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Importance of Sustainable Development in Sanganeri Print Textile Industry using Industrial Survey: A Neural Network based Research Study

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Abstract: ***The aim of present research work is to identify the main factors which are responsible for sustainable development of (Sanganeri prints) small scale industries located in Jaipur (Rajasthan). Sustainable development is key factor for reducing environment related issues with industrial manufacturing as well as social and financial growth nearby local areas of Sanaganeri print in Jaipur. Total 40 respondents data is collected from 20 small scale industries located in various areas of Jaipur like Sanganer, Sitapura, Jaipur City, bagru etc. The data is collected from a questionnaire developed for this research study. Simple statistic and neural network (NN) analysis was conducted to find out the overall performance of these industries. Findings: The results show that NN results obtained is highly important in that 60% of the variables account for ineffective performance of the industries as per sustainable development. Parameters like waste water treatment, implementation of EIA rules, quality management etc are responsible for reducing the sustainable development.Financial Management has the least impact on stakeholders' business efficiency and its significance is noticed at 15% level. Applications/Improvements: The findings of the study will, doubtless be of use to processing industries located in Jaipur to take appropriate action.***

Keywords: Environment impact, sustainability techniques, Neural network, Stakeholders, Textile Processing industries, Sanganeri prints

I. INTRODUCTION

Textile industry contributes about 14% of the aggregate modern creation in India. There are around 10,000 article of clothing producers and 2100 dying and coloring ventures in India. The textile business of India works to a great extent as groups with approximately 70 textiles bunches creating 80% of the nation's aggregate textiles. From these figures, some frail execution textile enterprises are situated in capital of Rajasthan, Jaipur. The well known texture sheet named "Sanganeri print", is focal point of this examination. As of late, there have been sounding of alerts from the different destinations of society in the above areas due to poisonous profluent which has been dumped into the waterway which gives the source to water system, drinking and live-stock raising. This makes major natural issues and furthermore influence the privilege to the life of the general population and furthermore the ranchers. In perspective of the abovementioned, the topic of manageability of these preparing enterprises assumes a critical job. Additionally the reality the Rajasthan High Court has requested the conclusion of these little and medium coloring and blanching enterprises in Jaipur and different businesses working in the area talks about the gravity of the circumstance This lawful move of the ranchers and the overall population likewise influence the employment of 50,000 laborers who rely upon the best possible working of these ventures. In [03] have directed an exceptionally intriguing investigation on the effect of coloring modern effluents on the ground water quality in Kancheepuram (India). In [4] have revealed an examination of water quality parameters released from textile coloring businesses. In [5] have taken a gander at textile coloring enterprises in Bangladesh regarding economical advancement. Poisonous quality evaluation and microbial corruption of azo colors have been considered [6]. In [7] have considered the effect of coloring industry effluents on soil and harvest. An examination on the Influence of coloring and printing mechanical emanating on physio-synthetic attributes of water has been accounted for [8]. An exceptionally fascinating examination on the impacts of blanching powder with coloring businesses' effluents has been directed [9]. A general paper on natural contamination: Its consequences forever and its cures are talked about [10]. Since there is a shortage of concentrate here, the present investigation was attempted with the accompanying targets. To know the practical status of the coloring and • fading businesses and the emergency engaged with the textile preparing ventures. To analyse the activities of the textile process supply • chain and how the inefficient activities of dyeing and bleaching units affect the river Eco-system and the other social-environmental aspects of Jaipur of Rajasthan and how it acts as a barrier in taking supply chain decision.This paper also addresses the problems involved in the processing industries which deal with the dyeing and finishing of fabrics and the effluent problem that is encountered as a result of them.

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II. RESEARCH METHODOLOGY

With the end goal to gather information from the stake holders, a industrial survey was set up to gather data on close to industrial information, Industry data, sort of remaining produced amid process/fabricating, point by point data on economical practices and last is monetary execution of ventures take in this overview think about. Accordingly the examination covers all the money related exercises and the other creative activities taken by all the inventory network accomplices as partners of the textile businesses. For surveying the practical execution of coloring businesses, the execution rating scale was embraced for the information gathered from ventures and furthermore from regular profluent treatment plant and individual gushing treatment plant. The thoughts and substance of performing scale were solidified by making more visits to the coloring mechanical groups situated in the Jaipur. Perception was made in a roundabout way for clear comprehension about the useful status of those ventures and to take in the strategy for working of coloring enterprises to process the textile yarn and fabrics and the methods for using the water for coloring and blanching procedures and sort of fluid emanating which was radiated from their different coloring and fading forms. An aggregate of 10 preparing businesses were chosen for this examination think about. Different issues which influence the handling enterprises situated in Jaipur are quickly talked about under each heading.

III. STATUS OF TEXTILE INDUSTRIES IN JAIPUR

The study is conducted for secondary process textile industries which work on processing of fabric made in other areas and come to Jaipur for printing and other operations like washing, steam press, finishing of fabric etc. The respondents information is present in table 1 for different information like location of industry at various district areas of Jaipur. Total five district regions are created for this study named: Sanganer, Sitapura, Mansarover, Bagru and Jaipur. Products selling information, working hours, type of workers, govt certifications, industry types like small scale, medium scale etc.

