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ROAD RESOURCES MANAGEMENT PROJECT

PAKISTAN

FINANCING DISTRICT ROADS THROUGH USER CHARGES

MAY 1990

CONSTRUCTION CONTROL SERVICES CORPORATION

USAID CONSULTANTS FOR ROAD RESOURCES MANAGEMENT PROJECT

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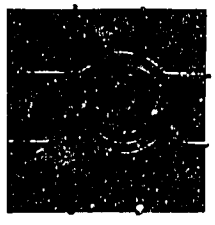

CONSTRUCTION CONTROL SERVICES CORPORATION
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May 07, 1990

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Mr. Hasan Masood
Project Officer
RRM Project
USAID
Karachi.

Ref: Road User Charges

Dear Mr. Masood,

I would like to enlist your comments on our road user charges report before we finalize it. I have therefore enclosed a draft copy for you review. Additionally, I feel it would be helpful if we could have the views of the Hyderabad District Council Chairman as he is deeply concerned about this issue.

It is our intention to finalize this report shortly. Should you have any questions, please do not hesitate to contact Mr. Addison or myself.

Yours truly,
CONSTRUCTION CONTROL SERVICES CORPORATION

ROBERT E. KATZ
Chief of Party

Encl.

MWA/aa

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1 General Overview

1.1 Purpose

It should be pointed out at the beginning of this report that the consultant does not view road user charges or taxes as a means of increasing revenues. Rather, it is seen as a means of offsetting road related expenditures. The distinction may at first appear rather small. However, as will be demonstrated in Section 3, "Coupling Road Revenues With Expenditures", this is an important difference which must be made and maintained if the districts are to practice sound financial management.

In the second half of 1989 the Sindh district councils adopted a policy to appropriate sufficient funds to adequately maintaining their existing paved road network before expending funds on upgrading, improving, or expanding the network. District councils must therefore determine:
(a) who should pay for road maintenance;
(b) how much should be paid;
(c) what are the best instruments for exacting payment;
(d) who should pay for improvements, upgrading, and expansion;
(e) how much should be paid;, and
(f) how should it be paid.

In essence, the questions boil down to (1) who should pay for roads, (2) how much should be paid, and (3) what form of tax instrument should be used.

This report suggest some possible answers to these questions by providing the district councils with an assessment of the revenues generated from road taxes and user charges and advancing the most efficient mechanism for road financing.

At this point in the project information on traffic patterns, economic activity, and road constructions costs are insufficient to permit conclusive analysis of the potential use of toll roads to finance new construction. However, through the course of the project as more data becomes available, the use of toll roads concessionally and private sector financing of new roads will be investigated.

1.2 Introduction

Governments throughout history have raised revenues from roads and road related transportation. Perhaps the first road revenues came in the form of a road or bridge toll. History records the existence of a toll road which connected Babylon and Syria. The ancient Romans and Persians charged tolls.

Other revenue raising measures related to road use include: motor fuel taxes, automobile registration fees, automobile sales taxes, sales or value added taxes on automotive parts, import taxes, property tax, and general revenue funding.

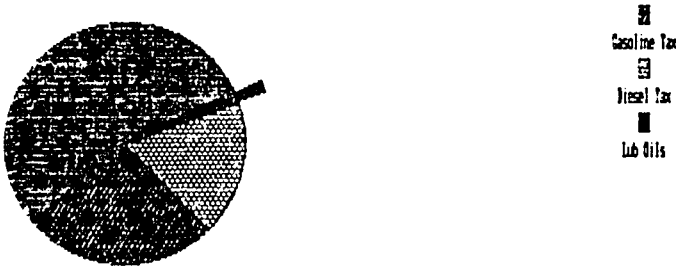
While governments have a long history of raising revenue from taxes on the sale of transportation related materials and products, only recently have they begun to linking revenues with road related expenditures utlizing the concept of dedicated funding. Throughout history road construction and maintenance commitments were most often met through conscription of labor, payment from general revenue funds, or property taxes and assessments.

2 Road Finance in Pakistan

All levels of government provide road services and generate revenues from roads and road related activities in Pakistan. Current data is unavailable but a recent study by the National Transportation Research Center (NTRC) provides the basis for this discussion.

2.2 Federal Road Revenues

The federal government charges user fees in the form of taxes on vehicles, vehicle parts, fuel, and a toll on the super highway. In 1985, the federal government collected 3,989 million rupees from vehicle import duties, sales taxes, import surcharge, and Iqra surcharge. Automobiles accounted for 46% of this revenue. Taxes on gasoline provided another Rs. 1,860 million. Again, the bulk of the burden is borne by car users. Most commercial transport consumes diesel with estimated revenues of Rs. 1,320 million. Lastly, revenues from the sale of lubricating oils amounted to about Rs. 98 million. See figure 1 below.



