

A Study on Information Required for the Development of New Textile Materials of Korean Textile Industry

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(Received February 20, 2004 : Accepted April 30, 2004)

Abstract

The Korean textile industry, the driving force of Korea's economic development, is faced with difficulties due to domestic and foreign influences. The purpose of this paper is to examine what measures are necessary for overcoming such difficulties. As the first step, We conducted a month-long survey, in August 2003, of 157 small-medium firms operating in the Korean textile industry to collect information about difficulties that they face in carrying out their business. According to the result, small firms performed badly in sales and facility investment efforts for 2003 due to worldwide economic depression. They, however, actively pursued new technology development in order to improve their competitiveness. Profits and productivity decreased with reduced sales, and their view on the next year's perspective is also very unfavorable. Especially many firms intend to maintain or even lower the level of sales goal for 2004, reflecting the sluggish market environment. According to the survey, under such circumstances, as many as 74% of firms wanted to turn the tables through the development of highly sensuous material and improved marketing efforts. One of potential answers to this problem, which is suggested by the survey, is to establish a consulting service institution to provide promptly marketing data and information on textile and fashion market and trend in Italy. Especially, firms surveyed have shown a great deal of interest in Italian consulting service for new textile material developments. While they want the service for high value-added product development, they are reluctant to do so because of the uncertainty of its future effects and high consulting fees.

Key words : textile industry, information, new material, consulting service.

I. Introduction

The Korean textile industry in general has been faced with difficulties due to changes in domestic and foreign conditions, and various problems revealed in the industry with the slowdown of textile exports since 1995. Such difficulties are reduced demand and consumption resulting from America's war against terrorism

and worldwide economic depression and increased competition from competing countries, in particular, China. Domestic conditions also become harsh with labor disputes in major chemical fiber firms and weak product competitiveness due to the lack of production systems for creating high value added. Consequently, the industry recorded the lowest exports in 2002. To increase exports, it is necessary to develop new high value-added materials that are different

*This study was supported by the 2003 research funds of Duksung Women's University.

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from those of developing countries. While new and high level of technologies are essentials of high value-added materials, the collection and analysis of various information on the fashion trend is also important for design value-added textile products. Textile companies have been provided with information by various consulting companies, such as Samsung Fashion Institute and Interfashion Planning. They, however, lack the ability to analyze and apply the data provided by consulting firms to material development process despite a great deal of shared knowledge. In addition, consulting firms are not specialized enough to provide firms with required information.

The purpose of this study is, first, to examine the present status and conditions of the Korean textile industry through the analysis of reports by various textile-related organizations, government publications, and economic journals. Secondly, the study is to survey the current situations of new material development process of textile firms in Korea. It will finally analyze the survey results of questionnaires that are distributed to textile firms of different sectors. The study aims at providing data to promote efficient information exchange between information providers and beneficiaries by examining demanded information, information sources, and present status in terms of firms' new material development efforts. By doing so, it hopes to

contribute to building product competitiveness of domestic textile industry through the development of value-add materials.

II. Present Status of Domestic Textile Industry

1. Exports and Imports of Domestic Textile Industry

Exports are decreasing while imports are increasing for Korea's textile industry: exports to the U.S. and the Middle East, its biggest export markets, have reduced due to the US-Iraq War, and consumptions have decreased with world economic depression and delayed recovery longer than expected. Also, the stronger competition from Chinese textile companies and weaker price competitiveness due to the won's overvaluation relative to the US dollar play a part in reducing exports of Korean textile products.

On the other hand, the import of finished-textile products has been significantly increased while the import of raw materials (fiber, fabrics) has been decreased due to the weak export of finished-textile products and sluggish domestic market. This trend has been consistent since cheap Chinese textile products were poured into the Korean market. The import of high-end textile products also keep growing because of Korean consumers' preference for expensive foreign brand goods.

