2016

Baseline Survey Report
Nokia-DEF's Digital Cluster Programme in Kanchipuram

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1 Nokia-DEF's Digital Cluster Programme

1.1 About the programme

The Digital Cluster Programme is being initiated by DEF with financial support from Nokia to develop a traditional skill based cluster as an integrated digitally enabled cluster to empower artisans, weavers and entrepreneurs for socio-economic prosperity. The project is being implemented in Kancheepuram district located in Tamil Nadu. Kancheepuram is mainly popular for silk embroidered sarees with zari.

The main objectives of the programme are:

1. **Setup of a Cluster Resource Centre** with physical space, infrastructure, and equipment.
2. **Cluster Wireless Network Development** for establishment and provisioning of wireless Internet basic infrastructure and access within and outside the cluster community to connect individual houses, businesses, schools, health centres and Anganwadi centres to the Internet.
3. **Cluster Core Skills Development** focusing on primary skill development of cluster occupants focusing on training programs related to digital literacy, digital designing for weavers and others.
4. **Cluster Periphery and Tertiary Skills Development** to impart knowledge and skills to enhance employability, income and living conditions of the beneficiaries
5. **Cluster Enterprise Development** to start product designing, creation and sale & provide digital and information services to the community.
6. **Cluster Market Development** to develop eCommerce portal and offline market linkages for the cluster to connect the weavers and sell their products in the national and international market.

1.2 About Kancheepuram

Kancheepuram also spelt as Kanchipuram is known as the Silk City of India. The economy of the city is mostly dependent on silk weaving from handloom industries while tourism is also a major occupation with the city's rich cultural heritage. Kanchipuram silks rank among the most popular silks in the world.

For the project, 3-4 villages around Kancheepuram were selected. The rationale for the selection of these particular village(s) is given in a section below based on a detailed survey conducted.

Before that, a brief introduction to Kanchipuram silk sarees and weaving technologies is provided.

1.3 Kanchipuram silk weaving

The saree: A typical Kanchipuram silk saree is known for its distinguished characteristics of heavy weight coupled with beautiful classy colors & a rich zari border and pallu. It is also well known for the interwoven lacework and its lustre. Pure indigenous raw mulberry silk is procured from Bangalore, Karnataka for these sarees. The main types of zaris used are:

1. Silver – 50-55%
2. Silk (dyed) – 20-22%
3. Gold – 0.5-0.6%
4. Others – 22-29%

Figure 1: Silk bundles

Figure 2: Golden zari

The looms: Two types of looms used for production of the silk sarees are **Frame loom** and the **Pit loom**. Throw shuttle is used to make the design (bootis) on the saree.

Figure 3: Typical loom

Figure 4: Throw shuttle to design patterns on saree

Figure 5: Pedal

Figure 6: Saree booti patterns coded in the White threads

The designs: Kanchipuram sarees are known for their technical excellence and intricate traditional designs. The most popular colors used are blue, black, green and mustard. The popular designs in the border are brick, birds, animals, leaves, flowers, mango, etc.

Some of the popular designs are shown below:

Cost: With the tremendous amount of efforts being put in weaving sarees of exquisite designs, color and texture, the Kanchipuram sarees cost anywhere between Rs. 2500/- to Rs. 1,00,000/- It is estimated that there are at least 50,000 operational looms in the Kanchipuram cluster and the turnover exceeds INR 350 crores with annual exports of INR 5 crores.

1.4 Selection of Villages for Project Intervention

About 10,000 families are involved in handloom silk weaving in Kanchipuram area. Almost every village around Kanchipuram city was involved in handloom weaving until recently. Because of certain challenges faced, many families, especially youngsters have opted out of weaving as an occupation.

In Oct 2016, DEF conducted a field study to survey the on-ground scenario in the weaving villages in Kanchipuram cluster from the aspects of technology intervention, livelihood, weaving background, market trends, market knowledge of weaving community, living conditions of weaving community and challenges faced by them.

1.4.1 Villages Visited for Survey

The villages visited were:

Village name	Looms
Pillayarpalayam	2000+
Sevilimedu	120+
Venkadapuram	100+
Oorikai	100+
Thenambakkam (+Nathapettai + Ayyampettai)	150+
Kuruvimalai	100+
KSP Nagar	100+
Kalakattur	25+
Kadambar Kovil, Aarpakkam, Thusi, Vaalathottam	3-4 per village

Figure 7: Sevilimedu village

Figure 8: Venkadapuram village

1.4.2 Recommendation of Kuruvimalai block weaving villages for setting up Cluster Resource Centre (CRC)

Kuruvimalai block in Kanchipuram cluster is in a backward situation. The main activities of Kanchipuram silk weaving are quite limited to the town area and the adjacent areas to the town. Weavers in this block are not exposed to the market unlike other weavers in the town area.

