To

The Dean,

Research Studies,

University of Jammu,

Jammu

**Sub: <u>Final Report of project under SEED grant of Dr.Md. Sarfaraz Asgher, Associate Professor.</u>**

Madam,

With reference to letter No. DRS/24/1150-73 dated 21.05.2024 regarding the subject cited above. In this regard please find enclosed the Final Report of the project and utilization certificate under SEED grant of Dr.Md. Sarfaraz Asgher, Associate Professor. This is for your kind consideration and necessary action.

Thanking you,

18/10/2024

Yours sincerely,

(Prof. Md. Sarfaraz Asgher)

HOD Geography

# P.G. DEPARTMENT OF GEOGRAPHY
# UNIVERSITY OF JAMMU

**No: PGD/Geog/** 22/4030 **Dtd:** 13/06/2022

To

The Deputy Registrar,
RUSA,
University of Jammu,
Jammu.

**Sub: Reports of Projects and details of Utilization of RUSA-2.0 grant.**

Sir/Madam,

With reference to your Circular No. RUSAJU/2022-23/136/12777 dated 26.05.2022 kindly find enclosed herewith the **Reports of Projects and details of Utilization of RUSA-2.0 of : 1. Prof. Anuradha Sharma, HOD, 2. Dr. Mohd. Sarfaraz Asgher, Associate Professor 3. Dr. Shashi Prabha, Assistant Professor and 4. Dr. Inder Jeet Singh, Assistant Professor** who have received Seed Grant/ Strengthening Research Grant under the budget head P03 Expenditure on Capital Account, R11 Research and Innovation. This is for your kind consideration and necessary action.

Thanking you,

Yours sincerely,

(Prof. Anuradha Sharma)
HOD Geography

S.O
13/6

# Project Report (SEED Grant)

# ENVIRONMENTAL IMPACTS OF BRICK KILNS IN AND AROUND JAMMU CITY

**SUBMITTED BY**

DR. Md. SarfarazAsgher
Associate Professor
Department of Geography
Faculty of Science
University of Jammu

This is to submit before your goodself thatRs. 100,000/- has been sanctioned vide letter No. RUSAJU/2/2019-20/36/3888-89 dated 21.11.2019.Since due to lockdown it was difficult to carry extensive field work so Rs. 32,000/ had been re-appropriated from travel to Contingency for the purchase of books.

A detailed field study has been conducted for the purpose. The study area has been surveyed and visited time to time to collect the relevant information. The whole study area has been divided into four zones . To start the work a base map has been prepared and all the brick kilns lying within each zone has been mapped. The survey was conducted by hiring services. A total of 88 working brick kilns were found in the study area with working as well as in abandoned condition. Two separate questionnaire were prepared, one for the brick kiln owners and other for the households residing near the brick kilns. On the basis of the questionnaire the data and observation were recorded. Both the abandoned and working brick kilns were mapped for detail analysis.

The study revealed that 12 bricks were found in Zone I within the distance of 15 kms, Zone-II 28 brick kilns (16 to 20 kms), 26 brick kilns in Zone III- 21-25 kms and 22 brick kilns in Zone-IV (26 to 30 kms).

**Abandoned Brick Kilns**

Zone I reported of having 2 kilns abandoned, likewise Zone II-3, Zone III-4 and Zone IV- only 1 kiln was in not found in working condition.

As for as abandoned kilns are concerned 10 brick kilns were located in the villages Purkhoo, Mishriwala, BawaTalab, Dayaran, Raya Morh, DadayalBrahmana. These brick kilns acquired 50 acres of land for kiln construction and land for quarrying. At present the land which were acquired for soil quarrying are either in use for agriculture or for residential purpose or became waste land. The survey revealed that the agriculture productivity is less on the quarried land.

**Land Owning for Kilns**

Only 43 brick kilns were found to be established by own land by the kiln owners where as rest of the owners own their land on leased land. The land were initially leased for 4 years.

**Querying of Soil**

Thus as a whole 78 brick kilns were found in working condition. In Zone I, 60% of the kilns use to dug soil upto 1-2 meters depth. In the whole study area 55.12 % of kilns dug the soil between 1-2 meters, 38.46 between 2-3 meters depth.

**Fuel Used**

The fuel consumption vary between 60 to 80 tons in different kilns. Around 44brick kilns in all the zones consumes between 60 to 70 tons, 22 kilns consumes- 50 to 60 tons, and 10 kilns consumption pattern is more than 80 tons. The survey revealed that the owners are using the imported coal from USA. Very few kilns reported the coal used from own country.

**Amount of Waste Generation**

Waste generated in the brick kiln in the form of broken bricks, dust, heaps of unburned fuel, wood dust, flyash are the big problem, which has negative impact on the environment. The survey revealed that tons of waste are being generated after every rotation of burning. 29 brick kilns use to generate 20 to 40 tons of waste, 48 kilns generates 50 to 70 tons of waste in the kiln area.

**Height of the Chimney**

Since the height of the kilns plays a vital role for the pollution so it should be standardizedaccording to the rule of pollution board. In the study area all the brick kilns were found above 100 feet, whereas 35 kilns were having between the heights of 125 to 150 feet.

**Workers working in the Brick kilns**

As a whole each brick kilns needs large number worker from the process of construction of the kiln, to querying of soil, molding of soil and backing of the soil. So generally more than 100 workers at a time is needed. During the survey it was found that maximum of the kiln i.e. 70 in number where between (100 to 150) workers were found working at a time.

**Impact of querying on agricultural productivity**

During the survey information were also taken related to the production and productivity both from the un-queried and queried land. The study revealed that the productivity was far less in the queried land and more fertilizers were used to get desired yields. Thus in a long run the soils loses its fertility characteristics.

**Annual waste generation**

During the survey it was observed that as a whole all the 78 brick kilns generates about 1,235 tons of waste, which has further aggravated the problem of their dumping.

**Water Logging Problem**

Since the raw material for manufacturing good bricks are the good soil. So soil cant be carried out from long distance. Thus around the brick kilns it was found that the agricultural land were converted to 3 to 4 feet ditches for soil querying. These low lying queried land are facing the water logging problem which further aggravated the environmental problem for the residents as these water logged area became the breeding ground for pests and has negative impact on their health.

**Respondents Perception and Response residing nearby villages**

The perception of the respondents were recorded by the questionnaire interview method. As a whole only 11.36 % were benefited economically from the brick kilns, 34.84% were reported the environmental impacts. Thus 49.9 % respondents were happy due to the establishment of brick kilns in their area whereas 45.45 % were unhappy. About 73.48 % respondents were not willing to have further brick kilns in their area and only 26.51 % were willing to have more kilns in their area. Only those respondents were willing who are either economically benefitted or who leased out their land for querying of soil in their agricultural land. The survey further revealed that about 31.06 % of the respondent near the kiln leased out their land for soil querying. Because of the establishment of the kiln the nearby residents also reported to have confronted with the diseases like respiratory problem, skin diseases, heat stroke etc.