<Table 1> Exports and Imports of Textile Industry¹⁾

(Unit: Million US\$, %)

	1998	1999	2000	2001	2002
Exports	16,864 (▲10.0)	17,424 (3.3)	18,783 (7.8)	16,081 (▲14.4)	15,674 (▲2.5)
Imports	2,824 (▲44.6)	3,883 (37.5)	4,788 (23.3)	4,860 (1.5)	5,688 (17.0)
Trade Balance	14,040 (2.9)	13,541 (▲3.6)	13,995 (3.4)	11,221 (▲19.8)	9,986 (▲11.0)

* Note : 1. figures in () refer to increase or decrease rates compared to the previous year.

¹ KOTIS (Focusing on MTI, exclusive of natural fiber), 2003.

All textile items except for fiber decreased in exports: The total exports of fiber rose by 9.7% and synthetic filament fiber recording a high growth of 14.7%. Imports of fiber and fabrics, however, showed a slight increase of only 3.5% and 5.2% respectively. Imports of textile goods including garments grew rapidly accounting for 37.0% (\$56.9 billion) of the total imports for 2002, 17.0% more than the previous year. This is because imports of expensive brand products from Italy and America, and cheap goods from China and Vietnam increased simultaneously due to the polarization of domestic consumer markets. Asia followed by North America achieved the best performance in the total exports and imports with exports to Asia increasing while those to North America decreasing. The reason may be found in North America's reinforcement of its trade barriers to protect intra-regional trade, and its economic recession. Imports from each country showed a general increase: like exports, imports from Asia increased with those from North America decreased. Imports of cheap Chinese products grew rapidly as domestic labor

became expensive, resulting in high production costs; and more firms moved their factories to China to cope with consumer preference for low-end goods and overcome the price competition.

2. Exports and Imports by Textile Sectors

As for exports and imports by textile sectors, cotton yarn and woolen yarn among fibers showed the biggest decrease in exports. Domestic cotton-yarn firms are losing their competitiveness as imports of cheap cotton yarn from India and Indonesia increase; Inventories keep accumulating for domestic wool market, where demand is lower than production, due to the continual influx of low-middle priced goods from China and Southeast Asia, and high-quality fiber from Italia. Especially, China, with mass production through large-scale capacity, may be a potential threat to the Korean market in the future.

The fabric production industry as a whole suffers a continual depression though markets for cotton, knitted, and embroidered fabrics are ac-

<Table 2> Exports and Imports by Textile Items²⁾

(Unit: Million \$)

	1999	2000	2001	2002	'02/'01 Variation (%)
Export	17,424	18,783	16,081	15,674	△ 2.5
Raw Material	733	859	690	678	△ 1.7
Fiber	1,401	1,535	1,269		
Fabric	9,401	10,263	8,843	8,666	△ 2.0
Goods	5,889	6,126	5,279	4,938	△ 6.5
Imports	3,883	4,788	4,860		
Raw Material	148	161	163	150	△ 7.7
Fiber	1,445	1,525	1,421		
Fabric	1,312	1,517	1,328		
Goods	9,79	1,585	1,948		
Trade Balance	13,541	13,995	11,221	9,986	-

² KOTIS, exclusive of natural fiber, 2003.

tive. The knitted fabric shows an increase in exports with the increasing demand of raw and subsidiary materials for sewing from advanced countries; the increase in cotton fabric is mainly from pure cotton and blended cotton fabrics. The industry as a whole, however, reveals the serious polarization of production structure: relatively large fabric firms promote the development of new products and facilities while those mainly consisting of part-timers have to keep producing existing goods or sell their looms facing the lack of raw material supply. The synthetic fiber, a main export of Korea's textile industry, is faced with difficulties as competitors attack world markets with cheap products and exporters targeting China, America, and Mexico. As knitted and cotton fabrics, and goods that require post-processing techniques are likely to increase in exports, firms should plan strategies accordingly.

