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AUSTRALIAN ATOMIC ENERGY COMMISSION

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FINPLAN - An Interactive Computer Program for Generating & Analysing Cash Flows

by

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1. INTRODUCTION

FINPLAN is a generalised cash flow computer program which generates cash flows from base data files of capital costs, project expenses, sales and production. From these cash flows the program calculates project internal rate of return before and after tax, equity rate of return and net present value for a given discount rate. The program was written by Mr. S.C. Wong, AM&C Division, following accounting procedures set down by the NFC Assessment and Planning Unit. The accounting and calculational methods used are outlined in the section FINPLAN CALCULATIONS.

Execution of this program is carried out interactively, allowing the user to change the value of several variables during program execution. An outline of the interactive operation of the program is given in the section INTERACTIVE PROCEDURES.

The program produces three reports - a financial summary, a detailed annual capital account and a detailed annual profit and loss account.

An additional program, FDATA has been written in order that data entry to the data set is facilitated. Operation of this program is outlined in a separate section, FDATA INPUT.

INTERACTIVE PROCEDURES

The following is an example of the JCL required to run the program

```
//JLDEXAM  JOB ('********/S48NF009',J4),J.L.DOWDELL,
//  CLASS=I,TIME=5
/*JOBPARM  L=10
//    EXEC PGM=CFLOWUVS,REGION=256K
//STEPLIB DD DSN=SCW.FINPLAN.LINKLIB,DISP=SHR
//FT11F001 DD DSN=NFC.JLD.TEST1(CONTRAC1),LABEL=(,,,IN),DISP=SHR
//FT12F001 DD DSN=NFC.JLD.TEST1(PRODUCT1),LABEL=(,,,IN),DISP=SHR
//FT13F001 DD DSN=NFC.JLD.TEST1(CAPITAL1),LABEL=(,,,IN),DISP=SHR
//FT13F002 DD DSN=NFC.JLD.TEST1(CAPITAL2),LABEL=(,,,IN),DISP=SHR
//FT13F003 DD DSN=NFC.JLD.TEST1(CAPITAL3),LABEL=(,,,IN),DISP=SHR
//FT10F001 DD DSN=NFC.JLD.TEST1(OPERATE1),LABEL=(,,,IN),DISP=SHR
//FT10F002 DD DSN=NFC.JLD.TEST1(OPERATE2),LABEL=(,,,IN),DISP=SHR
//FT03F001 DD SYSOUT=A
```

NOTE ON FILE SPECIFICATION

1. ALL CAPITAL COST ITEMS ARE READ FROM UNIT 13.
2. ALL EXPENSE ITEMS ARE READ FROM UNIT 10.
3. ALL CONTRACT (SALES) DATA IS READ FROM UNIT 11.
4. ALL PLANT PRODUCT DATA IS READ FROM UNIT 12.

ORDERED DATA REQUESTS

* PROJECT TITLE?

* PROJECT START YEAR?

* PROJECT PERIOD?

- if file data does not extend to the end of the project period (calculated from the two preceding data requests) the following request will be made

  Incomplete data. Last data read:

YEAR	DATA
X	XX

  For period X - Y - Select option.

1. Same as above
2. Zeros
3. Error end program

* Option?

PRODUCTION DATA

- if production data is greater than contract sales data then a request will be made for a spot price for each year of surplus production.

* Price?

EXPENSES

* ESCALATION RATE, EXPENSE ITEM 1 ?

* ESCALATION RATE, EXPENSE ITEM 2 ?

* ESCALATION RATE, EXPENSE ITEM N ?

CAPITAL EXPENDITURE

* ESCALATION RATE CAPITAL ITEM 1 ?

* ESCALATION RATE CAPITAL ITEM 2 ?

* ESCALATION RATE CAPITAL ITEM N ?

CASH FLOW

* TAX RATE ?

* NPV DISCOUNT RATE ?

FINANCING

SELECT FINANCING OPTION

1. PROJECT
2. DEBT/EQUITY

* OPTION ?

(if 2 is selected then the following additional requests are made)

DEBT/EQUITY FINANCING

* MAXIMUM EQUITY
* START YEAR OF LOAN REPAYMENT
* PERIOD OF LOAN
* LOAN INTEREST RATE

PRINT OPTION

* PRINT OPTION ?

(print options are

1. HEADING AND VARIABLE LISTING
2. ANNUAL PROFIT & LOSS ACCOUNT
4. DETAILED CAPITAL ACCOUNT
6. FINANCIAL SUMMARY

OPTIONS 3 AND 5 ARE AVAILABLE FOR ANY ADDITIONAL REPORTS THAT MAY BE REQUIRED.

AN EXAMPLE OF INTERACTIVE PROCEDURES AND THE VARIOUS REPORTS WHICH MAY BE PRINTED CAN BE FOUND IN APPENDIX A.

3. FINPLAN CALCULATIONS

3.1 Description of Methods

The cashflows produced by FINPLAN are generated from revenue, capital and expense accounts. Revenue for each accounting period is derived from sales quantities and prices. Capital inflow from receipt of downpayments for a project such as uranium enrichment is credited to the current account as an item quite separate from sales revenue. Similarly, downpayment credits to the customer at delivery time are debited from the current account. There is no facility for applying escalation rates to price interactively during FINPLAN execution; a specific contract file containing escalated price information must be called at job submission time.