**Details of Expenditure**

Sanctioned Amount- Rs. 100, 000/-

Rs 32,000 has been re-appropriated from Travel to Contingency for purchase of books.

| **Funds under various head** | **Actual Expenditure** | **Balance Amount** |
|---|---|---|
| Consumables- Rs.15, 000 | Books- 32000/- | Rs.1399 |
| Contingency Rs.20, 000 | Stationary-32,626/-+975 | |
| Travel- Rs.40, 000/- | TA/DA-7,750/- | Rs.250/- |
| Any Other (Hiring) Rs. 25, 000/- | Hiring services-24,544/- | Rs.456 |
| | Total- 97,895/- | Total-2,105/- |

Dr.Md. Sarfaraz Asgher
Associate Professor
Department of Geography
University of Jammu

**FINANCIAL APPROVAL FOR SEED GRANT ASSISTANCE TO ASSISTANT PROFESSORS FOR FORMULATION OF RESEARCH PROJECT PROPOSALS UNDER RUSA 2.0**

**NAME OF THE FACULTY** : **Dr. Sarfaraz Asghar**

**DEPARTMENT** : **Geography**

Sanction is hereby accorded for the financial assistance for formulation of research Proposals under RUSA 2.0 as per details given hereunder:-

| S.No | Item | Amount |
|---|---|---|
| 1. | **Consumables** | Rs.15000/- |
| 2. | **Travel (Domestic & Field)** | Rs.40000/- |
| 3. | **Contingency** | Rs.20000/- |
| 4. | **Any other Head** Hiring services | Rs.25000/- |
| | **Total** | **Rs.100000/-** |

You are required to meet the said expenditure as per university norms, GFR-2017 & guidelines issued vide No. RUSAJU/2019-20/36/716-766 dated 16.08.2019.

21/11/19

**DEPUTY REGISTRAR (RUSA)**

**No: RUSAJU/2/2019-20/36/3888-89**
**Date:** 21-11-2019

Copy to:

1. HOD, Geography
2. The concerned is requested to kindly submit the bills after observing all codal formalities and norms under the budget head **P03 Expenditure on Capital Account, R-11 Research & Innovation**

Dr. Sarfaraz Asghar

25th NOV'19

# UNIVERSITY OF JAMMU

No. RUSAJU/2/2020-21/36/3692-93
Dated 29-12-2020

Dr. Mohd. Sarfaraz Asgher
Department of Geography,
University of Jammu,
Jammu.

Sir,

This is in reference to your letter No.PGD/Geog/4129 dated 11.11.2020 regarding re-appropriation of the unspent amount under head "Travel" to "Contingency" for the purchase of books under RUSA 2.0. In this connection, it is to inform that a meeting was convened on 02.12.2020 under the Convenorship of Hon'ble Vice-Chancellor. As resolved, your proposal has met the approval of the Competent Authority.

This is for your kind information and further necessary action please.

Thanking you,

Yours faithfully,

**DEPUTY REGISTRAR (RUSA)**

29/12/2020

**Copy to:-**

- Head, Department of Geography

# RESPONSE SHEET FOR BRICK KILN OWNERS

| ZONE I | | | | | |
|---|---|---|---|---|---|
| S.NO | DISTANCE (KM) | NAME | BRAND | VILLAGE | ROAD |
| 1 | 13 | SHIV SHANKAR BRICK KILN (ABANDONED) | SSK | PURKHOO | AKHNOOR ROAD |
| 2 | 14 | JAI RAJA MANDLIK BRICK KILN | RBI | PURKHOO | AKHNOOR ROAD |
| 3 | 13 | NAND BRICK KILN | NBK | PURKHOO | AKHNOOR ROAD |
| 4 | 15 | SHIV SHAKTI BRICK KILN | SSK | NAGBANI | AKHNOOR ROAD |
| 5 | 15 | TRISHUL BRICK KILN | TMK | MISHRIWALA | AKHNOOR ROAD |
| 6 | 14 | J G K BRICKS | JGK | MUTHI | AKHNOOR ROAD |
| 7 | 14 | OM BRICKS INDUSTRIES | OM | MISHRIWALA | AKHNOOR ROAD |
| 8 | 14 | | | | AKHNOOR ROAD |
| 9 | 12 | BHRIGU KILN | BKJ | DOMANA | AKHNOOR ROAD |
| 10 | 11 | KAVI KILN | VK | DOMANA | AKHNOOR ROAD |
| 11 | 11 | BHARAT EARTH PROJECT | BEP | DOMANA | AKHNOOR ROAD |
| 12 | 15 | JAI BHAGWATI KILN | BBK | MISHRIWALA | AKHNOOR ROAD |

| ZONE II | | | | | |
|---|---|---|---|---|---|
| 1 | 16 | SUBRAT BRICK KILN | OM | MISHRIWALA | AKHNOOR ROAD |
| 2 | 17 | SHARMA KILN | SKD | DARAYAN | AKHNOOR ROAD |
| 3 | 18 | OMP BRICK KILN | OMP | DARAYAN | AKHNOOR ROAD |
| 4 | 19 | SHARDA BRICK KILN | JKD | DARAYAN | AKHNOOR ROAD |
| 5 | 20 | SHARMA BRICK KILN | MLK | DARAYAN | AKHNOOR ROAD |
| 6 | 19 | | TKG | DARAYAN | AKHNOOR ROAD |
| 7 | 16 | KAILASH KILN KANGRAIL | KKK | KANGRAIL | AKHNOOR ROAD |
| 8 | 20 | BALWANT SINGH KILN | RSK | RAKH BARN | AKHNOOR ROAD |
| 9 | 18 | SHARMA KILN DARAYAN | SKD | DARAYAN | AKHNOOR ROAD |
| 10 | 19 | NORTHERN KILN | NK | KANGRAIL | AKHNOOR ROAD |
| 11 | 20 | TIRLOK SINGH KILN | TSK | KOTLI ARJUN SINGH | R S PURA ROAD |
| 12 | 20 | ZIMINDARA BRICK KILN INDUSTRY | ZBI | BADYAL | R S PURA ROAD |
| 13 | 16 | MAHALAKSHMI BRICK KILN | MLK | DAYARAN | AKHNOOR ROAD |
| 14 | 17 | SHAT SHAH BRICK KILN INDUSTRY | TKG | DAYARAN | AKHNOOR ROAD |

| | | | | | |
|---|---|---|---|---|---|
| 15 | 16 | MAHAJAN BRICK KILN | MBK | DAYARAN | AKHNOOR ROAD |
| 16 | 16 | CHOUDHARY BRCK KILN (ABD.) | CHK | BAWA TALAB | AKHNOOR ROAD |
| 17 | 17 | | CHK | | AKHNOOR ROAD |
| 18 | 20 | TRISHUL B. K. | TBK | RAKH BARN | AKHNOOR ROAD |
| 19 | 19 | CAPTAIN OMKAR BRICK KILN | OKB | BARN PATTA | MARJALI ROAD |
| 20 | 18 | NEELAM SINGH BRICK INDUSTRY | PATTA | PATTA | MARJALI ROAD |
| 21 | 20 | LAKSHMI BRICK KILN | LBK | MARJALI | MARJALI ROAD |
| 22 | 20 | M/S DURGA BRICK KILN | DKG | DHARAMB KHU | MARJALI ROAD |
| 23 | 19 | JEWA SINGH BRICK KILN | JS | GHUMPAL | AKHNOOR ROAD |
| 24 | 19 | JAGDAMBA BRICK INDUSTRY | JS | GHUMPAL | AKHNOOR ROAD |
| 25 | 17 | NIRMAN ADYOG BRICK KILN | OM | SHIMLA WALA | AKHNOOR ROAD |
| 26 | 18 | NIRMAN ADYOG BRICK KILN | OM | BAWA TALAB | AKHNOOR ROAD |
| 27 | 18 | KALKA BRICK KILN | KBK | BAWA TALAB | AKHNOOR ROAD |
| 28 | 19 | M/S RADHA KRISHAN BRICK KILN | CHK | BAWA TALAB | AKHNOOR ROAD |

