

GOVERNMENT OF HARYANA

**EVALUATION STUDY INTO THE
WORKING OF STONE CRUSHERS
DEPARTMENTALLY RUN BY THE P.W.D. (B & R),
HARYANA**



**ECONOMIC AND STATISTICAL ORGANISATION
PLANNING DEPARTMENT, HARYANA**

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GOVERNMENT OF HARYANA.**

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P R E F A C E

An evaluation study of the operational functioning of the Stone Crushers, departmentally run by P.W.D. (B & R) was carried out by the Economic and Statistical Organisation, Haryana in 1971-72. The object was to study their operational functioning, efficiency and utilisation. The study covered three construction divisions, namely, Tosham, Dadri and Gurgaon where the crushers were installed.

This report was prepared by Shri P.N. Kanwar, Research Officer under the supervision and guidance of Shri A. L. Katyal, Deputy Economic & Statistical Adviser.

Chandigarh,
the 10th May, 1973.

K. C. GUPTA
Economic & Statistical Adviser
to Government Haryana.

APPENDIX

APPENDIX

Average procurement price of the material during 1968-69, 1969-70,

Sr. Year No.		Tosham Division			
		Rori		Bajri	
		Stone soling (Rs.)	Stone Metal (Rs.)	6mm to 20mm (Rs.)	6mm to 10mm (Rs.)
1	2	3	4	5	6
1	1968-69	11.66	15.19	15.89	16.95
2	1969-70	12.35	15.89	19.42	20.48
3	1970-71	12.35	17.65	23.66	25.43
4	1971-72	12.35	17.65	30.02	30.02

I

1970-71 and 1971-72 prevalent in different Divisions under study.

(price per cubic metre)

Dadri Division				Gurgaon Division			
Rori		Bajri		Rori		Bajri	
Stone soling (Rs.)	Stone Metal (Rs.)	6mm to 20mm (Rs.)	6mm to 10mm (Rs.)	Stone soling (Rs.)	Stone Metal (Rs.)	6mm to 20mm (Rs.)	6mm to 10mm (Rs.)
7	8	9	10	11	12	13	14
5.30	7.07	13.00	14.77	NA	NA	NA	NA
5.30	7.07	13.00	14.77	8.47	11.65	19.40	NA
6.70	11.70	17.50	19.50	8.47	11.65	19.40	NA
6.70	11.70	22.00	24.00	8.47	12.82	21.00	NA

APPENDIX

**Classification of the total approximate quantity of
during 1968-69, 1969-70, 1970-71 and 1971-72**

Sr. No.	Year	Length of roads (in Kms.)	Tosham Division (cubic metres)			
			Rori		Bajri	
			Stone soling	Stone Metal	6mm to 20mm	6mm to 10mm
1	2	3	4	5	6	7
1	1968-69	4.00	2919	1492	88	—
2	1969-70	44.27	11600	16500	1232	1035
3	1970-71	30.06	13400	29840	2110	314
4	1971-72	80.00	16680	29840	5412	6615

I-A

**material got crushed for Tosham and Dadri Divisions
(Figures in cubic metres and Kms.)**

Length of roads in Kms.	Dadri Division (Cubic metres)			
	Rori		Bajri	
	Stone soling	Stone metal	6mm to 20mm	6mm to 10mm
8	9	10	11	12
15.09	6230	5500	660	4600
72.28	30320	26350	3170	6260
54.30	22750	19780	2370	6300
250.00	105256	91500	11000	12,000

