# An evaluation of fabric screen printing industries using conventional and modern methods

SHIKHA SINGHAL, **MEENU AGGARWAL** AND M.K. BANSAL

See end of the article for authors' affiliations

Correspondence to:

**MEENU AGGARWAL**
Department of Home Science, Ginni Devi Modi Girls (P.G.) College, Modinagar, GHAZIABAD (U.P.) INDIA

## ABSTRACT

The screen printing industries of India, considered as the back bone of India's economy is growing rapidly. The continuous demand of the screen printed goods manufacturing units brightened the future and scope of screen printing industries. Understanding this, the present study on the screen printing industries was conducted through interview schedule and observation technique to gather the information about raw material, preparation for the designs of screens, printing, equipments, Motif and colours, marketing, problems faced by both the workers and entrepreneurs. Information were gathered from purposively selected 40 units through interview schedule. Collected data were tabulated under various categories on master sheets and content analyses were carried out. The screen-printing units, due to the ever increasing demands are constantly towards betterment and do add to countries economy.

India is proceeding towards complete globalization and liberalization. New areas of technology are coming very fast in all the fields ofcourse textile is not the exceptional one. There is a vast scope to enhance textile export by improving quality of goods, diversifying the products and timely shipment of materials. To make niche in export market, it becomes necessary for Indian textile market to tune with the present changing scenario and keep their eyes open for the future requirement of textile export. Textile screen-printing is the area where one has to take extra cares toward quality up gradation and diversification to meet export requirements. Computer aided print design (CAD) is one of the important tools for printing which now a days is getting momentum in textile industry.

Mostly articles, used for screen printing are 'bed sheets, bed covers, curtains, cusion covers, ladies suits, sarees, kids wear, upholostry, towels, ties and table covers etc. The latest development in the screen printing side of textile industry is its adoption of the rotary principle. The method embodies all the good points of flat screen of nickel and is engraved in hexagonal mesh form. The nickel screens are coated with high sensitive emulsion. The screens are coated with specially designed circular squeegee or doctor blade which is moved upwards and 3-4 coats are applied with short drying period in between. This is done at a suitable temperature of about $77^0$–$86^0$ F

when ready to expose the screen are placed in a copying machine. This consists of a driving shaft or mandre which rotates and carried on in flatable rubber sleeves. Over this, the rotary screen is placed, the sleeve is inflated until it exactly fits inside circumferences of the cylinder, behind this is a light source. The positive wrapped round the screen and the other areas are blacked out, the shutter is opened to allow the light through and the screen rotates for a controlled amount of time. After exposure the screen is removed from the sleeve and immersed in interaft $50^0$ to $77^0$ F for about 15 minutes. Proper supports must be provided at both sides. The non-exposed parts will wash off easily.

Furthermore, the export of the Indian screen printed fabrics had a tremendous impact on the entire screen printing production. This leads to the phenomenal growth of the industry and also completely revolutionised the design and colours. The production of screen printing is spread all over India with its main centres in Delhi, Faridabad, Mumbai, Sanghaner, Pilakhwa, Meerut, Surat and Tamilnadu.

## Objectives:

– To study the conventional and modern method of fabric screen printing.

– To evaluate quality, cost, time, rawmaterial,

equipments, motifs, colours and process of screen printing in conventional and modern methods.

– To study the instruments and equipments used in conventional and modern methods.

– To survey various printing industries to study their manufacturing.

– To give suggestions for further growth of the industry.

## METHODOLOGY

The methodology was divided into following:

### Selection of printing industries:

The present study was conducted on the small, medium and large scale-manufacturing units engaged in the fabric screen-printing established in Delhi, Ghaziabad and Meerut.

### Selection of method :

For the present study, method adopted for investigation was survey method and observation method. The data were collected by personally administering the interview schedule to the selected samples. The particular method was used because of its advantage of flexibility over other methods of data collection, which gave the respondents an opportunity for classification, in case of doubts and the interviewer to follow up the questions.

### Formation of interview schedule:

Major parts of questionnaire were covering in the following manners:

Section I – This section included the questions relating the year of establishment, type of screen printing, number and type of workers and work practiced etc.

Section II – Dealt the questions regarding the raw material, their cost and availability of raw material used for preparing screens and screen printing.