| ZONE III | | | | | |
|---|---|---|---|---|---|
| 1 | 24 | KRSIHNA BRICK INDUSTRY | JBK | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 2 | 22 | GURUMUKH SINGH BRICK KILN | GSK | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 3 | 24 | BANARSI DAS SAT BRICK KILN | BS | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 4 | 24 | KALA BRICK KILN | KVK | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 5 | 24 | M/S NEW GURDAYAL BRICK KILN | NGK | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 6 | 25 | GURDAYAL BRICK KILN | GHK | BADILA | BADYAL BRAHMNA ROAD |
| 7 | 23 | | SBIB | | BADYAL BRAHMNA ROAD |
| 8 | 23 | ZIMINDARA BRICK KILN | ZBI | BADYAL | BADYAL BRAHMNA ROAD |
| 9 | 25 | JAWALA BRICK KILN | JBK | NADI KHEPAR | DASOLE ROAD |
| 10 | 22 | CHOWDHARY BRICK KILN | CBK | PATLI MORH | NH1 |
| 11 | 25 | AJAY BRICK KILN | ABK | RAYA MORH | NH1 |
| 12 | 22 | | MBK | RAYA MORH | NH1 |
| 13 | 23 | | OMP | | NH1 |
| 14 | 23 | JAI LAKSHMI BRICK KILN (ABD.) | J BK | MARHOON | NH1 |
| 15 | 25 | UNITED BRICK KILN | UBK | KARYAL BRAHMNA | NH1 |
| 16 | 25 | SANJEEV BRICK KILN | RP | JAKH | JAKH ROAD |
| 17 | 24 | SIKANDER ENTERPRISES | KB | SARORE | SARORE ROAD |
| 18 | 23 | ANKUR KUMAR BRICK KILN INDUSTRY | AK | SARORE | SARORE ROAD |
| 19 | 25 | LASHPATI BRICK KILN | LPK | RAKH BARN | AKHNOOR ROAD |
| 20 | 22 | NEW KRISHNA BRICK KILN | KKB | RAKH BARN | MARJALI ROAD |
| 21 | 20 | TRISHUL B. K. | TBK | RAKH BARN | MARJALI ROAD |
| 22 | 25 | RAYA BRICK KILN | RBK | BARN PATTA | MARJALI ROAD |

| | | | | | |
|---|---|---|---|---|---|
| 23 | 22 | MOHINDER BRICK KILN | MKB | BARN PATTA | MARJALI ROAD |
| 24 | 22 | BHAGWAT BRICK KILN | BBK | BATERAH | AKHNOOR ROAD |
| 25 | 23 | SHRI GANESH BRICK KILN | GBK | DHARAMB KHU | AKHNOOR ROAD |
| 26 | 21 | RAJA MANDLIK BRICK KILN | RMK | MARJALI | AKHNOOR ROAD |

| ZONE IV | | | | | |
|---|---|---|---|---|---|
| 1 | 26 | M/S MAHAJAN BRICK KILN | MBIB | BADYAL BRAHMNA | BADYAL BRAHMNA ROAD |
| 2 | 26 | JBK | JBK | NADI KHEPAR | DASOLE ROAD |
| 3 | 26 | M/S OM BRICK KILN | DDA | JAKH | JAKH ROAD |
| 4 | 27 | R K BRICK KILN | RKB | BANDRALI | ANANDPUR ROAD |
| 5 | 28 | NAND KISHORE BRICK KILN | NK | SOUNGLI | ANANDPUR ROAD |
| 6 | 28 | KRISHAN KUMAR BRICK KILN | KKK | SOUNGLI | ANANDPUR ROAD |
| 7 | 30 | R N BRICK INDUSTRY | RN | DABUJ KAKA | VIJAYPUR-BHAGATPUR LINK ROAD |
| 8 | 26 | M K BRICK KILN | MKK | DABUJ KAKA | VIJAYPUR-BHAGATPUR LINK ROAD |
| 9 | 30 | MADAN KISHORE BRICK KILN | MKK | BHAGATPUR | VIJAYPUR-BHAGATPUR LINK ROAD |
| 10 | 27 | N D BRICK KILN | ND | BHAGATPUR | VIJAYPUR-BHAGATPUR LINK ROAD |
| 11 | 27 | CHOUDHARY BRICK KILN | CBK | BHAGATPUR | VIJAYPUR-BHAGATPUR LINK ROAD |
| 12 | 27 | R F BRICK KILN | RF | BHAGATPUR | VIJAYPUR-BHAGATPUR LINK ROAD |
| 13 | 26 | R K BRICK KILN | | PATLI MORH | BADOI ROAD |
| 14 | 28 | NANDEEP BRICK KILN | NK | BADOI | BADOI ROAD |
| 15 | 27 | CLEVES BRICK INDUSTRY | CBI | BADOI | BADOI ROAD |
| 16 | 29 | VAID BRICK KILN | RCM | RAKH BADOI | BADOI ROAD |
| 17 | 29 | S G ENTERPRISES | OM | JAKH | BADOI ROAD |
| 18 | 27 | I Q BRICK INDUSTRY | IO | JAKH | BADOI ROAD |
| 19 | 26 | NAJWAL BRICK AND TILE INDUSTRY | JK | NAJWAL | BADOI ROAD |
| 20 | 26 | AMAR BRICK AND TILES | JK | NAGBANI | BADOI ROAD |
| 21 | 26 | TILAK RAJ GUPTA BRICK INDUSTRY | TRG | KHERI | BADOI ROAD |
| 22 | 27 | SEELAM BRICK INDUSTRY | JK | KHERI | BADOI ROAD |

- DISTRIBUTION OF ABANDONED BRICK KILN IN VILLAGES

| NO. OF ABANDONED BRICKS | VILLAGES IN WHICH THEY ARE LOCATED | TOTAL AREA (IN | PRESENT LAND UTILISATION |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | | ACRE) | |
| 10 | PURKHOO, MISHRIWALA, BAWA TALAB, DAYARAN, RAYA MORH, BADAYAL BRAHMNA | 50 | AGRICULTURAL LAND, OTHERS, RESIDENT AREA, WASTE LAND |

- ZONE WISE DISTRIBUTION OF BRICK KILN ACCORDING TO OWNERSHIP OF LAND

| ZONES | NO. OF BRICK KILNS | WORKING | ABANDONED | OWN LAND | LEASED | PERIOD OF LEASE |
|---|---|---|---|---|---|---|
| ZONE I (0-15 KM) | 12 (13.6%) | 10 | 2 | 3 (33.3) | 7 (66.67) | >4 YRS |
| ZONE II (16-20 KM) | 28 (31.8%) | 25 | 3 | 11 (44 | 14 (66) | >4 YRS |
| ZONE III (21-25 KM) | 26 (29.5%) | 22 | 4 | 15 (68.18) | 6 (31.82) | >4 YRS |
| ZONE IV (26-30 KM) | 22 (25%) | 21 | 1 | 14 (66.67) | 7 (33.33) | >4 YRS |

- ZONE WISE DISTRIBUTION OF BRICK KILN ACCORDING TO DEPTH OF SOIL DUG UP DURING A ROTATION IN METRES

| ZONES | NO. OF WORKING BRICK KILNS | <1 mts | 1-2 mts | 2-3 mts | >3 mts |
|---|---|---|---|---|---|
| ZONE I (0-15 KM) | 10 | 1 (10) | 6 (60) | 3 (30) | 0 |
| ZONE II (16-20 KM) | 25 | 1 (4) | 9 (36) | 14 (56) | 1 (4) |
| ZONE III (21-25 KM) | 22 | 0 | 17 (70.27) | 4 (18.18) | 1 (4.5) |
| ZONE IV (26-30 KM) | 21 | 1 (4.7) | 11 (52.38) | 9 (42.85) | 0 |
| TOTAL | 78 | 3 (3.84) | 43 (55.12) | 30 (38.46) | 2 (2.56) |

- ZONE WISE DISTRIBUTION OF ACCORDING TO PRODUCTION OF BRICKS

| ZONES | NO. OF WORKING BRICK KILNS | <20 lacs | 20-40 lacs | 40- 60 lacs | >60 lacs |
|---|---|---|---|---|---|
| ZONE I (0-15 KM) | 10 | 2 (20) | 7 (70) | 1 (10) | 0 |
| ZONE II (16-20 KM) | 25 | 6 (24) | 18 (72) | 1 (4) | 0 |
| ZONE III (21-25 KM) | 22 | 11 (50) | 11 (50) | 0 | 0 |
| ZONE IV (26-30 KM) | 21 | 2 (9.5) | 18 (85.7) | 1 (4.7) | 0 |
| TOTAL | 78 | 21 (26.9) | 54 (69.23) | 3 (3.8) | 0 |

