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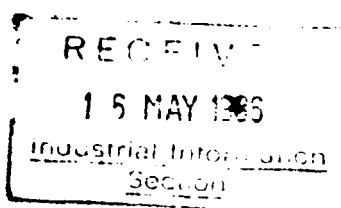
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April 1986

ENGLISH



PROMOTION OF HAND KNOTTED WOOLLEN

CARPET INDUSTRY

DP/BGD/84/014

15544

Technical report: Evaluation report on handknotted woollen
carpet training project

Prepared for the Government of Bangladesh
by the United Nations Industrial Development Organization
acting as a executing agency for the United Nations Development Programme

Based on the work of Birgit Ullhammar,
consultant on hand knotted woollen
carpets

United Nations Industrial Development Organization, Vienna

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1. Background information & Justification

1.1. The project document for promotion of Hand knotted woolen carpet industry was signed in July '84 between the Govt. of People's Republic of Bangladesh and United Nations Industrial Development Organisation (UNIDO). Bangladesh Small and Cottage Industries Corporation (BSCI) is the implementing agency on behalf of the Govt. of Bangladesh.

1.2. The project was felt to have an extremely important role to play in the Rural Industrial Development of the country. The target being employment creation among the lower income groups of the population. There are various types of industries which process the locally available raw-materials. Sheep wool is available in considerable quantity but there are only a few units using sheep wool. It is learned that there are about 10,000 sheep in Sonagazi and Maijdee areas, so there is an ample scope for utilization of sheep wool through the establishment of family based cottage industries which will create employment opportunity for the women also. Thus the project would make a significant impact on the carpet production.

1.3.1.3. Wool from sheep has not ever been sheared before, except for small quantities in Nayagola (Rajshahi) until BSCIC took initiative in 1982-83. Motivation for the introduction of sheep shearing started against the prevalent belief that the 'animal will die after shearing' and it was demonstrated to the sheep owners that one/two shears per annum product better quality wool.

They also noticed a gradual, physical improvement of the animals as well as the production of quality wool if the sheep are sheared regularly every year.

1.4. In Sonagazi hand knotted woolen carpet Training Centre was established by BSCIC in May'84 to provide training in sheep shearing, wool-processing spinning and carpet weaving etc. to the entrepreneurs and artisans. During the training period 300 sft. carpet were produced cost Tk.20,000/- costing about Tk.20,000/-

1.5. Among the activities carried out by the centre the following could be listed:-

1.5.1. Setting up training scheme for the production centre.

1.5.2. Identification and Selection of trainees.

1.5.3. Procurement of equipments and raw-materials

1.5.4. Manufacturing of a special type of loom.

1.5.5. Survey market potential for woolen carpet both for the domestic and export markets with special emphasis on designs and quality desired.

1.5.6. On a later stage of the project, to invite qualified Consultants in order to review the progress of the project, recommend operational changes, if any and study the potential of this industry as basis for further technical assistance if required.

Furthermore, it was scheduled to set-up four centres for woolen carpet development in the following areas : i) Sonagazi (Feni), ii) Maijdee (Noakhali), iii) Haimchar (Chandpur) and iv) Mirpur (Dhaka).

1.7 As per the approved project document three Pakistani Technicians were employed as follows:

One Mid-level Expert cum Team leader.

One Master craftsman

One dyer

Together, they:-

- Prepared training syllabus
- Selected 50 trainees from the poor and the landless community.
- Procured machinery and equipments and raw materials, local sheep wool, cotton yarns and locally available imported dyes and chemicals which were used as raw-materials.
- Developed the project between March'84 and Dec'84.

1.8 The following training courses were covered in 8 months at the Sonagazi Centre.

1.8.1. Shearing of wool.

1.8.2. Processing of sheep wool.

1.8.3. Spinning of woolen yarn by using local spinning wheel (Charka).

1.8.4. Dyeing of woolen yarns.

1.8.5. Production of the improved type of loom.

1.8.6. Setting and fitting of warp on loom.

1.8.7. Designing (Persian copies).

1.8.8. Weaving (knotting) of carpet.

1.8.9. Clipping.

Out of 50 selected trainees 45 were successful in completing the programme.

- 1.9. After completion of 8 months (20th May to 31st Dec'84) training the unit with loom, tools and equipments were handed over to a private entrepreneur for operating the project on commercial basis. The private entrepreneur has employed 25-30 trained personnel and is now manufacturing woolen carpets with the local sheep wool. He has by now manufactured 1500 sft of worth about Tk.1,500,000 /- He has made arrangement for sale of the products, through BSCIC/BHMC, KARIKA, ARRONG and other private sector sales organisations.

At the initial stage quality of the Carpet produced in the centre was not very good. Therefore BSCIC detailed a Master Craftsman to the centre to improve quality and designs of the product. It appeared that both BSCIC and EPB are making allout efforts to carryout improvement in production and marketing of the products. A committee consisting of officials of BSCIC & EPB and representatives of carpet manufacturers was formed to improve the product and arrange marketing of same both at home & abroad.

- 1.10. From the available information it has been learnt that about 100,000 sheep are available in Sonagazi and Majjdee areas. 3000 in Panchogor and 2000 in Rajshahi. So the total number comes about 105,000 sheep. 42000 KG. wool can be sheared from these sheep. Because of the fact that the quality of the wool is not good only 50% can be used for production of yarn. So there will be hardly 21,000 kg. per season for manufacturing of carpets. At Chapai Nawabgonj (Rajshahi) the artisians produce woolen blanket from the crude wool using their own methods of production. There is not any system of shearing the sheep in Panchogor.

In conclusion, 50% of the total wool available by shearing of the sheep waste and 50% i.e. 21,000 KG. can be profitably utilized for production of carpet.

