

૧૮૭

અદ્ય.

૨૫૪

TRIBAL WORKERS ENGAGED IN
CONSTRUCTION WORKS

(A-Techno-Economic Study)

Report-Writing :

Arun B. Patel

Simon F. Macwan

English Version :

R. B. Lal

Simon F. Macwan

Editing :

Dr. T. B. Naik

R. B. Lal



**Tribal Research and Training Institute
Gujarat Vidyapith, Ahmedabad-380014**

1984

143

**TRIBAL WORKERS ENGAGED IN
CONSTRUCTION WORKS
(A-Techno-Economic Study)**

Report-Writing :

Arun B. Patel Simon F. Macwan

English Version :

R. B. Lal Simon F. Macwan

Editing :

Dr. T. B. Naik

R. B. Lal



**Tribal Research and Training Institute
Gujarat Vidyapith, Ahmedabad-380014**

1984

143

C O N T E N T S

<u>Chapter No.</u>	<u>Title</u>	<u>Page No.</u>
I	INTRODUCTION	1-14
II	SOCIO-ECONOMIC CONDITIONS OF TRIBAL LABOURS	15-36
III	PROBLEMS OF TRIBALS LABOURS IN THE CONSTRUCTION FIELD	37-52
IV	TOOLS AND EQUIPMENTS USED IN CONSTRUCTION WORKS BY TRIBALS	53-81
V	SUMMARY AND RECOMMENDATIONS	82-92

PREFACE

In our country, considerably work has been done in the field of research on socio-economic life and social problems of Scheduled Castes and Scheduled Tribes and other backward sections of the society, particularly after the independence. In Gujarat too, a number of descriptive and applied research works, related to scheduled castes and scheduled tribes, have been carried out. But, it is remarkable to note that there has not been ~~only~~ any in-depth study on the problems of thousands of tribal migrants, migrating seasonally in search of labour and about their exploitation during their working in the factories and in construction works. In view of this, it was an appropriate and timely decision taken by the Rural Technology Institute, Gandhinagar to undertake an in-depth study on techno-economic aspects of tools and equipments that ^{were} tribal labourers engaged in construction works use.

We take this opportunity to express our hearty thanks to the Rural Technology Institute, particularly to ^{Dr.} Shri K.N. Shelat, Director of the Institute for entrusting the Tribal Research and Training Institute, Gujarat Vidyapith to conduct this research Project as well as giving generous financial aid and proper guidance. We would also like to express our ^ggratitude to Shri S.D.R. Malik and Dr. Arbind Sinha, the then Project Economist and Project Manager of the Rural Technology Institute to help us from time to time.

Dr.T.B.Naik, our Director has always provided us inspiration and proper guidance in conducting this project. We are very much indebted to him for putting faith in us.

Shri R.B.Lal, Senior Officer of this Institute, and who was initially associated with this project, has given us guidance and has also given necessary training to us and to our colleagues. He has also edited this report. We thank him for his contribution.

Our colleagues Shri Ramesh Patel, Shri Rahul Bhatt, Shri Hamabhai Seta and Shri Dhirajlal Bhil have done excellent work in data-collection during very hot days of the last summer. They had taken lot of pain in collecting even minutest details needed for this project. They are grass-root contributors, for the success of this study, if any. We thank each of them for their hard work.

We are also extremely thankful to our respondents and resource persons without whose cooperation this project could not have been completed.

We would also like to express our deep gratitude to the experts who very critically examined the first draft of the report and gave valuable suggestions to improve the report.

Our thanks also go to our senior Colleagues at the Institute, Shri M.I.Masvi, Shri G.P.Pandya, Smt. Bhartiben Desai and Shri Bhikhabhai Patel for providing us guidance whenever we approached them.

In the end, we express our gratitude towards each one who has directly or indirectly helped us in carrying of this research.

Arun B. Patel

- Simon F. Macwan

CHAPTER I

INTRODUCTION

According to the latest 1981 Census, the total population of the Gujarat State is 3,40,85,799 among which the scheduled tribe population is 48,48,586 (14.22%). There are 28 major and minor tribes in Gujarat which speak 24 different dialects. Gujarat ranks fourth position in the country so far tribal population is concerned. The tribal population in the State is concentrated in hilly and forest regions of eight districts, covering thirty three talukas, in the eastern belt. Apart from this, the tribal population is also found here and there in scattered form.

The tribals of Gujarat, likewise elsewhere in the country, are simple, hard working and depending upon scanty resources of their livelihood available.

Tribal Economy

Several Anthropologists like Grose, Ford, Hars, Kovidias, Hurnfels and Tharnwal have studied the economic system of the tribals living in different parts of the world. On the basis of their analysis, the tribal economic life displays the following important characteristics.

1. Economy based on natural resources:

As stated earlier, the tribal population is concentrated in the forest and hilly terrain of the eastern-belt. The tribals of this area used to clear certain patch of the forest in order to make the land suitable for permanent cultivation. They also depended on the forests for collecting vegetables,

a variety of eatable roots, fruits and herbs for their survival. Quite a big number of the tribal families are also found engaged in forest labour work as well as in the collection of minor forest produces. A good number of the tribals are also seen working in the quarries. At some places they are also engaged in excavation of minerals. Thus, their major economic activities revolve round the natural resources available in the forests and hills.

2. Production and consumption

It has also been pointed out earlier that the tribals are simple and a self-satisfied lot. As a result of this, their requirements for living are not much. These are usually available at local-level or in the nearby market towns. Secondly, they always try to save the grains and other agricultural produces for meeting the requirement of the family during the lean period of the year. Thirdly, whatever articles they manufacture, they produce to meet their own requirements or at best for supplying to members of their communities, living in the immediate neighbourhood. For example, tribals are generally skilled in rope-making. But they use their skill only when they require ropes otherwise not. Very few of them pursue rope-making activity as a subsidiary economic activity. Some tribal groups have also acquired skill in making bricks and country-tiles. But these tribal artisans also do not use their know-how for their economic betterment. They make bricks and country-tiles when they construct

own houses. Due to living in the forest areas, many tribals have developed skill in carpentry as well as blacksmithy. But they make certain furniture articles or make repairs of such articles only during the leisure-time. They neither do their work on regular basis nor keep all necessary tools and equipments and even some of them may be found to keep such tools and equipments, these will not be in good condition. Thus, on the whole, ~~and~~ although the tribals are found to possess considerably good skill, they do not make use of their skill for earning a regular income. The attitude to make the use of their skills for earning subsidiary income is found to be lacking among them.

3. Mutual cooperation

Element of cooperation is found to be deeply rooted not only in the tribal economy but also in their every aspect of life. In each and every activity whether it is concerning economic or social or cultural or religion, involvement of the members of their own ethnic group and also members of other tribal communities is the normal pattern. For example, when a tribal family has to construct their own new house relatives, the members of its own community and also the members of other communities living in the village would definitely extend their cooperation and assistance in one way or other they would get involved. Some persons would bring wood-pillars from the forest while some would make mats out of bamboo chips. Somebody may do necessary carpentry work while others would just give their helping hand in the erection of the walls or thatching of the roof.

: 4 :

As result of mutual cooperation in the pattern of economic activities, exchange through media of money is not a dominant factor. Instead, the barter system is still a prominent feature of the tribal economy.

4. Religious beliefs

Religious beliefs, myths, faith in super natural elements etc. have tremendous impact on the total life of the tribals. They celebrate many festivals and ceremonies during the year which throw adequate light on this. To quote one instance, the tribals celebrate the ceremony of 'Lilchari' before they give fresh grass of the year as fodder to their cattle. Thus, performance of ceremonies, making offerings and sacrifices etc. have important part in their socio-economic life.

Economic base of the tribal economy is agriculture. A vast majority of them are found engaged in agricultural activities including agricultural labour. But for most of the tribals it is difficult to sustain themselves from agriculture alone. They are unable to produce enough food grain which may meet their requirements for the entire year. A number of reasons are responsible for this kind of situation. The main reason is the extremely poor quality of land due to hilly terrain in which the tribals live. Secondly, irrigation facilities, as elsewhere are almost completely lacking. Although several tribal farmers have got their own wells but these wells get dried soon after the monsoon season.

: 5 :

Thirdly, most of the tribal farmers do their farming by traditional method, instead of modern method. Most of them even do not use improved varieties of seeds and chemical fertilizers. Thus, due to all these factors their agricultural production is very low in comparison with the production made by the non-tribal farmers. Such a situation compels the tribals to find other occupations for earning subsidiary income. Their subsidiary occupations are agricultural and forest labour, collection of minor forest produce, labour in quarries, making rope, basketry, carpentering and blacksmithy work, labour work in factories, construction work, and in transportation. The list can be extended further. Most of the above subsidiary income generation activities are found to be done at local level. But even after taking up such subsidiary income generation activities at local level, they find it extremely difficult to maintain their families. On account of this they migrate in search of better wage giving labour work in different areas of the State and even outside the State. Many families migrate as soon as the agriculture season is over. These migrants are found to be engaged mainly in construction works as well as in factories.

The field of construction and tribal labours

In the modern age of to-day, the field of construction is expanding rapidly from one day to the next. A variety of new constructions are taking

: 6 :

taking place in quite a big way. Such construction works have been taking place not only in metropolitan cities but also in towns and villages. So construction has taken the form of a gigantic well organised and complex industry. As a direct consequence of this, opportunities for skilled and unskilled labour works at different levels are being created on a large scale. On one hand opportunities for labour work in construction activities have been increasing and on other side this labour work immensely and comparatively offers better wages, some extra benefits and incentives on the other hand. The contractors and the sub-contractors are found to prefer the tribal labourers in their construction works for two main reasons, first they are extremely hard working as well as honest, ~~some~~ and secondly they are prepared to work at comparatively lower wages which means that the contractors and sub-contractors get the supply of cheap labour by employing tribals.

Importance of the study

According to 1961 and 1971 Census, persons engaged in construction activities were 0.42% and 0.79% respectively in the State. It is obvious that construction labour work has wider importance, particularly for the tribals.

Several questions may arise in the minds of researchers, thinkers and social workers, such as how the tribal labourers get recruited in the construction activities, what kind of work they do, there? how they acquire skills for the different types of works in construction activities, etc?

Apart from these, some technical sort of questions may also crop up, such as from where they get the tools and equipments which they use while working? who are the owners of these tools and equipments? what is the quality of these tools and equipments? Are these sufficient possibilities to make these tools and equipments better by improving or by adding something extra? With a view to have a proper and correct understanding of the prevailing situation in this regard, a techno-economic study of the tribal workers engaged in the construction activities was taken up by this institute. This study was sponsored by the Rural Technology Institute, Govt. of Gujarat, Gandhinagar. The Rural Technology Institute was basically concerned with exploring the possibilities of augmenting the income of the tribal labourers by making concrete improvements in the tools and equipments which the tribal labourers had been using or by replacing the outmoded tools and equipments with modern ones, if need arise.

Objectives of the Study

This study is mainly concerned with technical as well as economic aspects in the field of construction labour, keeping in view mainly the tribal labourers engaged in construction activities. What are different types of tools and equipments that they use in their work? Whether these tools and equipments are manufactured in factories or at local-level? Whether they have to undergo some training to use these tools and equipments? If yes, what type of training is necessary? What types of raw material is used in manufacturing or repairing

18 :

the tools and equipments? What is the marketing system to sell these tools and equipments? Apart from these major points, it was decided to include some other points too in this study, such as:

- (i) To analyse major and minor activity in construction labour work including levels of skill of the tribal labours in all such activities.
- (ii) To understand the entire field of construction activities including what types of sub-contractors and labourers are required in different type of works, and how the labourers are recruited in different type of works, and how the labourers perform the job given to them.
- (iii) To find out the nature of hardships and problems which the tribal labourers have to face in their working.
- (iv) To collect information related to spare parts of tools and equipments that the tribal labourers use.

Methods of Data-Collection

Details regarding method or strategy of data collection adopted for this study are being given below :

1. Universe and Sampling:

The universe of this study is tribal districts of Gujarat e.g. Sabarkantha, Panchmahals, Vadodara, Bharuch, Surat, Valsad and Dangs. As Banaskantha District has only one tribal taluka, e.g. Danta, this district has been excluded from the scope of this study.

It has been already pointed out that the

the field of construction has been expanding very rapidly and has taken the form of a well organised and complex industry. A variety of new constructions have been taking place. Taking into view the entire range of construction activities, these can be grouped into the following six categories.

- (i) Construction and maintenance of different categories of roads.
- (ii) Construction and maintenance of railway tracks.
- (iii) Dam Construction (Rock-fill dick work at Navagam-Dam).
- (iv) Construction and maintenance of big buildings.
- (v) Construction of canals.
- (vi) Construction of houses at local level.

In this study, from each of the tribal districts one category of construction activity was covered.

The selection was made in the following manner :

<u>District</u>	<u>Category of Construction</u>
1. Panchmahals	: Construction and maintenance of railways.
2. Vadodara) Construction and maintenance of roads.
3. Sabarkantha	
4. Bharuch	: Dam construction.
5. Surat	: Construction of building
6. Valsad	: Construction of Canal
7. Dangs	: House construction and other minor construction works.

In all the six categories, skilled, semi-skilled and unskilled labourers are engaged, 75 families from each except local housing, construction, and other minor categories of labour work have been selected

: 10 :

for this study. From the latter category, 25 families have been covered. Thus, altogether 400 tribal families involved in the construction activities as labourers have been covered in this study.

With a view to having background material, library work had also been done. But there was not sufficient literature available on this subject as almost no work has been done in this sphere.

Techniques of Data Collection

1. Study of the families.

According to the design of the study, it had been decided to cover 400 families. Keeping in mind the broad objectives of the study, a primary family schedule had been constructed. Before it was canvassed, it was pretested. On the basis of the result obtained from pre-testing some additions were made in the final family schedule. The following are the major points which have been covered in the final family schedule.

- (i) Primary information about the members of the family (sex-wise, age-group-wise, skill-wise, education-wise classification and material status)
- (ii) In the second part of the schedule some points relating to different categories of labour, push and pull factors for joining this labour-force, various problems in labour works, rate of wages, attitudes of contractors and sub-contractors toward them, tools and equipments and training etc. have been covered.

It will be appropriate to mention here that before the family schedule was constructed the research team had visited several sites ~~was~~ where construction activities of different levels was going on. The team also discussed in greater detail about issues related to this study, with the labourers, Mukadams, Sub-Contractors, Contractors, Site-Engineers, etc. with a view to get sufficient insight and proper perspective.

2. Questionnaire for the Sub-Contractors.

In making this study adequate and critical one the contractors and sub-contractors involved in construction activities had also been interviewed. They play a dominant role and are directly involved with the labour force. In order to know their views, opinions, suggestions, limitations, problems, etc. a questionnaire was constructed in which following main points were covered.

1. Classification of the tribal labours working under particular sub-contractor according to their category as labourer (tribewise) and according to rate of wages given to labourers of different categories.
2. Types of works that are considered under semi-skilled and unskilled labour.
3. Types of works in which the tribal labours show better competency in comparison to non-tribal labourers.
4. Types of works which they are not able to perform satisfactorily even after gaining experience.
5. Opinion of the sub-contractor on the scope and possibilities of raising the level of performance of tribal labours.

With a view to get information on these points, the questionnaire was canvassed amongst 40 sub-contractors.

Case Study

This technique was also applied in this study. As the main focus of this study was on the tools and equipments that the tribal labourers use in their work, it was decided to make a thorough study of such tools and equipments that the tribal labourers use in their work, it was decided to make a thorough study of such tools and equipments through the case study technique. Secondly, labour cooperative societies have a significant role. In order to gain deep insight in their functioning, case study technique was applied to collect data from three labour cooperative societies. These societies have been working in Surat District.

Limitations and Problems of Study.

Several problems had cropped up in course of conducting this study. These problems and limitations can be divided into two phases e.g. problems and limitations faced during the data collection and secondly during the entire study .

Problems and limitations in data-collection.

- (i) The contractors engaged in construction do not activities/like to hold non-professional discussions. And this negative attitude is found also among the sub-contractors, mukadams, skilled workers and unskilled labourers. Due to this, the research team had to face lot of difficulty in collecting proper information. However, several

respondents, engaged in this field at different level had cooperated with us whole heartedly.

- (ii) Interview with the heads of the selected families was key-point in this study. But at almost construction sites it was observed that these family heads felt uncomfortable in giving response. So, the strategy was changed and the research team started contacting them at their respective houses. But even in this approach, several limitations confronted the team.
- (a) The labourers start their work at about 8-30 in the morning and continue upto late in the evening.
- (b) They had to travel some distance on foot to reach work-site and the vice-versa.
- (c) They had to spare some time in buying grains, jaggery, tea, eatables and other commodities of daily use while coming back to their home. So they used to feel terribly exhausted when the research team was to contact them for interviewing.
- (d) The data collection work was undertaken during the summer season, which is also the marriage season for the tribals. Due to this the respondents were not readily available. One had to make several visits.
- (e) When the research team visited Panchmali village, the villagers were being shifted as the village is to be submerged in the Narmada dam. The team had to face immense hardships to get lodging and boarding in that village.

- (f) The written permission from the railway authority for collection of data from tribal workers working in railways was not given to the team.

Limitations and problems during the study.

- (1) Although this institute has rich and vast experience in tribal research, it was not ~~not~~ easy to conduct this study as it was a novel one and little different too. This study was first of its kind in Gujarat. Relevant reference material was also not available. Due to these factors, some difficulty was faced in giving this study a proper shape.
- (2) Knowledge to civil and mechanical engineering was very much needed in this study. But this Institute has no expertise in this matter, it had to consult experts from elsewhere.
- (3) Duration of this project was little bit short. And in such a short duration sufficiently detailed information was not easy to collect.

CHAPTER IISOCIO-ECONOMIC CONDITIONS OF TRIBAL LABOURERS

The tribal population in this State is 14.22% in the total population among the total tribal population and 90.67% of the tribals are found to be engaged in the primary sector i.e. as agriculturists and agricultural labourers. The proportion of tribal agriculturists and tribal agricultural labourers is 48.34% and 42.33% respectively. But for the agriculturists, it is very difficult to make two ends meet from what they are able to produce. As stated earlier there are several factors responsible for such a precarious situation. The agricultural land which they possess are of poor quality. Further they own comparatively less amount of land. Majority of the tribal farmers own below 5 acres of ^{several} land. Another reason for their poverty is that/tribal farmers possess land on record only. In reality, most of land of such farmers is under direct or indirect control of big farmers, money-lenders and other vested interests.

The problems of the landless tribal labourers are even more acute than the problems of the land owning tribal farmers. They are victimised socially, economically and physically. They cannot even get sufficient labour opportunities in the same village or in surrounding villages. Due to such a situation, they do not find any alternative other than to migrate to cities or elsewhere to get work as labourer in construction works or in factories. As they are able to ^{earn}/comparatively better wages in construction works every year thousands and thousands tribals leave their native places either temporarily or permanently.

As has been discussed earlier, out of the 19 districts in Gujarat State, 8 districts are considered as tribal districts as these districts possess more than 50% tribal population in the total population of respective districts. There are 28 different tribal groups in the State. Of these, Bhil is the largest tribal community in the tribal labour force engaged in construction activities, it is the Bhil community which is in great majority. This is amply reflected from the figures given in Tables 1 and 2.

According to Table 2, out of total 400 families, 217 families (54.25%) were from the Bhil tribe alone while proportion of other tribes were as follows: 78 Tadvis, 33 Rathas, 19 Dungari-Garaaiyas, 17 Patelias, 8 Dhor-Kolis, 6 Dublas, 5 Chaudharis, 4 Naikas, 4 Va-avas, 4 Dhodies, 3 Gamits and 2 Kuknas. According to Table 1, in all categories of works, the Bhil labourers were in majority. It appears that the Bhils labourers have earned a good reputation and they have also developed the requisite know-how of labour work in construction activities.

TABLE - 1

District-wise, category-wise and tribe-wise distribution of the surveyed households.