The internet accessibility and mobile signal are very poor. The households are not exposed to smartphones or computer or internet, thus creating a digital divide.

Tourists visit the looms in the town area and sale is happening directly at the loom site. But these weavers do not have this facility. There are more than 100 looms in this village but nobody is visiting them. The weavers have to go to the town to get orders, collect raw materials, supply the sarees and collect the wages since most of them are working under the private traders.

Though the village lies on the State Highway, well connected by road, the village is underdeveloped. There is no pucca road inside the village. Sanitation and drinking water facility is also poor.

Kuruvimalai lies centrally and 2 villages K S Nagar and Kalakattur are at a distance of 1km and 2 km respectively from Kuruvimalai in two different directions. Crossing the river 2-3 more villages Sevilimedu, Orikkai and Thenambakkam can also be connected with Kuruvimalai. All of them have a good number of active looms but not enough to be termed as developed.

There is a possibility of getting some common space in the community. The weavers are willing to explore such options. Rural and silk route tourism can be potentially planned in the cluster. The weavers in Kuruvimalai are open for a new association if it supports them to sustain in the weaving industry.

Hence setting up CRC in this block will help the weavers in 5-6 underdeveloped villages get empowered by exposing them to internet, new designs, market linkages; connecting them to both domestic and international market, helping them access the market, enhancing production according to the changing needs of domestic and international silk lovers and in long run, stay self-sustained.

2 Baseline Survey

2.1 About the survey

A baseline survey was conducted in order to understand the situation on ground before proceeding with project design and planning. The survey was conducted in and around Kanchipuram to fulfill the following objectives:

1. Identify villages for intervention and thus, to conduct the baseline survey

2. Understand demographic details of villages near Kanchipuram and needs and wishes of local community to help define realistic targets for project activities

3. Get geographical coordinates and other details of ISP and locations for feasibility study of Wireless Internet setup

4. Find possible locations for centre setup in one of the selected villages

2.2 Methodology

The **survey questionnaire** was developed to gather information about the following:

a. General info. Of the person interviewed and household
b. Information & Communication Technology (ICT) related info. such as use of smartphones, Internet availability etc.
c. Content-related info. like content accessed on phone, Govt. schemes info. available etc.
d. ICT Skills related info. like computer usage skills and interest in learning computers
e. Weaving community info. of individual weavers and the village as a whole.
f. General village info like population, households, no. of schools etc.
g. Technical info. For Internet setup

The detailed survey form was created in **Open Data Kit Collect**, an open source data collection tool that runs on Android devices. **108 households** were surveyed in total from these 3 villages and from each household one weaver was taken as a sample.

3 Key Findings

3.1 About the selected villages

The baseline survey was conducted in **Kalakattur panchayat in Kanchipuram block** since **Kuruvimalai** and the two nearby villages were selected for project intervention. The panchayat had a population of approx. 5063 according to the 2011 census. For selecting the respondents, random sampling technique was used. **KSP nagar, Kuruvimalai and Kalakattur** are the weaving villages coming under the Kalakattur panchayat. These villages are about 7 km away from the Kanchipuram city.

Until very recently the major occupation of the villages was silk weaving. Today only a total of about **250 looms** are active in the Panchayat as compared to about 40,000 looms across Kanchipuram and surrounding villages.

Village	Total no. of households	Households surveyed	No. of active looms
KSP Nagar	199	5	100+
Kuruvimalai	388	39	100+
Kalakattur	664	64	25+

| Village	Area of village	Population	Males	Females
KSP Nagar	1.2 sq. km	1100	546	536
Kuruvimalai	1.89 sq. km	1508	769	739
Kalakattur	5.79 sq. km	2539	1288	1251
Total		**5147**	**2603**	**2526**

- There is one middle school each in Kuruvimalai and Kalakattur. There is one clinic in Kuruvimalai and one Primary Health Centre in Kalakattur. No such public use infrastructure is found in KSP Nagar.

3.2 General Responses from the weaver community

3.2.1 Demographic details

Age (in Years)	Male	Female	Number	Percentage
Under 20	0	0	0	0%
21-25	1	0	1	0.92%
26-30	4	3	7	6.5%
31-35	16	4	20	18.5%
36-40	22	1	23	21.2%
41-45	15	5	20	18.5%
46-50	9	4	13	12%
51-55	15	0	15	13.8%
Above 55	7	2	9	8.3%
No response	0	0	0	0%

- Most of the people interviewed were in the age group of 31 – 45.

