

Technical Textiles- Raw materials & Technologies

5th Asian Textile Conference

Mumbai – March 17-18th, 2011

Prepared by



G H E R Z I



5th ATEXCON
Asian Textile Conference

www.atexcon.com



Confederation of Indian Textile Industry

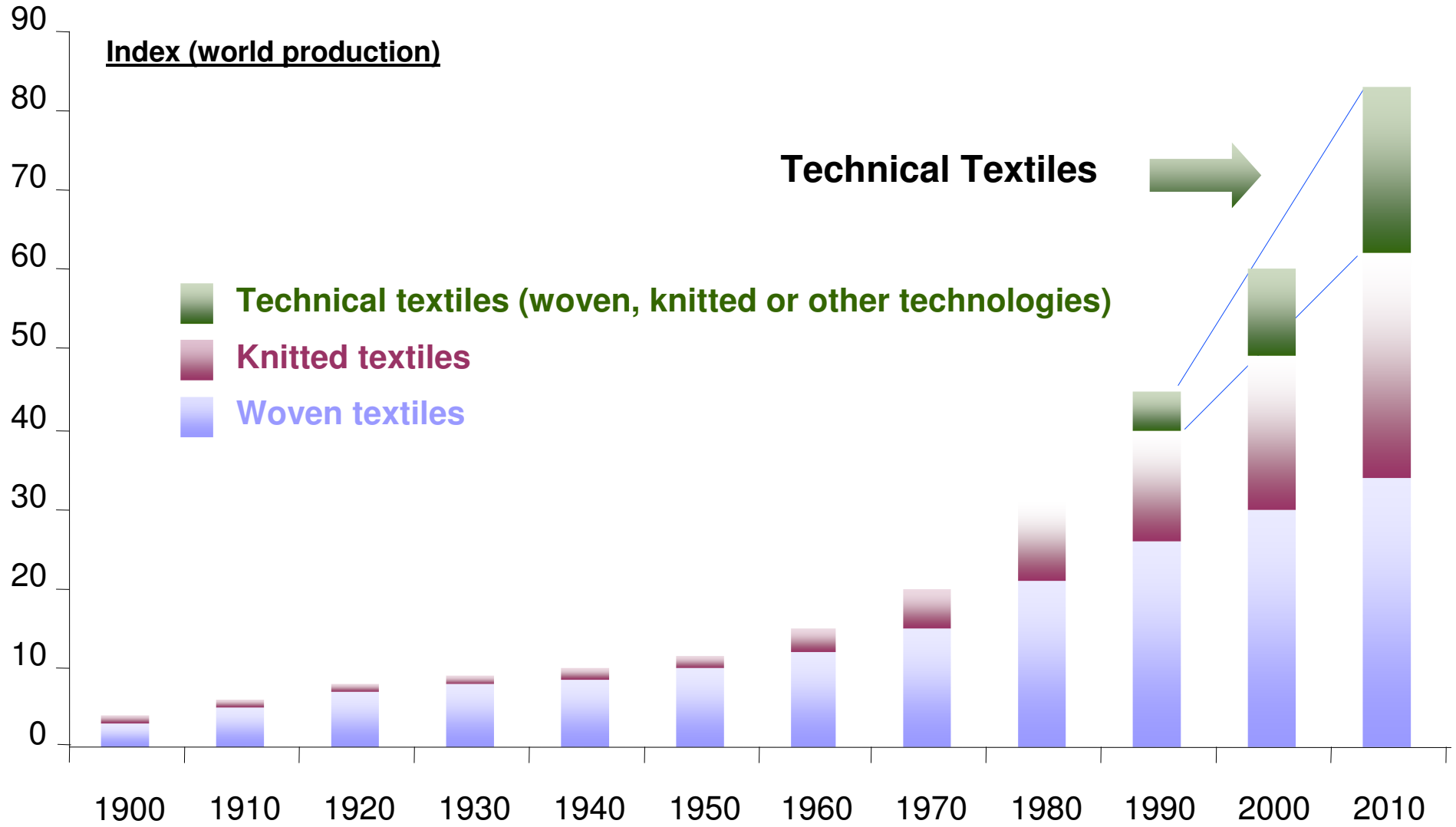
Technical Textiles trends

Raw Material aspects

High growth technologies

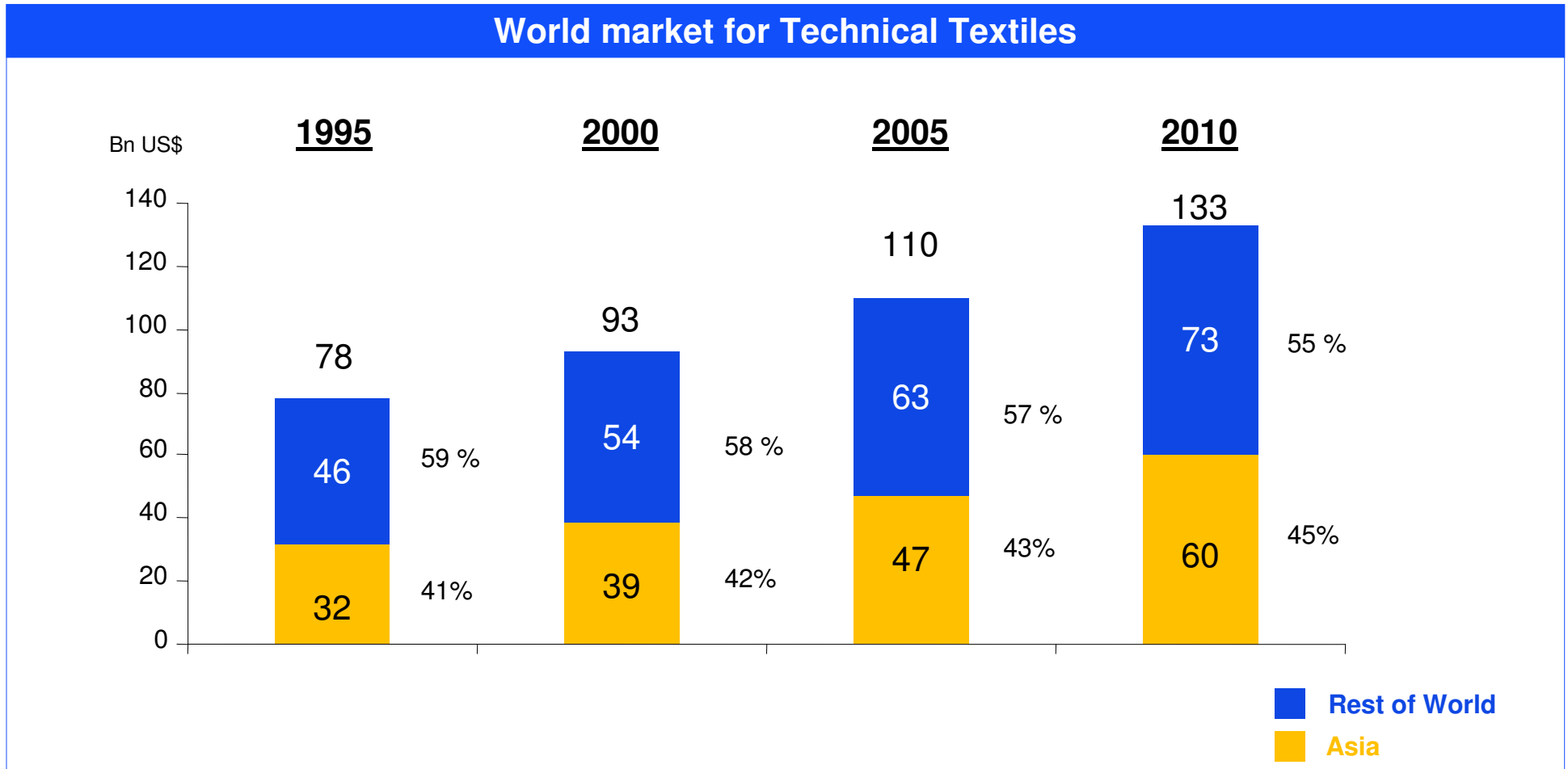
Conclusions

A significant part of future growth in world textiles is coming from Technical Textiles



Source: Gherzi estimates

World market for Technical Textiles is placed at \$ 133 billion with Asia's share increased to 45 %



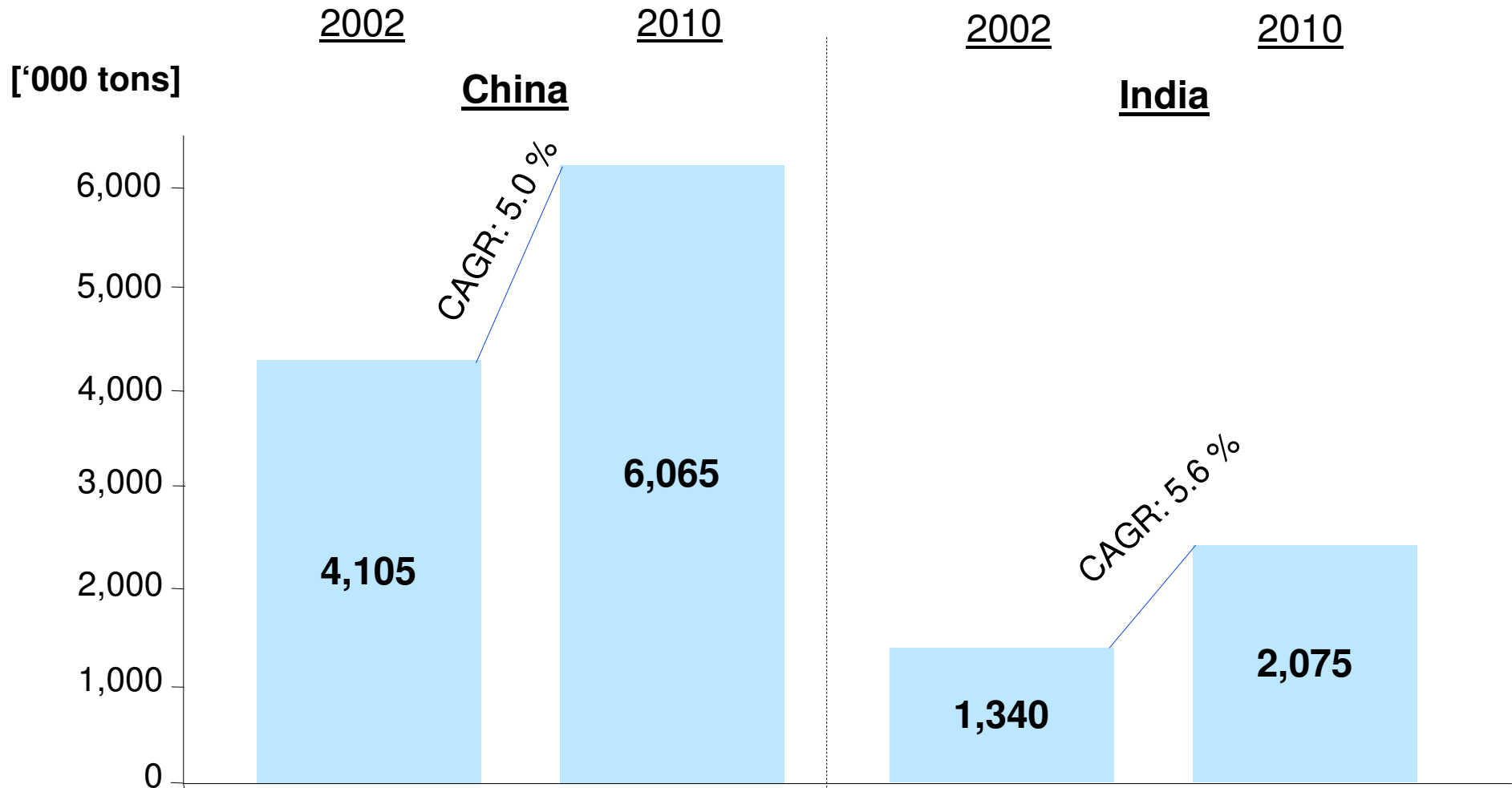
Source: DRA, Gherzi analysis and research

Major Technical Textile producing countries

Country	Technical Textile Activity
Germany	Leading TT producer and consumer in Europe Significant synergy with manufacturers of textile machinery
France	380 companies active in Technical Textiles Well-financed and well-organized industry
Japan	Innovation and power R&D centres and strategic production sites
UK	Around 200 medium sized Tech Tex manufacturing companies
Korea	Presence of research centres. Developing brands of clothing known worldwide. Increasing the share of textiles produced for technical markets (from 25 percent in 2005, to 55 percent in 2015)
USA	Comprehensive protectionist measures since 2001 Leader: automotive and industrial sectors
China	Increasingly considerably R&D targeting technical textiles
India	New government measures to support targeted growth sectors (TT and Technology Upgradation Fund Scheme)

Source: Asian Tech Textile, Univ of Bolton

China has a world TechTex market share of 26 % and India a share of 9 % (expected to rise to 11% by 2012)



Source: Technical Textiles International, Ministry of Textiles India, Gherzi analysis and estimates

