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Zero Waste Fashion

A field research on Design with Chikankari Artisans

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Abstract:

The technique of Indian traditional garment making uses fabric optimally and many variations exist within the dresses of different regions. This is also in sync with zero waste fashion which globally focuses on creating garments with little or no textile waste and could be classic or experimental.

This paper reviews the traditional linear cutting methods of India which were near zero waste, as geometric pieces were used, leaving no negative space around the patterns. It further reports the synthesis and experimentation of Incision Cutting technique[1], its sustainability and adaptability to Chikankari, as reported during the ten day modular workshop based on this technique for artisans in Lucknow. It reports the level of acceptance and aesthetic exploration of ornamental seaming technique 'Daraz' traditionally prevalent in this craft. It aims to establish the artisans connect with sustainability through optimization and waste reduction as a part of design process.

***Key words: Zero Waste*, Chikankari, *craft*, *traditional*, *artisan*.**

[1] Incision Cutting is a zero waste garment design technique developed by the researcher in 2012, based on traditional Indian direct cutting. It works only with straight line incision cuts in the fabric to create a garment and till date has been applied to variety of men's and women's clothing.

1 Introduction

Indian traditional garments were largely functional and their design was dictated by the size of the fabric that came off the loom and local craft techniques of the region. The techniques used for making dress in India traditionally follow the zero waste fashion and many variations exist within the dress of different regions (Burnham, 1997; Mis & Mis, 2001). They had very few seams and were made with little or no material wastage from the cutting (Khar & Ayachit, 2013).

Focus

In the northern part of India the region of Awadh was traditionally known for its variants like *kalidar kurta, sidha paijama, ghutanna, angiya, jama* and many more and their technique was perfected over generations of practice. The luxury was personified in these costumes through the use of Chikankari embroidery and *Daraz* to ornament the seams.

Figure 1: Chikankari sample courtesy State Museum, Lucknow

Chikankari is an embroidered craft practiced presently in Lucknow region of north India. It's known for delicacy, minuteness, evenness and its subtle appearance. This embroidery has a variety of stitches, estimated to be thirty six in number and together they create impressions of transparency, opacity and texture.

This paper reviews the traditional linear cutting methods in northern India, which were near zero waste, as geometric pieces were cut and sewn together. There was minimal to no wastage as there were little negative spaces around the patterns.

A ten day workshop was organized and during this the Chikankari artisans were taught this technique also introduced to Incision Cutting. The adaption of this technique in the classroom and later in range development done is the focus of discussion in this paper. The sustainability and acceptability of this technique is reported as analysis of artisans work and reflective journal created during the ten day workshop held in Lucknow.

The objectives of this paper are:

- To discuss the zero waste Incision cutting technique for optimal fabric utilization.
- To review the traditional zero waste garment making techniques in pre-colonial Awadh region of India.
- To train Chikankari artisans in traditional and incision zero waste cutting and analyse the products developed.

1 Traditional zero waste pattern making

Zero-waste fashion focuses on creating garments with little or no textile waste that is normally discarded during the cutting of fabric. Zero waste, in the present context is a design technique that eliminates waste at the design stage. Approximately 15 per cent of fabric intended for clothing ends up on cutting room's floor (Rissanen, 2013). Zero waste garments reduce textile waste, the demand on natural resources and give better profits to artisans. Almost all eastern civilizations had techniques that reduced the use of their raw material i.e. hand-woven fabric while making garments.
As this research was undertaken with Chikankari artisans, the researchers chose to concentrate on zero waste garments prevalent in pre- colonial Awadh. Two examples of traditional dress that are still very commonly used have been studied through available samples and their techniques explored to create variations in conventional forms.

Kali Kurta: *Kurta* is popularly defined as a short tunic close to the body, which was a popular dress in Delhi. Its migration to Awadh led to its transformation as a *kalidar kurta*. The pattern of *Jama* and *Angrakha* in this region was based on the adaption of the *kali-kurta* pattern and they were generally made of fine muslin with Chikankari embroidery and (Swaroop, 2012, p. 29) seamed with '*daraz*'. Goswamy(2000) describes *kali kurta* as a *kurta* having a gored panel on each side under the armpits. Armholes are cut deep and are straight with sleeves having the same straight cap. A triangular gusset is sewn in under the arm and it adds to shape of the garment as well as allows movement of arm as depicted in figure 2.

