

LIFE CYCLE COSTING OF PROJECTS

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vkthou ykxr fdl h i kstDV dh eŷ; kdu fof/k gkrh g\$ ftl ea [kjh] i pkyu] vuj {k.k rFk fodh vkfn ij gkus okyh i kstDV dh dgy ykxr ij fopkj fd; k tkrk g\$ vk\$ rRi 'pkr gh i kstDV@Vdukyksth fo'kk dks vi ukus grq dkbz vfire fu.kz fy; k tkrk gA vr% fdl h i kstDV@Vdukyksth dh ijh vof/k ds lHkh vko'; d 0; ; ds eŷ; kdu dh fof/k vkthou ykxr%ykbQ&l kbfdy&dkfLVx% gA bl ea i kjfHkd ykxr t\$ s i nch] fuosk&ykxr]dz vk\$ blVky\$ku ykxr] Hkkoh [kpl t\$ s Atkl ykxr] i pkyu ykxr] vuj {k.k ykxr] i nch&fjlyd eV ykxr] forrh; ykxr rFk dkbz vU; i p% fodh l s i klr jkf'k dks fdl h i kstDV@Vdukyksth i kstDV ds ijs thou dky ij fopkj djus ds fy; s 'kkfey fd; k tkrk gA

Life Cycle Costing is a method of project evaluation, for which all costs arising from owning, operating, maintaining and disposing off a project are considered imperative to any final decision in relation to a particular project/technology adoption. Life Cycle Costing is, therefore, a method for evaluating all relevant costs over a period of time of a project/technology. It takes into account the initial cost including capital, investment cost, purchase and installation cost; future costs including energy cost, operating cost, maintenance cost, capital replacement cost, financing cost and any resale salvage for disposal cost over a life time of a project/technology product.

In RDSO, Life Cycle Costing is undertaken for evaluation by the Finance Directorate whenever any such reference prior to adoption of a new research technology is referred to by any concerned directorate. Such new research technology adoption is basically required for operational purpose, which may not fetch additional/direct revenue. In such cases, comparative Life Cycle Cost of existing and proposed technology/system is worked out. Under the costing system, cash flow is worked out for each year of economic life of project for study period taking into account cost on various accounts as enunciated in Para (1) above. Cash flow in each year as worked out, is discounted at given rate of interest by Discounted Cash Flow (DCF) technique using discounting tables to arrive at present day cost/worth of project/technology. The technology with lower Life Cycle Cost (present worth) is considered financially better option.

As per the current trend, the DCF technique (present worth method) is adopted for such evaluation. Under this technique, time adjustments are made by adjusting all monetary values expended or received over a period of time on a comparable basis for valid assessment of a Project Life Cycle Cost. Time adjustment is necessary and an important component of Life Cycle Costing Analysis because the value of domestic currency fluctuates and may not be same in the future. The reasons for this disparity in value are:

(i) Opportunity cost of the money since has real earning potential over time amongst alternative investment opportunities and future revenue or saving always carry some risks.

(ii) In an inflationary economy, purchasing power of money erodes over a period of time and any organization would require more rupees at some future time to obtain equivalent purchasing power to a rupee held today.

LCC is normally worked out for competing technology/alternatives to decide best alternative in terms of cost for the organization. The Directorate has also acquired day-to-day knowledge regarding Life Cycle Costing methodology by referring to bulletins on Life Cycle Costing methodology obtained from Bureau of Indian Standards, New Delhi. Some of the examples of Life Cycle Costing carried out by RDSO are as under:

- (i) Automatic Tensioning Device as referred to by Railway Board (TI Dte);
- (ii) FRP Sleepers in relation to wooden and steal concrete sleepers (Track Dte);
- (iii) LED Signal lamps (Signal).

To enable directorates to work out Life Cycle Cost of alternative options, a format of Cash Flow Chart indicating various components of costs taken into account to arrive at total cost year-wise which is discounted to arrive at present value of cost is enclosed as Annexure for information and guidance.

LIFE CYCE COST ANALYSIS

1. Objectives
2. Option Available
3. Constraints with the Options.
4. Assumption Tables
5. Operational/Running Cost
 - Staff Cost
 - Fuel & other consumables.
6. Maintenance Cost
 - Staff Cost
 - Consumables etc.
 - %age based maintenance cost, wherever applicable.
7. Replacement cost of components, if any, during the study period. For Life of assets, Para 219 of IRFC I may also be referred to.
8. Terminal/Residual Cost based on utility & likely value it may fetch.
9. Cash Flow Chart

Year	PWF Annex. To Ch. II of IRFC I	Existing Technology						Offered Technology					
		Inst. Cost	Maint. Cost	Run.C ost	TermC ost	TotalC ost	Present Value	Inst. Cost	Maint Cost	Run.C ost	Term Cost	Total Cost	Present Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)

Total present value of Life Cycle Cost of whichever option is lower is considered financially better option.