Fields of Application for Industrial Textiles*



Agrotech



Indutech



Packtech



Hometech



Buildtech



Mobiltech



Protech



Clothtech



Geotech



Ecotech



Medtech



Sporttech

* The logos and trademarks are intellectual property of "Messe Frankfurt GmbH"

.... where India remains underdeveloped – in the larger value applications - especially in Agrotech, Indutech, Mobiltech and Sporttech

	<u>% of the world market</u>		<u>% of the Indian market</u>
1. Agrotech (17 segments)	6 %		1 %
2. Buildtech (21 segments)	7 %		4 %
3. Clothtech (4 segments)	7 %	➔	17 %
4. Geotech (9 segments)	1 %		0,5 %
5. Homotech (9 segments)	7 %	➔	12 %
6. Indutech (20 segments)	16 %		6 %
7. Medtech* (11 segments)	6 %		4 %
8. Mobiltech (19 segments)	24 %		8 %
9. Oekotech (9 segments)	1 %		0,2 %
10. Packtech (6 segments)	5 %	➔	36 %
11. Protech (14 segments)	5 %		3 %
12. Sporttech (9 segments)	15 %		7 %
Σ 12 end uses with 148 segments:	100 %		100 %

Source: Techtexil exhibition Frankfurt (D), DRA, Gov. of India (Expert Com. Report), Gherzi analysis * incl. Hygiene

Packtech:



4 Loop FIBC



1 or 2 Loop FIBC



Jute woven sacks



Tea Bags



Soft luggage bags



Polymer woven sacks



Leno Bags

Hometech:

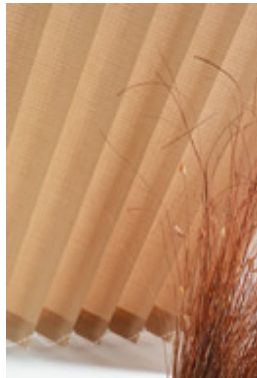
Sunshades/ sunblinds



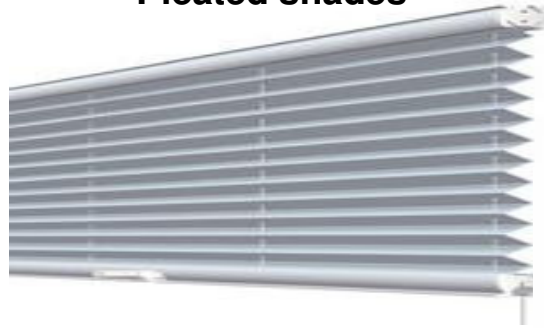
Window shades



Vertical blinds



Pleated shades



Horizontal blinds



Furniture fabrics



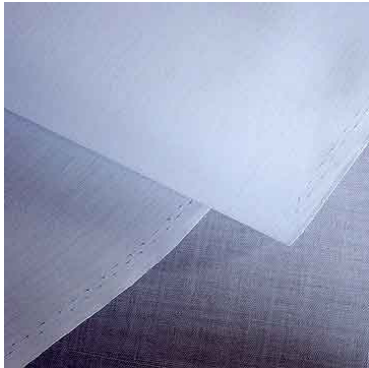
Mosquito nets

Nonwoven wipes



Clothtech:

Interlining

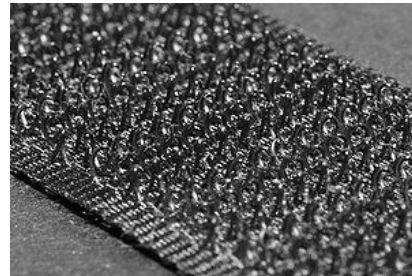


Woven Interlining



Nonwoven Interlining

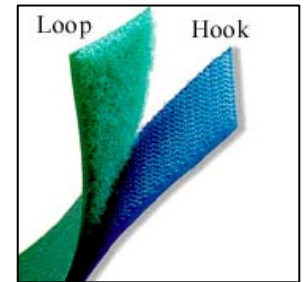
Velcro's



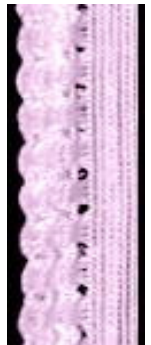
Hook



Loop



Elastic narrow fabrics (Sport's, Innerwear's, Lingerie's etc)



India – Technical Textile Market size – market size and growth (by segment, 2007/08 – 2012/13). (Includes domestic consumption and exports)

S.No.	Technical Textiles Sector	Market Size in (Rs.Mn)		CAGR %
		2007/08	2012/13 (est)	2007-08/2012-13
1	Agrotech	4870	7090	7.8
2	Buildtech	17260	26550	9.0
3	Clothtech	65700	96650	8.0
4	Geotextiles	1170	1660	7.2
5	Homotech	47910	84200	11.9
6	Indutech	24430	42550	11.7
7	Medtech	15140	22630	8.4
8	Mobiletech	31610	51370	10.2
9	Oekotech	680	1600	18.7
10	Sporttech	26320	43580	10.6
11	Packtech	140670	259130	13.0
12	Protech	12590	20210	9.9
Total / Average		388350	657220	11.10

Segments with good potential

Saturated segment

According to ASSOCHAM, the Indian market for Technical Textile could be worth USD 20 billion (Rs. 900,000 mln) by 2014-15,