Federal Road Related Revenues

2.3 Provincial and Local Road Revenues

The provincial government collects user charges as new vehicle registration fees, annual license fees, and bridge and highway tolls. Sindh province road related taxes and fees amounted to Rs. 906 million in 1985. "Two thirds of the amount is paid in the form of the token tax and the remaining one third in the form of registration, transfer,

route permit, fitness and driving license fees, fines and arrears for late payment." Revenues from these sources represented 3.4% of total Provincial revenues.

Local Governments generate revenues from roads in the form of tolls, vehicle taxes, license fees, vehicle fines, rent of bus stands and "road cutting" fees. In 1985, the imposition of these revenues items generated Rs. 102 million.

Against these revenues, totalling Rs. 8.2 million, are road expenditures at all levels of only Rs. 4.2 million. Thus, roughly half of all road related revenues are spent on government services unrelated to road construction, maintenance, and operations. The table below, was based on NTRC figures, presents revenues and expenditures by government level.

Table 1
Road Revenues and Expenditures
(millions of rupees)

Level of Government	Expenditure	Revenues	Ratio
Federal	1,023	7,216	0.14
Provincial	2,189	906	2.42
Local Bodies	1,014	102	9.94
Total	4,227	8,224	0.51

With the exception of the federal level, road related expenditures are far greater than road related revenues, if intergovernmental transfers for roads are excluded. When these transfers are taken into account, the pattern shifts with local bodies also collecting more than they expend on roads. Considering this transfer of funds, the federal government still collects far more than it spends on roads. Therefore, it is apparent that the federal government views road related taxes not as an instrument to offset road related expenditures, but as a general revenue raising instrument.

The result of this pattern of expending less than is collected on roads, a policy which manifests itself in substandard road design and maintenance, results in an inefficient allocation of resources. It reduces the number of trips undertaken by increasing trip costs. If expenditures were equal to revenues a more efficient allocation of resources would result because use savings osuld be significantly greater than the incremental cost of improving the road system. Thus the national economy as a whole would benefit from the improved economic efficiency of the transport system.

3 Coupling Road Revenues and Expenditures

It is important to understand the difference between raising revenue with the above mentioned tax instruments and financing road works. While vehilce and gasoline taxes may be used to raise general revenues, it is only when their collection is dedicated to road related works that they become road finance instruments. Thus, a tax on vehicle parts is not part of a road finance instrument if it is funnelled into the general revenue account, but a tax which is dedicated solely or in part to roads is a road finance instrument.

Throughout history road related taxes and charges have been used to collect revenues. They have not usually been coupled with maintaining and expanding the road network. In the context of local governments in the Sindh, it is not apparent that citizens would be willing to pay for roads if they believed that the money would not be used to maintain the roads. The separation of revenues and expenditures as part of the historical road resources management policy has manifested itself in the current inability to maintain roads to an acceptable standard of rideability. By coupling road revenues with expenditures through the mechanism of a dedicated fund, the districts will always have funds available which must be spent for road maintenance.

To link road revenues with road expenditures, four issues must be adequately addressed:

(1) What is the appropriate price? - Is the service cost effective?

(2) Who should pay? - Is the service charge equitably distributed, socially and economically?

(3) How much of the service should be provided? - Should investments emphasize comfort or expansion of the network?

(4) How should the service be provided? - Public or private sector? Force account or contract?

4 Road User Charges - General

4.1 Introduction

The rising cost of government and public dissatisfaction thereof have moved many governments in recent years towards the concept of user charges for government provided goods and services.

In the quest for more responsible and efficient fiscal management government has searched for better revenue instruments and has developed a mix to meet their specific needs. Good road revenue instruments should meet the following criteria:

- o Provide a stable flow of income.
- o Produce Sufficient Revenues;
- o Be directly related to the service provided;
- o Economic Neutrality - economic decisions would not be based primarily on tax considerations;
- o Taxes should be equitable;
- o Administrative and compliance costs should be minimized;

4.2 Who Should Pay?

Before beginning this section it is important to define what is exactly meant by the word "pay". It is used in the sense that to pay means to bare the economic burden of the tax. It is often the case that the person paying the tax can shift it forward to the consumer or backward to some other business entity. Thus, the burden of the tax is shifted. Who pays the tax is different from who bares the burden. Included in the concept of payment should be a discussion of who bares the burden. Payment is an administrative matter while burden is an economic matter. If a toll collection facility is placed on district roads the transporter would be able to shift part or all of the tax onto farmers and travellers. Ultimately all parties associated with the use and benefit of the road will bare the burden of maintaining the road.

The establishment of a toll requires that individuals who do not pay for roads can be easily excluded from consuming and enjoying any of its benefits. Thus there are no free riders. Second, the toll precludes spillover effects or externalities. That is the producer and consumer bare the

full cost and receive the full benefits of the service. In general, no private company has the right to charge a non-consumer or beneficiary. Individuals not consuming a good, say nan, could not be charged for the nan.

