

II. TOMATO CANNING

This exercise is intended to introduce a new user to the basic concepts and procedures of COMFAR *III Expert*. Only financial analysis is performed. Data are kept to a minimum to concentrate on the main features of the program. The program features which are not used in this case study are not explained here. Please refer to the *Reference Manual*.

The project is a new enterprise to produce and export a maximum of 2,600 tons of canned tomato at a price of US\$ 100 per ton. The project financial structure involves a single class of equity shares and a loan provided by a development bank.

The objective of the exercise is to produce the following pro-forma financial statements and performance indicators:

- Net income statement
- Cash flow for financial planning
- Discounted cash flow, total capital invested, NPV, NPVR, IRR, Modified IRR
- Discounted cash flow, total equity invested, NPV, IRR, Short NPV, Modified IRR
- Break-even point, third year of production
- Projected balance sheet
- Ratios

Data concerning all aspects of the project including currency exchange rates, initial fixed investment, production costs, sales programme, working capital requirements and financial conditions are provided in the appropriate sections below.

<p><u>Note:</u> Every save operation (Save Project as in the FILE Menu) in this manual is described using names equal to the project files delivered with COMFAR <i>III Expert</i>. If you do not want to overwrite these original project files, please use other filenames as described in this manual (e.g.: TOMATO instead of TOMCAN).</p>

A. START COMFAR

The procedure for starting COMFAR is described in chapter III in the *Reference Manual*. When COMFAR is started, the browser and browser overview panels are displayed with the menu bar at the top of the window.

B. SELECT PROJECT TYPE AND LEVEL OF ANALYSIS

1. Choose **New Project** in the FILE menu. The NEW PROJECT modal window is displayed.
2. Select **Industrial** in the PROJECT TYPE list box.
3. Select the **Opportunity study** radio button.
4. Choose the **OK** pushbutton.

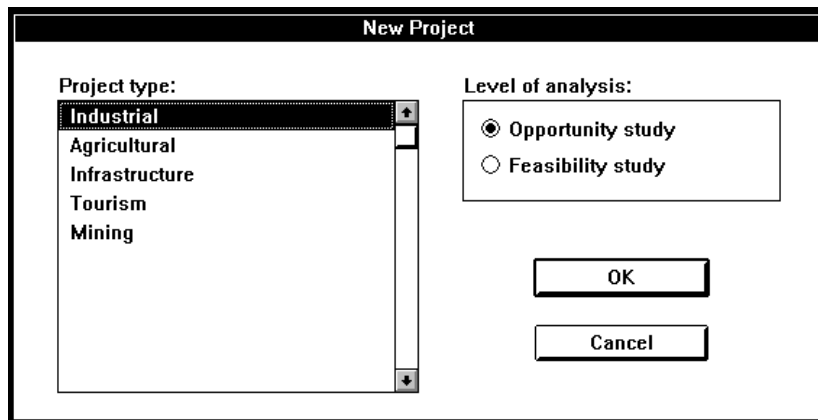


Figure 1: New project modal window

The PROJECT INPUT DATA node is displayed with the Compress Icon at the right, indicating that the node is extended. The initial data entry sequence starts with the PROJECT IDENTIFICATION node, which is also displayed. This sequence involves from five to eight nodes depending upon the complexity of the analysis, each of which is displayed only after data in the previous node are accepted (with **OK**). The specific number of nodes in the sequence is determined by the project features selected in the PROJECT IDENTIFICATION window.

C. FINANCIAL DATA ENTRY

The first version of the data file does not include the plan for financing the project. The program is used to assist in determining an appropriate plan.

1. Project identification

1. Move the mouse cursor inside the browser overview frame. The cursor changes to the move cursor. Drag the frame so that the PROJECT INPUT DATA node and PROJECT IDENTIFICATION node are displayed in the browser.

The purpose of this step is to become familiar with the use of the browser overview frame for viewing segments of the browser. Alternatively, the browser position can be altered by placing the cursor within the browser, clicking and holding the left mouse button. When the hand cursor appears, the viewing position in the browser is changed by moving the mouse. When in an acceptable position, release the mouse button.

2. Choose the Table Icon for the PROJECT IDENTIFICATION node. The PROJECT IDENTIFICATION window is displayed.

The screenshot shows a software window titled "COMFAR III Expert - Project identification - PROJECT1. (Industrial)". The window has a menu bar with "File", "Module", "Edit", "Display", "Print", "Graphics", "Project", and "PES". The main area contains the following fields and controls:

- Project title:** A text box containing "Tomato canning".
- Project description:** A text box containing "Project of [sponsor] to produce 2,600 tons canned tomato per annum for export to (markets, countries). Located at Version without the finance plan (TOMCAN.C30)".
- Date and time:** A text box containing "31 July 1995".
- Project classification:** A group box containing three radio buttons: "New project" (selected), "Expansion/rehabilitation project", and "Joint-venture project".
- Depth of analysis:** A group box containing two checkboxes: "Financial analysis" (checked) and "Economic analysis" (unchecked), and a "Special features ..." button.
- Database link:** A group box containing three buttons: "Country codes ...", "Branch codes ...", and "Product codes ...".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

Figure 2: Project identification window

3. Select the PROJECT TITLE entry field and enter the name of the project, **Tomato canning**.
4. Select the PROJECT DESCRIPTION multiple-line entry field and enter descriptive text for the project, for example: Project of ____ (sponsor) to produce 2,600 tons canned tomato per annum for export to _____. Located at _____. This version does not include the finance plan.
5. Select the DATE AND TIME entry field and enter the date and time as text.
6. The **New project** radio button is selected by default.
7. The FINANCIAL ANALYSIS check box is selected by default. Economic analysis and special features are not used in this case study.
8. The definition of the database links (branch, country and product codes) is described in the COMFAR *III Database Reference Manual* (not yet released).

