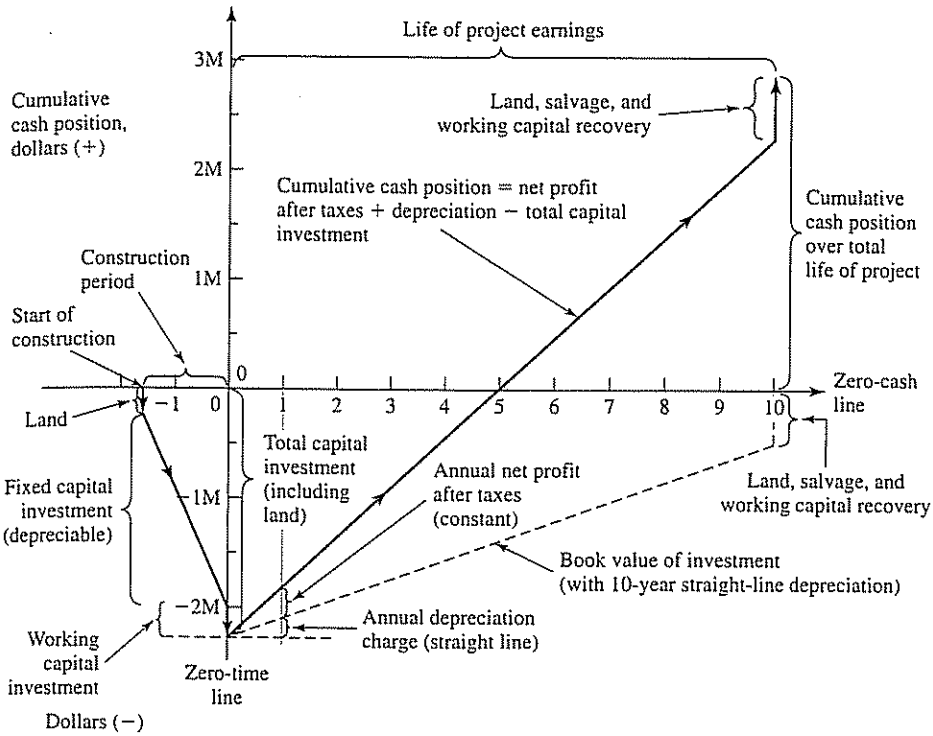


CAPRAU 22-120 100 sheets



**Figure 6-2** Graph of cumulative cash position showing effects of cash flow over the full life cycle for an industrial operation, neglecting the time value of money

**Table 6-3** Typical percentages of fixed-capital investment values for direct and indirect cost segments for multipurpose plants or large additions to existing facilities

Component	Range of FCI, %
<b>Direct costs</b>	
Purchased equipment	15-40
Purchased-equipment installation	6-14
Instrumentation and controls (installed)	2-12
Piping (installed)	4-17
Electrical systems (installed)	2-10
Buildings (including services)	2-18
Yard improvements	2-5
Service facilities (installed)	8-30
Land	1-2
<b>Indirect costs</b>	
Engineering and supervision	4-20
Construction expenses	4-17
Legal expenses	1-3
Contractor's fee	2-6
Contingency	5-15