TANTU

ANNUAL OF THE ALUMNI ASSOCIATION

2005

9th ISSUE

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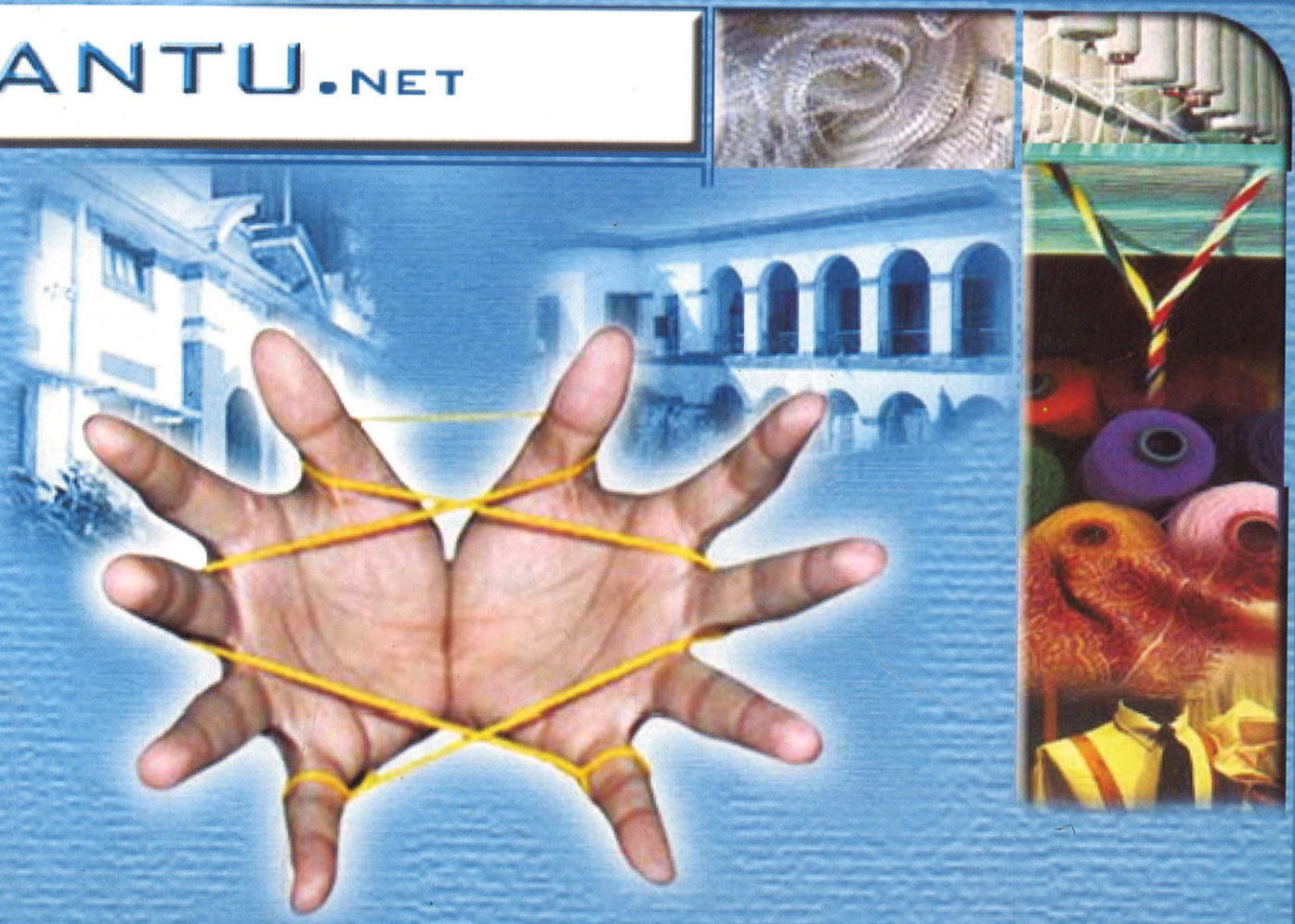

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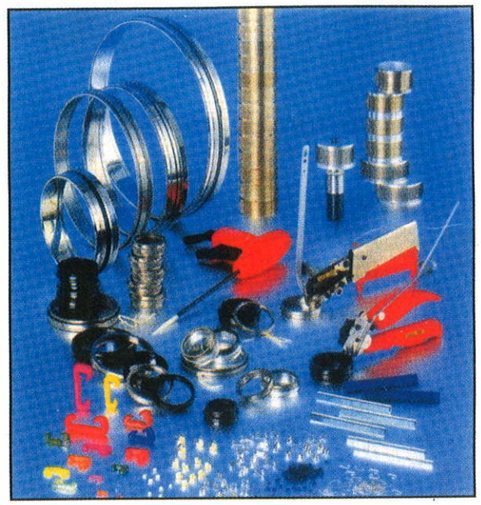

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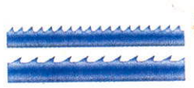

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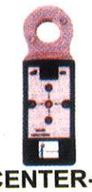
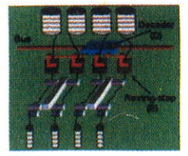


CENTER-P
Centering Spindles



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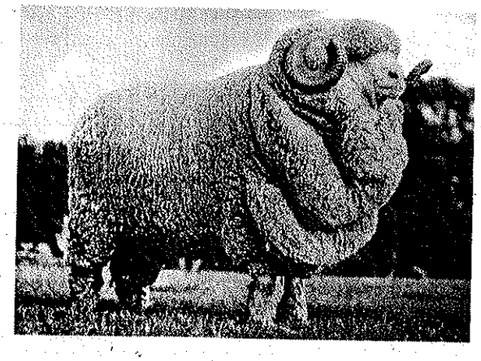

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FROM THE EDITORIAL BOARD

With **TANTU** stepping into its 9th year, our association has stepped into its 10th. It is indeed a matter of great pride and privilege for all of us to have nurtured this organization with reasonable success. All of us agree that this association has provided a very useful platform for its members for professional and social interaction during which we have also learnt and benefited a lot from each other.

TANTU is the annual magazine of our association, showcasing not only the professional strength of its members but also their concern as professional and social entities. Over the past decade we have witnessed a remarkable metamorphosis in Indian as also in Global scenario. One of the many turnarounds that augurs well for us is the renewed scope of the Indian Textile Industry. Mainly due to reasons of manpower availability, the global textile industry is shifting to China and India. Indeed the population which was at one time the bane of Indian economy is proving to be a strength as the population in advanced countries went into a downward spiral caused by a rapid growth of Capitalism while our attempts at artificially controlling the same proved to be ineffective. Today, somewhat by default, we find ourselves in an advantageous position in so far as working hands are concerned although there is a question mark about its quality. The challenge that confronts the nation now is to capitalize on this opportunity and capture a fair share of the International trade. We have therefore given a thought to this issue and some of our members have expressed their concerned opinion on this subject. It is hoped that the readers would profit in going through the related articles. We are also aware of some path breaking inventions in the world of Textiles some of which have already caught the fancy of the commercial world. The E-Textile is one such development about which some space has been devoted in this Tantu. We are also concerned about the tardy progress in many important segments of our Textile industry, Carpet being one of them. An awareness article on this topic, it is hoped, may catch the attention of some of our readers.

