Educational Quest: An Int. J. of Education and Applied Social Sciences: Vol. 14, No. 02, pp. 145-149, August 2023
DOI: 10.30954/2230-7311.2.2023.10
Peer Reviewed Journal

On Exploration of Challenges Faced by Organic Textile Industry in India

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Received: 10-06-2023 **Revised:** 30-07-2023 **Accepted:** 09-08-2023

ABSTRACT

I heard someone saying "Its all about clothes". Textile industry is a leading manufacturing market in India. Present research focuses on exploration of possible challenges faced by organic textile industry in India. Thereafter, it further studied the hierarchical inter-relationships amongst them using ISM methodology

Keywords: Organic textile industry, hierarchical inter-relationships, Textile industry, ISM methodology

Being one of the labor absorptive industries , textiles and apparel industry is considered to be a high employment generating sector is dominated by micro, small and medium enterprises (MSMEs). They lack sophisticated technology and rely heavily on manpower. The government of India is relying on these industries (apart from food processing, leather goods, etc.) to drive growth in employment. The textiles and apparel industry is expected to employ 36.5 million workers in 2024-25 as per twelfth five year plan (https://www.fibre2fashion.com/industry-article/7559/organic-transplant).

Developing skills and Government support to textile industry

Skill development remains an important aspect. The industry must work together with Integrated Skill Development Scheme (ISDS), Ministry of Textiles, to generate more skilled workforce. Emphasis should be given to the creation of appropriate skill sets among rural migrants and urban poor to make growth inclusive (https://www.budorganic.com.au/what-are-organic-textiles/ https://global-standard.org/[GOTS]).

In October 2013, the Cabinet Committee on Economic Affairs (CCEA) approved the continuation of the Scheme for Integrated Textile Parks (SITP) in the TFYP. Besides the ₹ 50 Crore allocated for this purpose, CCEA also approved an additional grant of ₹ 10 Crore to existing parks under SITP to set up apparel manufacturing units. Industry is well aware of the Technology Up-gradation Fund Scheme (TUFS) which has been in place for more than a decade. The CCEA also gave its approval for implementation and continuation of TUFS during the 12th plan period in August 2013. TUFS aims to make funds available to the textile industry to upgrade technology in existing units.

State governments have also launched their respective Textile Policies boosting investments in the textile sectors.

For example, Gujarat announced its Textile Industry Promotion Policy in 2012. The Rajasthan government cleared a new textile policy under the special customized package for textile sector enterprises in July 2013.

How to cite this article: Goel, A.D. and Aggarwal, R. (2023). On Exploration of Challenges Faced by Organic Textile Industry in India. *Educational Quest: An Int. J. Edu. Appl. Soc. Sci.*, **14**(02): 145-149.

Source of Support: None; **Conflict of Interest:** None

The West Bengal government finalized its textile policy in August 2013. Karnataka released the new Textile Policy document in November 2013. Therefore, ample government support is in place by way of policy and investments.

Global Organic Textile Standard (GOTS) GOTS is recognized as the leading processing standard for textiles made from organic fibers worldwide. It defines high-level environmental criteria along the entire supply chain of organic textiles and requires compliance with social criteria as well. Thus, all important factors *viz*, organic fibers, RSL, environment, and social criteria are covered in GOTS. GOTS has recently launched GOTS Monitor (Water/ Energy) to help licensees monitor their water/ energy consumption and compare it with global benchmarks for their fabric/shade/machinery type, etc.

As per the International Federation of Organic Agriculture Movements (IFOAM), "Organic Agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects.