- 100% of the weaver population is Hindu and their community comes under Other Backward Class (OBC).
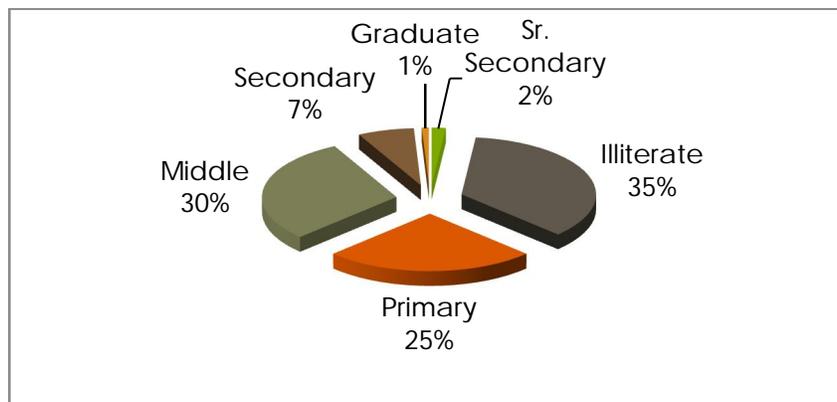
- About 35 % of the surveyed individuals were illiterate while the rest has completed basic level of education at primary or middle school level before moving on to weaving occupation.

- Only 0.92 % of the interviewees were in the age group of 21-15.

- All weavers can speak Tamil while 90%can speak Telugu; Andhra Pradesh being the region from where they had migrated long back.

3.2.2 Income details
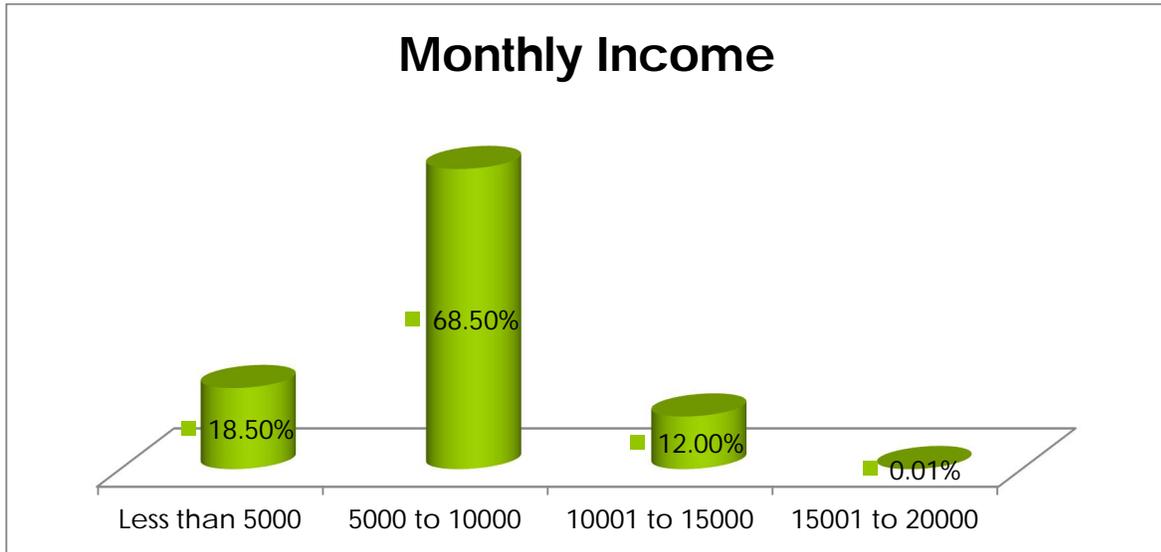
Monthly Income

For a majority of the weavers, the average family income ranges between Rs. 5000 to 10000 per month and this is equivalent to weaving 1.5 to 2 saris per month depending on the design. The monthly income doubles or triples if there are multiple members in the family working as weavers.

3.2.3 Housing Assets and Transportation
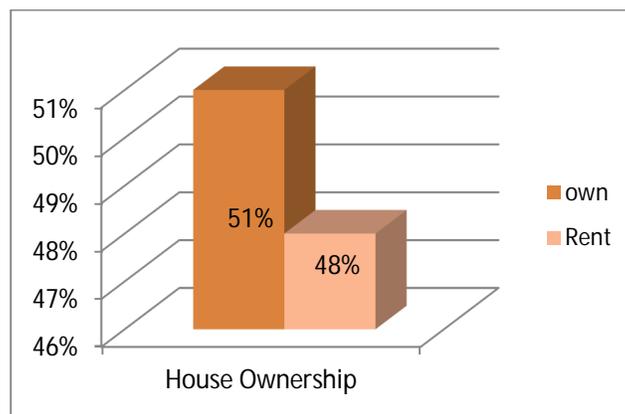
- **Own/ rented:** Housing is organized and almost equal number of weavers live in own and rented houses. Average rental is about Rs. 1200 per month.