For publishing this magazine and also for supporting some of our activities, we have to depend heavily on the advertisers, whose patronage we would like to humbly acknowledge. □

CHINESE TEXTILE INDUSTRY vs. INDIA & REST OF THE WORLD

M C Dattagupta

CHINA AND INDIA

China and India have significant similarities. For both countries, the chief task at hand is how best to adjust economic development with social upliftment of the masses, who account for little less than half of world's population. Both countries share more or less the same values and have been partners in trade, culture and religion since ancient times. The growth of Chinese textile industry has been phenomenal over last two decades. On the other hand the doom of Indian organized textile industry has been well scripted during this period. While both the Asian economies have similar problems of population and economy, there is a remarkable difference in their performance. This has led to a debate among various sections of the society about the desirability and possibility of replicating the Chinese growth model in India. Questions have been raised; do we have the work culture and discipline to have the Chinese model?

RESTRUCTURING PROCESS

India started the process as back as far 1972, when the big composite textile mills started falling sick and outdated. Modernization fell on deaf ears, workers' unions ruled the roost. Industry saw how the mighty warriors like DCM, TATA, Birlas, Khataus and others had fallen. Creation of National Textile Corporation by nationalizing the 124 sick textile mills chased away the potential investors to unorganized sectors and competitiveness of the textile industry became a myth. The next three decades are lamenting story of an industry becoming graveyard of technology, quality, and productivity. NTC did some modernization by decommissioning old power looms and installing a few Russian versions of old model of Sulzers and some spinning machineries. Political interference, corruption, bureaucratic red tapes, mismanagement, poor work culture, union troubles, obsolete plant and machineries, import restrictions, inconsistent textile policy, primitive labor laws etc. spelt the doom for NTC and organized textile industry in India. For the past one decade, loss making NTC has been paying its workers wages who are simply sitting without any work due to lack of working capital. VRS Scheme has now been implemented, but it is too late. Barring a few, the organized industry downed their shutters. Meanwhile, there was a spurt of EOUs (Export oriented Units) in the horizon of Indian textile industry. However due to various external factors, and unplanned business management, many such EOUs soon became unviable.

On the other hand the Chinese textile industry started its restructuring process in the early 1980s quietly and focused on building large-scale capacities in every segment. It went about with clocklike precision that can be verified from results. For example, the spinning capacity in China increased from 18 million spindles in 1980 to 55 million spindles in 2003. China's share in world installed capacity of modern shuttle-less looms increased from 6 per cent to 15 per cent (three-fold) over the same period. A large part of the production has been channeled towards the export

market. It is evident from the fact that the exports of textile and garments constitute about 50 per cent of the Asian giant's total output.

In a well planned move, China also dismantled 10 million old spindles and removed 1.2 million people during the restructuring process to avoid under-employment of resources. This led to significant increases in productivity and profitability. For instance, industry profit increased from $44 million to $4 billion (56 per cent) in 1997-2002. At the same time, China's exports of textile and clothing increased from about $4 billion in 1980 to $63 billion in 2002, and are expected to cross $70 billion this financial year. As a result, its share in world trade in textile and clothing increased from 4.5 per cent in 1980 to about 18 per cent in 2002. To day China employs largest workforce in the world in the textile industry. Along with the above, positive supportive infrastructure and liberal labor laws, focusing on social security rather than job security, played an important role in growth of the Chinese textile industry. This has enabled the industry to adjust production according to the market dynamics. The whole process was well coordinated and a lead time of 10 years was enough for the Chinese to outwit others.

THE COMPETITIVE EDGE OF CHINA

Besides technological backlog, the Indian textile industry's lack of cost competitiveness could well be the biggest constraining factor preventing it from grabbing the export opportunities while the global textile markets opened up in January, this year. A recent WTO report has predicted major gains for textile manufacturers from India and China following the phase-out of quotas from January. But lack of direction, high raw material costs and higher outgo on power have largely ensured that Indian textile players produce a number of inputs - yarn and fabric - at a higher cost as compared to China and Brazil. According to international production cost comparisons on 13 major yarn and fabric categories compiled by the International Textile Manufacturers Federation (ITMF), the cost of an overwhelming 10 input items is lower in China and Brazil.

Textile production competitiveness of countries

Item	India	Brazil	China	S.Korea	USA
Textured Yarn *	2.06	1.90	1.40	1.68	2.13
O.E. Yarn *	2.17	2.31	2.51	2.35	2.30
Ring Yarn *	2.45	2.61	2.76	2.68	2.86
Weaving Ring OE Yarn **	0.24	0.20	0.22	0.29	0.34
Woven Ring Yarn Fabric **	0.663	0.652	0.891	0.754	0.844
Woven OE Yarn Fabric **	0.614	0.600	0.547	0.896	0.746
Ring yarn Knitting **	0.12	0.14	0.08	0.12	0.19

Item	India	Brazil	China	S.Korea	USA
Knitting Ring Yarn Fabric **	1.118	1.208	1.209	1.222	1.366
OE Yarn knitting **	0.06	0.07	0.04	0.06	0.10
Textured yarn weaving **	0.39	0.37	0.37	0.39	0.71
Woven Textured Fabric **	0.591	0.548	0.506	0.551	0.920
Textured Yarn Knitting **	0.05	0.06	0.04	0.05	0.08
Knitted Textured Yarn Fabric **	0.205	0.201	0.139	0.177	0.242

Source: ITMF *Total Yarn Cost (In $ Per Kg of Yarn)

**Total Fabric cost in $ per Yard of Fabric

For example, the average cost of production of one kilogram of textured yarn in India last year was $2.06, as against a production cost of $1.40 in China, $1.68 in South Korea and $1.90 in Brazil. Similarly, it took 24 cents to produce one yard of Ring O-E yarn fabric in India last year, as against only 20 cents in Brazil and 22 cents in China. In the case of manmade yarn and fiber sector, India is less cost competitive due to the regressive tax structure of the Government. Consequently, textured yarn and fabrics cost much higher to produce here, according to the data.

ORGANISED VS UNORGANISED

Many of the organized Indian textile players have production costs comparable to their Chinese counterparts. Much of the Indian textile industry is, however, unorganized and hence the overall costs, quality and competitiveness of the industry suffer in comparison to the much more organized industries in China and other countries. Indian textile manufacturers have been concentrating on particular markets and hence the exports are much lower. Higher capital costs could be another worrying factor for Indian manufacturers. In fact, Indian entrepreneurs are not sure of the policies to come and the constant obstructive measures of government officials have considerable impact on the textile economy. Any attempt to link China's performance record with India's future performance needs to recognize the fact that a country's competitive advantages are influenced by its ability and willingness to reposition itself, realign its policies and adopt fresh strategies with a clear picture of the global developments at a given point of time. Our policies have to be friendly and responsible when it comes to investment in textile sector including redefining old labor laws.

