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COMMENTS ON COMFAR-ECBA
(Systems Analysis dated 5 December 1986)

1. GENERAL REMARKS

The methodology of ECBA adopted for COMFAR ECBA was based on two UNIDO Manuals. Group A on the "Guide to Practical Project Appraisal. Social Benefit-Cost Analysis in Developing Countries" and Group B on the "Manual for the Evaluation of Industrial Projects". My comments on COMFAR ECBA would concentrate on three aspects

- on the methodology itself (how it is coordinated with the original methodology on which it is based)
- on the contents of schedules presenting the results of calculations and on the calculation methodology
- on eventual simplifications of the dialogue and data entry into the computer in order to make it more practical and user-friendly.

All my remarks are made under the assumption that ECBA provides only approximate results based on a certain amount of subjective judgement. Therefore if the inputs (adjustments in this case - in addition to the data taken from financial COMFAR) might be considered as likely within a certain range the same is true for the results. That is why I am proposing some suggestions on simplifications in the adjustment's system and in the data entry.

Some of my remarks take into account the COMFAR complex as a whole (Financial and Graphics and ECBA). For sure the financial part constitutes its basic element, by far the most important. Therefore, the presentation of the schedules should reflect also the relative importance of different parts of COMFAR. Graphics illustrate the schedules or provide additional information on ex. financial ratios. ECBA, although based on complex and often complicated methodologies, cannot exceed in size the financial part on which it is based. The number of schedules in Group A could be limited to 2-3 and in Group B to 3-4. Larger number of schedules makes interpretation very difficult and someone interested in background information should have a possibility to look into input or output table (in this case into modified source table) like in financial COMFAR - detailed remarks and proposals follow.

2. THE METHODOLOGY

ECBA in COMFAR is based on two methodologies quite different one from another. Data entry system in COMFAR ECBA is common for the two methodologies that leads to some misunderstandings later on in the schedules as part of information is presented twice, but in a different way (ex. what is considered as externality in "Practical Guide ..." partly enters into "indirect income" or "indirect cost" accordingly to the "Manual for ...". The user wishing to appraise a project only according to the Group A might come across the question how to enter indirect outputs and costs and where they would be reflected (there is no place for them in the schedules of Group A).

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All the methodologies based on adjusted prices (taking into account shadow prices) are to some extent similar although they are different in the approach to some of the items that are to be adjusted. These methodologies (OECD, World Bank, UNIDO) also differ as far as the procedures are concerned. UNIDO's methodology ("Practical Guide...") has the following procedure:

1. Identification of the data to be adjusted (in the cash-flow table)
2. Determination of the Adjustment Factors and calculation of the adjustments (market price distortions)
3. Calculation of the preliminary adjusted values
4. Determination of the Adjustment Factor for foreign exchange and calculation of corresponding adjustments (accordingly to foreign component contents of different items)
5. Calculation of the "economic value" of project.

The next phase consists of the analysis of adjustments to the cash-flow (calculated under 2 and 4) called "Income Flow Analysis". This phase provides data for evaluation of the project's impact on savings (6) and on more equal distribution of income (7). Both savings and distributions impact of project's implementation involve a loth of subjective judgement and therefore the use of computer technique in this case seems inappropriate (COMFAR ECBA excludes this part of analysis).

8. The externalities are added to the adjusted cash flows (they might include at this stage income distribution and savings impact).

The procedure used in COMFAR ECBA is slightly different. It uses the possibilities offered by the computer. The first phase might be called in this case: "Preparation of data for adjustments". COMFAR offers a possibility to adjust and to rearrange the data not from the cash flow but from the source, which is in this case some 70 or more items (in case of the "Practical Guide ..." did not exceed 10-15). The "Practical Guide..." recommends one adjustment for the whole period of the project (assuming that in any case the Adjustment Factor does not involve any financial obligations and therefore one factor is a sufficiently good approximation). COMFAR ECBA offers the possibility of annual adjustments. One could ask why in this case annual adjustments have to be better than one adjustment for the whole period. The Adjustment Factor determination involves a dose of subjective estimation. It is easier to make one serious effort to set just one AF than the whole vector of AF without any guarantee that the vector is better than one AF for the whole line.

The same remark holds true for both types of adjustment factors for market price distortion and for foreign exchange. The COMFAR ECBA AF for foreign component is to be entered in 6 different tables and the user has a possibility to specify different AF for each of the lines of these tables and for each year separately. In practice, one AF would be sufficient for all foreign components (one entry like in financial COMFAR instead of several steps in each of the 6 tables in order to enter the same AF for all foreign items).

Unlike in the "Practical Guide..." COMFAR ECBA uses the conversion factors (CF) instead of AF. The final result in terms of the mathematical calculations of the IRR is the same but this is rather (not exactly) Little and Mirrlees approach. This change makes impossible income flow analysis (adjustments) unless one wants to do it manually.

