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PRIVATIZATION OF TRANSPORTATION INFRASTRUCTURE IN DEVELOPMENT COUNTRIES

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Abstract

The paper intends to provide an insight to the need and the available options for privatization practices being implemented in third world countries. These practices include Private Sector Financing in the form of Contractor financing, BOOT financing and Subsidized BOOT financing and several others. The privatization practices have been applied in different sectors in number of developing countries especially in including Indonesia, Malaysia, Philippines, Singapore, Thailand, Turkey and Pakistan. These sectors include power, water treatment plants, and transport infrastructure including airports, port facilities, toll roads, metro systems, bridges, tunnels, . and submarine pipelines and cables. In this paper emphasis is given to different aspects of privatization practices, which could be applied to road transport infrastructure.

Why Privatization ?

In the post-World war II era, most infrastructure projects in developing countries have been built under the direct supervision of the government itself, or of a government agency or utility and paid by budgetary resources or sovereign borrowings. By the late 1970s and early 1980s, different trends have been converged leading to an attempt to find an alternative way to finance these projects from other than governments budgetary allocations. Important of the said trends are summarized below:

1. With continued population and economic growth in developing countries, the need for additional infrastructure continues to grow.

2. The growing third world debt crises has meant that developing countries have had less borrowing capacity and fewer budgetary resources of their own to finance the projects which they need.

3. Major international contracting firms which, in the middle 1980s, had been kept very busy, particularly in the oil rich middle east, were, by the early 1980s, were facing a significant downturn in business. They were looking for creative ways to promote additional projects.

4. In the course of 1980s, a number of governments as well as international lending institutions have become increasingly interested in promoting the development of the private sector and in the privatization of traditionally public sector enterprises.

The search for a new way to promote and finance infrastructure projects in developing countries turned to techniques that are in fact not at all that new. Similar arrangements, often known as " concessions" were widely used in the 19th and the early 20th centuries to develop infrastructure in France and many other parts of the World. One of the best known projects developed in this way was Sucz canal. Several other

examples could be cited of privately financed concessions to build railroads, tramways, waterworks, electrical utilities and so on.

In more modern times, new techniques of providing substantial non-recourse project financing for major privately owned projects, particularly in the areas of oil and gas exploration and extraction were preferred in the 1970s. In the United States and the other developed countries, similar projects financing techniques have been applied to numerous privately promoted infrastructure projects.

Beginning in the late 1970s and early 1980s, some of the major international contracting firms and some of the more sophisticated developing countries began to explore the possibility of privately owned and operated infrastructure arrangements. In this context, different terms have been coined in early 1980s to elaborate different forms of private sector financing like as under:-

BOT	Build, Operate, and Transfer
BOOT	Build, Own, Operate, and Transfer
BOO	Build, Own, Operate
BRT	Build, Rent, Transfer
BOOST	Build, Own, Operate, Subsidize and Transfer

Private Sector Financing Options.
(Road Transport Infrastructure ; Highways)

As already mentioned, developing economies need infrastructure in excess to resources. In case, governmental resources do not allow to go for additional required projects, involvement of private sector is quite attractive option from governments point of view. Among various strategies applicable, important forms of private sector investments in public works are described below:

Contractor Financing:

The idea behind this form of private investment in the public sector is, **first** to facilitate the principal cost of the project within the construction period, and **second** to make the public directly involved in repayments of the project costs (this is done by imposing reasonable tolls).

The host government may ask the contractor to arrange the financing usually in the from of foreign investment (supplier's credit), for the project through an international lending institution under international borrowing rules. The government shall be responsible for repayments of loans through its budgetary resources and revenue earnings from the facility in the form of tolls and provision of road side facilities. Key features of contractor financing may look as under:

- Loan draw downs ranges within the project implementation period, usually termed as grace period. No principal repayments are made during the grace period.

- Depending on the available budgetary resources, the government may ask the any percentage of private share in the project cost. Also the government decides to, pay or not to pay the interest during grace period.

- Usually principal repayments starts after opening of the project so that imposed toll revenues and the earnings from additional services may be used along with the minor budgetary resources for the loan repayments.

- Loan repayment period may range upto 12 years of project start depending on nature and amount of risks involved in the investment.

- Analysis of different projects shows that the government has to invest from its resources, almost an equal amount within the loan repayment period (usually ranges from 12 to 15 years) rather than investing the same amount in much shorter span of construction phase (usually ranges from 3 to 5 years).