Section III – Dealt with questions regarding designs used in preparation for the screen-printing.

Section IV – Under this section, printing material, equipments, motifs and colours used in screen printing.

Section V – Contained information regarding manufacturing process time consumption, methods of quality control and marketing.

Section VI – Dealt with questions regarding the problem faced by the industry and suggestions to solve them.

### Collection of data by interview schedule:

The data were collected by administering the schedule to fabric screen-printing. The investigators themselves asked the questions to the respondents and responses were noted down in the space, provided under each question. The purpose for undertaking the study was explained to all the respondents in order to satisfy their curiosity and also to obtain a good response and accurate data.

### By observation:

The various steps involved in different printing methods, machinery used, techniques followed and condition of units and workers were carefully observed.

### Analysis of data :

In order to express the complex, scattered and haphazard data into concise, logical and intelligible forms, the raw data were subjected to analysis. The analysis of raw data was done as follows: -

Classification of data:

On completion of data collection, the interview schedules and observation techniques were sorted out and given the identification number to facilitate coding and tabulation.

Coding of data and tabulation:

The data were transferred to the coding sheets for tabulation.

Statistical analysis:

Data collected from survey were analysed and calculated in terms of frequency and percentage to facilitates the interpretation of results.

## FINDINGS AND DISCUSSION

Since the questions related to background information of the units, its finance, raw material, preparation for the designs of screens, printing, equipments, motif and colours, marketing, problems faced, the results have been tabulated and discussed in the both methods.

Some of the open-ended questions, which could not be tabulated, have been discussed separately. Distribution, location, labour employment, raw material inventory, etc. have been depicted in Fig. 1 to 14 and flow chart of print design has been explained in Fig. 15 and also the designs of screening in Fig. 16.
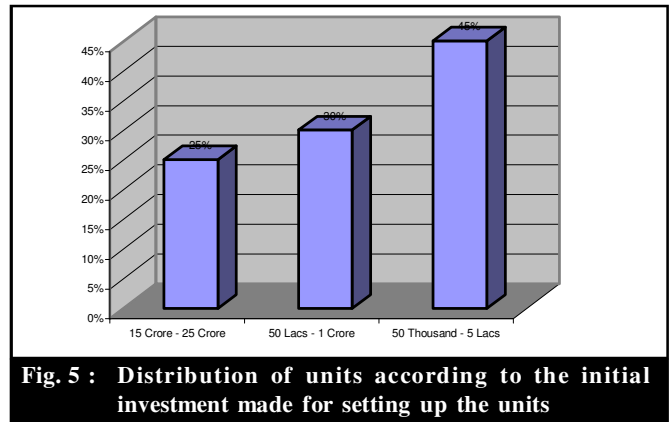
### Major problems:

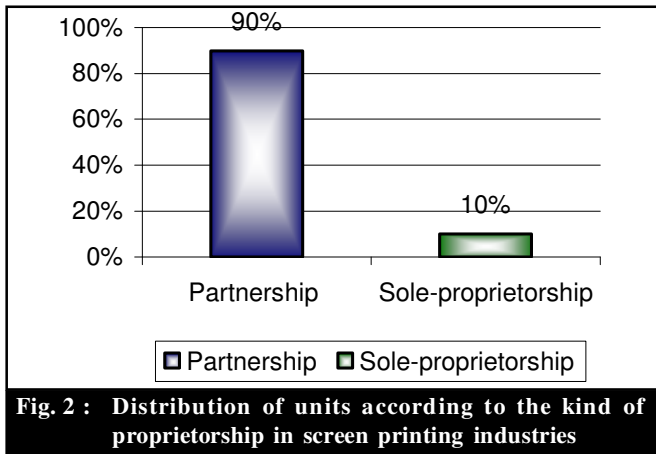Some major problems faced by the screen printing industries:

– Poor marketing and lack of knowledge
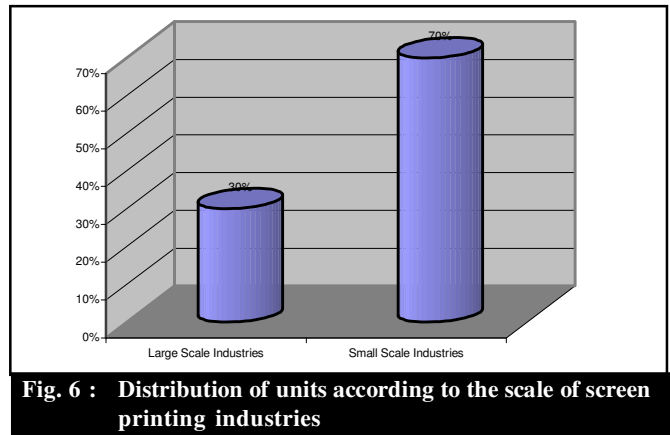– Limited clientele
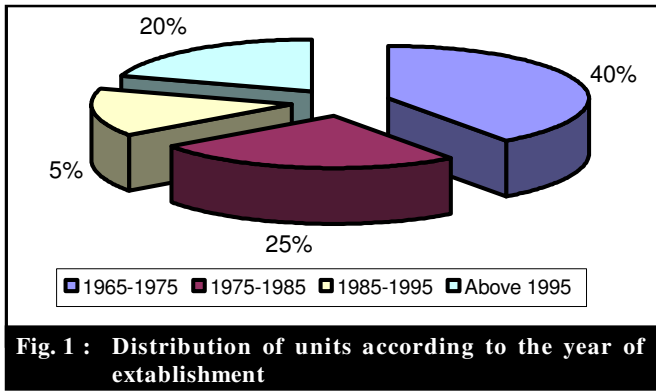
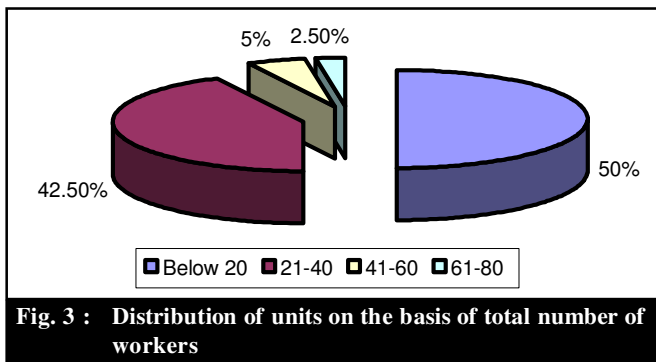Fig. 1 : Distribution of units according to the year of extablishment
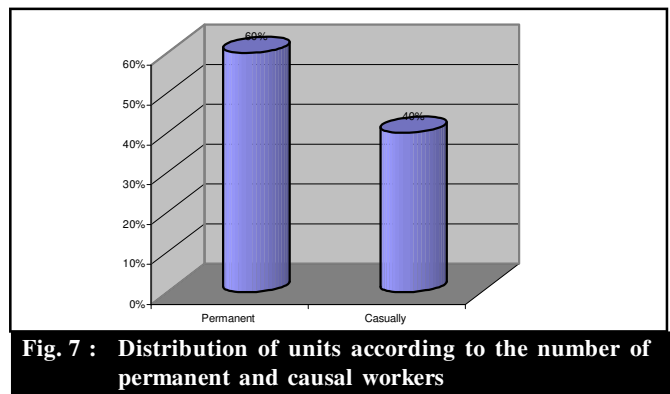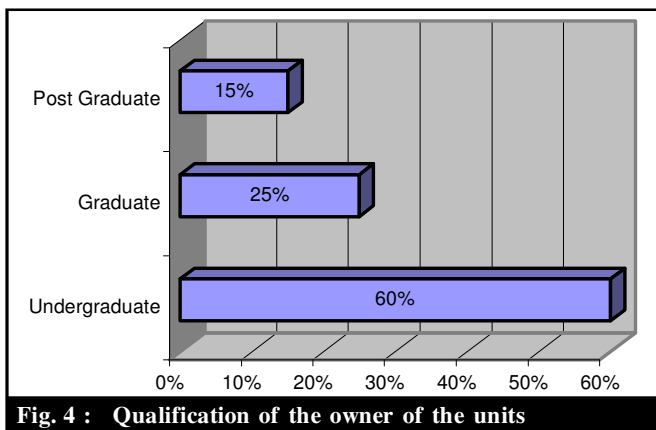