Figure 2: *Kalidaar Kurta* and its technical pattern

Ghuttana Paijama (Churidaar): The other Awadhi garment analysed in this research is *ghuttana paijama* which is cut on *aureb* or bias grain. It involves conversion of woven fabric into a bias tube before cutting. It is a trouser like lower garment that is loose at the hip and thighs and fitted below the knees. The tailors have a remarkable method of not wasting fabric even when the garment is bias cut. "The fabric is shaped and cut into a bias tube which permits very thrifty cutting and places the seams where they can be concealed in the fullness over the hip" (Woolfitt, 2002). It concludes in a series of gathers that resemble bangles (*choori*) at the ankles. To create these folds, the legs are cut longer than would normally would be required and the lower portion meant for the area between the knees and the ankle is narrow and tight, which, when worn, forms folds and fits tightly around the ankles (Bhandari, 2004).

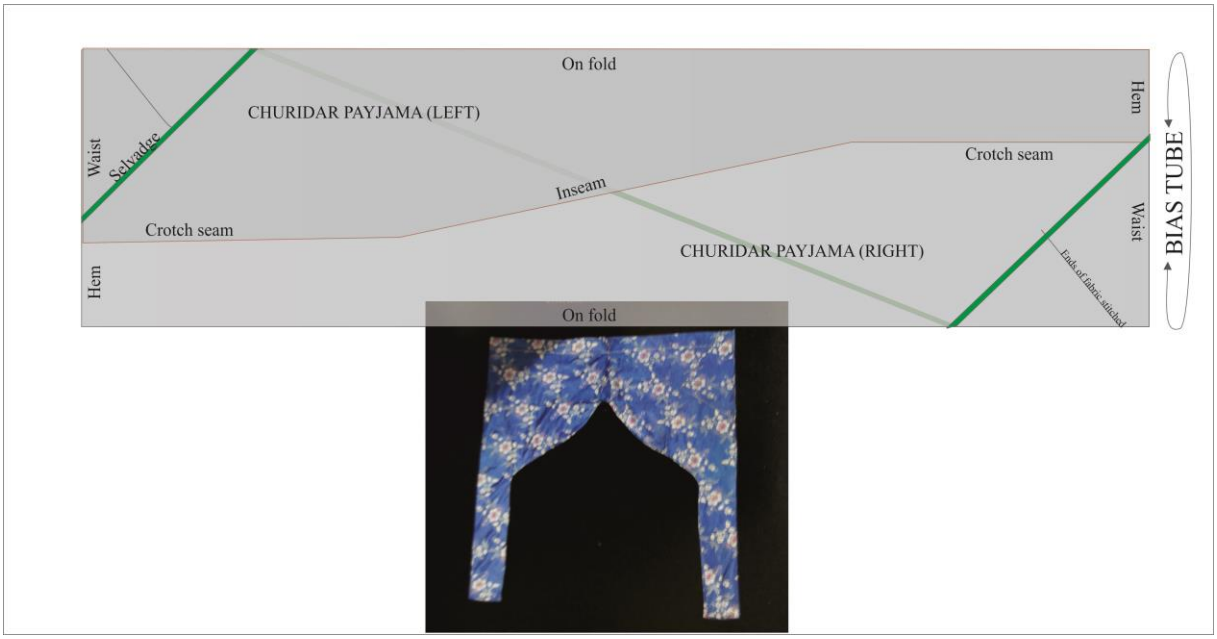

Figure 3: Pattern layout of *Ghuttana paijama* cut as zero waste garment.