Recently the dyeing and processing sector attracts much attention as an important process to give color, design and function to fibers, textiles, and products that can create high value added. However domestic firms with a low level of facilities and environments urgently need radical innovation and coloring, as well as the introduction of digital process control system in order to improve product quality and working conditions. In addition, regulations should be applied to dyeing factories for the use of adequate amount of water, dyes and chemicals. Recently, exporters of dyed and processed fabrics are required to prepare themselves for Eko-Tex Standard (carcinogenic chemical control) and environmental regulations (ISO), as advanced countries impose import prohibitions on products that may contain harmful material. Also, it is important to retrain professionals working in the dyeing and processing factories, and foster high-tech experts, since the lack of specialized men is one of the biggest problems faced by the industry.

III. Information for New Material Development

I. Research Outline

1) Research Target

153 firms, that are currently thought to be leading domestic textile industry, are selected on the recommendations of related-organizations such as Korea Fashion Textile Association, Korea Textile Development Institute, Fashion Center Korea, Korea Dyeing Technology Center, and Korea Silk & Synthetic Weaving Coop.

2) Research Period

A questionnaire survey was conducted for a period of 3 weeks from 4 to 22 August 2003 for the target firms.

3) Analysis Method

153 firms were investigated through the questionnaires which collected both directly and indirectly using fax and postal service. 101 firms exclusive of those who did not reply seriously were used for the final analysis. The questionnaires were analyzed through Frequency Analysis and Crosstab Analysis using the SPSS 11.0 program.

2. Research Result

A total of 101 questionnaires was used. The questions were directed under the six headings and collected. The answers for the questionnaires are summarized in <Tables 3>~<Tables 8> as follows.

IV. Analysis of Demanded Information for New Material Development

1. Analysis of Textile Firms

A majority (73%) of the target textile firms are small-scale with 10~50 employees. The most sought-after businesses are the knitted fabric (92%) and fiber (89%); and export exceeds domestic supply in the ratio of about 7:3. As for employee composition, designers and researchers occupy the smallest portion in almost all businesses; and synthetic and blended fabrics are

〈Table 3〉 Company Outline

Questions	Examples	Number of Respondents				Notes
1. Foundation Year	1. 1970~1980s	18				no reply : 3
	2. 1981~1990s	26				
	3. 1991~2000s	48				
	4. 2001~Present	6				
2. Sector	1. Fiber	11				Multiple reply (289 in total)
	2. Textile production	51				
	3. Knitted fabric	8				
	4. Dyeing	26				
	5. Post-processing	24				
	6. Convertor	30				
	7. Others	19				
3. Domestic Supply/ Export Ratio	1. Less than 30%	65				Domestic supply
	2. 31~60%	14				
	3. 61% or more	22				
	1. Less than 30%	22				Export
	2. 31~60%	15				
	3. 61% or more	64				
4. Number of Employees	1. Less than 10	27				
	2. 10~50	44				
	3. 50~100	10				
	4. 100 or more	20				
5. Composition of Employees	No reply	Office work	Manufac- turing	Sales	Research	Multiple reply (205 in total)
	1. Less than 10%	5	6	6	7	
	2. 10~30%	13	22	29	75	
	3. 30~60%	62	22	29	15	
	4. 60~90%	14	16	26	2	
	5. 90% or more	4	27	10	1	
6. Materials	1. Cotton	38				
	2. Wool	17				
	3. Hemp	10				
	4. Silk	14				
	5. Synthetic fabric	70				
	6. Blended fabric	47				
	7. Others	9				

the most dealt materials.