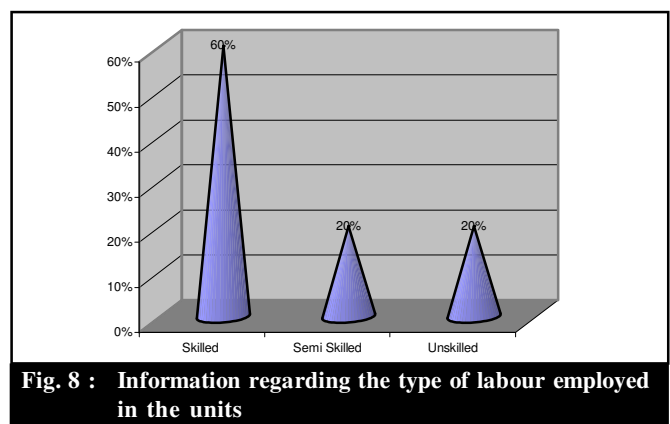Fig. 2 : Distribution of units according to the kind of proprietorship in screen printing industries



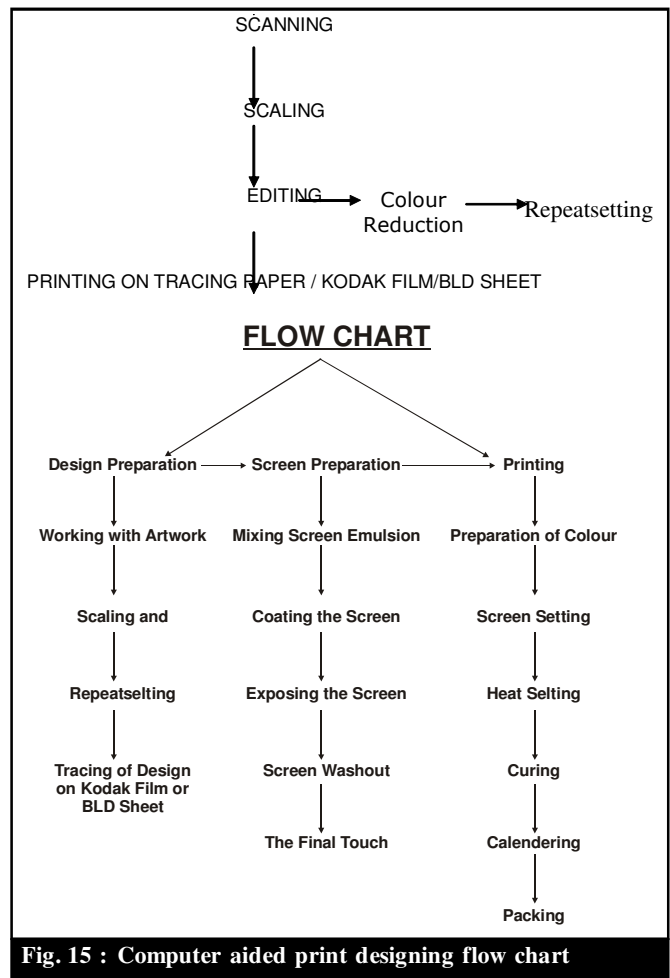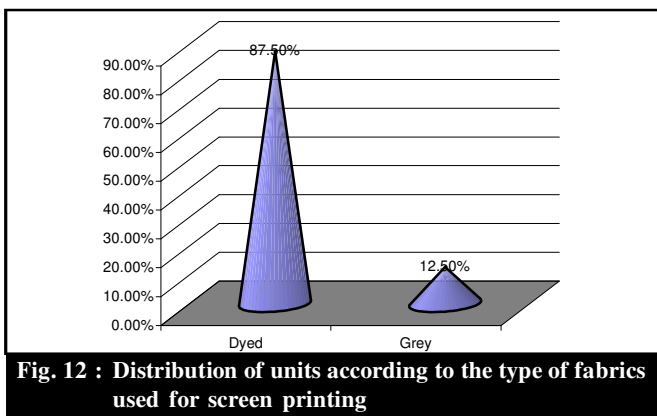Fig. 3 : Distribution of units on the basis of total number of workers