2 Incision Cutting Technique

Initiated by the researchers for developing diverse designs for narrow width textiles of Kutch and Bengal the Incision cutting technique was further simplified as an alternate patternmaking process that may be used by a larger group. This approach created forms with minimal cutting, saving 20-30 per cent of fabric and could be wrapped around the body. “Reduce”, one of the 3R’s of sustainability becomes the strength of this project and follows the concept that ‘less is more’.

The gusset of *Kali kurta* was explored as initiation of this technique. The shape visible on its deconstruction of this kurta is of a displaced angular protrusion at armpit, which gives ease and hinge movement to an otherwise straight sleeve cap. Patterns were created to get a similar extended shape as an inbuilt component of a garment at armhole level and were tested on muslin toiles for fit and comfort and necessary modifications were done. Few more styles were created for straight, A-line, tent silhouettes and also raglan sleeve using this technique as shown in figure 4. The technique had been applied to bias cut bag used in a *churidaar* to create various variants which are discussed in the later part of this paper.

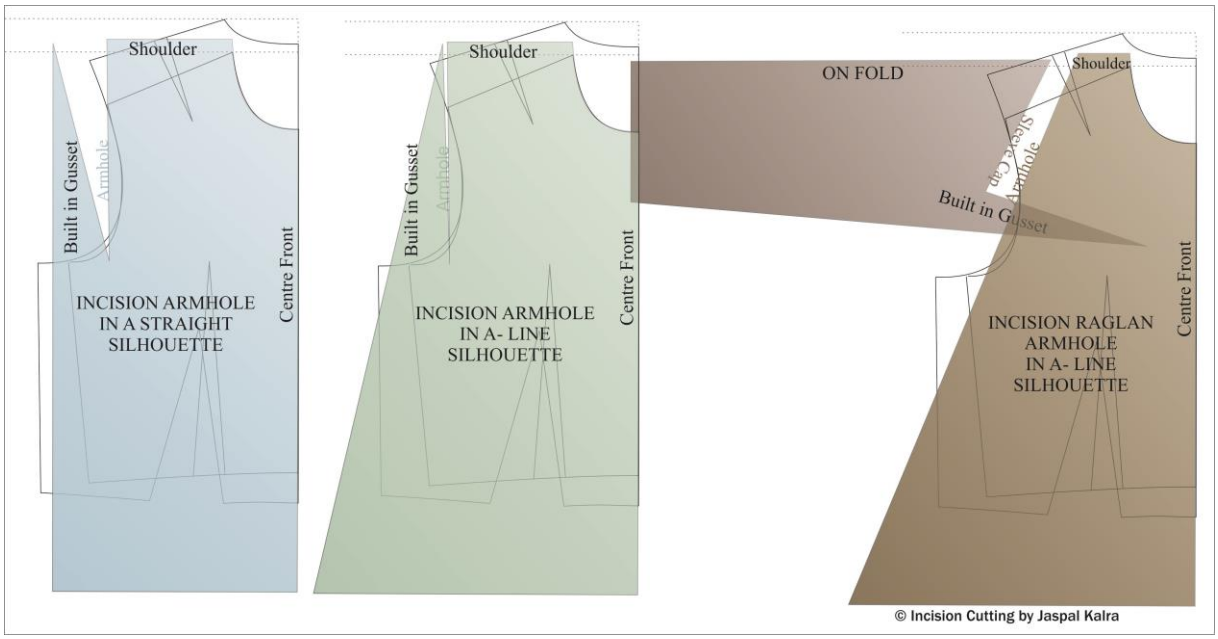

Figure 4: Incision cutting as compared to armhole of a conventional pattern

This cutting style is easy to adapt, adopt and modify and also saves on fabric consumption in a garment. Zero waste expert, Timo, while researching his technique realised that new explorations and innovative outcomes are achieved by keeping an open mind regarding the final goal of making beautiful garments (Rissanen, 2013). This open approach to technique exploration of bias tube cut garments with the armhole incision cutting technique gave numerous new forms that were shared with artisans.