No.	Name of District	Sub-division of works	Name of Tribe	No. of households
1	Panchmahals	Construction and maintenance of railway tracks	Patelia	14
			Bhil	<u>61</u> 75
2	Vadodara	Construction and maintenance of roads	Rathwa	25
			Bhil	20
			Tadvi Bhil	3

3	Sabarkantha	Construction and maintenance of roads	Naika	4	
			Dungari-Garasiyas	19	
			Bhil	<u>4</u>	75
4	Bharuch	Construction of Dam-Site	Tadvi		
			Bhil	67	
			Rathwa	<u>8</u>	75
5	Surat	Construction of buildings	Bhil	40	
			Dubla	6	
			Dhor-Koli	8	
			Patelia	3	
			Tadvi	8	
			Chaudhari	3	
			Vasava	4	75
5	Valsad	Construction of Canal	Dholia	4	
			Kukna	2	
			Chaudhari	2	
			Bhil	67	75
6	Dangs	Construction of local level housing	Bhil	25	25
				<u>-----</u>	<u>-----</u>
			Total:	400	400

TABLE 2

Tribewise distribution of the households.

No.	Name of tribe	No. of families	Percentage
1	Bhil	217	54.25
2	Tadvi Bhil	78	19.50
3	Rathwa	33	8.25
4	Dungari Garasiya	19	4.75
5	Patelia	17	4.25
6	Dhor-Kolis	8	2.00
7	Dubla	6	1.50
8	Chaudhari	5	1.25
9	Naika	4	1.00
10	Vasava	4	1.00
11	Dhodia	4	1.00
12	Gamit	3	0.75
13	Kukana	2	0.50
		<u>-----</u>	<u>-----</u>
Total:		400	100.00

Coming to the educational status, main occupation and subsidiary occupation of the head of the surveyed households, it was found that of the total 400 households in case of 69.50% the head was illiterate, while out of the remaining 30.50% household heads, 26.25% had got primary education, 3.25% have got secondary education and only 0.50% had got college-level education. Work category-wise educational classification of the heads has been shown in Table - 3. According to the figures given in Table 4 regarding the main occupations and subsidiary occupations of the surveyed households, 47.50% households were depending upon agriculture, 42.25% households were depending upon labour in construction work. Of the remaining households, 6.25% on forest labour, while 3.50% on miscellaneous sources. All the 25 selected households from the Dang District were dependent on forest labour work as the main source of livelihood. On the basis of work category-wise classification of the labour it was found that labour from building construction constituted 77.33 percent, railway construction 50.67%, road construction 48.00%, dam-construction 48.00% and canal construction 1.33%. In other words above percentages of households had accepted labour work as their main occupation. Out of the 400 households, 3.77 were also pursuing subsidiary occupations. And out of these ~~3x37~~ 377* households, 48.19% were in construction labour, 27.06% in agricultural labour 23.60% in agriculture and only 1.33% in forest labour as subsidiary occupations.

* several households were also having more than one subsidiary occupation.

Table : 3

Educational status of the of the selected households.

No.	Category of works	Illiterate	Primary education	Secondary education	College-level education	Total literate	Total
1.	Railway Construction	53	21	1	-	22	22
2.	Road Construction	55	18	2	-	20	75
3.	Dam- Construction	42	29	4	-	33	75
4.	Building Construction	53	18	4	-	22	75
5.	Canal Construction	56	15	2	2	19	75
6.	Local-level housing Construction	19	6	-	-	6	25
Total :-		278	107	13	2	122	400
		(69.50%)	(26.75%)	(3.25%)	(0.50%)	(30.50%)	(100.00%)

Table : 4

Work Category-wise Classification of the households, according to main and subsidiary occupations.

No. Category of works	Main Occupations		Subsidiary Occupation				Total		
	Agriculture	Forest Construction Labour	Miscellaneous	Service	Total	Agriculture		Forest Construction Labour	Miscellaneous
1. Railway Construction.	29 (38.67%)	38 (50.67%)	8 (10.66%)	-	75 (100.00%)	6 (8.45%)	26 (36.62%)	39 (54.93%)	71 (100.00%)
2. Road Construction	33 (44.00%)	36 (48.00%)	4 (5.33%)	2 (2.67%)	75 (100.00%)	37 (44.05%)	21 (25.00%)	21 (25.00%)	84 (100.00%)
3. Dam Construction	39 (52.00%)	36 (48.00%)	-	-	75 (100.00%)	22 (28.95%)	54 (71.05%)	-	76 (100.00%)
4. Building Construction.	15 (20.00%)	58 (77.33%)	2 (2.67%)	-	75 (100.00%)	11 (23.91%)	14 (33.43%)	21 (45.66%)	46 (100.00%)
5. Canal Construction.	74 (98.67%)	1 (1.33%)	-	-	75 (100.00%)	1 (1.33%)	66 (88.00%)	8 (18.67%)	75 (100.00%)
6. Local/housing Construction.	-	25 (100.00%)	-	-	25 (100.00%)	25 (100.00%)	-	-	25 (100.00%)
Total :-	190 (47.50%)	25 (6.25%)	14 (3.50%)	2 (0.50%)	400 (100.00%)	102 (27.06%)	5 (1.33%)	181 (48.01%)	377 (100.00%)

There were altogether 2361 members among the surveyed households, the number of males and females being 1303 and 1058 respectively. So average size of the family is 5.9. According to figures given in Table 5, among the male population, 15.89% were in the 0-6 age group, 19.80% between 7 to 14 years, 21.95% between 15 to 24 years, 22.87% between 25 to 35 years, 19.11% between 36 to 60 years and only 0.38% above 61 years, whereas among the female population 17.96% were below six years of age, 16.64% between 7 to 14 years, 23.82% between 15 to 24 years, 22.95% between 25 to 35 years, 18.71% between 36 to 60 years and only 0.28% above 61 years of age. Figures of age-classification according to work category has been given in Table-6. Detailed information about marital status of the members of the surveyed households has been given in Table-6. According to these figures among the males, 46.58% were married, while 50.04% were unmarried, while remaining 3.07% and 0.31% were widower and divorced respectively. Among the female population, 56.71% were married and 41.59% were unmarried while remaining 2.17% and 0.09% were widowed and divorced respectively.

Age-wise distribution of the household members according to different categories of works.

Sr. No.	Categories of works	Between 1 to 6 years		Between 7 to 14 years		Between 15 to 24 years		Between 25 to 35 years		Between 36 to 50 years		Above		Total	Total No. of members.
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1.	Railway Construction	42	31	67	34	60	47	32	59	49	1	276	204	480	
2.	Road Construction	34	27	49	35	46	75	58	54	36	2	260	212	472	
3.	Dam- Construction.	45	42	40	28	51	56	55	39	30	2	231	202	433	
4.	Building Construction.	21	15	36	22	44	55	35	34	27	1	191	142	333	
5.	Canal Construction.	43	58	63	55	82	44	39	58	54	1	291	251	542	
6.	Local-level housing Construction.	22	18	3	2	3	5	20	5	2	-	54	47	101	
Total :-		207	190	258	176	286	252	298	239	249	198	1303	1058	2361.	

Table : 6

Marital Status of the household members according to different categories of works.

No. Categories of works	Married		Unmarried		Widower		Widow		Divorced		Total	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1. Railway Construction	126	122	145	79	5	3	-	-	-	-	276	204
2. Road Construction	133	130	112	76	15	6	-	-	-	-	260	212
3. Dam Construction	108	108	113	90	9	4	1	-	-	-	231	202
4. Building Construction	104	104	82	35	5	3	-	-	-	-	191	142
5. Canal Construction	109	109	173	134	6	7	3	-	1	-	291	251
6. Local level housing Construction.	27	27	27	20	-	-	-	-	-	-	54	47
Total No.	607	600	652	434	40	23	4	1	-	-	1303	1058
Percent.	46.58%	56.71%	41.59%	3.07%	2.17%	0.31%	0.09	0.09	0.09	0.09	100.00	100.00
			50.04%									

: 23 :

According to figures shown in Table 7, 1237 were earning members among the surveye# households which indicated that on an average a household had 3.09% earning members. As seen earlier, the household size was 5.09. This meant that more than half the number of the total members in the households had been in gainful employment. Among 1237 earning members, 1191 forming 96.28% were above 14 years of age while 46 members, 3.72% were below 14 years which clearly revealed due to the extremely poor economic conditions, even children below 14 years of age have to do labour work which was^a clear contravention of the labour laws. These child labourers do different works like sweeping the roads before carpeting, pouring water on roller etc. hauling of stone-chips in wheels, stones etc. Among the non-earners, 529 (40.60%) were males while 595 (56.24%) were ~~same~~ females. This corroborate the well-known feature of tribal society that their women actively contribute in the earning of livelihood for the family. ₹

Table : 7

Distribution of earning members of the households according to different category of works.

No.	Sub-division of works	Above 14 year of age	Below 14 years of age	Total
1.	Railway Construction	207	10	217
2.	Road Construction	238	11	249
3.	Dam Construction	227	4	231
4.	Building Construction	174	5	179
5.	Canal Construction	289	16	305
6.	Local level housing Construction.	56	-	56
Total No.		1191	46	1237
Pc.		96.28%	3.72%	100.00%

TABLE - 8

Sex-wise distribution of earners and non-earners according to different categories of works.

No.	Sub-Division of Works	Earning		Non-earning		Total	
		Male	Female	Male	Female	Male	Female
1	Railway construction	166	51	110	153	276	204
2	Road construction	170	79	90	133	260	212
3	Dam-Construction	126	105	105	97	231	202
4	Building construction	123	56	68	86	191	142
5	Canal construction	160	145	131	106	291	251
6	Local level housing construction	29	27	25	20	54	47
Total:		774	463	529	595	1,303	1,058
percentage		59.40	43.76	40.60	56.24	100.00	100.00

It was found that the earning members of a household neither got the work at one place nor in the same category of work. According to figures given in Table 9, regarding the main occupations of the earning males, 64.25% were working as construction labourers, 15.25% as agriculturists 11.37% as agriculture labourers, 4.13% as forest labourers, 1.94% as household workers, and only 0.90% were in service. The remaining 1.16% were engaged in unclassified work. Among the female earning members, 60.48% were engaged in construction labours, 7.78% in agriculture, 19.22% in agriculture labour, 5.82% in forest labour, 5.40% household works and 1.30% in services. It is noteworthy that in the category of Railway construction work none of the female labourers reported it as main occupation. While in Dangs district, all the male and female earners working as forest labourer reported it to be their main occupation, while construction labour work was one of the subsidiary occupations for them. Although they practiced agriculture too, they were having very low yield. Due to this as soon as the season of agriculture was over, they migrated to places where labour work was available. However, most of them preferred to find labour work at nearby places. It was found that in works concerned with construction of roads, canal, and dam, thousands of tribals get engaged. At Navagam dam site, even the labourers from Bihar were also found working during the period of survey. These

Bihari labourers had been employed by one construction company while the local tribal labourers were in the employment of another construction company. The company which employed the Bihari labourers paid wages to them @ Rs.15.00 per day. Housing and transportation (to and fro) facilities had also been provided with. The company also supplied them the necessary tools and equipments to them. While the local tribal labours were being paid wages by their contractor @ Rs.11.20 NP. per day. They had to meet expenses on transport by themselves. Further, these local tribal labours were engaged for the labour work by the contractors if they could bring their own tools and equipments. They also complained that many a times they were not denied work as their tools and equipments were not in proper shape and were old and blunt. Such a condition was breeding dissatisfaction and resentment among them.

Generally, when the tribals migrate in search of labour work, they migrate with almost all their children including school going children. Now, this certainly brings adverse impact on the education of their school going children. In several villages the school teachers have to face problems in running the school because of the large number of absence. Proper evaluation of the absentee students poses lot of hazard for the school teacher at the time of annual examination. In order to prevent the Government from stopping the release of the grant, the teachers adopt the practice of showing certain number of students having passed out the annual examination even if those students might not have attended the school regularly.

: 29 :

As shown in Table 10, ~~the sample~~ of the 1303 males in the sample, only 30.85% were literate. While among the females, only 11.15% of total number were literate. On further analysis of the figures it could be seen that of the total number of literature males, 82.83% had primary education, of the remaining 2.99% and 14.18% had received college and secondary education respectively. Among the literate females, 8.48% and 91.52% had got secondary and primary education respectively. None of them had received college level education. It was obvious that comparatively very few family members had secondary education. It can be safely concluded that the educationally very backward tribes are victimised due to the precarious poverty/^{which compel maximum members} of the households to do labour work.

Figures given in Table 12 regarding annual income of the surveyed households through various sources reveal that the total annual income for all the 400 households was Rs. 14,43,191. Thus, the average annual income per household would be Rs. 3,608. This meant that almost all the households were living below the poverty line.

TABLE -9

Occupation-wise distribution of the household members according to the different category of works

No. of works	Constru- ction		Agriculture		Service		Agriculture Labour		Forest Labour		Household work		Others		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	Railway construc- tion	88 (53.1)	-	34 (20.48)	2 (3.03)	5 (3.01)	6 (11.76)	33 (19.88)	43 (84.31)	-	-	-	6 (3.62)	-	166 (100)	51 (100.0)
2	Road construc- tion	109 (64.12)	42 (54.16)	30 (17.64)	4 (5.7)	2 (1.18)	-	27 (15.88)	33 (41.77)	-	-	-	2 (1.18)	-	170 (100.0)	79 (100.0)
3	Dam construc- tion	54 (42.86)	65 (61.91)	50 (39.68)	28 (26.27)	-	-	19 (15.8)	6 (5.71)	3 (02.38)	-	-	6 (5.71)	-	126 (100.0)	105 (100.0)
4	Canal construc- tion	146 (91.24)	132 (91.3)	4 (2.50)	2 (1.38)	8 (5.00)	-	7 (4.83)	-	-	4 (2.76)	14 (0.63)	1 (0.63)	-	160 (100.0)	145 (100.0)
5	Building construc- tion	108 (87.80)	41 (13.21)	-	-	-	-	1 (0.81)	-	-	14 (11.39)	15 (26.79)	-	-	123 (100.0)	56 (100.0)
6	Local level housing construc- tion	-	-	-	-	-	-	-	29 (100.0)	27 (100.0)	-	-	-	-	29 (100.0)	27 (100.0)
Total:		505 (64.25)	280 (60.48)	118 (15.25)	36 (7.78)	7 (0.90)	6 (1.30)	88 (51.37)	89 (19.22)	32 (4.13)	15 (5.02)	25 (1.94)	9 (1.16)	-	774 (100.0)	463 (100.0)

* Percentage is given in the bracket.

TABLE : 10

Work-category wise distribution of household number according to their educational achievements.

No. Sub-Division of Works	Standard of Education												College going	Total. Total illiterate	Total members														
	1	2	3	4	5	6	7	8	9	10	11	12																	
1. Railway construction	9	3	19	8	1	4	20	5	17	3	5	2	9	2	5	1	1	1	16	2	1	-	116	27	160	177	276	204	
2. Road construction	6	2	7	7	9	6	20	14	9	-	4	-	7	2	1	-	5	-	-	-	-	-	82	17	178	195	260	212	
3. Dam construction	5	6	12	16	14	3	15	1	6	1	8	3	4	1	-	3	1	3	1	5	1	3	-	75	33	156	169	231	202
4. Building construction	4	1	12	1	4	2	9	1	7	1	6	1	1	1	1	1	1	1	6	-	1	-	52	8	139	134	191	142	
5. Canal construction	2	3	23	7	11	6	8	6	6	3	4	5	3	-	2	1	1	1	3	-	7	-	70	31	221	220	291	251	
6. Local-level housing construction	-	1	4	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7	2	47	45	54	47	
Total:	26	16	77	39	54	18	72	13	51	8	32	11	21	3	15	5	7	2	35	3	12	402	118	901.940	1058	1393			

Further, looking into the figures about different sources of income, it was found that maximum income i.e. 72.40% was from construction labour, while 17.53% , 4.74% , 2.08% , 0.96% , 0.91% , 0.34% , 0.30% and 0.04% from agricultures, agriculture labour, services, selling fuel-wood, forest labour, pastoral activities, minor forest produce and household industries respectively. It was notable that in the Dangs district none of the households did earn through construction labour. Apart from this category of work, in all other categories of works the labourers got good remuneration. Looking into further detailed figures, they get maximum labour income e.g. 81.93% through building construction while remaining 75.99% , 70.88% , 68.94% and 56.21% through railway track construction, road construction, canal construction and dam construction.

However, households engaged in dam construction labour had been living in the surrounding villages and almost all were pursuing agriculture too. It was apparent that all such households did agriculture or agriculture labour but as they were not able to maintain their family from this source alone they went out for labour work and strived for earning more income. But even then they were found to live below the poverty line.

Among the surveyed households, 16.75% were found to be indebted. These 67 indebted households were having a debt of Rs.83,800, meant that each of the indebted household had on an average debt of Rs.125/. If we classify the debted households according to the different categories of works, 27 were from road construction, 23 from railway construction, 6 from dam construction, 6 from building construction and remaining 6 from canal construction. Maximum debt of Rs.2267 was found among households engaged in building construction while the lowest amount of debt was found among the households engaged in local level housing construction.

Although majority of the households had been living an existence of below the poverty line, the number of indebted households was comparatively quite low. It was because they have nothing to put against getting loan. Due to this no money tender felt safe in advancing money to them on loan.

TABLE - 11

Annual income gained through various occupations

Sl. No. of works	Category	Agriculture	Pastoral activity	Forest labour	Minor Forest Produce	Construction labour	Agriculture labour	Household Industry	Service	Other income	Total income
1.	Railway construction	75,055 (19.11)	1,050 (0.27)	-	-	2,98,469 (75.99)	982 (0.25)	-	17,200 (4.38)	-	3,92,756 (100.0)
2.	Road construction	36,100 (14.14)	-	-	-	1,81,018 (70.89)	22,650 (8.87)	-	15,600 (6.11)	-	2,55,368 (100.0)
3.	Dam construction	48,165 (25.37)	2,850 (1.50)	4,090 (2.15)	2,000 (1.5)	1,06,705 (56.21)	17,730 (9.34)	600 (0.32)	7,700 (4.6)	-	1,89,840 (100.0)
4.	Building construction	18,430 (6.7)	-	-	-	2,70,150 (88.95)	15,200 (5.00)	-	-	-	3,03,080 (100.0)
5.	Canal construction	75,200 (27.50)	1,050 (0.38)	730 (0.27)	2,350 (0.86)	1,88,532 (68.94)	4,600 (1.68)	-	1,000 (2.37)	-	2,73,462 (100.0)
6.	Local level housing construction.	-	-	8,335 (29.78)	-	-	5,800 (20.73)	-	-	13,850 (49.49)	27,985 (100.0)
Total:		2,52,950 (17.53)	4,950 (0.34)	13,155 (0.91)	4,350 (0.30)	10,44,874 (72.40)	66,962 (4.64)	600 (0.04)	41,500 (2.88)	13,850 (0.96)	14,42,391 (100.0)

Statement regarding amount and source of debt of indebted households.

No. of works	Sub-division	Money lender/Trader	Government	Bank	Co-operative Society	Relatives	Contra-Mukhadam	Total	No. of indebted families	Average debt of family.
1	Railway Construction	14,500	9,800	4,000	400	-	-	28,250	23	1,228
2	Road construction	22,000	-	1,900	3,100	6,700	-	33,700	27	1,248
3	Dam construction.	5,500	-	-	-	-	-	5,500	6	917
4	Building construction	-	400	6,000	7,200	-	-	13,600	6	2,267
5.	Canal construction	2,250	-	-	500	-	-	2,750	5	550
6	Local level housing construction	-	-	-	-	-	-	-	-	-
Total:		43,800 (52.27)	10,200 (12.17)	11,900 (14.20)	11,200 (13.37)	6,700 (7.99)	-	83,800 (100.0)	67	1,250

Figures in bracket show percentage.