Thus, in this case theory says that if a private company built a road, only those who use or benefit from the road would be charged for the construction and maintenance costs. If a road is built from a village to the national highway only those persons using or benefiting from the road would be charged.

If access is restricted, there are no alternative routes, and only those persons living and working in the road's primary service area (PSA) benefit from the road, then only those persons, living and working in the PSA should be charged for the road's costs. This is the principle of benefit financing. In this "perfect" world (from the pure economic view point), road users or beneficiaries would be charged directly for the road.

Exceptions arise when benefits accrue to persons who cannot be easily excluded, the cost of collections are a high percentage of the toll, or the benefits and costs are not readily quantifiable. For example, assume that opening a new road leads to the relocation of an industry to the PSA. Further assume that this provides direct employment to persons living in the PSA or to persons who will travel the road. Additionally, property owners will see a rise in property values due to lower access costs. The economic activity of that industry, in turn, generates additional economic activity and provides employment which may or may not be located in the PSA. If the beneficiaries of the road cannot be easily excluded from its benefits then they cannot easily be charged for its costs. This is the free rider problem. Why pay if you cannot be excluded from the benefits? Or conversely, the costs of collecting from everyone that benefits would be prohibitive. Enter Government. Government with its power of taxation can force nonusers to pay for the road.

The idea of only consumers/beneficiaries paying for the product arises in part from strict economic efficiency criteria. If a consumer does not face the cost of consuming, he cannot know how much of the product to consume. Moreover, the producer cannot know how much of the product to produce. In the case of roads, if users do not bare the cost, they cannot make efficient decisions regarding allocating resources between transportation and other goods and services. This is only one side of the coin. The fact that consumers should pay is also an issue of equitable treatment. Why should the non-user, not benefiting from a road, be forced to pay for it?

In most instances on existing roads it is recognized that economic activity will be affected through changes in transportation costs. For example, if the upgrading, construction and maintenance of a paved road reduces vehicle operating costs (VOC) and the time required for transporting food, the price of food in the PSA should be lowered. In other instances, production costs will be lowered and this saving will be capitalized into the value of land. In any event, beneficiaries can be directly charged for the cost of constructing and maintaining the road. It will be unusual that benefits accrue to persons who cannot be made to bare the costs of providing these services.

It is an entirely different matter if a new road is constructed. Benefits may not solely accrue to new road users and those living and working in the PSA. Changes in economic activity may have spill over effects that positively impact other areas of the district. The benefits, costs and beneficiaries may not be easily quantifiable or identifiable. It may not be economically feasible to charge all beneficiaries directly. In fact, the expansion of the road network may be justified on the basis of economic development. The generalized economic improvement suggests that all district inhabitants in one form or another benefit from a new road, even though those that live and work in the PSA derive far greater benefits.

4.3 How Should Payment be Made?

Economic theory provides some basic guidelines to determine the optimum revenue collection instruments. Impose the fee as close to the service as possible. The ideal user charge for roads is, therefore, a charge imposed for each trip taken when each trip is taken. This provides timely information to the suer at the point where he must evaluate thenet benefits of a trip. The consumer can make the most efficient use of the resources which he has available for transportation.

Ideally, the consumer weighs the cost versus the benefit of each action and chooses the alternative use of his resources which, given his priorities, yields the highest net benefit of return. Also, this provides the district council with information about the demand for their services. They can then more accurately determine how much of a service to provide.

Potential road user fees include taxes on the purchase of vehicles or spare parts, vehicle registration fees, license fees, import duties, fuel taxes, and toll charges, Each of these user fees has merits and drawbacks. A tax on vehicles is not connected with the use of any specific road. A traveller going from Hyderabad to Dadu will not consider

as part of the trip cost the sales tax which he had paid on the car or its parts. This is a fixed costs which, while raising revenue for roads does not enter into the decision to travel more or less. It is reflected in the consumer's decision to purchase and automobile.

A gasoline tax is more closely related to actual travel conditions. It forces the consumer to consider the cost of travel from one point to another based upon the number of kilometers travelled and the weight of the items transported. It does not, however, take all cost into account. A gasoline tax takes into account the private cost of road travel but not the social costs. The social costs are costs incurred by society and imposed by the traveller, but not incurred fully or at all by the traveller. Additionally, since the cost of construction and maintenance vary from road to road, this road specific costs could not be incorporated into a gasoline tax.

Only a toll charge for each road could specifically provide the consumer with the costs of travel on that specific road. The further away from the actual activity the tax is levied the smaller the impact if has on economic decision making.

In the case of existing roads it was determined that most if not all of the benefits will be reflected in lower VOCs and higher property values. A toll tax on those roads will charge for the benefits of lower VOCs and reduced travel time. The transfer tax on the sale of immovable property will capture some of the change in property values as a result of road maintenance or rehabilitation.