2. Analysis of New Material Development Information

As for the number of newly developed items,

38% of the firms have 10~30 items, 23% over 31, but 40% do not develop new material or have less than 10 items. Concerning R&D budget, 76% invest over 10% of their sales in development efforts, which indicates strong in-

〈Table 4〉 Information on New Material Development

Questions	Example Numbers	Number of Respondents	Notes
1. Number of Developed New Material	1. Less than 10 2. 10~30 3. 30 or more	34 39 23	No reply 5
2. Investment	1. Less than 10% 2. 10~20% 3. 20% or more	62 29 8	No reply 4
3. Planning Time	1. By season 2. Specific time of the year 3. When ideas come up	40 18 39	No reply 4
4. Success Rate	1. Less than 10% 2. 10~30% 3. 30% or more	26 55 15	No reply 5
5. Information Source	1. Domestic journals 2. Foreign journals 3. Internet sites 4. Participation in domestic /foreign material exhibitions, market research 5. Buyers 6. Trends and seminars 7. Others	15 30 8 68 58 45 7	Multiple reply 231
6. Needs for Seminars	1. Need 2. Do not need 3. No interest	79 6 12	No reply 4
7. Experience in Participation	1. No 2. Yes	39 52	No reply 10
	Huvis · Hyosung Fiber Seminar PIS Nelly Rodi CFT Trend Presentation Interfashion Trend Presentation Seminar held by Textile Development Institute etc.		Participated seminars

terest in new material development.

Asked about development time, most firms reply they develop new material by season or when an idea comes up, and many have a regular planning session by season. Regarding the success rate of new items, only 16% achieve a success rate of over 31%, which shows more systematic planning is needed to increase the rate.

Although most domestic textile companies obtain information through the Internet, and Korean and foreign journals, few have experience in channels of more profound knowledge such as the participation in seminars and exhibitions, or meeting foreign experts. Therefore it is necessary to try to develop channels of profound, systematic knowledge. Concerning material trend-related seminars, 78% agree on their need, how-

<Table 5> Production Information

Questions	Example Numbers	No. of Respondents	Notes
1. Main Production Season	1. Spring	37	No reply 5
	2. Summer	20	
	3. Autumn	33	
	4. Winter	6	
2. Quality of Developed Material	1. Improving	63	No reply 2
	2. Not improving	8	
	3. The same	17	
	4. Do not know	11	
	No reply	59	2/3/4. if not improving
	1. Lack of standard processing	7	
	2. Lack of professionals	17	
	3. Lack of good facilities	7	
	4. Lack of expertise	7	
	5. Operational process	4	
	No reply	28	1. if improving
	1. Increasing developmental investment	35	
2. Changes in outlets	11		
3. Professional reinforcement	10		
4. Good facility reinforcement	3		
5. Use of expertise	14		
3. Product Costs	1. Increasing	54	No reply: 3
	2. The same	28	
	3. Decreasing	16	
4. Factors	1. Quality level	39	No reply: 6
	2. Changes in production facilities	8	
	3. Changes in seasonal demands	13	
	4. Changes in wages	35	

ever, only 51% actually had experience in seminar participation. This may be the result of that they think seminar participation have uncertain effects. Thus seminar participants are likely to increase if seminars are organized to directly help those in the field.

3. Analysis of Production Information

Production takes place mainly from spring to autumn with minimum production in winter. 63 % think positively that the quality of developed material is improved compared to that of the previous year. Considering the low capacity utilization in winter and continuous quality im-

provement, many workers in the industry are likely to join in self-development programs if seminars or learning programs are held in winter in order to improve their ability to cope with the market environment and to develop new material.

According to respondents, insufficient professional manpower is the biggest factor of poor quality. The contributing factors to quality improvement are the application of technology and information, reinforcement of specialized manpower, and change in merchant accounts in addition to investment in development. Very few respondents, however, mention the reinforcement