Table 1 Descriptive Statistics

	Mean	Std. Deviation	N
Location	2.8750	1.38096	40
DR	2.8000	1.47109	40
PS	2.6500	1.38767	40
Workers	2.9500	1.44914	40
TW	3.4000	1.42864	40
Certification	2.6000	1.44648	40
TI	3.1500	1.33109	40
WH	2.0500	.84580	40

Table 2 presents, one sample T-test for these following independent factors. It is clear that t-test show the credibility of survey data because all variables are significant as shown in table.

Table 2 one-sample-T-test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Location	13.167	39	.000	2.87500	2.4333	3.3167
DR	12.038	39	.000	2.80000	2.3295	3.2705
PS	12.078	39	.000	2.65000	2.2062	3.0938
Workers	12.875	39	.000	2.95000	2.4865	3.4135
TW	15.052	39	.000	3.40000	2.9431	3.8569
Certification	11.368	39	.000	2.60000	2.1374	3.0626
TI	14.967	39	.000	3.15000	2.7243	3.5757
WH	15.329	39	.000	2.05000	1.7795	2.3205

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A. Data Analysis For Main Questionnaire On Sustainability Practices In Jaipur

The questionnaire is divided into two sections; first section is based on different type of waste generated by industry which is present in following table.

Table 3 Questionnaire questions with range of levels

Type of waste	Fuel waste	Waste water	Env Reg follow	Local Pol impact	Water Source	Used water treatment	Chimney height

Every question is set for scale analysis which starts from 1 to 5, with one point increment. 1 represent lower part and 5 represent highest part of question. 3 level represent neutral of question.

In second part of questionnaire, productivity related questions are discussed with respondents, which are present in table 4.

Table 4 Questionnaire questions with range of levels

Production rate	Turn over	Profit	Waste	ROI

Every question is set for scale analysis which starts from 1 to 5, with one point increment. 1 represent lower part and 5 represent highest part of question. 3 levels represent neutral of question.

Multi-layer Perceptron Network (NN network) is developed for these data points and present in this research work in following section.

Table 5 case processing summary

		N	Percent
Sample	Training	32	80.0%
	Testing	8	20.0%
Valid		40	100.0%
Excluded		0	
Total		40	

Table 6 Network information

Input Layer	Independent Factors	1	TOW
		2	FW
		3	WW
		4	ERF
		5	LPI
		6	WS
		7	UWT
		8	CH
	Number of Units[a]		40
Hidden Layer(s)	Number of Hidden Layers		1
	Number of Units in Hidden Layer 1[a]		10
	Activation Function		Hyperbolic tangent
Output Layer	Dependent Variables	1	POR
		2	TurnO
		3	Profit
		4	Waste
		5	ROI
	Number of Units		25
	Activation Function		Softmax
	Error Function		Cross-entropy

a. Excluding the bias unit

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Table 7 Model Summary

Training	Cross Entropy Error		216.903
	Average Percent Incorrect Predictions		56.3%
	Percent Incorrect Predictions for Categorical Dependents	POR	65.6%
		TurnO	50.0%
		Profit	59.4%
		Waste	50.0%
		ROI	56.3%
	Stopping Rule Used		1 consecutive step(s) with no decrease in error[a]
	Training Time		0:00:00.17
Testing	Cross Entropy Error		56.783
	Average Percent Incorrect Predictions		55.0%
	Percent Incorrect Predictions for Categorical Dependents	POR	87.5%
		TurnO	50.0%
		Profit	25.0%
		Waste	62.5%
		ROI	50.0%
a. Error computations are based on the testing sample.			

Table 8 Independent variable importance

	Importance	Normalized Importance
TOW	.117	77.4%
FW	.152	100.0%
WW	.126	83.2%
ERF	.116	76.3%
LPI	.106	69.6%
WS	.125	82.7%
UWT	.136	90.0%
CH	.122	80.3%