OUTLINE OF TRAINING PROGRAMME

2.0. SUGGESTION AND RECOMMENDATION WORK PROGRAMME SHEEP WOOL PRODUCT DEVELOPMENT CENTRE

It is recommended that :

- 2.1. The "SHEEP WOOL PRODUCT DEVELOPMENT CENTRE" be set up in BSCIC Industrial Estate, Feni which is very near to the sheep raising areas of Sonagazi Maijdee and well communicated with road, rail and others.
- 2.2. The proposed Centre is 90 km. from Port City of Chittagong & 150 km. from the Capital City of Dhaka. The necessary facilities like water, Gas, Electricity etc. are available there. Work shed will have to be constructed/arranged.
- 2.3. A cadre of skilled and semi-skilled spinners and weavers are available in and around Feni and Sonagazi.
- 2.4. The centre will collect the wool on a contract basis from the sheep owners, mainly from those rearing their herds in Sonagazi and Maijdee areas and transport it from these relatively remote areas to the centre.
- 2.5. All grading, washing, processing and treatment of the wool such as softening, moth proofing, blending mixing carding, dyeing, finishing, will be made at the centre in bulk. It is not as economically and technically feasible proposition that each family unit should carry out these activities in their own workshops houses. Only spinning and weaving/knotting will be done in artisans home.

- 2.6. The centre will make arrangement for experiment, training, product development activities and also create marketing facilities and assist in business management.
- 2.7. The spinners will collect the processed wool from the centre and spin it in their homes according to the given technical specifications depending on the type of product to be manufactured. When ready they will bring the yarn to the centre and get paid in accordance with the quality of the products.
- 2.8. The carpet weaver will in the same manner collect the yarn and produce the required items, when the job is finished the goods will be brought to the Centre. The weavers get paid as agreed upon. The officer-in-charge of the centre will provide technical assistance to the artisans and take measures for quality control in the artisans workshop. When the finished product are brought to the centre Officer-in-charge will again check the quality.
- 2.9. Training courses on shearing, processing, spinning weaving and finishing of various products will have to be arranged for a large number of would be entrepreneurs. The number of person to be trained will obviously depend on the market demand. It is hoped that designs, colour combinations and workmanship as well as the prices will appeal positively to the taste, the needs and the purses of the potential buyers both in Bangladesh and abroad.
- 2.10. Sufficient number of looms, spinning wheel (Charka) and carding, blending, mining machines and other machinery & equipments must be set up at the Centre to be used partly for training and partly for product development and experiments.

- 2.11. Knowing the low quality of the local wool it might be advisable to blend this wool with 30% imported higher quality wool.
- 2.12. It will be necessary to carryout carding and blending before the wool is handed over to the spinners.
- 2.13. Wool dyes and chemicals have to be imported in bulk because of the fact that most of dyes and chemicals available in the market are neither uniform nor reliable.
- 2.14. The main emphasis should be given (i) Development of higher quality of carpet (ii) Designing the carpets for a modern environment and; (iii) Identification of new target groups with buying power.
- 2.15. The development programme should provide for conducting experiments on the use of new techniques of weavivg such as embossing, flat weaving, durrie and mixture of thinner and thicker yarns. The use of modern techniques and designs will create a fresh image of the product. By way of interest it can be mentioned that embossing is used only in China and with typically Chinese motifs.
- 2.16. Three categories of collections are suggested with colour rangers coordinated to modern milleu:
 - 2.16.1. Tradition of Bangladeshi collection building on ideas from Jamdani motifs, patterns and colour matching modern trends and furnishing.
 - 2.16.2. Modern collection for the new target groups of aesthetically inclined buyers. To obtain a more rustic surface use can be made of mixture of different thickness, lower knotting/inch in number and embossing.

- 2.16.3. Contract collection. This market has of course, not been explored earlier. The target group here comprises of architects builders, decorators and interior design consultants. Specially made designs are often ordered for hotels, banks or boats.
- 2.17. All the collections should be given a label and very strict quality control is necessary.
- 2.18. A marketing group should be created in BSCIC. It should be open to feedback from the market as well as new ideas from designers and trend setters from both the technical and commercial sides. The marketing groups should also keep the manufacturers informed about markets, trends and export strategies. Sales material such as well prepared and quality brochures, video cassettee with glimpses of Bangladesh culture should be produced. It is also essential that the carpets should be shown in trade fairs.
- 2.19. There is a scope for a substantially increased production of carpets. There is no shortage of labour in the country. It appears that foreign markets can absorb quality hand-knotted carpets. The industry needs at this stage of development, to have characteristically Bangladeshi designs not persians ones. This is essential in order to develop awareness and taste initially thereafter to create a regular market for these designs.

A design dilemma arises when attempts are made to develop new carpet patterns from pieces of the Old persian carpets. The wholeness is lost and the result is messy. The colours are quite wrong for the market of today. The copying is done in bits and pieces. A Bangladeshi collection suitable for what is demanded in the market today should have a quieter appearance and other colour combinations. There is already tough competition with the enormous production of high quality oriental carpets from India and Pakistan.

It is also essential to take advantage of the skill readily available for the entire courses of production and to base future production on these skills, i.e. build up and design modern collections.

2.20. In order to establish a sheep wool product development centre an estimate of expenditures with necessary manpower, machineries, raw-materials are given below:

2.20.1. LAND & BUILDING

| | | |
|---------------------------|-------------------|--------------------|
| 1. Total land | | 850 m ² |
| a) Building | | 295m ² |
| i) Work shed | 200m ² | |
| ii) Storage | 55m ² | |
| iii) Office | 40m ² | |
| b) Dye house | 50m ² | |
| c) Washing & drying yard. | 100m ² | |
| d) Open space | 40m ² | |

Work shed store and office building to be brick wall with R.C.C. or Asbustor roof. The dye house to be brick wall with Asbustor roofing. The washing & drying yards to be brick soling and cement plastering.

