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"ANALYSIS ON INDIAN HANDLOOM WEAVING PROCESS"

*V.S. Karpagavalli[1], M. Sumithra[2]

[1*]Assistant Professor and Head, Garment Designing Department, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India, Phone : 9952263261

email : vallisaravanan99@gmail.com

[2]Assistant Professor, Textiles and Apparel Design Department, Bharathiar University, Coimbatore, Tamil Nadu, India, Phone :8870233330, and email : sumitad@buc.edu.in

Corresponding author - *V.S. Karpagavalli[1]

1.Abstract:

Indian hand-woven fabric have existed given that past the attain of reminiscence. This region entails massive range of artisans from rural and semi-urban regions, maximum of which can be ladies and those from economically deprived companies. a number of the strengths of this industry are availability of reasonably-priced and plentiful labor, use of nearby sources, low capital funding, specific craftsmanship in production of the goods and growing appreciation by means of global customers. Its miles essential to word that regardless of such specific traits, the industry comprises a meager percentage of Indian exports in global market, thus calling for efforts to sell and channelize the services of the industry to faucet its hidden potential. the prevailing have a look at is an attempt to deliver out the cultural importance of this precious handloom, with the aid of giving an outline of its records, role of handloom earlier than and after Independence, revival of handloom, manner and kinds of handloom triumphing in India.

Keywords: Denting, Drafting, Dyeing, Handloom, Herbal Dyeing, Prin Winding, Warping, Weaving, Wefting.

2.Introduction:

India's traditional cottage industry is the handloom sector. Currently, handloom production ranks second in terms of employment creation in the nation, right after agriculture. There are 43.31 lakh weavers in India, according to the Third National Handloom Census (2009–2010).The loom's technology has the benefit of being economical and available to many people who have no other employment options. In Rajasthan, two organisations are aiming to boost the handloom sector. These groups include the Rajasthan Rajya Bunkar Sahakari Sangh (RRBSS), which was founded in 1957 with the primary goal of establishing handloom cooperative societies in the state and supplying raw materials. Rajasthan Handloom Development Corporation (RHDC), which was founded in March 1984, is another government agency.The primary goal was to encourage and provide support for the expansion and development of lone or non-cooperative handloom weavers. As the fourth-largest metropolis after Delhi, Mumbai, and Calcutta, Jaipur has a lot of potential for marketing and exporting handloom goods, but its handloom enterprises' sales have been steadily falling.[3]

3.Handloom:

A hand loom is a simple gadget used for weaving. In a timber vertical-shaftlooms, the heddles are fixed in region inside the shaft. This loom is powered by way of hand. The warp threads pass alternately via a heddle, and thru an area between theheddles (the shed), so that raising the shaft raises 1/2 the threads (the ones passing through the heddles), and reducing the shaft lowers the equal threads—the threads passing thru the areas between the heddles remain in location. It's far a guide operating machine. Dropping is completed by means of pressing the treadles pedal and selecting and beating is executed manually. Hand looms yield much less manufacturing in comparison to strength loom.It could be

operated at sluggish velocity most effective compared to excessive speed of energy looms.Initial funding could be very low compared to electricity loom. [1]

3.1Major process:

The major processes involved the followings

1. Raw material selection
2. Raw material to yarn conversion
3. Dyeing of yarns
4. Bobbin winding and warping
5. Sizing of warp yarns
6. Dressing and winding of warp yarns
7. Attaching Warp Yarns on Loom
8. Weft yarn winding
9. Weaving fabric in a handloom

3.1.1Raw material selection:

Cotton, silk, wool, and linen are the most popular selections of raw fabric for handloom weaving. Every area of India uses unique uncooked materials for its precise handloom products. Cotton for making Dhaniakhali Saree of West Bengal; mulberry silk for Chanderi saree of Malwa and Bundelkhand; Kullu shawl of Himanchal by weaving pure wool and lots of more.[1]

3.1.2Raw material to yarn conversion:

Yarn is a long continuous period of interlocked fibers. The raw material is gently rolled with palm to form a loosely interlocked cylindrical bunch referred to as a sliver. This loosely interlocked sliver is then spun on a charkha or hathkarkha to make it compact and pleasant. The spun cotton yarns are braided into skeins and sent for dyeing.