APPENDIX

Rough Cost Estimates for the purchase of Stone Crushing construction of

Sr. No.	Description of Machinery required.	Hissar circle
1	2	3
1	Jaw crushers (Prabhat) 16" × 9" capacity 16/18 tons/hour c/w 25 H. P. Electric Motor and accessories feed size 7", output 2½" and under.	2
2	Roll crushers (Prabhat) 36" × 20" capacity 18/20 tons/hours c/w 75 H. P. Electric Motor and accessories feed size 3", output 3/4" and under.	2
3	Apron feeders.	2
4	Belt conveyors 20" width × 15 metres long with suitable electric motor and accessories.	10
5	Vibrating screens 1200 mm × 3000 mm having 3 decks with 12 H. P. electric motor and accessories.	2
6	7½ tons capacity T.M.B. Trucks chasses with accessories duly fitted with steel body and driver's cabin for transportation of materials.	4
7	Tractor mounted mobile workshop unit with tools.	1
8	C.S.T. @ 3% plus insurance freight and transportation to site @ 2%.	—
9	Cost of installation of jaw crushers, roll crushers apron feeders, belt conveyors, vibrating screens at suitable quarry sites including cost of construction of suitable room and shed for electric motor and mobile workshop.	25,000/-
10	Grand Total :	—

II

Machinery for P. W. D. (B.&R.) Haryana required for
New roads.

Rohtak circle	Ambala, circle	Gurgaon circle	Total number required	Rate/ unit	Total Cost.
4	5	6	7	8	9
2	1	4	9	35,000/- each	3,15,000/-
2	1	—	5	1,20,000/- each	6,00,000/-
2	1	—	5	35,000/- each	1,75,000/-
10	5	—	25	25,000/- each	6,25,000/-
2	1	—	5	36,000/- each	1,80,000/-
4	4	4	16	55,000/- each	8,80,000/-
1	1	1	4	50,000/- each	2,00,000/-
—	—	—	—	5 percent	1,48,750/-
25,000/-	16,000/-	10,000/-	—	—	76,000/-
—	—	—	—	—	31,99,750/-

APPENDIX**Division-wise classification of the amount sanctioned and
for purchase and**

Sr. No.	Name of Division	Actual amount sanctioned in (Rs.)
1	2	3
1	Tosham (Hissar circle)	4,06,000/-
2	Dadri (Rohtak circle)	4,06,000/-
3	Gurgaon and Faridabad (Gurgaon circle)	7,41,000/-
Total		15,53,000/-

III

**amount actually spent to the date of survey 22nd July, 1971
installation of crushers.**

Actual amount spent in (Rs.)	Percentage of the amount spent to amount sanctioned.
4	5
2,03,452/-	50.11
2,50,580/-	61.72
93,350/-	12.60
5,47,382/-	35.25

APPENDIX

**Classification of actual Expenditure incurred on different
to date of survey (22nd July, 1971) at Tosham, Dadri,**

Sr. No.	Machinery and its spare parts.	Tosham (Hissar circle)		Total
		Crusher	Numbers.	
		I	II	
1	2	3	4	5
1	Actual price of the crusher.	31,000/-	93,350/-	1,24,350/-
2	Price of the accessories of the crusher which were necessary for its working			
	(i) Apron feeders.	—	—	—
	(ii) Belt conveyors along-with motor & other accessories.	3,500/-	5,000/-	8,500/-
	(iii) Vibrating screens alongwith motor and other accessories.	—	—	—
	(iv) Trucks with all its accessories and other materials.	—	—	—

III—A

items on the procurement of crushers and its spare parts,
Gurgaon and Faridabad Construction Divisions.

Dadri (Rohtak circle)			Gurgaon & Faridabad (Gurgaon circle)		Grand Total (5+9+11)	
Crusher Numbers			Crusher Numbers			
I	II	III	Total	I	Total	
6	7	8	9	10	11	12
31,930/-	31,930/-	93,350/-	1,57,210/-	93,350/-	93,350/-	3,74,910/-
—	—	—	—	—	—	—
—	—	—	—	—	—	8,500/-
—	—	—	—	—	—	—
—	—	—	—	—	—	—

1	2	3	4	5
(v) Tractor mobile workshop unit with tools.		—	—	—
(vi) C. S. T. insurance freight and transportation charges to the site.		1,345/-	4,717/-	6,062/-
(vii) Cost of construction of sheds and other facilities provided at the site such as motor room, retaining wall, crusher, foundation etc.		12,000/-	15,000/-	27,000/-
(viii) Air Compressor.		37,540/-	—	37,540/-
(ix) Total cost of installation of the crushers. (1+2)		85,385/-	1,18,067/-	2,03,452/-

6	7	8	9	10	11	12
30,000/-	30,000/-	—	60,000/-	—	—	60,000/-
260/-	260/-	2,850/-	3,370/-	—	—	9,432/-
15,000/-	15,000/-	—	30,000/-	—	—	57,000/-
—	—	—	—	—	—	37,540/-
77,190/-	77,190/-	96,200/-	2,50,580/-	93,350/-	93,350/-	5,47,382/-

APPENDIX IV

Cost-Benefit appraisal (for the month of March, April and May, 1971) of crusher No. I installed at Tosham Construction Division.