The land for sheep wool product development centre will be BSCIC Industrial Estate at Feni 850m² will have to be procured & construction of building would be made on the land.

In order to start the project quickly a temporary workshed should be arranged within the estate. Initial work should start in the temporary shed and gradually shifted to the building to be constructed for the purpose.

2.20.2.

MACHINERY & EQUIPMENTS FOR SHEEP
WOOL PRODUCT DEVELOPMENT CENTRE, FENI

LOCAL

| | | | | |
|----|---|-------------|----|-------------|
| 1. | Spinning wheel (Charka) | 15 nos. | Tk | 5,000/- |
| 2. | Stainless steel vat | 3 " | " | 30,000/- |
| 3. | Processing tank (Cemented) | 3 " | " | 30,000/- |
| 4. | Carpet loom in different size | 8 " | " | 35,000/- |
| 5. | Lab. equipments | As required | | 15,000/- |
| 6. | Washing platform, Dry Yard and other arrangements. | 8 " | " | 35,000/- |
| 7. | Khupri and others | 10 " | " | 5,000/- |
| 8. | Other equipment and machinery etc. | | " | 20,000/- |
| 9. | Installation cost | | " | 10,000/- |
| | | | | " 185,000/- |

IMPORTED:

1. A complete carding for combing process
furnished with following accessorial machineries.

Workshed carding-octir lana 2200+2
intereseectings/3 bear beater/9 combing US\$ 120,000
machines+0 Gill/1 finishing draft/1
intersecting-price.

| | | | | |
|----|--|---------|------|--------------|
| 2. | Shearing scissor (hand driven) | 50 pcs. | US\$ | 750 |
| 3. | Shearing scissor (Battery sys) | 50 pcs. | US\$ | 1,500 |
| 4. | Clipping scissors | 25 nos. | US\$ | 500/- |
| 5. | Lab equipments chemical balance oven hot bath refrigerator etc. | | US\$ | |
| 6. | Embossing scissors | 10 nos. | US\$ | 1,000 |
| | | | | US\$ 123,750 |

FURNITURE & FIXTURE - LOCAL

| | | | |
|----|---------------------------------------|-----|-------------------|
| 1. | Chair, Table etc. | Tk. | 15,000/- |
| 2. | Cabinet (wooden/steel) | " | 15,000/- |
| 3. | Lab. furnitures rack, lab. table etc. | " | 15,000/- |
| 4. | Miscellaneous items | " | 5,000/- |
| | | | TOTAL Tk 50,000/- |

2.20.3. RAW MATERIALS

LOCAL

| | | |
|----------------------|-----------|---------------|
| 1. Sheep wool | 42000 kg. | Tk. 210,000/- |
| 2. Cotton yarn | 5000 kg. | " 500,000/- |
| 3. Jute yarn | 1000 kg. | " 40,000/- |
| 4. Chemicals | | " 50,000/- |
| 5. Packing materials | | " 20,000/- |

TOTAL. TK. 820,000/-

IMPORTED:

| | | |
|------------------------|----------|-------------------------------|
| 1. Wool | 2000 kg. | US\$ 15,000 /= TK. 375,000 |
| 2. Dyes | 1200 kg. | " 200,000/- |
| 3. Chemicals | | " 200,000/- |
| 4. Finishing materials | | " 50,000/- |

TK. 1,850,000/-

2.20.4. TRANSPORT (IMPORTED)

| | | |
|----------------|--------|---------------|
| 1. Pick-up Van | 1 nos. | Tk. 600,000/- |
|----------------|--------|---------------|

2.20.5. SHEEP WOOL PRODUCT DEVELOPMENT CENTRE, FENI

a) GOVERNMENT INPUTS (BSCIC)

The Government through Bangladesh Small and Cottage Industries Corporation (BSCIC) shall be responsible for the following:-

- i) Project Management Personal and staff.
- ii) Equipments and Raw-material (Local).
- iii) Land & Building: including
 - Equipment maintenance facilities.
 - Utilities/Water/Power/Gas.
 - Communication and security.

b) UNDP INPUTS

1. Team leader specialised in production of Hand Knotted carpet 12 MM and Design/product Development Expert. 1 personnel.
2. Technician-Clipping-Master craftsmen, clipping, embossing washing. 4 personnels 48 MM
3. Financial/Marketing Expert 1 personnel 3 MM
4. Carding/Blending/mixing machine & other equipments 1 set. & others
5. Quality wool 2000 kg.
6. Lab. equipments As required
7. Pick-up Van 1 no.

| Sl. No. | Activity Project Month | September 1986 | October 1986 | November 1986 | December 1986 | Continue- |
|---------|---|-------------------|-----------------|------------------|------------------|-----------|
| 1. | Creation of accomodation building for Pilot Centre. | | | | | |
| 2. | Fielded Project Management Personnals | | | | | |
| 3. | Technican fielded for shearing, processing, dyeing & weaving. | | | | | |
| 4. | Arrangement and installation of local machinery and equipments. | | | | | |
| 5. | Arranged product Development and Design (international) Expert and TECHNICALS. | | | | | |
| 6. | Arrang d Import/Supply imported machinery TRANSPORTS . | | | | | |
| 7. | Installation of imported machinery and setup necessary equipments. | | | | | |
| 8. | Fielded technician for clipping, washing, designing, product development and experiment and quality control, etc. | | | | | |
| 9. | Import of raw-materials(Wool Dyes, Chemicals), etc. | | | | | |

3. CONCLUSION

In Conclusion must be mentioned that BSCIC made a laudable attempt to develop Hand knotted woolen carpet industry in Bangladesh for profitable utilization of sheep wool of which quite a big portion is wasted. In Bangladesh sheep are reared in almost every village but there is no system of shearing the same, and preserving of wool. As a result big quantity is wasted. By the establishment of SHEEP WOOL DEVELOPMENT CENTRE Bangladesh has by now motivated the sheep owners to shear their sheep and use the wool for production purposes. This wool encouraged others to come forward to set up small house-hold cottage industries where poor and landless population will find employment opportunities. Besides this will be a good source of earning foreign exchange. Therefore there is a greater need and development of these industry in Bangladesh. Expertise services for further development of the industry should be provided by UNIDO, UNDP and other international organizations.

