

Construction and Maintenance of Rural Roads by the Public and Private Sectors

A Study undertaken within the framework of
ILO/DANIDA's Technical Cooperation Project: IND/94/MO2/DAN



Development Policies Branch
Development and Technical Cooperation Department
International Labour Organization
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The work included sample surveys on small private contractors and rural road works executed through them. These surveys were carried out in parts of Uttar Pradesh and Haryana. Besides the contractors themselves, a number of engineers of P. W.D.s in these two States generously shared their views on the pros and cons of work execution through private contractors. Special mention is to be made in this regard of Mr. P. K. Lauria, P. W.D. Secretary (retired) Rajasthan who has had considerable experience on the execution of rural road works.

Mr. D. K. Gupta and Mr. R. S. Shukla provided inputs for this study.

New Delhi, 1996

M. P. DHIR

Abbreviations

BDO	Block Development Officer.
BRO	Border Roads Organisation.
CE	Chief Engineer.
DRDA	District Rural Development Agency.
E-in-C	Engineer-in-Chief.
EE	Executive Engineer.
FIDIC	Federation Internationale Des Ingenieurs Conseils.
KUM	Krishi Upaj Mandis (Agricultural Produce Marketing Centres).
NIT	Notice Inviting Tender.
PWD	Public Works Department
PS	Panchayat Samiti.
SE	Superintending Engineer.
WBM	Water-bound macadam.
WMM	Wet-mix macadam.
ZP	Zilla Parishad (Local self government agency at the district level).

Exchange Rate

<i>Year</i>	<i>Rupee equivalent to One US Dollar</i>
1986	12.50
1988	17.25
1990	17.60
1991	26.00
1992	31.50
1994	31.37
1995 (December)	34.70

Foreword

The International Labour Organization (ILO) has, over the past decade and a half, developed an integrated programme for assisting Member- States to design and implement labour-intensive infrastructure works with the support of key donor and development organizations.

Infrastructure works providing basic assets and services to the poor lend themselves to employment and income generation and poverty alleviation through labour-intensive methods. The employment programmes of the Government of India such as the *Jawahar Rojgar Yojana* (TRY) have provided for investments in roads, irrigation schemes and soil and water conservation, with the primary objective of generating off-season employment for rural labour. Rural roads sector has absorbed a substantial part of investments under JRY programme.

Rural roads are generally constructed at local level through small private contractor organizations and are maintained by village or block level functionaries. With elected Panchayats (councils) coming into existence of late, there is better scope for maintenance involving the community as a whole.

This Study by Dr. M.P. Dhir has gone into the relative merits of construction of rural roads by Government agencies like the Public Works Department and private contractors and how they compare in terms of quality of construction, costs and observance of labour standards to ensure that there is no exploitation of any kind (such as engagement of child labour or discrimination between male and female workers in regard to payment of minimum wages for equal work).

The study was commissioned as part of the ILO-DANIDA Technical Cooperation Project: IND/94/MO2/DAN, and it is backed by field surveys carried out in parts of Uttar Pradesh and Haryana. The Study draws the conclusion that execution through private sector is more efficient, well within agreed time schedules, and cost-effective. However, it is, and should be, subject to departmental checks and strict supervision both in the matter of technical (quality) and labour standards, such as noted above.

A number of other recommendations made in the Study relate to improving the efficiency of construction and ensuring fair terms and conditions in the contracts entrusted to the private parties. It has also been suggested that the Government of India and ILO may collaborate in the preparation of guidelines for safeguarding the interests of labour at rural road work sites.

The Study was presented and discussed at the Second Sub-Regional Policy Seminar on Employment-Intensive Programmes at Calcutta, West Bengal, in January (10-12) 1996. While generally endorsing the conclusions of the study,

the Seminar recommended an extended survey covering more states in order to arrive at a broad-based assessment as to the pros and cons of the two modes of execution. It was felt that ILO and the Government of India could collaborate to produce practical guidelines.

A summary of the presentation, discussions and recommendations at the Seminar is attached (Annexure) to this Study.

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1

Introduction

1.1 General

TWO alternative modes for the execution of works of construction and maintenance of rural roads are the following:

- (i) Employment of private contractors.
- (ii) Departmental execution with employment of casual labour as required.

The two modes are based on different premises and affect the works according to the respective pros and cons. This study essentially covers the following:

1. Collection of back-ground material, through sampling, on private contractors engaged on rural road works.
2. Collection of back-ground material, through sampling, on rural road works executed through private contractors.
3. Synthesization of experiences with departmental execution.
4. Comparison of two modes of execution for their pros and cons. Steps required to be taken for bringing about improvements in execution through private contractors, involving the contractor, the consultant/ the agency. entrusted with the responsibility of getting the work executed, and the client on whose behalf the road work is executed.
5. The labour matters, especially those regarding unorganized casual workers.
6. Development of typical questionnaires for the clients, the consultants and the contractors for the collection of more comprehensive information.
7. Discussion of the various aspects and identification of salient issues. Projection of recommendations on these issues.

The sample surveys on private contractors and on rural road works executed by them were carried out in Haryana and Uttar Pradesh. Discussions were also held with the engineers in these States on their experiences and views on different modes of execution. The interest in West Bengal was limited largely to the recent decision in that State requiring that private contractors are not to be employed henceforth for local self government works in rural areas. Very useful information was gleaned from Rajasthan's experiences with the departmental execution of rural roads under the various special schemes including the 'food for work programme'.

1.2 Lay-out of the Report

Presented in Chapter 2 is the general back-ground information on evolution of different modes of execution of rural road works in India, with their respective weaknesses and strengths. The data from sample survey on private contractors for rural road works are provided in Chapter 3 together with the views expressed by different parties on changes required. Information on works executed through contractors as well as synthesis of experiences with

departmental execution are also given therein. The pros and cons of the two modes of execution as well as the indicated directions for change are discussed in Chapter 4. The issues crystallized and the related recommendations are given in Chapter 5. The questionnaires prepared are at Appendix-I.

1.3 Discussion of the Report

A Sub-Regional Seminar on Policy Advice on Employment-Intensive Investment Programmes was organized at Calcutta in January, 1996. This version of the report takes into account the discussions, conclusions and recommendations of the Seminar.

A Summary of the presentation of the Study along with conclusions, issues raised and recommendations made during the Seminar is given in Annexure.

2

Execution of Rural Road Works

2.1 General

IN the early part of the history of public works, departmental execution and execution through private contractors seem to have been evolved and nurtured simultaneously. Both the executional modes had their respective strengths and the choice was made by the empowered engineer depending upon the circumstances of the work at hand.

With time, the strengths got modified to varying extent. The value- systems have undergone some dramatic changes. All the same, both the modes continue to be in effect: in one state, no private contractor is to be employed for rural road works; and execution through contractors is the primary mode in another.

Both the modes are discussed at some length in the following sections.

2.2 Departmental Execution

Traditionally, road departments have been having trained engineers and staff, construction machinery and permanent labour gangs. Therefore, all that they needed for departmental execution was the extra labour which was recruited on casual basis against muster rolls. If warranted, the departments could have the supply of construction materials through supply contractors.

Whenever a work of limited magnitude was required to be done in a hurry, i.e. without waiting for the completion of procedure of tender papers preparation, issue of notice inviting tenders, and award of work to a contractor, the department would resort to in-house execution. Usually, some discreet selection was made as to the engineer to be entrusted with the work. He, in turn, would pick a team of dedicated overseers/ section officers/junior engineers and staff for carrying out the assignment.

In the past, the machinery with the departments was generally at a higher level of serviceability and both the machine operators and the permanent gangmen had a higher level of dedication to, and pride in, their work. The gangmen did not hesitate to carry out manual operations and some of them were accepted as expert workers in operations like dressing, hand-packing of coarse aggregate for WBM spreading filler for WBM, spraying hot bitumen for tack-coat or surface dressing work, and manual chip spreading. They set a good example to the casual labour. In fact, the candidates for casual labour were often screened as per the recommendations of the gang mate. The work-force would voluntarily observe a degree of flexibility in working hours in the interest of work. A key factor was also the fact that the wage was adequate to sustain a family as per the simple ways of the time and the gangman would go out of the way to retain his job. This concern for employment with the government was even more marked with the casual worker who was in line for being recruited in the regular gang. The gangs would invariably watch and talk about the performance in service of the work done by them.

The Engineer-in-charge as well as the department as a whole felt happy over the satisfactory completion of a work with departmental execution which provided a physical proof of the in-house capability available with the section, Sub-Division and Division involved. The cost was usually as per the departmental rates, in respect of items susceptible to measurement. The departments maintain documents on analyses and schedules of rates for various items. The updating from time to time and addition of new items are carried out from time to time through committees and responses from the Engineers. The departmental execution could cover a wide range of items of rural road work i.e. from earthwork, through stone/brick soling and water-bound macadam, to bituminous surface dressings. Items not susceptible to measurement (such as slip clearance) were provided for as lump sum.

In the beginning of 1960 a new agency, called the Border Roads Organisation (BRO), was established for the construction and maintenance of roads in the Himalayas (in the north from east to west) and in the desert in the north-west part of the country. BRO was made responsible mostly for secondary and tertiary roads although some primary roads were also entrusted to it. Road-work in the Himalayas means:

- Operations at high altitudes where the efficiency of both the man and the machine falls. The highest altitude negotiated by a BRO road is about 18,500 feet (5,657 metres) which is believed to be the highest road in the world.
- Rugged rock terrains involving extensive rock cutting and blasting. The road-way is generally developed in stages.
- Very cold temperatures including heavy accumulations of snow.
- Hazardous working conditions, including those caused by cloud-bursts.
- Problems of logistics, manufactured materials to be generally carried from the plains to the remote border road locations.
- In the desert, there are the problems of shifting sand-dunes, scarcity of water and hard materials, and high summer temperatures.
- Sparse population and difficult living conditions, especially along the road sites.