COMFAR ECBA calculates in the first step of adjustments preliminary adjusted values and IRR accordingly but with externalities added to the flows. This gives a wrong picture of the project after the first and second adjustment. The basic idea of all the methodologies of project evaluation is to verify first how the project would look like in the absence of price distortions and of price controls (market prices and exchange rate). Afterwards, a new light is shed on the project - its impact on other factors of economic activity in the country by adding the externalities.

Presently, I suggest to eliminate the externalities from step 1 and step 2 of adjustments and add them as step 3. Eventually all the adjustments could be made and presented in one schedule (as it is done in the "Practical Guide...") and the IRR could be presented below, as it is done in the financial COMFAR.

The actual presentation of COMFAR ECBA practically requires the preparation of a new manual for ECBA explaining our philosophy of approach. The reader used to our methodology ("Practical Guide...") would have difficulties in following all the steps of ECBA in the new COMFAR. It is not only the question of introduction to the procedure but also the explanation of the objectives - what we want to obtain and what is the purpose of the whole exercise (this task goes beyond the software itself but for sure has to be dealt with in the COMFAR Users Manual not only as an instruction on how to operate the software, but first of all explaining the approach and its economic background).

Group B of COMFAR ECBA is closer related to its original methodology than Group A. However, all the calculations are done only for direct and indirect effects combined, while usually first the direct effects are evaluated and only afterwards some indirect effects are evaluated and added eventually. When all the data are entered during the first phase (including indirect outputs and costs) we risk to have a result that might change the image of the project. Therefore I would suggest to make Absolute Efficiency Test (both for market and adjusted prices) for direct effects and for combined effects separately. In most cases probably the data for indirect incomes and costs would not be available and their estimation would be uncertain and subject to manipulation depending on the point of view represented by the evaluator.

The same remark concerns Foreign Currency Impact. Direct and joint effects should be evaluated separately (direct effects are much more likely than indirect effects, especially that at the stage of preinvestment of project A very little is known on eventual projects B and C benefiting from implementation of project A).

The last schedule in Group B called Net Income Flow Analysis should be rather called Distribution of the Net Domestic Value Added. The name is slightly misleading as Income Flow Analysis in Group A (or rather in the "Practical Guide...") has a well defined meaning. Distribution of value added is already earmarked - wages go to labour, profits to the capital owners, taxes to the government, etc. In this case there is no analysis of the flows of incomes in a sense that the additional benefits of one group make another social group poorer by this amount.

3. DETAILED REMARKS ON THE CONTENTS OF SCHEDULES IN COMFAR ECBA

Schedules 1.1.a - 1.3.a Foreign, Local and Total Cash-Flows at Adjusted Market Prices

1. Sales revenues should be taken with sales and other indirect taxes (it expresses consumers' willingness to pay).
2. "Other income" is not clear and difficult to explain (it is a new element that is not included in the "Practical Guide's..." methodology.
3. Externalities should be excluded from these three schedules. As pointed out earlier they are added in the last phase of adjustments in order to keep the picture clear throughout the whole procedure.
4. What is considered as externalities in schedule 1 and 2, is not the externality in the sense of the "Practical Guide...". It is the indirect income (E 115 - correctly should be output) that is later on needed for value added calculations, as indirect costs (E 112, E 113, E 114 or E 116 etc.).
5. The term externalities inflows or outflows should be replaced by benefits and costs (they add to the benefits of other economic agents or to their costs).
6. Calculation of the EIRR's in the "Practical Guide..." was based on approximate methodology (quite sufficient in case of ECBA but may be not exact enough for financial IRR's). It involved calculation of the NPV's of all the lines at three different discount rates (0%, 10% and 20%). The discount rates had not real economic meaning here (except for the 0% as it indicated directly that the cost exceeded the benefits when NPV $<$ 0 and the project would have to be rejected). This methodology ("practical") was designed for the manual calculations. COMFAR ECBA uses the computer calculation facilities and we do not really need three different net present values here. The NPV at 0% discount might be left and eventually one discount rate might be offered to the user to specify the "shadow discount rate" (whatever it is called) to enable him the calculation of the "economic NPV". The absolute value of the NPV has very little meaning and the user knows that the NPV is negative when EIRR $>$ SDR.
7. The combination of the three schedules would make this part of COMFAR look more elegant. It could have the same structure (to some extent) as the cash-flow table in Financial COMFAR and would permit to calculate both EIRRs on investment and on project (taking into account the sources of finance and their structure).

Schedules 2.1.a, 2.3.a

1. The remarks 1-7 above are valid for these schedules as well.
2. As there is only one shadow exchange rate, and the data were rearranged during the first step of analysis in order to make the adjustments possible, there is no need for the two separate schedules.
3. The cash-flow to be adjusted in this case is not financial (as in 2.1.a and 2.3.a) but the preliminary adjusted values from step 1.
4. I cannot verify (because there is no schedule 2.2.a) if the adjustments of some foreign components of local inputs and import substituting outputs were correctly made.