	Rate per 100 cubic feet	Total quantity obtained in 100 cubic feet	Total price
(A) Input Expenses			
(i) Extraction charges	14—00	522	7,308—00
(ii) Carriage charges	12—00	522	6,264—00
(iii) Royalty	8—00	522	4,176—00
(iv) Panchayat Compensation	2—50	522	1,305—00
(v) Air compressor charges	3—00	522	1,566—00
Total : (A)	39—50	522	20,619—00
(B) Running Expenses :			
	Rs.		
(a) Electricity charges :	1,866—00		
(b) Diesel, Petrol etc. :	3,164—00		
(c) Repair and maintenance :	3,251—00		
Total: (B)	8,281—00		

(C) Establishment Costs :		Rs.	
(a) Foreman (one)	1,350—00		@ Rs. 450/- per month
(b) Operator (one)	630—00		@ Rs. 210/- per month
(c) Beldar (six)	2,700—00		@ Rs. 150/- per month
(d) Chowkidar (one)	450—00		@ Rs. 150/- per month
Total : (C)		<u>5,130—00</u>	

Costs	Rs.	Benefit	
Total expenditure incurred <i>i.e.</i> (A+B+C Above)=34,030-00		Total quantity crushed and its equivalent price as if it has been purchased from local contractors.	5,2240 cubic feet @Rs.55/- per 100 cubic feet.
Price per 100 cubic feet of the departmentally crushed material=	65-19	Price charged by the local contractors per 100 cubic feet	= Rs. 28710/- = Rs. 55/-

Note :- While arriving at the above analysis the following items have been excluded from the cost side :—

- (i) Interest charges on investment.
- (ii) Supervisory costs of S.O's. and S.D.O's
- (iii) The period accounted for is for 3 months only.
- (iv) The quality of the departmentally crushed material is superior to that of supplied by private contractors.
- (v) The analysis is for one crusher only as the cost of production data was not available for the second crusher.

(APPENDIX 'A')

Economic And Statistical Organisation

**Evaluation Study into the working of 'Stone Crushers' departmentally
run by the P.W.D.,B.&R. Haryana.**

Block I—Identification Particulars.

- 1.1 Number and Trade mark
of the crusher.
- 1.2 Capacity of the crusher per
hour (in tons).
- 1.3 H. P. of the motor.
- 1.4 Output (size).
- 1.5 Exact present location of
the crusher.
- 1.6 Date on which purchased.
- 1.7 Date on which it was ac-
tually brought to the site of
its first location.
- 1.8 Date on which it was put
into operation at its first
site
- 1.9 Date on which it was actu-
ally put into operation at
its present site.
- 1.10 Had there been any-
change of the site of the
crusher during the year
1970-71 ?

Yes/No

1.11 If yes, give details as below :

Sr. No.	Name of the Site.	Date on which it was brought to the Site.	Date on which it actually commenced its work at the site.	Date on which it was removed to other site.	Remarks
1	2	3	4	5	6

1.12 Was the crusher found to be in working order on the day of visit ?

Yes/No

1.13 If no, what was the defect in its working.

1.14 Was the crusher in action on the day of visit ?

Yes/No

1.15 If no, what were reasons of its being lying idle.

Block II—Expenditure (costs) incurred on the crusher.

(A) Overhead costs (Rs.)

2.1 Actual Price of the crusher.

2.2 Price of the accessories of the crusher which were necessary for its working, give details as below ;—

(i) Apron feeders.