In view of these peculiar conditions, BRO was raised as an organization for departmental execution of road-work. It has its own construction machinery, quarries, and labour force. The work continues to be done departmentally to a large extent. Material supply or some other odd work may be got done through contractors. BRO is structured differently from PWO in that the departmental manual work-force is provided with boarding, lodging, clothing etc. by the BRO and the accounting procedures are on different lines.

The governments take up special programmes, now and then, in which road works are sanctioned primarily to provide succour to the communities affected by droughts, floods, cyclones, earthquakes, etc. Norms in regard to physical fitness for manual work as well as for productivity are lowered because of the objective of providing relief. Quality standards are usually maintained, however. A part of the wages is, at times (as in Food for Work Programme), paid in kind (food-grains). Such schemes are obviously not suited for work execution through contractors. Most state road agencies have

the experiences of sizable road work done departmentally. A typical case is that of Rajasthan where quite sizable length of rural roads was constructed under famine relief programme. Currently, only 42 per cent of the villages are linked by road. Construction funds come mainly from Agricultural Produce Marketing Centres (Krishi Upaj Mandis-KUMs), agricultural development projects, employment schemes and the P. W.O. The rural road works are executed mainly through KUMs, P.W.O., and DRDAs using both the modes. The salient experiences on the execution of rural road works are said to be as under:)¹

- (a) Local involvement and employment in works promotes the interest of local community which has an overall positive effect.
- (b) There should be proper accounting and audit of funds used through local self government entities. Greater transparency is required in all operations.
- (c) Execution through contractors is generally economical because of least wastage of resources. The rural communities are generally suspicious of contractors. Workers do not always receive the statutory minimum wage from the contractors. Technical supervision also needs to be strengthened.
- (d) Availability of construction equipment on hire from private - sources should be promoted.
- (e) Content of the contract documents needs to be made more just. Rajasthan P.W.O. has already embarked on the amendments.
- (f) As many of the contractors are not sufficiently educated, the contract agreements as well as the construction specifications should be in the local language.

With effect from 1 April, 1995, the Government of West Bengal has banned the execution of local self government works in rural areas through private contractors. Instead, the works are entrusted to a job- worker or a job-clerk. A job-worker is a relatively literate worker with the potential ability to get work out of labour recruited from the local labour reservoir, providing wide-spread employment through rotation, etc. The job-worker is paid a little extra for this responsibility. Alternatively, the execution of work may be entrusted to an employee of the Zilla Parishad. He is then called the 'job-clerk'. The works are generally under the control of the Block Development Officer appointed otherwise for non-technical functions. He is assisted by a junior engineer (a sub-engineer generally) who may be expected to provide inputs to 40-50 works simultaneously.

Materials of construction are arranged to be delivered at site through supply contractors by the Zilla Parishad or its Block-level arm, the Panchayat Samiti. The construction equipment is arranged from a regular works department (say, P.W.D.) along with the operator by the Zilla Parishad. For any repairs required by a machine, the operator will inform the job worker / clerk who will inform the block level officials. The block- level functionaries will inform the district-level authorities who, in turn, will inform the owner-department for necessary action.

1. "Rural Road Development in Rajasthan", a communication from P.K.Lauria, July, 1995.

The guidelines for this mode of execution include:

- (i) The specifications to be in line with those followed by the line department for similar work.
- (ii) The cost, including the labour component, to be as per the updated schedule of rates of the P.W.D.

With the constraint on costs, the flexibility with the executing system is only in terms of the quality of work. The junior engineer is not able to do justice with so many works going on at the same time. He can barely manage the basic input of measurement of work and recommend payments. The wages are properly disbursed as per the terms fixed by the government.

The above notwithstanding, the general preference on the part of the departmental road engineers is to arrange execution through the contractors. The departmental officers find the system through contractors less vulnerable to audit objections and other complaints.

2.3 Execution through Private Contractors

One undisputed credit accorded to PWDs is that these departments are very capable of carrying out difficult civilian tasks even under highly time compressed frames. Be it a government sponsored public function or a calamity to be countered, the administrations invariably turn to PWDs. This proven capability is in no small way due to the extended arm of these departments - the private contractor. In fact, the contribution of the small contractor to this image of PWDs is even more marked at the district and lower arenas.

The working relationship between the P.W.D Engineer (Roads) and the Contractor may be said to have started on the basis of 'benevolent inter-dependence'. The Engineer's responsibilities required the availability of a band of contractors who would undertake to carry out the road works under the directions of the Engineer, within the stipulated time-frame and at competitive permissible rates. He would generally feel responsible for their sustenance and would arrange for them to get atleast some small works for which the engineer at different levels are empowered to award the work, upto specified cost levels, to a contractor without inviting competitive bids.

For his fruitful existence, the Contractor depended as much on the Engineer's goodwill as he did on his own capability. The agreements were rather one-sided and the Engineer enjoyed considerable discretionary powers e.g. the work was to be carried out as per specifications to the satisfaction and as per the directions of the Engineer- in-charge. The contractors had learnt to operate within the prevailing work environment and would not hesitate to start construction even on oral directions.

A successful contractor was expected to possess the following strengths:

- (i) Knowledge of the Department's requirements, procedures and constraints.
- (ii) Ability to make good bids. Short-term gains were to receive less importance.
- (iii) Availability of resources and ability to put things together for a quick response as per the requirements of the work.

- (iv) Enterprising attitude and ability to evolve innovative solutions suiting the site conditions.
- (v) Ability to obtain good returns on his inputs after meeting the work requirements.
- (vi) Ability to maintain good working relations with the departmental functionaries.

This system remained quite stable for decades. The financial value of the works done every year was not high but was sustained from year to year. The Works Departments were getting works of satisfactory quality at a reasonable cost and thus the owners/users supported the system. The contractors, even though having to work with one-sided agreements, were happy to pursue their business which brought them reasonable returns generally.

In the latter half of the twentieth century, however, the situation began to change noticeably. Extraneous factors started to intervene in the award of work and in the control of quality of construction. The "changes may be said to have affected the Department/Engineer, the Contractor, and the Work broadly as under:

- (a) The funds for development works, especially roads, increased steadily. However, the Engineer has to share his authority more widely. He has to implement the decisions handed down to him. Adherence to quality standards becomes more difficult.
- (b) The contractor has been willingly adjusting to the changes while staying on course in his pursuit to run a successful construction enterprise. He started to cultivate a wider circle of influence. He continued to bid for works at very competitive rates, sometimes the rates being too competitive.
- (c) With bids continuing to be competitive, the only component to give way was the 'Work'. The quality of work got relegated to a much lower place, as has been the accountability. As a result, the works do not yield the expected performance and require more inputs for upkeep and renewals. Both the cost-effectiveness and application of engineering have gone down quite significantly.

During the last about ten years or so, India has been availing international finance for developing its road infrastructure. The contracts are of sizable financial value so that the bidding can be at global level. The Indian road departments have been learning their lessons the hard way as there have been some derailments and delays in regard to the contracts. There have been cases of works having been awarded to the consortia of Indian and foreign contractors. Even though the system is continuing to evolve itself, the following may be said to be the broad effects on the construction sector:

- (i) The contract agreements have been reviewed to be more comprehensive and fair to both the parties. Criteria have been spelled out for acceptance of work and penalties laid down for non-performance deviations. Drawing upon international documentation (FIDIC, etc.), the agreement clauses have been modified to be as just as possible to both the parties.

- (ii) New data are available on the inputs and costs of turning out quality work and more appropriate cost patterns are emerging.
- (iii) Project planning and project management which were hitherto handled in a rather ad-hoc manner are getting systematized and given due place more effectively.
- (iv) Experiences are accumulating with new methods of construction (vibratory compaction, mechanised methods, etc.) as well as with new constructions like wet-mix macadam, slurry seal, etc.
- (v) There is increasing degree of application of engineering in road work and thus more cost-effective work in the long term.

Even though most of the projects put to global bids have been in respect of arterial roads, there is trickle-down effect on road projects of lower order. The associations of builders/ contractors are pursuing the matter of making the agreements more comprehensive and fair but less discretionary. Another notable development, which is likely to have a salutary effect on the execution of road projects, is the trend for privatisation of some of the roads. These works will constitute a case where the owner/private party will not be interested in lower initial cost but in lower long term cost with appropriate serviceability levels. It is to be expected that there will be adherence to specifications by choice on commercial grounds and new (and more appropriate) norms for performance would emerge. Hopefully, there would be comparisons and the rest of the system would also improve. Incidentally, road construction has recently been declared an industry and there is easier access to financial loans, from financial institutions which are to provide loans for industrial enterprises.

In so far as rural roads are concerned, private contractors are generally available for new construction, major improvements, and for periodic surface renewals. There are no difficulties by and large getting the work executed through them at competitive rates. However the areas for improvement are:

- Arrangements for independent checks on the quality of work done. Building up of accountability in the system.
- Importance being shifted from lowest initial cost to lowest cost with quality construction.
- Review of work agreements for making them duly just to both the parties involved.
- Improvement and strengthening of supportive roles of Departments.

These aspects are further elaborated in Chapter 4 (Section 4.3).

There have been trends to get items like earthwork executed through labour cooperatives. Such an arrangement needs to be effectively woven in with the engineering processing of earth for use in road-work. The recently introduced practice in West Bengal of banning the employment of contractors for rural road works is discussed further in Chapter 4. Different States use different criteria for categorisation of contractors. The criteria adopted for this purpose by the Public Works Department of Uttar Pradesh, as a typical example, are given below:

2.4 Common Aspects The labour intensity in rural road work is optimally high*. These equipment supported but labour-intensive technologies are cheaper and adequate. There is thus no difference, by and large, in the use of man- machine mixes by the contractors and the government departments.