While this is the preferred combination of revenue instruments in the case of existing paved roads, the compliance and administration costs in relations to maintenance costs may be quite high. This may render collection by tolls infeasible. An alternative method of financing maintenance is required.

When the volume of traffic does not justify toll collection, the district council should consider general revenue funding combined with the transfer tax on immovable property. The consultant suggests that a percentage of export taxes be dedicated to a road maintenance fund. Improved roads results in more profitable agricultural production and this as a major beneficiary agriculture can be made to pay for a portion of the road's costs. This is less efficient than a direct charge for the reasons mentioned above. It is however a more direct financing mechanism than other alternatives available to the district councils.

Owing to low traffic levels, tolls on new or upgraded roads will most likely be infeasible. Several other areas of financing are currently open to the district councils.

Under the current tax system the district councils have the following alternative mechanisms for financing road services. They may place a license fee on non-motor vehicles; charge a "community tax on adult males for the construction of any public work of general utility for the inhabitants of the local area concerned unless the council exempts any person in lieu of doing voluntary labor or having it done on its behalf"; or fund road construction from some other revenue source.

Each of the road financing tools currently available to the district councils can and should perform different roles. The key concepts behind charging for roads,or for that matter any other service, are those of efficient resource allocation and sound fiscal policy. The more direct the charge the more information consumers have in allocating resources. Thus, in financing road maintenance and construction activities district councils should use the most direct charges first. The revenue potential to offset road expenditures from different mechanisms is discussed below.

4.4 How Much Should be Paid?

It is assumed that district councils will maintain their road networks and set aside sufficient funds for that purpose. Thus this issue addresses the question of what price consumers should pay for road services, i.e., whether price should be above, below or equal to costs. The experience of other governments and economic theory should serve as a guideline in formulating pricing policies.

Economic efficiency requires consumers to bare the marginal or additional cost of the good or service which they consume. It is only when they face accurate costs that they can make efficient allocation of their resources. If services are priced too low, then consumers will consume more of that service and too little of other goods and services. If services are priced above their cost, then too little of the service will be consumed and too much of other goods and services will be consumed. In principle consumers should face the full (marginal) costs of any service which government provides. Marginal cost pricing holds only in a world where all other prices are set at marginal cost. In the absence of this criteria, the theory of the second best provides an economic rationale for a divergence in price from marginal costs.

In reality governments exist, among other reasons, to adjust for imperfections in the market place. As such they incur costs which cannot be directly recovered from their constituents. This means that they levy taxes and user

charges to cover not only the cost of providing a specific service but to cover other operating costs as well Thus the tax or fee may be above the cost of providing the service.

Pricing concerns only arise in reference to a direct pricing mechanism. In light of these considerations and the view that toll roads are the most direct form of existing financing toll rates should be determined.

5 Road User Charges - Specific

5.1 Introduction

From these general observations on the topic of road user charges and taxes, we move to a detailed discussion of specific road user charges. In this section of the report, the consultant:

- recommends rates;
- estimates potential revenues;
- reviews collection mechanisms; and
- presents appropriations budgets (investment plans).

The current legal framework premits three specific road user charges:

- toll fees;
- tax on non-motorized vehicles; and
- tax on adult males in the road service area.

5.2 Toll Roads

5.2.1 Introduction

Toll roads have existed since before the time of Christ. There are records, as cited earlier, of a toll road existing between ancient Syria and Babylon. In England, when toll roads were at their peak they accounted for almost 20% of the rural road mileage.

Toll roads are the preferred form of financing both road construction and maintenance when traffic is sufficient to justify imposition of the tolls and to offset the compliance and administrative costs. In rural areas, toll are most often justified for road improvements on heavily travelled roads and maintenance on existing paved roads. Rarely will toll financing be feasible for new agricultural road construction.

5.2.2 Current Status

Toll roads are not a major source of revenue in the Sindh. In aggregate in FY85-86 they accounted for only one tenth of one percent of total revenues. Nationwide district council toll taxes were 2 % of total revenues. The table below presents toll tax collections by province. Note that the Punjab and N.W.F.P. rely more heavily on tolls than does the Sindh. The population density and associated high traffic levels in the Punjab make tolls feasible and attractive.

Similar conditions exist in parts of the Sindh so one might expect to find a larger representation of toll taxes than currently exists.

Table 2
(FY 1985-86)
Rs. in millions

District councils	Amount	Percent
Sindh	0.2	0.01
Balouchistan	0.2	0.93
N.W.F.P.	8.9	3.99
Punjab	19.3	2.36
Total	30.1	2.00

Source: NCRD Local Finance Data Base.

There are roads with the potential to become toll roads in almost every district. Yet, only two districts operate toll roads - Dadu and Sukkur. Sukkur district council's toll roads serve quarries while Dadu's toll road is the access to a religious shrine. From its two roads Sukkur raised Rs. 540,000 in FY87-88 or just under 3% of total revenues. Dadu's toll raised substantially less, Rs. 28,600 or less than one tenth of one percent of total revenues. Total toll revenues have risen from less than two hundred thousand rupees in FY85-66 to almost Rs. 600,000 in FY 87-88.