3.1.3Dyeing of Yarns:

Dyeing is a system of coloring the greige yarns. It's far a crucial initial step of handloom weaving. This method is completed through hand in small lots or hanks the use of herbal or chemical colorants. Hank yarn dyeing is important in South India, opposite to the North, where fabric loss of life is well-known.

3.1.4Bobbin Winding and Warping:

With the assist of charkha, the dyed yarn hank receives transformed right into a linear thread shape and wound at the bobbin. This manner permits laying out of yarn lengths for weaving.

Similarly, warping is finished, which is the parallel arrangement and winding of warp yarn from bobbin to the warp beam. Traditionally, the weavers use a huge rotating drum as warp beams and determine the width and duration of the final fabric. These drums help them in counting the quantity and color sensible grouping of yarns. Also, the size of the warp are decided with the aid of the weaver at this degree. Yarn in the hank form is wound on to bobbins in this system. That is step one in remodeling the yarn from the hank shape to a linear form. Dyed hank yarn is wound directly to bobbins with the help of charkhas. This procedure permits the laying out of yarn lengths for weaving. Bobbin winding is executed via women within the weaver households. Generally 19 to twenty bobbins are required for five sarees „wrap" length of 34 meters.

3.1.5Sizing of warp yarns:

Submit warping, the warp yarns are stretched out for size utility. Sizing cloth or starch is carried out to add power and lubricate the yarn. This important pastime is known as "sizing". Natural sizing cloth like

rice, maize, wheat flour, or potato starch is used depending on the region. After the software of the sizing paste onto the stretched yarn, unique brushes are used to spread and dry the starch on the yarn.
This starch is eliminated best after two to three washes of the finished product. The warp is asset of threads connected to the loom lengthwise before weaving starts off evolved. Warping is the manner of creating the base yarn that runs alongside the period of fabric thru which the "weft" yarns are filled in to make the fabric. For a forty six-inch wide cloth, over 3, 200 person yarns run alongside the warp of the fabric. Typically, 1, 96, 550 yards of yarn are aligned via wrapping them across the round warping drum. Historically warp lengths and widths numerous in step with the draping types of the sarees of a particular area.**[1]**

3.1.6Street sizing:

The warps are stretched out onto beams and natural adhesives are carried out to feature electricity to the yarn and lubricate it to resist the pains of weaving. In maximum handloom facilities, rice starch/gruel is mixed with coconut /groundnut oil and implemented as "length" material. Sizing is achieved with the aid of weavers or professionals within the village. Due to the fact this activity is executed on the road, it is known as "avenue sizing".

3.1.7Dressing and Winding the warp yarns:

Before the dimensions implemented warp is loaded onto the loom, the warp yarns are aligned and separated to facilitate smooth weaving. The aligned and starched yarns are carefully wound round a wooden beam and carried to the loom.

3.1.8Attaching Warp Yarns on Loom:

Every warp yarn is drawn via heddles and reed and finally tied on both front beam and again beam. Consistent with a pre-determined weave plan, yarns are surpassed via heddles which separate the warp yarns into sections among which the weft yarn (horizontal/width-wise yarn) passes. Individual wrap threads are drawn through heddles taken thru a hard and fast of reeds and tied onto beams located on both ends of the loom.
The heddles separate the wrap into two sections which allows the weft threads to bypass between them without difficulty. Assessments and stripes are created by using segmenting the warp and weft yarn. For motifs, looms are geared up with "dobbies" or "jacquard" cards which assist in lifting segments of warp yarn into the weft. Heddles are constructed from rods or cords, each with an eye fixed via which the warp thread is drawn. Reed is a comb like body that pushes the weft yarn firmly in opposition to the finished material after every insertion.[1]

3.1.9Weft yarns winding:

For horizontal or weft yarn practice, traditionally, charka is used. Through the fingertips, correct tension is given to the yarn. A hank of yarn is wound onto a small bobbin known as "pirn". The weft yarn wound on pirn is then inserted right into a trip (a tool used in weaving to hold the weft thread backward and forward among the warp threads.
Hank yarn for weft is wound onto a pirn. The weft yarn is then inserted right into a travel. Weft coaching is completed at the charka, using the finger suggestions to present the ideal tension to the yarn. This operation is commonly carried out by way of women. Pirn is a small bobbin. Shuttle is a tool utilized in weaving to carry the weft thread to and fro between the warp threads. Converting colors inside the weft lets in for the advent of „shot" color which makes the material lustrous and colorful.