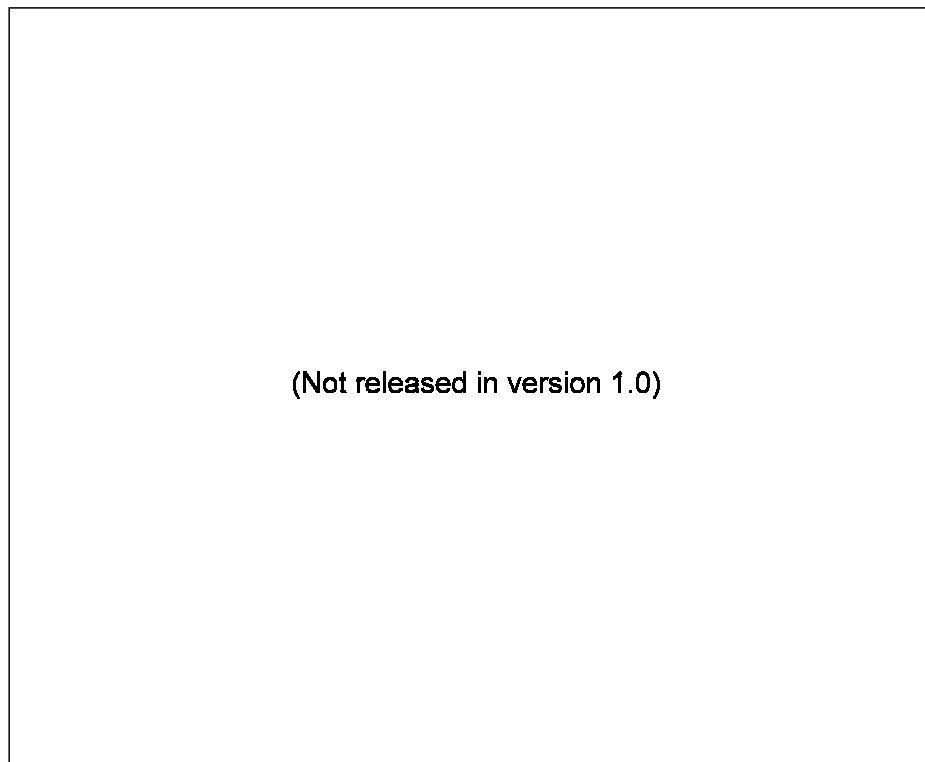


Figure 3: Database links modal window

2. Planning horizon

The planning horizon comprises two years of construction and five years of production. Planning during construction is yearly.

1. Choose the Table Icon for the PLANNING HORIZON node. The PLANNING HORIZON window is displayed. The insertion point is located by default in the BEGIN field of the CONSTRUCTION PHASE panel.

Fields are most easily traversed using [TAB] but can also be selected with the mouse. Data entries in fields are most readily accepted with [ENTER] or by selecting another field with the mouse.

2. Select **12** in the MONTH OF BALANCE drop-down list box (12 is the default value).
3. Enter the beginning date, **1/1**, in the BEGIN field of the CONSTRUCTION PHASE panel.
4. Enter **2** in the LENGTH-YEARS field.

Figure 4: Planning horizon window

5. Leave the value **0** in the MONTHS field.

The END field in the CONSTRUCTION PHASE panel automatically displays the end date **12/2**, (the last day of December, year 2). The BEGIN field

in the PRODUCTION PHASE panel automatically displays the beginning date of the production phase, **1/3** (first day).

6. Enter **5** in the LENGTH-PERIODS field of the PRODUCTION PHASE panel. The project **End** date is automatically displayed (**12/7**). A **Reference date** can be selected as the last day of any production phase period. The reference date is significant for database operations and for calculating representative results, such as break-even. It should, therefore, be a year of full operations. In this case, the date 12/5 is selected.
7. Choose **12/5** in the REFERENCE YEAR drop-down list box.
8. Choose **OK** in the PLANNING HORIZON window. Control returns to the browser. The PRODUCTS node is displayed.

3. Products

The planned product is canned tomatoes, all of which is to be exported. The maximum sales are expected to be 2,600 tons per annum with an FOB price of US\$ 100 per ton.

1. Choose the Table Icon for the PRODUCTS node. The PRODUCTS window is displayed. For a new project, COMFAR offers one product named "Product #".

COMFAR III Expert - Products - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES

Edit:

Number: 1

Name: Canned tomato

Actual start of production: 1/3

Actual end of production: 12/7

Nominal capacity: 2,600.00

New

Delete

Edit

Accept Edit

	Name	Start	End	Nominal capacity
1	Canned tomato	1/3	12/7	2,600.00

OK Cancel

Figure 5: Products window

2. Choose the **Edit** pushbutton to sequentially enter in the EDIT panel the **Name**, **Actual start of production (1/3)**, **Actual end of production (12/7)** and **Nominal capacity** as specified above.
3. Choose the **Accept Edit** pushbutton to transfer the entries to the PRODUCTS list box.
4. Choose **OK** in the PRODUCTS window. Control returns to the browser. The CURRENCIES node is displayed.

4. Currencies

The local currency is thousand rupees. The export currency is thousand US dollars with an official exchange rate 5 rupees per US\$. All reports are expressed in the accounting currency, thousand rupees.

1. Choose the Table Icon for the CURRENCIES node. The CURRENCIES window is displayed. For a new project, COMFAR offers the local currency as defined in the DEFAULTS modal window (*Reference Manual*, chapter V.C).

COMFAR III Expert - Currencies - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES ?

Edit:

Type: Foreign

Name: thousand US dollars

Abbreviation: US\$

Exchange rate: 1.0000 US\$ = 5.0000 Rs

Accounting currency:

Name: thousand rupees

Units: Absolute

	Name	Abbr.	Exchange rate
Local	thousand rupees	Rs	
Foreign	thousand US dollars	US\$	1.0000 US\$ = 5.0000 Rs

OK Cancel

Figure 6: Currencies window

2. Choose the **Edit** pushbutton to sequentially enter in the EDIT panel the **Name** (thousand rupees) and the **Abbreviation** (Rs) of the local currency. In this case EXCHANGE RATE field is inactive. TYPE is a display field only (local or foreign).
3. Choose the **Accept Edit** pushbutton to transfer the entries to the CURRENCIES list box.
4. Choose the **New** pushbutton to sequentially enter in the EDIT panel the **Name** (thousand US dollars), the **Abbreviation** (US\$) of the foreign currency and the **Exchange rate** (1 US\$ = 5 Rs) for the foreign currency.
5. Choose the **Accept Edit** pushbutton.
6. Select the accounting currency. (The local currency is selected by default; if not, the following steps would be carried out: First select **thousand rupees** in the CURRENCIES list box and then choose the **Select** pushbutton; the selected currency is displayed in the ACCOUNTING CURRENCY field.)
7. Use the UNITS drop-down list box to select **Absolute** as the accounting unit. (The accounting currency is already expressed in thousands of units.)

The reference currency and exchange rate are defined as text only. Their purpose is to provide an easy reference for conversion of units expressed in the accounting or other currency. This information appears only in the SUMMARY schedule. In this case the Austrian schilling is the reference currency.