Criterion	Contractor Class			
	A	B	C	D
Solvency	Rs. 300,000	Rs. 200,000	Rs. 100,000	Rs. 50,000
Minimum technical staff to be employed	One with an engineering degree	One with diploma in Civil Engineering	One with diploma in Civil Engineering	Nil
Minimum value of 5 works that should have been executed	Rs. 1.0 million	Rs. 0.5 million	Rs. 0.1 million	Rs. 25,000
General Security to be deposited	Rs. 50,000	Rs. 20,000	Rs. 7,500	Rs. 2,500
Officer authorized to enlist	E-in C or Zonal C.E.	Zonal C.E	S.E.	E.E
Value of work upto which entitled to tender	Any amount	Rs. 1.5 million	Rs. 0.5 million	Rs. 0.2 million

The designs and specifications are drawn in the light of locally available materials and generally there are no stipulations on the employment of local labour only. The documentation on specifications includes the procedures to be adopted as per labour-based technologies.

Experienced contractors understand the effort and expense involved in carrying out various items of work. However, there is a tendency to keep the bid amount close to the departmental estimate. If a bid is higher, the same is required to be justified before acceptance, may require approval from a higher authority, and may invite an audit objection. The cost of supervising and administering a contract is 10-15 per cent of work cost. This percentage increases to 18-25 with departmental execution. (Chapter 4, Section 4.1).

2.5 Labour Laws

The Contract Labour (Regulation and Abolition) Act, 1970 (along with the Central Rules and Notifications), Payment of Wages Act, 1936 etc., affect the labour engaged in rural road construction. The pertinent parts of some definitions are as under:

* Studies on Maintenance of Rural Roads in Southern and Northern India, 1995, ILO, New Delhi describe these man-machine mixes with labour components in work costs

(i) Principal Employer

.In relation to any office or department of the Government or a local authority, the head of that office or department, or any other officer specified for the purpose.

(ii) Establishment

Any office or department of the Government or a local authority.

(iii) Contractor

In relation to an establishment, means a person who undertakes to produce a given result for the establishment, other than a mere supply of goods or articles of manufacture to such establishment, through contract labour or who supplies contract labour for any work of the establishment and includes a sub-contractor.

(iv) Contract Labour

A workman shall be deemed to be employed as contract labour in or in connection with the work of an establishment when he is hired in or in connection with such work by or through a contractor, with or without the knowledge of the principal employer.

Contract labour is entitled to the same wages, holidays, hours of work and conditions of service as applicable to workmen directly employed by the principal employer on the same or similar kind of work. The principal employer has been charged with the responsibility of ensuring that the wages are paid correctly and within the stipulated time.

For the welfare and health of the contract labour, there are stipulations in regard to the following:-

- (i) First-aid facilities.
- (ii) Drinking water.
- (iii) Properly constructed and maintained rest rooms.
- (iv) Washing facilities.
- (v) Canteens.
- (vi) Creches.

If any of the stipulated facility is not provided by the contractor, the same shall be provided by the principal employer.

There are inspectorates *for* checking on the availability of the above facilities and the compliance of other provisions at sites. In case of default, action is to be taken as per legal provisions. The cost of providing the above facilities, however, is deemed to have been included in the tender by the bidder.

3

Sample Survey of Contractors and Rural Road Works

3.1 General

LIMITED surveys were carried out in 1995 in Uttar Pradesh (Western and Central parts) and Haryana (Southern parts) of the contractors engaged on rural road works. Information on them and their views are presented in Section 3.2. Information on works executed through contractors and departmentally is given in Section 3.3.

The views of the departments/clients are at Section 3.4 and information on labour issues is at Section 3.5.

3.2 Survey Data on Contractors

The general information collected was on the following lines:

- (i) Name and address (substituted with code no. in Table 3.1).
- (ii) Academic/professional qualifications.
- (iii) What was he doing before becoming a contractor.
- (iv) When did he become a contractor and why?
- (v) Value of assets including equipment.
- (vi) Value of work done annually.
- (vii) Remarks.

The information as above in respect of 25 sampled contractors engaged on rural works is presented in Table 3.1. This is summarized in this and the following paras.

The academic background varied widely:

– Less than high school	:	1
– High school	:	5
– Two years in college	:	2
– Two years in college and technician certificate from an Industrial Training Institute as a Fitter.	:	1
– Bachelor of Arts	:	7
– Bachelor of Arts plus degree in Law	:	1
– Master of Arts/Commerce	:	2
– Diploma in Civil Engineering	:	5
– Diploma in Mechanical Engineering	:	1
Total		25

Only some 25 per cent had engineering background, 25 per cent had education upto high school or less. The remaining 50 per cent had non-engineering higher education.

There could be a number of different motivations for becoming a contractor for rural road works, etc. Those with engineering qualifications took up this business generally either because they could not get a suitable employment or, if they had capital to invest, started this business soon after the engineering education. Those with higher qualifications in Arts/Law /Commerce may be said to have chosen this business for better prospects. Those at the lower end of academic qualifications seem to have either drifted into this line of work or had some in-road into contractorship.

The 25 contractors, at the time of survey, had been in this business for periods ranging from 9 to 26 years. The average is a little over 15 years. The respondents were thus quite well experienced and largely included those who were successful to continue in the business that long. It is to be observed that whereas a few were mainly material supply contractors, the others generally handled the construction of both buildings and roads. In most States, one of the public works departments continues to handle both building and roads (B and R).

The contractors surveyed had financial assets varying from Rs. 0.3 million to Rs. 5.0 million. They all expected a return of about 30 per cent on their investment and a return of 15 per cent on their annual turnover. Those with a capital base of about Rs. 1.0 million and more tended to own some machinery (trucks, road rollers, concrete mixer, vibrator, etc.) and also to employ, on more regular basis, a small core team of Works Clerk, Works Supervisor, etc. They invariably contracted more than one project in an year and the turnover tended to be corresponding to the financial assets although the relationship was not found to be a fixed one.

They were all enquired about their work environment: agreement content, calling of tenders, award of work, supportiveness or otherwise of the department during execution, availability of decisions, deviations and their handling, promptness in the payment of bills and terminal settlement, etc. Their views on various issues are given below:

- (i) At some places, there are too many registered contractors in relation to the amount of construction work in an year. This leads to cut-throat competition which is not desirable.
- (ii) In the contract agreements, while the interests of the Department are fully safeguarded, the contractor's side is left quite vulnerable to discretion, alterations, deviations, etc. This needs to be rectified. This is also being stressed by the contractors associations. These associations inter alia deliberate upon and air any problems faced or changes desired by the contractors. They use local, regional, and national fora for this purpose. They also seek support from the chambers of commerce and industry.
- (iii) Generally, no provision is allowed for price escalation during the pendency of the contract. Increases in the prices of petroleum products, and cement, steel, aggregates, etc. take place now and

- (iv) then. The minimum wage also gets revised likewise. Insertion of a suitable price escalation clause would help in more rational price bids.
- (v) Existing agreements empower the departments to make unlimited variations in the bill of quantities. These changes often affect the profitability of the contractor adversely. The variation should not be allowed to exceed 15-20 per cent.
- (vi) Under some special circumstances, work may involve the use of expensive machinery. In such cases, the departments should give appropriate mobilisation advance to the contractor against safeguards like bank guarantees.
- (vii) The tender notices are not being given due publicity. Whereas tenders for major works are advertised in the newspapers etc., those for small works of rural roads are often not notified widely enough and decision in this regard is left to officers at the local level. The suggestion is that notices inviting tenders be issued only on pre-notified 2-3 days in a month when the contractors can visit the office(s) to find out about the tenders invited. The notices should invariably be displayed in properly locked notice-boards. The tender papers should be ready at least five working days in advance of the date of opening.
- (viii) From the point of avoiding audit objections, the general practice is to accept the lowest tender. Due account is not being taken of the reasonableness of the rates quoted. This leads to attempts to produce sub-standard work or to get some items substituted by item not figuring in the tender. To minimise such situations, the suggestion is that any quoted rate, lower by 25 per cent or more than the schedule-rate, should result in rejection of the bid unless adequately explained. One example of this problem arises when tenders are called for Item A as well as a possible substitute Item B. Tenders are evaluated as per bids based on Item A (deliberately quoted low). During execution, the bidder raises one pretext or the other to execute Item B for which he quoted an unduly high rate.
- (ix) It is generally required that the bids be valid for three months for acceptance and then decision is taken in the last days of this validity period. The suggestion made is that any tenders to be accepted at the Superintending/Executive Engineer level should get decided within 6 weeks or so.
- (x) The order to start work also requires some thoughtfulness. It should be timed after due consideration to the nature of operations and the seasons ahead.
- (xi) The contract agreements are to be registered for which the stamp duty is to be paid by the contractor. This duty can be upto 15 per cent of the amount of security and is an avoidable burden on the contractor/work but is not provided for in the schedule of rates. It will be simpler if the stamp duty is paid by the department.

- (xii) On account of pressures on the administrations to raise some minimum contributions to the specified saving schemes (National Saving Certificates, etc.), the departments generally insist that the security for the contracts or earnest money for the tenders be deposited in the form of money kept in those schemes (evidence through entries in the Pass Books). There are difficulties in small places in meeting these requirements. The suggestion made is that, instead, fixed deposits in the scheduled banks (duly pledged to the government) or their equivalents should be permitted to be used for the purpose.
- (xiii) The amount of security required to be deposited at the time of registration of the contract agreement is generally 10 per cent of the contract amount. The small contractors find this to be an excessive burden as a very considerable part of their investible funds becomes blocked with a number of projects going on at the same time or in tandem. It is felt by them that, initially the security be only five per cent but built upto 10 per cent through deductions from payments against the running bills.
- (xiv) It is suggested that in the case of contracts of supply of materials, the security deposit should be refunded along with the payment of the final bill. In other cases, option could be given to the contractor to furnish a bank guarantee in place of his security deposit remaining blocked with the Department for a period of six months after the completion of work.
- (xv) The current practice in regard to sales tax is that the Department deducts sales tax and issues a certificate for the deduction. The contractors are required to file returns to the Sales Tax Department and it is quite an exercise to get the returns settled. The suggestion made is that either there should be a waiver of sales tax on supplies made to the government or the Department should be required to pay, additional to the contract, the sales tax directly to the Sales Tax Authorities.
- (xvi) The contractors, while preparing their bids for tendered works, are guided primarily by the latest schedule of rates. The bids which are based on rates higher than those in the said schedule are required to be negotiated and involve additional processing. The contractors are induced to lower their bids to be in line with the schedule rates. In view of the prevailing high inflation rate, the suggestion given is that the schedule of rates be updated once in an year.
- (xvii) A system of cash credit limit has been introduced for several of the engineering departments. When the respective limit has been reached, either the bills remain unpaid after pay order (in the absence of leeway in the cash credit limit) or the cheques issued get dishonoured. The suggestions made are on the following lines:
- There is no need for the system of cash credit limit. The check on expenditure should be in terms of budget allotment.
 - If the system of cash credit limit is to continue, the senior departmental officers should be made to exercise control on the

value of the contracts entered into by their juniors so that works executed are duly paid for without delay. Also, it has to be ensured that the cash credit limit is made available to the disbursing officers in time.