3.1.10Weaving fabric in a handloom:

Weaving is the procedure of interlacement of warp and weft (vertical and horizontal) sets of yarn. The fabrics which might be weaved on handloom are called handloom merchandise. Because the call

suggests, handloom is a loom that is used to weave fabric the use of fingers, that is, without the usage of electricity.
The foot pedals are pressed to boost the respective heddles in step with the weave plan and it has to be in sync with throwing the weft or horizontal yarns throughout the two sections of warp yarns.
Weavers hold weaving for lengthy hours in a day which requires colossal attention and physical electricity. The process of weaving is the interlacing of two units of yarn – the warp and the weft.
The device that enables this interlacement is the loom. A „handloom" is a loom that is used to weave fabric without using electricity. The manipulation of the foot pedals to boost the wrap needs to be in sync with the throwing of the travel which consists of the weft yarn. A best weave needs co-ordination among mind and body.
The weaver achieves a concord of motion and rhythm to create a unique product. Relying on the complexity of layout, a weaver weaves between half of meters to five meters of cloth an afternoon.[1]

3.2Important parts of Handloom:

1. Warp roller
2. Handle
3. Back Beam
4. Heddles
5. Bobbin and Shuttle
6. Beater
7. Cloth Roller
8. Treadles

Warp roller: The warp roller which consists of the lengthwise yarns isplaced behind the loom &it releases the warp yarn to theweaving region of the loom as needed.

Handle: Handle is provided on the warp curler to tighten or loosen the warp sheet which in the end changes the tightness aspect of the material.

Back Beam: To hold the regular anxiety and proper angle to the warp sheet.
Heddles: it's far a frame to keep the held wires. Held cord it is a wire with a hole or eye in its entrevia which a warp yarn is threaded. In a few instances cotton or artificial yarn head wires are also used.

Bobbin and Shuttle: The weft yarn wound on a bobbin (pirn), which sets into a shuttle. As the shuttle passes back and forth through the warp shed, it releases weft yarn from the pirn.

Beater: This is inevitably a combination made up of metallic wires set vertically in a frame. The spaces between the wires are known as dents. There is a beater which has a Reed frame mounted on it. The weaver holds the beater and gives beater a to and fro motion for beating the last pick to the fell of the cloth.[5]

Cloth roller: It is located at the front of the loom. After completion of weaving the woven fabric is wound on it.

Treadles: These are located at the bottom of the loom and are designed to control warp shed formation by controlling the up and down movement of the heddles. The weaver presses the treadles by their feet for shed formation. The shed on a handloom is controlled manually by giving proper movement to the treadles using foot.

3.3Motions of Loom:

There are 2 types of motions in hand looms. They arePrimary motions and Secondary motions.

3.3.1Primary motions consists of follows:

Dropping movement- losing separates the warp yarns into two layers for the insertion of apick. The characteristic of shedding mechanism is to elevate & lower theheddles. Which convey a collection warpends drawn thru held eye. Thereare different forms of dropping mechanism like Tappet, Jacquard and so on.[5]

Choosing motion-picking movement inserts a pick (weft)from one aspect to the opposite facet of thefabric.In Hand looms, pick is inserted withthe assist of a shuttle thru the shed opened by way of the losing mechanism. I.e. among the 2 layers of warpshed.

Beating-up-The feature of beat up mechanism is to push the weft thread that has been inserted throughout the warp threads in ashed, up to the fell of material. Fell of thecloth is the placement of the ultimate pick out incloth woven on the loom. The beating up of the weft to the fell of fabric isdone via the beater.