8. Choose the **Reference** pushbutton. The REFERENCE CURRENCY modal window is displayed.

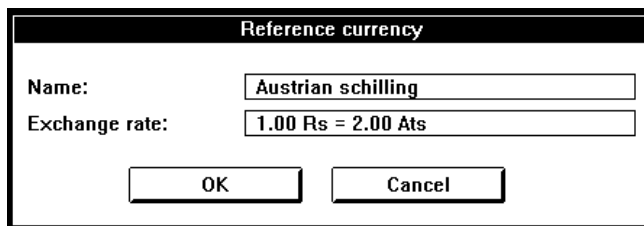


Figure 7: Reference currency modal window

9. Select the NAME field and enter **Austrian schilling**.
10. Select the EXCHANGE RATE field and enter **1 Rs = 2 Ats**
11. Choose the **OK** pushbutton in the REFERENCE CURRENCY window. Control returns to the CURRENCY window.
12. Accept the selections with the **OK** pushbutton in the CURRENCY window. Control returns to the browser. The DISCOUNTING node is displayed.

5. Discounting

The opportunity cost of capital for the total investment and for the equity is 12%. To determine the MIRRs the reinvestment and borrowing rates are assumed to be 12% and 8%, respectively, for both the total investment and equity. The number of years for the Short NPV on equity is 5.

1. Choose the Table Icon for the DISCOUNTING node. The DISCOUNTING window is displayed.
2. Select the **Discounting** radio button (it should already be selected by default). The DISCOUNTING list box appears in the window.

COMFAR III Expert - Discounting - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES ?

Select:

☒ Discounting

☐ Modified Internal Rate of Return

Net present values discounted to:

☐ End of first year

☒ Beginning of first period

IRR 5

	Rate (%)	Length (years)
Total investment	12.00	7
Total equity capital	12.00	5

OK Cancel

Figure 8: Discounting window

3. Enter for TOTAL INVESTMENT **12%** for the **Rate** and for TOTAL EQUITY CAPITAL **12%** and **5** (years) for **Rate** and **Length**. (see *Reference Manual*, chapter IV.3).
4. Select the **Modified Internal Rate of Return** radio button. The MODIFIED INTERNAL RATE OF RETURN list box appears in the window.
5. Enter 12% as the **Reinvestment rate** and 8% as the **Borrowing rate** for TOTAL INVESTMENT and for TOTAL EQUITY CAPITAL.

6. Select the **Beginning of first period** radio button. All values are to be discounted to the beginning of the project.
7. Accept the selections with the **OK** pushbutton. The nodes for the remaining standard structure are displayed in the browser.

6. Fixed investment costs

Fixed investment costs are defined in the windows corresponding to subnodes of the FIXED INVESTMENT COSTS node.

- Choose the Extend Icon of the FIXED INVESTMENT COSTS node.

The structure of fixed investment costs is displayed with a node for each cost category included in the standard structure. To center those nodes on the screen, alter the position of the browser (see chapter II.C.1).

Fixed investment costs are shown in table 1 with depreciation conditions, scrap value and the investment in each of the two years of construction.

	MARKET	CURRENCY (thousands)	NO. YEARS DEPRECIATION ^a	SCRAP- VALUE ^a	COSTS, PROJECT YEAR	
					1	2
Land	Local	Rupees	-	100	200	
Site development	Local	Rupees	5	10	150	50
Civil works, buildings	Local	Rupees	20	50	100	300
Machinery	Foreign	US\$	10	10	120	40
Pre-prod. expenditure	Foreign	US\$	3	0	2.5	7.5
Pre-prod. expenditure	Local	Rupees	3	0	25	75
Initial working capital ^b						
Cans	Foreign	US\$	--	--		2.5
Tomato	Local	Rupees	--	--		33.5
Salt	Local	Rupees	--	--		0.8

Table 1: Fixed investment costs

PRE-PRODUCTION EXPENDITURES involve a combination of foreign and local sources. The standard structure is to be modified to provide a separate node for foreign and local components.

^a Depreciation type: linear to scrap, all items.

^b First-year material requirements. Data input is explained in section C.8.

1. Select the PRE-PRODUCTION EXPENDITURES node by clicking into the description area of the node. A bold frame is drawn around the node.
2. Choose **Insert** in the EDIT menu. The INSERT NEW ITEMS modal window is displayed.
3. Select the **User-defined** radio button.
4. Select the NUMBER OF ITEMS entry field, enter **2**, then press [**ENTER**].
5. Choose the **Insert** pushbutton. The generically named items appear in the list box.
6. Use the iconic buttons and data field to edit the names of the two listed subnodes to **PP Exp - F** and **PP Exp - L**.
7. Accept the data with the **OK** pushbutton.

The two newly created nodes appear in the browser as subnodes of the PRE-PRODUCTION EXPENDITURE node.

Insert New Items

Insert below:

☐ According to level of feasibility study
 ☒ User-defined
 Number of items:

☒

	Description	Share [%]
21	PP Exp - F	—
22	Pre-production expenditures-2	—

Figure 9: Insert new items modal window

The QUANTITY = 1 input mode is advantageous in this case for the entry of investment data as only the total values are provided. For fixed investment data, the value is entered as the PRICE.

1. Choose **Defaults** in the EDIT menu.
2. Select **Quantity = 1** in the INPUT MODE drop-down list box.
3. Accept the default selections with **OK** in the DEFAULTS modal window.

The procedure below is described for PLANT MACHINERY AND EQUIPMENT only. A similar procedure should be applied to all other fixed investment items except INITIAL

WORKING CAPITAL, which is defined in the ANNUAL ADJUSTMENTS panel of the PRODUCTION COST windows (see chapter II.7.). The data for all other items (market, currency, depreciation conditions, cost in each year of construction) are shown in table 1.

1. Choose the Table Icon for the PLANT MACHINERY AND EQUIPMENT node.
The PLANT MACHINERY AND EQUIPMENT window is displayed.

The screenshot shows the 'COMFAR III Expert - Fixed investment costs - PROJECT1. (Industrial)' window. The 'Description' field is set to 'Plant machinery and equipment'. The 'Currency' is 'thousand US dollars' and 'Escalation' is '0.00 % p.a.'. The 'Depreciation conditions' panel shows 'Type' as 'Linear to scrap', 'Rate' as '10.00 % p.a.', 'Length' as '10.00 years', and 'Scrap' as '10.00 %'. The 'Starting at' field is set to '1/3'. A table below shows the depreciation schedule for 7 years, with a total cost of 40.00. The table has columns for Year, Quantity, Price, and Total. The 'Sale of asset ...' button is visible on the right.