Out of total amount of debt of the indebted households, 52.67% was taken from money lenders or traders, while 14.20% from Banks, 13.37% from cooperative societies, 12.17% from Government and 7.99% from relatives. They generally took loan from money lender either for meeting household expenses or for meeting the expenses on certain social occasions.

The following problems emerge from the foregoing discussion.

1. Landless labourers were in the worst living condition.
there
2. As they do not exist enough opportunities to get labour work in their own areas, they have to migrate to other areas in search of labour work, due to which disintegration in their family organisation takes place.
3. They cannot get regular labour work even at the places where they migrate.
4. They get quite low wages when seen from the point of hard work they have to do as well as the ever-increasing cost of living.
5. As they have to depend on labour work for their livelihood, in search of which they have to migrate, the education of their school going children is very adversely affected.

CHAPTER IV IIIPROBLEMS OF TRIBAL LABOURERS IN THE
CONSTRUCTION FIELD.

Tribals, particularly, the Bhils of Panchmahals are very well known as industrious and dependable labourers, whether it is skilled or semi-skilled or unskilled works. They migrate in search of labour work not only to nearby places but also to distant talukas and districts. Bhils of Panchmahals are found to be working as labourers even at places outside the State. The 400 households covered in this study were from 23 different talukas. 66 Bhil households of Panchmahals were found working in canal work at Dharampur taluka in the Valsad District. Tribal labours from 18 different talukas were found engaged in building construction in Surat City. Bhils of Panchmahals have ^{also} gained expertise in Railway construction works and so wherever construction would be undoubtedly found there. In railway construction works, all the households were from the Bhil community alone. While in certain types of works such as road and dam construction, almost all labours were either from local or from surrounding villages. In Dangs too, all labourers were local. Reasons for their majority in labour work have been elaborated in Chapter I.

TABLE 4.1

DISTRIBUTION OF SURVEYED HOUSEHOLDS ACCORDING TO
TALUKAS OF NATIVE PLACE.

No.	Taluka	Railway constru- ction.	Road const- ruction	Dam cons- truc- tion	Buil ding cons- truc- tion	Canal cons- truc- tion	Local level hous- ing const- ruction	Total
1	Jhalod	2	-	-	11	43	-	56
2	Dahod	68	5	-	22	-	-	95
3	Devgadh Baria	2	-	-	3	-	-	5
4	Godhra	1	-	-	2	-	-	3
5	Limkheda	2	-	-	1	1	-	4
6	Santrampura	-	35	-	3	22	-	25
7.	Chhotaudapur	-	35	-	-	-	-	35
8	Sankheda	-	12	-	1	-	-	13
9	Naswadi	-	-	9	-	-	-	9
10	Bhiloda	-	23	-	-	-	-	23
11	Nandod	-	-	66	6	-	-	72
12	Sagbara	-	-	-	3	-	-	3
13	Dediapada	-	-	-	1	-	-	1
14	Vyara	-	-	-	1	2	-	3
15	Mandvi	-	-	-	2	-	-	2
16	Songadh	-	-	-	1	-	-	1
17	Nizar	-	-	-	10	-	-	10
18	Choryasi	-	-	-	1	-	-	1
19	Dharampur	-	-	-	-	7	-	7
20	Amalsad	-	-	-	5	-	-	5
21	Chikhali	-	-	-	1	-	-	1
22	Pardi	-	-	-	1	-	-	1
23	Ahwa-Dang	-	-	-	-	-	25	25
Total :		75	75	75	75	75	25	400

: 39 :

Before discussion regarding the period since the tribal labourers have been working in construction works it will be worthwhile to keep in mind that essentially majority of them are seasonal labourers. When the agricultural season is about to start they go back to their villages to attend the agricultural operations in their own fields. So the term "year of work" should be taken as the season of working in a particular year only. Data on Dangri workers' length of period of working in construction labour has not been discussed here for the simple reason that they do not construct or repair their house or roof frequently. They do this work as and when needed. Table 4.2 show figures regarding length of period of working in construction labour. Altogether 375 households gave response to this question. Of the 375 households, 59.20% households had taken up labour work in construction works since less than one year only, while 21.33% households between one to five years' period, 9.70% between six to ten years' period, 6.40% between eleven to fifteen years' period, 1.60% between sixteen to twenty years' period, 1.87% between twenty four to twenty-five years and 0.53% for more than twenty six years period. The household form a working for less than one year of period were in dam-construction and canal construction on categories of works.

When asked as to who had motivated or influenced them to enter in construction labour field, 84.40% (out of 375 households) responded that they by themselves, on their own had taken up the job of wage labourers. The rest of the

informants entered into the labour force on the suggestions of relatives, leaders of village, contractors and mukadams. The main reason for entering into construction-labour force as pointed out in Table 3.4 was the abject, poverty of the surveyed households. 78.40 p.c. out of the total 375 respondents mentioned this factor which made them to take up the job of wage labourer in construction works. Of the rest, 12.25 p.c. took up labour work with a view to earn more income and 9.35% had no alternative since they had no cultivable land. In nutshell, these households had been in such poor economic situation that it had become impossible for them to maintain their households by jobs in their own area. It had become unavoidable for them to take up job of wage labourer in construction works. Although the ^{tribais} /leave their native place in search of labour work, they never remain sure whether they would certainly get labour work. At some construction sites more than needed number of labourers are available while at certain sites work cannot progress due to non-availability of labourers. So, in order to overcome these difficulties a system has been evolved through which needed labour force is recruited. This system is known as recruitment of labour which is not always the same in all types of construction works. The heads of the surveyed households were asked that who had recruited them in that particular work or in other words who had been instrumental in bringing them to this particular construction work, of the 375 households interviewed, majority

of them (78.13%) were recruited directly by the contractors, while 6.40%, 12%, and 3.47% were recruited by the mukadams, railway and P.W.D. Department. There were some permanent labourers in railway construction who were receiving regular salary while some labourers in the P.W.D. Department although referred to as permanent ones, were not being given regular salary. As per rules and regulations, they were being given daily wages only. In certain type of works, particularly excavation works, the contractors entrusted such works to sub-contractors or mukadams on brass-labour work. The sub-contractors or mukadams recruited labourers from the labour market and got such works completed. The sub-contractors or the mukadams paid the prevailing daily wages to the labourers irrespective of the fact that the labourers might have become entitled to get more money, if their wage was computed according to the brass labour work. In this way, the Mukadams and sub-contractors pocketed the profit which ought to have been given to the labourers. Of course, some times, these people have to bear loss too.

The members of the surveyed households working at dam construction sites and canal construction sites were usually brought or recruited by the contractors only.

TABLE 4.2

CATEGORY-WISE DISTRIBUTION OF SURVEYED HOUSEHOLDS ACCORDING TO THE PERIOD OF TAKING UP JOB OF WAGE LABOURERS

Sr. No.	Works category	Less than a year	1 to 5 years	6 to 10 years	11 to 15 years	16 to 20 years	21 to 25 years	more than 26 years	Total
1	Railway Construction	30	21	7	6	6	4	1	75
2	Road construction	23	22	18	8	-	3	1	75
3	Dam construction	75	-	-	-	-	-	-	75
4	Building construction	19	37	9	10	-	-	-	75
5	Canal construction	75	-	-	-	-	-	-	75
<hr/>									
Total		222	80	34	24	6	7	2	375
		(59.20)	(21.30)	(9.7)	(6.40)	(1.60)	(1.87)	(0.53)	(100.00)

TABLE 4.3

CATEGORYWISE DISTRIBUTION OF HOUSEHOLDS ACCORDING TO WHO DECIDED FOR JOINING THE LABOUR FORCE.

Sr. No.	Category of Works	Own self	Others	Total
1	Railway construction	66 (88.00)	9 (12.00)	75 (100.00)
2	Road construction	44 (58.67)	31 (41.33)	75 (100.00)
3	Dam construction	75 (100.00)	-	75 (100.00)
4	Building construction	68 (90.67)	7 (9.33)	75 (100.00)
5	Canal construction	71 (94.67)	4 (5.33)	75 (100.00)
Total:		324 (86.40)	51 (13.60)	375 (100.00)

TABLE 4.4

CATEGORYWISE DISTRIBUTION OF LABOURERS ACCORDING TO REASONS FOR TAKING UP JOB OF WAGE LABOUR.

Sl. No.	Category of works	Poor economic condition	Unavailability of land	Earning more income	Total
1	Railway construction	66 75 (78.12)	2 -	21 (21.88)	96 (100.00)
2	Road construction	73 (70.87)	-	30 (29.13)	103 (100.00)
3	Dam construction	56 (73.68)	20 (26.32)	-	76 (100.00)
4	Building construction	73 (92.40)	3 (3.80)	3 (3.80)	79 (100.00)
5	Canal construction	75 (78.95)	19 (20.00)	1 (1.5)	95 (100.00)
Total:		352 (78.40)	42 (9.35)	55 (12.25)	449 (100.00)

One of the important characteristics of tribal society is to live and to work together. Maximum time of a day, they pass in a group atmosphere. They have a strong group mentality. So while going out for labour work also they prefer to go in group. The respondents were also asked whether they went out to join labour work individually or in group, 88% respondents out of the total replied that they always went in group only, while only 12% went out individually. Those respondents who went alone were working as permanent labours in the railway construction works. Out of 375 families working in railway construction, 39 respondents were found working alone. In short, majority of the tribal labourers preferred to go in group only. They were further asked about the nature of their group. Out of the total 375 households, 50.67% preferred to go along with members, other households of the same village, 18.93% with their own families, 13.60% families with members of families living in the neighbourhood, 4.80% along with their relatives. The remaining 12% as mentioned earlier, went individually.

TABLE 4.7

CATEGORYWISE DISTRIBUTION OF HOUSEHOLDS ACCORDING TO THE NATURE OF GROUPS

Sl. No.	Category of work	Alone	Along with family members	Along with joint family members	Along with relatives	Along with families of village	Total
1	Railway Construction	35	-	13	2	25	75
2	Road construction	1	21	2	-	51	75
3	Dam construction	2	25	4	3	41	75
4	Building construction	5	19	16	-	35	75
5	Canal construction	2	6	16	13	38	75
<hr style="border-top: 1px dashed black;"/>							
Total:		45	71	51	18	190	375
		(12.00)	(18.93)	(13.60)	(4.80)	(50.67)	(100.00)

45

6.

As mentioned earlier the labourers were earning better wages so that they ~~we~~ might be able to meet the two ends for maintaining their family. And to get away from a life of want and misery they did not mind in giving up their simple, peaceful, protected and natural life and accepted the life of over-exploitation, improtection, convicted and polluted atmosphere of cities. Several times it could be observed that the tribal labourers were maintaining their/^{own}life-style even at the work-sites. During leisure time, particularly after the Day's work was over, they would sing songs and dance before going to bed. At such members it looked that they had forgotten the misery and drabness of the surrounding environment.

Now we turn to discuss about system of a wage payment and rate of wages which was a matter of major concern for the tribals. Generally in all type of works, contractors themselves usually made payment of wages either weekly or fortnightly or sometimes when the tribals needed money urgently. As the field of construction is in private sector the contractors are invariably profit-oriented persons. So, the wage-structure, prescribed by the Government is hardly followed. Of course, several reasons are responsible for such a situation. Getting higher or lower wages depend on construction market. Sometimes the contractors have to pay higher wages to their labours. But they pay the prevailing market wage rate. Wages are also related with expertise and regularity in work and importance of the particular type of work. The tribals who

work in building constructions in the cities get better wages while those who work in small level constructions in rural areas get considerably low wages. By and large the tribals working in construction labour are exploited in several ways. In Chhotaudepur Taluka of Vadodera district where road construction was undertaken by both the Public Works and by private contractors, P.W.D. paid Rs.11.20 P. to their permanent labourers. While the contractors paid Rs.5.00 per brass for excavation work. Later on they started paying Rs.6/- per brass for excavation. While during shortage of labours, they also paid Rs.10/- per brass for excavation work. For metal work.e.g. scattering metals on road-side, the same contractors paid Rs.6// - to males and Rs.5/- to female labourers. While carpeting work was handed over to mukadam on sub-contract. Mukadam was paid Rs.550/- per furlong of carpeting work. The mukadam paid wages to the labourers in the following manner :

No.	Type of work.	Wage rate in Rs.	Type of labourers.
1	Cleaning dust before carpeting	5-00	Boys and girls below 14 years of age.
2	Pouring water on roller wheels	5-00	" "
3	Spraying Tar	9-00	Male or female labourers
4	Spreading carpet material	9-00	Male
5	Levelling carpet material	9-00	Male
6	Boiling tar	7-50	Male-Female
7	Making carpet material in mixture.	8-00	Male-Female
8	Rolling mixture	7-00	Male-female

: 48 :

9 Filling iron-vessel	6-00	Female
10 Hauling iron-vessel	6-00	Female
11 Carrying vessel		
material in cart	7-50	Male

field work

During the period of/two major types of railway construction works were being carried out, (1) Maintenance of tracks and electrification. Tribal labours engaged in maintenance work were either permanents or temporary or on daily-wages. Daily wages labourers were being paid Rs.9.40 per day while permanent labourers earned a salary amounting to Rs.600 to 800 per month depending upon the length of service and category of labour. These labours who were engaged in electrification work were on daily wages only. They were given monthly wage @ Rs.9.70 per day. Only male labours were recruited in electrification work

Dam construction works had been going on at Navagam Dam-Site in Bharuch district. Mainly two types of works were being carried out (i) rock-fill dick and (ii) main gate of the canal. Both these works were given to two different construction companies. Jay Prakash Construction/^{Company} was engaged in rock fill dick work. This company recruited from Bihar also. The Company paid Rs.11.20 Np. per day to local tribal workers and Rs.15/- to Bihari labourers. As elsewhere mentioned, the Bihari labourers were also provided with housing facilities and were reimbursed Railway fares, local labourers were not being given any of such facilities.

Patel Construction Company engaged in another work was paying @ Rs. 3 to 5 per day to child labours, Rs. 8 to male labours and Rs. 7 to female labourers. Some experimental labourers were being paid upto Rs. 10 per day.

Bhils of Panchmahals were also found working in canal construction work in Damanganga Irrigation Project in Valsad district. All of them were getting daily wages and among them unskilled male labourers were being paid @ Rs. 11 to 12 per day while female unskilled labourers only Rs. 10/-. Some semi-skilled tribal labourers doing masonry work were being paid @ Rs. 15.00 per day. Their wages were paid fortnightly.

In building construction work, the wage structure was not classified according to different types of jobs. Usually male labourers were paid @ Rs. 10 to 12 per day and female labourers @ Rs. 8 to 10 per day. There was no specific ~~standing~~ standard and that is why tribal labourers got exploited like anything.

Regarding duration of labour work available to the tribals it was found that 28.53% of the total households could not get labour work regularly without any interruption, while 35.73% households could get labour work for a period of one month to four months, 33.80% for 5 months to eight months and only 1.87% from nine months to twelve months within a year. Those households who could always get labour work regularly were engaged in building construction and railway construction works. Other types of construction works did not provide labour work for the whole year.

In all types of construction works majority of the tribal labourers were getting their wages paid regularly from the contractors and sub-contractors. According to figures shown in Table 4.9, only nine households were not getting their wages paid regularly. Regular payment of wages may perhaps be one of the attractions motivating the tribals to enter into construction labour work. Those who were being paid irregularly, preferred to give up the job.

TABLE 4.8

RESPONSE REGARDING GETTING COMBINED WAGE AND DURATION OF LABOUR-WORK AVAILABLE IN A YEAR.

Sl. No.	Category of Works	Whether combined labour?		Total	Always available	For			Total
		Yes	No			1 to 4 months	5 to 8 months	9 to 12 months	
1	Railway construction	29	46	75	39	6	30	-	75
2	Road construction	55	20	75	7	43	19	6	75
3	Dam Construction	74	1	75	3	72	-	-	75
4	Building Construction	62	13	75	58	8	8	1	75
5	Canal construction	12	63	75	-	5	70	-	75
Total		232	143	375	107	134	127	7	375
		(61.87%)	(38.13)	(100.00)	(28.53)	(35.73)	(33.87)	(1.87)	(100.00)

Respondents were also asked whether construct labour could help them and if yes, how? Their response could be classified into five major categories. Out of the total households, 63.21% were able to procure employment in labour work, 11.92% could earn better income, 11.66% could get steady flow of income, 6.73% could obtain work regularly and the remaining 6.48% could sustain their standard of living. Respondents from dam construction work could get regular employment in labour work. While respondents working in dam-construction as well as in railway construction could get regular labour work as well as better wages too. It was evident that all the households covered in this survey were able to derive some sort of benefits.

Of the 375 households, only 12 had received some formal training in labour work. And all those who got formal training were working in railway construction. But those who had no formal training did want to have some training. Out of the 375 households, 84.80% felt the need for training while remaining 15.20% did not feel any need for training. Those who felt the need for training were working in Building Construction, Canal construction and in railway construction. It was observed that training was necessary for the tribal labours working in dam construction and in road construction.

TABLE NO. 4.17

Response regarding benefits which the surveyed households could get from construction labour work.

Sr. No.	Category of work	Got labour work	Got better wage rate	Got regular labour work	Sustained standard of living	Got regular wages	Total
1	Railway construction	37 (44.58)	22 (26.51)	-	4 (4.82)	20 (24.09)	83 (100.00)
2	Road construction	70 (99.33)	-	- (6.67)	5	-	75 (100.00)
3	Dam Construction	7 (98.97)	20 (25.64)	26 (33.33)	-	25 (32.05)	75 (100.00)
4	Building construction	55 (73.33)	4 (5.33)	-	16 (21.34)	-	78 (100.00)
5	Canal construction	75 (100.00)	-	-	-	-	75 (100.00)
Total:		244 (63.21)	46 (11.72)	26 (6.48) (6.73)	25 (6.48)	45 (11.66)	386 (100.00)

: 54 :

TABLE: 4.18

Response regarding who got training.

No.	Sub-division of work	Have received training	Have not received training.	Total
1	Railway construction	7	68	75
2	Road construction	1	74	75
3	Dam construction	2	73	75
4	Building construction.	1	74	75
5	Canal construction.	1	74	75
Total:		12 (3.20)	363 (96.80)	375 (100.00)

TABLE 4.19

Response regarding need for training.

No.	Sub-Division of work.	Yes	No	Total
1	Railway construction.	67	8	75
2	Road construction.	53	22	75
3	Dam construction	56	19	75
4	Building construction	72	3	75
5	Canal construction.	70	5	75
Total:		318 (84.80)	57 (15.20)	375 (100.00)

The tribal labourers were not simply interested in receiving training but were also conscious enough of about the advantages/being trained. Out of the 375 households, 84.80% had felt the need for training.

These households were working in all the different categories of construction works. Their views regarding advantages of getting training could be classified into six major divisions as shown in Table 4.20. Out of the total 652 responses 54.60% were the expression of belief that training would equip them to take up the skilled labour work. While in case of 27.30% it indicated that training would enable them to get promoted to the category of semi-skilled ~~than to get promoted to the category of~~ labourers. 5.52% responses pointed out that they would get better wage rates. For 5.06% training would secure better job opportunities and for 4.45% it would mean to have steady employment. In case of the 3.07% there was possibility of promotion in labour work. There was a strong conviction among them that by getting trained they would equip themselves to become skilled and semi-skilled labourers. It could be safely concluded that they were aspiring to improve their situation while working in construction works.

TABLE 4.20

Response regarding advantages of getting training.

Sr. No.	Category of works	Can be skilled labour	Can be semi-skilled labour	Can get regular labour work	Can get better wage rate	Can get promotion opportunity	Can get better job opportunity	Total
1	Railway construction	67 (54.92)	30 (24.59)	-	-	14 (11.4)	11 (9.02)	112 (100.00)
2	Road construction	70 (93.33)	5 (5.67)	-	-	-	-	75 (100.00)
3	Dam construction	72 (36.36)	66 (33.33)	29 (14.65)	25 (12.63)	6 (3.03)	-	198 (100.00)
4	Building construction	72 (96.00)	3 (4.00)	-	-	-	-	75 (100.00)
5	Canal construction	75 (41.41)	74 (40.66)	-	11 (6.04)	-	22 (12.09)	182 (100.00)
Total:		356 (54.60)	178 (27.30)	29 (4.45)	36 (5.52)	20 (3.07)	33 (85.06)	652 (100.00)

On being asked whether they would prefer to undertake training, a great majority of them forming 93.07% of the total 375 households gave positive response. As shown in the next table, only a small number to the tune of 6.93% were having a negative attitude towards training. Those who did not prefer training were mainly working in road construction.