TERMS OF REFERENCES

In cooperation with the authorities of the Bangladesh Small and Cottage Industries Corporation the consultant will:-

- Evaluate, technically and financially, on the status of the Hand-knotted woolen carpet project which was implemented during 1984, and prepare a detailed technical report on the findings and recommendations.
- International market prospects and marketing arrangements and techniques for the hand knotted woolen carpets as well as product adaption for overseas markets.
- Outline of training programme for the rural population and necessary inputs, i.e. trainers and equipments requirements, etc.

LIST OF INDUSTRIES & SHOW ROOM VISITED

Woolen Carpet Industries, Mirpur, Dhaka.
Woolen Carpet Industry, Sonagazi, Feni.
BSCIC Industiral Estate, Feni.
Valika Woolen Mills, Chittagong.
BHMC/BSCIC Display Centre, Chittagong.
New Market, Chittagong
BHMC/BSCIC Display Centre, Airport Road, Dhaka.
Arrong, Mirpur Road, Dhaka.
BSCIC Industrial Estate, Rangpur.
BSCIC Industrial Estate, Dinapur.
Training Centre, BSCIC, Panchogor.
BSCIC Satranjee Project, Rangpur.
Sheep Grazing Area, Panchogor, Sonagazi, Tatulia.
BSCIC Industrial Estate, Comila.

EXPERIENCE/VISITS:

There is a Kamdani weaving area near Dhaka city. They have great tradition from Mughal Period. They are weaving Saree, dress pieces and other weaving apparal by using cotton and other yarn in local Handloom with traditional Bangladeshi designs. The traditional Kamdani and Nakshi design can be used in the border and other suitable parts of Hand knotted and flat woven carpets.

BHMC/BSCIC DISPLAY CENTRE:

Visited BHMC/BSCIC display centre in Dhaka and Chittagong. The objectives of the centre is display and sale of Cottage and Small Industries products of Bangladesh.

DHAKA AREA:

In Dhaka area there are places namely Mirpur, Saydabad and Segunbagicha which have the tradition of wool and jute carpet knotting/weaving. The artisans collect raw-wool from Tanneries, process, spin, dye and use the processed wool in weaving in their cottages which are sold in the market. Some times they use jute for knotting/weaving the carpet. They are very skilled in spinning and knotting/weaving of the carpet. But still they lack knowledge of finishing, and processing of raw-wool.

VALIKA WOOLEN MILLS LTD.:

The mill is located in the port coty of Chittagong. There are only machinery for spinning and weaving of woolen fabrics. They have been importing wool top from Japan and other countries and thereafter spin the yarn and weave the fabrics.

Contd...

C

There is no machinery for carding blending and mixing in the mills. If the mills balanced with raw-wool processing plant and blanket making unit then the mill may run properly and local raw-wool can be processed there and utilize the present unutilized sheep wool from Noakhali and Feni areas. Visited BSCIC Industrial Estate in Feni, Comilla, Rangpur and Dinapur. In all the estates private entrepreneurs have setup quite a good number of small industries.

Sheep rearing area in Panchogro Thakurgaon and Tatulia in the greater district - Dinajpur.

Visited some of the sheep rearing areas of Panchogor, Thakurgaon and Tatulia in the greater district of Dinajpur. So far it has been understood that the quality of sheep wool is moderate.

It has been learnt that there are 3000 sheep there on average 500 grams raw-wool may be collected from each sheep annually if sheared twice a year. There is a vast land area lying fallen and the climate is favourable for sheep rearing. If there is arrangement for sheep rearing is necessary commercial basis there is bright prospect for better sheep wool.