- ZONEWISE DIDTRIBUTION OF BRICK KIL ACCORDING TO CONSUMPTION OF FUEL

| ZONES | LESS THAN 60 TONS | 60-70 TONS | 70-80 TONS | MORE THAN 80 TONS |
|---|---|---|---|---|
| ZONE I (0-15 KM) | 1 (10) | 8 (80) | 1 (10) | 0 |
| ZONE II (16-20 KM) | 6 (24) | 12 (48) | 1 (4) | 6 (24) |
| ZONE III (21-25 KM) | 8(36.36) | 13 (59.09) | 0 | 1 (4.5) |
| ZONE IV (26-30 KM) | 7 (33.33) | 11 (52.38) | 0 | 3 (14.28) |
| TOTAL | 22 | 44 | 2 | 10 |

- ZONEWISE DISTRIBUTION OF BRICK KILN ACCORDING TO AMOUNT OF WASTE GENERATION

| ZONES | LESS THAN 20 TONS | 20-40 TONS | MORE THAN 40 TONS | OTHERS (NOT RESPONDED) |
|---|---|---|---|---|
| ZONE I (0-15 KM) | 7 (70) | 2 (20) | 0 | 1 (10) |
| ZONE II (16-20 KM) | 17 (68) | 8 (32) | 0 | 0 |
| ZONE III (21-25 KM) | 15(68.18) | 7 (31.81) | 0 | 0 |
| ZONE IV (26-30 KM) | 9 (42.85) | 12 (57.14) | 0 | 0 |
| TOTAL | 48 | 29 | 0 | 1 |

- ZONEWISE DISTRIBUTION OF BRICK KILN ACCORDING TO HEIGHT OF CHIMNEYS

| ZONES | 100-125 FT. | 125-150 FT. | MORE THAN 150 FT. |
|---|---|---|---|
| ZONE I (0-15 KM) | 2 (20) | 6 (60) | 2 (20) |
| ZONE II (16-20 KM) | 22 (88) | 3 (12) | 0 |
| ZONE III (21-25 KM) | 9 (41) | 13 (59) | 0 |
| ZONE IV (26-30 KM) | 8 (38.1) | 13 (61.9) | 0 |
| TOTAL | 41 | 35 | 2 |

- ZONEWISE DISTRIBUTUION OF BRICK KILNS ACCORDING TO NUMBERS OF WORKERS

| ZONE | 50-100 | 100-150 | 150-200 |
|---|---|---|---|
| ZONE I (0-15 KM) | 2 (20) | 8 (80) | 0 |
| ZONE II (16-20) | 1(4) | 24 (96) | 0 |
| ZONE III (21-25 KM) | 0 | 20 (91) | 2 (9) |
| ZONE IV (26-30 KM) | 1 (4.7) | 18 (85.71) | 2 (9.5) |
| TOTAL | 4 | 70 | 4 |

- ZONE WISE PRODUCTION AND ANNUAL WASTE GENERATION OF WORKING BRICK KILNS

| ZONES | NO. OF WORKING BRICK KILN | PRODUCTION OF BRICKS (IN LACS) | ANNUAL WASTE GENERATION (IN TONS) |
|---|---|---|---|
| ZONE I | 10 | 255 (15.22) | 200 (16.19) |
| ZONE II | 25 | 600 (35.82) | 370 (29.95) |
| ZONE III | 22 | 260 (15.52) | 350 (28.34) |
| ZONE IV | 21 | 560 (33.43) | 315 (25.50) |
| TOTAL | 78 | 1675 | 1235 |

## RESPONSE SHEET

- IMPACT OF BRICK KILNS ON SOCIETY AND PEOPLE

| ECONOMICALLY (A) | ENVIRONMENTALLY (B) | SOCIALLY (C) | BOTH A&B | BOTH B&C | A,B&C | OTHERS | N.R |
|---|---|---|---|---|---|---|---|
| 11.36% | 34.84% | 2.27% | 9.09% | 18.18% | 13.63% | 1.51% | 9.09% |

- PEOPLE HAVING OWN LAND

| Land owners | Landless |
|---|---|
| 87.12% | 12.87% |

- DISTRIBUTION OF THOSE WHO OWNED LAND

| BELOW 8 KANALS | 8-16 KANALS | ABOVE 16 KANALS | N.R |
|---|---|---|---|
| 53.78% | 17.42% | 9.84% | 18.93% |

- DISTRIBUTION OF PEOPLE THOSE WHO ARE HAPPY

| Happy | Unhappy | N.R |
|---|---|---|
| | | |

| | | |
|---|---|---|
| 40.9% | 45.45% | 10.6% |

- TRADITIONAL OCCUPATION OF THE PEOPLE

| AGRICULTURE | ZAMIDAR | BOTH AGRICULTURE AND BUSINESS | OTHERS |
|---|---|---|---|
| 70.45% | 2.27% | 1.52% | 25.75% |

- REASON OF CHANGING AGRICULTURE AS TRADITIONAL OCCUPATION & DISTRIBUTION

| ECONOMIC REASONS | OTHERS | NO CHANGE |
|---|---|---|
| 4.54% | 4.45% | 90.9% |

- REASONS FOR NOT OPTING AGRICULTURE

| LESS RETURNS | OTHERS | N.R |
|---|---|---|
| 10.60% | 2.27% | 87.12% |

- DISTRIBUTION AND TYPE OF AGRICULTURE

| SUBSISTANCE ONLY | COMMERCIAL ONLY | BOTH SUBISTANCE AN COMMERCIAL | N.R |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| 75% | 0% | 9.1% | 15.90% |

- DISTRIBUTION OF PEOPLE WHO ARE WILLING FOR HAVING BRICK KILNS

| PEOPLE WILLING TO HAVE BRICK KILNS | PEOPLE DON'T WANT HAVE BRICK KILNS |
|---|---|
| 26.51% | 73.48% |

- DISTRIBUTION OF PEOPLE WHO LEASED THEIR LAND FOR QUARRING TO BRICK KILNS

| LEASED ATLEAST ONCE | NEVER LEASED |
|---|---|
| 31.06% | 68.93% |

- DISTRIBUTION OF PEOPLE WHO BELIEVE IN CHANGE IN THE QUANTITY OF FERTILIZER

| INCREASE | DECREASE | SAME |
|---|---|---|
| 74.35% | 10.25% | 15.38% |

- DISTRIBUTION OF PEOPLE FACING DISEASE DUE TO BRICK KILN

| DISEASE | PEOPLE AFFECTED (%) |
|---|---|
| RESPIRATORY (A) | 46.21 |
| SKIN DISEASES & RESPIRATORY | 6.05 |

| | |
|---|---|
| HEAT STROKE & RESPIRATORY | 3.79 |
| CANCER , HEART % EYE WEAKNESS | 0.76 |
| HEART PROBEM & RESPIRATORY | 2.28 |
| EYE SIGHT WEAKNESS & RESPIRATORY | 6.05 |
| NO DISEASE | 30.31 |
| EYE WEAKNESS & HEART PROBLEM | 1.52 |
| HEALTH PROBLEM | 0.76 |
| NERVOUS SYSTEM | 0.76 |
| TB & ASTHAMA | 1.52 |

- PEOPLE PERCEPTION ABOUT BRICK KILN IN OVERALL DEVELOPMENT

| RESPONSE | YES () | NO |
|---|---|---|
| IN % | 45.45 | 54.55 |

# Brick Kiln Owners

## Personal Information

1. Village:
2. Name of the interviewee
3. Year of the establishment of the brick kiln
4. Residence of
5. Brand of brick produced
6. Distance from the city
7. On which road the brick kiln is situated