Tolls in Sukkur are collected on commercial vehicles only. The Sukkur district council official toll schedule is presented in Appendix A, however, interviews with the Chief Officer, District Engineer, and road users indicate that actual rates are 50 paisa per animal cart and 5 rupees per truck, lorrie, or other such vehicle. Table 3 below calculates collections at the "official" rates by vehicle class. Also presented are the total for the higher rates and the amount for which the contract was awarded.

Table 3

Rohri Arore Road

Vehicle Type	Daily Traffic	Annual Traffic	Collections
Bullock Carts			
Other Animal Cart	68	24820	6205
Taxies	33	12045	12045
Buses	25	9125	18250
Trucks, Lorries, etc, w/quarry material	266	97090	291708
Trucks, Lorries, etc w/non quarry material	132	48180	96360
Total	524	191260	424568
Contract Amount			425000
Total at Actual Rate			772368
Contractor's Gross Revenue			347368

5.2.3 Collection Procedures

Like many other district council taxes and fees, toll road fees are collected through a private sector contractor. This is the case for tolls on national roads as well. The contractor meets his expenses and recovers a profit from the excess he collects over the contracted amount.

Annually, prior to the beginning of the new fiscal year, the district council tenders the collection of tolls. The minimum opening bid is set equal to 15 percent above the current contract amount. The winning contractor is the party which bids the largest amount of revenues to the district council from the collection of the toll. Upon award of the contract, the bidder must deposit 25% of the contract's value which shall be refunded after successful completion of the contract. Payment is to be made in equal monthly installments.

Collection of the toll by a contractor raises two major concerns. First is the issue of whether government or the private sector can do a more efficient job of toll collection. The second issue deals with the determination of the contract amount and the bidding process itself.

Numerous studies and the current trend demonstrate that in most instances private sector production of services is either lower cost or higher quality than government production. Discussions with district council staff suggest that in-house collection results in far less revenue than private sector collections.

The second concern, the determination of the contract amount and the bidding process, is more important. As with other taxes, at the time that it was decided to let a contract for toll collections, the district council made no attempt to estimate gross revenue potential. Traffic counts should have been made to establish the minimum acceptable bid. If the contract was well below the actual collection plus the contractor's expenses and normal rate of return, one would expect the competitive bidding process to adjust for this after the first year. Potential entrants realizing the excess profits of the contractor would bid higher. Successive rounds of bidding would occur until profits were reduced to a more reasonable level.

It is not reasonable to assume that the bidding process is characterized as competitive. Unfortunately, the bidding process is not competitive because actual collections are not public knowledge. Becasue the contracts are submitted in writing rather than oral open auction, prospective bidders cannot even test the limits of the incumbent bidder. The existing contractor has a monoploy on the information which allows him to determine the value of the contract. Potential competitors cannot intelligently bid. Although it is true that the contractor is to maintain a receipt book, this information is not available to potential collectors since the district councils do not collect the information. Even if the district councils had collected this data it is unaudited and therefore could possibly be incorrect or even potentially misleading. Tax considerations induce the contractors not to keep accurate records. Additionally, if he were to show receipts totalling more than the actual collection plus the contractor's expenses and normal rate of return, the district council would be able to more accurately estimate the contract in the upcoming year. In our expert opinion, the current contractor clearly possesses sufficient insider information to provide him with an almost insuperable advantage in winning the new contract. Without this information the risk of bidding in excess of the current contractor's first bid is prohibitively high.

The rule which requires district councils to increase contracts by a minimum of 15% has been cited in previous reports as a problem area. If authorized rates remain constant and traffic increases less than 15% per year, either the 15% mandated contract increase will ake the contract unprofitably risky or will force a rate increase above the authorized levels, inconsistent with the actual cost of the service, thereby distorting the economic balance of user decision making. Increases in contract value should reflect an increase in rates, an increase in traffic and/or a perceived decrease in the risks involved in administering the contract, e.g. very stable traffic over an extended time.

5.2.4 Rates

Rates should be based upon traffic volume, maintenance costs, improvement costs, administrative and compliance costs, future revenue needs and current accepted practices. Economically speaking , in a perfect economic world rates would be equal to marginal costs. This does not hold in the present case for the reasons presented above.

In addition to the imperfection of the real economic environment, the rate setter is also confronted with the practical difficulties and uncertainties in determining what actually constitutes the marginal cost. Therefore, it may be desirable to look at price setting in terms of the value to the user as opposed to the actual cost of providing the service. In fact, if the value to the user is less than the cost of providing the service, the user will be unwilling to pay the cost. Clearly then, the upward limit on the price can be practically linked to the preceived value to the user. In this rate setting exercise, the consultant, as a first step, has quantified the maximum chargable rate based on VOC savings to be realized as a result of improved routine and periodic maintenance of an existing road.