TABLE 4.21

Response regarding undertaking training.

No.	Sub-division of work.	Yes, would like.	No, would not like.	Total
1	Railway construction	71	4	75
2	Road construction	63	12	75
3	Dam construction	72	3	75
4	Building construction	73	2	75
5	Canal construction	70	5	75
Total:		349 (93.07)	26 (6.93)	375 (100.00)

As already discussed earlier, the tools and equipments formed extremely important aspect of labour work in construction works. As the labourers were directly concerned with the use of the tools and equipments, their opinions and suggestions in bringing improvement in this matter must be given proper weightage. Their primary tools have been pickaxes, spades and iron-vessels. 18 households most demanded for/modern type pick-axes spades while 12 strongly felt the need for new type of iron vessels. As shown in Table 4.22, they also suggested the kind of improvement which ought to be brought. According to their views both the points

TABLE 4.22

Response regarding need for improved tools and equipments.

Sr. No.	Category of work	Spades	Pickaxe	Iron vessels	Spades/pickaxes with long edge.	Should be provided all tools proper edge.	Tools with proper edge.	Need for Carpeting tools		
								1	2	3
1	Railway construction	-	-	-	-	-	-	-	-	-
2	Road construction	1	1	-	1	1	-	-	-	-
3	Dam construction	11	11	7	11	11	11	-	-	-
4	Building construction	-	-	-	-	-	-	1	1	1
5	Canal construction	6	6	5	6	-	6	-	-	-
Total:		18	18	12	18	12	17	1	1	1

8

of pickaxe should have enough length and proper edge and in little bended shape. Hole of the pickaxe should not be in round shape but should have in four or more corners, so that the handle could be fixed strongly. Iron-vessels should be repaired at regular intervals. It had been observed that at many work sites, the contractors had provided old and partly damaged tools.

Nowadays bonus is one of the important economic incentives given to industrial labourers. But by and large, the labourers in the construction industry were not being given any bonus. As shown in table 4.23 only 44 households out of the total 375 were getting benefit of bonus. Of these 44 households, 40 were working in the railway construction which is under Central Government. Private contractors and sub-contractors did not give bonus to their labours who were played a pivot role in bringing huge profit to them. Certain contractors claimed to distribute utensils among the labourers on the occasion of Divali festival as a sort of bonus. But none of the respondents confirmed about this practice.

TABLE 4.23

Response regarding getting bonus.

Sr. No.	Category of work	Yes (get bonus)	No (Do not get bonus)	Total
1	Railway construction	40	35	75
2	Road construction	2	73	75
3	Dam construction	-	75	75
4	Building construction	2	73	75
5	Canal construction	-	75	75
Total:		44 (11.73)	331 (88.27)	375 (100.00)

As in any other industrial and commercial activities, certain conventions also exist in construction works. Before a contractor starts any new construction work, he usually gets certain percentage of estimated cost in form of advance from the agency. In the same way, contractors also give certain lump-sum amount in ~~form~~ ^{form} of advance to their sub-contractors and the mukadams. Sometimes, particularly on occasion of festivals, marriage, death, sickness and for purchasing clothes and food material contractors, sub-contractors or Mukadams advance certain amount to their labours. This practice is adopted with an aim to secure the services of the labourers in advance. But even this practice was also not being widely adopted in the construction industry as the figures given in Table 4.24 indicate. As railway administration paid salary to their labourers regularly on the fixed date in a month, the question of getting advance did not arise. Out of total 284 households who answered this question, only 55 were getting advance. It was notable that in canal construction, out of 75 families, 45 families were getting this benefit. Later on the contractors got the amount given in advance deducted from the total wage payment. It was also brought to our notice that those contractors or sub-contractor who gave advance, later on compelled their labours to work for them even though the labourers did not want to work there. In this and several other ways, the contractors, sub-contractors and even Mukadams exploited the tribal labourers.

61

TABLE 4.24

Response regarding getting advance.

Sr. No.	Category of work	Yes, Got.	No, did not get.	Total
1	Railway construction	-	-	-
2	Road construction	2	57	59
3	Dam construction	-	75	75
4	Building construction	8	67	75
5	Canal construction	45	30	75
		----	---	---
	Total:	55 (19.37)	229 (80.63)	284 (100.00)

TABLE 4.25

Response regarding compelling to work there only after giving advance payment.

Sr. No.	Category of work	Yes	No	Total
1	Railway construction	-	-	-
2	Road construction	-	2	2
3	Dam construction	-	-	-
4	Building construction	-	8	8
5	Canal construction	45	-	45
		----	---	---
	Total:	45 (81.82)	10 (18.18)	55 (100.00)

Some tribal labours were found to be working only under one contractor only for years while many tribal labours have been changing contractors which meant that they have worked under more than one contractor. According to the figures in Table 4.26, out of total 284 households, 37 families forming 48.24% have worked under one contractor only. While remaining 147 households forming 51.76% have worked under more than one contractor. Those who have worked under more than one contractor were such labourers who were doing

several type of jobs, which meant that they might not be getting labour work regularly. All households working in dam construction, were working under one construction company. In the same way, except 13, all households working in canal construction work were under one contractor only, while remaining labours working in different other construction works were not getting labour work under one contractor only.

TABLE 4.26

Response regarding whether working under one contractor only or more than one contractor.

Sr. No.	Category of works	Working under one contractor	Working under more than one contractor.	Total
1	Railway construction	-	-	-
2	Road construction	-	59	59
3	Dam construction.	75	-	75
4	Building construction	-	75	75
5	Canal construction.	62	13	75
	Total:	137 (48.24)	147 (51.76)	284 (100.00)

Those labours who have worked under more than one contractor had to live in constant anxiety of getting regular labour work. However, they were getting little more wage rate in comparison with those who have worked under one contractor only. Contractors who had not so many construction projects could not recruit labourers on regular basis. On the contrary, some labourers were in

63

favour of earning better wages. So, they did not prefer to remain tied with only one contractor.

In this study we have also included local construction work and for this type of work we had selected tribal labours of Dangs district. As the construction works that we have been discussing till now, differ from local construction work, we would briefly discuss now about them latter. During the field work, it was observed that on a large scale housing construction work was going on in the Dangs district under the government programme. In local construction, they were found to use mostly such materials which were readily available locally or could easily be procured from government stores. For housing, they were allotted 18' x 20' plot of land plus 80 cubic meter free teak wood. As per estimate, one house could be constructed at the cost of Rs. 1750/- as per following classification.

<u>No.</u>	<u>Item</u>	<u>Rs.</u>
1	Roof tiles	1,282/-
2	Tiles carting charges	30/-
3	Wood carting charge	47/-
4	Hard-wear material	111/-
5	Cement 2 bags and carpentary work expenditure	265/-
6	Bamboo royalty	15/-

Total:		Rs. 1,750/-

The amount of Rs. 1,750/- sanctioned for constructing a house was being allotted by following different agencies.

64

<u>No.</u>	<u>Name of Agency</u>	<u>Rs./---</u>
1	Government subsidy	1,000/-
2	Subsidy from District Panchayat	250/-
3	Loan	500/-
Total:		1,750/-

We have selected 25 families from Dang District under local construction work. All the families were landless labours and were engaged in forest labour work. They were well acquainted with skill of house construction. They were not found working in one stretch for constructing the house. According to their traditional practice, they would first repair roofs of their houses before rainy season starts.

First of all they would select the plot or would accept the plot allotted by the Village Panchayat under housing scheme. Next, with the help from relatives, neighbours, etc. would prepare the structure of the house using teakwood pillars, bamboo chips, frames. They would make walls from bamboo chips and fix country tiles on roof. In order to get protection from cold and to prevent rainy water to trickle through the holes in the frame of the bamboo chips, they would plaster the walls with a mix of mud and cowdung. Some well to-do households may be found to erect stone walls upto the basement height. They would accept cooperation from relatives, neighbours, etc. while constructing their houses. But in reward, they did not pay money as wages for the labour. Males would go into forest and would bring teakwood and bamboo. Males would also make chips from bamboos, fix teakwood pillars as required,

: 63 :

prepare roof, fix tiles etc. Fixing tiles requires certain expertise, so all males cannot do it properly.

Females would mainly do the work of plastering the walls with mud and cowdung and levelling of the floor and also make bamboo chips

This housing construction work may seem so simple but it requires certain types of skills. If their different activities can be classified, according to skill, then installing teakwood pillars making frame of walls from bamboo chips, fixing tiles on roofs etc. would come under the category of skilled work. Making chips, plastering the walls, preparing structure etc. would come under the category of semi-skilled work and remaining miscellaneous works could be labelled as unskilled works.

In this housing construction activity, the tools which are required are sickle, axe, rod with onese side edge, spades, etc. and all such tools were available either in their own house or in the house of a villager. They used bamboo-chips baskets in place of iron-vessels. Sickle was used for making chips from bamboos and axe was used for cutting sticks etc. Their tools were simple but worked very well. Such tools could easily be repaired locally. It needed some local artisans could make new tools. So they did not have to go out for purchasing tools.

CHAPTER # IVTOOLS AND EQUIPMENTS USED IN
CONSTRUCTION WORKS BY TRIBALS

Any type of industry whether small or big, simple or complex or modern, each one requires certain types of tools and equipments as an important element in the manufacturing process. Simple artisan also use certain type of tools and equipments. But although the use of different type of tools and equipments is a necessity, more important and vital is to opt for the use of better quality tools and equipments which bring more efficiency in work by expending less physical labour and consequently more output. At certain level, the use of modern and upto date tools and equipments also give status and is symbol of advancement. Hence, the issue as to what kind of tools and equipments is being used assumes lot of significance which cannot be ignored and bypassed. For example, industrial countries like United States of America get much higher agricultural produce in comparision to our country which although is the third largest agricultural country in the world. And one of the basic reason for this situation is our old and out-dated agricultural technology and use of simple traditional tools and equipments. However, since last few decades, we have started adopting modern technology in agriculture and as result of this our agricultural produce per acre has gone up considerably.

As has been discussed earlier, construction industry is one of the important industries in present times, and has got an important place in the developing economy of this country. A number of factors contribute significantly for the advancement and development of the construction activities and among these factors, type of tools and equipments that is used in construction at various levels is also a very important one. Several scientific tools and equipment being far better efficiency in accomplishing a work with expending comparatively lesser amount of physical energy.

Now, let us have discussion about various tools and equipments which were found to be used by the tribal labourers in the construction works. The tribal labours were very much familiar to work with the tools and equipments generally used in the construction works. They have also acquired the ~~prima~~ preliminary knowledge to repair by themselves small defects. Out of the five different categories of work, only the Dam-Construction work at Navagam (Dist: Bharuch) some local tribal labours were compelled to bring their own tools and equipments and those who could not bring their own tools were not employed. Initially the contractor prefers to purchase better quality of tools and equipments, later on they did not pay much attention towards repairing at regular intervals and to replace the damaged tools and equipments. Wooden handles were found to be loose in spades and sickles, edge of

5.3

sickles were blunt and unfit for digging hard land. Many such things regarding the old- worn-out and partly damaged conditions of the tools and equipments were observed by the field team.

■ The various tools and equipments which the tribal labours use while working as labourers in construction works are as follows :

(A) Tools and Equipments used in Building Construction Works.

(A.1) Tools used in masonry work.

Muster: Its parts consist of a wooden handle and 2½' x 6" wooden thick chip, one side being smooth and unbented.

Muster is a very simple but very important tool that masons use in plastering work. It requires one 2½' x 6" rectangle wooden piece and small wooden handle to be fixed on one side. The other side of the muster must be smooth as well as unbented. The masons use musters of different sizes according to the need.

Benefits and limitations of Muster:

- Muster helps in maintaining necessary levelling in tile fixing work.
- It also helps in making plaster coating smooth and decent.

Suggestion: It is suggested that ~~this~~ utmost care should be taken in matter of cleaning it soon after use so that its smooth surface does not become rough. As far as possible, it should also be kept dry so that it does not get bended.

5.4

(A.2) Mason's trowel.

Like muster, this trowel is also a very simple tool but important one. This is mason's basic tool which masons always keep with them. It had been observed that during brick work or plaster coating work if one mason needed another ~~one~~ trowel, the other mason would give the other extra trowel but not his own trowel. This is convention that one would neither ask for nor to give one's own trowel in any case. Due to this, they treated it as their personal tool.

Parts of the Trowel:

This is also a very simple tool as said earlier. Trowel has only two parts, wooden handle and leaf-shape iron-plate. Like muster, this tool also come in different sizes and shapes.

Use of tool:

Masons use this tool in brick work, plaster-coating, some time also in breaking bricks. Small trowel is used in making plaster coating decent and decorative. Tribal masons have developed good skill in using this tool.

Suggestion for care:

Immediately after use, trowel should be washed thoroughly with enough water so that cement and sand particles may get completely removed from it's surface. If properly and thoroughly washed regularly, it would remain neat and smooth.

(A.3) Shovel

This tool is bigger in size and little bit complex too, not as simple as trowel and muster.

This tool is costly also. As this is bigger in size and heavier in weight, strong bodied labourers can operate this tool in a better and efficient way.

Parts of tool.

This shovel has usually three parts e.g. rectangle hard iron plate having blended edges in three sides and one sickle without bended edge. The opposite side of the unbended edge has a round shape hole where wooden handle gets fixed. Thus, the second part is wooden handle about 4' in length and in normal shape. At the end of the wooden handle, a wooden pulley has been fixed. This pulley is very important in two ways, the efficiency in its operation and secondly the need of expending less physical energy. But at almost all the construction sites, most of the shovels which were being used by the tribal labourers were without pulley and certain manufacturers do not fix pulley in the shovel but in stead of that fix handle so that it can be kept in hand.

Utilisation of tool.

This tool is used in filling up material. Spade can be used in place of shovel but this shovel has important use in certain type of works. In big R.C.C. work where work has to be accomplished speedily, shovel give good work and in such works they use shovel only.

Benefits and limitations

(1) Small pulley fixed at the end of handle is based on scientific principle of lifting weight

It contains a lot of physical labour so that labourers can work efficiently and for longer hours.

(2) Labourers can do filling work more efficiently with shovel in comparison with spades and also save physical energy or can do work for more hours.

Suggestions:

- (1) Some manufacturers make shovel with heavy iron plate. But if steel plate is used instead of other inferior quality of iron, that will reduce the weight of the shovel and that the shovel will have a longer life.
- (2) At certain sites, it was observed that instead of wooden handle, iron handle or iron pipe had been fixed in the shovels. As iron is heavier than wood the shovel becomes heavier in weight and consequently less easy in operating. So this practice should be abandoned. Though iron handle or pipe would give longer life to the shovel in comparison to wooden handle but the labourers would have to expend more physical energy in operating it.

A.4 : Iron-vessel of small basket shape.

This is one of the important and basic tool in building construction and is entirely made entirely from iron metal. Although it looks like a simple tool, but its face value in manufacturing is not that simple.

Manufacturing process and utilisation:

MANY-TOOLS-AND-EQUIPMENTS

Many tools and equipments can be made at local-level but this tools requires certain

specialised machine process, that is why it can be manufactured in factories only. Only iron metal is necessary as raw material. Two types of iron vessels were found in use. First small but very heavy type of iron vessel whose edge is not bended in round shape, Such iron-vessels are made from thick iron plate. Second type of iron-vessels are bigger in size and little-bit lighter in weight. Its entire circular edge is bented in round-shape. As these vessels are made from thin iron sheets, they do not usually last long, and thus requires to be repaired frequently. The first type of vessels can also be manufactured by skilled blacksmith at the local level. But as the process of manufacturing it is not that simple, it takes pretty long time for a blacksmith in manufacturing even one such vessel. These vessels are used for carrying materials, from one place to another. Both types of vessels are used in different types of work. For example, ⁱⁿ ~~its~~ excavation work, bigger-size vessels are used for carrying out dust, while in carrying fluid material, small and heavy type of vessels are used.

Labourers always have to take adequate care while using small size vessels as the edge of these are not bended round shape. According to the labourers, such vessels are likely to bring injury to the labourers. Even big size vessels are not entirely safe when its bottom get damaged. Suggestions to bring improvement in this tool have been given in the last chapter.

A.5. Hoe

This again is a very basic tool which is used not only in construction works but also in agriculture and several other works.

Components: This tool consists of two components, (i) iron plate and (ii) wooden handle. Generally, two types of hoes are found in use. In the first type of hoe iron plate is of usual size and the two corners near the wooden handle are round-shaped. The wooden handle is also of usual size but little bit shorter. The second-type differs in terms of size of the iron plate and almost in square-shaped wooden handle which is longer and ~~little~~ little-bit thicker in comparison to the usual type hoe .

Benefits and limitations:

Both type or rather size of hoe are a very efficient tools. However the second one bring more working efficiency while carrying dust in excavation work.

It had been observed at almost all the sites that this tool was never maintained in ship-shape conditions. Labours always used to complain about the handle which was not fixed properly. Due to this the tool was not fit for work with properly and it was also feared that such hoes with loose handles were liable to bring bodily injury.

Secondly some hoes were thin and small in size with shorter handles. Labourers could not work with such hoes for longer duration in efficient manner. At Navagam Dam site in Bharuch District, some labourers had been compelled to bring their own tools. Due to this these labourers were found working with their own hoes which were thin and

smaller in size. It was not possible for them to afford better quality hoes. As a result of working with such low quality hoes they used to get physically exhausted soon. In consequence they were unable to have a better work out-put with such hoes which in turn gave opportunities to the Mukadams to scold the tribal labourers. Suggestions to bring improvement in this regard have been given in the last chapter.

1.6 Measuring Vessel:

This is a very important tool used in construction works while preparing fluid material, prescribed quantity of different material have to be mixed thoroughly. This measuring vessel is used for measuring purpose.

Components:

Like other tools, this tool is also simple one. Two types of measuring vessels were found, (i) Wooden measuring vessel, and (ii) iron-measuring vessel. Main part is I'XI'XI' box either of iron or wooden and one or two 3' x 4' long handle (either iron or wooden). These handles are fixed in such way that the box remained in the middle part as shown in diagram. Sometimes this measuring-vessel is also used for carrying of heavy material such as stone-chips etc.

1.7 Carpenter's Plane

This Carpenter's plane is little bit complicated tool in comparison with tools used by masons. This tool is used for peeling out wood according to requirement. This tool ~~xxxx~~ comes in number of varieties. But the tribal carpenters were found to use simple planes.

Components:

The main part is rectangular wood piece in handle of which iron blade is fixed. The carpenter has to rub the ~~kkack~~ blade with stone in order to maintain the thin edge. This iron blade is made from hard-iron. If the blade is kept with sufficient iron edge the plane would give better efficiency.

A.8 Carpenter's Saw.

This tool ~~is~~ is used for cutting wood. In appearance, it looks simple one, but requires proper and regular repair of its teeth.

Components:

It is made up of two components: One, a rectangular type of iron plate having a short front side, while the back side, which is wider is fixed with handle. On bottom side, it has got teeth as shown in diagram. These teeth work for cutting wood. Usually while cutting hard wood, soft-wood, small saw is the right tool. In this tool, teeth are very important so if teeth are manufacturer properly, sufficiently sharp, wood cutting can be done efficiently while using less physical energy. Teeth ought to be straight one.

A.9 Carpenter's Chisel.

This chisel is used for making specific type of hole in wood-chip. Chisel is also made from hard iron chip with wooden handle fixed on the top side. The bottom side of iron chip is thin and sharp one like other tools chisel also come in different sizes.