- (xvii) The provision for black-listing of non-performing contractors should be regularly given effect to. The weeding out of such contractors will have a positive effect on the work environment.
- (xviii) Different practices are followed in various departments in regard to the tendering out of rural road works. Two broad ways are as under:
 - (a) Awarding work splitted vertically i.e. different layers are awarded as two or more contracts.
 - (b) Awarding work splitted horizontally i.e. different road sections are awarded to different contractors.

The system at (b) has the disadvantage that accountability on non-performance of the road-way gets mixed up. The contracts for supply of materials could be different but there should be no vertical split of work. This suggestion came out indirectly while discussing the quality of work done through contractors.

- (xix) The owners of stone quarries/brick kilns tend to exploit the small contractors by hiking the price when, for an awarded work, theirs is the only source of supply. Another problem is that the stone quarry owners do not sell the crushed/broken stone in the sizes and gradings stipulated in the specifications. The contractors' view is that the governments/departments should exercise some control in regard to the costs and quality of materials. All quarry owners have to have government approval for running their business in any case.
- (xx) The tender accepting authority should be authorized to sanction extra items as otherwise considerable delay is caused to the progress of work. At present, such matters are to be referred to an authority higher than the one empowered to accept the tender for award of work.

3.3 Data on Works

Over 20 rural road projects, which were either recently completed or were getting completed, were included in the survey. Nearly half of them had execution through private contractors, the remaining having departmental execution. Study of this data brought out the following:

- (i) The direct cost of departmental execution was, in all cases, shown to be exactly as per the approved schedule of rates. Therefore, there was not much point in including that information on this report.
- (ii) The position of direct cost of rural road works with execution through private contractors was as under:

S. No.	Estimated cost as per schedule of rates (Rs.)	Tendered/actual cost (Rs.)
1.	772,000	772,417
2.	796,000	796,034
3.	861,408	861,500
4.	863,000	862,515
5.	408,450	412,000
6.	2,000,000	2,191,000 *
7.	350,000	349,580
8.	1,800,000	1,799,879
9.	167,000	147,689 **
10.	235,000	244,521 ***
11.	400,000	402,000
* Excess due to increase in the length of road during execution. ** Saving of about 11.5 per cent *** Work in sub-urban setting.		

It is to be observed that even the costs of works executed through contractors hover very closely around the sanctioned cost (estimated as per the schedule of rates). For avoiding audit objections and reference to higher authorities, the direct construction cost is kept close to the officially estimated cost. It was given to understand that no work-wise records are kept in respect of indirect and supervision costs. Underbidding can be a problem in some cases (serial no. 9 in the table).

- (iii) There were no mentionable time over-runs.
- (iv) There were no cases of abandoning of work or other complications in this mode of execution and there was general # satisfaction on both sides. The cases of claims being filed by the contractor are, however, not unknown.

3.4 Views of the

Engineering Agency/
Client

Engineers generally seemed to prefer execution through contractors for reasons

as under:

- (i) There were reduced demands on the department in regard to overall management, maintenance and payment with muster- rolls, matching of productivity, keeping of various accounts, etc.
- (ii) Cost was more or less the same as estimated from the schedule of rates.
- (iii) There is greater degree of accountability and enterprise.
- (iv) Execution is generally faster.

However, for special situations (relief works) departmental execution is the only feasible mode.

The client, if other than the engineering department, is really not concerned about the mode of execution so long as there is no extra cost or time involved. The two major concerns expressed are:

- (a) Too much time is taken in reaching the N.I.T. stage.

- (b) There is need for improvement in supervision so that there are no let-ups in quality. .

3.5 Labour Matters

All responses to the survey claimed that all directives of administration and Ministries of Labour and Health were being complied with in regard to minimum wage, gender equality, child labour, and facilities of drinking water, toilets, shelter and first aid. However, hardly any work-site was found to measure upto the requirements. The facilities, whatever provided, were more for presentation than for actual use. Farther a site was from a city, less was the adherence to the directives.

Even in the case of the minimum wage, the situation was different at different locations depending upon the remoteness. Near large towns, the workers were paid the minimum wage. However, in remote locations, lower wages were actually paid depending upon the availability of labour. In West Bengal, a duality had entered from April, 1995 in that the agricultural labour used in road-work by the local self-government agencies was being paid Rs. 40 per day whereas the non-agricultural labour for the same work was receiving only about Rs. 28 per day.

TABLE 3.1
SURVEY DATA ON CONTRACTORS

S.No.	Code No.	Academic/ Professional qualifications	What he was doing before becoming a contractor	When he became a contractor and why	Value of assets Including equipment held	Value of work done <u>annually (Approx.)</u>		Remarks
						Year	Value	
1.	C-1	Two years college after high school.	He was a member of a farming family.	He became a P.W.D. contractor (Class 'D') in 1982 for developing a line of livelihood. Got upgraded to 'A' Class in 1993.	Fixed assets of Rs. 1.5 million approx. Owns now 2 road rollers, 1 vibrator, 1 tractor, 1 concrete mixer.	90-91 91-92 92-93 93-94 94-95	Rs. 2.10 million Rs. 2.00 million Rs. 2.50 million Rs. 5.00 million Rs. 7.00 million	Has done quite well for himself. By way of core staff, now maintains one assistant engineer and 5 supervisors.
2.	C-2	High school.	He operated a vend for auto spare parts	For developing a line of work, he turned a P.W.D. contractor in 1977 as the working partner of a firm.	Rs. 2.0 million (approx.) worth assets. No machinery owned.	90-91 91-92 92-93 93-94 94-95	Rs. 1.50 million Rs. 2.20 million Rs. 2.10 million Rs. 2.60 million Rs. 3.00 million	Employs 1 junior engineer and 3 supervisors. Bulk of the work done is for supply of stone aggregate.
3.	C-3	Two years college after high school.	He was running a fair-price shop for civil supplies.	Became a 'C' class P.W.D. contractor in 1984 for a better line of livelihood.	Rs. 0.75 million. Does not own any machinery. Prefers material supply contracts.	90-91 91-92 92-93 93-94 94-95	Rs. 0.80 million Rs. 0.75 million Rs. 0.90 million Rs. 0.85 million Rs. 1.00 million	Has not been able to make as much advancement as some others but is able to sustain himself.
4.	C-4	Bachelor of Arts.	Nil	After studies, started as a P.W.D. construction contractor 'D' Class in 1986.	Rs. 0.4 million. Does not own any machinery.	90-91 91-92 92-93 93-94 94-95	Rs. 0.60 million Rs. 0.50 million Rs. 0.70 million Rs. 0.60 million Rs. 0.80 million	Maintains a Works Clerk
5.	C-5	Bachelor of Arts.	Soon after studies, he decided to pursue construction contracting as a profession	Became a P.W.D. contractor in 1969, for his livelihood.	Rs. 0.8 million including 1 road roller, 1 truck and 1 cement mixer.	90-91 91-92 92-93 93-94 94-95	Rs. 0.90 million Rs. 1.00 million Rs. 1.40 million Rs. 1.25 million Rs. 1.50 million	Maintains a Works Clerk

S.No.	Code No.	Academic/ Professional qualifications	What he was doing before becoming a contractor	When he became a contractor and why	Value of assets including equipment held	Value of work done annually (Approx.)		Remarks
						Year	Value	
6.	C-6	Diploma in Civil Engineering (1972). He joined P.W.D. service as a junior engineer.	He joined P.W.D. service as a junior engineer.	Resigned his P.W.D. job and turned a P.W.D. contractor ('C' class) in 1980.	Rs. 5.0 million including 2 road rollers, 1 truck, 1 cement concrete mixer.	90-91 91-92 92-93 93-94 94-95	Rs. 3.20 million Rs. 3.70 million Rs. 3.50 million Rs. 4.20 million Rs. 4.50 million	Maintains a Works Clerk on regular basis.
7.	C-7	Diploma in Civil Engineering.	Became a contractor soon after completing his engineering studies.	Became a 'D' Class contractor in 1978 and was upgraded to B Class in 1989.	Rs.1.0 million approx. including 1 tractor, 2 road roller, 1 cement concrete mixer and 1 vibrator.	90-91 91-92 92-93 93-94 94-95	Rs. 1.20 million Rs. 1.40 million Rs. 2.10 million Rs. 1.80 million Rs. 2.00 million	Maintains a Works Supervisor
8.	C-8	Bachelor of Arts. Bachelor of Law.	Chose to become a construction contractor soon after his studies.	Registered as a P.W.D. (class C) contractor in 1978.	About Rs.4.0 million including 1 truck.	90-91 91-92 92-93 93-94 94-95	Rs. 1.20 million Rs. 1.40 million Rs. 1.90 million Rs. 1.80 million Rs. 2.00 million	Maintains a Works Supervisor.
9.	C-9	Diploma in Civil Engineering(1977)	Took up contractor-ship soon after the engineering studies.	Registered in 1981 as PWD contractor Class 'C'	Rs. 1.0 million approx. including 2 road rollers, 1 oncrete mixer and 1 vibrator	90-91 91-92 92-93 93-94 94-95	Rs. 1.20 million Rs. 1.10 million Rs. 1.30 million Rs. 1.60 million Rs. 1.50 million	No staff held permanently
10.	C-10	Diploma in Civil Engineering	Did not get suitable job and then chose to become a contractor	Registered as a PWD contractor class C in 1978.	Rs. 0.6 million approx. including 1 concrete mixer and 1 vibrator	90-91 91-92 92-93 93-94 94-95	Rs. 0.70 million Rs. 0.80 million Rs. 1.10 million Rs. 0.90 million Rs. 1.00 million	Maintains one Works Clerk