3.3.2Secondary motions consists of follows

Take-up motion- Take- up motion winds the cloth as being synthetic. It manner after the beat up ofthe weft, woven material is drawn far from the reed. After weaving an appropriate length, theweaver rolls the cloth on the fabric curler with the assist of absorb movement manage and maintains the weaving.[5]

Let-off motion- let-off controls the quantities of warp introduced and keeps the nearby tensionat some stage in weaving. This movement can provide warp to weaving place at the specified price and at asuitable regular anxiety by means of unwinding it from warp curler.The weaver has to manually alter the load at the tension lever to hold theanxiety of warp sheet.

3.4Basic Weaves:

The handloom can be used for making the complicated designs with the help of dobby and jacquard. Examples: damask, weft returned material, patent satin and so on. “All merchandise which can be produced on power looms can also be produced on handlooms. But there are numerous merchandise which can be produced through handloom handiest.”example: Banarsi saree.

3.4.1Mounting of Loom:

The variety of various warp and weft interlacements inside theweave will decide the wide variety of treadles and heddles required. The determined,the plain weave requires best two extraordinary interlacement for warp and weft hence onlytwo treadles and heddles are required. In the handloom weaving, weaver has to do drafting, denting, as well as the tying up ofthe treadles with the heddles in step with the design required. The alternative associated termsare defined underneath.[5]

3.4.2Drafting or drawing in-after getting the warp beam the weaver has to bypass the warpvia the heddles (held eye) according to the weave deliberate. That is called draftingor drawing in. As proven within the above figure 1 the 1st quit could be passed via the primary held and second through the second one held. The 3rd cease will again pass through the firstheddle and so forth.

3.4.3Denting - it's far the procedure of passing the drawing in ends thru the reed for beatingcause. There can be ends per dent or three ends according to dent as per therequirement. More without a doubt the number of ends in line with dent depends upon the variety ofthreads required and the warp remember. In the above figures two ends in step with dent is proven.In case of selvedge the denting order may be one of a kind compared to the primary body ofthe cloth.

3.4.4Tie up- once the weaver finishes the drawing in and denting, the following system he/she has to do is to tie the held with the treadles. As shown in discern 1 the primary treadle istied with 2nd held and 2d

treadle is tied with first held. Quantity of held and treadles to be used depends upon the weave. In discern 2 most effective two held are required as its miles a simple weave. Likewise for weave 2/1 twill three held and 3treadles might be required. [5]

3.5Preparation of handloom for weaving:

The loom parameters like accurate warp tension, right opening of shed, reed motion and many others, is to be checked to make sure whether the loom is well suited for weaving or not. If not the weaver has to make adjustments in the above as required and should take precautions, to reduce or keep away from the yarn breakages. Its miles the weaver's duty to test the shed opening with the aid of fake selecting and reed motion with the aid of false beating.[5]

3.5.1Pirn Winding: A simple system under is used for pirn winding inhandloom.There is a wheel and a metal shaft, which can be connected with every other with the assistof rope for transferring movement. The hank is established on the wheel and the pirn ismounted at the shaft. The yarn from the hank is transferred directly to the pirn by means of rotatingthe wheel.[5]

Precautions:

- Uniform tension is maintained till the pirn get filled.
- The groove of the pirn should be saved empty.
- The yarn ought to be filled at the pirn to top-quality level.

3.5.2Operating Handloom:

3.5.2.1Attending to Warp ruin:

- Discover broken warp ends.
- Find out the vicinity of the damaged end by means of visible examination.
- Mend the broken warp cease in the sized beams with the thrums of the identical count number ofthe sized beams, using "weavers ' knots"
- Draw the mended warp yarn through the heddles well as in keeping with the drawing orderprescribed.
- Draw the mended warp yarn thru the beater nicely as in line with the denting orderprescribed.
- The sley has been introduced to the returned center.
  The commute is inserted completely in the commute container.
- Run the loom through the usage of right hand and foot actions on the ideal components ofthe loom designed for the reason.