## Questions

1. What is the total area covered? (leased + own)
   - ☐ < 5 acres
   - ☐ 5-10
   - ☐ 10-15
   - ☐ > 15 acres

2. Why have you built brick kiln in this area?
   - ☐ Availability of land/ labour
   - ☐ Availability of soil
   - ☐ Nearness to city as a market
   - ☐ Others

3. Why do you prefer brick kiln?
   - ☐ Profitable
   - ☐ Traditional

4. On whose land the brick kiln is built?
   - ☐ Own land
   - ☐ leased from others

5. What is the type of brick kiln you have?
   - ☐ Country clamp
   - ☐ Bull trench kiln (movable)
   - ☐ Bull trench kiln (fixed)
   - ☐ Vertical Shaft Brick kiln

6. Height of the chimneys
   - ☐ < 40 feet
   - ☐ 40-60
   - ☐ 60-80
   - ☐ > 80 feet

7. For how long has this land been leased?
   - ☐ 2-3 years
   - ☐ 3-4
   - ☐ > 4 years

8. Do you have a permit for this kiln?
   - ☐ Yes
   - ☐ No

9. How much soil is dug up in every rotation?
   - ☐ < 1 feet
   - ☐ 1-2
   - ☐ 2-3
   - ☐ > 3 feet

10. Soil dug up from land covered by? ☐ Self ☐ Others

11. Soil is dug up from which area of brick kiln? ☐ Same ☐ Other

12. For one brick manufacturing how much soil is needed? ☐ > 2 kg. ☐ 2-3
☐ 3-4 kg.

13. What is the capacity per year of this brick kiln? ☐ > 20 lakh ☐ 20-40
☐ 40-60 ☐ < 40 lakh

14. Which fuel is used in the kiln? ☐ Coal ☐ Wood
☐ Others

15. From where the fuel is coming up? ☐ Assam ☐ Bihar
☐ U.P ☐ Others

16. How much fuel is consumed per rotation? ☐ < 60 tons ☐ 60-70
☐ 70-80 ☐ > 80 tons

17. How much time it takes the baking of bricks? ☐ 21-26 days ☐ 26-31 days

18. What is the amount of waste generated per rotation? ☐ < 20 tons ☐ 20-40
☐ > 40 tons ☐ Others

19. Is there is any impact of brick kiln in the surrounding? ☐ Yes ☐ No

20. If yes, than to which type of commodity? ☐ Land ☐ Agriculture
☐ Garden ☐ Others

21. How many workers are there in the kiln? ☐ 50-100 ☐ 100-150
☐ 150-200 ☐ > 200

22. What is the sex ratio of the workers? Male ☐ < 50 ☐ > 50
Female ☐ < 50 ☐ > 50

23. To which place most of the workers belong? ☐ U.P ☐ Bihar
☐ Delhi ☐ Rajasthan

## Residents of the Village

**Personal Information**

1. Village
2. House hold no.
3. Name of the head
4. Occupation/ Educational Qualification
5. Caste members in the family
6. Whether native of the village? ☐ Yes ☐ No
7. If no, the native state
   Since when are you staying in the village
8. Earning members in the family.

**Question**

1. Do you own land? ☐ Yes ☐ No
2. If yes, how much? ☐
3. What is your traditional occupation? ☐ Agriculture ☐ Business ☐ Zamidar ☐ Others
4. If earlier it was agriculture than why have you changed? ☐ Economic reasons ☐ Inability to continue ☐ Others
5. If owning land & working elsewhere why have you not opted for agriculture? ☐ Bad land quality ☐ No interest in agriculture ☐ Less return ☐ Others
6. Agriculture is of which type? ☐ Subsistence ☐ Commercial
7. Are you happy with the brick kilns? ☐ Yes ☐ No
8. How are you affected by this industry? ☐ Economically ☐ Environmentaily ☐ Socially ☐ Others
9. Do you also want to have a brick kiln? ☐ Yes ☐ No
10. Have you ever leased you land to brick kiln? ☐ Yes ☐ No

If yes how long _____

How much _____

At what rate _____

11. What will you do with the land after ☐ Agriculture ☐ sell it

Lease is over? ☐ Leave it turn ☐ Other

If agriculture

12 . Is the same crop grown after reclamation ? ☐ Yes ☐ NO

13. If no which crop was grown earlier? ☐

14 . Which crop is grown after reclamation of land? ☐

15. The quantity of fertilizer after reclamation of land is

☐ More ☐ Less ☐ Same

16. If more, what is the percentage? ☐ 5-10% ☐ 10—15

☐ 15-20 ☐ > 20%

17. Which fertilizers were used earlier? ☐ DAP ☐ Urea

☐ Zink ☐ Cowdung

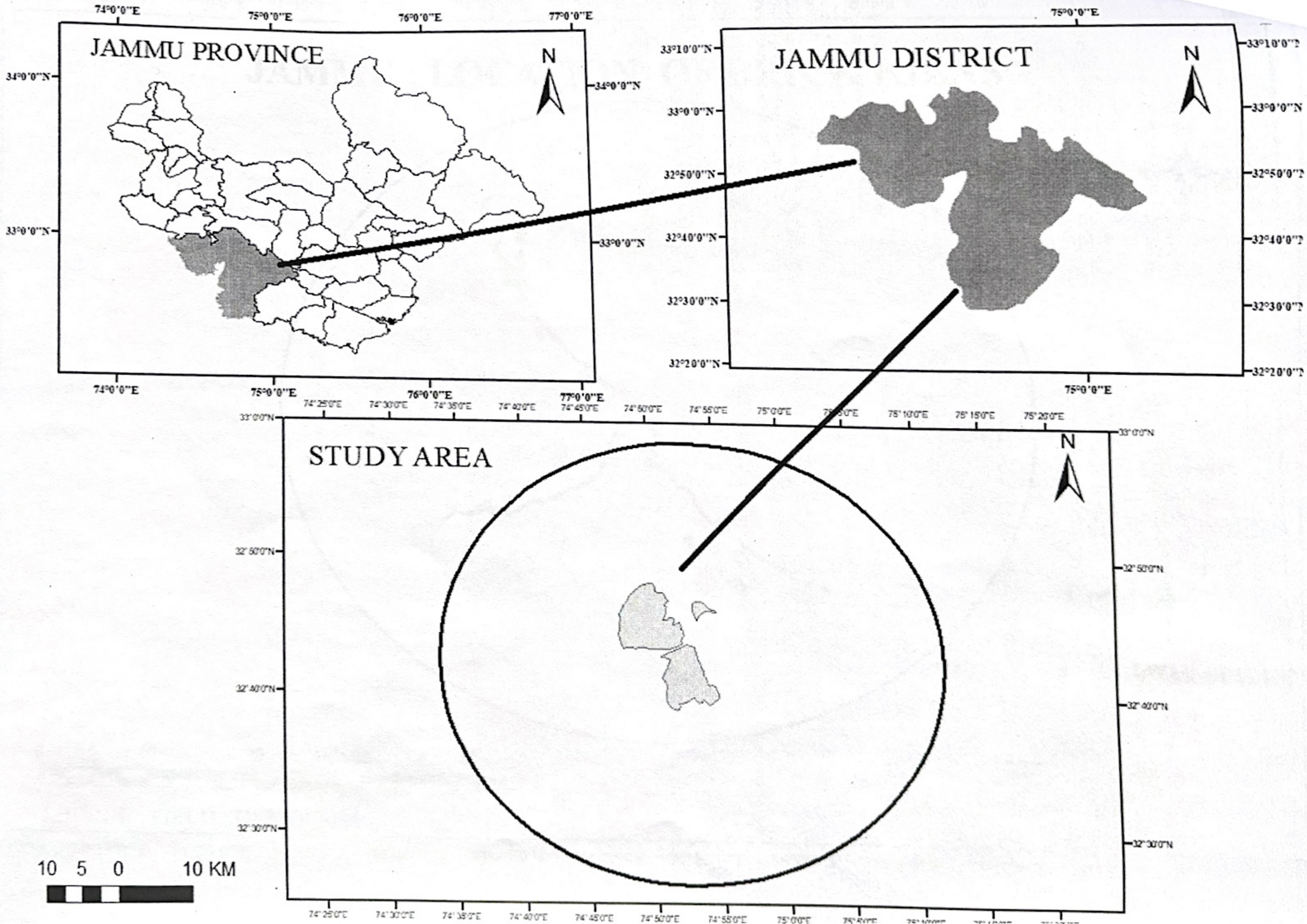
18. which fertilizers are used now? ☐ DAP ☐ Urea