S.No.	Code No.	Academic/ Professional qualifications	What he was doing before becoming a contractor	When he became a contractor and why	Value of assets including equipment held	Value of work done annually (Approx.)		Remarks
						Year	Value	
11.	C-11	Bachelor of Arts.	Working with father in his small business. Decided to branch off as a PWD contractor for better prospects	Registered in 1982 as PWD contractor Class 'C'	Rs. 1.2 million including 1 truck, 1 cement concrete mixer and 1 vibrator	90-91 91-92 92-93 93-94 94-95	Rs. 2.40 million Rs. 2.50 million Rs. 3.20 million Rs. 3.00 million Rs. 3.50 million	Maintains one Works Supervisor
12.	C-12	Bachelor of Arts	Was at a loose end.	Registered as 'A' class contractor in 1975. Working partner in this contracting firm.	Rs. 3.0 million including well-sinking equipment, 1 concrete mixer, 1 vibrator	90-91 91-92 92-93 93-94 94-95	Rs. 9.70 million Rs. 9.50 million Rs.13.50 million Rs.12.50 million Rs.15.00 million	Maintains one Works Clerk. Has done quite well.
13.	C-13	Master's degree in Commerce.	Chose to become a PWD contractor soon after his studies.	Registered as a contractor in 1984 with P.W.D., Oil and Natural Commission and Zilla Parishad.	Rs. 3.5 million including 3 trucks, one concrete mixer and one vibrator.	90-91 91-92 92-93 93-94 94-95	Rs. 2.60 million Rs. 2.70 million Rs. 3.40 million Rs. 3.20 million Rs. 3.50 million	Maintains one Junior Engineer (Retd.) and one Works Clerk.
14.	C-14	Diploma in Civil Engineering.	Could not find a suitable job and decided to become a construction contractor.	Registered as a PWD contractor	Rs. 1.0 million including one concrete mixer and one vibrator	90-91 91-92 92-93 93-94 94-95	Rs. 1.60 million Rs. 1.50 million Rs. 2.10 million Rs. 2.30 million Rs. 2.50 million	Maintains one Works Clerk.
15.	C-15	Did not complete high school	After trying his hand at a few other ventures, he turned to contractorship	Registered as a PWD contractor in 1975	Rs. 1.1. million including three trucks	Rs. 2.0 million per year on the average		Has been able to happily sustain himself for two decades.
16.	C-16	Bachelor of Arts	Came in contact with a few contractors and decided to become one	Registered as a PWD contractor in 1983	Financially weak. (about Rs. 0.5 million). Owns one truck	Approximately Rs. 2.0 million per year on the average		Has not been able to advance as much as some others.

S.No.	Code No.	Academic/ Professional qualifications	What he was doing before becoming a contractor	When he became a contractor and why	Value of assets Including equipment held	Value of work done annually (Approx.) _____		Remarks
						Year	Value	
17.	C-17	High School	Chose to become a contractor at an	Registered as a contractor in 1980	Financially weak. Assets in the range of Rs. 0.3 million. Does not own any machinery	Annual turnover about Rs 1 0 million		Could not make much headway. Some domestic problems.
18.	C-18	High School	After trying his hand at a few other small enterprises, he became a contractor	Registered as a PWD contractor in 1974	Good financial strength (Rs. 1.5 million including a stone crusher and 2 trucks)	Annual turnover is Rs. 2.5 million		Is satisfied generally with the progress
19.	C-19	High School	After drifting. for a few years, shifted to construction work	Registered as a contractor since 1977	Good financial strength: assets worth Rs. 1.5 million including one crusher and 2 trucks	Work carried out worth Rs. 2.0 million per year approx.		Is happy with his lot..
20.	C-20	Diploma in Mechanical Engineering	On account of non-availability of suitable employment, chose to become a construction contractor	Registered as a contractor in 1980	Good financial strength: total assets over Rs. 2.0 million, including 2 trucks	Handles construction worth Rs. 4.0 million approx. per year		Feels well settled.
21.	C-21	master of Arts	Could not make headway otherwise and turned to contractorship	Contractor since 1981	Financially weak. No machinery owned	Is able to handle construction worth only Rs. 0.5 million per year		Not able to take off..
22.	C-22	High School	Chose to become a contractor quite early in life	Registered as a contractor since 1985	Good financial position: assets worth Rs.2.0 million including a small hot-mix plant and a truck	The average amount of work done per year during the last 5 years is Rs. 2.8 million		Is doing well.

S.No.	Code No.	Academic/ Professional qualifications	What he was doing before becoming a contractor	When he became a contractor and why	Value of assets Including equipment held	Value of work done annually (Approx.) _____		Remarks
						Year	Value	
23.	C-23	Bachelor of Arts	Was only 23 years, when he became a contractor	Registered as a contractor since 1980	Good financial strength now: total assets of Rs. 1.5 million including 2 trucks and 1 road roller	Is able to do	construction worth Rs. 3.0 million per year	Is doing well
24.	C-24	Bachelor of Arts	Became a contractor after drifting for a few years	Registered contractor since 1977	Good financial strength: Rs. 1.5 million worth assets including a roller and two trucks	Average turnover	Rs. 1.5 million per year	Is doing fairly well.
25.	C-25	Two years in college after high school. Qualified Fitter from an Industrial Training Institute.	Became a contractor to run an enterprise for livelihood.	Registered contractor since 1984.	Assets worth Rs. 1.5 million	Average turn-over per year of Rs. 1.0 million		Machinery taken on hire

4

Discussion

4.1 General

FOR decades now, execution of rural road works has been carried out departmentally as well as through contractors. The experience accumulated with these two modes is conditioned by the nature and location of the work, the associated exigencies, changes in construction management practices and in the value systems, and other constraints and factors. The pros and cons of the two alternatives could be discussed in the context of the following aspects:

- (i) Nature of the work and work-site.
- (ii) Cost.
- (iii) Quality of work.
- (iv) Rate of construction.
- (v) Labour interests.
- (vi) Feasibility.

From the point of mode of execution, the rural road work can be divided into two categories: normal and special. The normal works are those which do not involve any special conditions affecting the mode of execution. Construction of rural roads in the normal development programmes, etc. i.e. those which cannot be categorised as special, fall into the category of normal road works. The special rural road works may be said to be those which may involve conditions such as the following:

- (a) Special objectives like relief where the primary aim is succour and a degree of looseness is permitted in productivity and cost.
- (b) A part of the wages to labour are to be paid in kind, e.g. in food for work programme.
- (c) Non-availability of labour and contractors due to high altitudes and sparse population, etc.
- (d) Hazardous locations like high altitudes, cold temperatures, large snow / sand accumulations, i.e. situations where normal civilian systems are not operable.
- (e) Work not susceptible to initial estimation from the point of measurement of quantity e.g. some of the operations in road maintenance, slip clearance etc.

The road works with special conditions such as those cited above are obviously particularly amenable to departmental execution. However, their proportion is quite small in relation to those classified as 'normal'. The

normal works are not handicapped by these constraints and are thus quite open to choice in regard to the mode of execution.

As the P.W.D.s do not maintain figures work-wise on indirect and supervisory inputs, it is not possible to strictly compare the relative costs. However, it is to be observed that execution through a contractor generally means less wastage and/or more effective use of resources. In a transparent and competitive bidding system, this mode leads to lower cost even though there is the component of contractor's profit off-set by extra administrative cost for departmental execution (Chapter 2, Section 2.4). Road-work at far-flung sites involves a number and variety of decisions which, if processed through the departmental systems, are either time-consuming leading to wastage of resources or are likely to lead to audit objections/enquiries. The contractor brings enterprise, hard-work, innovations, quick responses, commercial motivation, and efficiency which can more than compensate for his profit vis-a-vis departmental execution. The position work-cost tilts further in favour of the contractor when indirect/hidden costs of departmental execution are also taken into account.

There was a first-hand experience in the course of field work for this study. On a day devoted to visits to work-sites covering both the modes of execution, the first visit was to a site where thin bituminous carpet was being laid as a resurfacing. The work was going on normally with everybody seemingly preoccupied with the assigned tasks. It was one of the hottest days of the year and thus hot-mix work was quite demanding. While passing by that site again in the evening (1830 hours i.e. about one and a half hours after closing time), most of the workers were gone but finishing rolling was going on, with the contractor's Works Clerk sitting on the roller with the driver and a labourer attending to the rear wheels of the roller. The same day, two sites with departmental execution were also visited. It so happened that at both the sites, at the time of visits which were during working hours, all the workers were sitting under trees. At one of these sites, they scrambled to the work-site after our arrival. The number of workers actually present was also short at that site. The quality of work turned out was such that there were large deformations even under the construction traffic. At the third site of departmental execution, no work was going on that day. The Bhakra Dam (India), a very large multi-purpose project of its time, had a very major component of departmental execution. The construction was carried out very successfully in this mode but that was four decades ago when the value-systems were quite different.

As regards the quality of work, it is believed that the two modes can perform equally well. The contractor is in the construction business as a commercial enterprise and is willing to meet any requirements so long as there is a level playing field. When he is constrained to bid an infeasible low price, he tries to cut corners. But there is the department to supervise and check his work. In the case where the use of contractors is banned, the system is very susceptible to quality deficiencies because it is the department which is executing the work and it is the same department which is accepting the work. A contractor's concern and stakes about the work not being found

acceptable are much more than when the department is also doing the work of a contractor.

The mode of execution through a contractor is less likely to result in delays because the system has much more flexibility and capacity for quick responses. In contrast, the departmental processing for decisions, usually involving different echelons, can be more time consuming. Otherwise, since methods of construction are going to be the same, the two modes are equally equipped for different rates of construction.