Annual capital account entries are the sum of all items for that period. Escalation rates may be applied interactively to each capital item during program execution. The expense account is derived by summing all items for each accounting period (direct operating expenses) and then adding:

overheads which are nominated interactively as a percentage of direct operating expenses;

sales expenses, nominated interactively as a percentage of sales revenue;

royalties, nominated interactively as a percentage of sales revenue.

Escalation rates for each expense item may also be entered interactively. Escalation always commences from the base year nominated as 'project start year'.

The project annual cash flow is derived by subtracting annual capital cost from the annual current account balance where this balance is gross profit plus downpayment receipts minus downpayment credits to the customer at delivery time. Project internal rate of return is calculated by the Newton Raphson method from these cash flows.

Equity is set at an absolute value interactively; this is then used up as financing requires. If the equity value is insufficient to meet financing requirements debt financing is introduced. A year is nominated interactively for loan consolidation; in periods prior to this the project incurs a debt of interest during construction. Loan repayments from the year of consolidation of the loan are calculated by the capital recovery method, the number of years of repayment being nominated interactively. If any further debt financing is required after loan consolidation this is treated as a short term loan and repaid as quickly as possible. All profits

are returned to equity share holders and thus appear as a positive entry in the equity cash flow. The equity rate of return is calculated by the Newton-Raphson method from the equity cash flows generated.

Depreciation is calculated by a straight line method with no residual value remaining at the end of the project. The depreciation period for each capital item is specified in the data files.

Taxable income on a project basis is calculated by subtracting operating costs and depreciation allowances from sales revenue. Cumulated tax losses for up to seven years may be carried forward to the next accounting period as a taxation screen. The taxation rate is entered interactively as a percentage.

The program also calculates present value and net present value of the after tax project cash flows. The discount rate must be nominated interactively.

3.2 Program Procedures

MAIN PROGRAM

The main program interactively requests data entry of

PROJECT TITLE

PROJECT START YEAR

PROJECT PERIOD

PRINT OPTIONS

The following subroutines are then called from the main program.

REVENU

Project year; sales contract quantity and price; advance payments and repayments for each contract are read from UNIT 11

Project year and plant production quantity are read from UNIT 12

TOTAL ANNUAL SALES REVENUE - SREV(I) - is calculated from contract sales data (PRICE * QUANTITY)
Where production quantity is greater than contractual a spot sale price is requested interactively for surplus production.
Where contract sales exceed production a message indicating erroneous data is issued and execution is terminated.

TOTAL ANNUAL ADVANCE PAYMENTS - (TAPAY) - and TOTAL ANNUAL REPAYMENTS - (TRPAY) - are variables distinguished from sales revenue.

EXPENS Project year and annual operating expense for each item are read from UNIT 10

ESCALATION RATE (for each item)
OVERHEADS RATE
SALES EXPENSES RATE
ROYALTY RATE

} requested interactively

TOTAL ANNUAL EXPENSES ARE CALCULATED BY:

1. multiplying annual expense by the appropriate escalation factor

2. summing expense items (i.e. all subfiles on UNIT 10) to derive expense DIRECT(I)

3. OVERHEADS are calculated as that percentage of direct operating expenses set for OVERHEADS RATE

```
OHEAD(I) = DIRECT(I) * ORATE(I)/100.
```

4. SALES EXPENSES are calculated from sales revenue derived in subroutine REVENU; these are multiplied by the SALES EXPENSE RATE

```
SEXP(I) = SREV(I) * SRATE/100.
```

5. ROYALTIES are calculated by multiplying sales revenue by ROYALTY RATE

```
ROYAL(I) = SREV(I) * RRATE/100.
```

Thus 6. TOTAL ANNUAL EXPENSES

```
OCOST(I) = DIRECT(I) + SEXP(I) + OHEAD(I) + ROYAL(I)
```

FINANC

1. calls the subroutine CAPIT1

2. calls the subroutine CFLOW1

3. Interactively requests setting of finance option
   - if the finance option is set to project, control returns to the MAIN PROGRAM where print options are interactively set

   - if the finance option is set to debt/equity, interactive requests are made for: MAXIMUM EQUITY
     START YEAR OF LOAN REPAYMENTS
     PERIOD OF LOAN
     LOAN INTEREST RATE

4. The cash flow subroutine for calculating cashflows with debt/equity financing (CFLOW2) is called. The program control then returns to the MAIN PROGRAM where print options are interactively requested.

CAPIT1 - called from FINANC

The number of years over which the capital item is depreciated; project year and item cost are read from UNIT 13

ESCALATION RATE for each item is requested interactively

CAPITAL EXPENDITURE CALCULATION

1. annual capital cost is multiplied by the appropriate escalation factor

2. if the item is subject to depreciation, the annual allowance is calculated by a straight line method, with no residual value.

3. TOTAL ANNUAL DEPRECIATION ALLOWANCE is derived from the sum of all items

```
TDPREC(J) = TDPREC(J) + DPREC(J,I)
```

4. TOTAL ANNUAL CAPITAL COST is derived by summing all items

```
CCOST(J) = CCOST(J) + VALUE(J,I)
```

The three preceding subroutines all include a facility which terminates program execution if

1. there is a gap in data i.e. if the first project year data entry is later than the interactively set PROJECT START YEAR

2. if any of the units from which data is read do not contain data.