Source: IMAC, Gherzi Analysis

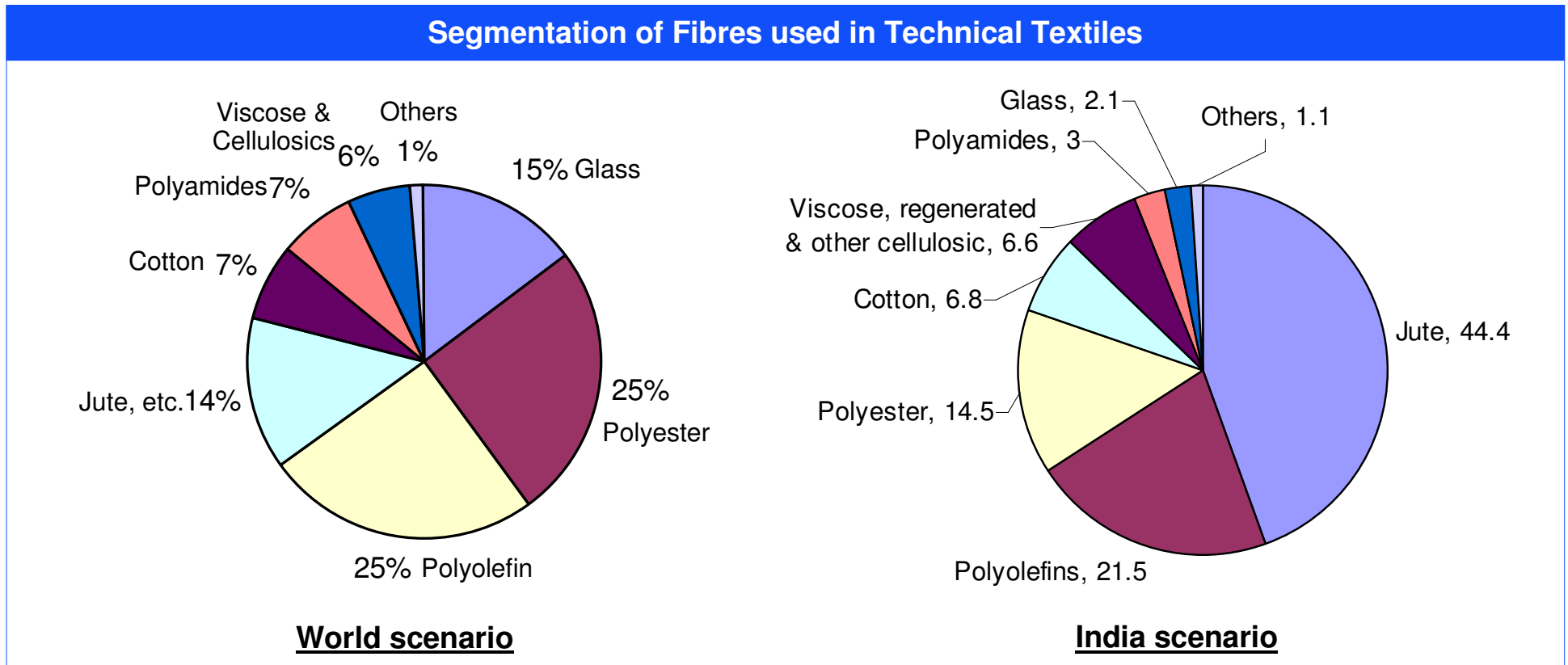
Technical Textiles trends

Raw Material aspects

High growth technologies

Conclusions

On a world scale Technical Textiles are chiefly based on glass or synthetic raw materials with cotton playing a relatively minor role



Source: DRA, Gherzi analysis, Techn Tex Market

Many (but not all) raw materials for Technical Textiles are available in India, sometimes, however, only from one supplier

Sr. No.	Product	Consumption structure in Technical Textiles		Supplied form	Available from production in India ?
		World	India		
1	Polyester	25%	15%	Text. Filament HT Filament* Staple com Staple FR	Yes Start-up (Reliance, SRF) Yes Started (Reliance)
2	Polyolefines (PP, PE)	25%	22%	Staple course den. Staple fine den. Granulate (Chips)	Yes, But small capacity (Zenith) Reliance Yes (Reliance)
3	Natural Fibre	20%	52%	Cotton, Jute,....	Yes
4	Glass	15%	2%	Staple Roving	Yes (OC) Yes (OC)
5	PA	7%	3%	HT Filament Staple	Yes (No for fine denier or 66) Yes
6	Cellulosics	6%	7%	Staple Fibre	Yes (But no viscose FR)
7	Aramides, PPS	1.9%	0.2%	Staple and filament	No
8	Carbon	0.1%	<0.1%	Roving / Tape	Yes, but small quantity (Kemrock)

* if quality is sufficient for international markets remains to be proven

Raw material aspects

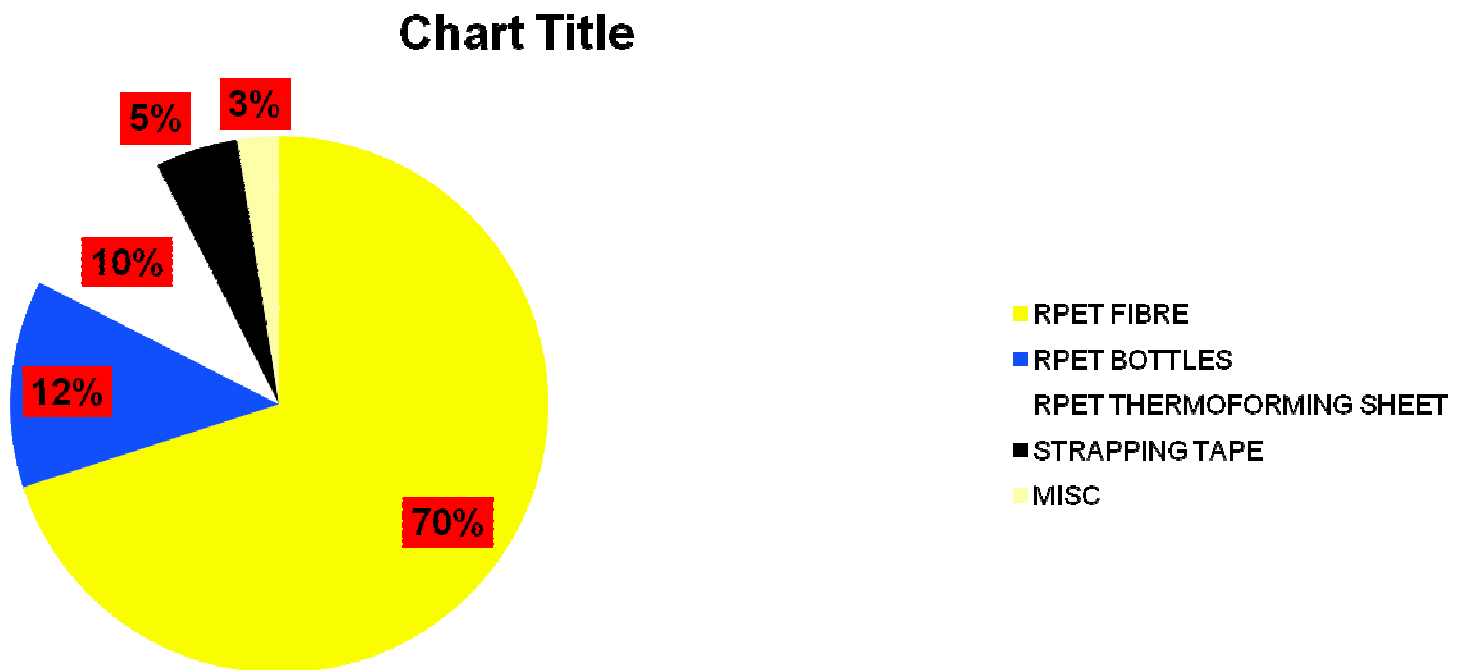
- ❑ Cotton based products would include
 - Products from bleached cotton wool (hygiene, medical)
 - Wound dressing (gauze)
 - Workwear (also in blends with PES) VAT dyed
 - FR treated cotton (Proban, Pyrovatex) for Protech and contract hometextiles (institutional segment)
 - Fabrics for multiple rubber goods (belts,...) and abrasive cloth