- The prime factor to assure this form of investment feasible for the government is the amount of traffic which may use the proposed facility. More is the volume of said traffic, more shall the project be viable.

BOOT Financing:

Under the BOOT approach, one or more sponsors from the private sector are authorized to create a private " project company " to build public works. The sponsors typically include a major international engineering and construction firm and one or more equipment suppliers. The sponsors are also expected to act as builders and suppliers for the project. The project company may include the passive equity investors and even a minority equity participation of the host government. Key features for the BOOT financing are summarized below:

- The host government must want the BOOT project. A half hearted commitment will not be sufficient.

- The host government may ask for the bidding and the contractor asking for minimum concessions (least lease period) should be given the project.

- The host government has to provide guarantee for the minimum traffic.

- The lease period shall be sufficient enough to pay off the debt incurred and to provide a reasonable return to the equity investors. This period ranges from 25 to 50 years (typically 35 years)

- The project company (lease holder) will then raise the funds according to project requirements. The financing is typically on a " non - recourse " basis.

- The project company will own and operate the project for the lease period, and

- At the end of the lease period , the project company will transfer ownership of the project to the host government.

In the optimistic view of some host country governments, a major attraction for the BOOT approach is that a BOOT project would be entirely " privately " financed, without any financial commitment from the host government. In practice, however, there has not yet been a purely private BOOT infrastructure project of any significant size in a developing country. Extensive host government support, including a substantial financial commitment at one or more stages of the process , appears to be a central requirement.

Subsidized BOOT Financing:

Subsidized BOOT financing is different from the BOOT financing in the aspect that the host government shall subsidize the project company during construction phase of the project. But the project lease period shall be shorter in this case and shall be fixed by the host government and the contractor offering the least subsidy shall be considered for the project. Project lease period in this case may range from 20 to 25 years (typically 20 years), depending on project pay-back period.

The forth coming section illustrates / compares the said financing options. A hypothetical highway project is considered for which all important financing options have been explored.

The Case Study:
(An hypothetical Highway Project.)

An hypothetical project in land transport infrastructure sector has been identified after carrying out location of need studies. The promoters (usually the host government) is interested in carrying out execution of the project in private sector. However, the problem faced by the host government is to choose the best financing option available in private sector which can best protect the public interests.

The following case study addresses the said problem and discusses different private sector financing options from promoters perspective.

Key features of the project are as follows:

1. Project Length: 100 km

2. Project is a two lane single carriageway facility with typical 7.3 m wide carriageway width and 3 m wide shoulders on each side.

3. Capital cost of the project is estimated at US $ 1.0 million per kilometer and amounts to US$ 100 million. Phasing of the capital cost is spread over 3 years as under:

1st year	25%
2nd year	40%
3rd year	35%

4. Annual recurring cost is estimated at US$ 0.2 million/year. Overlay is required after each 10 years which cost at US$ 10 million.

5. Expected traffic on the project road is of the order 4000 Vehicles per day. (This section need further details regarding traffic estimates including normal, diverted and generated traffic. However, these details are left here at the point that for such a project above said traffic volume is a must.)

6. Suggested percent composition and toll rates are as under:

Vehicle Type	% Composition	Toll rate / km (Rs)
Cars	20%	0.50
Minibuses	30%	1.00
Lgv's	30%	2.00
Hgv's	20%	4.00

7. Revenues shall also be generated by provision of additional road side facilities like service areas, hotels, advertisement and tree plantation. It is estimated that these revenues may amount upto 8% of the toll revenues.

THE PROBLEM: **Suggest the best financing option from Governments point of view and analyze the project for 30 years.**

The government has following said financing options for execution of the project:

1. Government's Self financing.
2. Private Sector Financing
- Contractor Financing
- BOOT Financing
- Subsidized BOOT Financing

1. Government's Self financing.

If the government has enough available funds from its Annual Development Plan (ADP) and other resources, project self financing is the best option from long term benefits (economical and financial) point of view. The cashflows for the project has been analyzed for 30 years, of which 3 years are taken as project implementation period, during which the government has to invest. From the fourth year revenues generation will start and will continue for the rest project life. It will be net earning to the government except timely maintenance and overlay programs. A cashflow statement for this type of financing option is shown in figure 1.