Labour interests are safeguarded through labour-laws. In the context of rural road work, the primary concerns are:

- (i) Payment of wages.
- (ii) Provision of prescribed welfare facilities.

As regards the wages, there are more chances in the departmental execution modes of the prescribed wages being paid without gender discrimination. The contractor tends to pay wages according to the market forces and productivity. There being surplus labour by and large in India, labour generally receives wages lower than the minimum prescribed wages. The tendency becomes more and more marked as the work site becomes more and more remote. However, the laws provide that the observance of laws of payment of wages by a contractor is also the responsibility of the principal employer who is required to depute a suitable representative at the time of wage payments for ensuring that the rules are observed. No separate financial provisions are kept by the departments towards remedial actions. Labour laws are applicable independent of the provisions in the contract agreements. The contract agreement specifies that the contractor would have to abide by all the applicable laws, including those pertaining to labour. In the event that the contractor does not comply with any legal requirement, the same can be provided by the department from their own funds. This cost is recoverable from the work payments due to the contractor.

Regarding labour welfare measures, the desired degree of seriousness is not yet there on the part of both the contractors and the road departments. The Labour Inspectors do make visits to the work sites to check on compliance of labour laws and this measure is helping the cause but, in the case of road-work, the work-head keeps changing every few days and thus the accent is on portable facilities. A Working Group of the Planning Commission¹ in 1990 had the following to say in regard to labour welfare:

"As of date, nearly a score of labour laws are applicable to construction sites all over the country. Each statute has its own administrative and inspectorate set-up requiring contractors to submit all sorts of returns on the prescribed forms. The fact, however, is that none of these laws is implemented or followed even in its essentials. The primary reason seems to be that the laws themselves have little relevance to the realities of construction business and logistics of construction sites."

1. "Report of the Working Group on Improvement of Methodology and Technology of Construction", Planning Commission, Government of India, August, 1995.

An exercise is therefore warranted for arriving at more practicable legal provisions and enforcement aspects. There is considerable scope for ILO's detailed investigative studies and formulation of practical guidelines for improving this situation.

For departmental execution of a rural road project to be feasible, the department requires extra manpower and machinery with implications as under:

(i) Extra manpower.

In relation to the engineering manpower required for execution through a contractor, some 75-80 per cent additional force is required for departmental execution. Of course, labour would have to be engaged, additionally, on muster rolls for carrying out the construction tasks.

(ii) Machinery, Tools and Plant

Depending upon the specifications and work involved, there will be the requirements of construction machinery and tools. For a department to hire them can be quite time-consuming and, therefore, the same would have to be mobilised internally.

Departments are generally able to arrange for the additional manpower and equipment required for in-house execution.

As regards execution through contractors, the broad requirements from the point of feasibility are:

- (i) Availability of persons interested in pursuing this line of business.
- (ii) Availability of the capital.
- (iii) Ability to grasp the system and to adjust to it. India, unlike some countries in Africa, has a very long tradition of small/ petty contractors. As shown in Chapter 3, these entrepreneurs may or may not have engineering background. When engineering/ construction background is not there, usually the start is made by engaging a Works Clerk or a Works Supervisor. They are available in good numbers at most places.

As regards capital, there are a number of ways to handle this requirement:

- (i) One's own resources.
- (ii) Taking a partner with capital.
- (iii) Road- work has been declared an industry and thus one can borrow capital from financial institutions.
- (iv) Depending upon the resources of capital, one can start as Class 'D', 'C', 'B' or 'A' contractor (Chapter 2, Section 2..3).

Understanding the system (preparation of bids, organisation of construction tasks, arranging decisions/inputs of the department, obtaining payments in good time, etc.) and adjusting to it is of crucial importance. It is very easy otherwise to get bogged down and even become a failure.

4.2 Private Contractors

In India, a very large proportion of road-work is done through the private sector, namely contractors. However, as indicated by the survey (Chapter 3), several aspects of this mode of execution require to be reviewed. .

The basic requirements of a contract between a government department and a private party are that it should be fair and equitable. In today's context, the following are seen to be the important needs:

- (a) The clauses need to be more clearly worded so that there is no ambiguity as to interpretations. Also there should be due specificity in the content, leaving little for the discretionary decisions. Clauses requiring the contractor to do work 'as directed' or 'to the satisfaction of the department' are basically out of date and should be used to the minimum extent only where unavoidable.
- (b) Both the parties to the contract should share the responsibility in a fair manner. The department should thus take responsibility for:
 - (i) Handing over of the site.
 - (ii) Soundness of designs done by the departmental engineers, accuracy and reliability of technical data supplied by the department.
 - (iii) Timely supply of drawings and plans, and adjustment for time lost due to subsequent changes/corrections.
 - (iv) Timely supply of materials which the department is to supply (steel, cement, etc.) and
 - (v) Responsibility for prompt decision making.
- (c) Even though the completion period for rural road works is generally upto one year only, it should be a basic policy to curb speculative bidding. There should be a provision for the contractor to be compensated for escalation in costs beyond the control of the contractor.
- (d) There are instances where the department decided to make changes in the items and/or quantities thus affecting the commercial interests of the contractor who would have prepared the bid using strategies as per the items and quantities in the bill of quantities. The deviation in quantities should not be excessive, say not more than 15 per cent. Changes in items should not be a normal practice, except when necessitated by unforeseeable circumstances and except when a just dispensation is given to the contractor.
- (e) There are usually penalty clauses in the agreement whenever the contractor is not able to perform as per provisions. There should be likewise incentives whenever the contract is able to out-perform the provisions, say in the form of completion before the stipulated time. Steps could also be initiated to standardise the content of the contractual agreements as much as possible.

The other set of points relates to inviting and acceptance of tenders. In the context of rural road works, the following are seen to be important:

- (i) The works and thus the cost estimates being small, the dissemination of information about the notice inviting tenders is

- (ii) rather localised and is at times susceptible to misuse. Such a misuse can be substantially reduced if tenders are invited on prefixed days in a month and NITs are displayed in duly secured notice boards. The tender papers should be readied along with the NIT so that the potential bidders have sufficient time for preparing their bids.
- (iii) The authority inviting tenders needs to be given wider powers for accepting the bid, may be through a local committee mechanism so that the department's decision on the bids is available within, say, six weeks.
- (iv) Accepting the lowest eligible bid is basically a good practice. However, when there is cut-throat bidding, a bid can be unrealistically low. Accepting such a bid usually results in one of the two consequences: derailment of the contract or execution in poor quality. The generally recognised approach is that any bid more than 15 per cent below the estimated cost requires deeper examination of the reasons which, if assessed to be unhealthy, should mean rejection through a broad-based and transparent mechanism.
- (v) While awarding work, the weather ahead and working season for the items of work involved should be taken into consideration. In fact, there should be a systematically drawn calendar of events for smooth and time-effective operations.

At present, a number of unrelated objectives are sought to be achieved through construction contracts: sales tax, stamp duty, contributions to national saving schemes, etc. If the client insists on burdening construction work with such imperatives, the contractor has no option but to comply with them. However, these have necessarily to lead to higher bids and distractions from the construction site. At working levels, the requirements of sales tax settlement and saving scheme documentation can be quite demanding in some situations. In some States, there is a system of cash credit limit. Delays in releases hold up payment of work-bills. There should be coordination between availability of funds to the department and its requirement of funds for works at hand. Likewise, blocking of earnest/security money or delays in the payment of work-bills due to red tape hurt the contractor financially, and, if he is to continue in the construction business, he must find ways and means for compensating himself which would not be in the interest of work.

Another aspect concerning tie-down of capital is the requirement of construction machinery. If the use of machinery can be about year-round, it would be best for the contractor to have his own machinery, which could be kept in reliable working order and some spares could also be stocked. The second best alternative could be that machinery be available on hire in a nearby town. The privately maintained machinery would be in a better working condition because it would be commercially advantageous for both the contractor and the enterprise hiring out machinery. For a large rural road project, the department could even consider providing mobilisation advance for the procurement of machinery by the selected contractor.

Sometimes, the owners of stone queries and brick-kilns exploit the small '1 " contractors by suddenly jacking up the prices. The government/ department should find ways and means of curbing such tendencies. One way could be that the department could select. the source at a predetermined price and provide for it in the NIT. As discussed in Chapter 3, Section 3.2. (xviii), when road-work needs to be divided into two or more contracts, the same should be done horizontally and, as far as possible, there should be a single agency from earthwork to the surface course. This will bring in higher accountability.

During recent years, inflation has been in double-digit. If the schedule of rates is not revised frequently enough, there are problems in awarding small rural road works at realistic bids. The departments should announce cost-indices once in an year. The Central Public Works Department has been releasing such indices on quarterly basis. Any contractor who abandons work for invalid reasons must face inter alia black-listing. The available provisions need to be put to use whenever warranted so that undesirable elements are weeded out.

The small contractors as well as their key staff usually have limitations in duly grasping the technical and other provisions written in English. This constraint is particularly reported from Rajasthan. The following would go to serve some important purposes:

- (i) Translation of contract documents, specifications and schedule of rates into local languages.
- (ii) Illustrated manual in local language for lead-workers for imparting knowhow on various operations. The tools and methods should be described in a way that they can easily relate to them.

4.3 Management and Training

During the survey, the 25 contractors were asked if, in their view, in-puts of better management techniques and training in consruction enterprises could help their enterprises. The awareness level was quite low. In regard to management techniques, they seemed to depend largely on common-sense, past experience, and gleanings from interactions with departmental officials and fellow contractors.

ILO has been concerned about the needs of small construction enterprises in developing countries. In specific terms, the situations and needs would no doubt vary from country to country but the basics have good degree of generality. Detailed guidelines are available¹ on the development of small scale construction enterprises, with particular reference to a setting where such enterprises need to be developed in the domestic sector, the guidelines deal with all the important aspects from preparation of bids to work execution. ILO has also brought out a publication² which goes into detials of training and is intended for trainers and managers. Edmonds and de Veen³ have brought out the salient imperatives regarding labour-based approach to rural road and other works of rural development wherein the various aspects of training are discussed.