	Quantity	Price	Total
1/1	1.00	120.00	120.00
1/2	1.00	40.00	40.00
1/3	1.00	0.00	0.00
1/4	1.00	0.00	0.00
1/5	1.00	0.00	0.00
1/6	1.00	0.00	0.00
1/7	1.00	0.00	0.00

Figure 10: Plant machinery window

2. Select **thousand US dollars** in the CURRENCY drop-down list box.
3. Select the **Foreign** radio button to designate the origin of the item.
4. Select **Linear to scrap** from the TYPE drop-down list box in the DEPRECIATION CONDITIONS panel (unless displayed as the default value).
5. Use the STARTING AT drop-down list box to select the starting date of depreciation as the start of production (1/3), which should be displayed as the default value.
6. Select the RATE entry field and enter the value **10**. The LENGTH entry field automatically displays the corresponding length of the depreciation period, **10** years, when the rate is accepted by pressing either [ENTER] or [TAB]. Alternatively, enter the number of years and the corresponding rate is automatically displayed.

7. Select the SCRAP entry field and enter **10** (scrap value as % of the original asset value).
8. Use the iconic buttons and list box to enter the data in table 2 for FOREIGN PLANT MACHINERY (all values are expressed in thousand US \$).

PERIOD	QUANTITY	PRICE
1/1	1	120
1/2	1	40

Table 2: Data for foreign plant machinery

9. Accept the data with the **OK** pushbutton.
10. Enter all other cost items shown in table 1 (except for initial working capital).
11. Choose the Compress Icon of the FIXED INVESTMENT COSTS node.

7. Production costs

All production costs are entered as STANDARD PRODUCTION COSTS. Initial stocks of raw materials and factory supplies (initial working capital) which are purchased in the second construction year are entered as ANNUAL ADJUSTMENTS (see below).

Production costs are defined in the windows corresponding to subnodes of the PRODUCTION COSTS node.

- Choose the Extend Icon for the PRODUCTION COSTS node by clicking the **right (!)** mouse button.

The structure of production costs is displayed with a node for each cost category included in the standard structure.

The production costs at maximum sales level of 2,600 tons and the percentage variable is shown in table 3. Foreign values are expressed in thousand US\$ and local values in thousand rupees.

Three types of raw materials are defined, each of which requires a separate node. A subnode is created for each type. The generic titles are revised to reflect the names of the raw material items (TOMATO, SALT and CANS).

1. Select the RAW MATERIALS node.
2. Choose **Insert** in the EDIT menu. The INSERT NEW ITEMS modal window is displayed.
3. Select the **User-defined** radio button.
4. Select the NUMBER OF ITEMS entry field and type **3**, then press **[ENTER]**.
5. Use the iconic buttons and list box to edit the names of the three raw material subnodes as described above.

6. Accept the data with the **OK** pushbutton. The newly created nodes appear in the browser as subnodes of the RAW MATERIALS node.

ITEM	ANNUAL COST (thousands)		VARIABLE (%)
	FOREIGN (US\$)	LOCAL (RS)	
Raw materials			
Tomato		200	100
Salt		20	100
Cans	20		100
Utilities		20	100
Repair & maintenance		30	50
Labour		50	20
Factory overhead		80	0
Admin. overhead		60	0
Marketing		40	50

Table 3: Production costs

COMFAR III Expert - Production costs - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description: Tomato

Product: Canned tomato

Currency: thousand rupees Local

Escalation: 0.00 % p.a. Foreign

Cost centre ...

☒ Standard production costs ☐ Annual adjustments

☒ At nominal capacity of: 2,600.00

☐ Per unit of output

Quantity: 200.0000

Price: 1.0000

Total: 200.0000

Variable part: 100.00 %

Fixed part: 0.00 %

Fixed costs:

OK Cancel

Figure 11: Tomato window - standard production costs panel

Below, the procedure is described for defining the RAW MATERIALS - TOMATO costs. Only for the three raw materials is the initial stock defined (initial stock of tomato represents agricultural financing); for these and the other production cost items, the standard costs are defined on the basis of AT NOMINAL CAPACITY in a manner similar to that for TOMATO.

1. Choose the Table Icon for the RAW MATERIALS - TOMATO node.
2. Select **thousand rupees** as the currency using the CURRENCY drop-down list box (default selection).
3. Select the **Local** radio button (default selection).
4. Select the **Standard production costs** radio button (default selection).
5. Select the **At nominal capacity** radio button (default selection); the nominal capacity of **2,600** tons appears in the display field.
6. Select the QUANTITY field and enter the value **200**.
7. Select the PRICE field and enter the value **1**.
8. Select the VARIABLE PART field and enter the value **100** (default value).
9. Enter all other production cost items according to table 3 (standard production costs).
10. Use the ANNUAL ADJUSTMENTS list box to enter the initial stock of raw materials shown in table 1, as described below.

8. Initial working capital

The ANNUAL ADJUSTMENTS list box of the PRODUCTION COSTS window of each material (inventory) cost item contains also entry lines for the construction phase (see Figure 12). Entries into these lines are treated as initial investment (initial stock of materials).

1. The initial stock of tomato is entered in the ANNUAL ADJUSTMENTS panel. Select the **Annual adjustments** radio button. The ANNUAL ADJUSTMENTS panel is displayed in the window.
2. Select the period **1/2** (second year of construction) in the list box. Use the iconic buttons to enter **Quantity, 33.3**, and **Price, 1**. (see table 1)
3. Accept the data with the **OK** pushbutton.
4. Enter the other items of initial stock of raw materials (salt and cans) shown in table 1.
5. Choose the Compress Icon of the PRODUCTION COSTS node.

COMFAR III Expert - Production costs - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description: Tomato

Product: Canned tomato

Currency: thousand rupees ☒ Local

Escalation: 0.00 % p.a. ☐ Foreign

☐ Standard production costs ☒ Annual adjustments

33.30

	Quantity	Price	Total	Var.	Fix.
1/1	0.00	0.00	0.00		
1/2	33.30	1.00	33.30		
1/3	0.00	0.00	0.00	100.00	0.00
1/4	0.00	0.00	0.00	100.00	0.00
1/5	0.00	0.00	0.00	100.00	0.00
1/6	0.00	0.00	0.00	100.00	0.00
1/7	0.00	0.00	0.00	100.00	0.00

OK Cancel

Figure 12: Tomato window - annual adjustments panel

9. Sales programme

The sales programme is defined in the windows of the respective subnodes of the SALES PROGRAMME node.

