OCCASION

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

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

16947

F I N A L   R E P O R T

on

MISSION TO : BEIJING, CHINA

during

JUNE, JULY 1988

prepared by : R. NOVAK

1. Dates of Mission :

The contract was dated between 20 June 1988 and 31 July 1988.
The work to be carried out was divided into three phases :

- Phase 1 (20.6.1988 - 22.6.1988) : Preparation for the travel to Beijing.
- Phase 2 (23.6.1988 - 12.7.1988) : Travel to Beijing, China. Discussions with the chinese partners.
- Phase 3 (13.7.1988 - 31.7.1988) : Follow up of discussions in Beijing, China.

2. Purpose of Mission :

To discuss in co-operation with the UNIDO systems analyst (COMFAR) and the experts of the Computing Centre of the Ministry of Foreign Economic Relations and Trade (CC/MOFERT) the technical and oraganisatorical background for the preparation of a COMFAR version in chinese language. Under the assumption that such a version is technically makable the scope of work, the division of duties between UNIDO and CC/MOFERT and a work programme (time plan) should be worked out.

3. Technical Conclusions :

COMFAR has been developed since 1934 on a hardware which can be defined as follows :

- IBM PC/XT .. AT or any compatible computer with 640 kByte RAM memory.
- Operating System MS-DOS 2.1 or later version
- Monochrome or colour display with 25 lines * 80 columns
- one hard disk
- one flexible disk
- parallel or serial printer

The written chinese language is basically totally different to the english (french, spanish, german, ...) language. Therefore chinese computer experts had made a big effort to make the above listed hardware useable for the chinese language. The Operating System MS-DOS has been adapted so that chinese words can be enterd and displayed. This adapted Operating System for the chinese language is called CC-DOS. It has to be pointed out that this adaptation was made extremly good and successful. Nevertheless some technically problems due to this adaptation have been identified :

- Since chinese words are more complicated than english characters, it depends on the quality of the hardware how many lines can be displayed on tne screen.
- The chinese language is not based on characters but on words. These chinese words need a space of 240 kByte and are stored in

the RAM memory. Due to this fact the useable RAM memory is reduces radically which causes in some modules (GRAFIX) of COMFAR problems.

- IBM PC's and compatible computers are providing the user with a maximum of 256 ASCII characters. CC-DOS is using the upper 128 characters (= ASCII 128 to 255) internally). Since COMFAR is also using those characters the program has to adapted.
- Chinese words cannot be printed in the so called text mode but have to be 'drawn' (= graphic mode). To make this possible chinese computer experts have developed for a limited number of parallel printers special programs. These programs are making the printers incompatible to the way who they are used at the moment in COMFAR.
- In order to allow chinese words to be displayed on the screen special chinese graphic cards have been developed. These cards are causing no problems in the COMFAR modules 'Financial Analysis' and 'ECBA Analysis' but are not compatible to the COMFAR GRAFIX module. To make the COMFAR GRAFIX compatible to those cards research for the reason of this incompatibility has to be made.

4. Research in Hong Kong

During the discussions in Beijing it turned out to be very fruitful to travel back via Hong Kong and to contact and visit the IBM office in order to identify existing solutions concerning the realisation of chinese words on personal computer equipment. I visited the IBM office and spoke with the sales director and a technical informatics expert. It turned out that IBM Hong Kong is using exactly the same CC-DOS as CC/MOFERT in Beijing. In addition IBM Hong Konk promised to inform UNIDO whenever a different and for COMFAR interesting solution is being developed.

5. Necessary Works

On the basis of the above mentioned Chinese Operating System CC-DOS the translation of the existing COMFAR version into chinese language is relativly simple. Based on the experience from the already done translations of COMFAR into different languages, the works necessary, the time needed and the partner responsible are listed below :

Adaptation of COMFAR (excluding GRAFIX)	UNIDO	3 weeks
Translation of dialogue into chinese	CC/MOFERT	7 weeks
Adaptation of COMFAR GRAFIX due to the limited RAM capacity under CC-DOS	UNIDO	3 weeks
Individuell testing of works carried out	CC/MOFERT	1 week
	UNIDO	1 week
Combinding and testing of works carried out by CC/MOFERT and UNIDO	CC/MOFERT UNIDO	3 weeks
Resaerch on incompatibility between GRAFIX and CC-DOS	CC/MOFERT UNIDO	?

During the discussion in Beijing the following time plan due to the

activities both in UNIDO and CC/MOFERT has been agreed. The works
listed above should be carried out individually and the final
meeting for the combining and testing of those works should be held
in Vienna after November 15, 1988.

For details concerning the discussions and conclusions see the
attached 'Minutes of Meeting'.

Vienna, 29 July 1988

Jonah R.

Minutes of Meeting

Meetings at the Computing Centre (CC) of MOFERT from July 4 to 6, 1988, between :

Mrs. Cai Shitao	(CC)
Mr. Zhou Yiping	(CC)
Mr. P. Hawranek	(UNIDO)
Mr. R. Novak	(UNIDO)

A. Findings and Conclusions

1. Based on former discussions between MOFERT and UNIDO it was agreed that two UNIDO experts come to Beijing to analyse and discuss with the experts of CC the preparation of a COMFAR version in chinese language. After definition and agreement on the work which can be carried out seperatly in China and at UNIDO head quarters, the experts shall meet again after completion of this work, this time in Vienna in order to finalise the chinese program.