- **Pucca houses?:** 68% live in concrete pucca houses where as 29% live in semi pucca house and very little percentage of weavers live in Kuccha houses.

- **Transportation:** Kuruvimalai and Kalakattur are well connected with public road transport. But K S P nagar is situated about 2 km away from the main road. Public transport is not available here. People have to walk or use personal transport to reach the main road. Bicycles and two wheelers are the commonly used personal transports.

Electricity Availability

Legend	
Less than 4 Hrs	
4 - 8 Hrs	
8 - 12 Hrs	
12 - 16 Hrs	
16 - 20 Hrs	
20 - 24 Hrs	

0   0   0 0.93 %

42.59 %   56.48 %
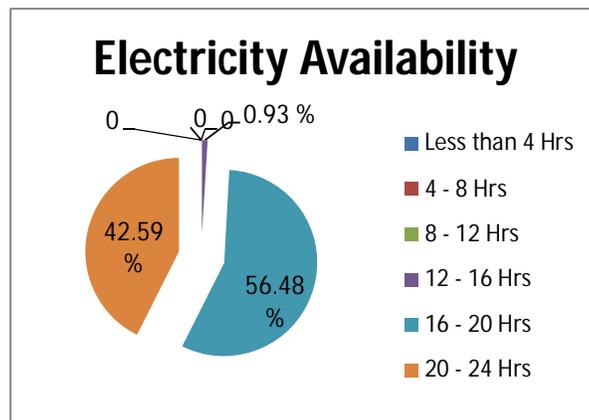
- **Electricity** plays a major role in weaving since all households need at least 2 lights per loom for weaving. Sometimes weaving is also continued in the evening and hence electricity is a necessity. The electric supply as can be seen from the chart is mostly stable and available for 20-24 hours in 42% houses and around 16 -20 hours in more than 50% houses.

3.3 Information & Communication Technology (ICT) related information

- **Mobile phones:** 93% of the households visited had a mobile phone being used for personal as well as business needs and most of them were feature phones. The phones were mainly used for calling and texting.

- **Internet:** 99% of the population is unaware of Internet and have never been exposed to it. The Internet connectivity is also poor. Youth use smartphones but they are not a part of the weaver community.

3.4 Content-related information

- **Content:** More than 99% people prefer to access content in their local language Tamil only. More than 60% information is obtained via newspapers while radio, television, family and friends are others means through which information related to health, education etc. is obtained by the community people.
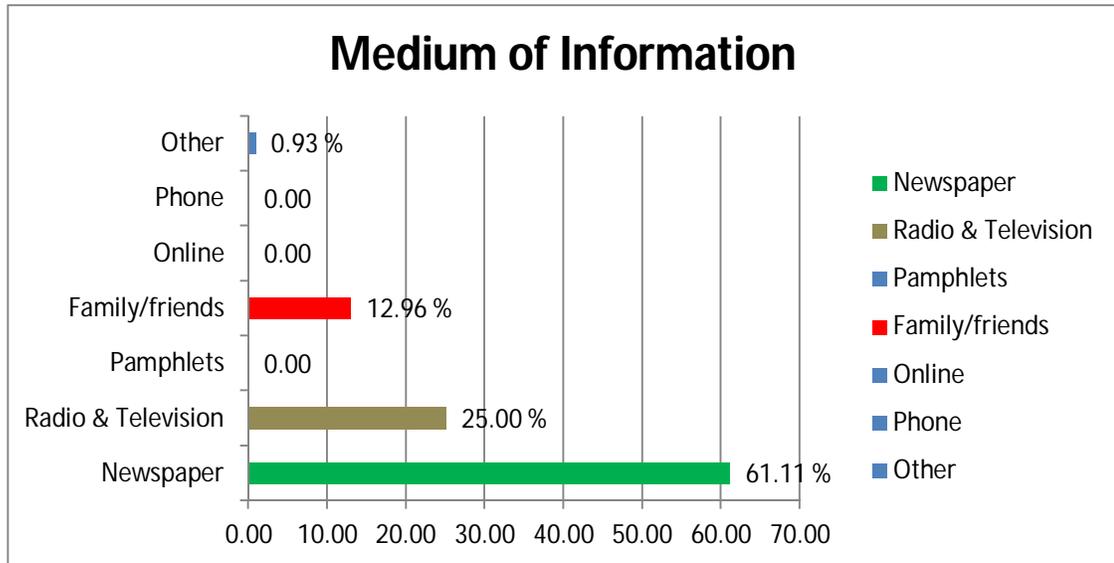
- **Govt. schemes info** is not accessible to more than 93% of the population.