In the specific context of rural road in India another ILO-sponsored study report⁴ brought out that training, with emphasis on hands-on know-how,

should cover all levels of departmental staff and that the key personnel of contractors should have easy access to it.

Because of the various prevailing inadequacies, performance under traffic of the roadways is generally not upto expectations. While the contractors should seek to avail themselves of improved management techniques and training programmes, the departments should address the following requirements:

- (i) Checking and supervision by the departmental engineers to be made more rigorous.
- (ii) Availability of illustrated manuals and other documents in local languages.

4.4 Further Work

The survey on small contractors reported in Chapter 3 was limited to two States. This survey was carried out with limited set of questions, the responses to which have raised a number of issues. Even though some quite useful information has been gleaned, a more broad-based survey should be carried out.

A more comprehensive survey with well dispersed and typical sampling sites, using proformas/ questionnaires evolved out of available information nationally as well as internationally, including this study, is likely to bring out data for useful analysis. Though some of the problems are likely to be common in different states but the solutions may not be that uniform. It will be useful to work out practical solutions and assess the results of their implementation. However, based on this study, three questionnaires have been prepared: one each for contractors, the departments, and the owners (where different from the department). These are at Appendix I.

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1. "Guidelines for the Development of Small Scale Construction Enterprises", International Labour Organization, 1987.
 2. "Training Contractors for Results-A Guide for Trainers and Training Managers", by Tor Hernes (edited by Derek Miles), I.L.O., 1988.
 3. Edmonds, G. A. and de Veen J. J., "A Labour-Based Approach to Roads and Rural Development in Developing Countries", *The International Labour Review*, Vol. 131. No. 1, 1992.
 4. Dhir, M. P., "Maintenance of Rural Roads in Southern India", International Labour Organization, New Delhi, India, 1995.

5

Issues and Recommendations

IN India, both the public and private sectors have been used for the execution of rural road works. The departmental execution has largely been limited to special situations where the primary objective is to provide succour through employment and road-work is used only as a means for this objective. This mode is also used for hazardous locations (e.g. border roads) and for work items not susceptible to measurement (road maintenance except resurfacing). In West Bengal, there has been an exceptional development from the current year in that the use of private contractors has been banned for all rural works, including roads, of the local self-government. It is too early to expect the results of this change. This has ostensibly been done for avoiding the contractor's profit and under the expectation of better quality of work. The two modes are quite different in management aspects and, therefore, careful consideration is required before making a choice. Execution of rural road construction through private contractors continues to be, by far the predominant mode.

Recommendation 1

For normal rural road works, the more common mode is execution through private sector. While making a choice, the pros and cons of the two modes need to be carefully considered.

The private contractor brings in commercial enterprise with the associated motivations. In this mode, there is the least wastage of resources but there is the profit motive. Execution through public sector tends to be the opposite. The general assessment is that execution through the private sector costs the same or less and is notably economical when the indirect hidden costs in departmental execution are also taken into consideration. Construction time of execution through private sector is generally as stipulated, provided the inputs of the department are made available in time. It is in the contractor's interest to complete the work at hand and move on to the next. Such motivations are absent in the case of departmental execution. As regards the quality of construction done by a contractor, there are the provisions of external check by the department and of various penalties, including black-listing, for non-performance. Such is not the case in the departmental execution.

Recommendation 2

Execution through private sector is to be preferred because it brings efficiency and cost-effectiveness, especially when the department extends due co-operation. The system produces best results when the department exercises the prescribed checks and supervision.

It has been reported that in some countries, the position in regard to small construction enterprises in the domestic sector is weak and measures need to be taken to make it viable. This scenario is not applicable to India of today.

By and large, small contractors are available in good numbers and it is an established line of business in both rural and urban areas. There is work, there are enterprising people, and there is access to the relatively small capital required.

Recommendation 3 *In India, small, private construction enterprises are an established line of business. In view of the advantages of this mode of execution, serious thought should be given before switching over to departmental execution.*

Laws exist for the health and welfare of labour, including those engaged in construction work. There are also provisions in regard to the payment of wages. However, compliance at the road sites is weak. The construction sector feels that non-compliance is, in a large measure, due to the provisions being unrealistic for the prevailing condition at work-sites and there being multiplicity of statutes and inspectorates. In regard to the payment of statutory minimum wage, compliance by contractors is not there at times. Left to themselves, they would go by market forces.

Recommendation 4 *There is need to review labour laws in regard to health and welfare at road construction sites. For promoting compliance, ground conditions should be taken into account. There should be a single inspectorate/department with increased checking of sites.*

The contract agreements are loaded in favour of the departments. There are many discretions and ambiguities. These documents need to be made fair and equitable. The improvements required are in relation to discharge of respective responsibilities, clarity, provisions for escalation, deviations, and incentives. As much uniformity as possible should be introduced in the contract agreements.

Recommendation 5 *The contract agreements should be fair and equitable for both the parties. The provisions should be clear in regard to discharge of responsibilities. It will be a good idea to provide also for escalation in prices and incentives for out-performance.*

The procedure for inviting and accepting tenders requires to be improved. There is need to institute measures for effective dissemination and for facilitating response. Cut-throat bidding should be discouraged by going deeper into the rationale behind the quotation. Decision on tender-acceptance should be made more prompt. A local empowered committee structure could be established for minimising the need to refer small contracts to higher echelons. The working season should be kept in view while awarding the work.

Recommendation 6 *Issue of NITs and readiness of tender papers should be systematised to promote contractor response. The programme of work should take into account the construction season. Suitable local mechanisms should be set up for expeditious decision making.*

At present, a variety of side objectives are sought to be achieved from the private construction enterprises: generation of additional revenue through levy of sales tax and stamp-duty, contributions to various saving schemes, etc. In some States, work bills have to be held up because of constraints due to the cash credit limit.

Recommendation 7 *When a work is awarded, flow of funds for timely payments to the contractor should be ensured. It is not a good practice to load road construction with revenue/capital generating burdens as they lead to higher bids and unnecessarily make a contractor's responsibilities more onerous.*

Rural road works, being labour-intensive, require only limited machinery inputs. A more common system has been for the small contractor to hire machinery from the department. A better system is when the machinery is available on hire from private sources. The departments can help the contractors and the road-work by keeping their schedules of rates continually updated and by regulating the availability of materials from quarries and kilns.

Recommendation 8 *Availability of road construction machinery on hire from private sources should be promoted. The departments should maintain cost-indices and update their schedules of rates atleast once in an year. There should be suitable arrangements so that quarry/kiln owners do not exploit the small contractors.*

The small contractors may not be well educated and, therefore, all the related documents should be translated in local languages. The departments should organise field workshops for training to which the participation of contractors and their staff should be encouraged. Illustrated manuals and leaflets on various construction methods should be made available.

Recommendation 9 *The books of specifications, schedule of rates, contract agreements and illustrated construction manuals should be available in local languages. Training of contractors and their key personnel is as important as that of the engineers and the staff of the department.*

Very little study has been done about the needs and difficulties of small road construction enterprises. The present Study has been limited to two States and a comprehensive survey is required in different typical parts of the country, covering contractors, departments, and clients/owners.

Recommendation 10 *The present Study, with a limited survey, is only a pilot study. The study of needs and problems of private rural road construction enterprises has been a neglected area and a more comprehensive study would be invaluable.*

There is need for detailed investigative studies and formulation of practical guidelines for the provision of facilities to labour at rural road work- sites.

Recommendation 11 *The Government of India and liO may collaborate for the formulation of practical guidelines for safeguarding labour interests on rural road work-sites.*

Questionnaires

For Contractors

1. Name and address of the contractor (required for any further interaction).
2. Particulars of the respondent.
 - (a) Name.
 - (b) Designation (owner or working partner, specify).
 - (c) Academic qualifications. (d) Age.
 - (d) What were you doing before and why did you switch? What technical or business knowledge did you possess at that time?
3. Type of work done (buildings, roads, culverts, bridges).
4. Year in which this construction enterprise was started.
5. What were the considerations or motivations for becoming a contractor?
6. Financial assets:
 - (i) When started as a contractor.
 - (ii) Now.
7. Class of contractor:
 - (i) At start.
 - (ii) Now.
8. Value of work done per year:
 - (i) At the start.
 - (ii) Last 3 years, year-wise.
9. Construction equipment owned.
 - (i) At the start.
 - (ii) Now.
 - (iii) Is equipment available on hire at reasonable prices?
10. If you had the need to supplement your funds,.how did you meet this need and to what extent (borrowing from banks, relatives and friends etc.)?
11. Core manpower now held (engineers, supervisors, technicians, clerks, etc.)
12. How well are your expectations from this business being fulfilled? (very satisfied, satisfied, not satisfied).
13. Do you foresee your continuing in this business? If not, why?
14.
 - (i) Is there an association of contractors like you?
 - (ii) Are you a member?

- (iii) Is this association effective in voicing the problems of your category of contractors?
15. (i) Are there any problems of registration as a contractor?
(ii) What changes would you like in the registration procedure?
 16. In your area, is there a shortage or excess of contractors?
 17. Are you satisfied with the way NITs are being issued? Or are there any changes you want made in regard to notification, display, and availability of tender papers?
 18. Are you satisfied with the contract agreements?
 - (a) Are they fair to both the parties? If not, why?
 - (b) Is there due specificity or are there any undue discretions and ambiguities?
 - (c) Are you satisfied with the provisions regarding (what changes should be made?):
 - (i) Escalation of prices.
 - (ii) Deviations, subsequent' to award of work.
 19. Award of work.
 - (i) Is it taking too long?
 - (ii) Is there transparency?
 - (iii) What should be done when the lowest tender is unrealistic?
 20. Are there any changes desired regarding?:
 - (i) Earnest money.
 - (ii) Security (involving Saving Schemes).
 - (iii) Sales Tax.
 - (iv) Stamp Duty.
 21. How co-operative is the Works Department in regard to (mention changes desired?):
 - (i) Availability of site and marking.
 - (ii) Designs and drawings.
 - (iii) Decisions on day-to-day matters.
 - (iv) Issue of stores.
 22. Any changes required in payments by the department:
 - (i) Running Bills.
 - (ii) Final Bill.
 - (iii) Mobilisation Advance.
 - (iv) Refund of securities.
 - (v) Material Advance.
 23. Technological and quality Issues:
 - (i) Labour-intensive road-work provides much needed employment. Are there any problems in continuing with labour-intensive technologies.