〈Table 6〉 Information on Sales Operation

Questions	Example Numbers	No. of Respondents	Notes
1. Foreign Branches	1. Do not have	67	No reply 2
	2. Have	32	
	China America Europe		Location of foreign branches
2. Target Markets	1. Home	48	Multiple reply 237
	2. America	53	
	3. South America	9	
	4. Europe	43	
	5. China	33	
	6. Japan	28	
	7. Other countries	23	
3. Produced Items	1. Full dress	33	Multiple reply 177
	2. Casual wear	49	
	3. Sports wear	33	
	4. Others (lingerie, toys etc.)	29	
4. This Year's Sales	1. Increasing	17	Whether increasing or not
	2. Decreasing	52	
	3. Almost the same	32	
	No reply	72	1. When increasing
	1. New material development	13	
	2. Good quality	7	
	3. Active marketing efforts	9	
	No reply	27	2/3. When not increased
	1. Lack of new products	16	
	2. Weak quality competitiveness	9	
3. Lack of outlets	26		
4. Others	23		
5. Quality Level	1. Good	55	No reply 1
	2. Average	41	
	3. Poor	4	
6. Willingness to Develop New Outlets	1. Strong	68	No reply 1
	2. Average	29	
	3. Weak	3	

of good facilities.

Firms say quality improvement and changes in wages affect product unit costs the most. The majority of firms think this year's costs are higher than those of the previous year, and only 15% reply they are lower. As the wage increase, greatly affecting costs, may weaken the compe-

titiveness of our textile industry in the future, it is desirable to offset product prices raised by high costs by improved quality to be accepted by the markets.

4. Analysis of Sales Operations

Of all respondents 33% run foreign branches,

〈Table 7〉 Management Information

Questions	Example Numbers	No. of Respondents			Notes	
1. This Year's Sales	1. Increasing 2. Decreasing 3. The same	15 56 30				
2. This Year's Sales Goal	1. Goal achieved 2. Goal added 3. Goal not achieved	28 6 67				
3. Next Year's Sales Goal	1. Set higher 2. Set lower 3. Same as this year	37 24 39			No reply 1	
4. Views on Global Competitiveness	1. Very positive 2. Positive 3. Average 4. Negative 5. Very negative	3 18 32 37 11				
5. Views on World Markets	1. Very positive 2. Positive 3. Average 4. Negative 5. Very negative	0 26 47 24 3			No reply 1	
6. Prospective Markets			Region 1	Region 2	Region 3	
	No reply	3	7	9		
	1. America	27	23	19		
	2. Europe	15	32	20		
	3. South America	3	9	6		
	4. Eastern Europe	8	6	19		
	5. Asia	6	10	14		
6. China	39	14	4		No reply 3	
7. Willingness to Develop New Material	1. Positive 2. Negative 3. Do not know	73 6 19				

which was expected as exporters by far exceed domestic suppliers in the ratio of 7:3 among the target firms. Main target markets for domestic firms are in the order of South America (90%), Japan (71%), China (66%), Europe (56%), and the U.S. (46%) with 77% naming other countries, which indicates the diversion of foreign markets is under way.

Main products show a relatively even distri-

bution including full dress, sports wear and casual wear; sales have decreased or remain the same compared to those of previous year for most firms. New product development is recognized as the most important factor of sales increase followed by marketing efforts indicated by 30% of the firms. Insufficient outlets and the lack of new products are contribute to sales decrease.

〈Table 8〉 Consulting Information

Questions	Example Numbers	No. of Respondents	Notes
1. Experience	1. Have	31	No reply 3
	2. Do not have	67	
	No reply	62	1. With experience
1. Satisfied	5		
2. Average	28		
1. Experience	3. Unsatisfied	6	2. Without experience
	No reply	33	
	1. Did not know how	5	
	2. High expenses	18	
	3. Unclear expected effects	36	
	4. No needs	6	
2. Italian Consulting	5. Others	3	No reply 3
	1. Need	28	
	2. Do not need	13	
	3. Depending on conditions	57	
3. Fields that Require Consulting	1. Textile production	15	Multiple reply 151
	2. Dyeing	18	
	3. Processing	15	
	4. Material planning	52	
	5. Printing	8	
	6. Design	21	
	7. Production process system	5	
	8. Marketing	16	
	9. Application of IT technologies	1	
	10. Others		
4. Necessary Trend Information	1. New material swatch	69	Multiple reply 216
	2. Color planning	41	
	3. Foreign style and applicable item	53	
	4. Italian markets and fashion trend	23	
	5. Marketing information	26	
	6. Others	4	
5. Expected Effects	1. Product diversification	55	Multiple reply 172
	2. Efficient changes in production systems	13	
	3. High value added products	77	
	4. Improvement of expert manpower	23	
	5. Others	4	