2. Private Sector Financing.

If the government does not have enough funding to execute the project, keeping in view the economic importance, the project could be entrusted to the private sector. Different options exist for the purpose, and are detailed below:

2.1 Contractor Financing.

The project can be entrusted to private sector on the same basis as Pakistan Motorway (Lahore - Islamabad section), in which case, the contractor arranged US$ 380 million as the supplier's credit; 40% of the contract price. In the case study, same financing option is considered and is assumed that 100% financing shall be arranged by the contractor. The government shall be bound to repayment of loans in 13 years with 3 years grace period. The interest rate is considered 1% above LIBOR, preferably 6% per annum. Commitment charges are 0.5% per annum paid every six months. Financial handling charges are constant and are US$ 45000. To keep the amount of loan at minimum, it is suggested that interest, commitment and financial charges during the grace period shall be paid by the government. In this case, The net loan is estimated at US$ 114 million and repayments are estimated US$ 147 in 13 years. Following results are extracted from the analysis:

1. The government has to spent US$ 149 million in 13 years instead of spending US$ 100 million in 3 years.

2. After loan repayments, earnings from tolls and additional services shall provide a regular mean of revenue to the government.

A detailed analysis of this financial option is depicted in figure 2.

2.2. BOOT Financing

Under this financial option, the government has to provide right of way (ROW), for which it will be given an equity generally ranges from 5% to 10% of the project cost. Normally, contract is awarded based on minimum lease period. In this particular form, host government's involvement is negligible and hence the option has not been analyzed from government's point of view.

The resultant of BOOT financing shall be the timely provision of desired infrastructure and eventually the reception of a built-up and operating facility at the end of lease period.

2.3 Subsidized BOOT Financing

As already mentioned, the government has to subsidize to the lease holder, a reasonable amount during construction phase in order to facilitate loan repayments

of the concessionaire. In the case study, this subsidy amounts to US$ 33 million spread over first 7 years of project operation. On the other end, lease period will expire 10 years earlier as compared to BOOT option. Beyond that, all the revenues from project will go to the host government and amounts to US$ 175 million in 10 years after lease expires. Cashflows under this financing option are shown in figure 3.

Summary

Involvement of the private sector in public works is becoming the need of time specially in developing World. Different financing options exists in this respect. An effort has been made to analyze these options and to seek the best financing option from government's point of view. The results show that in public sector, an investment from government's own resources is the most suited option as it yields maximum revenues to the government in specific time duration. Figure 4 shows a comparison between all the considered financing options.

However, if the government does not have enough funding, Contractor financing should be the second option for the government to adopt.

BOOT is most favorable for private financier, while Subsidized BOOT Financing could be considered as the optimal solution from host government and financier point of view.