3 Zero waste cutting in the training module of artisan education

Chikankari embroiderers, like any other artisans face various challenges. It was found during review of literature and focus group of artisans, that design could be a tool for better livelihood of artisans. A design education program for Chikankari artisans was developed and delivered as a part of Doctoral research titled 'Design Education for Chikankari Artisans: A tool for Social Innovation'. This education programme had a ten day module on product understanding and garment realization. The learning outcomes of Fashion Realization and Quality that are relevant to this paper are:

- Explore linear cutting techniques to evolve innovative forms relevant for the market.
- Manipulate basic form to add fashion elements, details and components to a garment

The module started with an introduction to fabric grain and drape and to linear cutting of *Kali kurta*. The kurta was explored and 3D form created to understand its functionality and concept of total fabric utilization. Through the understanding of body measurement, shoulder slope, neckline and limb movement in a pattern the appreciation of quality

parameters were also achieved. The technique of incision cutting was then shared, as it was grounded in tradition and had the potential of producing innovative forms. It was explored to check the viability of developing an exclusive product using the seaming technique of *daraz*. This seaming is important to this discussion as *daraz* can also be looked as an extension of zero waste seaming where the left over fabric was not cut out and discarded but was seamed as a detailing in garment creating various motifs at the seam. Paola (2007, p. 21) mentions that *daraz* camouflages seams creating a decorative effect in transparency of fabric. In this process, the *darzi* (tailor) artfully cuts the seam allowance of fabric into a motif, like meandering creeper, and hand hems it. The same process is repeated from reverse side of the garment to give a complete form to the motif. The technique is a handcrafted translation of the better known flat felled seam, and adds delicacy and detail to the dress. *Daraz* became a languishing craft post-Independence but was later revived by organizations such as SEWA in 80's and continues to be used with *Chikankari*, though sparingly. Use of *daraz* as a technique established the artisans connect with sustainability through optimization and waste reduction as a part of design process.

Figure 5: Making of *Daraz* in a garment

Incision cutting started with introduction of straight armhole incisions in straight length of fabric and then insertion of straight sleeve in it. The fifteen participating artisans created the muslin fit of their first garment. The artisans explored the technique of incision armhole in other basic forms like kali kurta, empire line tunic for ease of operation.

Figure 6: Incision Cutting created by artisan as her collection with daraz in centre

An artisan who used it in her collection (figure 6) says “I found the technique very friendly as I did not have to bother about curves and the fear of going wrong was not there. It gave me freedom of exploring and creating styles as one’s own expression”. It simplified the working process of various garment silhouettes and the fabric consumption of an A-line or a flared tunic was reduced by 25 percent. As zero-waste pattern required a plan to use the entire piece of textile, a jigsaw puzzle of components was created and trims and facings were extracted out of negative spaces created within armhole incision and neck.

The second phase was creation of bias tube of a *churidaar* and then armhole incisions and sleeves were introduced to complete tunics.