Table 3 presents the recommended rates per vehicle class. These rates vary with distance and take account of vehicle operating costs and existing charges. It should be noted that these rates will reduce traffic below the levels which would be achieved if rates were equal to marginal costs, albeit only slightly. The demand for roads in the most of the district councils' limits is relatively inelastic and will not respond significantly to these rates.

Table 4

Recommended Toll Rates

Road Length	AC/MC	CAR	MB	BUS	PU	Trk	Trt	T/T	Other
0-0.99	0.25	0.5	1.5	3	1.5	3	1.5	3	0.5
1-2.99	0.25	1.0	1.5	3	1.5	3	1.5	3	0.5
3-5.99	0.25	1.5	2.0	4	2.5	5	2.5	5	0.5
6-above	0.25	2.0	3.0	5	3.0	6	3.0	6	0.5

ac=animal cart, mc=motor cycle, MB=minibus, PU=pickup, Trk=Truck, Trt=Tractor, T/T=Tractor with Trolley, Other=Rickshaws.

In some instances, these rates will generate in excess of the routine maintenance needs of the road. Recommendations on the use of these "excess" funds follows the section of road identification.

5.2.5 Toll Road Identification

There are several interrelated factors which must be considered in determining the suitability of a road for the imposition of a toll. Traffic volume, type of traffic, administration and compliance costs, construction and maintenance costs, and access to alternative routes are all important factors. The following steps were used in identifying roads with potential for tolls.

First, there should be no alternative route available to traffic. This insures that traffic cannot be diverted as a result of the imposition of the tax.

Second, because current project resources did not permit formal traffic counts on all possible roads preliminary rough estimates of traffic were developed based on brief field observations with limited data. It was determined that in most, but not all, instances the more heavily travelled roads were in worse condition than the roads that had extremely low traffic volumes. Additionally, given the district councils' previous policy of no maintenance and assuming that the most populated areas were served first by a paved road, it was concluded that those roads in need of some degree of rehabilitation would be the most heavily travelled. Given the resource constraints and these assumptios the study of feasibility for toll roads

considered only those roads which could be rehabilitated. As other roads are traffic counted, they can be analyzed for toll potential.

Third, the consultant performed traffic counts on the the resultant list of pre-screened roads and deteremined the potential annual revenues based on the toll schedule set forth in Table 3.

Fourth, staffing requirements were determined for different traffic levels. This provided the basis for calculating administration and operating costs of the contractor. It was determined that each toll both would need a minimum of two (2) persons per shift, two shifts per day for most roads. There would be a total of 4 workers plus the contractor. It was further assumed that each worker would earn Rs. 1500 per month. Additionally, it was assumed that the contractor should earn a minimum fee of 10 percent of his costs. This yielded a total of almost Rs. 100,000. This was then netted out of the total potential tax.

Fifth, only those roads which exhibited fees in excess of the amount needed to pay the contractor are then identified as potential toll roads.

It is true that the district councils do not pay contractors for collection of taxes. Rather, the contractor's revenues are what he takes in excess of contract amount. Thus, as in the case of the Rohri to Arore road, the contractor pays Rs. 540,000 to the district council. It was estimated that he collects Rs. 772,368. The difference of Rs. 232,368 is the contractor's implicit fee. (These are preliminary estimates and should be further corroberated through additional traffic count information.)

For the purpose of this analysis, all roads exhibiting positive returns net of contractor costs are considered as potential toll roads. In the final analysis, it will the responsibility the district councils to determine the cutoff point for selection of toll roads.

5.2.6 Objections to Toll Roads

In interviews with district council staff the reason most often cited for not instituting toll roads was that they were prohibited by law from charging toll taxes. Other reasons cited for failure to institute toll roads were:

- (1) the citizens will not approve of such measures;
- (2) district councils should provide services without charge to the citizens; and

- (3) the road users were simply too poor to be able to pay any levy.

The consultant researched these claims and found little evidence to support these views. In the case of the legal prohibition against the toll tax, it was discovered that earlier some local councils were attempting to charge tolls on roads which they neither constructed nor maintained. The Provincial government promulgated a ruling prohibiting the imposition of tolls on roads which were not the property of the local council. It was in no way intended to prohibit district councils from charging a toll on their roads. Therefore, the major impediment was not prohibition but rather a lack of reliable information.

The district council staff is partially correct in assuming that the citizens would be reluctant to pay toll tax. They would be reluctant to pay if the toll tax was not used to maintain the roads. Testifying to this is the agreement of businessmen in Sukkur to an increase in the Octroi if part of the increase was used to fund road improvements and maintenance (1989).