- ❑ PES staple would be used in a large number of products
 - Sunshading and blinds
 - Awnings
 - Workwear
 - Contract hometextiles and bed- / mattress covers / covers (FR PES)
 - Automotive (non woven for car interiors and insulation)
 - Sports apparel and outdoor (then also coated / laminated)

Global trends – Recycled PET

- Approx. 4.9 million tons of bottles were collected world wide (about 98 bill bottles at 50 gms each) in 2008, giving 4.0 million tons of flake which is then segmented into:

Products from rPET bottle – 2008)



Source: Gherzi primary research, PCI PETCORE

India scenario : RPET - Flake consumption

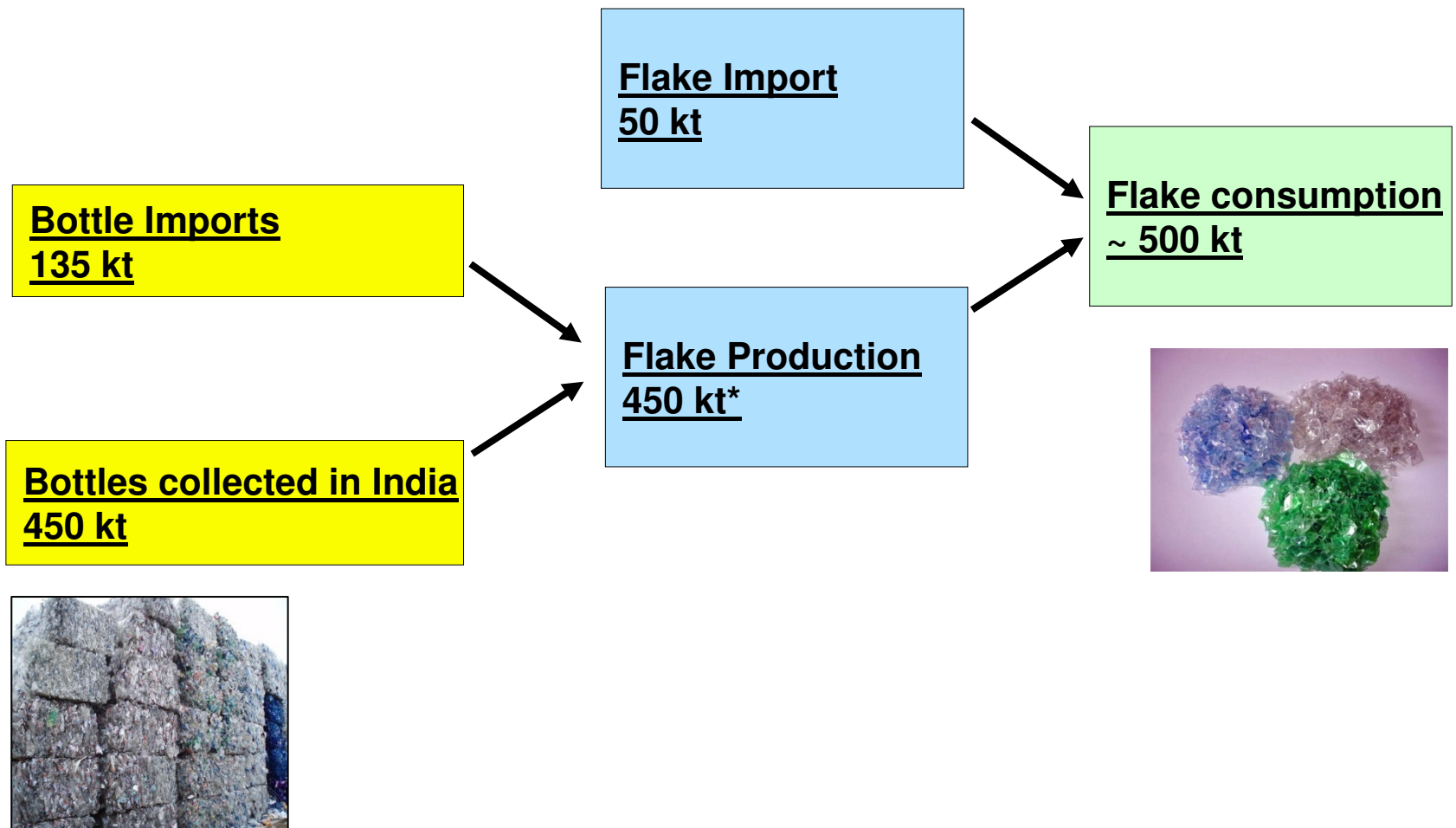
Products	2010 (Vol. in Kt)	2015 Fc (Vol. in Kt)	CAGR % (2010 -2015)
Fibres	190*	270	7.5
Strappings	~ 50	80	10*
Baler twines	n.a (mainly PP)	-	-
Chips for bottle to bottle	100	200	15 %
Plastic Industry	~ 180	255	10%
Total	500 Kt	805 Kt	10%**

* 240 Kt fibre capacity X 0.95 Utilisation X 0.8 r PET vs. virgin PET ratio X 1.03 flake to fibre ratio

** Conservative Gherzi assumption

Source: Gherzi primary research, Ganesh polytex

PET Flake scenario – India (2009/2010)