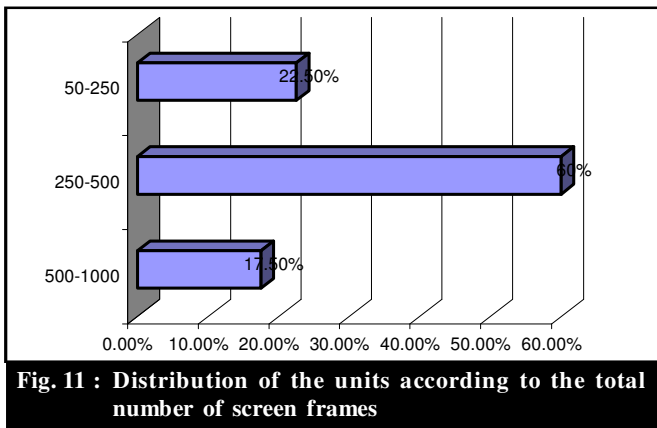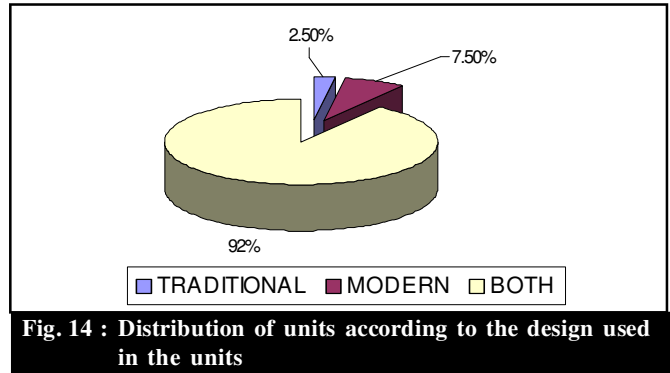Fig. 4 : Qualification of the owner of the units



Fig. 5 : Distribution of units according to the initial investment made for setting up the units



Fig. 6 : Distribution of units according to the scale of screen printing industries



Fig. 7 : Distribution of units according to the number of permanent and causal workers



Fig. 8 : Information regarding the type of labour employed in the units

**Fig. 9 : Distribution of the units on the raw material inventory**



**Fig. 10 : Distribution of the units according to the type of mesh used for preparing screens**



**Fig. 11 : Distribution of the units according to the total number of screen frames**



**Fig. 12 : Distribution of units according to the type of fabrics used for screen printing**



**Fig. 13 : Distribution of units according to location of market**



**Fig. 14 : Distribution of units according to the design used in the units**



**Fig. 15 : Computer aided print designing flow chart**

[*Asian. J. Home Sci.* (Dec., 2010) Vol. 5 (2) ]

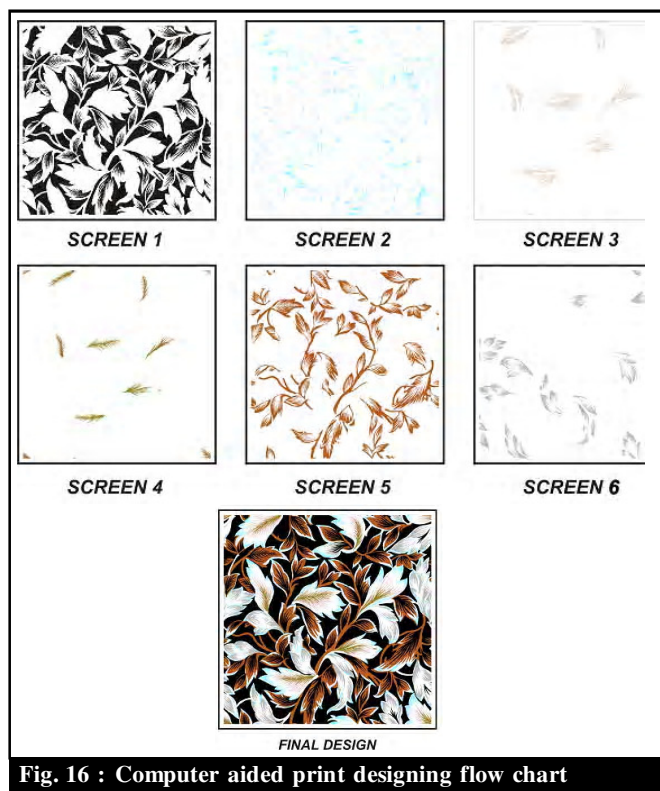•HIND INSTITUTE OF SCIENCE AND TECHNOLOGY•