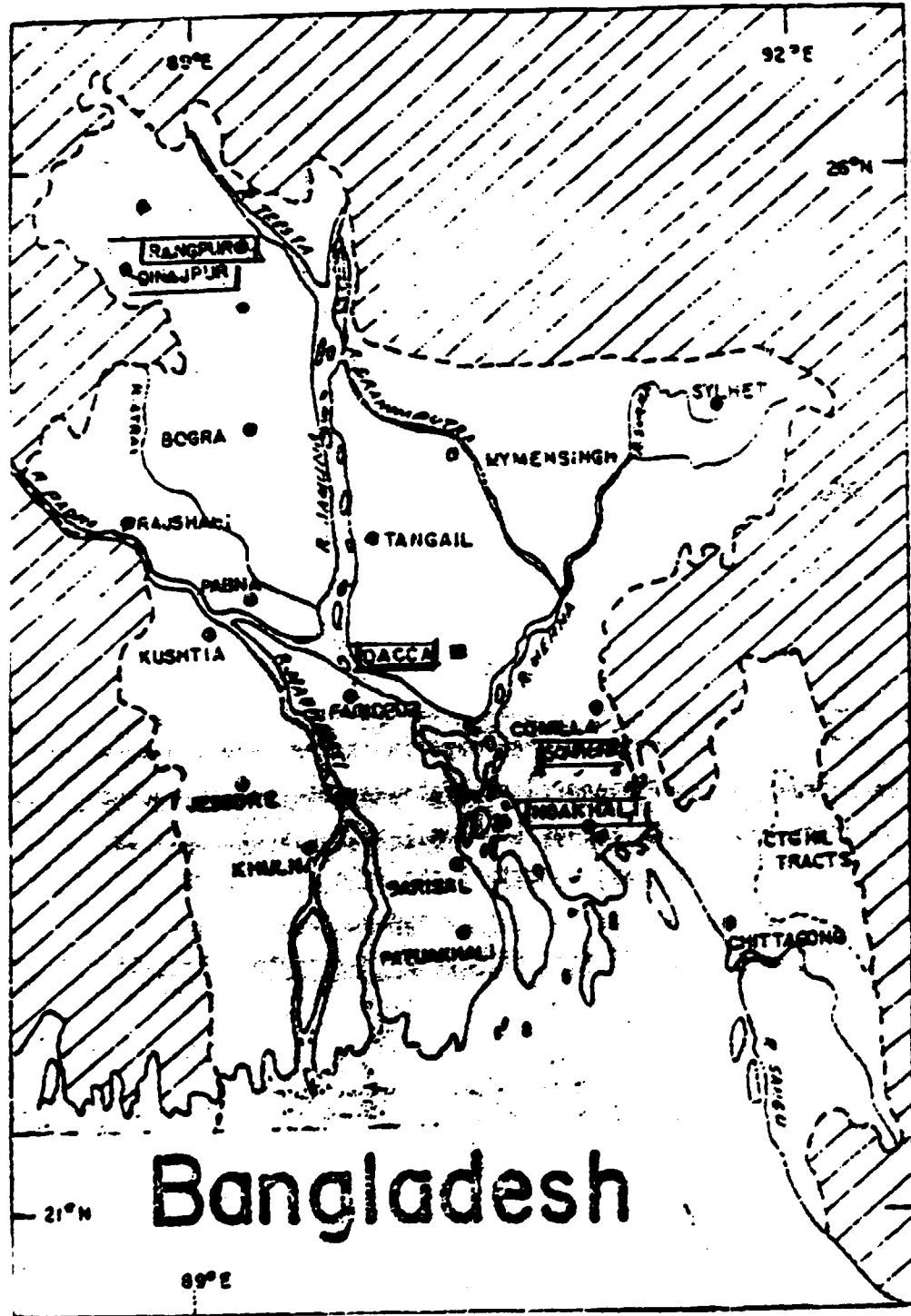
ABBREVIATIONS

BSCIC - Bangladesh Small and Cottage Industries Corporation.

UNIDO - United Nations Industries Development Organisation.

EPB - Export Promotion Bureau.

BHMC - Bangladesh Handicraft Marketing Corporation.



SONAGAZI WOOLEN CARPET TRAINING CENTRE
(NOAKHALI), BANGLADESH.

SONAGAZI CARPET TRAINING CENTRE

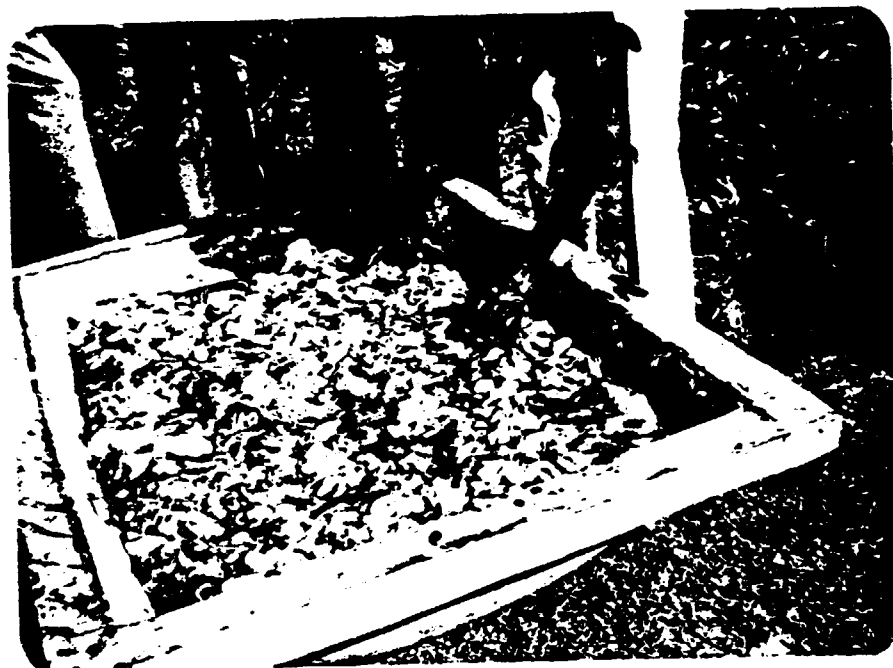


GRADING OF
WOOL.



SPINNING BY
LOCAL CHAKHA
(SPINNING WHEEL)