China has redefined all parameters of business and society in view of the globalization. Unlike India, China was judicious in management of its currency, Yuan. It consciously devalued its currency by 50 per cent against the dollar in 1994 to make its exports competitive in the international market and captured significant market share. As a result, where textile exports from other developing countries suffered due to depreciation in the US dollar against their respective currencies, Chinese exports kept growing. China joined the World Trade Organization recently, when most quotas have been removed. Thus, this is evident from the fact that China virtually replaced the textile exports of

India, Pakistan and other developing countries in the categories that were removed from the list of quota items in the US. The removal of quota system is now a double edged sword for India. To add to the worry, in India, there are differences in terms of availability of time and speed in carrying out necessary corrections which China did truthfully since 1980. India has already lost 30 years and does not have another 20 years to set its house in order. Hence the backlog has to be cleared now or never, at one stroke.

CHINA VS REST OF WORLD

The Bush administration imposed new caps in April, 2005 on imports of Chinese clothing, responding to complaints that China's export juggernaut is starting to dominate the worldwide apparel market since changed situation due to abolition of Quota. Clothing and textile manufacturers of United States are pushing for an agreement to halt a surge in Chinese imports that began with the lifting of a system of global quotas. Announcement of April, 2005 by US administration came as a huge relief to the U.S. textile industry, which has already suffered massive job losses in recent years, in part because of competition from low-cost manufacturing countries and specially, the new threat posed by the Chinese (An American worker earns in less than two weeks what a Chinese worker earns in a year). Producers say 19 textile plants have already been forced to close and 26,000 jobs have been lost just this year. This is in addition to losses of 267,000 jobs from January 2001 through March 2003. American textile industry is seeking relief from a deluge of Chinese textile imports. Chinese sales of textiles to the US rose by 63 percent to 3.15 billion in 2002.

Karl Spilhaus, president of the National Textile Association of USA, said that negotiators are close to a comprehensive agreement to limit imports of Chinese clothing and textiles into the United States. The Chinese currency, Yuan, which has a fixed rate of exchange with the dollar, is considered to be undervalued by at least 30 per cent, conferring unfair advantage to Chinese exports. China's $32-billion global trade surplus last year is estimated to rise to $100 billion in 2005. U.S. Treasury Secretary John Snow has said that he expects China to end the dollar peg and allow free-float of the Yuan.

But the decisions angered importers and retailers, who said consumers will miss out on the chance to get lower prices. Importers blasted the decision, noting that China's quota-limited share of the U.S. market was low to start with. They also said the administration was trying to garner support for the Central American Free Trade Agreement (CAFTA). The trade pact is facing stiff resistance in the House.

The European Union, another major market for clothing, is considering similar measures. The E.U. asked China to start formal talks on ways to restrict Chinese exports of T-shirts, garments, and yarns etc. Exports of some Chinese textiles to Europe have risen by over 500 per cent since the expiry of the MFA. With its major European economies in a fragile state, the E.U. has limited room to face the Chinese competition. Italy is already on recession, while, Germany is on the verge. China accounted for 17 per cent of the world's textiles in 2003, and the WTO estimates its

market share to reach 50 per cent in the next three years. The E.U. says that textile industry in Greece, Portugal and Slovenia were hit hard by Chinese competition. T-shirt production in Greece was down by 12 per cent from a year ago, in Portugal between 30 and 50 per cent. In Italy, apparel sales for March was nearly 13 per cent lower. Imports of T-shirts from South Asia have also fallen. The E.U. is concerned at this fallout of the trade dispute.

Alarmed by the fallout, China announced an increase in its duty structure and reduction in duty drawbacks recently at home front to show its willingness to be a fair player in textile apparel business. News of blockade of Chinese trousers, sweaters and other textile products by EU customs officials has already being reported in Indian newspapers. The officials of China and EU are having the trade pact dialogs.

TASK AHEAD

The Indian textile industry has not been able to undo the damage inflicted by three decades of skewed Government policy and today it finds itself quite unprepared to reap the full benefits of a quota-free regime. Though the Budget has tried to provide the much-needed boost to the industry, much more needs to be done to help it overcome the problem of technological obsolescence, capitalize on scale economies and move up the value chain.

India today has nothing to loose to Chinese textile industry. China has already created the road map; it will not be easy for others to follow. The global textile scenario has changed since China took the giant leap. China is no longer a Dollar store or footpath trader in textiles, as many experts in India might have thought. In India, we need to analyze the requirements of our textile industry very judiciously from technical, economic and business angle to achieve the objective, and not copycat the Chinese model. We can achieve our goal through farsighted policies as there is no dearth of technical competence, experience and entrepreneurship in India. □

THE CAT SCAN

A woman took her dog to the vet. "Doctor," she said, "I think my dog is dead." The doctor laid the dog on the table and reached down and took a cat out of a box. The cat walked all over the dog and the dog didn't move. "Yes, your dog is dead," says the doctor. "How much do I owe you?" the lady asks. "$345," says the doctor. "$345!!?" the lady asks. "Yes. $45 for the office visit and $300 for the cat scan."

INDIAN WOOL TEXTILE INDUSTRY: BEYOND YEAR 2005

Dr. S K Chaudhuri

From 1st January 2005 started a new era of international business and trade, a new ball game as far as global business mechanism is concerned. The Uruguay round of negotiations resulting in a ten year phase-out of textile quotas under the Agreement of Textiles and Clothing (ATC), the roll down of customs duties and quantitative restrictions on import of textiles into various developing country markets will change the business norms of the textile industry of those countries significantly. Their so far easy domestic market will no longer be isolated from global competition and the export market will be open wide for the fittest to survive. In the new world, non tariff barriers will be used rampantly to protect self interests. Textile industry therefore will have to work locally with global norms.

The lifestyle on the other hand of consumers globally and consumers of those developing markets in particular has undergone a paradigm change in last one decade due to their social and economic changes. The consumers are getting richer, more Hedonistic, more exposed to international trends and fashion through travel and television. The changes in lifestyle are directly reflected on the sartorial habits of those consumers. Slowly but steadily, the whole world is becoming one single market. These sequential developments led to convergence of market segments.

To survive and prosper in this changed market scenario, the textile industry everywhere need to consider:

- Quality Competency
- Price Competitiveness
- Market Adaptability

Quality competency is the combination of technological competence, job knowledge and management attitude leading to work culture.

Price competitiveness is a relative criterion. It is in relation to a competitor. We have to make our products better and cheaper than our competitor.