3.5 ICT Skills related information

	YES	NO
Computer Training taken by the family member	0	108 (100%)
Willingness for the Computer center at their Locality	73 (67.5 %)	36 (33.33%)

3.6 Technical information For Internet & Centre setup

Coordinates for the villages have been collected and feasibility of setting up Internet has been successfully verified.

Village	Latitude	Longitude
Kuruvimalai	12.790877	79.716904
KSP Nagar	12.781429	79.705423
Kalakattur	12.777348	79.725024

In the baseline survey, only one location was found to be suitable to setup the centre, a house in Kuruvimalai with two rooms. However, it may not be enough for the Cluster Resource Centre. Help is being taken from locals to find more places suitable for centre setup.

We will get a dedicated 1:1 leased line from ISP in Kanchipuram for at least 10 Mbps bandwidth. Details of the ISP are given below. A wireless internet office will be setup in Kanchipuram city where the leased line will be extended. From there, a wireless Point to Point link will be connected to Kuruvimalai village where the CRC (Hub) centre will be setup. For the smaller Spoke centres in KSP Nagar and Kalakattur, PTP link will be connected from the Hub.

| Name of ISP*	Bharti Airtel		
Address of ISP*	No. 9A/B, Kamarajar Street, Rajam Lodge, Kanchipuram		
Collect the GPS coordinates of the ISP office*	Latitude	Longitude	Altitude (m)
	12.835867	79.704185	85
Height of the Tower	60m		
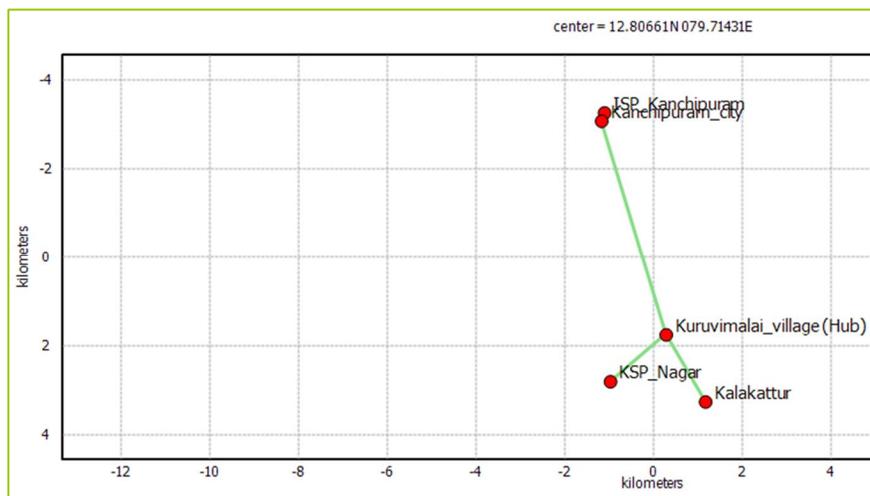
Figure 9: Network Diagram for Internet Provisioning

3.7 Weaving community information

- All interviewed people were weavers and 77 % of them were part of some weaver-related group.

