

CHAPTER III

CALCULATION OF TOTAL ROAD USER COSTS

Determination of Basic Vehicle Operating Costs

Basic vehicle operating costs or road user costs are costs incurred in maintaining and running a vehicle on straight roads with no gradient or curvature. Costs increase if vehicles travel over steep hills and bad bends and these costs have to be taken into account for the purpose of this analysis.

Operating costs have been obtained from operators for 5-ton trucks, 8-ton trucks, buses and taxis. Vans and cars are assumed to have the same operating costs as taxis except that in the case of cars, wages are excluded.

In order to calculate additional costs incurred as a result of gradient, curvature, and speed, a breakdown of the vehicle operating costs is necessary. Costs for the separate items such as maintenance, fuel, tyre, wages, repairs etc. have been obtained for 5-ton trucks and taxis. These cannot be obtained for the other vehicles and so it has to be assumed that the proportion of each item to the total cost for 8-ton trucks and buses is the same as for 5-ton trucks. For vans and cars, however, the proportion is assumed to be the same as for taxis. Table 5 shows the breakdown of operating costs for the six types of vehicles.

Determination of Costs Associated with Gradient, Curvature, Speed and Distance

(I) Costs associated with Gradient

The effects of gradient on road user costs are illustrated by energy requirements. It would appear that the energy required in the ascent would be equal to the energy released in the descent and that no extra costs would be incurred in uphill and downhill travel. However, this is not so because of the variation in efficiency in upgrade and downgrade

TABLE 5

BASIC OPERATING COST OF VEHICLES IN CLITS PER FILE

	Fuel	5-ton trucks	8-ton trucks	Vans	Buses	Cars	Taxis
Fuel ^a		6.76	6.65	9.60	5.83	9.60	9.60
Maintenance		0.65	0.61	0.20	0.60	0.20	0.20
Repairs and renewals		6.20	8.70	0.72	7.53	0.72	0.72
Tyres and tubes		5.00	7.02	0.51	6.12	0.51	0.51
Wages		8.75	12.29	3.60	10.71	-	3.60
Insurance		0.86	1.21	0.43	1.06	0.43	0.43
License fees		6.45	0.00	0.10	7.76	0.10	6.10
Depreciation		6.20	5.90	3.00	5.34	3.00	3.00
Overheads, contingencies and profits		10.70	15.03	-	21.10	-	-
Total		47.46	66.64	17.10	58.10	14.70	18.38

^a For trucks and buses fuel refers to diesel oil and for vans, cars and taxis it refers to petrol