Cost of production in any country depends on many factors. The technical competence of the industry, infrastructure of the country, financial services and laws related to trade and labor are the most important factors in determining the final cost. The phenomenal growth of China's industry sector and their lower product price are talk of the town.

China has the following advantages over India, which make them competitive.

- Economy of scale - China consumes 382 m kg of clean wool, whereas India consumes only 103 m kg.

· Better infrastructure - China did build their road first and put up industry later.

· Cheaper cost of finance - In China one can borrow money with the interest rate as low as 4 per cent. This makes India's cost of finance much higher in comparison.

· Industry friendly labor laws

· Industry supporting duty and tariff structure - we pay 19 per cent duty for importing apparel wool in India, whereas for the same wool China pays only 1 per cent.

It is interesting to note that China has 38.1 per cent share of apparel imports of major non-quota markets, where India commands only 1.6 per cent. These non-quota markets, as a matter of fact, are the markets of near future. This clearly shows our vulnerability.

Market adaptability however is a more complex criterion to address to all the lifestyle changes and their impact on sartorial demands. This criterion necessitates creating right products. Quality, design, innovative and value added products will therefore be the prime mover.

The time therefore has come to set right our courses and prepare the game plan accordingly so as to convert the threat into opportunities. To stay competitive and powerful enough in the market place, India needs to have at least 15 per cent of the estimated global textile trade of US$ 700 billion by 2010. Looking into today's textile trade situation, to achieve this target may be a Herculean task. However, we need to prepare ourselves with right product and quality looking into the market trends.

The consumer perception has over the years changed globally, which impacted the market trends. To fit in to this new market scenario, we need to understand our consumers and their needs. Today's consumers ask for relaxed dressings, comfort, easy care and value for their money. We have to offer them casual jackets, easy travel clothing, lightweight fabrics, machine washable and dryable clothes and the techno finished garments. The Woolmark Company brings forth innovations in different products and processes to satisfy these needs of global consumers.

The Indian wool textile industry has to keep pace with the technological changes taking place. The Woolmark Company time to time informs of such developments and transfers the technology accordingly to the Indian industry partners. The present industry needs however some corrections as far as product innovation and market diversification are concerned.

Indian wool textile industry, though a small component of the total textile industry of India, has enormous potential and opportunities for both domestic and export market. Today this industry consumes 103 m kg of clean wool and India is now the third largest importer of Australian wool. Apparel export is growing and we are anticipating further growth in future. The non-apparel sector is also showing a steady growth over the years. But we have to keep in mind that we are still protected in the global market.

Sooner than we anticipate, our industry will have to deal with global market practices even in our own domestic market, which has so far been protected. The tough and ever changing global market

demands international quality and trends in competitive prices. To do successful textile business today with such a difficult matrix is certainly a very complex activity. Our product innovations are to be market led and we have to explore new markets for our future business. Coming years, especially couple of years post WTO will be crucial to India's textile business including wool textiles. Keeping in view the sermon 'Competitive economics bring more wealth', India needs to embrace the concept of globalization. With all the right ingredients, India can be the major manufacturing base of the future and this 'Globalization' can be a big opportunity, provided we improve our infrastructure, redesign our product basket and have the mind set for doing international business. □

THE WEAK LINK EFFECT

Are you the weakest link? Below are three(3) questions. You have to answer them instantly. You can't take your time, answer all of them immediately. OK? Let's find out just how clever you really are. Ready?

First Question:

You are participating in a race. You overtake the second person. What position are you in?

Answer: If you answered that you are first, then you are absolutely wrong! If you overtake the second person and you take his place, you are second!

Try not to screw up in the next question. To answer the second question, don't take as much time as you took for the first question. Second Question.

If you overtake the last person, then you are...? Answer: If you answered that you are second to last, then you are wrong again. Tell me, how can you overtake the LAST person?!

You're not very good at this are you? Third Question: Very tricky math! Note: This must be done in your head only. Do NOT use paper and pencil or a calculator. Try it.

Take 1000 and add 40 to it. Now add another 1000. Now add 30. Add another 1000. Now add 20. Now add another 1000. Now add 10. What is the total? Did you get 5000? The correct answer is actually 4100. Don't believe it? Check with your calculator! Today is definitely not your day.

INDIAN TEXTILE INDUSTRY UNDER THE NEW WTO REGIME
THE EXPERIENCE OF THE RECENT PAST AND FUTURE PROSPECTS.

Indra Nath Basu

The new WTO regime has offered India the most potential global scenario wherein it can emerge as a base to reckon with in the world of apparel and textile business. Already, most of the big global brands and retailers have started expanding their activities in India in order to outsource their textile requirements for rationalizing their supply chain cost. However, the long-term business will be governed by the ability to offer quality products at competitive prices. Towards this end, adoption of appropriate technology in a suitable business condition will be the decisive factor. Most of the existing players such as Vardhman, Nahar, Ramco, Loyal, GTN, Welspun, Trident Group are planning major up-gradations and expansions, keeping in view the growing opportunities in the fast-changing trade order. Many new capacities are in the pipeline.

Consequent upon quota phase out, **"critical export mass"** would assume importance. Textile sourcing by major retailers is expected to be from select countries with few manufacturers capable of supplying large volume with quick delivery period. Studies by the US Department of Commerce reveal that major buyers will reduce the number of countries they source from by half in 2005-06 and by one third by 2010. The challenge for India is to remain an important source for major textile buyers.

The torchbearers of the Indian Spinning Industry, specially those of the reputed organized sector, have studied these opportunities and have been aggressively increasing their capacity as well as adopting the most advanced technologies to take advantage of the situation. It is also understood that to achieve the level of expectation of top International buyers, the technology itself is not sufficient unless it considers the limitation and quality of manpower behind the machine.

The advantage of Indian labor which was even in the recent past considered to be cheap, compared to the developed countries, is no more a plus point now as the quality of labor and its availability will hinder consistency in the quality and productivity to any organization. This understanding has resulted in an increase in demand of Automation in the Spinning Industry. The demand of Auto doffing in Ring Frame, Auto feeding in Automatic Cone Winder as well as linking between the Ring Frame and Automatic Cone Winder, which was practically non-existent even one or two years back are now very much in demand. Many new Projects of established Group, such as Aarti International, Trident Group, Spentex Industries, Ginni International & GTN are aggressively putting up Spinning Project with all latest automation to be at par with the best of the world.

The sudden increase in demand of Textile machinery from January, 2005 has resulted in longer deliveries by major Textile Spinning machinery manufacturers of India. Lakshmi Machinery Works Ltd., the leader in this field were comfortable in delivering machineries within 3-4 months during mid 2004; now the same organization is booked for a delivery for more than 2 years in-spite of running in full capacity.

This situation is opening the doors for Chinese Spinning Machinery to get an entry into the Indian market. So far, Indian Spinning Industry was not considering Chinese machines, although they had a big presence in neighboring countries like Pakistan and Bangladesh markets. The present scenario will help them to get an entry and we may see in future that they will consolidate their position, which could be a big threat to Indian Textile Machinery manufacturers in the lean period.