Regulations for organic textiles

There are no uniform international legal standards for processing organic fibers. Though China, Brazil, and Argentina introduced national organic textile standards at earlier stages, they did not gain any considerable impact or recognition. The US has a legal standard for cotton fibers (NOP) but not for organic textiles. In May 2011, the United States Department of Agriculture (USDA), which legally regulates the term 'organic' in the US, endorsed GOTS as the standard of choice for the sale of organic textiles. To sell textile products as organic in the US, it is also necessary that the fibers used should be certified as per NOP. India introduced Indian Standard for Organic Textiles (ISOT) as a part of the National Programme for Organic Production (NPOP) in November 2014. GOTS has appreciated DGFT's decision to defer the date of implementation as the industry

Challenges for organic textiles in India

1. Organic cotton farmers choosing food crops over cotton.

2. Shortage of non-GMO seeds.

3. Competition from other cotton options.

4. Integrity/contamination of organic cotton crop due to the risk of contamination by GM crops.

5. Stress on premium price.

6. Security in strategy and planning: long-term assurance of success in the times of big uncertainties.

7. Assure legitimacy and acceptance and avoid conflicts with stakeholders.

Realize and use differentiation and market potentials: keep your customers, win new customers, or stay innovative as future assurance.

8. Environmental concerns [EC]: In some parts of the world, cotton is known as white gold. There are 100 million cotton farmers producing cotton in 80 countries worldwide. Cotton is a toxic crop, which occupies just 2.5 per cent of agricultural land area, it uses 7 per cent of the total amount of pesticides used in farming globally each year and 16 per cent of all insecticides. Furthermore, environmental and health concerns are excessive water consumption, risks associated with ammonia treatment, effluent treatment and disposal of the treated water and solid effluents associated with processing (dyeing and finishing) of cotton and other textile fibers.

9. Cost of non-compliance [CNC]: Running your business in a sustainable way always pays. There have been many cases in the recent past that can serve as a lesson. Every big accident starts a new episode of more stringent norms for compliance. Few major effects of non-compliance are Rejection of shipment; Financial loss; Loss of company image; Lost sales in stores etc.

10. Sustainability claims and third party certification [SC]: Many small and big brands are making sustainability claims. From farm to retail, it's important that sustainability claims have credibility and traceability. Consumers want to make truly sustainable choices, and brands need to make verifiable claims. Third-party certification gives brands and consumers the confidence to know that their claims and choices are trustworthy and making a real impact. Buyers and consumers insist on a third-party certificate instead of self-declarations. In the coming years, India will face tremendous challenges in terms of sustainability issues like population growth, climate change, and water pressures.

The success of 'Make in India' initiative would also depend upon reducing government interference and promoting self-regulation.

ISM Methodology

Interpretive Structural Modeling (ISM) is an interactive learning process in which a set of unique, interrelated variables are structured into a comprehensive model presented as a hierarchy graph. The method is interpretive in that the group's judgement decide whether and how items are related.

The various steps involved in ISM are :

Identification of elements which are relevant to the decision maker's problems and issues. Thereafter, e*stablishing the contextual relationship* between elements with respect to which pairs of elements will be examine. Thereafter, d*eveloping a self-interaction matrix (SSIM*): This matrix gives the pairwise relationship between two variables i.e. *i and j.* It establishes relationship of "Lead to" between criteria. It uses the four symbols viz. V, A, X and O for the type of relation that exists between two sub-variables under consideration. Using SSIM matrix, initial reachability matrix can be formed, it has all values in binary form. Decision maker must check for rule of transitivity.

Level Partition and Canonical Matrix: From the reachability matrix, the reachability set and antecedent set for each criterion is found (Warfield (1974)). The element for which the reachability and intersection sets are the same is the top-level element. The whole process of partitioning is based on establishing the precedence relationships and arranging the elements in a topological order. After that, we are classifying variables based on *relative driving power and dependence power into* various categories like autonomous, dependent, driver and linkage. Finally, d*evelopment of Diagraph/ ISM from the canonical matrix form.*

Case example

Ten major challenges discussed above in section 2 *viz*. Organic cotton farmers choosing food crops over cotton [FC]; Shortage of non-GMO seeds [SS]; Competition from other cotton options [CCO]; Integrity/contamination of organic cotton crop due to the risk of contamination by GM crops [COCC]; Stress on premium price [SPP]; Security in strategy and planning [SSP1]; Assure legitimacy and acceptance and avoid conflicts with stakeholders [ALA]; Environmental concerns [EC]; Cost of non-compliance [CNC]; Sustainability claims and third party certification [SC] are studied with the help of ISM methodology for the possible hierarchical interrelationships amongst them.