- Choose the Extend Icon of the SALES PROGRAMME node.

The structure of the sales programme is displayed with a node for each product defined before (see chapter II.3).

The proposed sales programme is shown in table 4. All production is exported and is paid in US\$.

PROJECT YEAR (Two years construction)	3	4	5	6	7
Percentage capacity	50	75	100	100	100
Sales level (tons)	1,300	1,950	2,600	2,600	2,600

Table 4: Sales programme

1. Choose the Table Icon for the CANNED TOMATO node.
2. Select **thousand US\$** using the CURRENCY drop-down list box.
3. Select the **Foreign** radio button.
4. Use the iconic buttons and list box to enter the **Quantity** and **Price** for each production period (the price is expressed in thousand US\$).

PERIOD	QUANTITY (thousands)	PRICE (thousand US\$)
1/3	1,300	0.1
1/4	1,950	0.1
1/5	2,600	0.1
1/6	2,600	0.1
1/7	2,600	0.1

Table 5: Data for quantity and price

5. Accept the data with the **OK** pushbutton.
6. Choose the Compress Icon of the SALES PROGRAMME window.

COMFAR III Expert - Sales programme - PROJECT1. (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description: Canned tomato

Product: Canned tomato [2,600.00]

Currency: thousand US dollars ☐ Local

Escalation: 0.00 % p.a. ☒ Foreign

☒ Sales programme ☐ Sales tax and subsidies

0.10

	Quantity	Price	Total
1/3	1,300.00	0.10	130.00
1/4	1,950.00	0.10	195.00
1/5	2,600.00	0.10	260.00
1/6	2,600.00	0.10	260.00
1/7	2,600.00	0.10	260.00

OK Cancel

Figure 13: Sales programme window with sales programme panel

10. Working capital

Working capital requirements during the production phase are defined in terms of MINIMUM DAYS COVERAGE (Mdc) as shown in table 6. The COEFFICIENT OF TURNOVER (Coto) is the number of rotations per annum ($360/\text{DAYS COVERAGE}$).

ITEM	DAYS COVERAGE (MDC)
Inventory of material items	
Tomato (production credit to farmers)	120
Salt	30
Cans	90
Utilities	30
Work in progress	2
Finished product	30
Accounts receivable	30
Cash-in-hand (local and foreign)	30
Accounts payable	0

Table 6: Working capital requirements

	Mdc	Coto
Canned tomato	—	—
Raw materials	—	—
Tomato	120.00	3.00
Salt	30.00	12.00
Cans	90.00	4.00
Utilities	30.00	12.00
Work in progress	2.00	180.00
Finished product	30.00	12.00

Figure 14: Working capital window

1. Choose the Table Icon for the WORKING CAPITAL node. The WORKING CAPITAL window is displayed.
2. Select the **Inventory** radio button. The INVENTORY panel is displayed.
3. Use the iconic buttons and list box to enter the above values for inventory items (raw materials, finished products, work in progress). The corresponding annual turnover values (Coto) are displayed automatically.
4. Select the **Accounts receivable** radio button.
5. Use the iconic buttons to enter **30** for DAYS COVERAGE of ACCOUNTS RECEIVABLE.
6. Select the **Cash-in-hand** radio button.
7. Use the iconic buttons to enter **30** for both DAYS COVERAGE of CASH-IN-HAND - LOCAL and CASH-IN-HAND - FOREIGN.
8. Select the **Accounts payable** radio button.
9. Use the iconic buttons to enter **0** for the DAYS COVERAGE of ACCOUNTS PAYABLE.
10. Accept the selections with the **OK** pushbutton.

The project should now be saved in the original state without the definition of sources of finance, profit distribution and income tax definitions.

1. Choose **Save Project as** in the FILE menu. The SAVE PROJECT AS modal window is displayed. The FILENAMES entry field is automatically selected.
2. Enter the name of the file, **TOMCAN**, in the FILENAMES entry field (please refer to the note given in chapter II. *Tomato canning*).
3. Save the file by choosing the **OK** pushbutton. Control returns to the input browser.

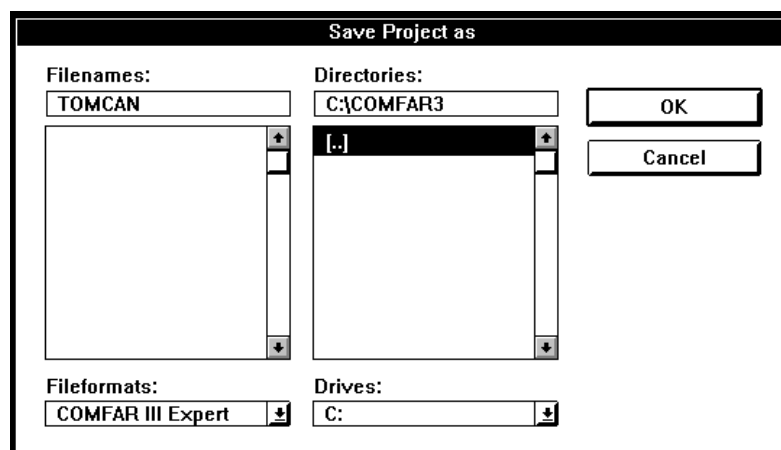


Figure 15: Save project as modal window

D. INITIAL CALCULATIONS

Initial calculations are performed to determine the financial requirements of the project. If no sources of finance are defined, the program increases equity automatically during the construction phase to cover cash deficits. The cash flow for financial planning reveals the magnitude, type (foreign, local) and timing of the requirements from which the financing plan can be developed.

Reports to be calculated can be selected using the **Select results** feature of the MODULE menu. However, a number of results are calculated by default and these are sufficient to provide the required output for this exercise.

1. Choose **Calculations** in the MODULE menu. The CALCULATIONS modal window is displayed showing the list of reports to be produced. A Check Icon appears in the DONE column when the calculation of the listed item is complete.
2. Choose the **Start** pushbutton. When calculations are complete the window CALCULATION REPORT is displayed, indicating that the project is underfinanced. After accepting with the **OK** pushbutton, control automatically returns to the show results browser, from which the results to be displayed or printed can be selected. At this point the result of interest is the CASH FLOW FOR FINANCIAL PLANNING in the BUSINESS RESULTS structure.