CFLOW1 - Calculates annual cash flow on a project basis

This subroutine interactively requests

TAX RATE (TAXRAT)

NPV DISCOUNT RATE (DRATE)

CALCULATIONS

1. ANNUAL GROSS PROFIT = SALES REVENUE - OPERATING COST

   GPROF(J) = SREV(J) - OCOST(J)

2. TAXABLE INCOME = SALES REVENUE - OPERATING COST - DEPRECIATION

   TAXINC(J) = SREV(J) - OCOST(J) - TDPREC(J)

3. TAX

   a. where taxable income is negative

   Taxable income is set to zero

   TAXINC(J) = 0

   Cumulative tax loss carried forward is set to the previous years' cumulated losses plus the current year's loss

   CTLCF = CTLCF + CO

   b. where taxable income is positive

   . if taxable income minus cumulated tax losses carried forward is positive

   Taxable income = taxable income - cumulated tax losses carried forward

   TAXINC = TAXINC - CTLCF

   Tax loss used = cumulated tax losses carried forward

   TLOSS = CTLCF

   Total deductions = total depreciation allowances + cumulated tax losses carried forward

   DED(J) = TDPREC(J) + CTLCF

- if taxable income minus cumulated tax losses carried forward is negative

  Cumulated tax losses carried forward = cumulated tax losses carried forward - taxable income

  CTLCF = CTLCF - TAXINC

  Tax loss used = taxable income
  TLOSS = TAXINC

  Total deductions = depreciation allowances + taxable income

  DED(J) = TDPREC(J) + TAXINC

  Taxable income is set to zero

Note - The variable CTLCF is also defined as an array of 7 members C(7) which allows storage of 7 consecutive years of tax losses. The first procedure in b is repeated until the criterion TAXINC-C(K).LE.O. is met. Taxable income in b is therefore decreased by an amount equivalent to an array member (commencing at the earliest entry) until the criterion is met. The array member is then reduced by the difference between C(K) and TAXINC.

In all cases tax paid is calculated as TAXP(J) = TAXINC*TAXRAT/100

4. PROFIT AFTER TAX = GROSS PROFIT - TAXPAYABLE
   PROFAT(J) = GPROF(J) - TAXP(J)

5. CURRENT ACCOUNT TOTAL = ADVANCE PAYMENTS - REPAYMENTS + GROSS PROFIT

   CACCT(J) = TAPAY(J) - (TRPAY(J) + PROFAT(J)

6. Difference in total advance payments and total repayments are printed, if positive, at the end of print option 6 output

   ARDIFF = ARDIFF + TAPAY(J) + TRPAY(J)

7. ANNUAL CASH FLOW = CURRENT ACCOUNT - CAPITAL COST
   ACASHF(J) = CACCT(J) - CCOST(J)

8. CUMULATED CASH FLOW

CCASHF = CCASHF + ACASHF(J)

9. NET PRESENT VALUE

NPV(J) = ACASHF(J)/D

where D is incremented yearly by D=D*(1.0 + DRATE/100.0)

This subroutine then calls in the subroutine IRR to calculate project internal rate of return before returning to the main program.

SUBROUTINE IRR - Calculates the project IRR before and after tax

Uses the NEWTON RALPHSON method and includes the use of the SECANT method to obtain a first approximation of the root.

Note: A time limit of 20 seconds has been placed on the NEWTON RAPHSON method

SUBROUTINE RFT - Checks data entered interactively

If no data is entered when request is made the program responds with PLEASE ENTER DATA. DATA?

If integer data is entered interactively when real is required, program responds with DATA MUST BE REAL. DATA?

If real data is entered interactively when integer is required, program responds with DATA MUST BE INTEGER. DATA?

SUBROUTINE CFLOW2 - Called from FINANC

- Calculates annual cash flow for debt/equity financing

Calculation of tax payable is conducted in the same manner as for CFLOW1, with the exception that loan interest paid is deducted from taxable income.

TAXABLE INCOME = SALES REVENUE - OPERATING COSTS - DEPRECIATION ALLOWANCE - LOAN INTEREST

TAXINC = SREV(J) - OCOST(J) - TDPREC(J) - ILOAN

The following computational steps are undertaken on data for each year of the project.

A. PRIOR TO COMMENCEMENT OF LOAN REPAYMENTS

A-1 If the annual cashflow (ACASHF) minus interest payable on loan (ILOAN) is positive

either 1. The fixed loan is repaid entirely if the user's year's cash balance exceeds the loan balance and remaining cash is paid into cash reserves

or 2. The fixed loan is repaid an amount equivalent to the year's cash balance, if fixed loan is greater than cash balance, this reducing the year's cash balance to zero.

NOTE: Where downpayments are received in an enrichment venture 1 and 2 above may frequently occur.

A-2 If annual cashflow minus interest payable on loans is negative and

either 1. Cash reserves are greater than this value in absolute terms, an equivalent amount of cash reserves is allocated to paying loan interest and/or outing. Cash reserves are reduced by this amount

or 2. If cash reserves are less, in absolute terms, than this value, all cash reserves are allocated to loan interest payment and/or outings.

Cash reserves are set to zero.

from 2 If there are sufficient equity funds to cover the shortfall in cash reserves, equity is reduced by this amount.

or If there are insufficient equity funds to cover the shortfall in cash reserves, all equity goes to meeting the shortfall equity is set to zero and the Fixed loan (FLOAN) is increased by the outstanding amount.