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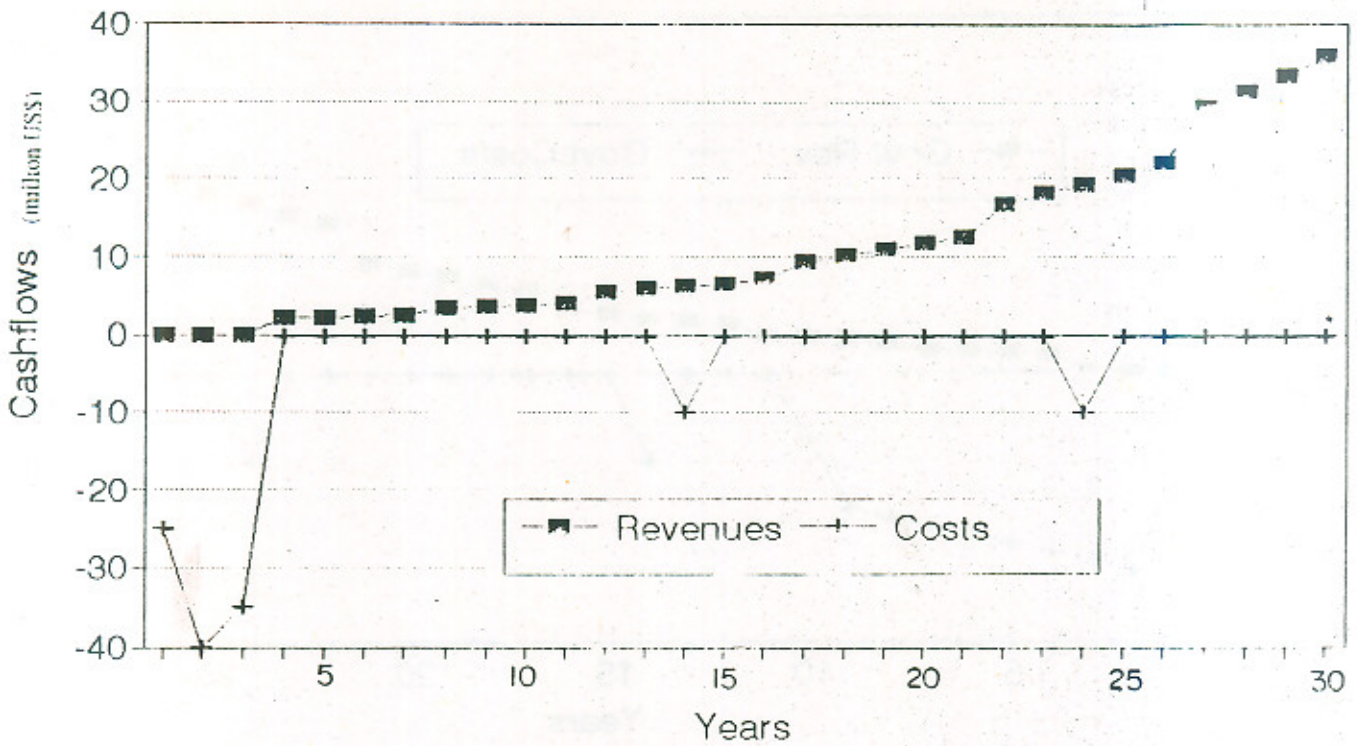
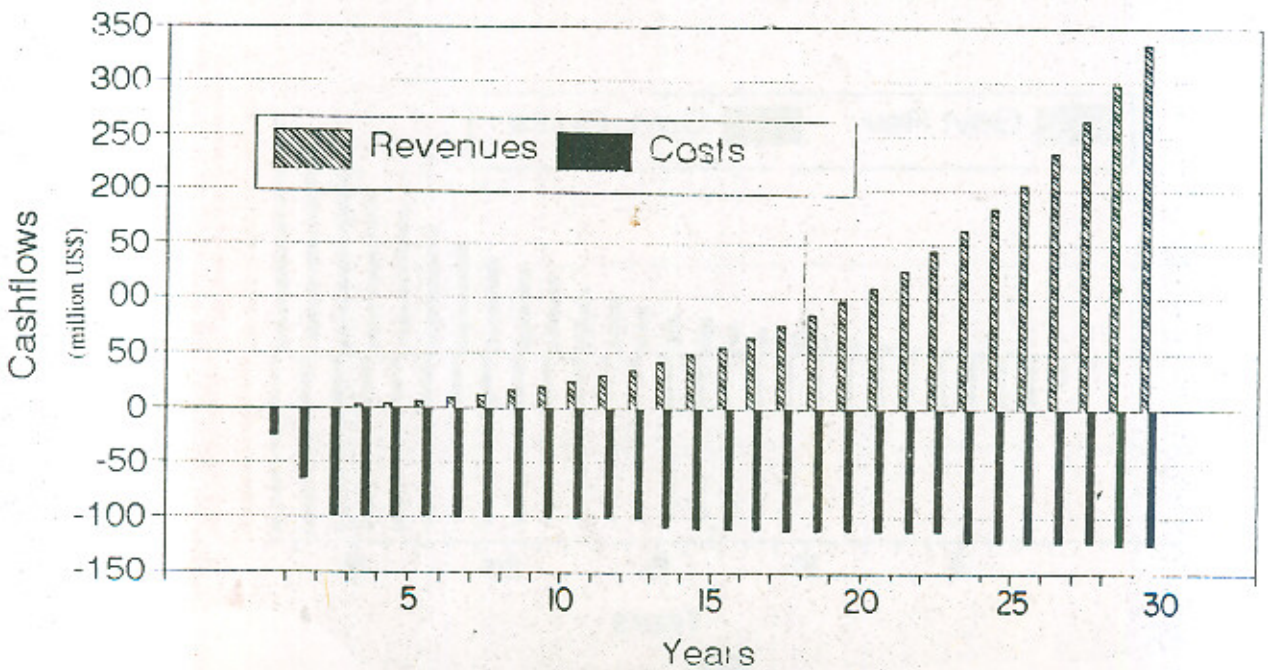
2. *"Proposal for Private Sector Investment in Toll Roads " promoters ADZ Developments, Dubai, April 1995.*
3. *"BOT Approach to Infra Structure Projects in Developing Countries' by Mark Augenblick and B. Scott Custer, Jr. August 1990.*
4. *" Role of Multinationals in Development Process " R..U. Richards, First edition, 1987.*