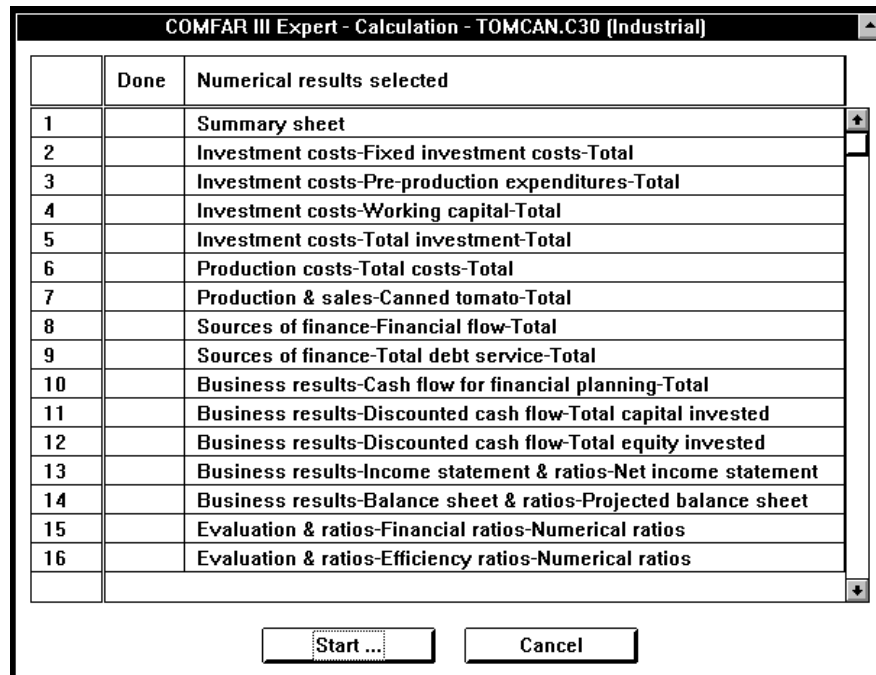


Figure 16: Calculation modal window

3. Choose the Extend Icon for the BUSINESS RESULTS node. The BUSINESS RESULTS structure is extended to reveal four nodes, the uppermost of which is the CASH FLOW FOR FINANCIAL PLANNING node, which is further extended by choosing its Extend Icon to reveal the TOTAL node (one of the default results).
4. Choose the Table Icon for the TOTAL node. The BUSINESS RESULTS/ CASH FLOW FOR FINANCIAL PLANNING/TOTAL result is displayed.

COMFAR III Expert - Show Results - TOMCAN.C30 (Industrial)			
File Module Edit Display Print Graphics Project PES ?			
1. Business results	2. Cash flow for financial planning		
3. Total			
	Construction 1	Construction 2	Production 3
Increase in fixed assets	1,087.50	662.50	0.00
Increase in current assets	0.00	46.60	89.50
Operating costs	0.00	0.00	377.50
Marketing costs	0.00	0.00	30.00
Income (corporate) tax	0.00	0.00	0.00
Financial costs	0.00	0.00	0.00
Loan repayment	0.00	0.00	0.00
Dividends	0.00	0.00	74.50
Equity capital refund	0.00	0.00	0.00
SURPLUS (DEFICIT)	-1,087.50	-709.10	78.50
CUMULATIVE CASH BALANCE	-1,087.50	-1,796.60	-1,718.10
Foreign surplus (deficit)	-612.50	-250.00	590.32
Local surplus (deficit)	-475.00	-459.10	-511.83
Foreign cumulative cash balance	-612.50	-862.50	-272.18
Local cumulative cash balance	-475.00	-934.10	-1,445.93
Net flow of funds	0.00	0.00	-74.50
<input checked="" type="radio"/> Yearly results <input type="radio"/> Periodical results			
OK			

Figure 17: Business results - cash flow for financial planning - total result

5. Use the vertical scroll bar to move to the bottom of the table so that the SURPLUS/DEFICIT line and FOREIGN and LOCAL surplus/deficit lines are revealed for the first two years of the project. The data for the first two years is as follows (all expressed in the accounting currency, thousand rupees):

ITEM	YEAR	
	1	2
Surplus/deficit (total)	(1,087.5)	(709.1)
Foreign surplus/deficit	(612.5)	(250.0)
Local surplus/deficit	(475.0)	(459.1)

Table 7: Data for total and for foreign and local surplus/deficit

6. Accept the result with the **OK** pushbutton. Control returns to the Show results browser.

E. FINANCE PLAN, INCOME TAX AND DATA ENTRY

The financial conditions for the project are as follows:

Debt/equity

By agreement of the parties, the proportions of debt and equity are to be 60/40, respectively, of the initial investment in each of the two years of construction.

Loan

The development bank provides 60% of the initial investment with a loan at an interest rate of 12% to be repaid in three equal installments on 31/12 of years 3-5. Each year's requirements are covered by two disbursements on 1/1 and 1/7 of each year. Interest during the construction phase is to be capitalized.

Short-term loan

If necessary, short-term financing is available to cover operating deficits at an interest rate of 20%.

Opportunity cost of capital

The cost of capital is 12% for both the total investment and for equity. For calculation of the MIRR, the reinvestment rate is 12% and the borrowing rate is 8%. The equity shares have a time horizon (for Short NPV calculation of 5 years).

Corporate taxes

Profits are taxed at a flat 20% of net income. A two-year tax holiday has been granted to the project as an incentive.

Full convertibility is assumed so that all loans can be expressed in local currency (thousand Rs). Assigning 60% of the initial investment to the loan and 40% to equity, the preliminary finance plan is as shown in table 8.

SOURCE OF FINANCE	YEAR	
	1	2
Equity	435.0	283.7
Development bank loan	652.5	425.4
Total	1,087.5	709.1

Table 8: Preliminary finance plan

- Choose **Data Input** in the MODULE menu.

The data input browser is displayed. Data can now be entered in the SOURCES OF FINANCE structure for equity and the loan and in the TAXES, ALLOWANCES node for the corporate tax conditions.

1. Equity

1. Extend the SOURCES OF FINANCE and then the EQUITY/RISK CAPITAL node by successively clicking the Extend Icon with the left mouse button at each level.
2. Choose the Table Icon for the EQUITY SHARES node (subnode of EQUITY/RISK CAPITAL). The EQUITY SHARES window is displayed. No entries are necessary in the PREFERRED DIVIDENDS cells as all distributions are considered ordinary dividends.
3. Select **thousand rupees** in the CURRENCIES drop-down list box (default selection).
4. Select the **Local** radio button (default selection).
5. Enter the equity values shown in table 8 for the first two years of the project in the periods 1/1 and 1/2 using the iconic buttons and entry field.
6. Accept the data with the **OK** pushbutton. Control returns to the browser.