Note A-2 Annual cash flow can be -ve

Note A Priority of use of financial resource
1. cash reserves 2. equity 3. loans

B. AT AND SUBSEQUENT TO YEAR LOAN REPAYMENTS COMMENCE

1. FIXED LOAN REPAYMENTS are calculated from

```
FLREP =  FLOAN*(1.0 + LINT/100.0)**LPER*LINT/
(100.0*((1.0 + LINT/100.0)**LPER-1.0))
```

where FLREP = fixed loan repayment

FLOAN = fixed loan

LINT = loan interest rate

LPER = loan period

FLREP is constant over LPER years being aportioned between principal and interest.

2. Fixed loan interest is set at fixed loan x loan interest

```
IFL = FLOAN*LINT/100.0
```

3. Fixed Loan Principal Repayment

```
FLPRP = FLREP - IFL
```

4. At and subsequent to fixed loan consolidation year any further loans raised are in the form of

OTHER LOANS which are paid off as quickly as possible after loan interest and fixed loan repayment commitments are met.

5. Funds available for paying off OTHER LOANS

FUND = ACASHF - ILOAN - FLPRP

6. In the loan consolidation year, FUND also receives any cash reserves carried over from the previous period

FUND = FUND + CASHRS

7. If FUND is negative 'OTHER LOAN' has to be raised

OLOAN = OLOAN - FUND

8. If FUND is positive and it exceeds OTHER LOAN balance, OTHER LOAN is paid off and OLOAN set to zero, and the balance of FUND is paid to equity holders.
If FUND does not exceed 'OTHER LOAN' balance, all of FUND goes to OLOAN

OLOAN = OLOAN - FUND

C. After processing each year of project data

1. Equity investment is calculated as a percentage of capital of FIXED LOAN + EQUITY

EPER = EF(LRYR - PSYR) where EF( ) = total equity funds invested

EPER = (EPER/(EPER + FL(LRYR - PSYR)))*100.

2. Equity Rate of Return is calculated by calling subroutine IRR

FDATA INPUT

LINE 1.1

FIRST YEAR OF PROJECT
TOTAL NO. OF YEARS OF PROJECT
CURRENCY CONVERSION FACTOR
(2I5, F10.3)

Note - conversion factor must always be greater than 0.0 i.e. if currency is not to be converted to another, the factor must be entered as 1.0.

LINE 1.2

A DESCRIPTOR FOR ALL COST ITEMS
THE NUMBER OF COST ITEMS
(4A4, I5)

LINE 1.3

THE NAME OF THE COST ITEM
THE FIRST YEAR THIS COST IS INCURRED
THE NUMBER OF YEARS OF DATA TO BE ENTERED
THE NUMBER OF YEARS OVER WHICH THIS ITEM IS DEPRECIATED
A VARIABLE INDICATING WHETHER THE COST DATA IS TO BE EXTENDED TO THE LAST YEAR OF THE PROJECT
THE PERCENTAGE BY WHICH COSTS MAY BE REDUCED OR INCREASED FROM THE LAST DATA ENTRY E.G., REDUCTIONS DUE TO MACHINE FAILURE RATES FOR CENTRIFUGE PLANTS
(4A4, 4I5, F10.2)

Note - the 5th variable on this line - extension of cost data - if left blank data will not be extended; any entry in the field which is greater than 0 will extend the data to the last year of the variable.

- the 6th variable on this line if left blank costs will not be reduced or increased from full capacity - reductions must be denoted by a negative symbol, e.g. 2%/year reduction should be entered as -2.00.

LINE 1.4

A VARIABLE INDICATING THE NUMBER OF ADDITIONAL COST FILES TO BE GENERATED FROM BASE COST (I5)

LINE 1.5 THE PERCENTAGE VARIATION FROM BASE COST

(5F10.2)

Note - Additional cost files may be generated from base data. For instance a 10 per cent reduction and a 10 per cent increase in item cost should be entered as the integer 2 in LINE 1.4 and as the real numbers -10. and 10. in LINE 1.5. If there is no variation from base data, LINE 1.4 may be left blank or zero entered in column 5; LINE 1.5 must be omitted.

LINES 1.6 to 1.6 + n (WHERE n = 3RD VARIABLE IN LINE 3)

COST DATA FOR THIS COST ITEM

(F10.3)

LINES 1.3 TO 1.6 + n are repeated the number of times specified by the variable in line 2.

NOTE: This section covers all cost items - whether they are CAPITAL or OPERATING.

LINE 2.1 A GENERAL DESCRIPTOR FOR THE FOLLOWING CONTRACT FILES
THE NUMBER OF CONTRACT FILES
A VARIABLE INDICATING WHETHER CONTRACTS ARE EQUAL TO FULL PRODUCTION
A VARIABLE INDICATING THE NUMBER OF 'REDUCED PLANT CAPACITY' CONTRACT FILES TO BE GENERATED FROM BASE CONTRACT DATA
(4A4, 3I5)

Note - If the number of contract files is one and contract quantity equal to full production (i.e. the variable is greater than zero) the CONTRACT quantity will be copied to the PRODUCT file. If the number of contracts is greater than one but their total equivalent to full plant production, the contracts sum will be written automatically to the PRODUCTION FILE. If contractual data is less than plant production then production data must be entered later.