China, on the other hand, had anticipated this situation much earlier and had expanded their capacity with quality machineries since the year 2002. 50% production of all the leading Textile Machinery Manufacturers of Europe & Japan were sold in China. India lost 3 valuable years and shall definitely lag behind China in the global market in the days to come.

India has two distinct advantages over China.

1) It has a major English speaking population and transactions are easily understood by the European and American buyers. Moreover the democratic set-up of India is more acceptable and comfortable to the global buyers.

2) India has a huge qualified human resource in the high-tech field. Here, we can produce much more value added small lots with varieties to cater to the high end fashion oriented market, whereas China is strong only on mass production and limited varieties.

The disadvantage of India stems mainly from Government Policies pertaining to

a) Fiscal Levy Reforms - Uniform CENVAT,
b) Fiscal Levy Reforms - Customs Duty,
c) Liberalization of Labor Laws,
d) De-reservation of Knitting and Knitwear Segments

Steps are being are being planned to tackle the issues but execution is very very slow.

The Industry is also not fully geared-up for the current opportunities although efforts are on in respect of the following developments:

1) Benchmarking performance.
2) Better value chain management.
3) Quality consciousness.
4) Modern management practices.
5) Innovative products.
6) Development of e-application.

Here also, only a few leading organizations are stressing on the above factors, to become a real global player.

The Textile Industry in our country is one of few Industries, which has a potential to emerge as a true global player and both Industry as well as Policy makers in Government would have to develop a synergy to achieve this goal. □

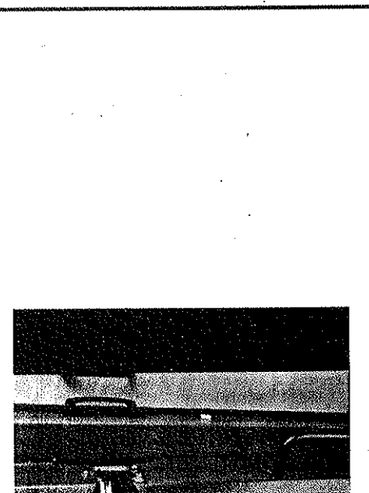
THE GOOD MANAGER

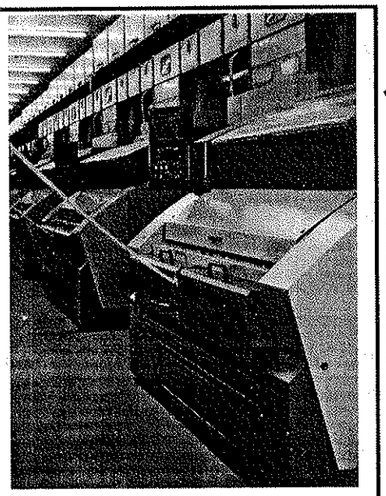
A crow was sitting on a tree, doing nothing all day. A small rabbit saw the crow, and asked him, "Can I also sit like you and do nothing all day long?"

The crow answered "Sure, why not." So, the rabbit sat on the ground below the crow, and rested. All of a sudden, a fox appeared, jumped on the rabbit and ate it.

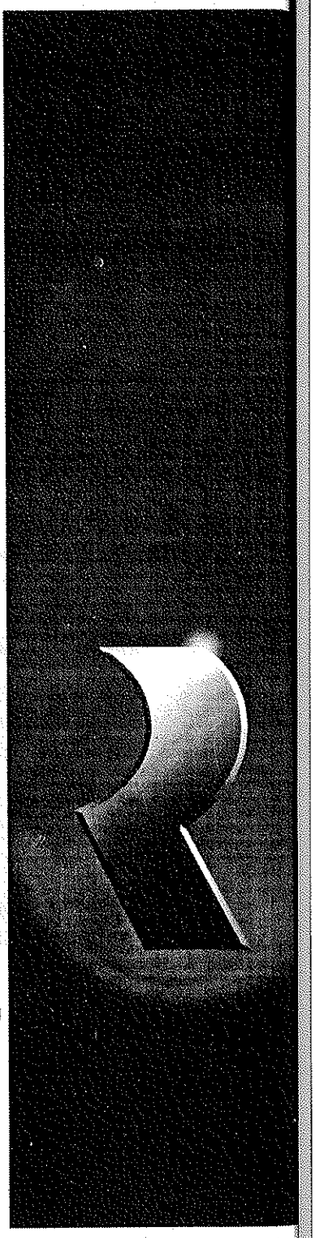
Management Lesson: To be sitting and doing nothing, you must be sitting very, very high up.

Card C 60 - The reason to change





RIETE



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IMPACT OF TECHNOLOGY UNDER WTO REGIME

Pratap Sharma

Textiles were evolved after the Agriculture during the chain of Human civilization. Like any other primitive development, it took thousands of years to put TECHNOLOGY in the process. In that sense of the matter, if we use the civilization as yard stick, Technology in Textiles is very recent.

When Textiles were developed, it was meant to cover / protect the body from the vagaries of nature. But with the passage of time, the requirement changed both in nature and dimensions to cater to human needs. With the changed need, came imagination which created the requirement of Process Technology. The need of Technology was felt severely with the commercialization of products. Today the applications pervade from protection to fashion to utilities to luxuries. The subject has become such broad that expertise and specialization have come into play as well. The behavior of a spinner can be like a novice in processing!

India, like China has a long tradition in textiles. Without the modern day technology, our weavers could weave fabrics that passed through rings. Probably that is no longer available. Before we embark upon the technology part, we should like to understand the need of technology.

With everything being traded/ commercialized, the need to produce certain textile requirements has to be "commercially viable". That is the key to technology. For example in the early 70's, mills were stated to be modern and well equipped, if their cards could run @ 10-15 rpm doffer speed or produce slivers @10 kg/hr. Similarly Ring Frames running @ 10,000 -11,000 rpm were considered to be modern. The same processes are carried out today @ 70 kg/hr and 20,000 rpm respectively. Similar are the cases with Looms and other machineries.

Only those companies that can stay ahead of others in terms of technology and economy would survive - such is the impact of commercialization. Previously qualities alone decided price. Now days, quality is given, the deciding factors are at what price. Every stage of manufacturing needs to be monitored for cost. If we consider the factors that affect cost, e.g. raw materials, electricity, salaries & wages, cost of finance etc. we find that they are more or less similar in a given country/ economy. How does one compete in such environment? The answer evidently has to be TECHNOLGY, by which one can maximize productivity or say reduce power consumption/ unit of product and or get better quality or reduce waste better than the competitors.