3.5.3Attending to Weft smash:

- See that the beater is delivered to the again center.
- Take out travel from go back and forth container.
- Discover the damaged pick. Test whether the blanketed halfway or much less.
- Take out the broken select.
- Cautiously do the piecing of the weft yarn with the go back and forth yarn (Do no longer do knotting).
- See that the trip is inserted completely in an appropriate go back and forth field.
- Run the loom via the usage of right hand and foot moves on the ideal partsof the loom designed for the motive.

4.Weaving process:

Handloom weavers use distinct forms of looms to weave like Pit loom, Stand loom and body loom. The pit loom is positioned on the ground and peddles in a dug pit have been the weaver in leaning onto the wall and standing half of internal pit. Pit loom weaving is stated to be producing a good weaving due to

the material woven holds the characters of the fiber and makes the fabric greater breathable as the loom vibration tensions and the velocity is near the floor which in a roundabout way ripples. Once the dye is finished, warp yarn is received and loaded to the beam have been the antique warp yarn is preserved for persevering with the new cloth weaving.[5]

The yarns are knotted to the old yarn present in heddles and the beam is constant to the handloom had been the weaving process occurs. Weaving is an interlocking of two separate yarns at right angles like wefting thread and warping yarn, which makes a fabric material. In handloom the weft yarn is spun to the small bobbins (prins) this is placed within the wood instrument called go back and forth. The weft yarn loaded trip is moved among the warp yarns, which makes the weaving process, appear. The warp yarns are held by way of heddles inside the loom. Change warp yarn is picked up with the aid of one heddle and relaxation of the opposite warp yarn is held by means of different heddles.

The motion of the pedals moves two heddles up and down which makes the warp into two elements and opens a small passage every time the pedaling is finished. That passage is in which the trip is moved from right to left and left to proper correspondingly. Thus the weft yarn is weaved and interlaced between the change warp yarns.[2]

The commute can be moved by way of the hand or pushed with a force with small hand mechanism implemented that is known as Fly commute. Once the trip is moved the weft yarn is tightened and pushed toward the previous weaved yarn with the help of reed beater. Reed is a wood block with tiny passages made for the warp yarn to insert. Reed is moved back and forth for tightening the weft yarn. That is like a repetitive system, which takes place, handiest when a weaver pedals with the legs, actions the fly shuttle with his/her proper hand and moves the reed beater with left hand. A lot of these moves need to arise in correspondence which will gather the easy flowing of weaving system.

5.Conclusion:

Fabrics made in the handloom cooperatives, a country wide stage apex frame called the All India Handloom fabric advertising Cooperative Society became set up in 1955. The Weavers carrier Centre and the Indian Institute of Handloom technology have been set up to provide infrastructure returned up in the crucial regions of carried out research, service and schooling. The Handloom and Handicrafts Export business enterprise of India Ltd (HHEC) was set up in 1958 to sell export of hand looms. In 1976, the authorities appointed a high powered look at crew and on its tips the office of development Commissioner for Handlooms became created at the Centre to ensure a scientific boom of the handloom sector. Due to the fact then the office of the development Commissioner for Handlooms has been implementing diverse developmental and welfare schemes for the advantage of the handloom weavers. To make sure a constant supply of uncooked materials including yarn, dyes and chemical substances to the handloom region, the country wide Handloom development employer (NHDC) turned into installation in 1983.7: end despite such adversity, Indian artisans have stood the check of time and feature saved this incredible craft alive. [4]

Over the centuries, handlooms have come to be related with excellence in India's artistry in fabrics. Fabrics and designs were motivated through geographic, non-secular and social customs of a place. Distinct elements of India have produced distinct styles – muslin of Chanderi, Varanasi brocades, Rajasthan and Orissa have given tie and die products, Patola sarees from Patan, himroos of Hyderabad, phulkari and Khes from Punjab, Daccai and Jamdani from Bengal, traditional designs from Assam and Manipur like the Phenek and Tongam. Indian handloom designs and weaves had been well-known global over and it's far critical to ensure sustenance of our cultural heritage.

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