FIGURE 1 Government's Self Financing

Yearly Cashflow Diagram

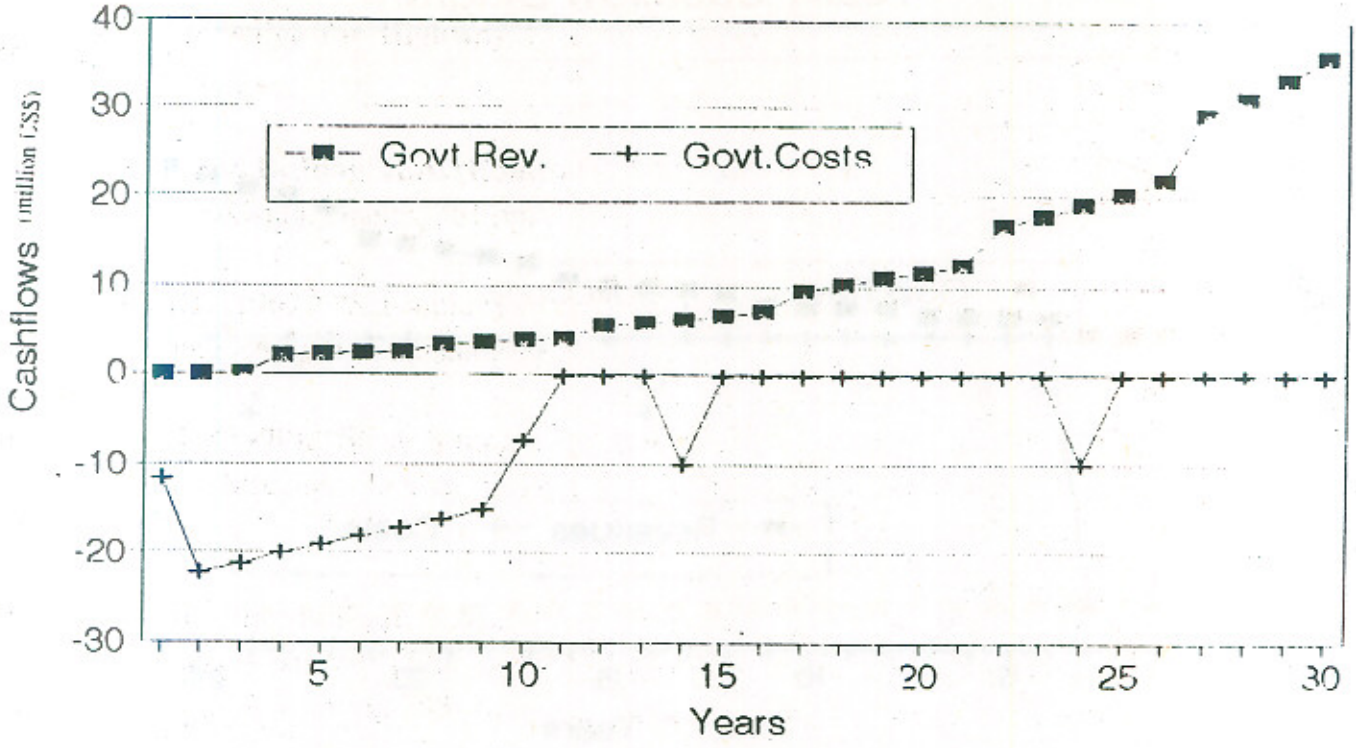


Cummulative Cashflow Diagram



Contractor Financing