* 1,3 kg of bottles = 1,0 kg of flakes

Source: Gherzi research and estimates

Technical Textiles trends

Raw Material aspects

High growth technologies

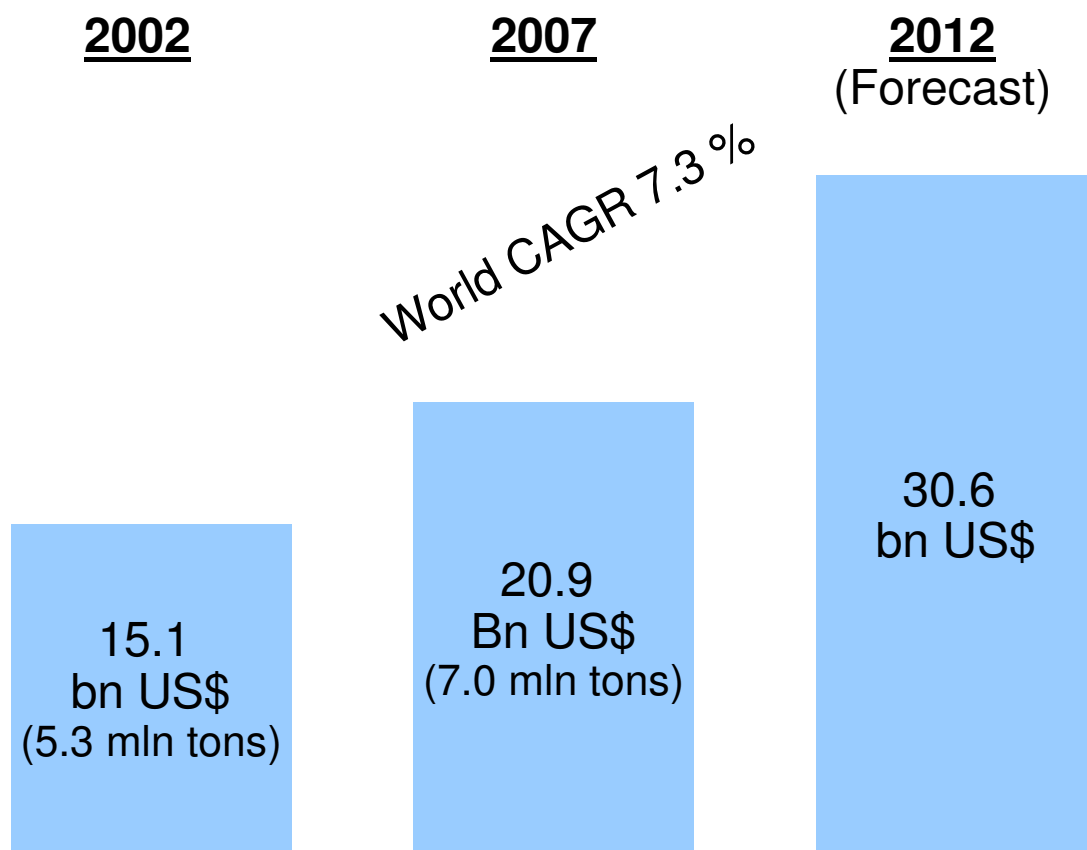
Conclusions

Nonwovens

Composite reinforcement

Nonwovens show the highest growth rate of all Technical Textile technologies

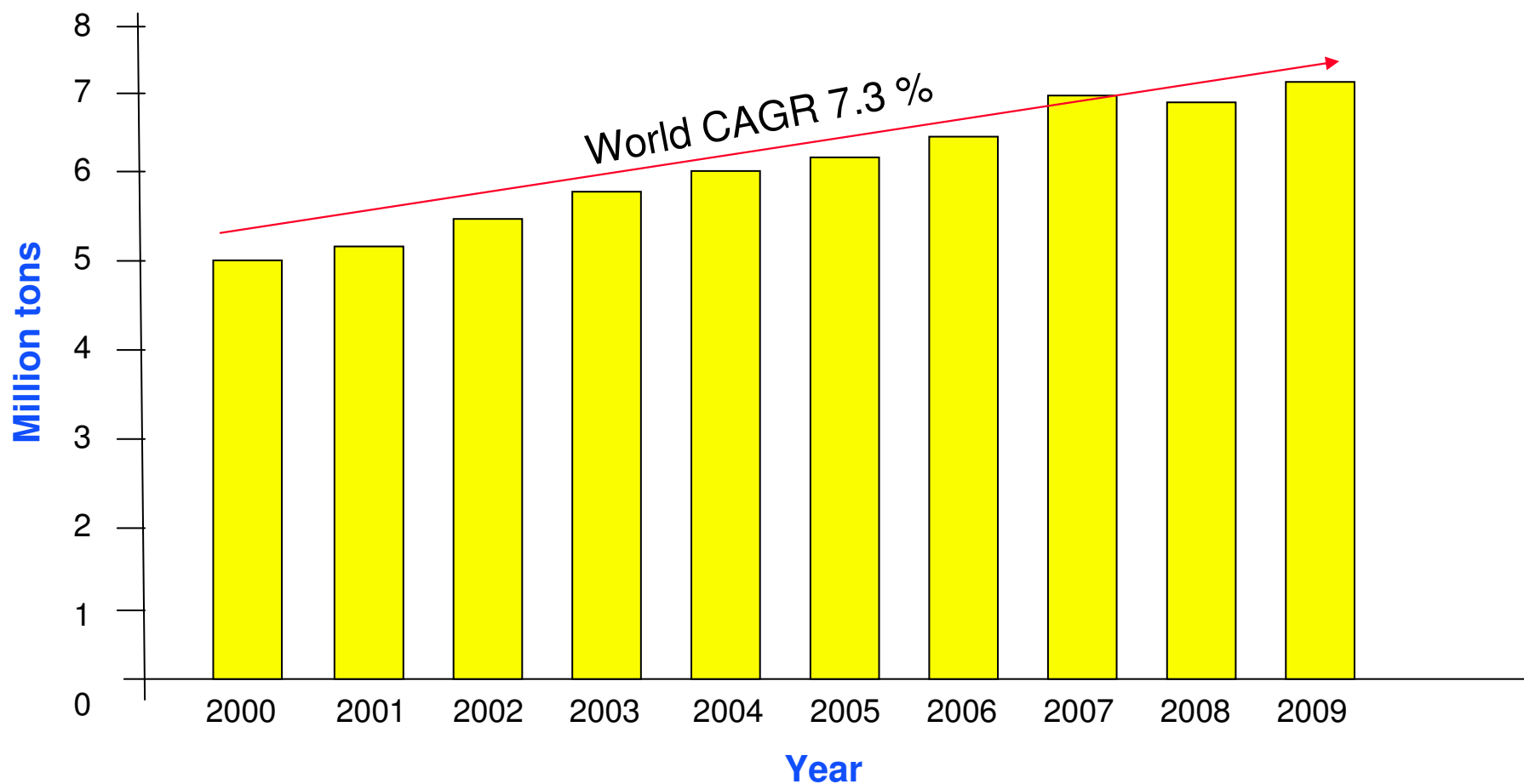
Worldwide Nonwoven production from 2002 to 2012 (Fc.)