Weaver-related Group Details

	Society	SGH or SGSY	Consortium	No Response
%	14.81%		63.89 %	23.15%

(Bar chart: y-axis from 0.00 to 70.00 in increments of 10.00. Society = 14.81%, SGH or SGSY = 0, Consortium = 63.89 %, No Response = 23.15%)
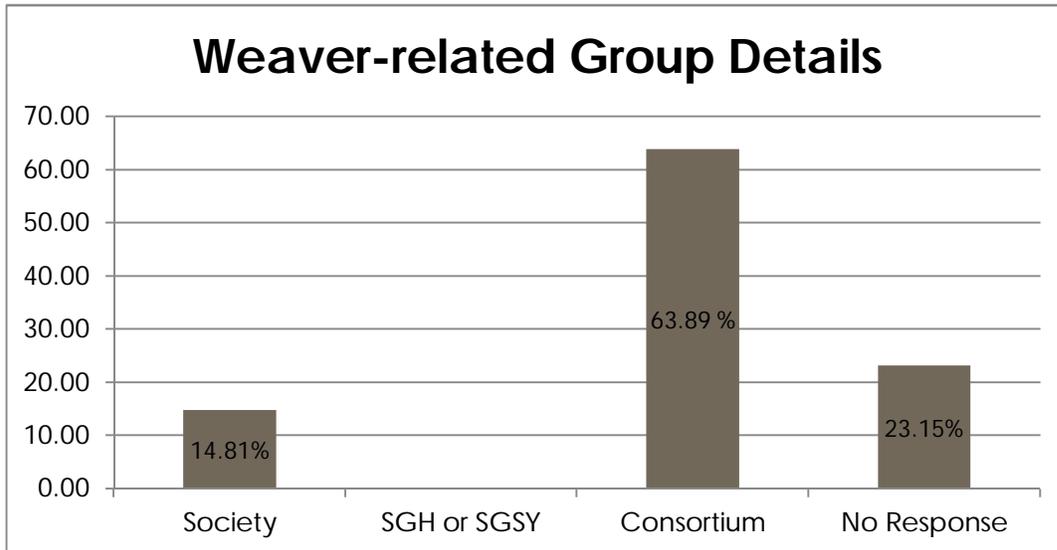
- There are only 20% women weavers in total among all weavers interviewed.

- **Types of looms in use**

TYPE OF LOOMS				
DOBBY LOOMS	HAND LOOMS	HANDLOOMS & DOBBY LOOMS	HANDLOOMS & JACQUARD LOOMS	JACQUARD LOOMS
1(0.92%)	43(39.81%)	1(0.92%)	30(27.77%)	33(30.55%)

- **Types of clothes made:** Only sarees are made in the looms in these villages. 87% of them are silk sarees while the rest are cotton.

- **Raw material is supplied** by the middlemen 95% of the times and by master weavers otherwise.

- **Pattern designing** is done by hand 75% of the time. Designers work with the Master weavers and loom owners and weavers don't have direct access to them.

- **Youth in weaving:** As per the information collected, almost 90% of the youth are not interested in continuing the weaving occupation. The alternate occupations that they prefer are given below. Most of the youth in the villages don't work in weaving industry. They either complete higher education and move out for jobs or work as auto drivers or laborers in the local areas.

Choices of alternate occupations

Occupation	Percentage
Farming	0.00
Handicrafts	6.48 %
Labour work	37.96 %
Job in native place	16.67 %
Move out for Job	31.48 %
Other	1.85 %
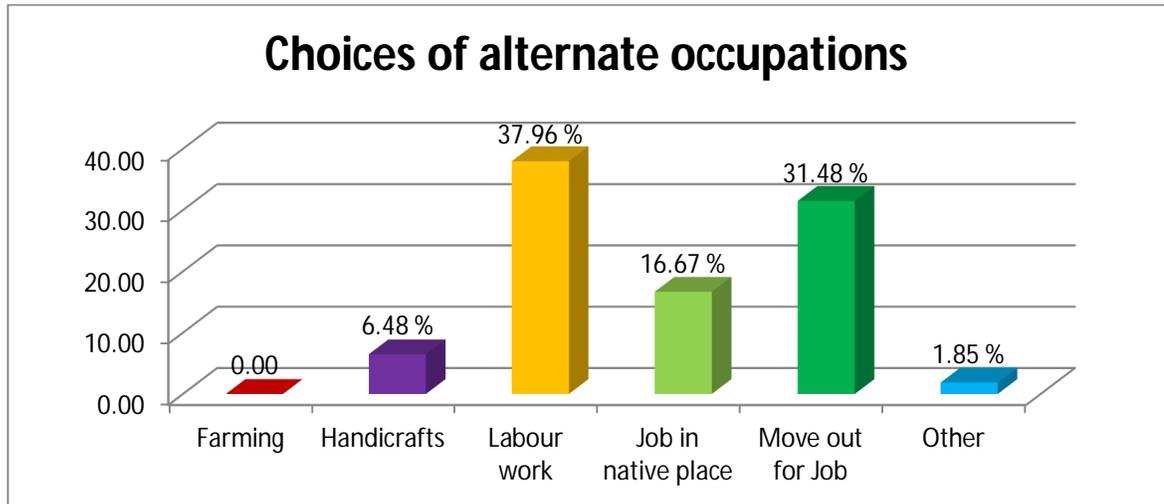
- **Sale of products:**
  - Earlier, weavers used to invest in raw materials, make their own designs, weave saris and sell them in the market. But now the weavers work on the basis of wages per saree. They receive raw materials and design from the master weavers or private traders and only weave and supply the sarees back to the traders. The wages are paid accordingly to the weavers.