Components:

As said earlier it consists of two components:

(i) one iron-chip having one side thin and sharp and (ii) other side fixed in wooden handle. In order to sustain sharpness of the edge, it has to be polished regularly by stone pieces which enables it to give proper and efficient service. As some time smaller hammer has to be used with making holes so top end of the handle gets damaged. In order to prevent this damage, an iron ring can be fixed.

TOOLS IN ROAD CONSTRUCTION:A. 10. Jug:

Jug is used for taking out boiling tar and pouring into iron-plate bucket. This jug is simple jug having iron-rod handle in order to protect from getting burnt.

Components:

As said above, it is simple small iron-jug and about 4' to 5' long rod welded with the main body.

Limitations:

- 1) As the handle rod is in round shape labourers find it difficult to hold it firmly. So while taking out boiling tar, incident of burn may take place.
- 2) As the iron rod is a metal, it conducts heat of boiling tar fastly. So labourers have to hold the handle with a piece of cloth otherwise the labourers can easily get burn injury.

A. 12: Simple mixture:

Usually simple-mixture is used for making tar mixed material. This tool is also almost simple one. It is simple cylindrical vessel having handles on both-sides and fixed on stand in such a way that the cylindrical vessel can move. There is also a small cover on cylindrical vessel so that raw-material can be poured into as well as processed material can be taken out.

Components:

A cylindrical vessel having a cover which can be opened and shut. Two handles on both ends. And third is a stand as shown in diagram.

Utilisation:

For getting tar-mixed material, first gravel-chips, tar, etc. have to be poured into the cylindrical vessel as per prescribed measure and the cover is then closed. Two labours would rotate it for some-time so that tar, gravel, chips, etc. get mixed properly. Later, the processed material is taken out. Two labourers have to work hard for rotating the vessel

Limitations:

Two labourers find it difficult to rotate the vessel due to lack of ball-bearing system. In view of adoption of ball-bearing system has been suggested in the chapter on conclusions and suggestion

A. 13. Rekh

Rekh is used for spreading tar-mixed material in road construction. This is also a simple tool.

Components:

A rectangular iron plate having 5-6 teeth each, about 4" long, on down side and a hole for fixing wooden handle. Second 5'-6" long wooden handle. So that labourers can do spreading work in standing position.

Limitations:

It had been observed that many rekhs were such that their teeth ~~xx~~ were very small, thin and bended. Labourers had to expend extra amount of physical energy to operate such work out "rekhs".

A. 14 Buckle-like vessel with spout for spraying tar on the road.

This tool is used for spraying boiling liquid tar on road in order to make its surface smooth.

It had been observed that a simple tin having small holes on bottom side and small handle on above side for lifting it was being used. There is also a hole near the handle for pouring tar in it.

The labourers have to open this tool with alertness as the chances of getting burn injury are very much exist.

A. 15 Brush:

Before spreading tar mixed materials on road, it is very necessary that it should be totally cleaned otherwise that material can not get glued. So brush is very important tool in road construction. It was found that there were two types of brushes in use (i) brush having 4' to 5' long handle fixed with the brush and (ii) small brush without handle. For first handle cleaning big brush with handle was being used. Labourers can do cleaning work in standing position and in second hand cleaning and final cleaning small brushes can be used. For using this brush, labourers have to work in sitting position.

Net cleaning can be done with good brush. But brushes which were being used were quite old and in worn-out condition and small due to which these were not giving good services, in cleaning work. Its hairs should be little-bit longer, thicker and harder. Then it would give efficient work using less amount of physical energy and also in lesser time.

TOOLS IN RAILWAY CONSTRUCTION AND MAINTENANCE

A. 16 Beat.

Beat is just like a pickaxe in appearance but its one side of edge is in rectangular shape. Beat is also heavier in comparison with pickaxe.

Utilisation:

Beat is used in keeping the railway track up while fixing a packing underneath in order to sustain level of track.

A.17 Bakra-bari

This tool is used for making loose or fixing the bolt fixed in the fish-plates. After some time bolt of fish-plates get loose due to vibration. So that bolt should be kept firmly fixed otherwise serious accident can take place.

Component:

This is a simple thick and round shape rod having arrangement for picking up bolt in it so that either both can be made loose or fixed. This tool is about 2' x 2 1/2' long so that fish plate bolt loosening up as well as fixing up work can be done properly without expending unnecessary amount of physical energy. The labourers can operate it in standing position due to which they do not get exhausted easily.

Now it is obvious fact that a big number of tribal labourers are engaged in the construction works and their number go on increasing day by day. In fact, this has become one of their important economic activity. So it would be relevant with the study to know that in what type of different activities construction works in which they have started working as well has gained expertise at certain level. According to their experience and expertise in different type of works, they are classified as skilled labours, semi-skilled labours and finally unskilled labours. In all sub-divisions at construction works, this type of labour-classification exist but they have their own ways and means to decide the category.

During the data-collection works, the selected families were asked about their category in labour work. And they responded to this question. The detail classification has been given here.

TOOLS IN ROAD CONSTRUCTION.

1.10 Jug:

Jug is used for taking out boiling tar and pouring into iron-plate bucket. This jug is simple jug having iron rod handle in order to protect from getting burnt.

Components:

As said above, it is simple small iron- jug and about 4' to 5' long rod welded with the main body.

Limitations:

- 1) As the handle rod is in round shape, labourers find it difficult to hold it firmly.

Table :

No.	Type of Work	3	4	5	6	7	8	9
		Railway Constru- ction	Road Const- ruction	Dam Constru- ction	Building Constru- ction	Canal Constru- ction,	Local housing Constru- ction.	Total
1.	Map drawing	-	-	-	-	-	-	-
2.	Masonry work	16	-	-	18	-	-	34
3.	Fixing iron-gril	-	-	-	-	-	-	-
4.	Fixing doors and windows	-	-	-	-	-	-	-
5.	Cutting bars as per desing and making structure	-	-	-	-	-	-	-
6.	Centering Plate fixing in RCC Work	-	-	-	12	-	-	-
7.	Fixing ground files or cota-stone, marble etc.	-	-	-	-	-	-	-
8.	publishing tiles, cota- stone, marble etc. with machine.	-	-	-	-	-	-	-
9.	Plumbing work (Fixing Water line)	-	-	-	-	-	-	-
10.	Plumbing Work. (Fixing wash-basin)	-	-	-	-	-	-	-

1.	2	3	4	5	6	7	8	9
11.	Plumbing Work	-	-	-	-	-	-	-
12.	Paining with Sprayer	-	-	-	-	-	-	-
13.	Oil-painting	-	-	-	-	-	-	-
14.	Carpentary work (Doors and windows)	-	-	-	-	-	-	-
15.	Careptary Work (Cupboards)	-	-	-	-	-	-	-
16.	Carpentary work (Furniture)	-	-	-	-	-	-	-
17.	Fixing railway track	13	-	-	-	-	-	13
18.	Setting up poles in railway electrification	06	-	-	-	-	-	06
19.	Taking measurement of road- line.	-	02	-	-	-	-	02
20.	Fixing bricks, Cement mixed material or tar-mixtel material	-	08	-	-	-	-	08
21.	Roller-driving	-	-	-	-	-	-	-
22.	Elementary Carpentiry work	-	-	-	1	-	-	1
23.	Technical labour in railway	04	-	-	-	-	-	04

1	2	3	4	5	6	7	8	9
24.	Tiles making in canal Construction.	-	-	-	-	65	-	65
25.	Setting up Wooden Structure in local- level house building	-	-	-	-	-	20	20
Total :-		30	10	-	31	65	20	165

Table :

Showing different types of semi-skilled works in elected sub-divisions including a number of tribal labours from selected families.

1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	Line - marking before excavation work	-	-	3	-	-	-	3
2.	Finishing in excavation work	-	-	-	-	-	-	-
3.	Assisting masonry work	-	-	3	3	20	-	26
4.	Supervising the brick-Construction.	-	-	-	-	-	-	-
5.	Binding bars as per instruction	-	-	-	-	-	-	-
6.	Helping in Centering-Plate fixing	-	-	-	-	-	-	-
7.	Cutting tiles, marble, cota-stone etc.	-	-	-	-	-	-	-
8.	Fixing Scarting and hand polishing	-	-	-	-	-	-	-
9.	Fixing glarad tile in toilet and Lath-room	-	-	-	-	-	-	-
10.	Assisting in fixing wash-basin, doccinage line, water tap line etc.-	-	-	-	-	-	-	-

1.	2.	3.	4.	5.	6.	7.	8.	9.
11.	Assisting in Polishing work	-	-	-	-	-	-	-
12.	Repairing and maintaining railway tracks	37	-	-	-	-	-	37
13.	Assisting in masonry work	-	-	-	-	-	-	-
14.	Supervisor at work site.	-	3	-	-	4	-	7
15.	Preparing tar-mixed material in road construction	-	16	-	-	-	-	16
16.	Fixing mile-stone, partition stone in road construction	-	4	-	-	-	-	4
17.	Cable fixing work in railway electrification	10	-	-	-	-	-	10
18.	Signal main track in railway	12	-	-	-	-	-	12
19.	Maintenance a railway track	8	-	-	-	-	-	8
20.	Supervision in road construction	-	3	-	-	-	-	3
21.	Mud-coating work in local level housing work.	-	-	-	-	-	21	21
22.	Making net from bamboo-chips	-	-	-	-	-	-	-
23.	Setting up Wooden Structure for house- in village.	-	-	-	-	-	-	-
Total :-		67	26	6	3	24	21	147

Table :

Showing unskilled labour work in selected sub-divisions of works including a number of labours engaged from selected families.

1	2	3	4	5	6	7	8	9
1.	Excavation work	53	63	21	14	38	-	189
2.	Soil-felling work	-	58	26	12	38	-	134
3.	Breaking brick-scrap	-	-	-	2	-	-	2
4.	Preparing sand line liquied material	-	-	-	-	4	-	4
5.	Pouring water on briceses and put near masons working and other miscellaneous work	9	-	2	26	8	-	45
6.	Preparing Cementysant liquid material.	16	-	-	24	24	-	64
7.	Cutting and binding bars	-	-	-	5	-	-	5
8.	Miscellaneous labour in centening work	-	-	-	5	-	-	5
9.	Miscellaneous labour in general	13	18	-	21	37	89	89
10.	Assisting in tile-fixing	-	-	-	4	-	-	4
11.	Assisting in tile polishing	-	-	-	-	-	-	-
12.	Lime washing	-	-	-	-	-	-	-

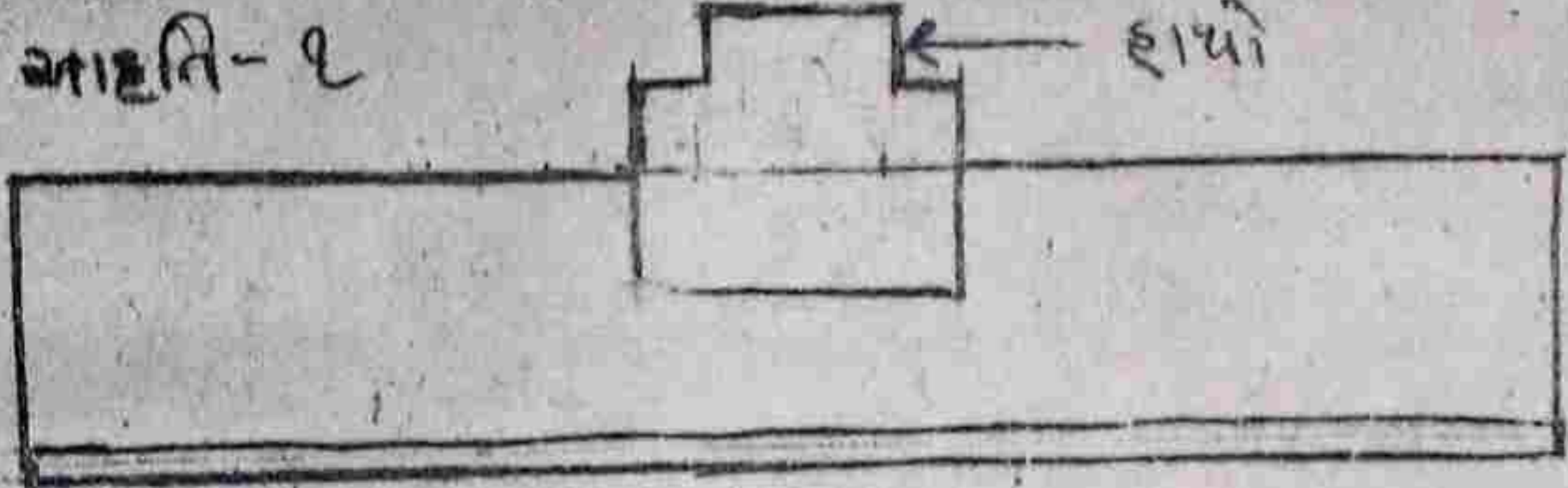
1	2	3	4	5	6	7	8	9
13.	Distemper washing	-	-	-	-	-	-	-
14.	Assisting in Oil-Painting	-	-	-	-	-	-	-
15.	Helping in Carpentry work	-	-	-	15	-	-	15
16.	Making holes for poles in rail- -way electrification	41	-	-	-	-	-	41
17.	Carrying poles in railway electrification	9	-	-	-	-	-	9
18.	Cement-concret work in different works	8	18	18	-	2	-	46
19.	Helping roller driver	-	4	-	-	-	-	4
20.	Tar - spraying	-	15	-	-	-	-	15
21.	Cleaning before Spreading tar- mixed material	-	7	-	2	-	-	9
22.	Boiling tar	-	3	-	-	-	-	3
23.	Driving mixture machine	-	3	-	-	-	-	3
24.	Metal- felling & leveling	-	11	-	-	-	-	11
25.	Soil-felling, wall making mat- faxing	-	-	-	-	-	21	21
Total :-		149	198	67	128	153	21	716

સાધન નામ

(8)

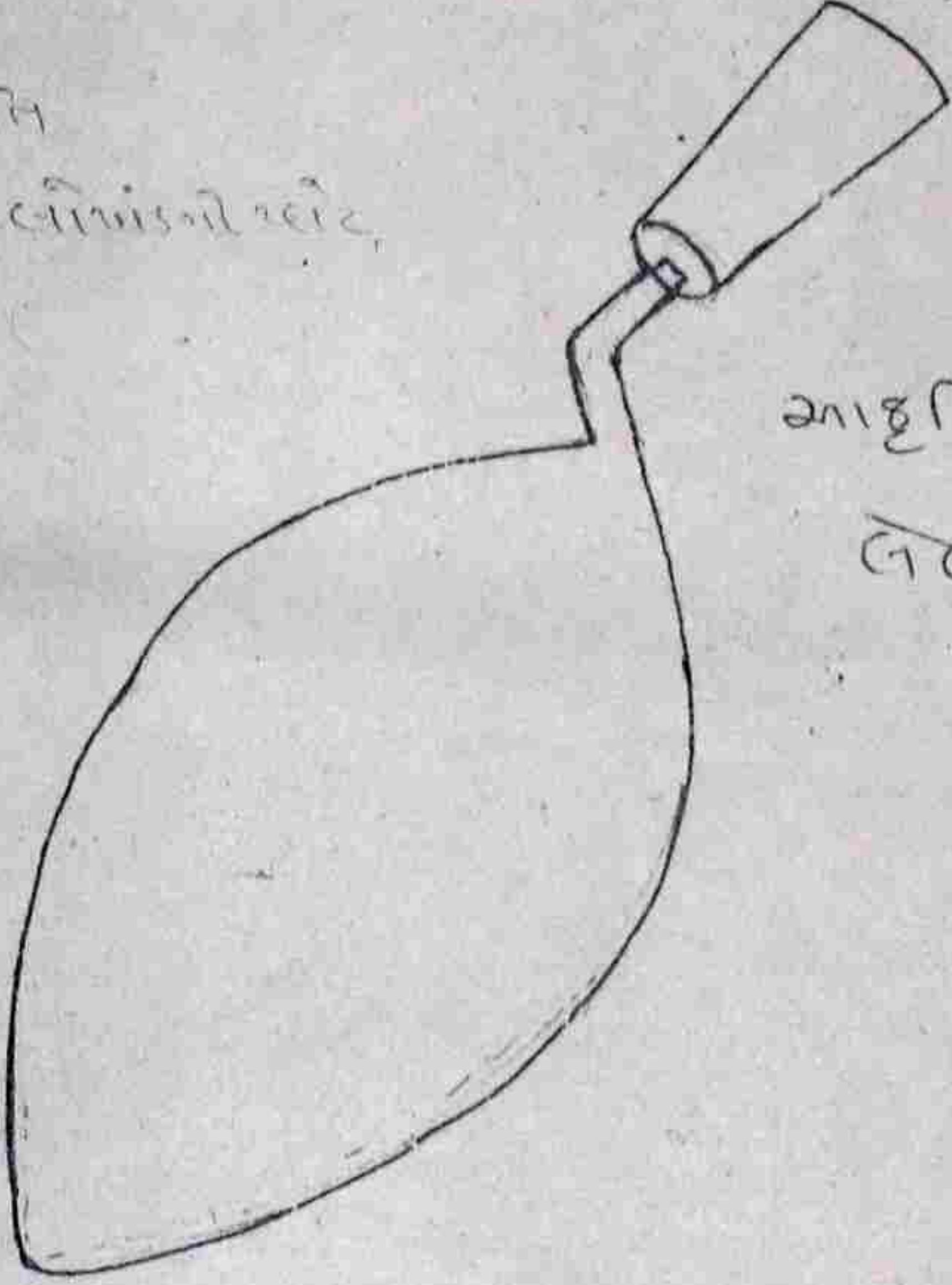
૧. સાધનનું નામ. મર-૨૨.

આકૃતિ-૧



મર-૨૨

૨. સાધનની આકૃતિ
નામો. હાથો લોખંડનો પોટ.