Yearly Cashflow Diagram



Cummulative Cashflow Diagram

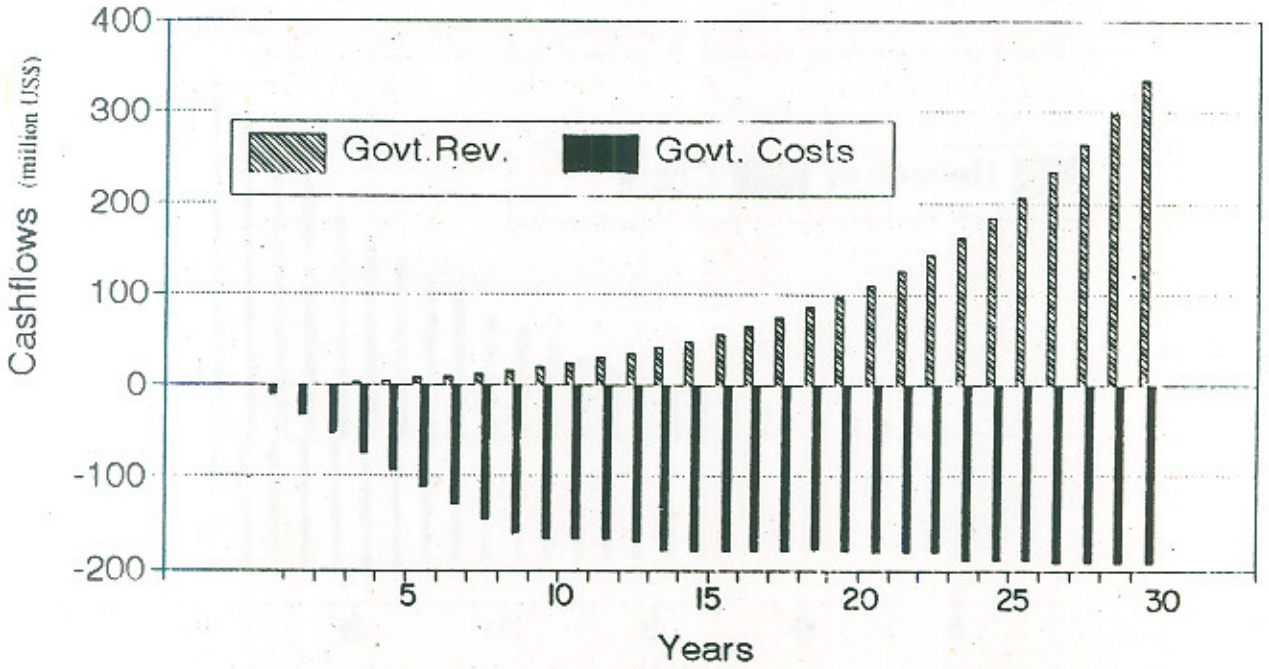
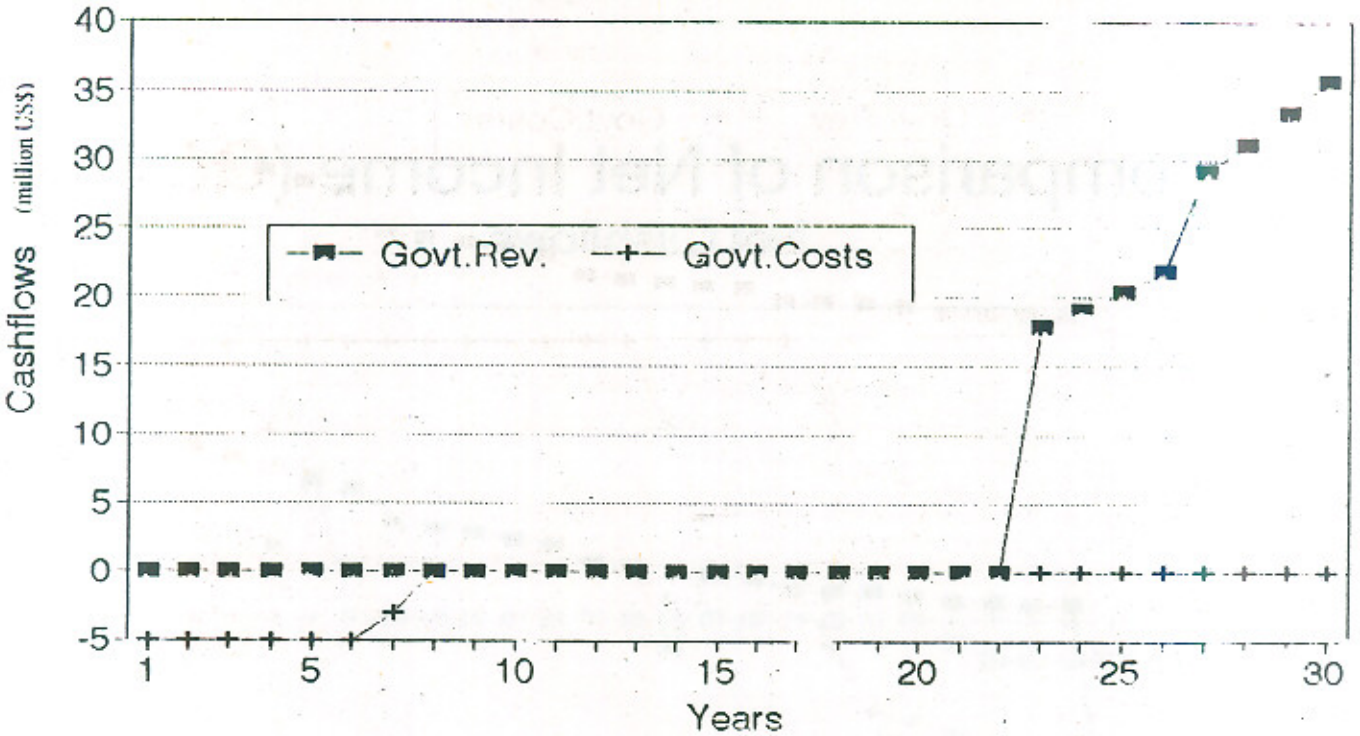