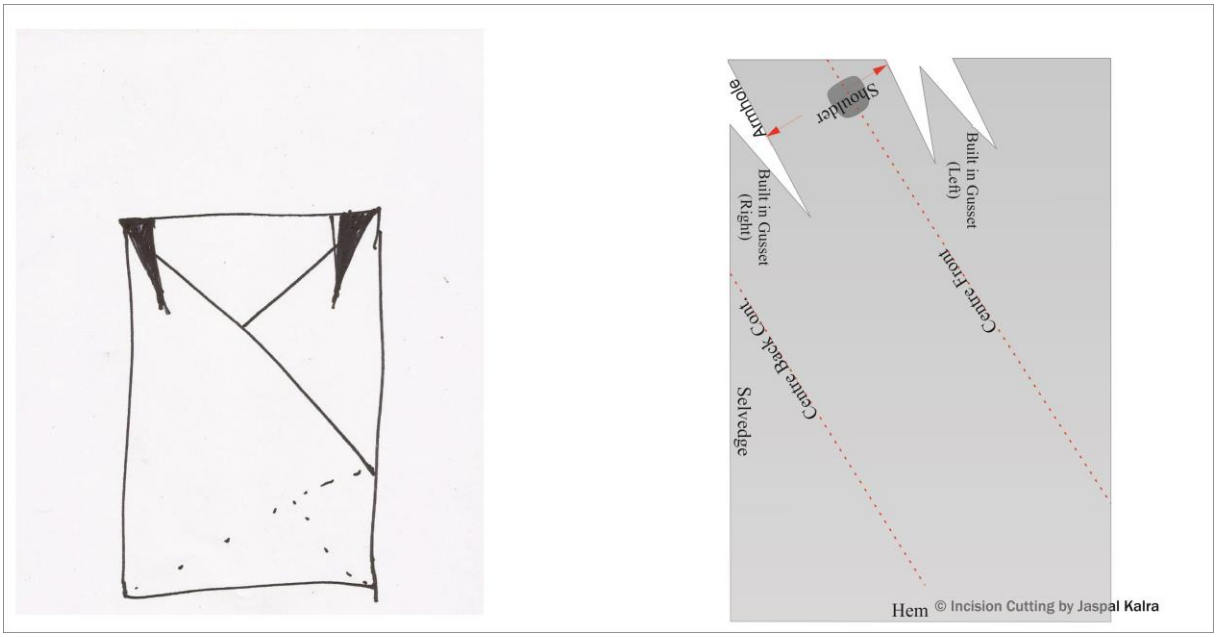

Figure 7: Sketch of a deconstructed bias cut tunic with built in gusset

After deconstructing the bias tube tunic armholes seemed like inclined cuts on outer periphery of rectangular fabric (figure 7). They could be shifted anywhere on the periphery of the fabric to achieve new form of tunic. These tunics were then deconstructed and reconstructed by artisans to introduce feature like gathers, pleats and manipulation of seams. This was achieved by varying the gap between incisions or changing the process of bag creation.

The bias tube tunic cutting was taken further for prototype development and exploration. Artisans created tunic, in a group, by exploring of grains, tucks, gathers, inserting cowls. The seams were given an expression of design detailing as elements of a garment or as *daraz*. These seams also assisted the artisans to plan newer layouts and patterns for embroidery.

The outcome of artisans' work is discussed here:

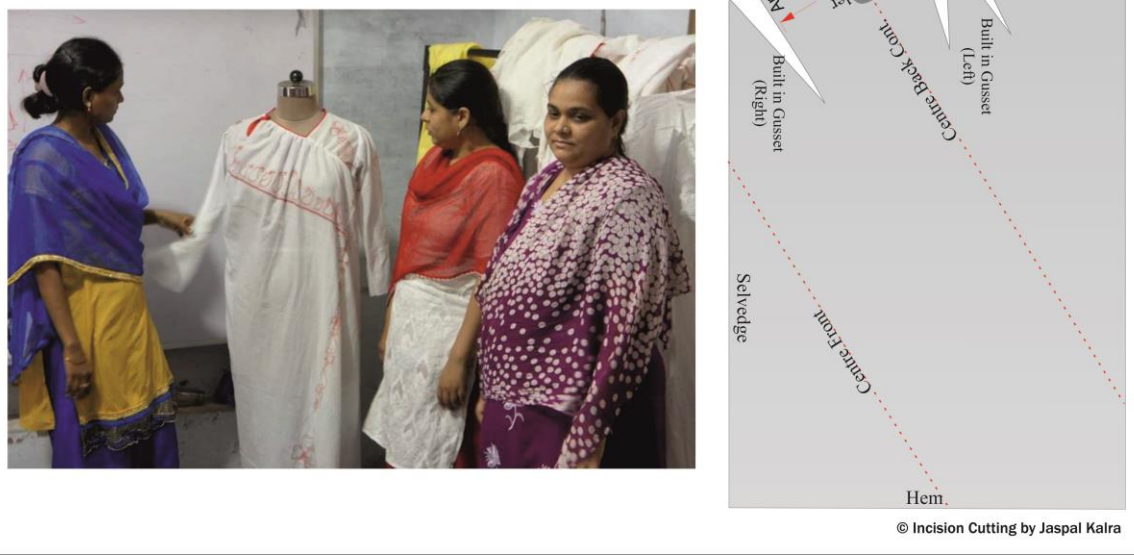

Figure 8: Presentation of artisan on zero waste technique (group 1)