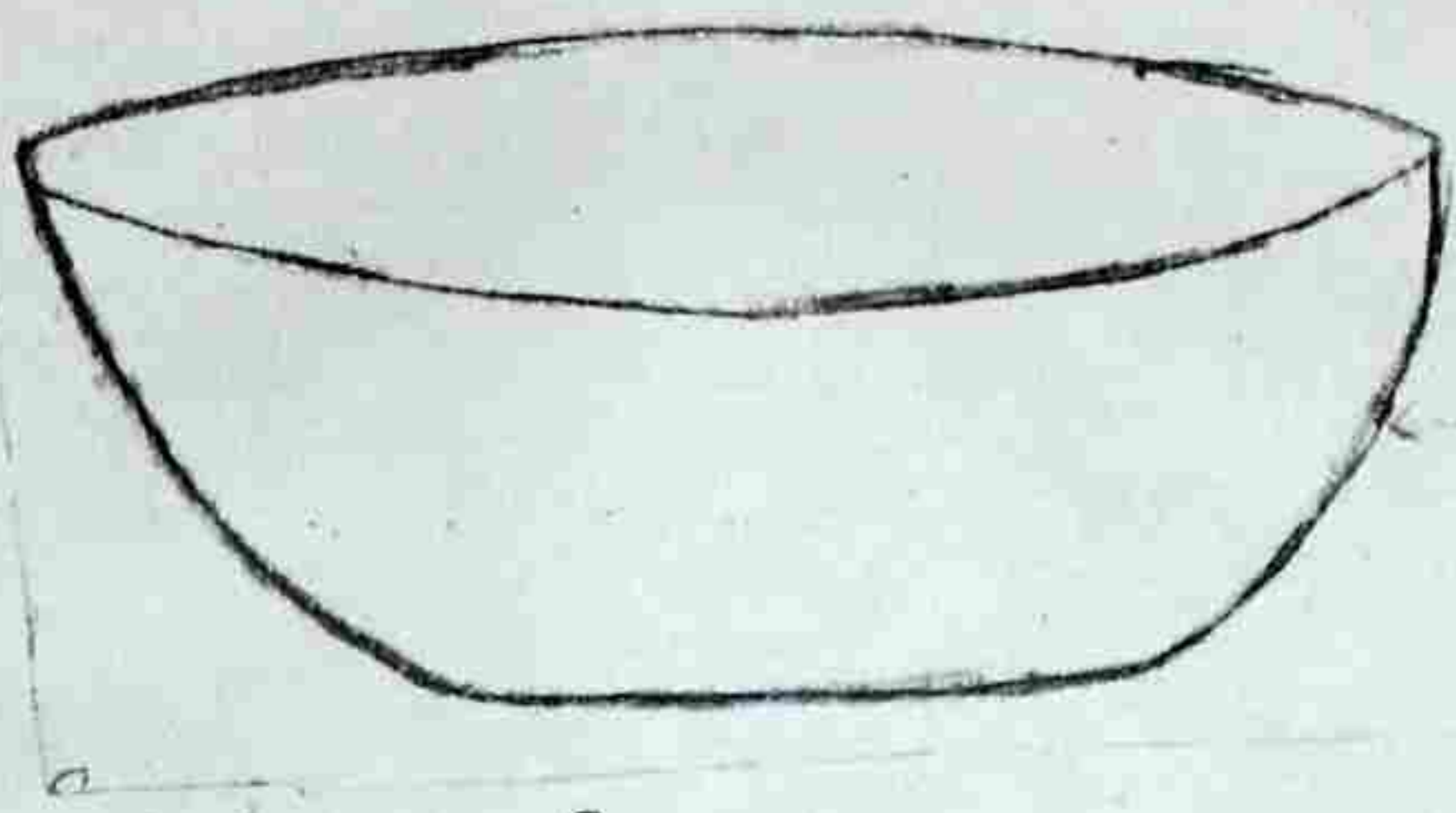
આકૃતિ-૨

લલ

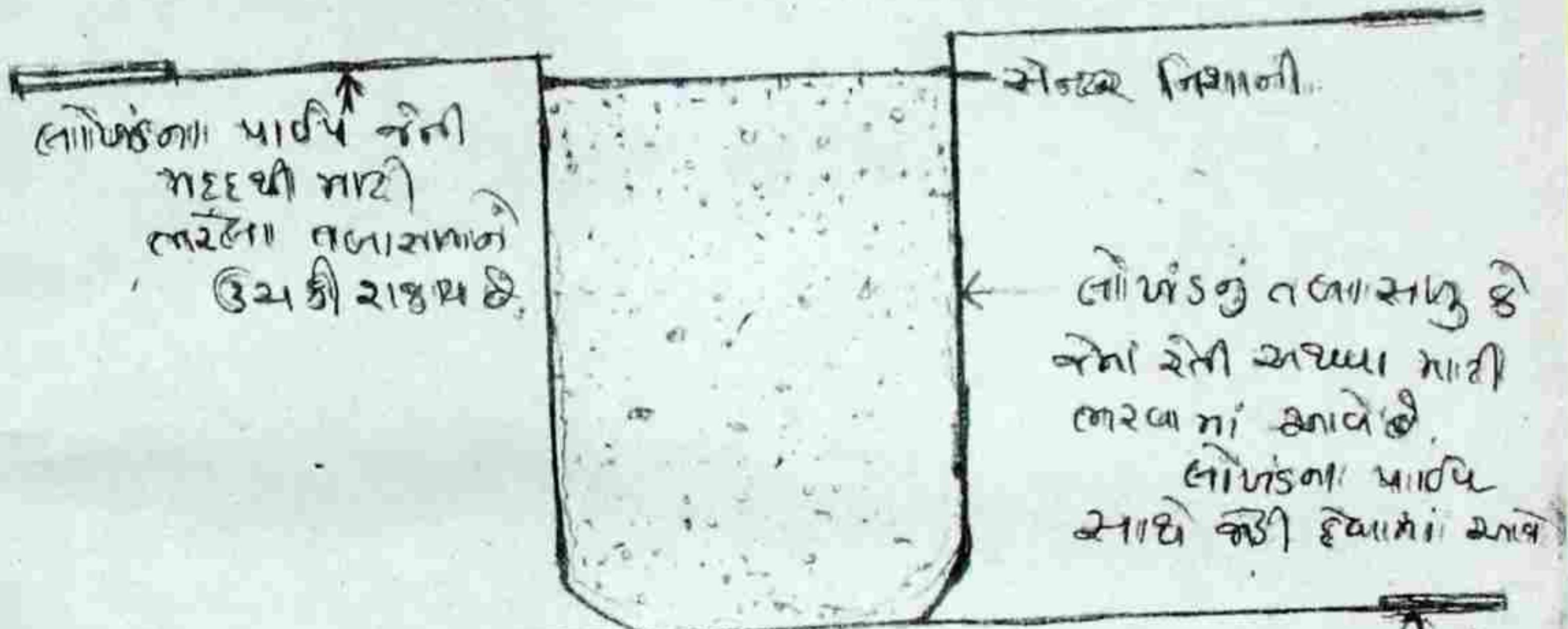


આકૃતિ-૩ સાલ

આકૃતિ-૪ તલાસર

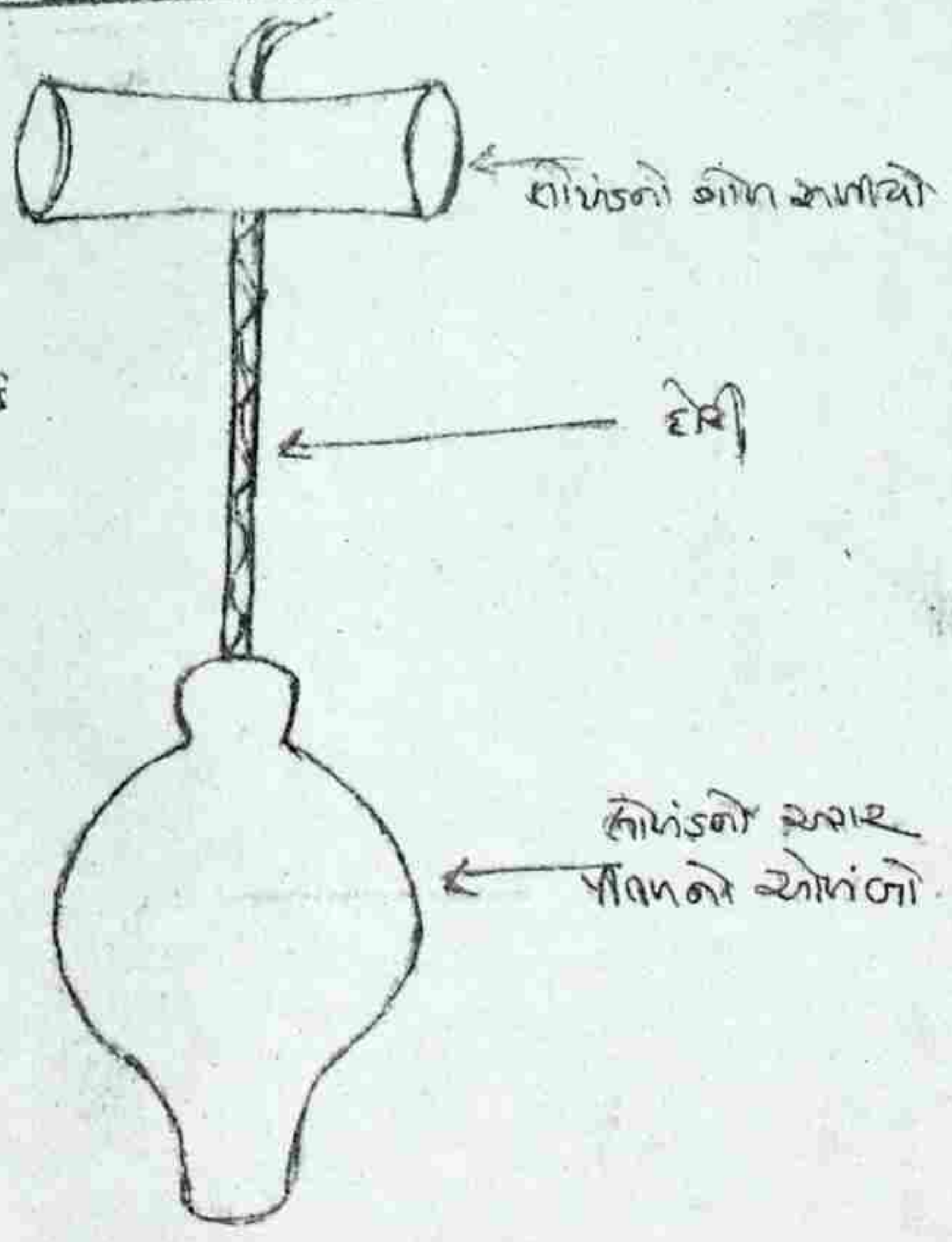


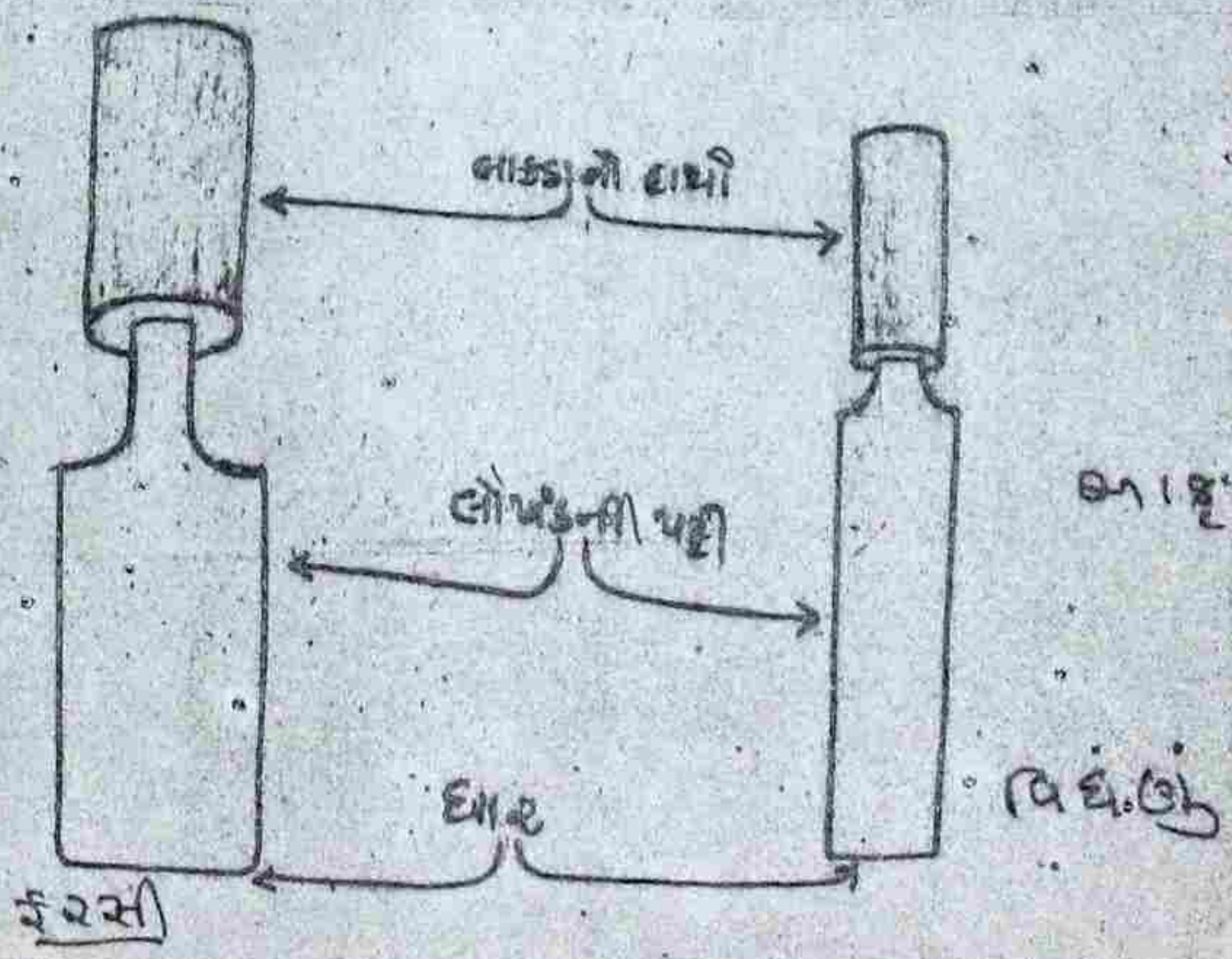
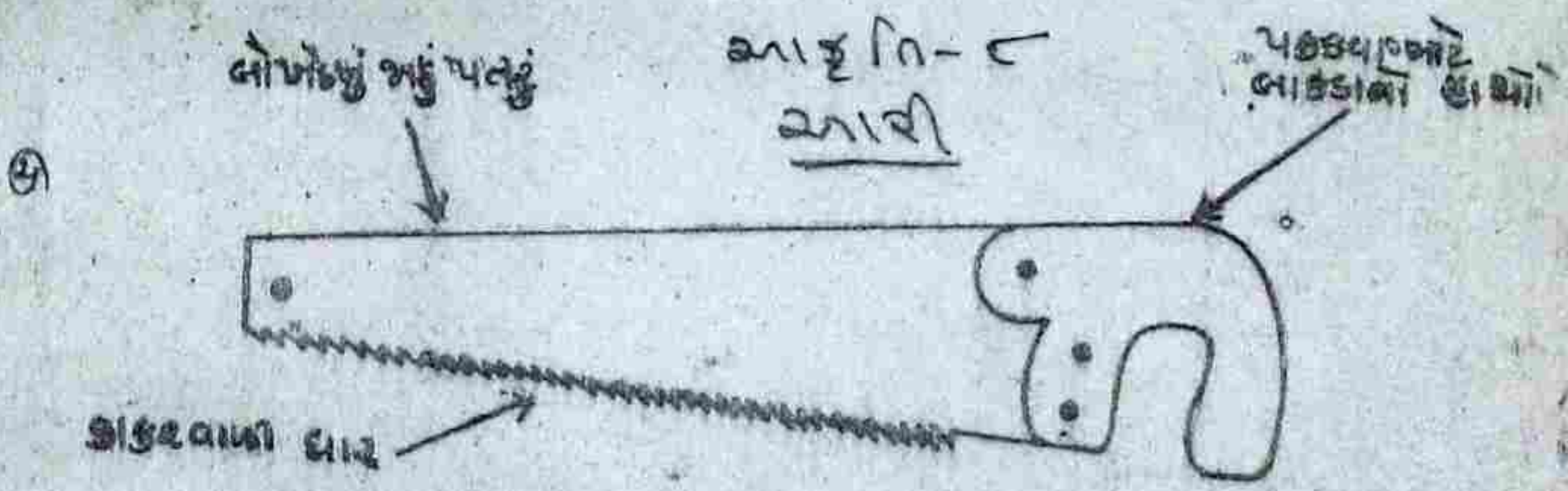
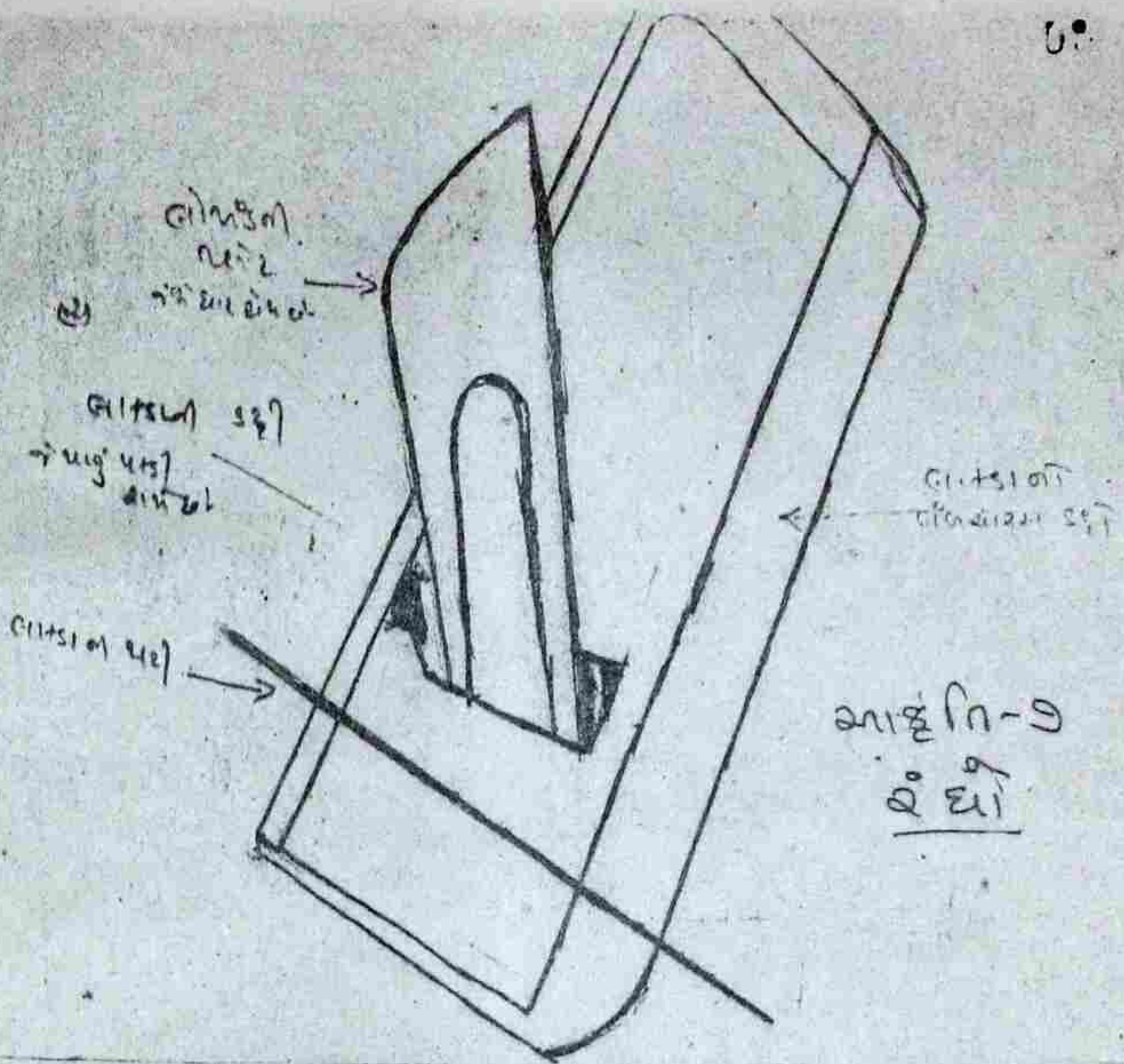
૧. આકૃતિનું નામ: આપાયું આકૃતિ-૫