LINE 2.2 THE NAME OF THE CONTRACT FILE
THE FIRST YEAR THE CONTRACT DATA APPLIES
THE NUMBER OF YEARS OF CONTRACT DATA ENTERED
THE YEAR PRICE ESCALATION COMMENCES
~~A VARIABLE INDICATING WHETHER THE CONTRACT DATA IS TO BE EXTENDED TO THE LAST YEAR OF THE PROJECT~~
THE RATE AT WHICH CONTRACTUAL QUANTITIES INCREASE OR DECREASE FROM THE LAST DATA ENTRY
THE PRICE ESCALATION RATE FROM THE YEAR SPECIFIED AT VARIABLE NO.4.
(4A4, 4I5, 2F10.3)

Note - If the contract is to be extended to the last year of the project 5th variable is set to a value greater than zero. The contract quantities are then modified, if required, by the 6th variable. If the price escalation variable is left blank then prices are not escalated.

LINE 2.3 THE VALUE OF EACH OF THE REDUCTIONS SPECIFIED IN LINE 2.3
(5 F10.2)

Note - If plant production is to be reduced to 80 per cent .8 is entered in LINE 2.4 . Generation of files from base contract files is only valid where the number of contract files is one. For each additional contract file generated an equivalent production file is created. If no additional contract files are to be generated this line must be omitted.

LINES 2.4 to 2.4 + n (WHERE n = 3rd VARIABLE IN LINE 2.2)
CONTRACTUAL QUANTITY
PRICE PER UNIT
(2F10.3)

LINE 2.5 A VARIABLE INDICATING WHETHER DOWNPAYMENTS AND REPAYMENTS ARE ESCALATED
PERCENT OF CONTRACTUAL VALUE PAYABLE AS DOWNPAYMENTS
YEAR DOWNPAYMENTS COMMENCE RELATIVE TO FIRST DELIVERY
NUMBER OF YEARS OVER WHICH DOWNPAYMENTS ARE MADE
NUMBER OF YEARS OVER WHICH REPAYMENTS ARE MADE
Note - If the first variable is left blank then downpayments and repayments are not escalated even if prices are - if set at greater than zero then downpayments and repayments are escalated at the same rate as prices. This line must be included but left blank if downpayments do not apply.

LINES 2.2 to 2.4 are repeated for each contract, the number of which are specified at variable 2 LINE 2.1.

LINE 3.1 A GENERAL DESCRIPTOR FOR THE FOLLOWING PRODUCT FILES
THE NUMBER OF PRODUCT FILES
(4A4, I5)

LINE 3.2 THE NAME OF THE PRODUCT FILE
THE FIRST YEAR THE PRODUCT DATA APPLIES
THE NUMBER OF YEARS OF DATA
A VARIABLE INDICATING WHETHER THE PRODUCT DATA IS EXTENDED TO THE LAST YEAR OF THE PROJECT
(4A4, 3I5)
Note - If the 4th variable is set to a value greater than zero then product data is extended to the last year of the project.

LINES 3.3 to 3.3 + n (WHERE n = the 3rd VARIABLE IN LINE 3.2)
PRODUCT QUANTITY
(F10.3)

AN EXAMPLE OF FDATA INPUT DATA CAN BE FOUND IN APPENDIX B.

```
ID: ********
$N
JOB: JLDexam
TABS 10,16,40,72,    URENCO 1M SWU
0000 //JLDEXAM  JOB ('********/S48NF009',J4),J.L.DOWDELL,
0010 //   CLASS=I,TIME=5
0020 /*JOBPARM  L=10
0030 //    EXEC PGM=CFLOWUVS,REGION=256K
0040 //STEPLIB DD DSN=SCW.FINPLAN.LINKLIB,DISP=SHR
0050 //FT11F001 DD DSN=NFC.JLD.TEST1(CONTRAC1),LABEL=(,,,IN),DISP=SHR
0060 //FT12F001 DD DSN=NFC.JLD.TEST1(PRODUCT1),LABEL=(,,,IN),DISP=SHR
0070 //FT13F001 DD DSN=NFC.JLD.TEST1(CAPITAL1),LABEL=(,,,IN),DISP=SHR
0080 //FT13F002 DD DSN=NFC.JLD.TEST1(CAPITAL2),LABEL=(,,,IN),DISP=SHR
0090 //FT13F003 DD DSN=NFC.JLD.TEST1(CAPITAL3),LABEL=(,,,IN),DISP=SHR
0140 //FT10F001 DD DSN=NFC.JLD.TEST1(OPERATE1),LABEL=(,,,IN),DISP=SHR
0150 //FT10F002 DD DSN=NFC.JLD.TEST1(OPERATE2),LABEL=(,,,IN),DISP=SHR
0190 //FT03F001 DD SYSOUT=A
-s
ID: ********
 JLDEXAM SUBMITTED AT 09.23.12
-$run
TESTING JLDEXAM

JOB: JLDEXAM  ( 135) READY

Financial Planning Program
==========================

*Project Title ? example

*Project Start Year ? 1981

*Project Period ? 25

Sales contracts
---------------

Production Data
---------------

Expenses
--------


LABOUR: *Escalation rate ? 0

MATERIALS: *Escalation rate ? 0

*Overheads rate ? 3
*Sales expenses rate ? 5
*Royalty rate ? 2
```

Capital expenditure

LAND: *Escalation rate ? 0

BUILDINGS: *Escalation rate ? 0

MACHINES: *Escalation rate ? 0

Cash flow

*Tax rate ? 46

*NPV discount rate ? 4

Financing

Select financing option:
1. Project
2. Debt /Equity

*Option ? 2

Debt/Equity Financing

*Maximum equity ? 1.5
*Start year of loan repayment ? 1989
*Period of loan ? 10
*Loan interest rate ? 5