The first group created tunics with bias tube using 1.5 meter fabric and introduced gathers at neck without discarding any fabric. The selvedge was not eliminated rather used as detailing with its enhancement through embroidery. This garment had comfort and drape of bias grain, without wasting fabric, as traditional method of *churidaar* tube was used. The armholes were straight incision with straight sleeve cap. The seams were made with pencil sketched *daraz* creepers. The change in cutting style also triggered a thought process for placement and balance in asymmetry (figure 8).

Figure 9: Presentation of artisan on zero waste technique (group 2)

The second group showed innovation in thought and used seaming details of bias tube in the back of garment for *daraz* while front had scooped hem and embroidery detail at neck as seen in figure 9. The selvedge was used as a seam detail in the center of sleeve which was inserted in armhole incision. The fabric scooped out was utilized in neck, sleeve and hem finishes.

It was also a challenge for certain groups to create layouts around the multiple seams and it became either restrictive for a few or else led to excessive design elements that made the product very unpleasant. The artisans became well versed in utilizing minimum fabric optimally in this zero waste technique.

Figure 10: Presentation of artisan on zero waste technique (group 3)

Figure 11: Presentation of artisan on zero waste technique (group 4)

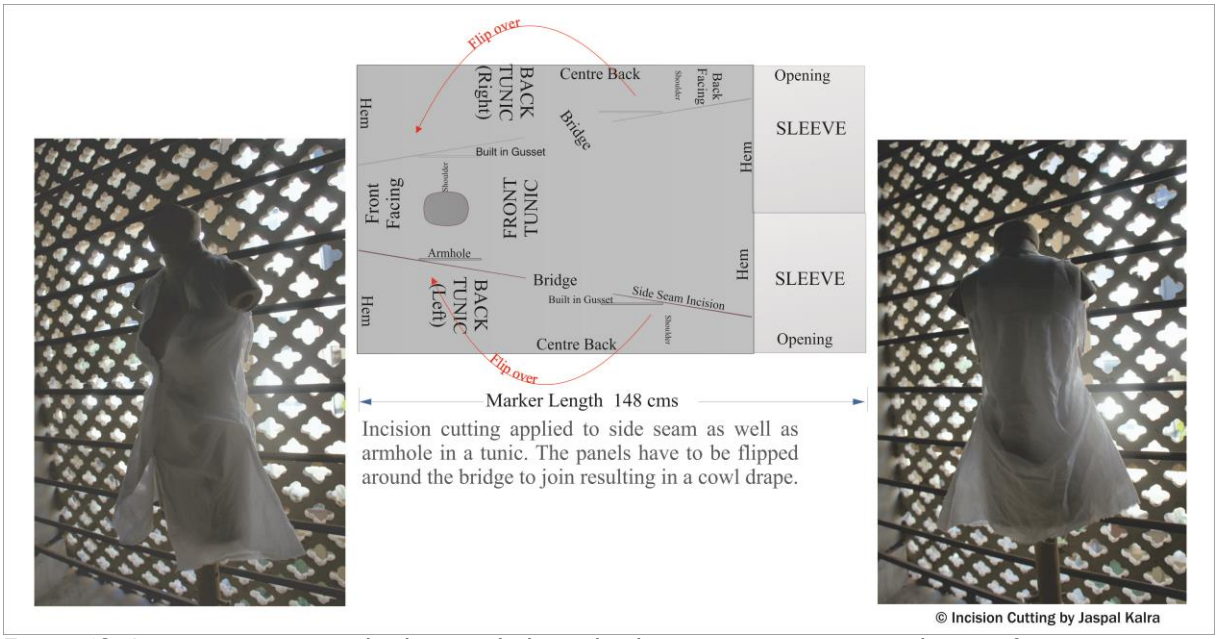

Figure 12: Incision cutting applied to armhole and side-seam to create new design of tunic

The cutting style shown in figure 12 was translated into a final garment by artisans with the fabric saving of approximately 30 percent over a bias cut garment. The side seam here was not developed as cut panel but as a diagonal incisions from shoulder and hem respectively, not cutting through the fabric but ending inland within the pattern. The front and back panel lie beside each other and remain attached by a bridge to back so one of them has to be flipped to seam them together. The roll over gives a knot or fold which results in natural pleats and cowls in the garment.