Source: INDA, EDANA estimates

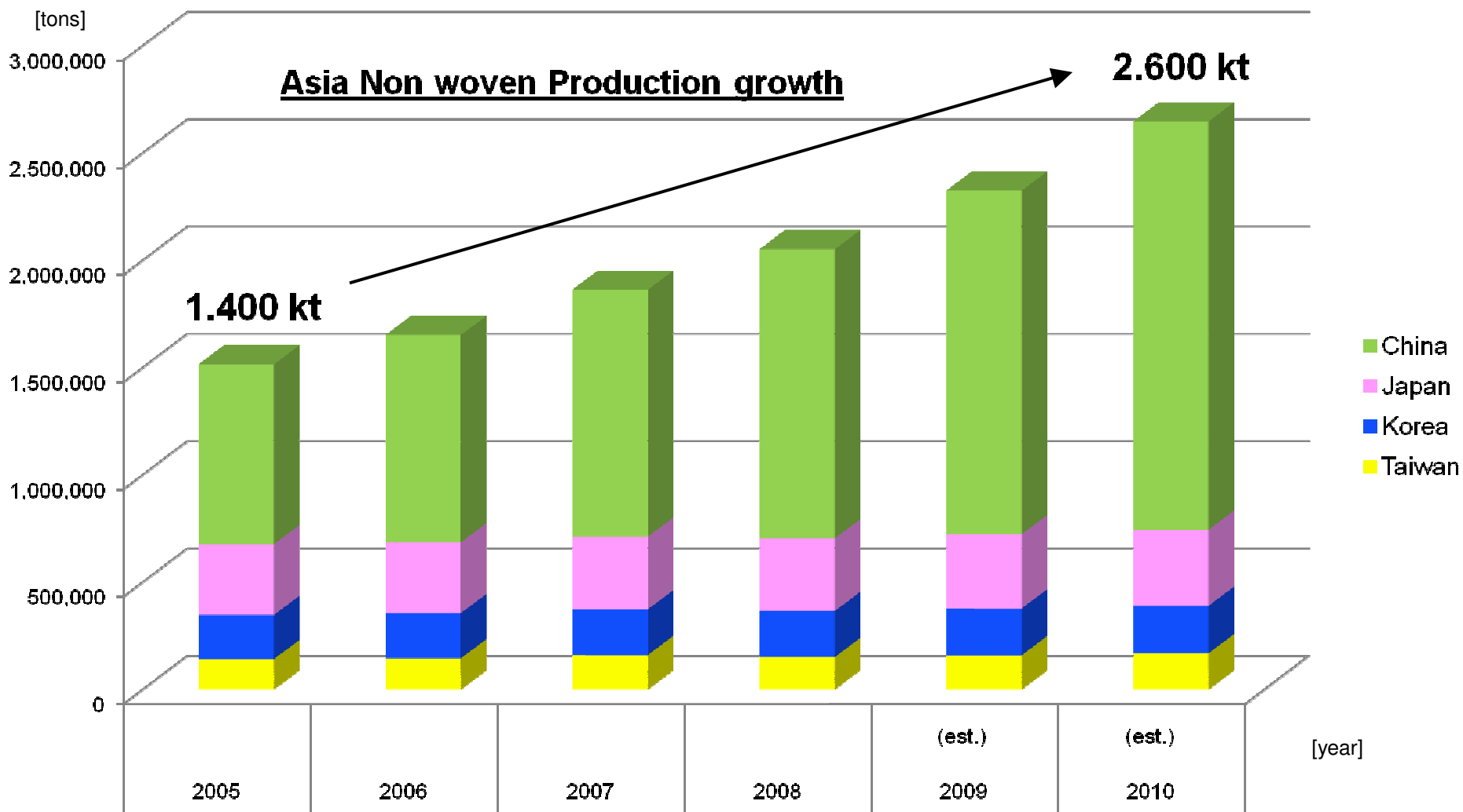
Nonwovens show the highest growth rate of all Technical Textile technologies....

Worldwide Nonwoven production from 2000 to 2009



Source: Oerlikon, Fibre Year 2009/10


Nonwoven production is rapidly growing in other Asian countries – especially in China



Source: ANNA, KNIC, TNFIA, CNTA, Gherzi estimates

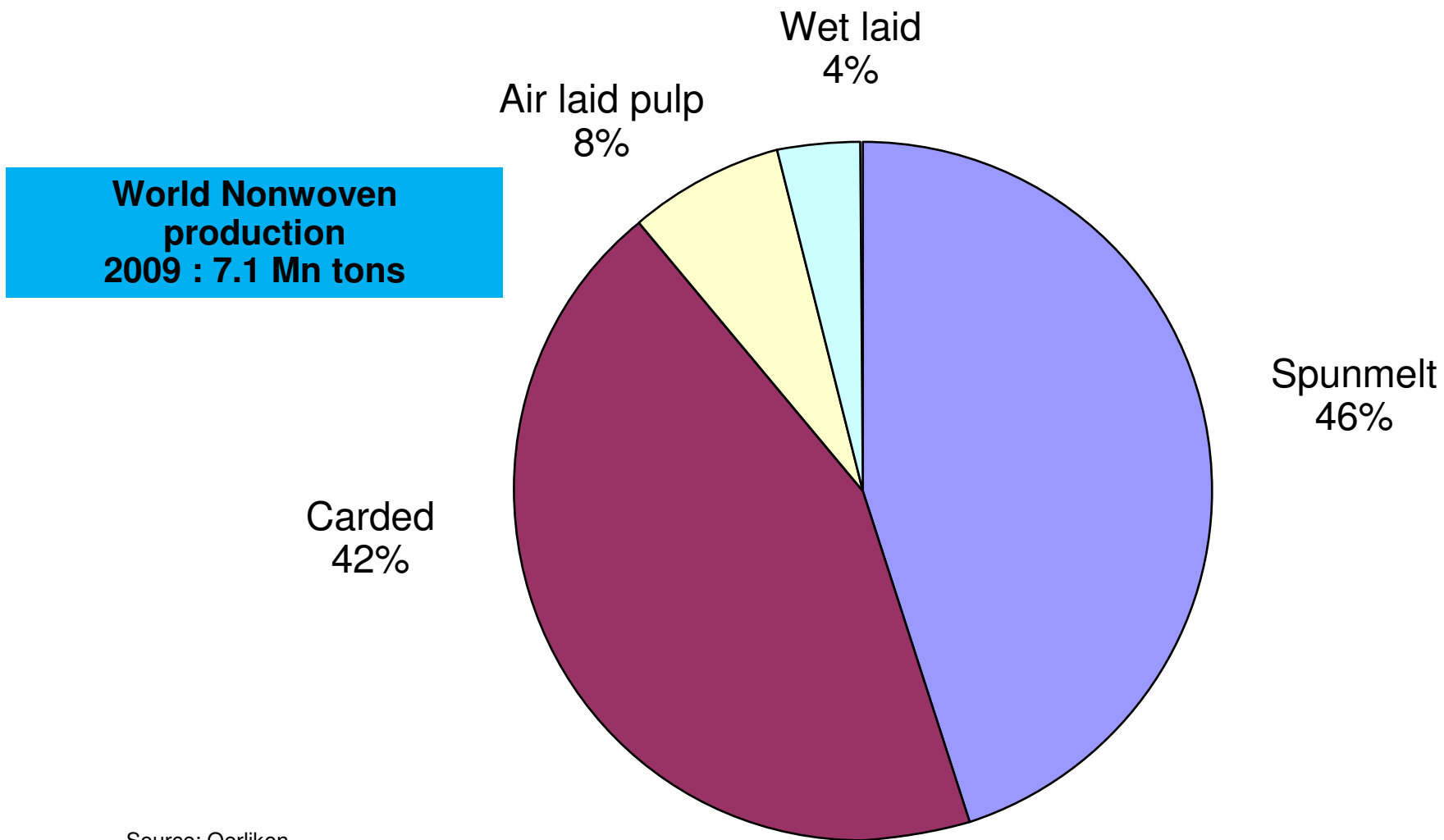
Nonwovens are still underdeveloped in India