*Print Option(s) ? 6

PLE

NCIAL ASSESSMENT

	Project Cash Flow Annual	Project Cash Flow Cumulative	NPV @ 4.00%	Equity Cash Flow Annual	Equity Cash Flow Cumulative	Loan cash flow Annual	Loan cash flow Cumulative
	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	-0.64	-0.64	-0.59	-0.64	-0.64	0.0	0.0
4	-0.34	-0.98	-0.30	-0.34	-0.98	0.0	0.0
5	-2.73	-3.71	-2.33	-0.52	-1.50	-2.21	-2.21
6	-3.00	-6.71	-2.47	0.0	-1.50	-3.11	-5.32
7	0.26	-6.45	0.20	0.0	-1.50	-0.01	-5.32
8	1.26	-5.19	0.96	0.0	-1.50	0.99	-4.33
9	1.33	-3.86	0.97	0.86	-0.64	0.34	-3.99
10	0.86	-3.00	0.61	0.69	0.05	0.36	-3.63
11	0.96	-2.04	0.65	0.48	0.54	0.38	-3.25
12	1.06	-0.98	0.69	0.58	1.11	0.40	-2.85
13	1.17	0.20	0.73	0.68	1.79	0.42	-2.43
14	1.29	1.48	0.77	0.78	2.57	0.44	-1.99
15	1.41	2.89	0.81	0.89	3.46	0.46	-1.53
16	1.53	4.42	0.85	1.01	4.47	0.48	-1.04
17	1.66	6.08	0.89	1.13	5.59	0.51	-0.53
18	1.80	7.88	0.92	1.25	6.85	0.53	0.0
19	1.95	9.83	0.96	1.95	8.79	0.0	0.0
20	2.10	11.93	1.00	2.10	10.89	0.0	0.0
21	2.26	14.19	1.03	2.26	13.15	0.0	0.0
22	2.43	16.61	1.07	2.43	15.58	0.0	0.0
23	2.60	19.22	1.10	2.60	18.18	0.0	0.0
24	2.79	22.01	1.13	2.79	20.97	0.0	0.0
25	2.98	24.99	1.16	2.98	23.95	0.0	0.0
sl			10.81				

tal cost 3.974

ty funds 1.500

ed loan 4.331

ty 25.722%

ject IRR (Before tax) 21.42%
IRR (After tax) 15.15%

ty IRR (After tax) 24.00%

ect Option:
New run
New print option(s)
End
ion ? 2

nt Option(s) ? 4

	1981	1982	1983	1984	1985	1986	1987	1988
CAPITAL COST								
LAND	0.0	0.0	0.640	0.0	0.0	0.0	0.0	0.0
BUILDINGS	0.0	0.0	0.0	0.140	1.345	0.956	0.842	0.0
MACHINES	0.0	0.0	0.0	0.051	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.640	0.191	1.345	0.956	0.842	0.0
CURRENT ACCOUNT								
ADVANCE PAYMENT CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REPAYMENT CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROFIT AFTER TAX	0.0	0.0	0.0	-0.144	-1.385	-2.045	1.101	1.258
TOTAL	0.0	0.0	0.0	-0.144	-1.385	-2.045	1.101	1.258
PROJECT CASHFLOW								
ANNUAL	0.0	0.0	-0.640	-0.335	-2.730	-3.001	0.259	1.258
CUMULATIVE	0.0	0.0	-0.640	-0.975	-3.706	-6.706	-6.447	-5.189
FINANCE								
EQUITY FUNDS	0.0	0.0	0.640	0.335	0.525	0.0	0.0	0.0
FIXED LOAN	0.0	0.0	0.0	0.0	2.206	3.111	0.007	0.0
OTHER LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOAN REPAYMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.992
INT. DURING CON.	0.0	0.0	0.0	0.0	0.0	0.110	0.266	0.266
INTEREST PAID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL LOANS	0.0	0.0	0.0	0.0	2.206	5.316	5.323	4.331
EQUITY CASHFLOW								
ANNUAL	0.0	0.0	-0.640	-0.335	-0.525	0.0	0.0	0.0
CUMULATIVE	0.0	0.0	-0.640	-0.975	-1.500	-1.500	-1.500	-1.500

DETAILED ANNUAL CAPITAL ACCOUNT

	1989	1990	1991	1992	1993	1994	1995	1996
CAPITAL COST								
LAND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MACHINES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ACCOUNT								
ADVANCE PAYMENT								
CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REPAYMENT								
CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROFIT AFTER TAX	1.423	1.253	1.044	1.138	1.238	1.342	1.451	1.56
TOTAL	1.423	1.253	1.044	1.138	1.238	1.342	1.451	1.56
PROJECT CASHFLOW								
ANNUAL	1.328	0.862	0.960	1.064	1.172	1.286	1.405	1.53
CUMULATIVE	-3.862	-3.000	-2.039	-0.975	0.197	1.483	2.888	4.41
FINANCE								
EQUITY FUNDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIXED LOAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOAN REPAYMENT	0.344	0.362	0.380	0.399	0.419	0.440	0.462	0.48
INT. DURING CON.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INTEREST PAID	0.217	0.199	0.181	0.162	0.142	0.121	0.099	0.07
TOTAL LOANS	3.987	3.626	3.246	2.847	2.429	1.989	1.528	1.04
EQUITY CASHFLOW								
ANNUAL	0.862	0.692	0.483	0.577	0.677	0.781	0.890	1.00
CUMULATIVE	-0.638	0.055	0.537	1.115	1.791	2.572	3.462	4.46