Sale of the Products

Channel	Percentage
Through Middleman	71.30 %
Loom owners	26.85 %
Own Shops	0.93 %
Fairs & Events	0.93 %
others	
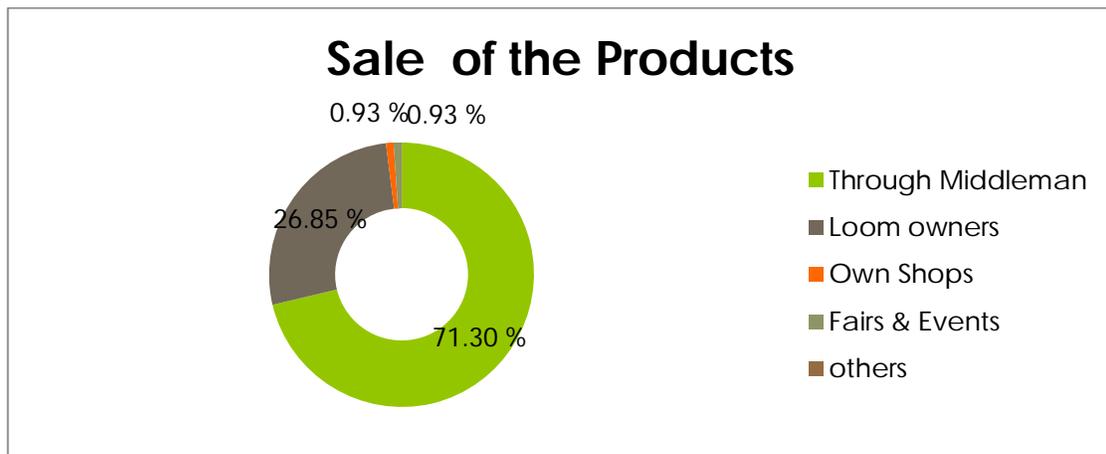
  - Sale happens mainly through middlemen and loom owners for whom the weavers work.

o **Participation in Handloom expos/ festivals:** The weavers have very low knowledge on expos and the participation rate is also very low. They limit themselves to the private traders and master weavers. Societies in Kanchipuram conduct regular handloom expos and festivals and they use their society staff for these expos and weavers are not directly linked with the markets.

3.8   Government work in Kancheepuram

1. Weavers' Service Centre

Weavers' Service Centre, Kancheepuram is one of the oldest centres and established during 1958. This centre was established to provide support to the weavers in terms of design, weaving, dyeing, printing, etc. This service centre has in-house design section, dyeing lab, weaving section, prototype of new looms, development of new fabric and textures, Jacquard card cutting & lacing facility, paper painted design service, graph design service and CAD design service.

However, all the above is mainly on paper and weavers in the selected villages or even other places in and around Kancheepuram hardly get any services from the centre. No weavers are invited for training programs conducted by Min. of Textiles occasionally. Only cooperative societies are invited for that. The weaver's service centre is thus not playing any vital role in the weavers' livelihoods generation.

2. Tamil Nadu zari factory

Government of Tamil Nadu runs a zari factory in Kanchipuram and supplies zari to the weavers' societies and also to private traders. This factory supplies only 20% of the zari needed in the region. The other 80% comes from Surat, Gujarat.

3. Zari testing Unit, Kancheepuram

The Tamil Nadu government and TIFAC (Technology Information Forecasting and Assessment Council) have mutually set up a testing unit for zari in Kanchipuram, which checks the content of gold and silver in zari. This facility can be used by both cooperatives and individuals by paying a nominal fee.

4 Analysis of Findings, Challenges and Opportunities

4.1 Current situation of weavers as per initial qualitative survey

In all the villages surveyed, weavers work under Cooperative societies or private traders. Raw material, designs and computerized Jacquard machines (to feed the saree design) are provided to them while they are only responsible for the manual task of weaving.

A society gives an order of 3 sarees to a weaver to be completed in 60 days on a payment of Rs. 12-15 K total. This will be shared by 2-3 members of the family since one weaver alone cannot weave a complete saree. The monthly family income of a weaver thus comes down to Rs. 5K to 7K approx. Even if the order is completed in 30 days, weavers have to sit idle for another 30 days to get the next order. Private traders give the same order for 30 days and the wages are Rs. 3K per saree. However the orders are consistent.

The market scenario has also changed in recent years. Most of the production cost of Kanchipuram Saree goes for the zari. More the cost of Zari, more expensive the saree is. Buyers choose to buy less expensive sarees these days and traditional Kanchipuram sarees with heavy designs and expensive zaris are forced to be sold at minimum margin costs. This has led to low wages for weavers and limited work opportunity thus pushing them to pursue other occupations like labor work and odd jobs.