SONAGAZI CARPET TRAINING CENTRE



WOOL WASHING



WARPING

GONAGAZI CARPET TRAINING CENTRE



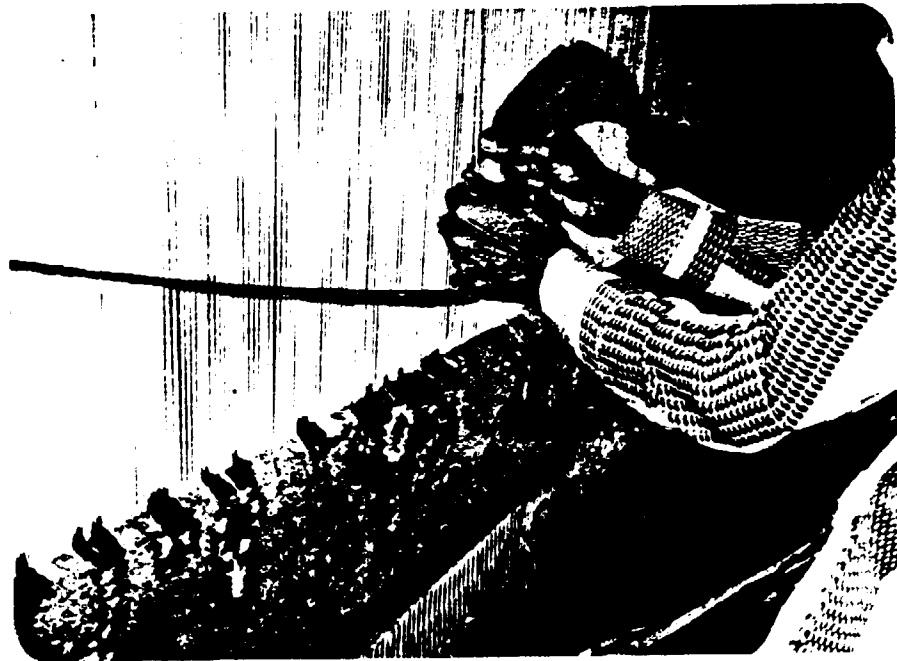
DYEING OF
WOOLEN YARN
BY LOCAL
PROCESS



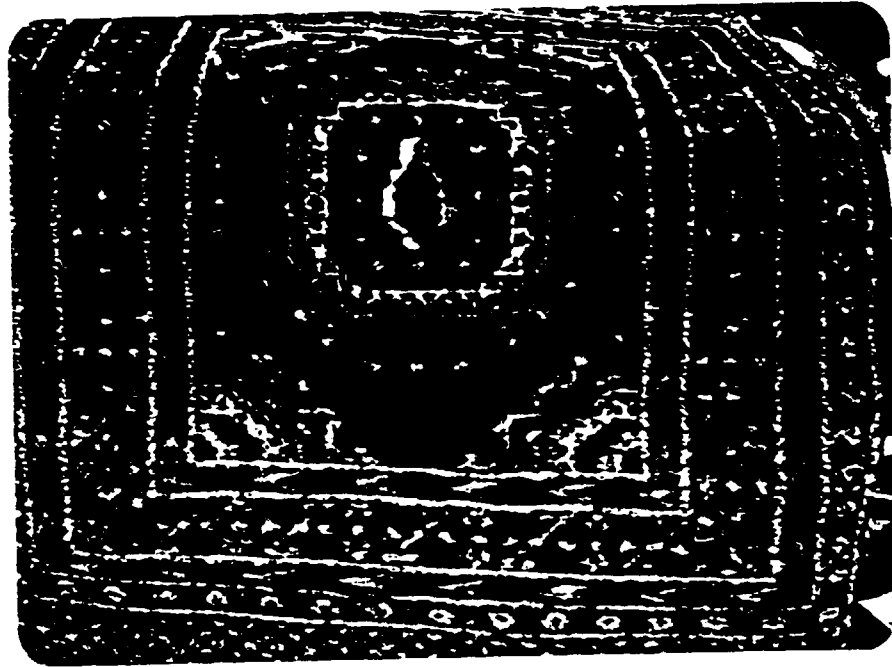
DYED WOOLEN
YARNS.

SONAGAZI CARPET TRAINING CENTRE

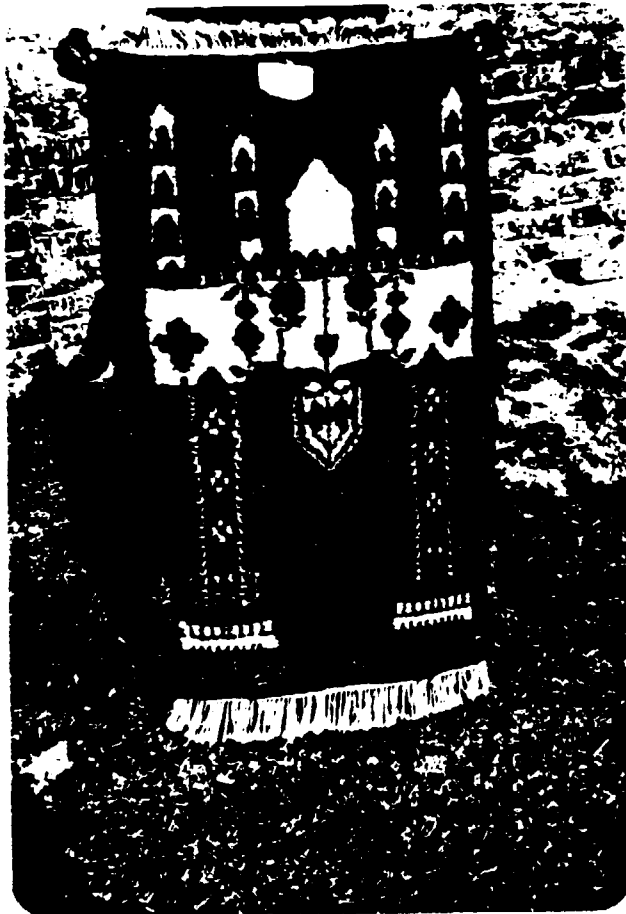
USING BANGLADESHI
TOOLS.