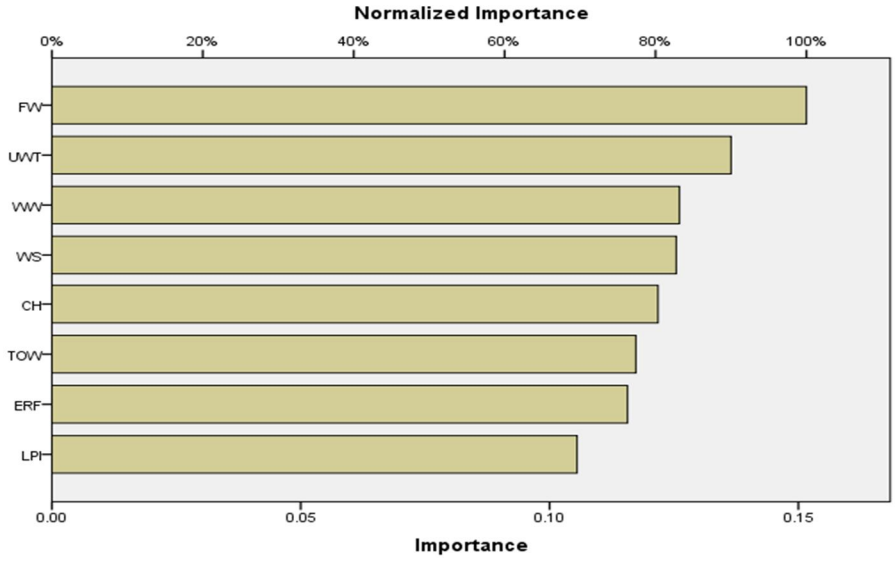

Figure 1 importance of independent factors over dependant factors

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IV. CONCLUSION

This paper has addressed the various issues which are involved in assessing the performance of processing industries in Jaipur. There exists a very good correlation between various parameters and stakeholders' performance. This shows that these factors need consideration for assessing the efficiency of energy and pollution management techniques and the functional status of textile processing units located in Jaipur. It is hoped that this study will be useful to all those who are involved in processing of knitwear. The ineffectiveness of the various components has been highlighted and projected. The important independent factor is water source which is affecting sustainable practices in textile industry in Jaipur.

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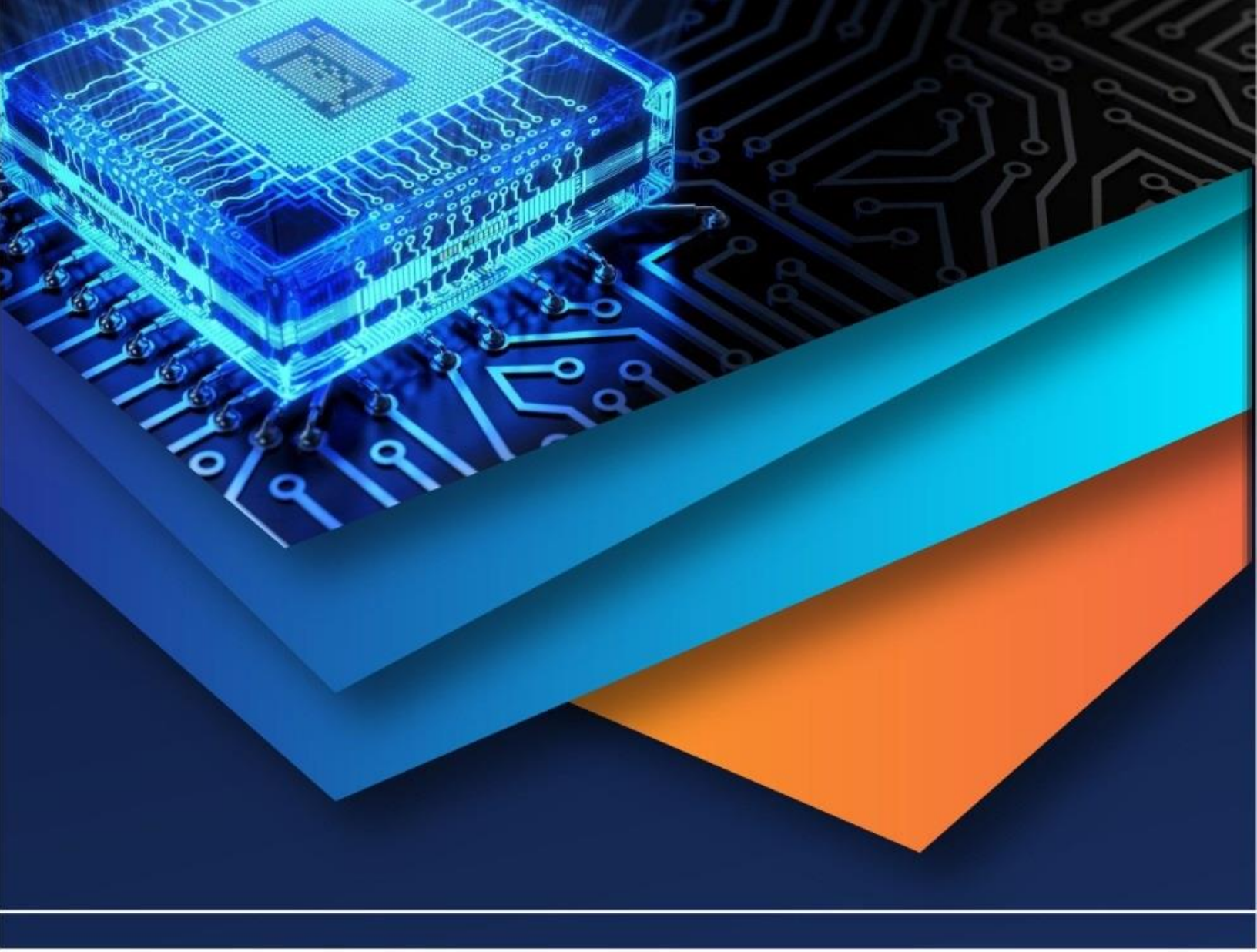

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