- (ii) What are your suggestions for improving the quality of work further?:
 - (a) What should the departments do?
 - (b) What should the contractors do?
 - (c) Should there be an independent agency?
- 24. Are you happy with the formats of documents like Specifications, Agreement Form, Tender Papers, etc? Would it be better if they are available in local languages?
- 25. Training Issues.
 - (i) Do you think that the department's representatives are duly trained? What are the inadequacies generally obtaining?
 - (ii) What should be the broad scope of training for small contractors?
 - (iii) Should the Contractors Associations arrange this (ii) training or should the same be organised by the departments?
- 26. Labour Issues
 - (i) Are the Labour Laws implementable? If not, why not?
 - (ii) In your view, should there be the statutory minimum wage or that the labour wage should be determined by market forces?
 - (iii) Do you agree that safe and hygienic working conditions for labour are necessary?
 - (iv) Why are women workers paid lower wages at times?
- 27. What are your views on:
 - (i) Black Listing of the non-performing contractors? Is it being effectively pursued in your area?
 - (ii) Abandoned work being got done from another agency at the risk and cost of the contractor to whom the work was originally awarded?
- 28. What is your assessment in regard to:
 - (i) Drop-out rate of contractors in your area?
 - (ii) What are the main reasons (biases, incompetence, incompatibility, lack of financial resources, change of business)?
- 29. Do you have any other general views or specific views pertaining to the execution of rural road works?

For Works Departments

1. (i) Name of the department.
(ii) Name and designation of the respondent.
2. (i) How many kilometres of rural roads are being constructed in an year on the average by your department?
(ii) What is the total length of rural roads under your department's charge?
3. What is the mode adopted for execution:
 - (i) The extent of rural road construction done departmentally and that through contractors.
 - (ii) The extent of rural road maintenance done departmentally and that through contractors.
4. What are your views regarding relative pros and cons of the two modes of execution from the point of
 - (i) Cost
 - (ii) Quality
 - (iii) Delays
 - (iv) Audit objections
 - (v) Departmental convenience
5. Are you aware that contractors and their associations have been complaining about a number of problems being faced by them? Has there been any serious interactions and what have been the results?
6. There are complaints regarding inadequacies (insufficient dissemination, etc.) in the issue of NITs and availability of tender papers. If true, what should be done?
7. What changes need to be made so that the agreements are duly fair and equitable? Do the departments need discretionary powers? Cannot the matter be put in clearer and more specific terms?
8. Are deviations generally such as could not be foreseen in most of the cases? Cannot this be a way of helping or hurting contractor?
9. Even though rural road works are of shorter duration, why cannot escalation clause be provided in the agreement so that speculative bidding can be curbed?
10. Should not the department maintain construction cost indices to be released, may be, 2-3 times a year? Why the schedule of rates - cannot be revised every year?
11. Cannot the decision on award of work be taken within 4-6 weeks of the opening of tenders? Are there needs for enhancement of powers at local levels in this regard?
12. What should be done about lowest bids based on unrealistic rates?
13. As regards sales tax and stamp duty, cannot the department handle them directly?
14. Will it not be in the interest of one and all if construction machinery is available on hire from private sources? What has your department done to promote it?

15. (i) Are there too many or too few contractors?
(ii) In your view, are any changes required in the registration procedures?
(iii) Is black-listing of non-performing contractors being pursued effectively and consistently?
16. Are there delays in the departments in giving decisions, issuing stores, and making payments? Cannot some time-schedules be fixed in such cases?
17. Labour-intensive technologies for road-work provide much needed employment. Are there any problems in continuing with them?
18. (i) Is it really cheaper to have low-quality work? (ii) How can the quality of work be improved?
(iii) Should there be an independent agency for checking the work quality?
19. Do you agree that the translation of work documents in local languages will be helpful to the small contractors?
20. (i) Is your department organising regular refresher courses/ training programmes covering all levels?
(ii) Will it not be advantageous to extend similar facilities to the small contractors? Are there any difficulties?
21. Labour Issues:
(i) Are the labour laws implementable? If not, why not?
(ii) Do you agree that safe and hygienic working conditions for labour are necessary?
(iii) Is it correct for the contractors to pay a wage lower than the statutory minimum wage or a differential wage to women workers? Are not the departmental representatives supervising wage disbursements by contractors?
22. Any other views.

For Owners other than Works Departments

1. Are your roads got constructed through contractors, through departmental execution, or both?
2. What are your views on comparative pictures of the two modes in respect of:
 - (i) Cost.
 - (ii) Quality.
 - (iii) Delays.
3. Does your department receive any complaints against the Works Department regarding award of work, delays in payments, etc?
4. Does your department have any specific views on changes required? If so, what are those?

ANNEXURE

"Extract on the Presentation, Conclusions, Discussion and Recommendations made on the study at the Sub-Regional Policy Seminar on Employment- Intensive Investment Programmes held in Calcutta (10-12 January, 1996), West Bengal State"

I. Construction and Maintenance of Rural Roads by Public and Private Sectors

This study was discussed in a session chaired by Mr. S. N. Ghosh, Principal Secretary to Government of West Bengal, Panchayats and Rural Development Department, held on the afternoon of 11th January 1996. The study was carried out and presented by Dr. M.P. Dhir, an ILO Consultant.

Presentation

While explaining the concurrent development of the two modes of execution viz. departmental execution and execution through private contractors, Dr. Dhir mentioned the circumstances under which the rural road work had to be carried out departmentally. For example, relief- oriented road works programmes where productivity of labour could be relaxed and/ or a part of the wages had to be paid in kind; types of work not susceptible to estimation/measurement; or when work through contractors was not feasible for various reasons. Under departmental execution, the contractor's profit is saved and labour laws have a better chance of being implemented.

Execution of work through the private contractors, on the other hand, brings in the motivation of commercial enterprises which can be mutually beneficial if the road department is duly supportive, and exercises proper checks on the quality of work being turned out. On the other hand, the contractors were not satisfied with the one-sided contract agreements, procedures for bids and for awarding of contracts, and with the time taken by the departments in providing their committed inputs.

Discussion

While some participants brought out the ills of execution through private contractors, there were others who were dissatisfied with departmental execution. It was pointed out that the labour interests were safer when execution of rural road work was done departmentally.

In the context of West Bengal's experience, there were reservations in regard to full-fledged use of private contractors.

The Chairman clarified that the West Bengal government order banning the employment of private contractors was only in respect of works executed under JRY and Employment Assurance Scheme. He emphasised that the ILO's pilot sample study should be followed by a more extensive study so that better basis could become available for the choice of executorial mode as well as for assessments and methodology in regard to better implementability of the relevant labour laws.

Conclusion

The study presented the view that where execution through contractors was feasible, there could be benefits of lower cost and faster completion. The quality of work could also be better if proper supervision is exercised. The contract agreements should be made more equitable and there should be better transparency and fairness in inviting bids and award of work. Full-fledged and broad-based in-depth extensive surveys were needed for generating more information. That would also help in determining if any review was required of the related labour laws.

Dr. Dhir emphasised that the study was in the general context of all the northern region states and therefore, it does not take separate notice of any state specific peculiarities.

Recommendations

While presenting the study, the Consultant suggested the following recommendations:

1. For normal rural road works, the more common mode is execution through private sector. While making a choice, the pros and cons of the two modes need to be carefully considered.
2. Execution through private sector is to be preferred because it brings efficiency and cost-effectiveness, especially when the department extends due co-operation. The system produces best results when the department exercises effectively the prescribed checks and supervision.
3. In India, small, private construction enterprises are extensively established line of business. In view of the potential advantages of this mode of execution, serious deliberation should be carried out before switching over to departmental execution.
4. There is need to review practical application of labour laws in regard to health and welfare of the workers at road construction sites. For promoting compliance, prevailing ground conditions and practical constraints should be taken into account. There should be a single inspectorate/ department made responsible for effective checking of work sites and workers operational problems.
5. The contract agreements should be fair and equitable for both the parties. The provisions should be clear in regard to discharge of each others responsibilities. It will be a good idea to provide in the contract for escalation in prices and incentives for extraordinary performance.
6. Issue of Notice Inviting Tenders (NITs) and readiness of tender papers should be systematized to promote contractor response. The programme of work should take into account the construction working season. Suitable local mechanisms should be set up for expeditious decision making.
7. When a work is awarded, flow of funds for timely payments to the contractor should be ensured. It is not a good practice to load road construction with revenue/ capital generating levies as they lead to higher bids and unnecessarily make a contractor's responsibilities more onerous.

8. Availability of road construction machinery on hire from private sources should be promoted. The departments should maintain cost-indices and update their schedules of rates atleast once in an year. There should be suitable arrangements so that quarry /kiln owners do not exploit the small contractors.
9. The books of specifications, schedule of rates, contract agreements and illustrated construction manuals should be available in local languages. Training of contractors and their key personnel is none the less important than that of the engineers and the staff of the department.
10. The present study is done with a limited survey and is, thus, a pilot study. The study of needs and problems of private rural road construction enterprises has been a neglected area and a more comprehensive study would be invaluable.
11. The Government of India and ILO may collaborate for the formulation of practical guidelines for safeguarding the interests of the workers on rural road work-sites.

**Seminar's
Recommendations**

The Seminar recommended that an extended survey should be carried out for more broad based assessments as to the pros and cons of two modes of execution; and ILO and Gal should collaborate to produce practical guidelines.