morning sessions) and the applications of the software to the practical aspects of the projects' preparation and appraisal (afternoon sessions). Starting from the second week practical applications constituted the majority of the training activities, with lectures confined to ad hoc presentations of the relevant concepts underlying presented COMFAR features and clarifying some finer points of the hitherto presented concepts and theories.

II.2. Workshop's Content.

The program of the workshop was originally designed to comprise four sessions daily, five days a week for the duration of three weeks, commencing at 08.30 and closing at 16:00. The effective daily workload had therefore been set at 6 contact hours per day, with one-hour's lunch break in the middle. However, due to the fact that participants had to attend to their respective duties, it was decided at the request of the organisers to commence training activities at 9:00, thus giving participants time in the morning to attend to most urgent office chores and avoiding further potential disturbance of the workshop's activities in the course of the day.

The following main topics were covered in the course of the workshop:

UNIDO Approach to Project Preparation and Appraisal:

- Macro-economic context of investment decisions,
- Project development cycle,
- Project identification,
- Concepts of project's viability,
- Structure of the feasibility study,
- Reasons for investment projects' failures.

Market Analysis:

- Basic elements of the market study,
- Specification of necessary data inputs,
- Data sources and methods of collection and processing,
- Basic elements of marketing strategy,
- Selected methods and problems of demand and sales forecasting,
- Inputs; parameters' identification and forecasting,
- Elements of export marketing,
- Relationships between market projections and other stages of pre-investment study.

Technical Analysis:

- Raw materials and supplies,
- Location and site,
- Engineering and technology,
- Manpower planning,
- Organisation and overhead costs,
- Environmental impact assessment.

Time Value of Money:

- Compounding and discounting principles,
- Discounted cashflow concept.

Financial Analysis:

- Basic elements of financial analysis,
- Investment costs' schedules,
- Cost of capital,
- Operating costs' schedules,
- Discounted cash-flow analysis,
- Financial appraisal methods:
 - ratio analysis,
 - payback period,

net present value,
 IRR, MIRR, IRRE,
 break-even, sensitivity analysis,
 financial engineering; leverage effect,
 risk and uncertainty in project appraisal,
 Review of financial analysis.

Economic Analysis:

National development objectives,
 Industrial policies and strategies,
 Principles and methods of economic and social appraisal,
 Value added approach,
 Cost-benefit approach,
 Measures of direct and indirect benefits and costs.

COMFAR III Expert:

Graphical User Interface,
 Menu bar: Data entry - introduction,
 Data entry - detailed procedures,
 Selection of results, Calculation module,
 Show Results module, overview and discussion of results,
 Cashflow for financial planning,
 Project's financial structure,
 Data inputs cont'd: sources of finance, profit distribution, taxes, allowances,
 Financial analysis:
 schedules:
 Discounted Cashflow,
 Income Statement,
 Balance Sheet,
 measures of project's viability:
 NPV, short NPV,
 IRR, MIRR, IRRE, return on joint venture capital,
 payback period,
 financial ratios,
 analysis of the alternative financing structures - financial engineering
 and leverage analysis,
 Menu bar: Graphics - break-even analysis,
 Menu bar: Graphics - parametric analysis,
 Menu bar: Sensitivity - discussion of sensitivity analysis,
 Special features: J-V projects, cost allocation, cost escalation, inflation.

At the request of the organisers, the major emphasis of the training activities was put on the maximum utilisation of all available COMFAR III Expert features for the practical financial appraisal of investment projects. Thus only the elementary concepts involved in the economic analysis and appraisal were covered in the course of this workshop.

II.3. Training.

II.3.1. Methods.

Training has been basically organised in accordance with the programme. Departures from the tentative programme contained in the annex were each time thoroughly discussed with the representatives of trainees and organisers. Major changes comprised:

1. reduction of economic appraisal to 3-hours' presentation by the instructor of basic concepts and theories underlying this area of investment projects' appraisal,
2. increasing the time allocated to intricacies of project's financial appraisal,
3. in-depth treatment of aspects of modernisation/expansion projects' appraisal.

Since (with exception of one individual case) no local projects were presented to the instructors for joint appraisal in the course of the workshop – the number of cases provided by the instructor had to be increased to provide grounds for a thorough practical treatment of various dimensions of projects' appraisal process.

Throughout the workshop four basic teaching methods have been applied, i.e.: lectures/demonstrations, discussions, case studies and exercises. The main emphasis was put on the active participation of each trainee through extensive use of hands-on exercises and case studies under the guidance of the instructors.

Before any practical operations were undertaken by the participants each operation/procedure was explained by the instructors. This was reinforced by the individual assistance of the instructors in the course of solving the case studies, since the major objective was to give the participants as much exposure to the practical problem solving as possible.

II.3.2. Instructors.

Two instructors contributed to the substantive content of the workshop:

Mr. J. Moongananiyil – UNIDO staff member and Mr. J. Lukasik - consultant.

Mr. Lukasik has been conducting training activities from the date of the commencement of the workshop. Mr. Moongananiyil joined the workshop for the last week of the program.

II.3.3. Materials.

Participants received copies of the following training materials:

- * Manual for the Preparation of Industrial Feasibility Studies, UNIDO E.91.III.E.18,
- * Guide to Practical Project Appraisal; Social Benefit-Cost Analysis in Developing Countries, UNIDO E.78.II.B.3.
- * Manual for Evaluation of Industrial Projects, UNIDO/IDCAS E.80.II.B.2.
- * COMFAR III Expert Reference Manual,
- * COMFAR III Tutorial Manual,
- * Handouts covering:
 - Project Development Cycle,
 - Market Analysis and Appraisal,
 - Financial Analysis and Appraisal,
 - Economic Analysis and Appraisal.