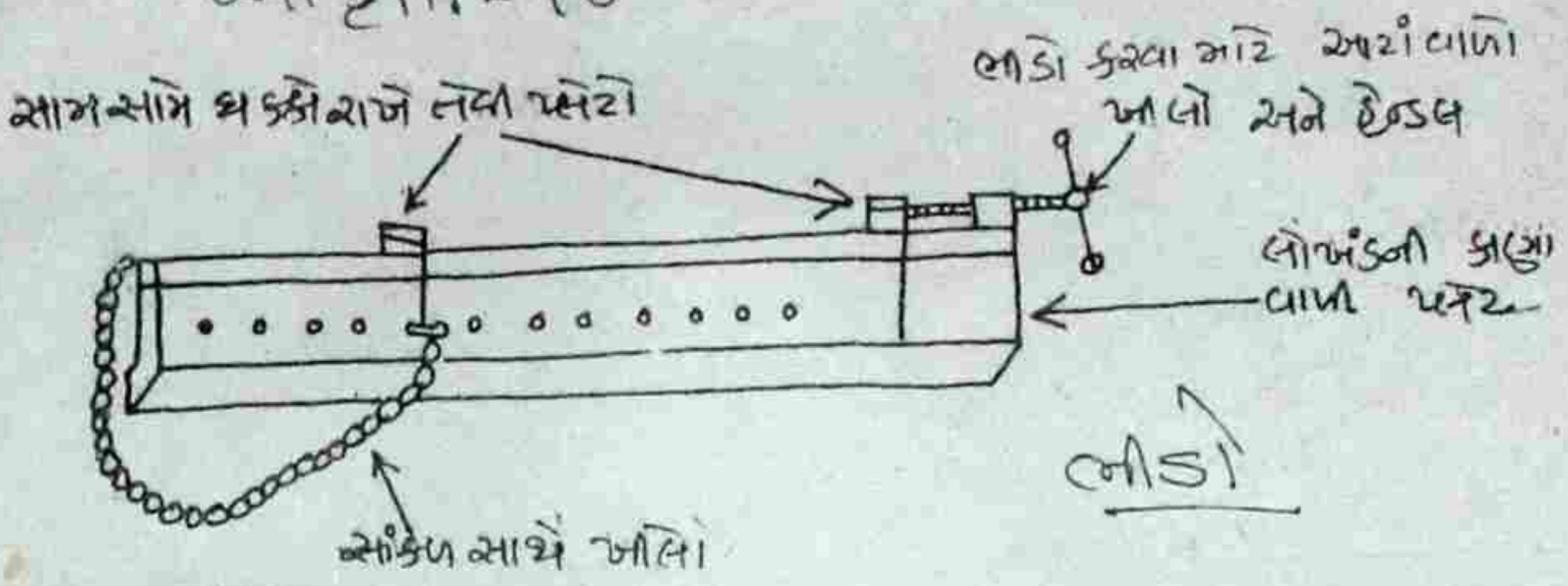
ડીચો

આકૃતિ-૫
આકૃતિ-૬
આકૃતિ-૭

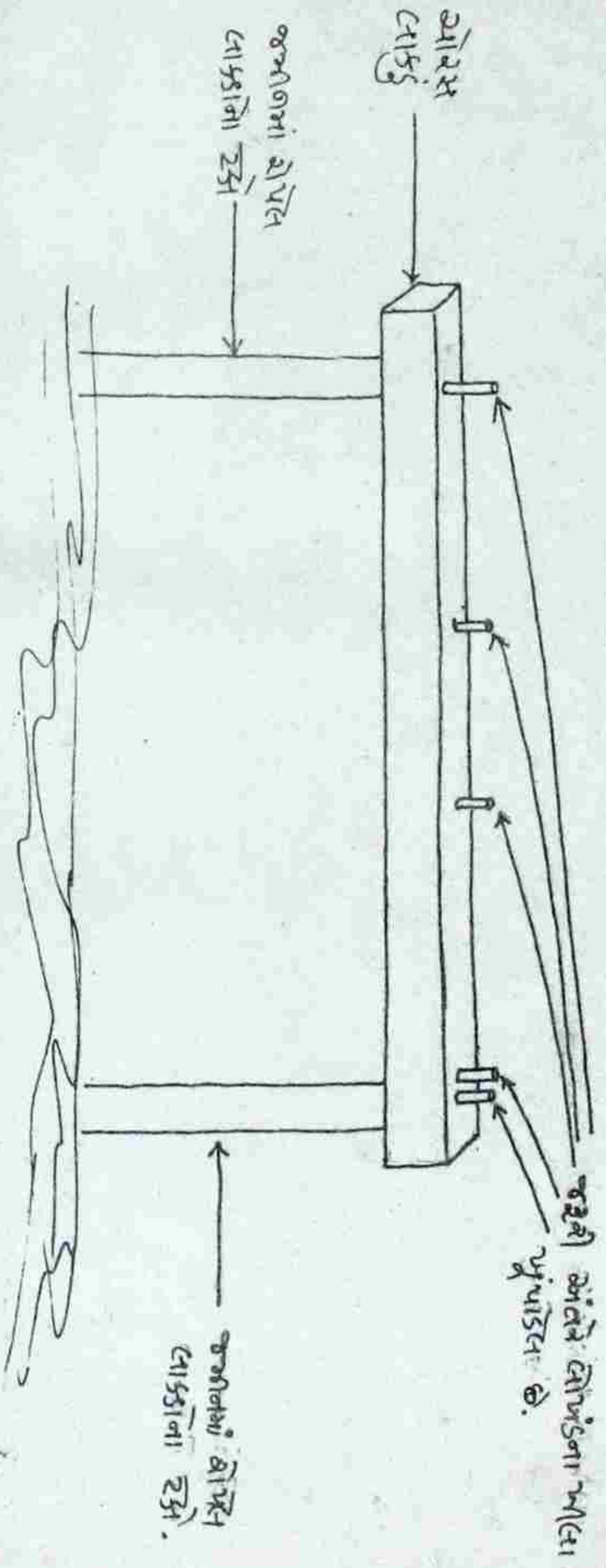




આકૃતિ-૧૦



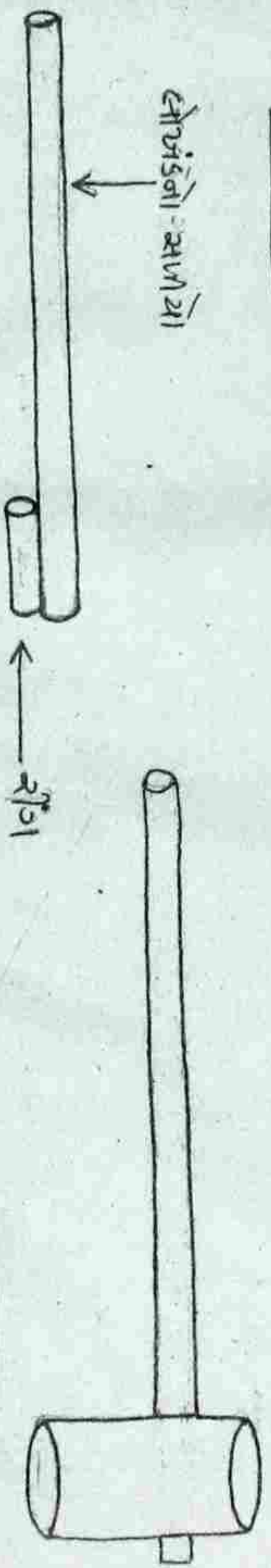
આકૃતિ-૧૨

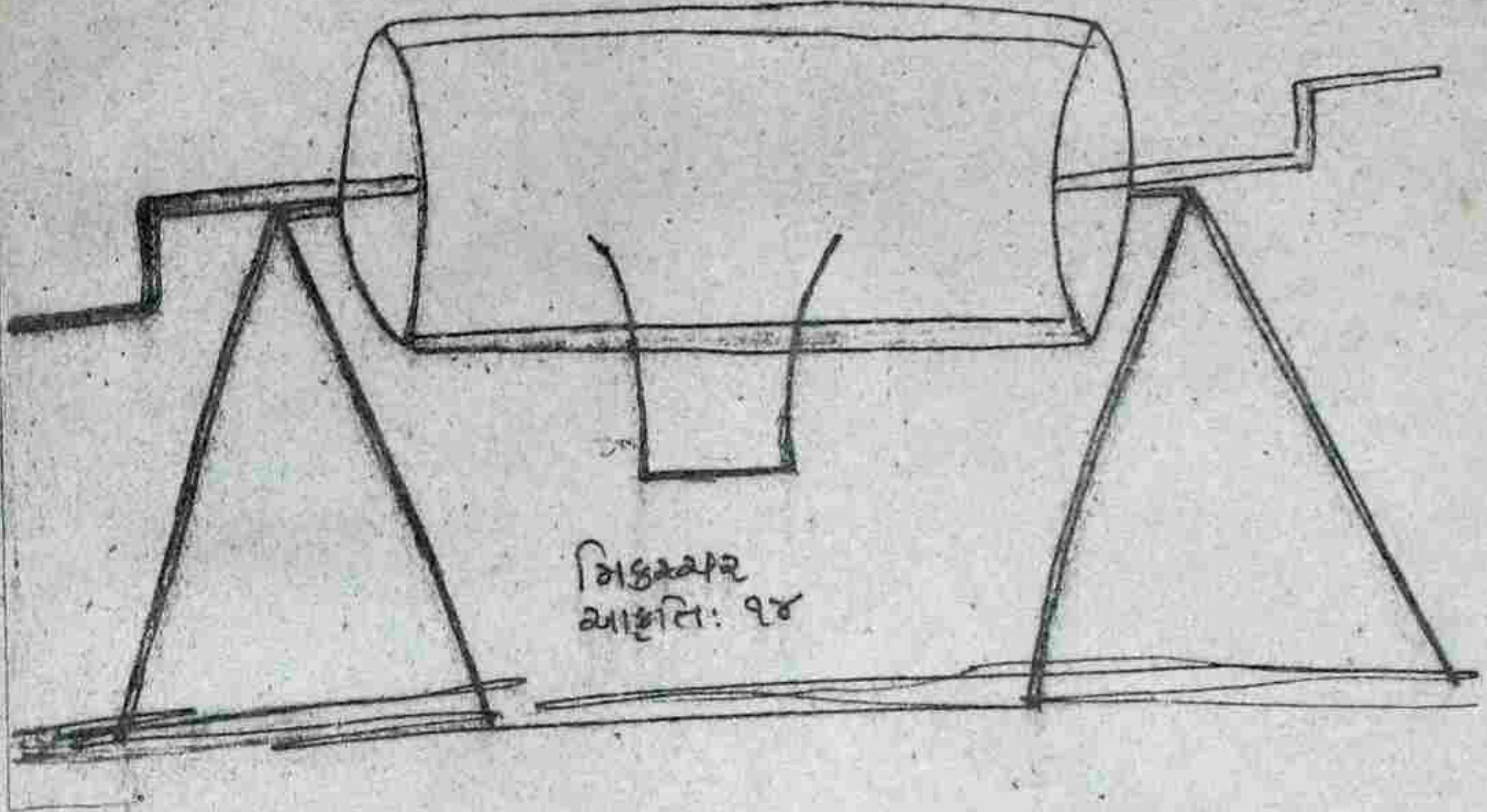


રોંગા પાલું

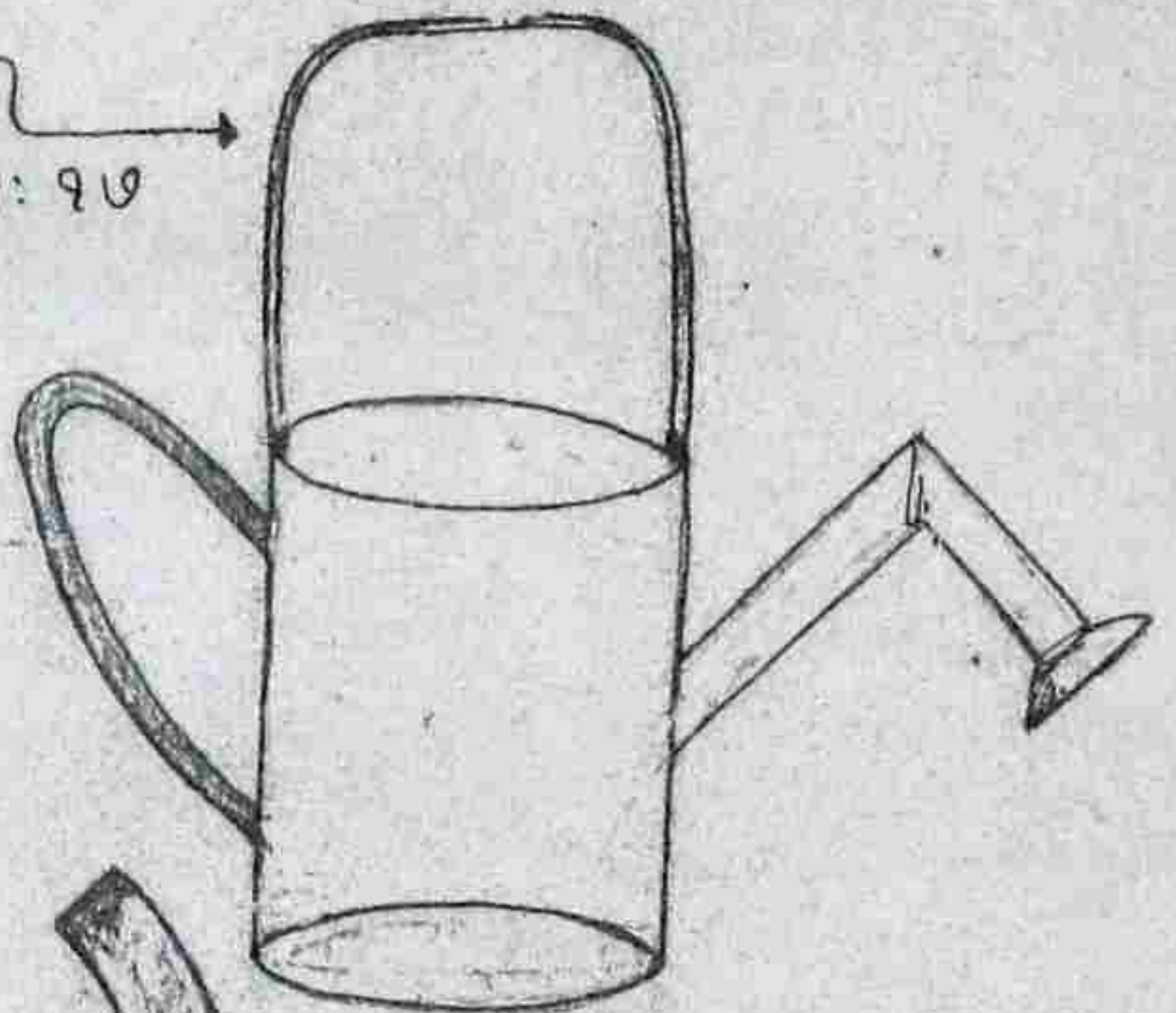
આકૃતિ-૧૧

આકૃતિ-૧૩





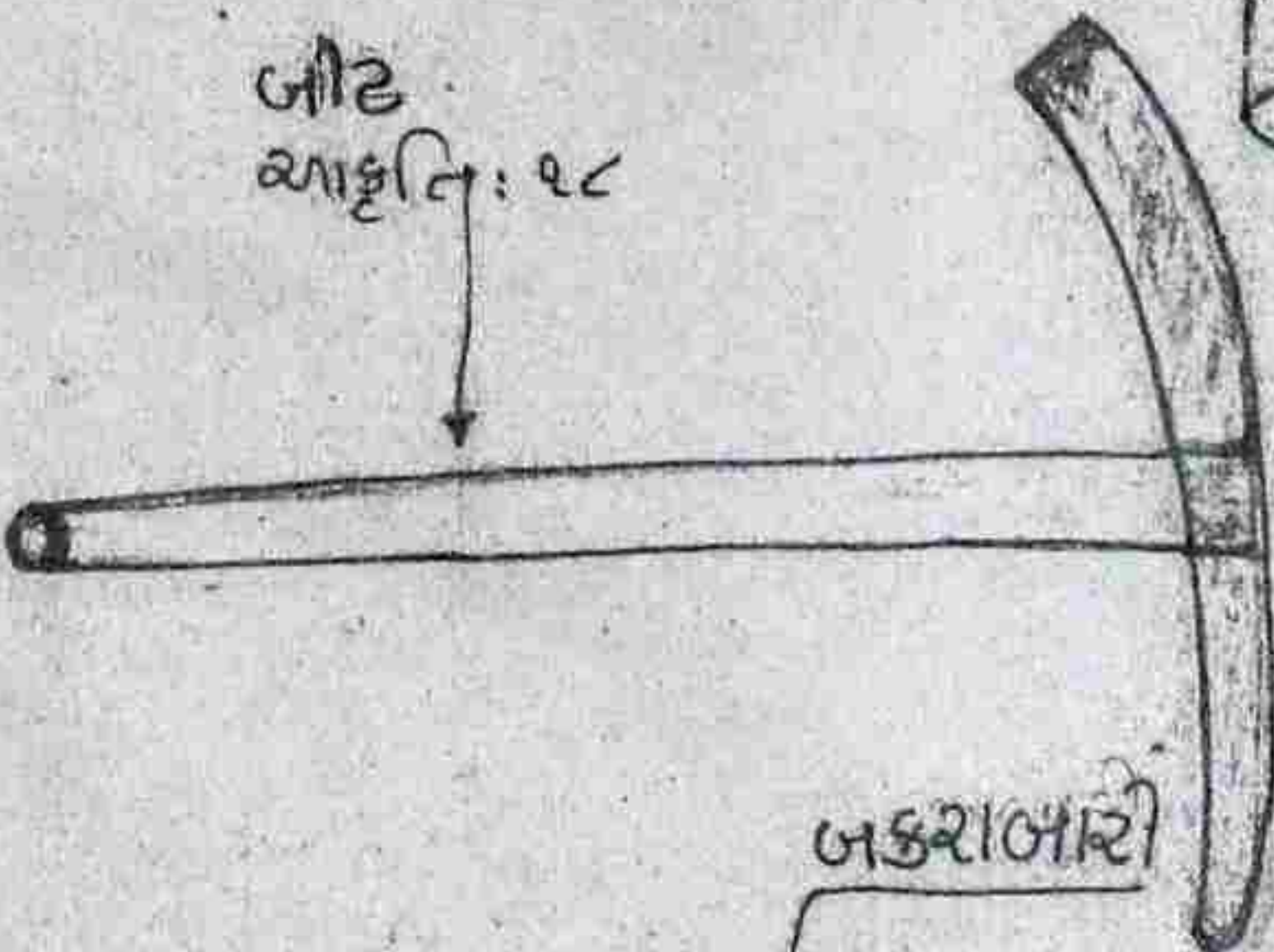
ઝાંરી
આકૃતિ: ૧૭



બ્રશ
આકૃતિ: ૧૬



ખીટ
આકૃતિ: ૧૮

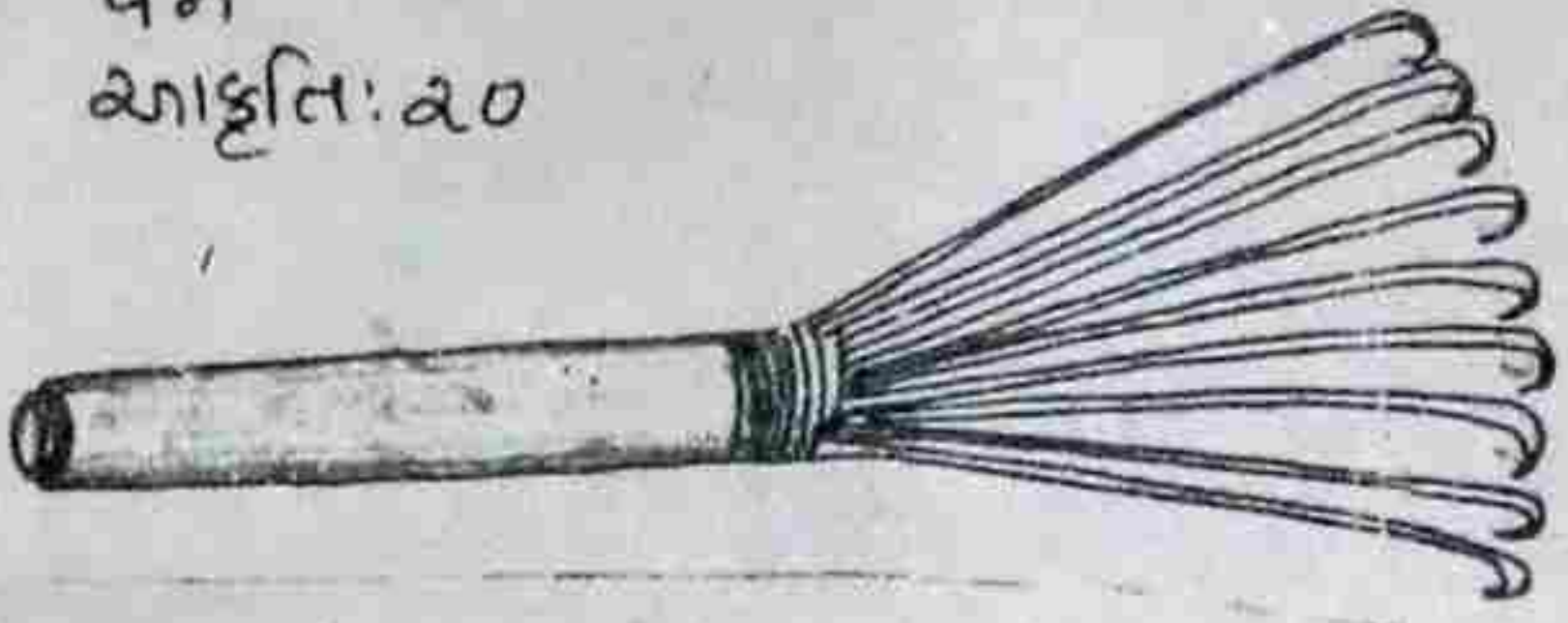


બકરાબારી



આકૃતિ-૧૯

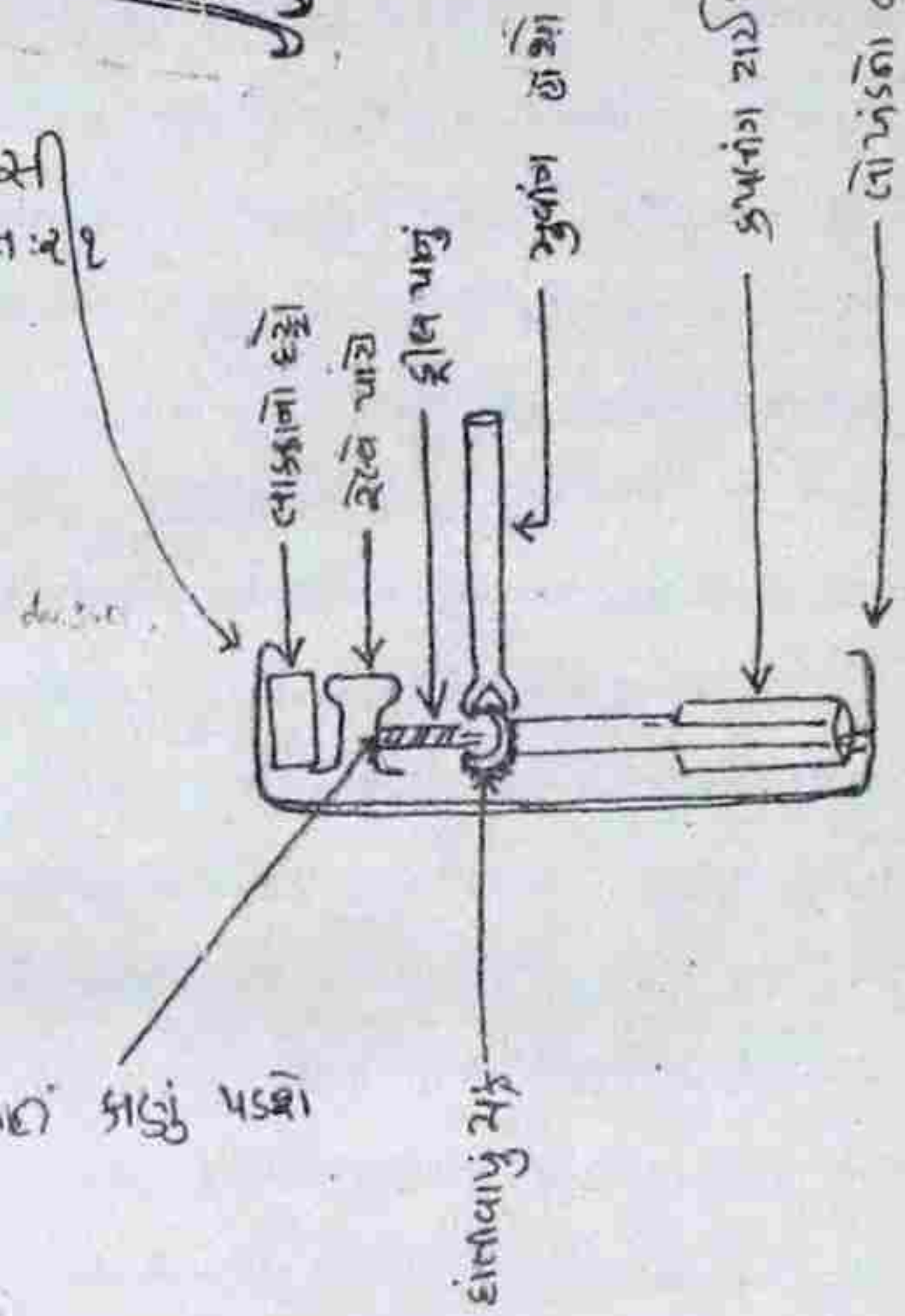
પંખે
આકૃતિ: ૨૦



જાલા
આકૃતિ: ૨૨

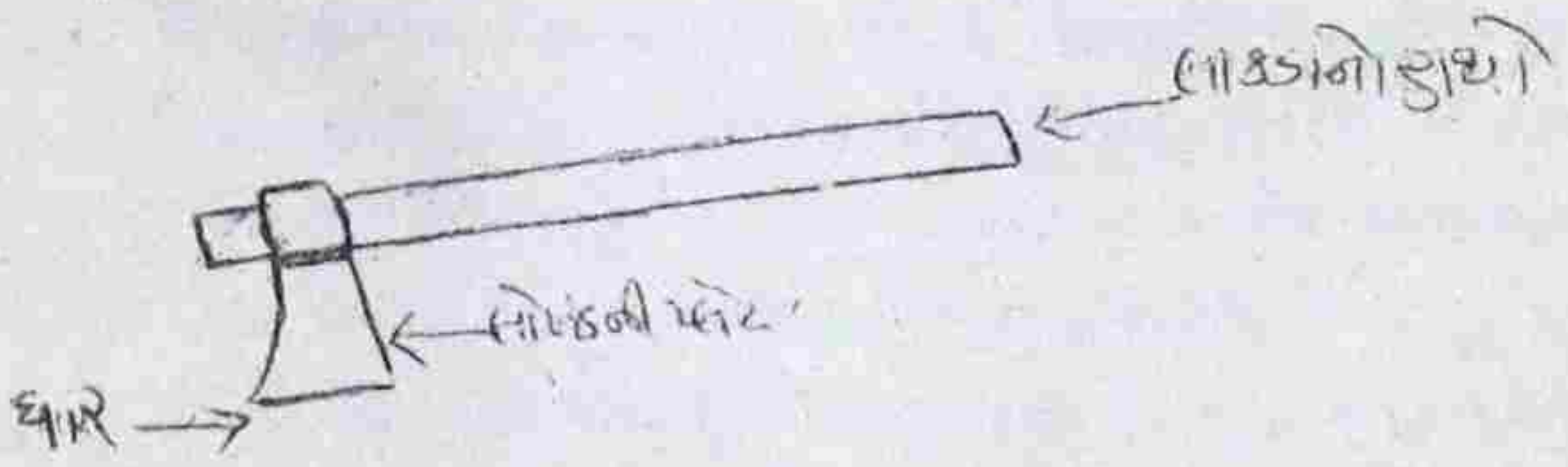


રાસી
આકૃતિ: ૨૧



આકૃતિ-૨૩

પાવડા



જલાડી આકૃતિ: ૨૪

CHAPTER ~~VI~~ VSUMMARY AND RECOMMENDATIONS

In Gujarat several tribes live in precarious poverty. Although they possess cultivable land that does not give them enough produce to maintain their family. In order to meet the basic requirements of their family members, they have to take up subsidiary occupations too, such as animal husbandry, agriculture labour, collection of minor forest produce, miscellaneous types of labour work, fishing, minor carpentry and blacksmithy etc. Quite a big number of tribals seasonally migrate even to distant areas for getting labour work in construction and factories. In construction work, they are found to work either as unskilled or semi-skilled or skilled labourers. They have acquired competence in certain types of labour work in construction industry. The tribal labourers engaged in construction works have to face a number of hardships. On the basis of this study, it has become possible to put forward certain concrete suggestions in order to mitigate their hardships. These are as follows :

1. While they migrate in search of labour work, nearly all the family members go along with them. They have to go to far away places. Due to this, they have to spend considerably big amount on fares. Therefore, it is suggested that the contractors or sub-contractors must be persuaded to meet the cost of transportation to and fro, for all the members of the labourer's family or they may be provided with transport facility to reach at the work site.

7.2

If transport facilities are made available, the labourers would be inspired to be regular and do their work with commitment. During the field work at Navagam dam-site in the Bharuch District it was found that the Bibari labourers were provided vehicle facility for to and from transportation. But the local tribal labourers living in nearby villages were not being given this facility. They had to walk the whole way. Some contractors reimbursed only one side fare and not for the back journey. So, those who come from distant area should be given to and fro fare by their contractors or sub-contractors.

2. Tribals working in railway construction and maintenance work as permanent workers get salary according to the fixed pay scale including all regular allowances and benefits. While tribal labourers working in P.W.D. as permanent labourers and even given employment on regular basis, do not get wages according to pay scale. So, these labourers too ought to be given salary on the basis of pay-scale and other statutory benefits. Tribal labourers working in dam-construction and in canal construction get daily wages or they may get wages according to quantum of brass work, Furlong work or square feet work. In all these works, they do not get equal wage rate or wage rate fixed under the labour laws. During shortage of labourers, the contractors gave them regular wages or were even ready to give more than regular wage rate. But in normal situations, they pay only Rs. 7 to 8 per day to the unskilled labourers. This is serious violation of statutory rules and regulations.

Therefore it is suggested that Government Labour Officers and other officials concerned with enforcement of labour laws should pay special attention toward this abuse of statutory rules and regulations. Even concerned Government Department should pay special attention to make their officers to act with more stringency in this matter. The department may advise steps to take suitable action against erring officials.

3. Building contractors and other contractors take all sort of bizarre labour works from their total labours but pay the standard wages given to unskilled workers i.e. Rs.10 to 12 to ^{male} ~~male~~ labourers and Rs.8 to 10 to female labourers. This is sheer malpractice because they should be paid according to nature of work carried out by them. This exploitation of the tribal labourers must be checked through strict observances of the acts in the labour laws.

Secondly, in building construction and in other construction works too, the tribal labours do not get labour work regularly when the particular phase of works get over. In this situation, they have to wait for certain days and even few weeks for further employment. They have to undergo immense hardship during this waiting period. In certain cases, such tribal workers try to find work elsewhere. There are also instances of starvation and semi-starvation situation during such periods. It is suggested that particular contractor or sub-contractors should find avenues to keep the tribal labours employed in any work. The planning of the works must be done by the contractors in such a way that the tribal labourers do not get interruption in their employment.

4. During the field work at Navagam dam-site, it was clearly observed that quite a large number of Behari labours had been working there. It was reported that they were being given higher wage rates in comparison to what was being given to the local tribal labourers of Gujarat, although their work was quite hard and full of hazards. It is, therefore, suggested that if not legally, at least ethically, in recruitment of labourers, first preference should be given to persons of the surrounding villages and if necessary, then only labourers may be recruited from nearby places but never from far away States. The construction companies and their sub-contract agencies must be persuaded to give due weightage to this issue, so that local labourers may get labour work for longer duration.

5. In most of the cases and in all types of construction works, tools and equipments that tribal labour use are supplied by the contractors and sub-contractors. In railway construction, railway administration supplied necessary tools and equipments. Similarly, P.W.D. also supplied necessary tools and equipments to their tribal labours while in construction works such as dam-construction, canal construction, and building construction, tribal labourers have been found to use their own tools and equipments at certain level of works. Tools and equipments that they generally use are spoutes, different types of sickles, iron-vessels, etc. However, for majority of the labourers it was beyond their means to keep on such costly tools. So many of them have to borrow tools either from their neighbours or relatives or friends.

At some places even contractors and sub-contractors failed to provide sufficient usable tools and equipments. Most of the tools and equipments supplied to the tribal labourers by the contractors and sub-contractors, were insufficient in number and also were partly damaged as well as old and worn out due to long use. In certain cases, tribal labours have to provide some tools as they have been compelled to bring their own tools and equipments if they wanted to work there. So some concrete steps must be taken by which they are able to have better quality of tools and equipments and in sufficient number. Earning better wages as labourers in construction industry entirely depend upon this factor.

6. From the foregoing discussion, it is evident that the contractors and sub-contractors supplied old, worn out and partly damaged tools and equipments to their tribal labourers. It has been observed that the spades and different types of sickles were having bended-edge and extremely thin edges. The tribal labourers were having lot of difficulty to work with those tools and equipments. They have to expend extra energy to do little amount of work solely because of the bad quality of the tools and equipments. It is, therefore, suggested that big contractors can set up independent unit for the proper maintenance and repair of the tools and equipments which other contractors must make suitable arrangement with local artisans to get all tools and equipment repaired at regular intervals. After certain years, all tools and equipments must be replaced with new ones.