55% reply their product quality is good while as many as 45% say 'average' or 'not good enough'. The lack of outlets is recognized as the biggest reason for sales decrease, and 68% reply they would aggressively develop new outlets.

As for how to provide new products to a buyer, they answer in the order of: aggressive search for an opportunity, delivery with the buyer's agreement, and supply with the buyer's request. On the other hand, market decline and

overcompetition are the most difficult problems for domestic suppliers, which indicates the competition among domestic firms are getting severe.

5. Analysis of Management Information

For 2003 sales of most firms decreased or remained the same with only 15% reporting an increase, which reflects 2003 was a very bad year for Korea's textile industry. 66% failed to achieve their sales goals while only 34% realized or exceeded their goals. In addition, 62% of the firms intend to lower or maintain the level of their goal for the year 2004, which reflects very tough market environment. Under such circumstances, as many as 74% of firms express their willingness to turn the tables through the development of highly sensuous material.

As for the global competitiveness of the Korean industry, 48% have negative views with only 21% being positive. Also 54% express negative perspective on world textile markets with only 26% remaining positive. China is named as the market of the brightest future followed by America and Europe.

6. Analysis of the Consulting Service of Material Experts

31% of the target firms received consulting service: however, only 13% of them are satisfied with the results, and the rest are not impressed or unsatisfied. Uncertainty of expected effects and high consulting fee are the reasons for those who did not get the service. 29% of the all firms agree on the need of Italian professionals' consulting service, while 60% say it depends on their circumstances. Only 13%, however, answer they do not need such service, which indicates deep interest in professional consulting service from Italy. Most firms agree they need such consulting service in the fields of material planning and design. As for necessary trend information, most firms require information on Italian markets and fashion trends, and marketing data. Especially they want information on new material swatch, foreign styles

and applicable items. Italian experts are expected mostly to help develop high value-added products and diverse the product range, and their consulting is needed for the development of differentiated products that create high value added.

V. Conclusion

Recently the textile industry, the driving force of Korea's economic development, is faced with difficulties due to domestic and foreign influences. Therefore various measures are studied for the recovery of the industry, and a great deal of information and steps are provided to firms. As the range of information, however, is too comprehensive with too diverse data, it is very difficult to find essential information for material development. Hence this study attempted to define information necessary for textile firms' development of new material.

By defining demanded information of small-medium firms based on the present status of Korea's textile industry and its management, the study carried out a month-survey in August 2003 targeting 157 small-medium textile manufacturers in Korea in order to offer information necessary for establishing government policies and study of alternatives to information providing organizations and small businesses.

According to the result, small firms performed badly in sales and facility investment efforts for 2003 due to worldwide economic depression. They, however, actively pursued new technology development in order to improve their competitiveness. Profits and productivity decreased with reduced sales, and the perspective on the year 2004 was also very negative. Especially many firms intended to lower or maintain the level of sales goal for 2004, which reflected tough market environment. Under such circumstances, as many as 74% of firms wanted to turn the tables through the development of highly sensuous material and improved marketing efforts. Marketing data and information on Italian markets and fashion were required. Especially the target firms

showed great interest in Italian consulting service for new material development. They wanted the service, in particular, for high value-added goods and product diversification, but were reluctant to receive it because of the uncertainty of its expected effects and high consulting fee.

Therefore, it is likely that small textile firms become active players in the market if they are offered reasonable fee and transparency of expected effects of consulting service.

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