☐ ZINK ☐ Cowdung

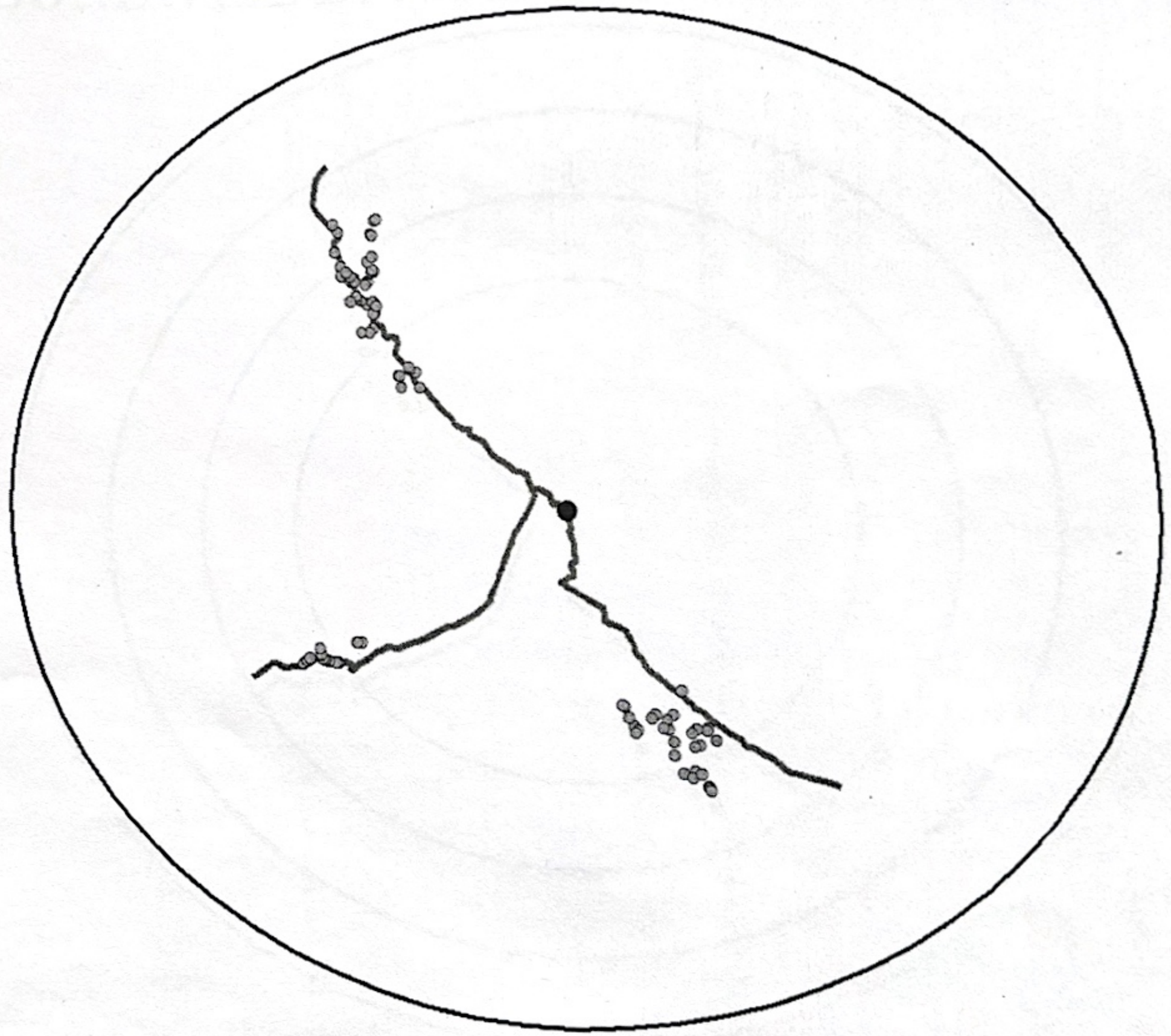
19. during dry season is there dust particle more or less ☐ yes ☐ NO

20 Before quarrying of soil what was the productivity

# JAMMU : LOCATION MAP OF STUDY AREA



# JAMMU : LOCATION OF BRICK KILNS



N
W
E
S

## Legend

RAILWAY STATION

ZONE

ROADS

0 5 10 20 30 40 KM

SOURCE : FIELD SURVEY,2020

74°20'0"E 74°25'0"E 74°30'0"E 74°35'0"E 74°40'0"E 74°45'0"E 74°50'0"E 74°55'0"E 75°0'0"E 75°5'0"E 75°10'0"E 75°15'0"E 75°20'0"E