- (ii) Belt conveyors along-with motor and other accessories.
- (iii) Vibrating screens along-with motor and other accessories.
- (iv) Trucks with all its accessories and other materials.
- (v) Tractor, mobile workshop unit with tools.
- (vi) C.S.T. insurance, freight and transportation charges to the site.
- (vii) Cost of construction of sheds and other facilities provided at the site
- (viii) other miscellaneous charges.

2.3 Total cost of installation of the crusher with all its paraphernalia as detailed above (2.1+2.2).

(B) Supplementary costs.

2.4 Working expenses of the crusher during 1970-71 as detailed below :—

- (i) Electricity charges.

- (ii) Diesel oil, petrol and other lubricants.
- (iii) Spare parts.
- (iv) Repair and maintenance.
- (v) Other (specify)
 - (a)
 - (b)
 - (c)

(C) Staffing position and its expenditure.

2.5 Give the details of the staff employed to look after the running of the crusher during 1970-71.

Sr. No.	Name of the category of the employee.	Number of persons employed	Total em- moluments drawn dur- ing the period (1970-71)	Whole time or part- time.	Remarks.
1	2	3	4	5	6

- 2.6 Any other expenditure (cost overhead and supplementary) incurred on the maintenance of the crusher which has not been accounted for in block No. II above.

**Block No. III out put of the crusher (during 1970-71)
and its working.**

- 3.1 Please provide the following details about the working and out put of the crusher since its installation.

Sr. No.	Months/ period	Total No. of days in the month.	Total days for which it remained in operation.	Hours worked per day.	Total output in tons during the period.	Price of output as if it has been purchased from the private crushers (per ton)
1	2	3	4	5	6	7

- 3.2 Period (days and hours) for which the crusher remained out of use/order during 1970-71.
- 3.3 Reasons why it remained out of order/use during 1970-71 as detailed below:-

Period for which it remained out of use/order.	*Reasons for its being out of order/use.	Loss in money terms due to its being out of use/order.
--	--	--

*Reasons should be probed deeply so as to take stock of its actual utilisation and under-utilisation.

- 3.4 Do you feel that it has been beneficial for the State to instal the crusher instead of getting material from private crushers. Yes/No
- 3.5 If yes, in which way it has been beneficial ?
- (a) Financially
 - (b) Qualitatively
 - (c) Quantitatively
 - (d) Timely
 - (e) Any other (specify)
 - (a)
 - (b)
 - (c)

Block IV General

- 4.1 What is the normal life of the crusher ?
- 4.2 What is its present depreciated value ?
- 4.3 For how many hours the crusher can work keeping in view its reasonable functioning ?
- 4.4 Was it worked satisfactorily or there were some defects ?

- 4.5 What is the present total capacity of the crusher per hour ?
- 4.6 Is there had been any difference in its capacity from the period when it was bought ?
- 4.7 If the capacity has decreased please give the reasons for its decrease ?
- 4.8 When the road development programme is over, after a specific period of time, will it be possible to utilise the crushers to full capacity? If so, in which way.
- 4.9 If not, in your opinion should the purchase and operation of stone crushers be excentuated/ curtailed or remain the same.
- 4.10 What are your views if instead of putting crushers into operation, manual labour is employed. Will this not create employment opportunities in such a way that the programme is not effected.
- 4.11 Is the present demand being

met departmentally or still the material is purchased from the private crushers ?

- 4.12 Has the installation of departmental crushers effected adversely the private crushers? If yes, in which way.
- 4.13 Demand for more 14 crushers in addition to the existing 10 has been put up by the department. Will this demand be sufficient to carry out the road programme as stipulated.
- 4.14 What is the procurement price of material (Stone Bajri) during the following years :-
- (a) 1968-69
 - (b) 1969-70
 - (c) 1970-71
 - (d) 1971-72
- 4.15 Total approximate quantity got crushed by the private crushers during the years :—
- (a) 1968-69
 - (b) 1969-70
 - (c) 1970-71
 - (d) 1971-72
- 4.16 Remarks and views of the investigator/Ex.EN of the circle :—