There is a view that district councils should provide services free since citizens are poor or that citizens are too poor to pay for services. This may be the case in education and health because the net consumer returns are generally only perceived over the long run and pecuniary benefits may not be readily forthcoming. District councils may not charge for such services since their translation into monetary benefits may take many years and not be readily apparent to the user. We are supported in this view by a number of development experts including the Applied Economics Research Centre (AERC) which recently completed a study on local financing throughout Pakistan. AERC concludes that these services should not become candidates for user fees.

Roads are an entirely different matter. Road improvements, new roads, or better roads produce immediate savings to users. These savings accrue in the form of lower VOCs, year round access to markets, and faster travel times. The benefits will be felt immediately in the users pocket. They are therefore able to pay for the service.

5.2.7 Administration of Toll Roads

Currently there is little in the way of administration pertaining to toll roads. Tendering of the contract and monthly recording of the receipt of payment are the primary

administrative duties. This is one of the advantages of contracting out the toll collection. Three administrative changes, however, should be imposed:

- (1) district councils should determine maintenance needs and potential revenues based on traffic counts;
- (2) official rates should be posted and enforced at toll collection sites; and,
- (3) toll revenues should be dedicated to a separate fund for road maintenance.

The mechanism for establishing a dedicated fund is thoroughly discussed in the Sindh Local Government Ordinances. The revenues which flow into this fund will be first expended on the toll roads. The requisite maintenance expenditures will be available from the RMU's operating budget. Excess funds should be committed to road works in the PSA of the toll roads. Again, the exact mechanism for determining financing needs and instituting payment will be incorporated in the RoMM's and administered by the RMU's as the project develops.

5.2.8 Potential Revenues on Existing Roads

Based upon the recommended rates, traffic counts, and the assumptions about contractors' costs total toll revenues were calculated for each district. Not all districts would qualify under this scenario. Thus, as a follow up to this report alternative collection procedures are being investigated. The aggregate toll revenues for each district are presented in the table below.

Table 4

Potential Toll Revenues

District	*No. of Roads*	*Total Annual Revenues*
Badin	1	46,000
Dadu(*)	-	------
Hyderabad	19	1,480,000
Jacobabad	-	------
Karachi	15	3,700,000
Khairpur	1	7,000
Larkana	3	366,000
Nawabshah	3	521,000
Sanghar	4	627,000
Shikarpur	1	3,000
Sukkur(*)	1	71,000
Tharparkar	4	261,000
Thatta	-	------
Total	52	7,082,000

* Does not include existing toll roads.

The table above presents total potential collections for the preliminary group of possible toll roads studied. The consultant is currently preparing a more detailed to include diagrams of each road showing the locations of feeder and access roads and optimum sites for toll booths, rate calculations and estimated collections by vehicle. This will enable each district to choose roads for implementation and provide sufficient detail to carryout this task utilizing their own resources.

5.3 License Fees for Non Motorized Vehicles

5.3.1 Introduction

Nonmotorized vehicles (NMV) are by far the largest user of district council roads. These users are divided into commercial (animal carts) and non-commercial (animal carts and bicycles) users. Commercial users are quite often entrepreneurs who escape every form of road user fees at every level of government. District councils should consider a license fee on NMVs.

5.3.2 Collection Procedures

The district councils have the legal right to tax NMVs. However, the administrative cost of district council staff collection and the leakages are most likely too high to make direct collection feasible. Collection by contractor is possible but the general problem of contractor collection still remains. There is no reliable data on the number of animal carts within the district councils' revenue limits. The contract amount would be a guess leaving the contractor to pocket the difference between actual collections and the value of the contract.

An alternative method would be to make each councilman responsible for collection in his area. These funds would be at his disposal to be used for any road related project in his area. This makes taxation and spending more responsive to local inhabitants and decentralizes decision making. If the local inhabitants do not value the additional benefits derived from the tax, then the local councilman may not collect it. Leakages are controlled since the local inhabitants have a very good idea of the number of carts and the approximate amounts that should be collected. Collections and disbursements should be a matter of public record.

When each councilman has determined the desire of his jurisdiction to participate, ne would be issued a specific number of licenses. These licenses would be sold and the money and remaining licenses would be turned over to the taxation officer. Each councilman is credited for the amount collected and this amount will be made available to augment any road related projects in the councilman's jurisdiction or any road project of the councilman's choosing in his jurisdiction.

5.3.3 Revenue Potential

It is not possible at this time to determine the revenue potential from the institution of NMV license fees. While the data does not exist at this time to develop any such estimate, the finance team will be studying the possibility of collecting the data over the life of the project, provided of course that the benefits of collection outweigh the cost.

6 Conclusions

Efficient government requires the imposition of user charges for services. Roads are a service which for the most part have been provided by the district councils with no user fees. The exceptions are Sukkur and Dadu district councils which have three toll roads. Governments the world over have used and are increasingly using toll taxes where feasible.

District councils have stated that the main reasons they have not instituted toll roads are that:

- (1) they were prohitied by law to institute them;

- (2) that the citizens would not approve these new fees;

- (3) district councils should provide services free of charge; and,

- (4) road users are too poor to pay the fee.