0'0"N

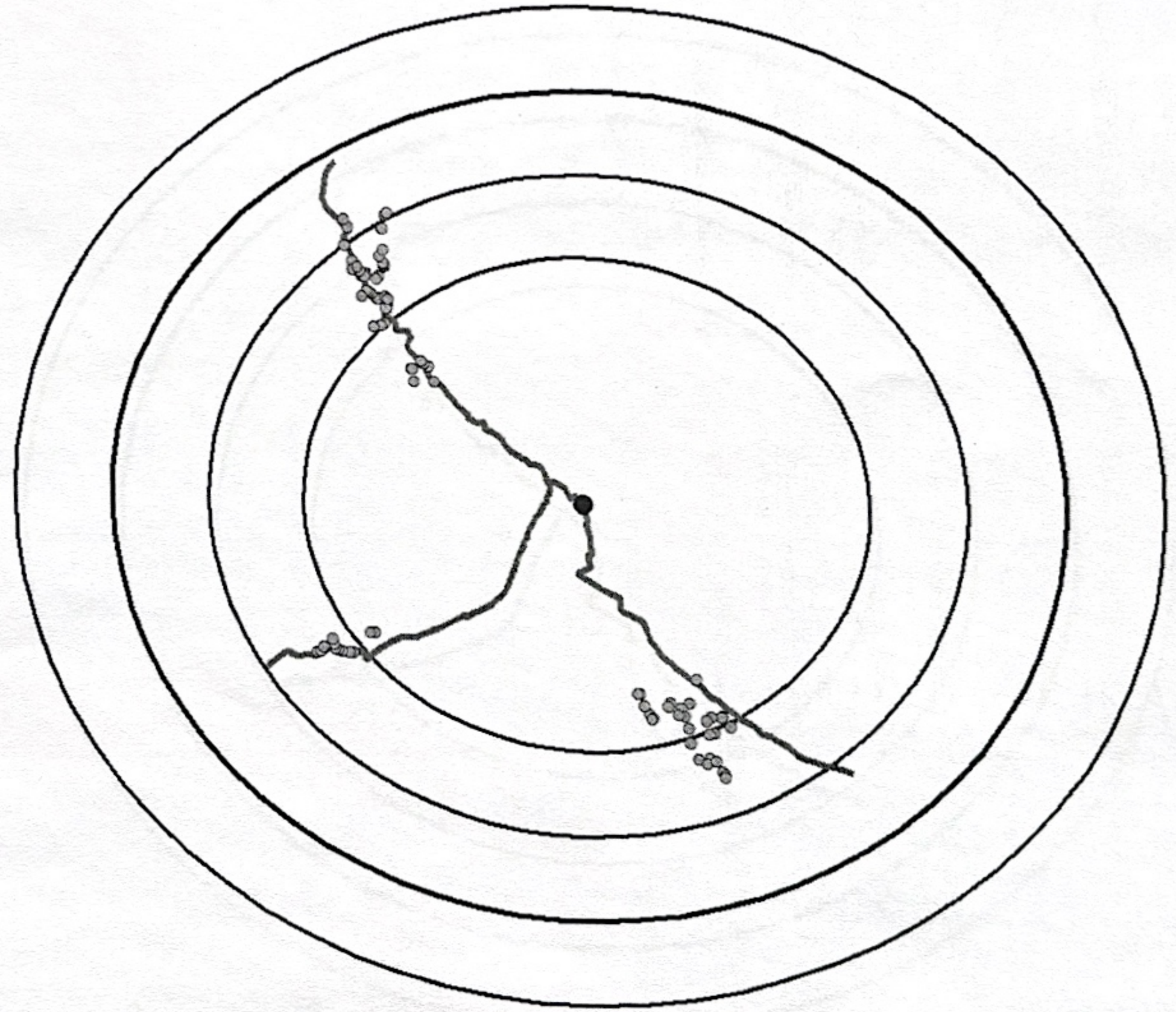
33°0'0

32°50'

32°40'

32°30'

# JAMMU : ZONEWISE DISTRIBUTION OF BRICK KILNS



N
W E
S

## Legend

- RAILWAY STATION
- ZONE
- ROADS

0 5 10 20 30 40 KM

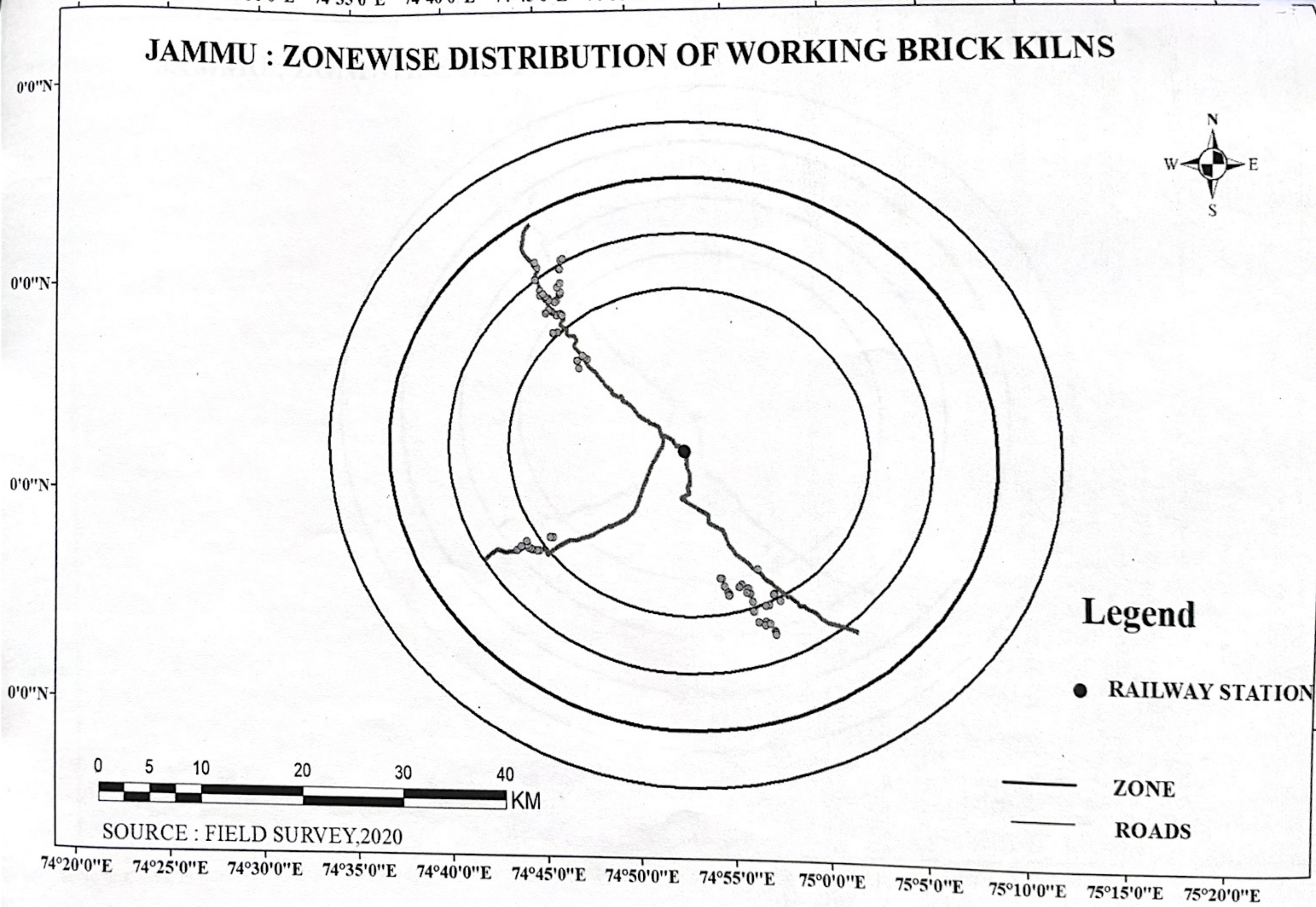
SOURCE : FIELD SURVEY,2020

74°20'0"E 74°25'0"E 74°30'0"E 74°35'0"E 74°40'0"E 74°45'0"E 74°50'0"E 74°55'0"E 75°0'0"E 75°5'0"E 75°10'0"E 75°15'0"E 75°20'0"E