**Fig. 16 : Computer aided print designing flow chart**

– Lack of working capital
– Inadequate infrastructure support
– Traditional technology
– Implementation strategy
– Power shortage
– Price inflation
– Lack of good quality raw material as compared to international standards
– Limited dyeing facilities
– Lack of government support

**Suggesions:**

During survey it was found that most of the industries are dependent for designing on the freelancers. They also don't have complete facilities of dyeing, bleaching and mercerizing of the fabrics. They don't have their own production because they are doing only a job work. This is the reason that they have to a lot of troubles in arranging tracings of designs from the freelancers. Maximum industries send their grey fabric for dyeing and bleaching. All these processes are very time consuming and very expensive an these increase the transportation cost. So it is very difficult to survive in todays competitive market. It include very little instruments *i.e.* a computer, a printing software and a plotter. So, with the help of these modern equipments and a little training, they could create latest designs as per demand with very low cost.

Their working conditions and house keeping are very poor. They have no facility to check the colour fastness and colour wastage. They need to check the colour fastness to enter into the export market and it is a suggestion for the all screen printing industries owners that they should do these processes in their units. It will be helpful for the further growth of the industry and they can go for modernization and reduce the cost.

Authors' affiliations:

**SHIKHA SINGHAL,** Department of Textiles and Clothing, Ginni Devi Modi Girls (P.G.) College, Modinagar, GHAZIABAD (U.P.) INDIA

**M.K. BANSAL,** CAD Centre, Northern India Textile Research Association, GHAZIABAD (U.P.) INDIA

**REFERENCES**

Screen Process Printing (www.printmaker.co.uk/sprnt.html )

Screen Printers (www.printmaker.co.uk/sprnt2.htm )

Screen Printing Custom Screen Printing Screen Print (www.signindustry.com/screen/)

Screen Printing (www.advantageprinting.com/html/body_screenprinting.html)

Dougless Screen Printers (www.dsp-cando/main_history )

Gwent Electronic Material Ltd. (www.g-e-m.com/info/indust/indust2.html-8k-Cached)

History of Screen Printing (www.chris-noble.supanet.com/christopher-noble-printmatker/Contens/screentech.html)

Printing Machinery Exporters, Printing trade.indiamart.com/offer/printing-publishing/printing-machinery-equipment

Screen Printing Machines, Screen Printing Machines Manufacturers-www.indianindustry.com/printingmachines/9805.html-55k

Rotary Printing Machinery, Rotary Printing Machinery (www.indiaindustry.com/printingmachines/9560.html)

Screen Printing India (www.indiabizclub.com/qxzppfs/?q=yut;2667; S;;0 - 43k- )

Printing Machinery (www.maharashtradirectory.com/SearchResult.asp?ProductID=2258-77k)

Printing Machinery exporters, Printing Machinery suppliers, Indian (www.trade-india.com/OnlineCatalogs/Catalogs/Machinery/Printing_Machinery-49k)

Offset printing machines manufacturer, web offset printing machines (www.trade-india.com/hp/2682/catalog.htm)

Business Online India: Printing Industry - Offset Machines, 4 .....(www.businessonline India.com/ppm1.htm)

[*Asian. J. Home Sci.* (Dec., 2010) Vol. 5 (2) ]

•HIND INSTITUTE OF SCIENCE AND TECHNOLOGY•

[PDF] Best Friends Magazine: May/June 2003 (www.bestfriends.org/allthegoodnews/magazine/BFMmay03.pdf)

A SURVEY OF MARITME ENGLISH TEACHING MATERIAL Introduction (www.iamu-edu.org/report/1/downloads/report1.pdf)

Screen Printing, Screen Printing Machines Affordable, Compact, Easy to Use (www.morantz.com)

What is Screen Printing (wisegeek.com)

Screen Printing Supplier (www.wai-hang.com.hk )

Printing (indorebizclub.com/Printingin.html )

\*\*\*\*\*\*\*\*\*\*
\*\*\*\*\*\*