EXAMPLE

DETAILED ANNUAL CAPITAL ACCOUNT

	1997	1998	1999	2000	2001	2002	2003	2004
CAPITAL COST								
LAND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BUILDINGS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MACHINES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ACCOUNT								
ADVANCE PAYMENT CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
REPAYMENT CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROFIT AFTER TAX	1.687	1.813	1.946	2.099	2.259	2.427	2.603	2.789
TOTAL	1.687	1.813	1.946	2.099	2.259	2.427	2.603	2.789
PROJECT CASHFLOW								
ANNUAL	1.663	1.801	1.946	2.099	2.259	2.427	2.603	2.789
CUMULATIVE	6.081	7.882	9.829	11.927	14.186	16.613	19.216	22.005
FINANCE								
EQUITY FUNDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FIXED LOAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER LOANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOAN REPAYMENT	0.509	0.534	0.0	0.0	0.0	0.0	0.0	0.0
INT. DURING CON.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INTEREST PAID	0.052	0.027	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL LOANS	0.534	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EQUITY CASHFLOW								
ANNUAL	1.126	1.252	1.946	2.099	2.259	2.427	2.603	2.789
CUMULATIVE	5.593	6.845	8.792	10.890	13.149	15.576	18.180	20.968

LAND	0.0
BUILDINGS	0.0
MACHINES	0.0
TOTAL	0.0

CURRENT ACCOUNT

ADVANCE PAYMENT CONTRACT1	0.0
REPAYMENT CONTRACT1	0.0
PROFIT AFTER TAX	2.983
TOTAL	2.983

PROJECT CASHFLOW

ANNUAL	2.983
CUMULATIVE	24.989

FINANCE

EQUITY FUNDS	0.0
FIXED LOAN	0.0
OTHER LOANS	0.0
LOAN REPAYMENT	0.0
INT. DURING CON.	0.0
INTEREST PAID	0.0
TOTAL LOANS	0.0

EQUITY CASHFLOW

ANNUAL	2.983
CUMULATIVE	23.952

Select Option:
1. New run
2. New print option(s)
3. End
*Option ? 2

*Print Option(s) ? 2

EXAMPLE

ANNUAL PROFIT AND LOSS ACCOUNT

	1981	1982	1983	1984	1985	1986	1987	198
REVENUE								
CONTRACT1	0.0	0.0	0.0	0.0	0.0	0.0	3.382	3.5
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	3.382	3.5
OPERATING COST								
LABOUR	0.0	0.0	0.0	0.0	0.0	0.640	0.640	0.6
MATERIALS	0.0	0.0	0.0	0.140	1.345	1.345	1.345	1.3
OVERHEADS	0.0	0.0	0.0	0.004	0.040	0.060	0.060	0.0
SALES EXPENSES	0.0	0.0	0.0	0.0	0.0	0.0	0.169	0.1
ROYALTIES	0.0	0.0	0.0	0.0	0.0	0.0	0.068	0.0
TOTAL	0.0	0.0	0.0	0.144	1.385	2.045	2.281	2.2
GROSS PROFIT	0.0	0.0	0.0	-0.144	-1.385	-2.045	1.101	1.2
TAXATION								
DEPRECIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INTEREST ON LOAN	0.0	0.0	0.0	0.0	0.0	0.110	0.266	0.2
TAX LOSS USED	0.0	0.0	0.0	0.0	0.0	0.0	0.835	0.9
TOTAL DEDUCTION	0.0	0.0	0.0	0.0	0.0	0.110	1.101	1.2
TAXABLE INCOME	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TAX PAID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CUM TAX LOSS C/F	0.0	0.0	0.0	0.144	1.530	3.684	2.849	1.8
PROFIT AFTER TAX	0.0	0.0	0.0	-0.144	-1.385	-2.045	1.101	1.2

EXAMPLE

ANNUAL PROFIT AND LOSS ACCOUNT

	1989	1990	1991	1992	1993	1994	1995	1996
REVENUE								
CONTRACT1	3.729	3.915	4.111	4.316	4.532	4.759	4.997	5.247
TOTAL	3.729	3.915	4.111	4.316	4.532	4.759	4.997	5.247
OPERATING COST								
LABOUR	0.640	0.640	0.640	0.640	0.640	0.640	0.640	0.640
MATERIALS	1.345	1.345	1.345	1.345	1.345	1.345	1.345	1.345
OVERHEADS	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060
SALES EXPENSES	0.186	0.196	0.206	0.216	0.227	0.238	0.250	0.262
ROYALTIES	0.075	0.078	0.082	0.086	0.091	0.095	0.100	0.105
TOTAL	2.306	2.319	2.332	2.347	2.362	2.378	2.394	2.412
GROSS PROFIT	1.423	1.597	1.779	1.970	2.170	2.381	2.603	2.835
TAXATION								
DEPRECIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INTEREST ON LOAN	0.217	0.199	0.181	0.162	0.142	0.121	0.099	0.076
TAX LOSS USED	1.207	0.651	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL DEDUCTION	1.423	0.850	0.181	0.162	0.142	0.121	0.099	0.076
TAXABLE INCOME	0.0	0.746	1.597	1.808	2.028	2.260	2.503	2.759
TAX PAID	0.0	0.343	0.735	0.831	0.933	1.040	1.151	1.269
CUM TAX LOSS C/F	0.651	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROFIT AFTER TAX	1.423	1.253	1.044	1.138	1.238	1.342	1.451	1.566