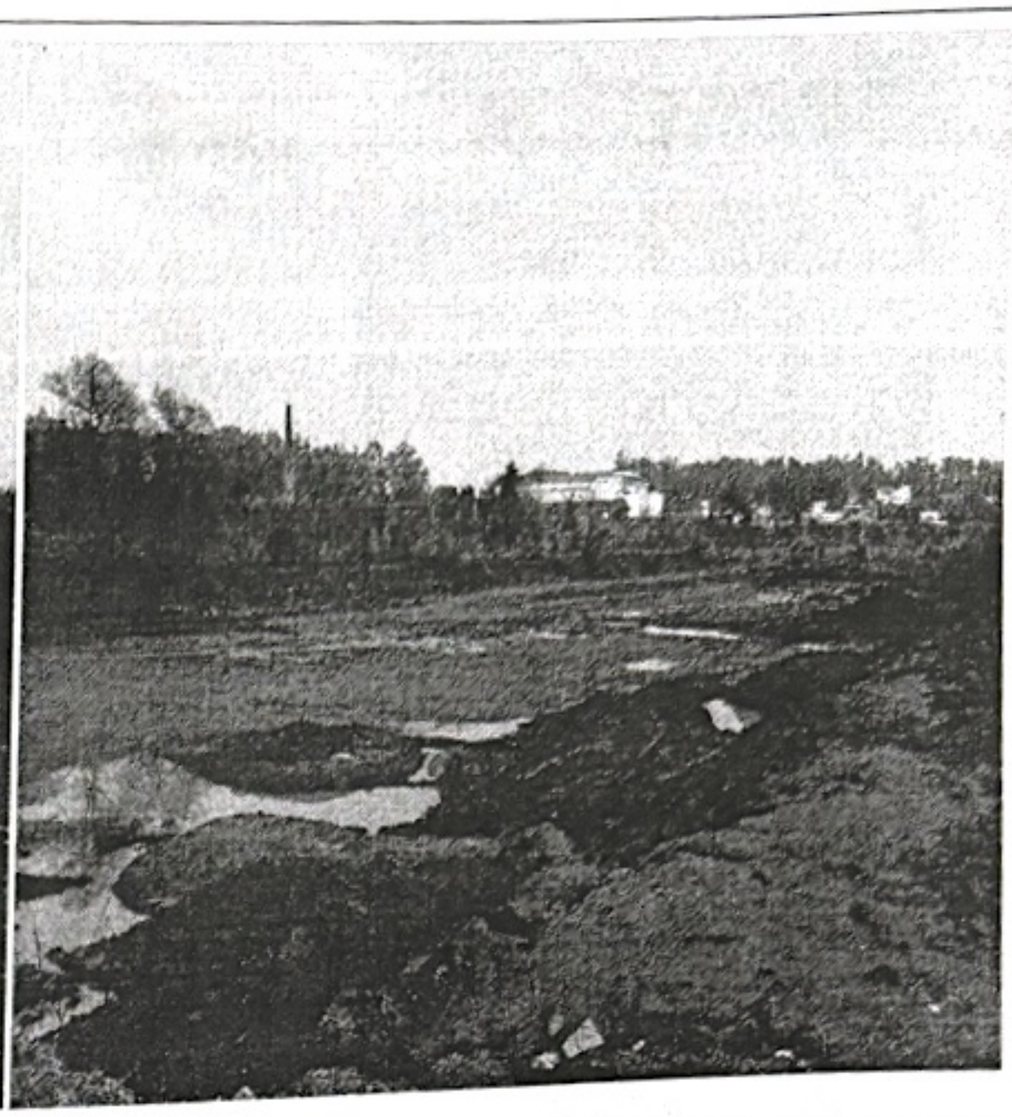
0'0"N
0'0"N
0'0"N

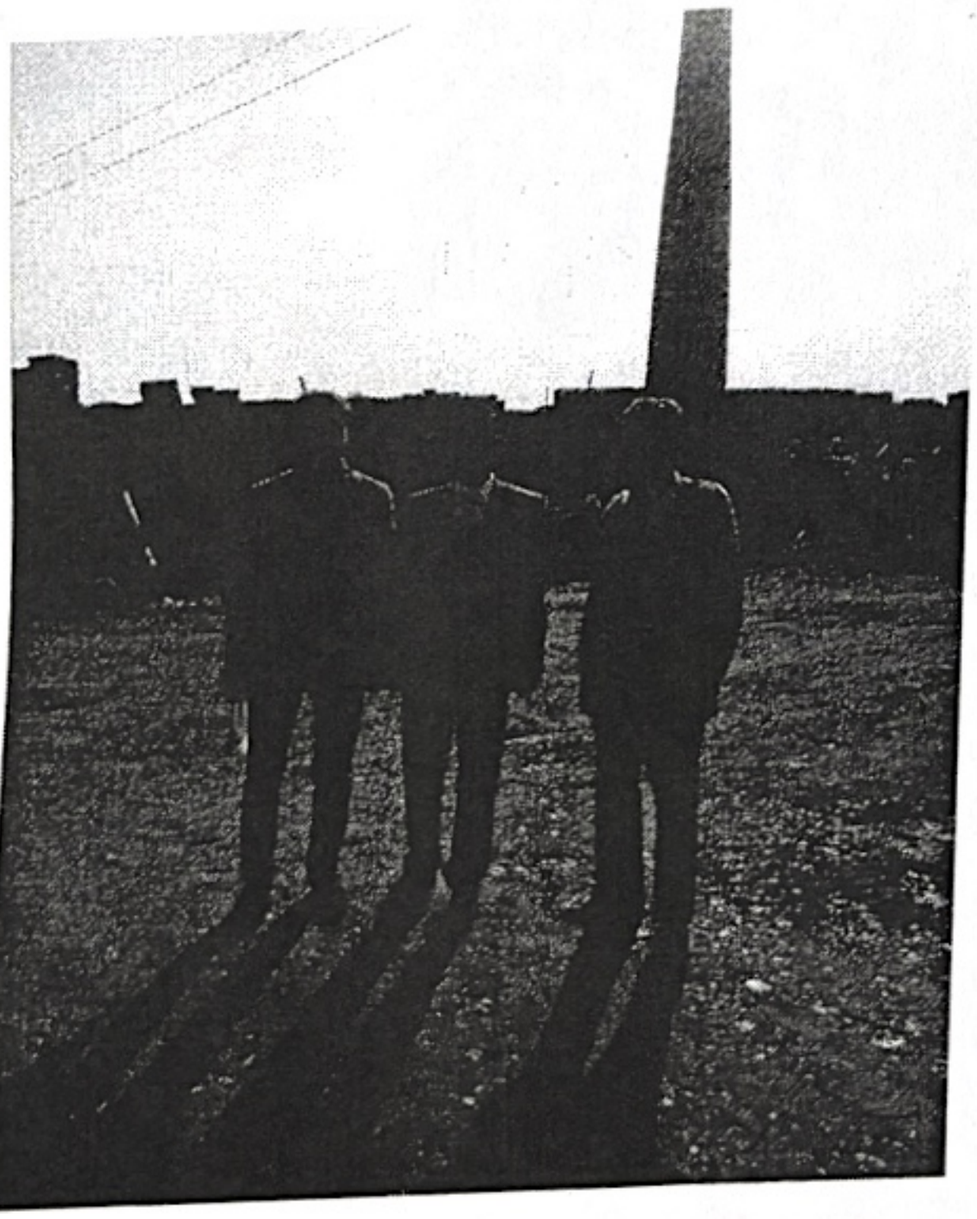
33°0'0
32°50'
32°40'
32°30'

# JAMMU : ZONEWISE DISTRIBUTION OF WORKING BRICK KILNS




SOURCE : FIELD SURVEY,2020





**UTILIZATION CERTIFICATE**
**UNIVERSITY Of JAMMU**

**STATEMENT OF EXPENDITURE IN RESPECT RESEARCH PROJECT UNDER RESEARCH & SEED GRANT " Quality Assurance Fund"**

1. Name of Principal Investigator Dr.Md. Sarfaraz Asgher

2. Deptt. of Principal Investigator **Geography**

3. University/College **University of Jammu**
Approval Letter No. and Date:RUSAJU/2/20/36/3888-89 Dated-21-11-2019 & re-appropriation vide letter No. RUSAJU/2020-21/36/3692-93 dated-29/12/2020

4. Title of the Research Project **" Environmental Impacts of Brick Kilns in and Around Jammu City**

6. Effective date of starting the project: 20/01/23

a. Period of Expenditure : **Aug.2019- to.-March 2021**

b. Details of Expenditure

Sanctioned Amount- Rs. 100, 000/-

Rs 32,340 has been re-appropriated from Travel to Contingency for purchase of books.

| **Funds under various head** | **Actual Expenditure** | **Balance Amount** |
|---|---|---|
| Consumables- Rs.15, 000 | Books- Rs.14,545/- | Rs.455 |
| Contingency Rs.52,340 | Stationary-Rs.51,056 | Rs. 1284 |
| (After re-appropriation) | | |
| Travel- Rs.7660/- | TA/DA-7,660/- | Rs.Nil |
| (After re-appropriation) | | |
| Any Other (Hiring) Rs. 25, 000/- | Hiring services-24,544/- | Rs.456 |
| | Total- 97,805/- | Total-2,195 |

Dr.Md. Sarfaraz Asgher

( PI)

Co-ordinator (RUSA 2.0)
University of Jammu
Jammu

Coordinator (RUSA)

22/10

No. RUSAJU/2024-25/36/401
Dt. 22-10-2024