COMFAR III Expert - Equity shares - TOMCAN.C30 (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description:

Currency: ☒ Local ☐ Foreign

Profit repatr.: % p.a.

	Amount paid-in	Amount paid-out	Preferred dividends - abs.	Preferred dividends - %
1/1	435.00	0.00	—	—
1/2	283.70	0.00	—	—
1/3	0.00	0.00	0.00	0.00
1/4	0.00	0.00	0.00	0.00
1/5	0.00	0.00	0.00	0.00
1/6	0.00	0.00	0.00	0.00
1/7	0.00	0.00	0.00	0.00

OK Cancel

Figure 18: Equity shares window

2. Development bank loan

1. Choose the Table Icon for the LONG-TERM LOANS node. The LONG-TERM LOANS window is displayed.
2. Select **thousand rupees** in the CURRENCY drop-down list box (default selection).
3. Select the **Local** radio button (default selection).
4. Select the **Conditions** radio button (default selection). The CONDITIONS panel is displayed in the LONG-TERM LOANS window.

The screenshot shows the 'COMFAR III Expert - Loans - TOMCAN.C30 (Industrial)' window. The 'Description' field is set to 'Long-term loans'. The 'Currency' is 'thousand rupees'. The 'Local' radio button is selected. The 'Conditions' radio button is selected. The 'Total' is 0.00. The 'Type' is 'Constant principal'. The 'Repayment' is 'Yearly'. The 'Month interest paid' is 31.12. The 'Disbursements until' is 31/12/5. The 'First repayment' is 31/12/5. The 'Number of repayments' is 3. The 'Period of repayment' is 3 years and 0 months. The 'Last repayment' is 31/12/7. The 'OK' and 'Cancel' buttons are at the bottom.

	Amount
1/1	0.00
1/2	0.00
1/3	0.00
1/4	0.00
1/5	0.00

Figure 19: Conditions panel - long-term loans window

5. Select **Constant principal** in the TYPE drop-down list box.
6. Select **Yearly** in the REPAYMENT drop-down list box.
7. Select the FIRST REPAYMENT field and enter **31/12/5**.
8. Select the NUMBER OF REPAYMENTS field and enter **3**. Some information is provided in display-only fields. MONTH INTEREST PAID is fixed by the FIRST REPAYMENT date. The PERIOD OF REPAYMENT fields show 3 years and 0 months as the length of the repayment phase. The LAST REPAYMENT is on 31/12/7.

9. Select the **Disbursements** radio button. The DISBURSEMENTS panel is displayed in the LONG-TERM LOANS window.

COMFAR III Expert - Loans - TOMCAN.C30 (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description: Long-term loans

Currency: thousand rupees ☒ Local ☐ Foreign Cost centre ...

Total: 1,077.90

☐ Conditions ☐ Interest ☒ Disbursements ☐ Fees

	Amount
1/1	652.50
1/2	425.40
1/3	0.00
1/4	0.00
1/5	0.00

Edit:

Date: dd/mm/yyyy 1/7/2

Amount: 212.70

New Delete Edit Accept Edit

1/1/1	326.25
1/7/1	326.25
1/1/2	212.70
1/7/2	212.70

OK Cancel

Figure 20: Disbursements panel - long-term loans window

10. Select the **New** pushbutton and enter in the EDIT panel the following disbursements, assuming two equal disbursements in each of the first two years on 1/1 and 1/7. The aggregated amounts for each year appear in the AMOUNTS list box (1/1 - 652.5 and 1/2 - 425.4). The total amount of the outstanding loan is shown in the TOTAL display field (1,077.90).

DATE	AMOUNT
1/1/1	326.25
1/7/1	326.25
1/1/2	212.70
1/7/2	212.70

Table 9: Data for disbursements

11. Select the **Interest** radio button. The INTEREST panel is displayed in the LONG-TERM LOANS window.
12. Use the EDIT panel to enter the **Date** (1/1/1) and the **Rate** (12%).

13. Select the **Capitalize interest** check box and accept **12/2** as the until' date.
14. For this particular project, no depreciation of interest accrued and no other financial costs have been defined.
15. Accept the data in the LONG-TERM LOANS window with the **OK** pushbutton. Control returns to the input browser.

The screenshot shows the 'COMFAR III Expert - Loans - TOMCAN.C30 (Industrial)' window. The 'Description' field is set to 'Long-term loans'. The 'Currency' is 'thousand rupees'. The 'Local' radio button is selected. The 'Total' is '1,077.90'. A table lists amounts for periods 1/1 to 1/5. The 'Interest' radio button is selected. The 'Date' is '1/1/1' and the 'Rate' is '12.00 % p.a.'. The 'Capitalize interest until' checkbox is checked, and the date is '12/2'. Buttons for 'New', 'Delete', 'Edit', 'Accept Edit', and 'Depreciation ...' are visible.

	Amount
1/1	652.50
1/2	425.40
1/3	0.00
1/4	0.00
1/5	0.00

Figure 21: Interest panel - long-term loans window

3. Profit distribution

1. Choose the Table Icon for the PROFIT DISTRIBUTION node (subnode of the SOURCE OF FINANCE node). The PROFIT DISTRIBUTION window is displayed.
2. Use the iconic buttons to enter **100** for the RETAINED PROFIT (IN %) line of the list box in order to keep all the profit within the project.
3. Accept the data with the **OK** pushbutton.
4. Choose the Compress Icon of the SOURCES OF FINANCE node.

4. Income (corporate) tax

1. Choose the Table Icon for the INCOME (CORPORATE) TAX node (subnode of TAX, ALLOWANCES node). The INCOME (CORPORATE) TAX window is displayed with a column for one tax bracket (> 0.00 , in %) to be applied to all net income.

COMFAR III Expert - Income (corporate) tax - TOMCAN.C30 (Industrial)

File Module Edit Display Print Graphics Project PES ?

Description: **Income (corporate) tax**

Currency: **thousand rupees** ☒ Local ☐ Foreign

Tax brackets ...
Tax conditions ...

	Adjustments (absolute)	> 0.00 (in %)
1/3	0.00	20.00
1/4	0.00	20.00
1/5	0.00	20.00
1/6	0.00	20.00
1/7	0.00	20.00

OK **Cancel**

Figure 22: Income (corporate) tax window

2. Enter **20%** as the tax applicable for all years of the production phase with the iconic buttons and entry field.
3. Choose the **Tax conditions** pushbutton. The TAX CONDITIONS modal window is displayed.