Copies of the handouts used by the instructors were also distributed in the course of the presentations.

II.3.4. Case Studies.

Due to the clearly defined focusing of the workshop on COMFAR III applications for financial analysis and appraisal no case studies were used in the course of the presentation of the market and technical analysis parts of the programme.

For the purpose of familiarising the participants with COMFAR III Expert software the following approach was assumed in the course of this workshop. The "guided tour" demonstration of the software structure was initially performed by the instructors, while the participants - organised in teams of two - followed every step of the process. This initiation procedure included small exercises, during which the participants had the opportunity to familiarise themselves with the basic principles of the COMFAR operation.

At the next phase the participants solved the Tutorial Manual "Tomato Canning" case study in three stages i.e.: cost data inputs, financial data entry and dividends' distribution plan. Every stage was followed by the comparison of results, discussion and the summary conclusions performed by the Instructors, which included the discussion of the typical errors made by the participants. Final version calculation of results was followed by the analysis of the schedules and the viability criteria.

In order to reinforce the understanding of the intricacies of data entry procedures and to stimulate the attainment of certain level of independent work participants were exposed to the "Krylandia Spare Parts' Manufacturing Workshop" case study. The advantages of this case study comprised:

- less structured form, thus making the case closer to the opportunity studies prepared in the developing countries and requiring more effort and initiative from participants in organising and structuring respective data inputs,

- "open-ended" project financing, which in consequence demanded that participants develop and optimise the financing plan for the project.

The use of graphics was also discussed in detail based on the above case studies.

A "wrapping-up" summary session was made by the instructors after each case study in order to point-out typical errors and highlight the most important new elements learned by the participants.

In order to solidify the acquired knowledge and to introduce some new elements the "Ferocity" Case study was distributed and solved by the participants. This case required more sophisticated treatment of the construction period and a more complex financing scheme, necessitating the use of the profile loan repayment feature.

The problems in appraisal of expansion/rehabilitation projects were illustrated by the extension of the COMFAR III Tutorial Manual case study "Tomato Canning Project". The case was developed by the participants in three stages under the thorough guidance of both instructors.

The application of the cost allocation and cost centres' features of COMFAR was explained thoroughly prior to any practical applications. After few exercises - the participants were referred to the model solutions of "Growmania" and "Sahara" case studies from the tutorial manual for the purpose of thorough analysis and interpretation of results, with special emphasis on the product - by - product profitability analysis. The participants found this

feature of special importance for modelling the product-mix in the petrochemical complexes.

II.3.5. Participants.

The total of 15 participants attended the workshop's activities. Complete list of participants is appended as Annex II.

The participants, the majority of whom had previous - in some cases extensive - experience with COMFAR 2.1. as well as some exposure to COMFAR III Expert, have in general shown high interest in the presented content of the workshop and high level of involvement. The relatively slow apparent rate of progress of the workshop in terms of the program coverage was due to the inquisitive approach of the participants, who would never rest the subject matter until they received, and understood, a fully comprehensive response. In the circumstances both the instructors and the organisers found this approach highly satisfactory, since it appears to guarantee a high level of sustainability of the acquired skills.

It is worth mentioning that almost throughout the entire 3 weeks the workshop enjoyed a 100% attendance.

III. CONCLUSIONS, RECOMMENDATIONS.

The following observations, made throughout the course of the workshop as well as in the course of individual talks held by the instructors on many formal and informal occasions, may be treated as the conclusions and recommendations for the follow-up activities related to this project:

III.1. The organisational aspects of the workshop were excellent.

III.2. The target group of participants appears to have achieved the marked level of skills in applications of COMFAR III Expert to the financial analysis and appraisal. Approximately 70% of the NPC project analysts participating in the workshop appear – in the opinion of the consultant – fully capable of applying COMFAR III Expert for financial appraisal of investment projects without any need for further assistance.

In this context the outstanding performance of Ms. Ravan and Mr. Askari deserves a special emphasis. The participation of those two full-fledged, fully professionally matured project analysts added the special dimension to the workshop. They asked numerous questions, indicating inquisitive approach of the true analysts and a high level of sophistication in the subject matters.

III.3. It is recommended that the most advanced group be given opportunity, at some future time and preferably after a period (approx. 6 months) of intensive usage of the software, to attend the advanced COMFAR III Expert workshop for a refresher of the most sophisticated features of the software and familiarisation with its application for the economic cost-benefit analysis and appraisal.

III.4. The above recommendation is of particular importance in view of the NPC plans, expressed during the meeting, held after the close of the workshop, with Mr. Peivandi – Director, NPC and Mr Mokhtarifar – General Manager, Project Evaluation, to create within this institution a national centre for investment project preparation and appraisal which would render services (both in terms of training in the methodology of preparation and appraisal of

investment projects and practical appraisal of such projects) for other institutions.

III.5. The remaining 30% of the participants require either a thorough build-up of their theoretical/conceptual background or more exposure to the practical aspects of project's appraisal. The instructors frequently had to concentrate on the clarification of basic theories and concepts, the consequence being the slowing-down of the rate of progress in presentation of the planned material. This group will, for at least 6 months, require assistance – to a varying degree - of their more experienced and proficient colleagues.

III.6. Every effort should be made to secure the relatively uniform educational and professional background of the participants for future training activities of the similar character.

Fatemeh Hamidi

Haleh Ravan

Masoud Seyed Asgari

Maryam Rabie

Nasrin Manoochehri

Farshid Zafari

Seyed Ahmad Sadri Tabai

Mohammad Behdarvandi Rad

Alireza Zaherzadeh

Jahanbakhsh Ahmadi Ardebili pour

Hossein Sooki

Sima Javidian

Mehdi Jamshidi

Kamran Jamshid Ghashghaei

Fatemeh Parvareh