6 7. During the field work, it has been observed at every work sites that the wooden handles of spade and different types of sickles were invariably loose. Due to this the spades and sickles have been shaking while using them, as a result of which the tribal labourers were not able to do work properly. On the contrary, their considerable time was being wasted in fixing the handles in proper position. Some times they got frustrated as they could not do sufficient work. Secondly, while using tools having loose handles they became susceptible to serious injuries. Therefore, it is suggested that standardised wooden handles should be used and also changed at regular intervals. Manufacturing companies should manufacture standardised handles made from teak-wood in form of spare parts and also made available everywhere. The contractors and sub-contractors should prefer only such handles as spare parts.

8. At some places, it was observed that the contractors had supplied very heavy and thin edge round shape iron-vessels. As they were heavy and thick edged, tribal female labourers had to take lot of care while carrying loads over their heads. They informed that on several occasions they have been injured when the vessels had tumbled down while carrying load over their heads.

In certain cases, basement side of the iron vessels were damaged, jutting out sharp edges outside. Using such vessels also exposed them to get injured. Therefore it is suggested that edge of vessels should be rounded in round shape and weight should be decreased. If possible better

quality of iron should be used in manufacturing vessels. Even steel plate should be used, at least on experimental base. It is likely that vessels made from steel plate would give longer life and due to considerable low weight, tribal female labourers be able to handle it easily and smoothly.

9. In road construction, brushes are used for sweeping out the dust from the road before carpeting and spraying tar. After longer use of these brushes, their teeth get sharpened. Such sharpened teeth brushes do not remove the dust properly. So, the labourers get easily tired in a short time due to using such sharpened teeth brushes as they have to labour hard in operating such brushes. It will be a great boon to the labourers if such sharpen-teeth brushes are ^{replaced} with new and better quality brushes ~~as above~~. Further, about 3 to 3 1/2 ft. long wooden handle may be fixed on the brushes so that labourers can do cleaning work in standing position. This would make work easier for them and also they would be doing their work neatly without expending unnecessary extra energy. Usually, the brushes contain teeth made from plant-material. But if hard-plastic material teeth can be used, they would give longer life to the brushes.

10. Tribal labours also use shovel to fill up vessels with cement, sand, liquid material, metal-tar mixture etc. The usual shovels used by them are little bit heavy. If steel plate is used in place of the inferior iron-plate which

is being used. This will not bring reduction in weight but also give longer life. Shovels manufactured by the Tata Company are of the best quality. Another point is that in the shovels, small pulley has been fixed at the end of wooden handle. This small pulley function on mechanism for lifting weight. This small pulley helps in reducing the amount of hand labour. But, it had been observed that this small pulley was either damaged or in non-functioning condition. So, the labours had to put much hard labour while operating with these shovels. The contractors and sub-contractors must give serious attention to this matter and see that the small pulleys are fixed properly and are in perfect working condition.

11. 'Rekh' tools is used in road construction and maintenance work for spreading tar metal mixture. This 'Rekh' contains about 4" long teeth. But due to being in use for a considerable longer period, these teeth become short and 'Rekh' with short teeth is not fit for efficient working. So, the contractors must see that such ~~tools~~ worn out and old 'Rekhs' are not supplied to the tribal labourers. They must be given new and better "Rekhs".

12. In road construction, simple mixture equipment is used. This equipment is made up of barrel having handles on both sides and fixed on stand. There is also an arrangement to cover for pouring raw-material and getting mixture-material. This equipment require four male labours for rolling it.

But if ball-bearing system can be fixed that it would considerably reduce the amount of hard labour in operating it. And due to the ball-bearing system two male labours on both sides will be enough to operate it. Adaptation of this system will ^{not} only reduce the number of labours required for the operation of the same equipment. The system of ball-bearing should also be introduced in two-wheel cart for carrying tar metal mixture. Two persons pull such cart, putting lot of energy in pulling and pushing it. By introduction of ball-bearing system, its operation will become easier and smooth. It is also suggested that either rubber belt should be fixed on surface of both the wheels or tyre should be used in order to reduce the amount of hard labour put by the labourers. It will also keep the labourers in working speedily.

13. In road construction works, there were incidents of burning while carrying hot tar in small iron bucket. So, labours working in road construction should be given hand-gloves and Gum-Boots in order to prevent from getting burnt. In cases of burn, contractors and sub-contractors must provide adequate medical treatment.

14. In case of labourers, particularly the female labourers who regularly work for mixing cement/sand, sand and water, their bodily parts always get covered with dust. Although they wash away their hands and other parts of the body, but still the dust particles do not get completely

removed. As a result of this, in the long run they develop skin-diseases such as itching, scabbies, etc. for prevention and cure, steps should be taken by the contractors as well as the health department of the government etc. Institute of Occupational Health may be approached to find a suitable solution.

16. The construction industry has its own promotion system. For the contractors, the major qualification on the part of the labourers is unqualified efficiency for that particular type of labour work. However, they also take into consideration certain other factors, such as regularity, length of experience, etc. But efficiency of the labourer is the basic criteria. Therefore, it is suggested that in consultation with I.T.I. and other Technical Institutes, peripatetic training course should be run in different areas where construction works are going on. In such short training, courses, demonstrations of using tools and equipments, skills in handling and operating those tools and equipments and basic theoretical orientation may be given so that they can develop sub-confidence and get properly equipped in using different tools and equipments. In future, such a training will help them in getting better jobs as well as in improving their occupational status. Railway Administration arranges to impart such training to its tribal workers. Similar arrangements ought to be made in other construction activities, whether in private or public sector. The tribal labourers covered in this survey have

over-whelmingly demonstrated the willingness to undertake such training. This will also help in attracting more tribals to work as labourers in construction activities.

REFERENCES

1. Problems of Tribals
By: Vimal Shah
Navjivan Publication, Ahmedabad-14.
2. Tribals of Gujarat
By: Vimal Shah
Tribal Research & Training Institute,
Gujarat Vidyapith, Ahmedabad-14.
3. Tribal Economy
By: Smt. Kokilaben Shah
Tribal Research & Training Institute,
Gujarat Vidyapith, Ahmedabad-14.
4. Tribal Economy
By: M. I. Masavi
Tribal Research & Training Institute
Gujarat Vidyapith, Ahmedabad-14.
5. Perspective Planning for Tribals of Dangs in 2001
By: Arun Patel
M.D. Desai Samaj Seva Mahavidyalaya
Gujarat Vidyapith, Ahmedabad-14.
6. Construction Labour Market
By: K.K. Subramaniam
D. R. Veena
Bhanumati Parikh
7. Census of India-1971 Gujarat Series-5
Directorate of Census Operation,
Gujarat.
8. Census of India-1981
Final Population Tables Series-5 Gujarat
Director of Census Operation, Gujarat
9. Area Study of Dangs
By: S. S. Solanki
Tribal Research & Training Institute
Gujarat Vidyapith, Ahmedabad-14.