EXAMPLE

ANNUAL PROFIT AND LOSS ACCOUNT

	1997	1998	1999	2000	2001	2002	2003	2004
REVENUE								
CONTRACT1	5.509	5.784	6.074	6.377	6.696	7.031	7.383	7.752
TOTAL	5.509	5.784	6.074	6.377	6.696	7.031	7.383	7.752
OPERATING COST								
LABOUR	0.640	0.640	0.640	0.640	0.640	0.640	0.640	0.640
MATERIALS	1.345	1.345	1.345	1.345	1.345	1.345	1.345	1.345
OVERHEADS	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060
SALES EXPENSES	0.275	0.289	0.304	0.319	0.335	0.352	0.369	0.388
ROYALTIES	0.110	0.116	0.121	0.128	0.134	0.141	0.148	0.155
TOTAL	2.430	2.449	2.470	2.491	2.513.	2.537	2.561	2.587
GROSS PROFIT	3.079	3.335	3.604	3.886	4.183	4.494	4.821	5.165
TAXATION								
DEPRECIATION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INTEREST ON LOAN	0.052	0.027	0.0	0.0	0.0	0.0	0.0	0.0
TAX LOSS USED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL DEDUCTION	0.052	0.027	0.0	0.0	0.0	0.0	0.0	0.0
TAXABLE INCOME	3.027	3.308	3.604	3.886	4.183	4.494	4.821	5.165
TAX PAID	1.392	1.522	1.658	1.788	1.924	2.067	2.218	2.376
CUM TAX LOSS C/F	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROFIT AFTER TAX	1.687	1.813	1.946	2.099	2.259	2.427	2.603	2.789

REVENUE	
CONTRACT1	8.139
TOTAL	8.139

OPERATING COST	
LABOUR	0.640
MATERIALS	1.345
OVERHEADS	0.060
SALES EXPENSES	0.407
ROYALTIES	0.163
TOTAL	2.614

GROSS PROFIT	5.525

TAXATION	
DEPRECIATION	0.0
INTEREST ON LOAN	0.0
TAX LOSS USED	0.0
TOTAL DEDUCTION	0.0
TAXABLE INCOME	5.525
TAX PAID	2.541
CUM TAX LOSS C/F	0.0

PROFIT AFTER TAX	2.983

```
Select Option:
1. New run
2. New print option(s)
3. End
*Option ? 2

*Print Option(s) ? 1
```

HEADING AND VARIABLE LISTING

TITLE : EXAMPLE

PROJECT START YEAR 1981

PROJECT PERIOD 25 YEAR

EXPENSES

ESCALATION RATES:

LABOUR 0.0 %

MATERIALS 0.0 %

OTHER VARIABLES:

OVERHEADS RATE 3.000%

SALES EXPENSES RATE 5.000%

ROYALTY RATE 2.000%

CAPITAL EXPENDITURE

ESCALATION RATES:

LAND 0.0 %

BUILDINGS 0.0 %

MACHINES 0.0 %

CASH FLOW

TAX RATE 46.000%

NPV DISCOUNT RATE 4.000%

FINANCING

DEBT/EQUITY

MAXIMUM EQUITY 1.500

START YEAR OF LOAN REPAYMENT 1989

PERIOD OF LOAN 10 YEAR

LOAN INTEREST RATE 5.000%

Select Option:
1. New run
2. New print option(s)
3. End
*Option ? 3
END OF INTERACTION
END:RUN

```
00 //JLDFDATA JOB ('********/S48NF009',J4),J.L.DOWDELL,
10 // CLASS=O,TIME=(O,30)
20 /*JOBPARM L=1
30 /*ROUTE PRINT VIEW
40 //  EXEC FORTHG,PRG=FDATA,DSN='NFC.JLD.LINKLIB'
50 //GO.FT10F001 DD DSN=NFC.JLD.TEST1(CAPITAL1),DISP=OLD,LABEL=(,,,OUT)
60 //GO.FT11F001 DD DSN=NFC.JLD.TEST1(CAPITAL2),DISP=OLD,LABEL=(,,,OUT)
70 //GO.FT12F001 DD DSN=NFC.JLD.TEST1(CAPITAL3),DISP=OLD,LABEL=(,,,OUT)
10 //GO.FT13F001 DD DSN=NFC.JLD.TEST1(OPERATE1),DISP=OLD,LABEL=(,,,OUT)
20 //GO.FT14F001 DD DSN=NFC.JLD.TEST1(OPERATE2),DISP=OLD,LABEL=(,,,OUT)
30 //GO.FT20F001 DD DSN=NFC.JLD.TEST1(CONTRAC1),DISP=OLD,LABEL=(,,,OUT)
50 //GO.FT30F001 DD DSN=NFC.JLD.TEST1(PRODUCT1),DISP=OLD,LABEL=(,,,OUT)
60 //GO.SYSIN DD *
70  1981    35      1.0
80 CAPITAL              5
90 LAND               1983     1
00    0
10    .640
20 BUILDINGS           1984     4
30    0
40    .140
50   1.345
60    .956
70    .842
80 MACHINES            1984     1
90    0
00    .051
20 LABOUR              1986     1          1
30    0
40    .640
50 MATERIALS           1984     2          1
60    0
70    .140
80   1.345
90 CONTRACTS             1      0
00 CONTRACT1           1987     1 1982       0.00        5.0
10      0.10      26.5
20     0
30 /*
```