Tax conditions

Tax holidays: **2** years, until: **12/4**

Losses carried forward: **0** years

OK **Cancel**

Figure 23: Tax conditions modal window

4. Select the TAX HOLIDAYS entry field and enter **2** years. Alternatively, select **12/4** in the UNTIL drop-down list box.
5. Accept the data in the INCOME (CORPORATE) TAX window with the **OK** pushbutton.

Control returns to the browser. Prior to saving the project file the PROJECT DESCRIPTION in the PROJECT IDENTIFICATION node is changed to indicate that this version includes the initial finance plan.

1. Choose the Table Icon for the PROJECT IDENTIFICATION node.
2. Change the text in the PROJECT DESCRIPTION multiple-line entry field to indicate that this version includes the finance plan for the project.
3. Accept the new project identification with the **OK** pushbutton in the PROJECT IDENTIFICATION window.

The project is now saved as described before. The FILENAME for this version is should be **TOMCAN1** (please refer to the note given in chapter II. *Tomato canning*).

F. DIVIDEND DISTRIBUTION PLAN

Calculations are now performed on the file TOMCAN1 to determine the effects of defining the finance plan.

These calculations are performed as described above for the TOMCAN file. When calculations are complete, the show results browser is automatically displayed. The results are reviewed to determine:

- If any financing problems remain, such as a cumulative deficit of funds.
- An appropriate income distribution plan (dividends distribution) within the limits of available profits and funds.

The first question is resolved by reviewing the cash flow for financial planning.

1. Extend the BUSINESS RESULTS node and the CASH FLOW FOR FINANCIAL PLANNING node successively by choosing the respective Extend Icon.
2. Choose the Table Icon for the **Total** subnode of the CASH FLOW FOR FINANCIAL PLANNING node.

The CASH FLOW FOR FINANCIAL PLANNING result is displayed. Use the vertical scroll bar and horizontal scroll bar to review the lines SURPLUS/DEFICIT and CUMULATIVE CASH BALANCE. As there are no cumulative deficits, the finance plan is considered acceptable.

The second issue can be resolved by jointly reviewing the SURPLUS/DEFICIT and CUMULATIVE CASH DEFICIT for each period in the CASH FLOW FOR FINANCIAL PLANNING - TOTAL and the NET PROFIT in the INCOME STATEMENT AND RATIOS.

It is possible to switch to another schedule (result) from the active RESULTS window without returning to the show results browser using the drop-down list boxes at the top of a RESULTS window. In this case the INCOME STATEMENT & RATIOS result is to be displayed.

1. Select **Income Statement & Ratios** in the second drop-down list box. The NET INCOME STATEMENT is displayed.
2. Use the vertical and horizontal scroll bars to review the NET PROFIT for each year of the production phase.

The data for determining an appropriate dividend distribution policy are shown in table 10 (from the NET INCOME STATEMENT and the CASH FLOW FOR FINANCIAL PLANNING - TOTAL schedules). The cumulative net profit and all the data concerning the dividends are not calculated by the program.

YEAR	3	4	5	6	7
Net profit	(76.73)	152.02	304.62	384.94	425.27
Cumulative net profit	(76.73)	75.29	379.91	764.85	1,190.12
Cash surplus/deficit	1.77	281.68	12.13	84.92	123.19
Cumulative cash surplus/deficit	1.77	283.45	295.57	380.50	503.68
Retained profit (% of net profit)	100.00	70.00	70.00	70.00	70.00
Profit distributed (% of net profit)	0.00	30.00	30.00	30.00	30.00
Dividend distribution plan	0.00	45.61	91.38	115.48	127.58
Cumulative dividends	0.00	45.61	136.99	252.47	380.05

Table 10: Data for determining an appropriate dividend distribution policy

Assuming that 30% of the net profit is available for distribution as dividends with the further restriction that dividends cannot exceed the cumulative cash available, a distribution plan is developed as shown in table 10. The dividend distribution data are entered in the PROFIT DISTRIBUTION window.

1. Choose **Data Input** in the MODULE menu. The input browser is displayed.
2. Extend the SOURCES OF FINANCE node by clicking the Extend Icon with the left mouse button.
3. Choose the Table Icon for the PROFIT DISTRIBUTION node. The PROFIT DISTRIBUTION window is displayed.
4. In the PROFIT DISTRIBUTED (IN %) line of the list box enter the percentage of dividends as shown in table 10 (the RETAINED PROFIT line automatically is adjusted to 100 less PROFIT DISTRIBUTED, %). The equity shares are to receive 100% of the distribution, as shown in the last line of the list box of the PROFIT DISTRIBUTION window.
5. Accept the data with the **OK** pushbutton.

Control returns to the browser. Prior to calculations, the descriptive text for the file should be changed to indicate that this version includes the profit distribution. The PROJECT DESCRIPTION in the PROJECT IDENTIFICATION window is modified accordingly in a manner similar to that for the TOMCAN1 file as described above.

The file is saved using **Save Project as** in the FILE menu, as in the case of the previous version, under the name TOMCAN2 (please refer to the note given in chapter II. *Tomato canning*).

Prior to calculation it is normally necessary to select required results which are not default selections. In this case all necessary results are default selections. However, CASH FLOW FOR FINANCIAL PLANNING - FOREIGN is selected as an exercise.

1. Choose **Select Results** in the MODULE menu. The select results browser is displayed. The icon at the left of each node is used for selection. A check appears in the icon when the node is selected. All subnodes of a selected node are automatically selected.
2. Extend the BUSINESS RESULTS node one level by clicking the Extend Icon.
3. Extend the CASH FLOW FOR FINANCIAL PLANNING node one level by clicking the Extend Icon with the left mouse button.
4. Select the FOREIGN subnode of CASH FLOW FOR FINANCIAL PLANNING by clicking the icon at the left with the mouse (a check appears in the icon when it is selected).

Perform the calculation by choosing **Calculation** in the MODULE menu as in the previous version of the file. When calculations are complete, control returns automatically to the show results browser.

Any result can now be reviewed by choosing the (numerical) Results Icon or the Graphics Icon for its node. The general procedure is as follows:

1. Extend the section of the show results browser containing the node of interest by successively clicking the Extend Icon with the left mouse button until reaching the desired level of the structure.
2. Choose the Results Icon or the Graphics Icon for the node.

The schedule or graph is displayed. Alternatively, any available schedule or graph can be selected from the series of drop-down list boxes at the top of each RESULTS window, which are numbered in order of position in the structural hierarchy.

The project files **TOMCAN**, **TOMCAN1** and **TOMCAN2** are included in the COMFAR III *Expert* diskettes and may be loaded and reviewed.