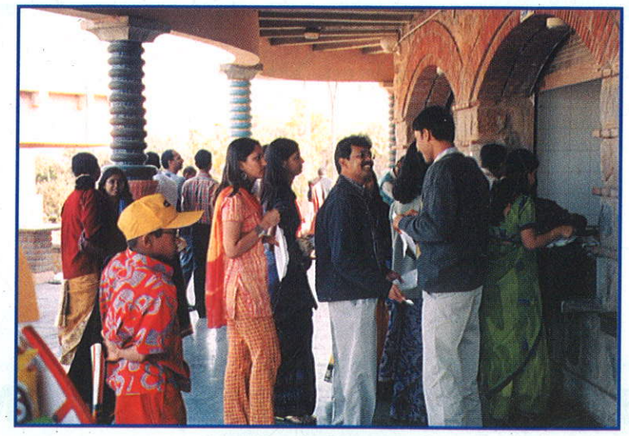
The key word/ factor in this seamless economy is cost effectiveness for a given quality. Some countries supply goods at a price less than the price of raw materials! To effectively counter such aggressive marketing one has to judiciously employ policy/ strategy so that the investment remains competitive while productivity and quality are achieved.

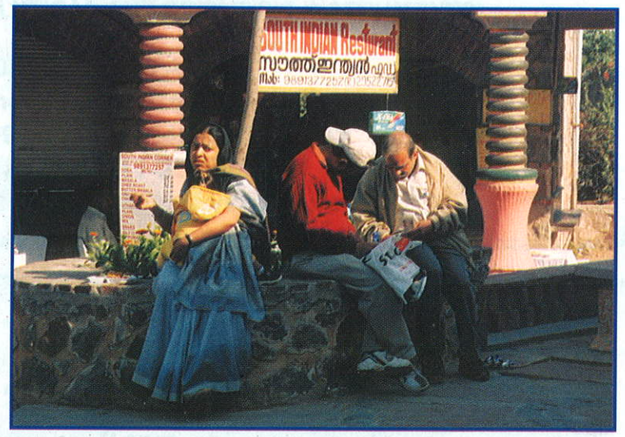
The key factor is core competency in a given field so that the planners understand the OPTIMUM TECHNOLOGY and use it as basic tool so that the best can be achieved at a competitive cost. This is the only path to combat the competition and survive while making profit for staying in business. □

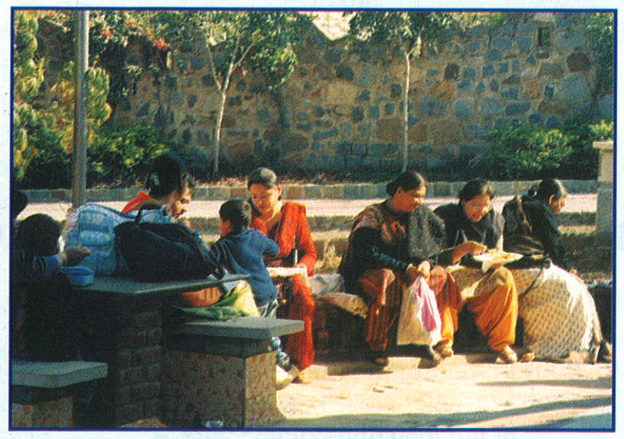
Picnic 2005

Garden of Five Senses

Picnic 2005







QUESTION-ANSWER

There was this tiger, who woke up one morning, and just felt great (yes, just like Tony the Tiger: GREAAAAAAT). Anyway, he just felt so good, he went out and cornered a small monkey and roared at him: "WHO IS THE MIGHTIEST OF ALL THE JUNGLE ANIMALS?" And this poor quaking little monkey replied: "You are of course, no one is mightier than you." A little while later this tiger confronts a deer, and just bellows out: "WHO IS THE GREATEST AND STRONGEST OF ALL THE JUNGLE ANIMALS?" The deer is shaking so hard it can barely speak, but manages to stammer: "Oh great tiger, you are by far the mightiest animal in the jungle." The tiger, being on a roll, swaggered, up to an elephant that was quietly munching on some weeds, and roared at the top of his voice: "WHO IS THE MIGHTIEST OF ALL THE ANIMALS IN THE JUNGLE?" Well, this elephant grabs the tiger with his trunk, picks him up, siams him down; picks him up again, and shakes him until the tiger is just a blur of orange and black; and finally throws him violently into a nearby tree. The tiger staggers to his feet and looks at the elephant and says: "Man, just because you don't know the answer, you don't have to get so pissed."

E-TEXTILES: A REVIEW

M C Dattagupta

ABSTRACT

Woven Electronics emerged from a textile company in 1963. The recent offering of the LightLoc™ Security System demonstrates the company's inventiveness in answering current needs in a remarkable manner. As mobile and wearable computing becomes increasingly common in everyday life, relationships with technology are changing. Historically, computing seems to be more concerned with function than form. E-textile wearable systems by the military are not great. . E-textiles have undergone as much a process of evolution as much as the human race have undergone from the prehistoric era till today. After all, human imaginations and innovativeness cannot be replaced by copycat technologies and all we need to do is to dream. Every dream will be possible through E-textiles and its viability will increase by the increased demand for competitive market scenario.

INTRODUCTION

Electronic textiles (E-textiles) are fabrics where electronics and interconnections are woven with physical flexibility and size. This cannot be done with existing electronic manufacturing techniques. Components and interconnections are intrinsic to the fabric and are less visible. Such components can not become tangled together or snagged by the surroundings. An E-textile can be worn in everyday situations. E-textiles can also more easily adapt to changes in the computational and sensing requirements of an application. This is particularly useful for power management and context awareness.

Woven Electronics emerged from a textile company into the electronics industry with an innovative electro-textile. The woven circuit and innovation has been the company's watchword since the beginning in 1963, in addition to patented woven cable configurations, unique mechanical and electrical packaging and precision fiber optics designs. Woven Electronics offer sleek, custom backshells and the engineering capability to develop and manufacture whatever its customers require. The recent offering of the LightLoc™Security System demonstrates the company's inventiveness in answering current needs in a remarkable manner.

There can be two main types of applications of E-textiles,

1. Wearable computing
2. Large-scale sensor networks

E-textiles-based wearable computers will sense the user's motion and be aware of the objects around the user. E-textiles-based sensor networks should be reliable in harsh environments. They should be of low power consumption to last days and months in the field without maintenance.

Both types of applications require computing design space. Those should be physically spre over a relatively smaller space having a greater dependence on physical locality of computatio lower bandwidth for communication, and less available energy. The stricter constraints faced E-textiles require new solutions to be found for questions that have been studied in embedde systems and distributed computing. There is also need for optimizing energy usage. Both t power sources and power consumers are distributed throughout the system. Scheduling tasks processing and sensing elements located on the body based upon the motion of a user and objec in the user's environment is of great importance.

FASHION SENSING

Textiles are one of humanity's oldest technologies, and costuming has always been central cultural and personal identity. Clothes and accessories mark and communicate our similarities an differences. In terms of social interaction, cross-cultural encounters are both facilitated an constrained by fashion.