1. Structural Self – Interaction Matrix [SSIM]

This matrix gives the pair-wise relationship between two variables i.e. *i and j* based on VAXO. SSIM has been presented below in Fig. 1.

Fig. 1: SSIM matrix for pair wise relationship amongst challenges faced by organic textile industry in India

Sl. No.	Barriers	1 FC	2 SS	3 CCO	4 COCC	5 SPP	6 SSP1	7 ALA	8 EC	9 CNC	10 SC
1	FC		A	A	A	A	A	A	A	A	A
2	SS			A	A	A	A	A	A	A	A
3	CCO				A	A	A	A	A	A	A
4	COCC					A	A	A	A	A	A
5	SPP						A	A	A	A	A
6	SSP1							A	A	A	A
7	ALA								A	A	A
8	EC									A	A
9	CNC										A
10	SC										

2. Initial reachability matrix [IRM]

The SSIM has been converted in to a binary matrix called the initial reachability matrix shown in fig. 2 by substituting V, A, X, O by 1 or 0 as per the case. After incorporating the transitivity, the final reachability matrix is shown in the Fig. 3.

3. Final reachability matrix [FRM]

Final Reachability Matrix (FRM), representing in Table, is constructed by finding transitivity in the matrix, which is an indirect relation between factors. If transitivity is found in the matrix, the final transitivity matrix value is put as 1*. After removing the transitivity, final reachability matrix is obtained along with the driving power as well as dependence power.

Fig. 2: IRM matrix for pair wise relationship amongst challenges faced by organic textile industry in India

Sl. No.	Barriers	1 FC	2 SS	3 CCO	4 COCC	5 SPP	6 SSP1	7 ALA	8 EC	9 CNC	10 SC
1	FC		0	0	0	0	0	0	0	0	0
2	SS	1		0	0	0	0	0	0	0	0
3	CCO	1	1		0	0	0	0	0	0	0
4	COCC	1	1	1		0	0	0	0	0	0
5	SPP	1	1	1	1		0	0	0	0	0
6	SSP1	1	1	1	1	1		0	0	0	0
7	ALA	1	1	1	1	1	1		0	0	0
8	EC	1	1	1	1	1	1	1		0	0
9	CNC	1	1	1	1	1	1	1	1		0
10	SC	1	1	1	1	1	1	1	1	1	

Fig. 3: FRM matrix for pair wise relationship amongst challenges faced by organic textile industry in India

Sl. No.	Barriers	1 FC	2 SS	3 CCO	4 COCC	5 SPP	6 SSP1	7 ALA	8 EC	9 CNC	10 SC	D.P
1	FC		0	0	0	0	0	0	0	0	0	1
2	SS	1		0	0	0	0	0	0	0	0	2
3	CCO	1	1		0	0	0	0	0	0	0	3
4	COCC	1	1	1		0	0	0	0	0	0	4
5	SPP	1	1	1	1		0	0	0	0	0	5
6	SSP1	1	1	1	1	1		0	0	0	0	6
7	ALA	1	1	1	1	1	1		0	0	0	7
8	EC	1	1	1	1	1	1	1		0	0	8
9	CNC	1	1	1	1	1	1	1	1		0	9
10	SC	1	1	1	1	1	1	1	1	1		10
		10	9	8	7	6	5	4	3	2	1	