SONAGAZI CARPET TRAINING CENTRE



PERSIAN
DESIGN COPY

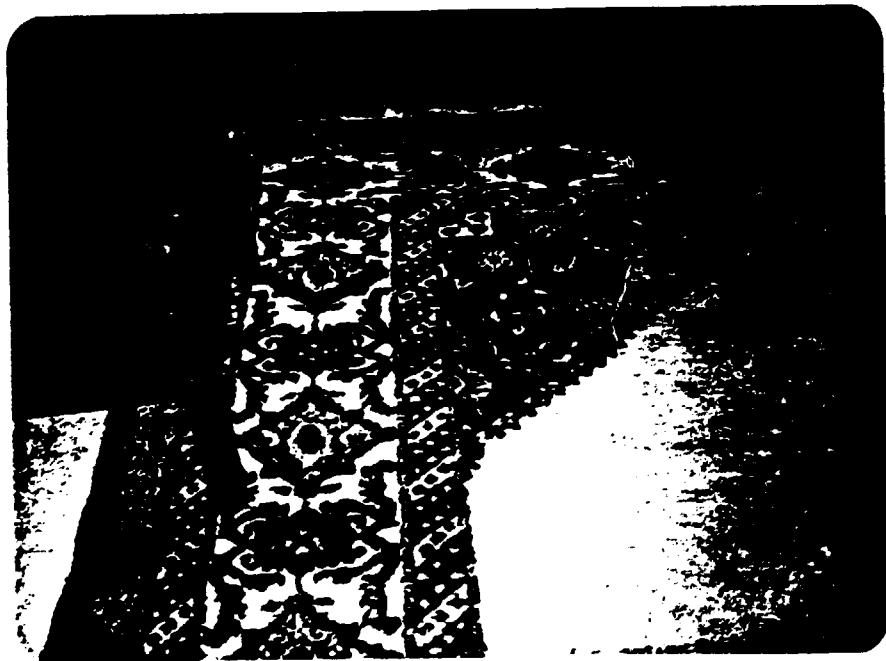


BANGLADESHI
DESIGN

SONAGAZI CARPET



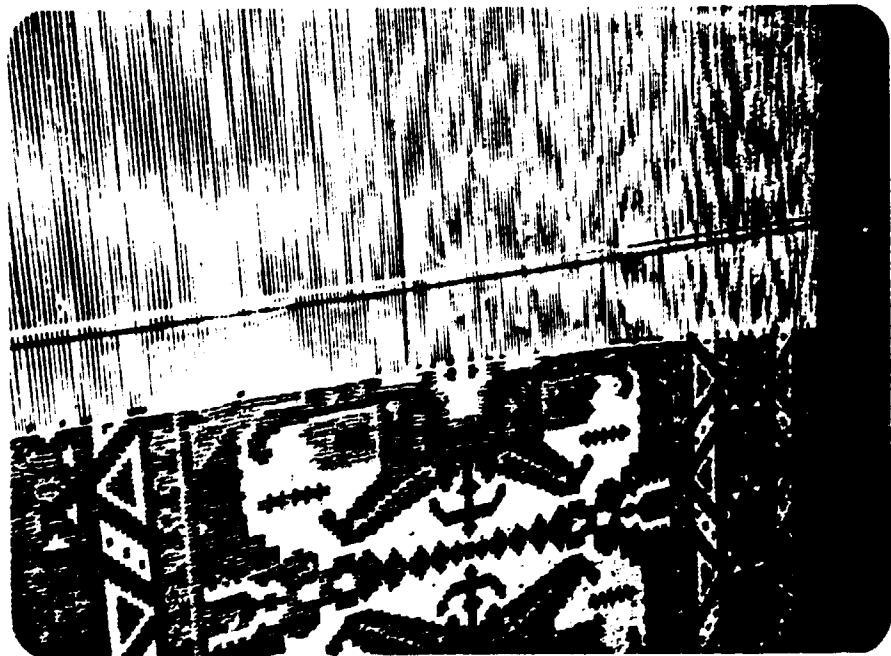
UNDP - OFFICE



BANGLA CRAFT
CARPET PRODUCTION CENTRE DHAKA
BANGLADESH.



BANGLACARFT, DHAKA





KNOTTING

BANGLACRAFT, DHAKA





DESIGN ON
GRAPH PAPER

BANGLACRAFT, DHAKA

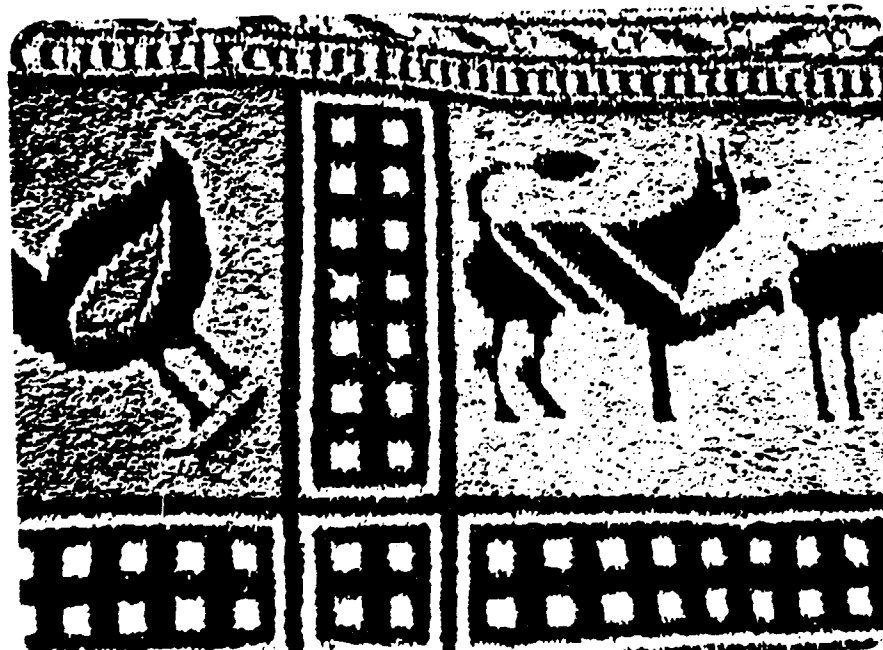




KNOTTING AS PER
GRAPH DESIGN BY
USING BANGLADESHI
TOOLS (PUNJAB).