Social and cultural researchers often approach the question of consumption in capitalist societie as a primary way for people to express and negotiate identity, preferences, and social status. A computing and communication technologies become increasingly mobile, they also becom increasingly wearable. That is, we can personalize the looks and sounds of digital devices, and us them as fashion accessories.

The practical functionality of these devices is increasingly being augmented by their ability t explore and express our aesthetics and identities.

As mobile and wearable computing becomes increasingly common in everyday life, relationship with technology are changing. Historically, computing seems to be more concerned with functio than form.

This is a complex area. In most computers software are neutral, with little identity. Computer are extensions of our minds, having no separate visual identity, to be neutral. Computers hav managed to remain neutral for long because their function is based on their interiors, their software Software can change a computer's function or meaning with the push of the button, but the origina form remains neutral.

Technologists are trying to de-neutralize, since de-neutralizing technology provides peopl with more choices. It reflects our need for experience and feelings and de-neutralizing technology makes it more a reflection of our aesthetic selves.

Soft computing, like E-textiles, adds an important new dimension as to how humans think about, react, and interact with technology.

The E-textile makes everyone rethink. Soft technology has the capacity to be beautiful. There is also beauty in the very electrical function of these textiles, how different structures and materials behave differently.

E-textiles can provide visual aesthetics. It also enables personal expression in fashion. E-textiles can offer a range of sensing for computers, depending on the electronics they are attached to. They can sense touch, pressure, and motion. They can flex, bend, and heat in some cases. And with proper application they can sense heart rate, pulse, etc.

Unlike traditional clothing, electronic fashion has the potential to allow us to change our identity at the push of a button. E-textiles allow us to manipulate data, and this can change the meaning of a human action, a gesture.

Softer computing can also express a hidden or private piece of information, which is reprogrammed. Socially and culturally networked clothing has the ability to express a group identity or idea as a powerful possibility.

Other than their structural relationship to the body, people use all sorts of devices and fashions to express their difference, and E-textiles can broaden their ability to have different aesthetic expression. E-textiles could play a role for obese people. Such product is to help people with a medical or physical condition.

Woven fabrics are varied in texture and have an enormous range of application. The demands made by prehistoric man for fabrics designed for clothing and shelter were few and simple, and these were fashioned by interlacing strips of fibrous material and grasses, which in their natural condition were long enough for the purpose in hand. His needs developed with his culture, and those needs are still extending. Clothes and accessories mark and communicate our similarities and differences, in terms of social interaction, cross-cultural encounters, fashion, modern trends and advancement of textile technology.

Computer and Textile engineers may be weaving the future of specialized fabrics - E-textiles that can be used to sense tank movements, monitor homes for toxic chemicals, help firefighters maneuver in smoky buildings, and perhaps help stroke victims recover their function. Their biggest result to date is a 30-foot swath of fabric interwoven with stainless steel thread, and styled with microphones, sensors, connectors, and circuit boards.

MLITARY APPLICATIONS

E-textile wearable systems by the military are not great. If the military were really using wearables on a large scale, we would have seen a lot more development in products and new technology in the last few years. At present, business is driving the development of a lot of portable, wearable devices, and the medical industry will very soon be a major research and development player. Actually, artists and designers are already working with companies to improve and change their products.

E - Textiles were developed in collaboration with researchers at the University of Southern California's Information Sciences Institute (ISI), which was funded by the Defense Advance Research Projects Agency (DARPA).

"E-textiles are a big part of the U.S. Army's next generation soldier systems," explained Ma Jones, a lead investigator on the project. E-textiles for sensor network communications provi some field advantages over radio communications. RF communication can be detected and gi away a unit's location. Also, E-Textile systems have lower power requirements, since the signa from the sensors are carried along the wires interwoven in the fabric.

Military research in wearable technology is both application driven, such as for soldier system and focused on fundamental technological and scientific research.

E-CLOTHING

With funding from the National Science Foundation (NSF), USA is developing wearab E-textiles. It is believed that the applications for wearable E-textiles will be industrial, where th computers can be used for construction and maintenance workers, freeing their hands for the tasks. The biggest advantage to E-textiles in that situation is wire management. Typically, whe workers are in tight spaces, wires snag and connectors break. When we weave in the connection the surroundings can't snag or catch on the shirt.

The research team in USA is using piezoelectric materials for the shape-sensing garmen which they hope will be able to monitor precise movements of the body. E-garments can be use in physical therapy for stroke victims who must do their exercises in a certain way. It could also b used for helping an athlete perfect golf or tennis swing.

The E-textiles group in USA is introducing students to the technology and has introduce projects in course on Wearable and Ubiquitous Computing. The projects are directly related to th mapper garment, the shape-sensing garment, and the physical aspects of E-textiles.

The researchers worked on a number of physical issues with the initial work-such as how t make connections between the woven wires and how to mount electronics components in th fabrics. At this point, we need to manufacture the entire system here in order to have the level o control necessary. The E-textile group is currently investigating special polymer fibers for differen uses, such as those that can act as batteries or chemical sensors and some that change color fo camouflage.

PACKAGING OF E- TEXTILES

Packaging is a big issue, since most chips are packaged with 100 or 1000 pins and there should be only four or five pins. The pitch, or space between standard pins, is small while wider spacing is required for E-textiles.

CONCLUSION

In recent years, the manufacture of textile products has become extremely competitive. Success is dependent upon four factors: low cost, fast turn around time, flexibility, and innovation. Traditional methods of design and production are not conducive to the four factors of success. It involves integration of computers with the imaginations, skills and cultural history of human beings.

E-textiles have undergone as much a process of evolution as much as the human race have undergone from the prehistoric era till today.

The E-textiles make everyone rethink the materiality of technology. The technology has also the capacity to be beautiful. It is an important aspect of human beings, the pursuit of beauty. There is also beauty in the very electrical function of these textiles, how different structures and materials behave differently.

E-textiles can also provide new visual aesthetic possibilities, and the means for personal expression in fashion. This can provide either a more perfect result, or it can create something strange. E-textiles can offer a range of sensing for computers, depending on the electronics they are attached to. They can flex, bend, and heat in some cases. With proper application they can sense heart rate, pulse, etc. On the other hand, they can also allow us to sense the computer differently: by virtue of their unique utility they allow us to experience technology as something fuzzy, soft, etc.

After all, human imaginations and innovativeness cannot be replaced by copycat technologies and all we need to do is to dream. Every dream will be possible through E-textiles and its viability will increased by the increased demand for competitive market scenario.

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THE INDIAN CARPETS

Dr. K K Goswami

Historically carpet has been a general term given to thick loom-woven or felted textile employed primarily as floor covering. Carpets have also been used as table and wall coverings, as these were not commonly used on the floor in European interiors until the 18th century. Carpets differ from rugs in the sense that carpets are produced in continuous lengths which can be cut to the desired size whereas rugs come in specific sizes and are not meant to be cut.