Figure 13: Incision cutting outfit developed by artisan with back cowl

The openness to design is seen further in the next series that was created during the workshop in an attempt to translate a silhouette of industrialized pattern in this cutting technique. This series had cascading drape of fabric in uneven hem. The fabric length was folded into half and shoulder, neck and armhole incision were given. Some artisans in this phase experimented with unequal widths of front and back neck which gave cowl effect. By now they had been theoretically introduced to silhouettes, necklines and sleeve variations. The extra fabric was seamed with *daraz* and was allowed to fall loose under effect of gravity. The cutting style is depicted in figure 14. In this style fabric optimization of only 15 percent but the other advantage was also reduction of stitching operation, as empire was eliminated.

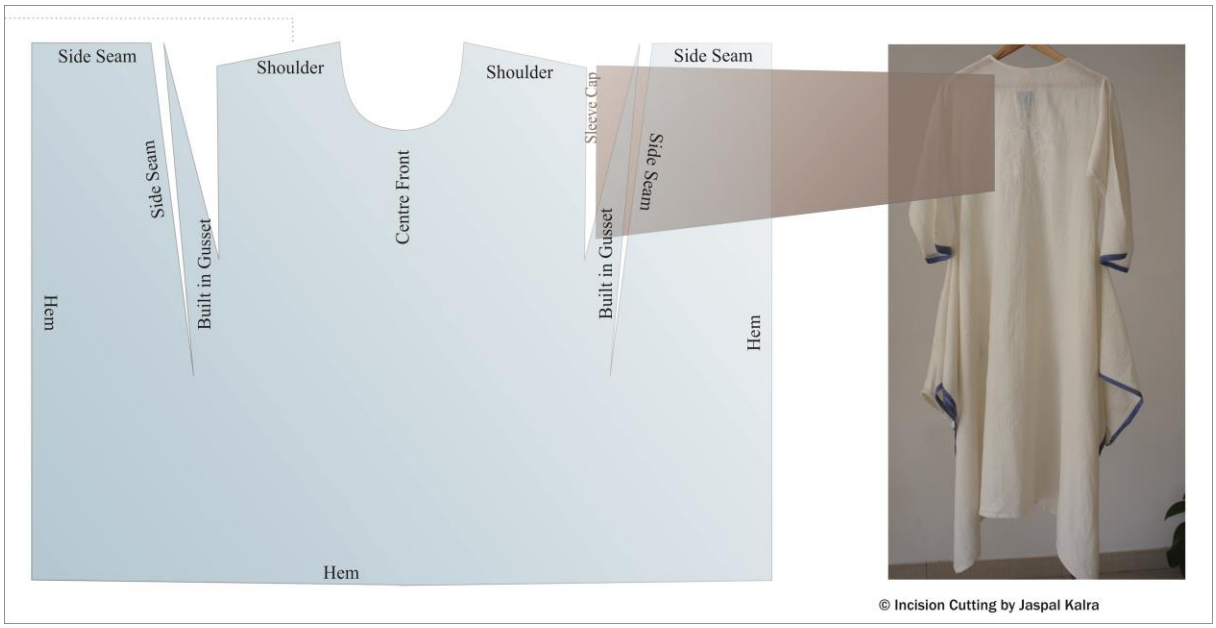

Figure 14: Cascading hem as a variation of Incision technique

Figure 15: Garment with *daraz* at the side seam

The focus of module was to create styles and enhance artisans' ability to use them with detailing in their craft while saving the fabric consumption.