FIGURE 3 **Subsidized BOOT Financing** PAPER NO.566

Yearly Cashflow Diagram



Cummulative Cashflow Diagram

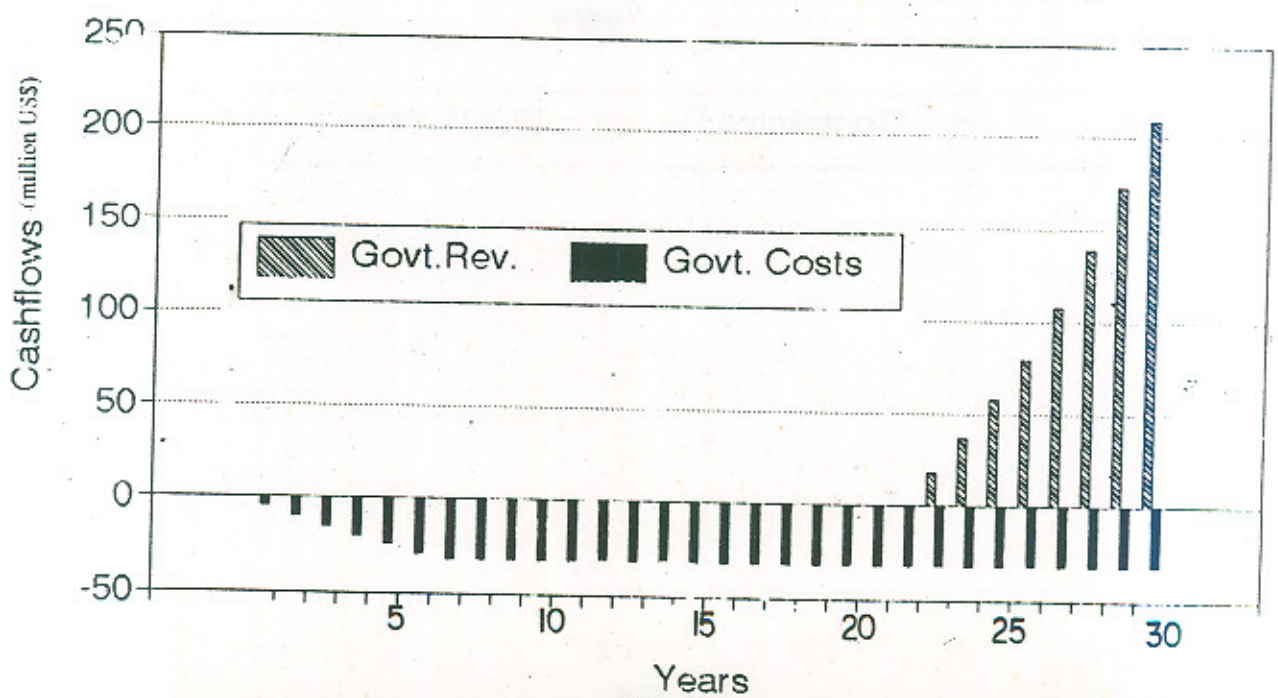
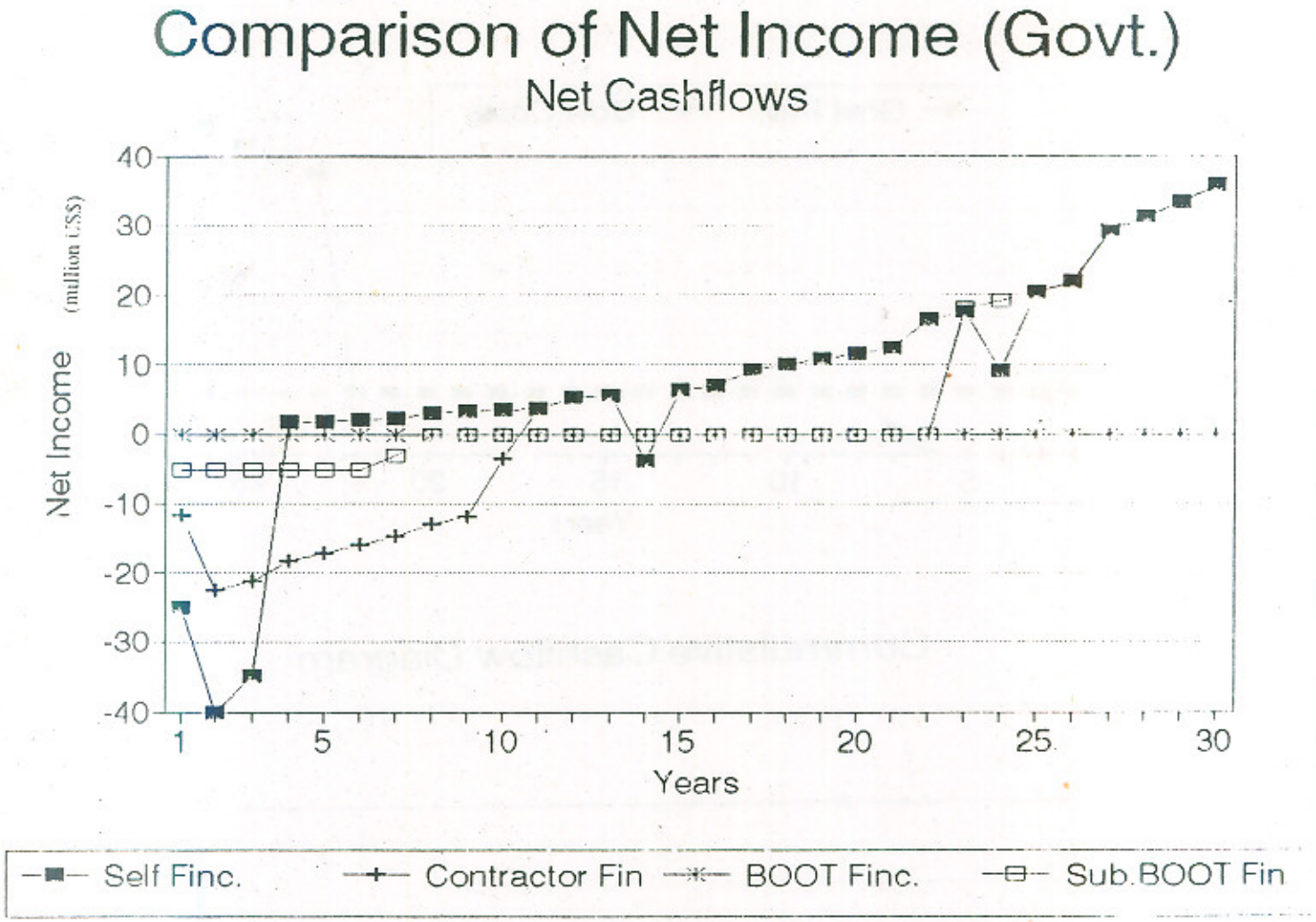


FIGURE 4


Comparison of Net Income (Govt.)
Net Cashflows
Net Income (million US$)
40
30
20
10
0
-10
-20
-30
-40
1
5
10
15
20
25
30
Years
Self Finc.
Contractor Fin
BOOT Finc.
Sub.BOOT Fin