Carpets can be handmade or machine made. A handmade carpet can come in varieties such as knotted, woven and tufted while the machine made carpets can be woven, tufted, knitted or needle punched.

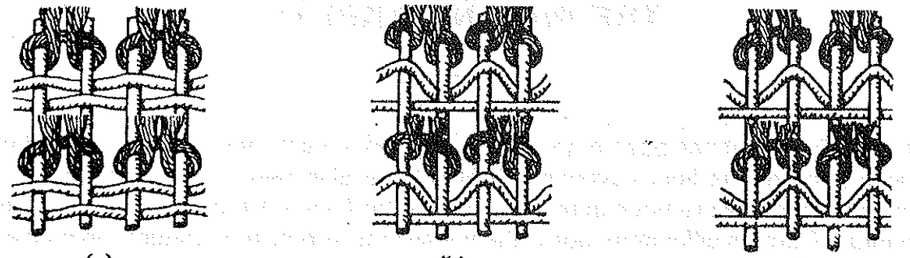
The handmade knotted carpet is manufactured on vertical wooden looms. Thick cotton or synthetic yarns are used as warp while skilled artisans create knots as depicted in Fig. 1 and 2 by employing primarily woolen yarns. The handmade tufted carpets are produced by tufting yarns in a base fabric which may be made of cellulosic material or jute or polypropylene, resulting either in cut pile or loop pile products. A "Durry" is woven on a handloom from cotton/wool/jute warp and cotton/jute/sisal/silk weft. The resultant fabric is weft faced on both sides and has a soft feel. Very broad looms of 6 to 12 feet width are employed for weaving wall-to-wall carpets on handloom.

Rating of Fiber performance in Carpet Pile

Quality Parameters	Performance			
	Highest			Lowest
Resistance to Abrasion	Nylon	PP	Wool/ Acrylic	Viscose
Resilience and Appearance retention	Wool	Acrylic	Nylon	PP Viscose
Resistance to soiling	Wool Pp	Viscose	Acrylic	Nylon
Ease of cleaning	Acrylic PP	Nylon	Wool	Viscose
Absence of static		Wool Viscose	Acrylic PP	Nylon
Flame retardance	Wool		Nylon	Acrylic PP
Ease of dyeing	Wool	Acrylic		PP
Therefore choice of colours	Nylon	Viscose		

Finishing of carpet involves inspection, mending, shearing and back coating. Indeed the tufted carpet is converted from a limp cloth to a firm and stable product through proper back coating.

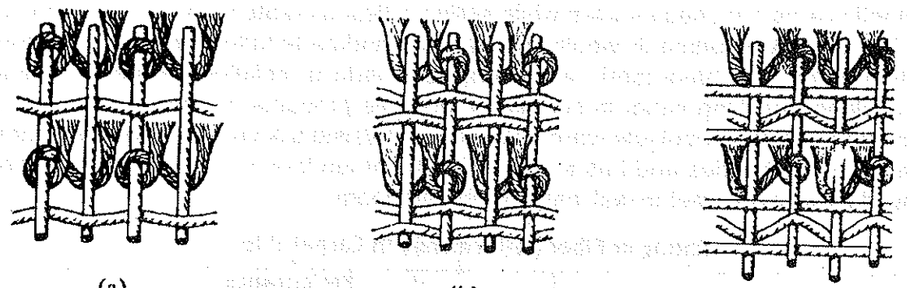
Quality of carpet can be assessed both subjectively and objectively. The subjective criterion include visual appeal and feel while the objective criterion are knot density, color fastness, abrasion resistance, tuft withdrawal force, compressibility and resilience as also response to static and dynamic loading.



(a) (b) (c)

Figure 1 - The Ghiordes or Turkish knot

a) Tied with the warp on one level and two weft threads between each row of knots
b) Tied with the warp on two levels, knots inclined to the left;
c) Tied with warp on two levels, knots inclined to the right.



(a) (b) (c)

Figure 2 - The Sehna or Persian knot

(a) Left-hand knot: warp on one level:one thread between each row
(b) Right-hand knot: warp on one level: two weft threads between each row
(c) Right-hand knot: warp on two levels: three weft threads between each row

Export Perfomance of Indian Carpets Industry :

(Indian Rupees in Crores)

Year	Woollen	Silk	Synthetic	Total
1992-93	976.04	51.66	15.49	1043.19
1993-94	922.56	49.60	19.84	992.00
1994-95	1020.22	55.15	27.57	1102.94
1995-96	1286.97	56.64	21.31	1364.92
1996-97	1499.06	68.27	17.46	1584.79
1997-98	1495.32	109.62	56.64	1661.58
1998-99	1783.33	136.45	94.16	2013.94
1999-00	1888.45	153.93	93.65	2136.03
2000-01	2045.96	167.03	102.16	2315.15
2001-02	2152.69	198.27	85.17	2436.13
2002-03	2293.79	209.42	87.05	2590.26
2003-04	2617.85	120.48	41.46	2779.79
2004-05	2389.82	150.11	43.69	2583.62
2005-06 (April - Aug)	785.31	67.26	27.93	880.50

The export performance of the Indian carpet industry depicted in the table above shows a reasonably healthy growth in the woolen and silk carpet sectors. However the synthetic carpet sector appears to be losing ground very fast. A SWOT analysis of the Indian carpet industry reveals that marketing has been a major weakness while the setting up of IICT by the Ministry of Textiles is surely a very positive step towards creating human resource needed to implement upgraded technology as also undertake developmental work. Indeed there is an urgent need for technological intervention in improving quality of raw material as also ensuring a steady supply of the same, quality of woolen yarn and carpets, standardization and cost control as also stream line the supply chain.

Keeping in view the needs of the carpet industry, the IICT has been engaged over the past five years in improving skills of weavers, artisans and craft persons. IICT is also involved in Design Creation and Development (DCD), Research and Development (R&D), Technical Service Support to the Industry (TSI) as also creating quality manpower through its 4-year degree course in Carpet and Textile Technology, certificate course/Industry driven International Level Modular Courses (IDLP) and short term training programs. □

ELEMENTARY, MY DEAR WATSON

Sherlock Holmes and Dr. Watson go on a camping trip, set up their tent, and fall asleep. Some hours later, Holmes wakes his faithful friend.

"Watson, look up at the sky and tell me what you see."

Watson replies, "I see millions of stars."

"What does that tell you?"

Watson ponders for a minute. "Astronomically speaking, it tells me that there are millions of galaxies and potentially billions of planets. Astrologically, it tells me that Saturn is in Leo. Time wise, it appears to be approximately a quarter past three. Theologically, it's evident the Lord is all-powerful and we are small and insignificant. Meteorologically, it seems we will have a beautiful day tomorrow. What does it tell you?"

Holmes is silent for a moment, and then speaks. "Watson, you idiot, someone has stolen our tent."

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