4.2 Analysis of the quantitative survey

As per the findings of the survey, following have been observed as the challenges faced by the weaver communities:

a. Poor income:

Kanchipuram silk being an in-demand product, weavers get regular work orders for weaving. However, the time to weave one intricately designed saree can easily go up to a month or more and requires 2-3 members of the family to work on it. Hence the income has to be shared by those 2-3 members and that is not enough to sustain the family. Also if work orders are completed early, there is idle time for weavers.

Solution: Introducing modern touch to the traditional designs through CAD/CAM designing of weaving patterns, product diversification and providing Jacquard looms/ Jacquard designs to the weavers, the weaver community can be helped to enhance

monthly income. Increasing online and offline market linkages can help provide continuous work to selected weavers thus increasing their monthly incomes.

b. Lack of working capital and Production & sale of sarees only through middlemen/traders

Due to lack of working capital, weavers are unable to procure raw material on their own and hence forced to work as skilled laborers for middlemen, loom owners and traders. As per the survey, weavers lack direct exposure to market, exhibitions, trade fairs etc.

Solution: By forming Self Help Groups among the weaving community, working capital can be generated through bank loans or by pooling money and starting production of sarees by weavers on their own without any help from middlemen. The produce can be purchased and sold directly by DEF through online and offline media, thus bypassing middlemen and helping benefits of sales to trickle down directly to the weavers.

c. Handmade designs increase work time and cost

Pattern designing is done by hand 75% of the time. Designers work with the Master weavers and loom owners and provide Saree designs directly to them. Weavers don't have direct access to the designers, nor do they know how to make designs. Also, it takes 5-10 times more time to create a design by hand than on a computer and rework needs to be done for even minute changes.

Solution: Weavers and designers can be trained to make contemporary designs and archive traditional designs using suitable CAD/CAM software. This will improve pattern designs and also reduce work time and hence designing costs.

d. Lack of Govt. support or information about schemes and entitlements

Due to lack of information about Govt. schemes specifically designed for weavers, they are unable to accrue benefits from the same.

Solution: Through the Cluster Resource Centre, Govt. schemes information will be disseminated across the community and work will be done to help the members receive benefits from the Govt. Also some community members will be trained in this work of information dissemination so that they can continue to work even after the project timeline is over.

e. Migration of youth to non-weaving occupations

Due to poor income, children of weavers are uninterested and even discourage by their parents to continue in this occupation. They prefer to work as casual laborers or auto-rickshaw drivers in their own villages or migrate outside for other jobs.

Developing interest of the youth through digital literacy, modern designing techniques on computer, introducing new and fresh product range for Kanchipuram silk and other interventions, youth migration can be reduced and more weavers can be prepared for the future. The traditional art can thus be preserved.

f. Low involvement of women in weaving work

As per the survey findings, only 20% of the weavers interviewed were women. Many of the houses visited has one housewife who is interested in working and becoming financially independent by working from home, but have not got an opportunity yet.

Solution: Women can be trained in CAD designing, or complementary artwork like embroidery, applique work, stitching etc. and help earn additional income for their families. They can also be made digitally literate and can start some small business like Digital Service Centre at their own homes.

5 Action Plan

Further to the baseline survey and its analysis, two centres need to be established as part of the project: one as a **Cluster Resource Centre** In Kuruvimalai village and one as a **Wireless Network Office** in Kanchipuram city from where the Internet connectivity would be extended to the villages and the city area also. The reason to have the second centre is to have a better customer base for the Internet services so as to generate revenue to make the centre sustainable within 2 years.

The Cluster Resource Centre will ideally have the following sub-centres:

- **Training and Skill Development Centre**
  - o To conduct digital literacy, wireless network, CAD/CAM design training and other trainings and workshops
- **Production Centre**
  - o To setup Jacquard/ Dobby looms for production of sarees. Dobby is fitted onto a loom to design borders.
- **Design Lab**
  - o Will have computers with CAD/CAM software for designing, archiving and training purposes. It will have a drum printer to print these designs and a Jacquard card punching machine to punch the designs into cards which will be fitted in the Jacquard machine in loom.
- **Photo Studio**
  - o For doing product photo shoots and training of the same.
- **Product Showroom**
  - o To sell the sarees made by the weavers in the CRC loom setup as well as those procured from the villages.

The immediate next step would be to recruit passionate and motivated individuals to work in the cluster, start procurement and setup of above mentioned infrastructure. A place also needs to be searched for setting up the Wireless Network office in Kanchipuram.

With a strong team in place, infrastructure setup can be started to begin the Cluster Development Programme in Kanchipuram.