Future Directions

The zero waste incision cutting is a random approach without strict sizes and measurements and the resultant is one size for many making it more suitable for craft sector and reducing the burden on artisan to create big inventory. The artisans realized the simplicity and potential of this technique and adopted it in range development in the second phase of design education. Out of fifteen artisans in the course, three of them solely used this techniques, while there were two others that used it in some styles. Majority of them realized the advantage of zero waste in optimal utilization of fabric and created forms using traditional geometric cutting like in figure 16. Few of the styles shown below formed a part of exhibition that was organized in an art gallery in Lucknow. The visitors to exhibition were very appreciative of the styles and were inquisitive about the cutting technique. They found the technique as fresh way of looking at styles and innovating with detailing and complexity of form. The artisans on the other hand felt that they had better control on incision cutting garment making than those created through conventional patternmaking. The reduced fabric usage in creating garments also meant increase in the allowances for artisans. They could explore these easily and have them realized independently as most of the seaming was through ornamented hems in the form

of *daraz*. The hand drawn *daraz* became synonymous with these artisan group and the *darzi* were excited to work on styles that would also give them a fair share of the wages. The artisans became apt in using excess allowances such as *daraz* detailing in garment and sketched motifs like peacock, paisley, which became unique identity of certain garments (figure 15). They used straight lines, coloured selvedge and seams in the garment as detailing of the components and gave interesting forms, sometimes creative.

Figure 16: Exhibition of artisan products in an art gallery

Figure 17: Artisan's garment with traditional zero waste cutting

The creations of artisans with the incision cutting would be launched in the market through online retail portal Jaypore.com, which has placed the maiden order to artisans on their collection. As an epilogue to this paper I would quote Shilpa, founder of Jaypore, “the technique has a huge selling potential for the market that is concerned for green textiles. The concept of merging incision cutting and *Chikankari* is interesting and would retail well but in a purer and subtle form where craft is absent it may become the focus of selling. The technique’s simplicity, reduced sewing operations, and global appeal make it not only commercially viable but also give it a unique identity”. Creative director of Fab India while accepting this cutting technique for spring summer’16 expresses “Incision cutting is a fresh approach to creating contemporary silhouettes while giving due credit to traditional pattern cutting”.

The appreciation of north Indian dresses (from the perspective of minimal fabric usage), by the artisans made them conscious towards sustainability and saving fabric. The simplified technique with appealing silhouettes gave them more confidence to use the technique and enhance it with embroidery. The artisan empowerment is envisioned by giving them a fair share in manufacture of the product. This would also make it more profitable through various approaches of zero- waste technique.

References

Burnham, D. K. (1997). *Cut my cote*. Ontario: Royal Ontario Museum.

Mis, Z. & Mis, M. (2001). *Asian costumes and textiles – from the Bosphorus to Fujiyama*. Milano: Skira Editore.

Khar, S. S., & Ayachit, S. M. (2013). Looking backwards to go forward – use of traditional Indian pattern making to develop contemporary methods for global fashion. *International Journal of Fashion Design, Technology and Education*, 181-189.

Rissanen, T. (2013). Zero-Waste Fashion Design- a study at the intersection of cloth, fashion design and pattern cutting. *PhD Thesis*. Sydney: University of Technology.

Swaroop, S., 2012. *Costumes & Textiles of Awadh: From the Era of Nawabs to Modern Times.* New Delhi: Roli Books.

Goswamy, B. N. (2000). *Indian costumes in the collection of the Calico Museum of textiles.* Amhedabad: D. S. Mehta on behalf of The Calico Museum of Textiles.

Woolfitt, P., 2002. Cutting the Exotic: A Study of Some Asian Trousers. *Costume,* 36(1), pp. 86-92.

Bhandari,V. (2004). *Costumes, Textiles and Jewellery of India.* London: Mercury Books.

Manfredi, P., 2007. In Search of Perfection: Chikankari of Lucknow. In: L. Tayabji, ed. *Threads and Voices.* New Delhi: Published for Marg Publications on behalf of the National Centre for the Performing Arts, pp. 8-29.