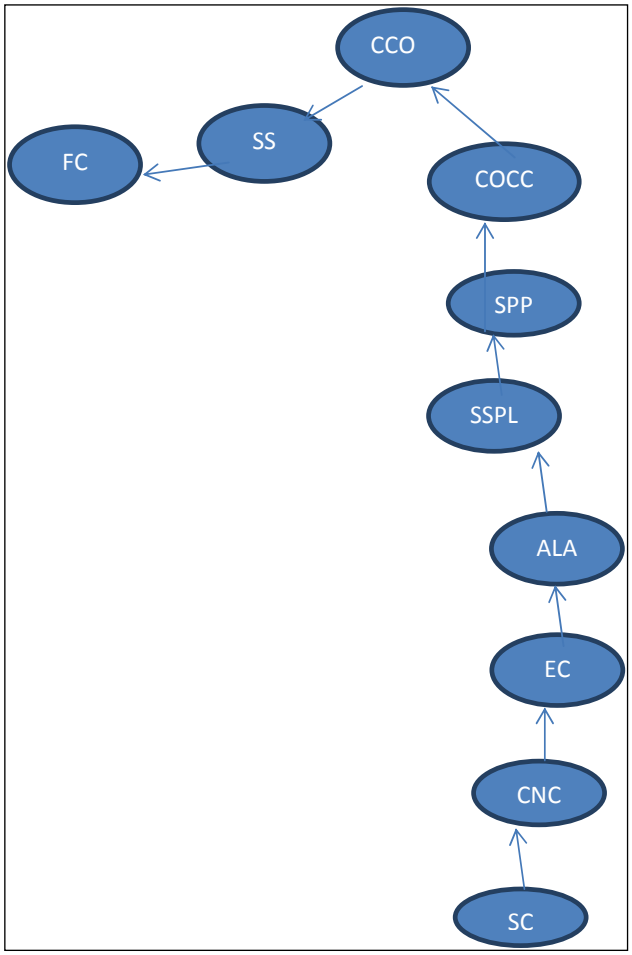
Possible sequence: 1→2→3→4→5→6→7→8→9→10

4. Level Partition matrices

Table 1: Iterations

Reachability set	Antecedent set	Intersection set	Iteration	Element at iteration
1	1,2,3,4,5,6, 7,8,9,10	1	I	1
1,2	2,3,4,5,6,7, 8,9,10	2	II	2
1,2,3	3,4,5,6,7, 8,9,10	3	III	3
1,2,3,4	4,5,6,7, 8,9,10	4	IV	4
1,2,3,4,5	5,6,7,8, 9,10	5	V	5
1,2,3,4,5,6	6,7,8,9,10	6	VI	6
1,2,3,4,5,6,7	7,8,9,10	7	VII	7
1,2,3,4,5,6, 7,8	8,9,10	8	VIII	8
1,2,3,4,5,6, 7,8,9	9,10	9	IX	9
1,2,3,4,5,6,7, 8,9,10	10	10	X	10

5. ISM Diagraph



CONCLUSION

The present research highlights the hierarchical inter-relationships amongst the various challenges faced by organic textile industry in India with the help of Interpretive Structural Modeling Methodology.

ACKNOWLEDGEMENTS

Authors are thankful to Prof. S.P Singh, DMS, IITDelhifor dissemination of knowledge about ISM methodology which has helped authors to

give mathematical touch to the concept of organic textiles.

APPENDIX

Potential health benefits of using organic textiles

Organic textiles are made in a responsible way – chemically, socially, and environmentally. There is an overwhelming body of research that shows higher rates of serious diseases from exposure to synthetic agricultural chemicals (e.g. farmers or farm workers who handle chemicals) or from physical proximity to chemical-based farming communities (e.g. people who live near farms that regularly use synthetic chemicals).

The Agricultural Health Study, funded by the National Cancer Institute and the National Institute of Environmental Health Sciences, is one of the largest ongoing health studies with over 89,000 participants from farming communities. It reveals higher incidents of cancer (including prostate cancer), Parkinson's disease, diabetes, thyroid disease and asthma associated with pesticide application.

Certified organic textiles

Certified organic textiles provide a healthy and ethical alternative. So, the higher price you may pay for a certified organic product takes into account all of these factors.

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