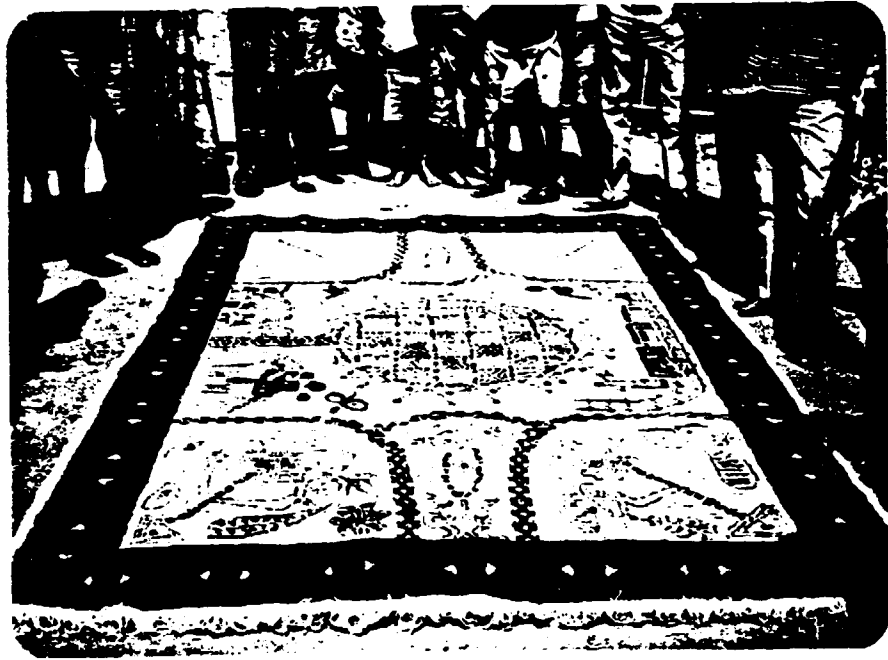


BANGLADESHI
TRADITIONAL
DESIGN.



MIRPUR CARPET
PRODUCTION UNITS
DHAKA
BANGLADESH

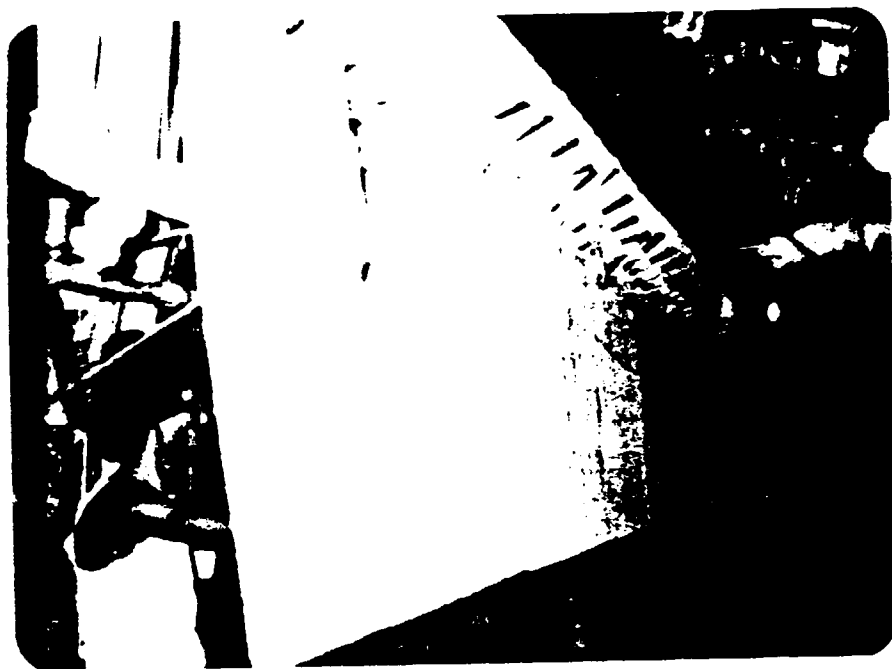
MIRPUR, DHAKA



BANGLADESH DESIGN
(NAKSHI KANTHA)



MIRPUR, DHAKA



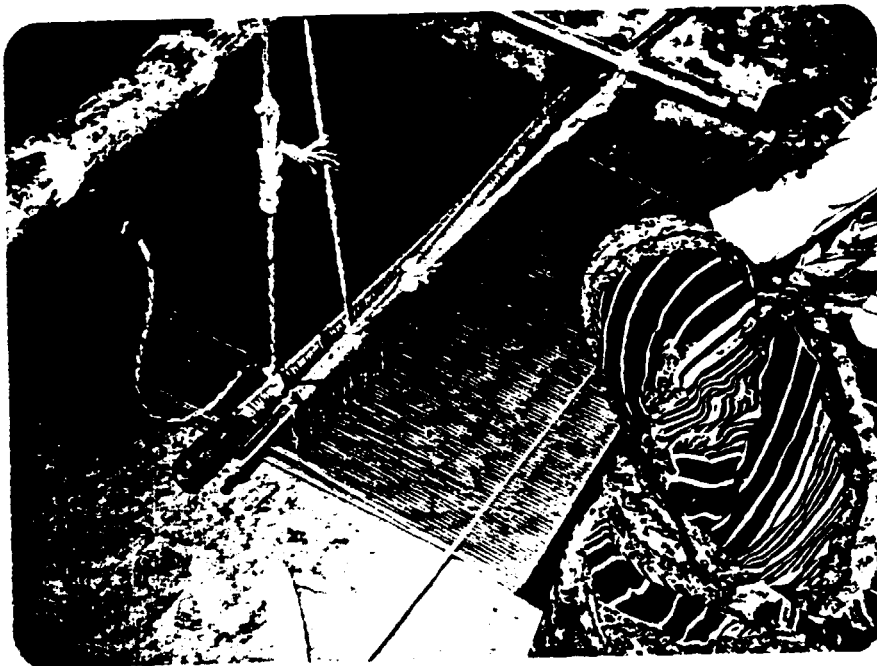
LOOM SIZE
4 METER.



WALL TO WALL CARPET

RANGPUR SATRANJEE PROJECT





WEAVING OF
PIT LOOM





JUTE MAT/CARPET



DURRIE WEAVING TECHNIQUE
IN PIT LOOM