2. Mr. Novak, UNIDO informatics expert, started his work in cooperation with two experts of CC on June 27, 1988. The experts have come to the following results :

   a) CC DOS 2.1 as available at CC is not fully compatible with PC DOS (IBM), that means that the COMFAR system in principal operates under CC DOS with the exception of COMFAR GRAFIX.

   b) Since COMFAR requires a 25 line display and the adaptation of COMFAR for a 10 line display would require a very time consuming redesign of the user interface and reprogramming, it has been agreed between MOFERT and UNIDO that all resources be concentrated on a 25 line display version which shall be compatible with the following hardware (PC DOS and CC DOS) :

      - IBM PS/2
      - Great Wall PC (IBM compatible)
      - IBM PC/XT with Chinese Graphics Adapter and high resolution display (640*400). If a 640*200 display is used COMFAR is compatible, however, the quality of the display is rather very low.

      For printing under CC DOS special drivers are required which have been developed in China.

3. During the stay at CC the UNIDO expert adapted in cooperation with CC experts utility programs for the preparation of chinese COMFAR dialogue and text files. The programs were successfully tested with preliminary translations of the english text.

4. The COMFAR GRAFIX program has been developed using the GSS Graphics Toolkit (Pascal binding and GSS device drivers). It was found that the GSS screen drivers are not compatible with CC DOS.

B. Recommendations for future work plan

5. CC will translate the english text of COMFAR (on IBM PS/2) into chinese language. The translation will be based on the chinese version of the COMFAR User's Guide which was prepared by CC in the course of 1987. For this purpose CC will obtain from UNIDO the following utility programs :

   - CEDITOR.EXE
   - CHEADER.EXE
   - TABIFIL.EXE
   - TABITEX.EXE
   - CRHELP.EXE
   - CONV.EXE

6. For the translation and testing work CC will also require the complete COMFAR 2.1 version (english) including the GRAFIX and ECBA system. Since CC has the user license for the COMFAR Main System (Financial Analysis) only, the existing license needs to be extended in order to include COMFAR GRAFIX and ECBA.

7. With regard to COMFAR GRAFIX CC will analyse the incompatibility problem in cooperation with the supplier of the CC DOS operating system. UNIDO will send information on the GSS system as available.

8. It is planned that the experts of CC and UNIDO meet in Vienna to finalise the chinese language version of the COMFAR Main System and COMFAR ECBA. During this meeting the result of research work for the evantual adaptation of CC DOS and/or the COMFAR GRAFIX system shall be discussed in order to determine a feasible way for the preparation of GRAFIX in chinese language.

9. UNIDO will prepare for this meeting in Vienna :

   - The adaptation of the screenfunctions, to allow use of all chinese characters.
   - Conversion of characters from ASCII characters 128 to 255 to the chinese substitutional characters.
   - Extend COMFAR for the use of the standardised chinese printer interface.
   - Reprogramming of the COMFAR GRAFIX module to make the display and memory allocation compatible to CC DOS (long heap, invisible attribute).
   - Research on GRAFIX GSS environment and device drivers application.
   - The revised version will be tested before the meeting.

10. It is proposed to have the meeting in Vienna after November 15, 1988. The time required is estimated at :

    CC experts :   4 to 5 man weeks
    UNIDO experts : 4 to 5 man weeks

C. Budget and Financial Considerations

11. Input from HOFERT/CC :

- Translation of COMFAR User's Guide into chinese. US$ 3000
- Translation of COMFAR dialogue and report files. US$ 1000 .. 5000
- Travel costs Beijing-Vienna-Beijing. US$ 3700 .. 7400
- Chinese Grafics Card (for testing at UNIDO, US$ 1000
  to be returned to CC after completion).

  US$ 8700 .. 16400
- Analysis of the CC DOS. US$ ....

12. Input from UNIDO :

- Analysis in China and the adaptation of utility
  programs and screenfunctions and
- Adaptation of COMFAR (ASCII char. 128 to 255,
  standardised chinese printer interface. US$ 10000
- Reprogramming of the COMFAR GRAFIX module. US$ 5000
- Travel costs Vienna-Beijing-Vienna. US$ 7400
- COMFAR 2.1 license extension. US$ 700
- GSS drivers and drivers test program for testing. US$ 0
- DSA costs for UNIDO experts in Beijing. US$ 3500
- DSA costs for HOFERT/CC experts in Vienna. US$ 4000 .. 5000

  US$ 30600 .. 31600
- Research on GRAFIX GSS environment and device
  drivers application. US$ .....

13. Calculation of required license fee

a) English, arabic, french, german, russian and spanish COMFAR 2.1 will
   be licensed under the conditions specified in the UNIDO license fee
   list:

- complete COMFAR 2.1, each language: US$ 3,200 (US$ 1,900)*

- Financial and GRAFIX (excluding the
  Economic Analysis), each language: US$ 2,600 (US$ 1,600)*

  * the license fees in () are valid for Government institutions in
    developing coutries, as eg. ministries, development studies and
    financing institutions, universities and other training and
    research institutions.

UNIDO has already authorised a number of agencies to act as COMFAR
promoters in their respective home countries. In this case a letter of
authorisation is issued by UNIDO. Under the condition that the
Promotor can assure the necessary technical support for the
installation of COMFAR, the license fee will be shared between the
Promotor and UNIDO and each party shall receive 50 % of the license fee
due in accordance with UNIDO's licensing conditions.

b) Chinese language version:

From UNIDO's point of view licensing of the chinese language version of
COMFAR shall follow the same rules and procedures. Under the condition
that HOFERT/Computing Centre would act as authorised COMFAR promotors

in China, the basic fee could also be devided between the two partners.

- Each Chinese COMFAR 2.1 would then be licensed as indicated under item (a) above.

c) Chinese + English (French, Spanish etc.) Version of COMFAR:

In case a license is acquired for two or more language combinations the second language would be licensed with a reduction of 50 %. Therefore, eg. a combination of Chinese and English (or of English and Chinese) woukd be licensed for a fee of:

> US$ 4,800 in the case of companies, or
> US$ 2,850 in the case of government institutions in developing countries.