Schedules 1.1.b, 1.2.b, 1.3.b, 2.1.b, 2.3.b

1. These schedules indicate the annual percentage adjustments to cash-flows. They summarize the data entered during data entry system of the COMFAR ECBA. As I mentioned earlier, the ECBA is highly subjective and the specification of annual adjustments to the cash-flow is too detailed for this kind of analysis. Therefore, I suggest not to include these schedules in the presentation of the COMFAR ECBA results.

2. Instead of annual adjustments the analyst could use an average adjustment factor (in this case a conversion factor) that could give as good a result as the annual adjustments, but would be much more practical and easier to explain. Eventually, we could think about a possibility to specify a vector of differenciated SER over the project's life time (but the same SER would have to be used for all the foreign components for a given year - this remark is valid for data from schedules 2.1.b and 2.3.b).

Schedules of Group B

1. Absolute Efficiency Test at Market Prices and Absolute Efficiency Test at Adjusted Prices should be made separately for direct effects and for combined effects (direct and indirect). Right now, the user can see the direct effects only when, during the data entry phase (COMFAR ECBA) the indirect effects are not entered. For this purpose the structure of the two schedules should make a distinction between direct and indirect effects as it is shown on page 84 of the Manual.

2. The separation of the unskilled labour is not necessary here as this type of labour is not adjusted. R-13 should rather indicate the skilled labour as it is used later on for calculation of E(L).

3. Some attention is to be given to the terms used in the descriptions (menus, User's Manual). What is called income - direct and indirect ex. part 3, p.22 - is not income but sales revenues. The remark on externalities made before is also valid here. The externalities are not the same as direct and indirect incomes that could be taken for calculation of the indirect value added.

4. I suggest to use only one discount rate (social rate of discount). The use of the two rates is not justified from the economic point of view as there is only one SRD. Eventually we could think about a graphical presentation of the value added as function of the discount rate. It reflects much better what is going on with the discounted value added or its components.

Schedule: Foreign Exchange Effect

1. The schedule shows only combined effects on foreign exchange situation of the country (direct and indirect). The conclusions should be drawn first on direct effects. Indirect effects could be in this case biassed heavily by subjective judgements that are likely to change dark into bright.

2. See remark 4 above.

Schedule: Net Income Flow Analysis

1. The title should be Distribution of the Net Domestic Value Added (eventually Structure of ...).

2. The user should have the option to see ex. three different years as in the COMFAR Summary Sheet.

3. One column of this schedule could show the discounted value added of the project. In this case in line 2 instead of annual depreciation the discounted value of investment should be shown.

4. The lower part of the schedule should have the structure corresponding to the structure of the "Manual..."

   r 9 Net National VA
   Wages
   Surplus
   Interest
   Taxes
   Profits (dividends + undistributed profits)

   Distribution indices should indicate what goes to

   - workers
   - capital owners (dividends + interest)
   - government
   - enterprises (undistributed profits increasing self-financing capacities of the enterprises)

5. Some corrections are to be made in the description of the table. r 10 should be wages and not domestic wages.

   r 16 - project earners
   r 17 - government
   r 18 - undistributed profit
   r 19 - r 22 - should be adjusted accordingly

6. I would eliminate from dec 1 "construction phase".

4. RECOMMENDATIONS ON THE NUMBER OF SCHEDULES

Some of the proposed schedules are relevant, some of them are not. The number of schedules summarizing the economic analysis of the project does not have to reflect the complexity of the software. The number of schedules limited only to the essential ones for the decision makers would, in my opinion, improve the presentation and would make their interpretation easier. We have to keep in mind that the economic analysis is made by a limited number of economists with high skills but the results are to be presented to the decision makers who do not have to be highly trained economists. That is why the presentation of the results should be as clear and as simple as possible although the methodology of the calculations and approach is very complex.

PROPOSED SCHEDULES STRUCTURE

Schedule 1. Adjusted Cash-Flow (Market Price Distortions, Foreign Exchange, Externalities)

	Financial NPV		Factors	NPV Adjusted Values (Market Price)		Fact.	Forex Adjusted Values	
	0%	P%					0%	P%
The structure as in Table 10 ("Practical Guide..."). Combination of Schedule 1.1.a, 1.2.a, 1.3.a. Lines from existing tables could be used for consolidated figures. Separate presentation of net foreign cash flow is not necessary. Specification of loans and overdrafts is not necessary (they are in the interest and repayment*)								

IRR (financial)
EIRR (after price distortions adjustments)
EIRR (after foreign exchange adjustments)
EIRR (after externalities added)

*) All other remarks from the text relative to this table are valid for this schedule.

Schedule 2. Absolute Efficiency Test at Market Prices.

Subject to my remarks in the text, the structure could be the same but

r 15

r 17

and the Test should be made separately for direct effect and for combined effect (direct + indirect).

Schedule 3. Absolute Efficiency Test at Corrected (Economic) Prices.

Same remarks as for Schedule 2.

Schedule 4. Foreign Exchange Effect.

Same remarks as for schedules 2 and 3.

Schedule 5. Distribution of the Value Added.