Our investigation demonstrated that toll roads are not illegal provided the district owns the road. Discussions with road users indicates a willingness to pay as long as the funds are used for road maintenance. Additionally, Sukkur is an example where the business community approached the local authorities to raise tax rates provided, again, that the additional funds are used for road maintenance.

The district councils could go a long way in meeting maintenance commitments by charging tolls. If tolls were charged according to our recommendations district councils would earn Rs. 7,082,000 or roughly 76% of the funds they dedicated to maintenance in FY1989-90. Thus, the imposition of tolls can be of major importance in helping district council meet their maintenance needs.

In section 4.1 the criteria of a good road finance instrument were established. The design of the toll road coupled with dedicated financing from other sources meets these criteria.

- Produce Sufficient Revenue:

  The toll tax rates are designed to raise sufficient funds to maintain the road on which they are imposed in most cases. When it is not possible to charge for the full maintenance costs, toll tax revenues should be combined with other suggested instruments to meet maintenance needs.

o Be directly related to the service provided:

The toll tax is directly related to travel and benefit from the road and the flow of income it produces. This is prefered road financing instrument. The tax on the transfer is not as directly related to the road's services but it is more direct than other available instruments.

o Economic Neutrality:

The toll tax is simply a cost for a service provided. As such travel related decisions are not based upon tax but rather upon the accurate cost of undertaking the trip. It is true that any positive price will decrease demand. The concept of economic neutrality refers to the amount of tax above the price of the service provided. Thus, if the toll tax is sufficiently above the cost of providing roads the toll tax will not be economically neutral. In the present case, the cost of travel is in line with the maintenance costs, albeit somewhat larger on some roads and somewhat lower on other roads.

o Taxes should be equitable:

The toll tax and other suggested road finance instruments are equitable in that they are assessed only on users and those that benefit from the road's services.

o Minimization of Administrative and Compliance Costs:

Using a contractor will minimize both administrative and compliance costs. There will be an increase in these costs due to recommended changes in the current system. However, these changes are designed to produce a more efficient system. The overall effect will be positive.

o Provide a stable flow of income.

Toll taxes provide a stable and moderate growth source of income. In developing areas traffic will be growing and this should provide growth to revenues. If the road is properly maintained then only those factors beyond the control of the district councils should interrupt revenues. These should be minimal under the present circumstances.

7 Recommendations

Based upon this analysis, the consultant suggests that the district councils consider the following recommendations.

One:

The district councils would be well served in exploring the use of toll roads on existing paved roads for the purpose of maintenance and improvement.

In reviewing possible charges for road services three questions are of paramount importance. Who should pay for the road? All persons benefitting from the road should pay.

How should payment be made? The most direct form of payment is the preferred form of payment. In the case of roads this means that tolls are the preferred charge, when it is feasible to levy tolls. In the absence of tolls, income from the tax on the transfer of immovable property should contribute to the maintenance, construction and improvement of roads.

How much should be paid? It is difficult to determine exactly how much should be paid. There are numerous considerations such as economic efficiency and equitable distribution of the fiscal burden. For the purpose of this analysis, we have developed a graduated scale which takes into consideration current practice, maintenance requirements, and vehicle operation costs.

Two:

All road users should be charged for use of the road where it is feasible to do so.

Three:

These revenues should flow into a dedicated account so that spending can only take place for roads.

Four:

The current auction system is not competitive. Bids should be made orally and bidders should be allowed to rebid. More time should be given for interested parties to respond to bid invitations. Additionally, the requirement of a 25% deposit as in the Sukkur contract acts to limit the number of potential participants. It is recommended that the deposit should be reduced to be in line with other contracts.

Five:

District Councils should collect monthly traffic and toll information from the contractors and conduct their own periodic counts on toll roads. This will allow them the ability to revise the minimum bid amounts for the upcoming contracts.

Six:

All information on toll activities such as number of contractor staff, monthly traffic and toll records, and performance should be a matter of public record so that potential bidders can have sufficient information for tendering. This will help to stimulate the competitive bidding process and reduce collection costs.

8 Future Course of Action

This paper has discussed the use of toll roads in aggregate without mentioned of specific roads in each district. At present the consultant's engineering staff are preparing diagrams of each road with toll potential which will be released as an appendix to this paper.

This paper has focused on existing paved roads, mostly which are in need of some degree of rehabilitation. Over the next year, traffic counts will be undertaken on other paved roads, brick roads, and some katcha roads. The results of these traffic counts should then be used to analyze the potential of establishing toll roads.

Once traffic counts are complete and the consultants engineers have developed cost estimates for new road construction the possibility of private sector participation in financing, building and operating toll roads should be examined.

The recommended tolls are not based upon actual maintenance experience. Thus, after one year of imposition toll and maintenance costs should be compared to determine the adequacy of recommended tolls in covering maintenance expenditures.