	Structure of technical textiles	
	% World	% India
Nonwovens ex polymer (spunbond) or staple fibres (drylaid)	24 %	12 %
Yarn type products (sewing threads, ropes and twines)	9 %	88 %
Fabric type products (wovens, knitted warp knitted)	67 %	
	100 %	100 %



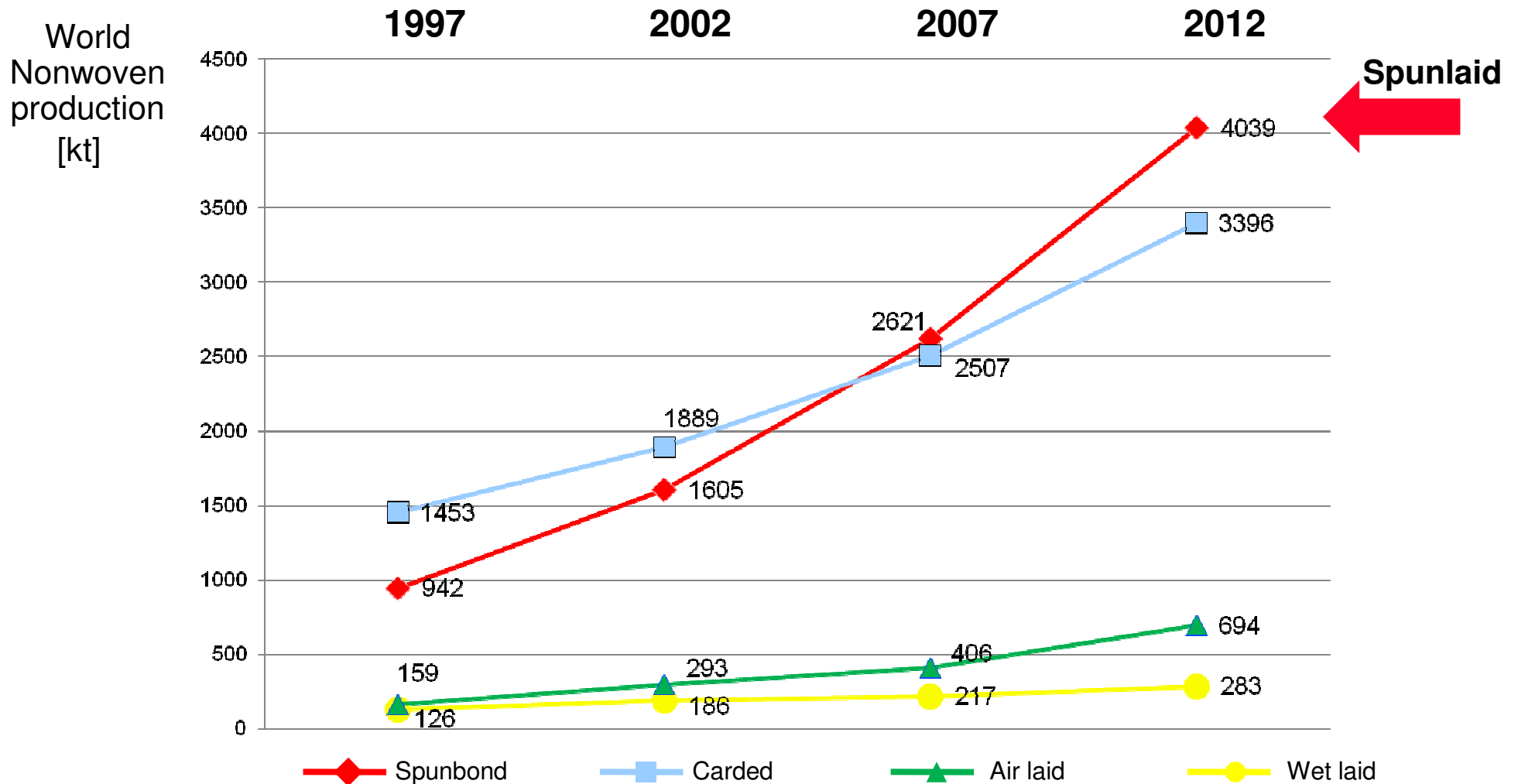
Source: DRA, Gherzi analysis, EDANA

In 2009 the carded and Spunmelt route had a similar share of world Nonwoven production



Source: Oerlikon

... where Spunmelt is, however, the fastest growing Nonwoven technology



Source: INDA estimates

Examples - Products of Spunmelt

Products by application

Hygiene



Source: Pegas

Medial & Health sector



Agriculture



Furniture & building sector



Filtration & towels



Examples of high growth technologies

Nonwovens

Composite reinforcement

Definitions – Composite Reinforcements

- ❑ Composites are mainly produced by resin (plastic) impregnation of – sometimes pre-impregnated ('prepreg') – fibre structures
- ❑ The fibres give strength to the composite structure without adding undue weight
- ❑ Composites can be segmented into:
 - 'low performance' (using chopped glass or glass mats as reinforcement) and
 - 'high performance' (using fabrics of glass, polyester, Aramid or carbon as reinforcement)
- ❑ The total production of composites was about 75,000 tons in 2004-2005, and it has risen to 140,000 tons in 2007-2008. (8.6 million tonnes – world consumption in 2008).
- ❑ Global estimates in 2013 would be 10 million tons with 3% India's share ie 300,000 Tons.
- ❑ Major glass fabric (Multiaxial + Biaxial) producing companies in India
 - 1 Saertex
 - 2 Kemrock
 - 3 Kush (suzlon)
 - 4 Owens Corning

Source: Technical Textile Markets

Examples -Products of Composite reinforcement

Composite reinforcement products

CRP



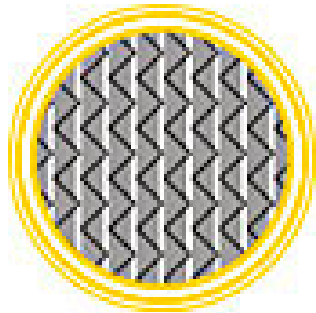
Wind mill blade



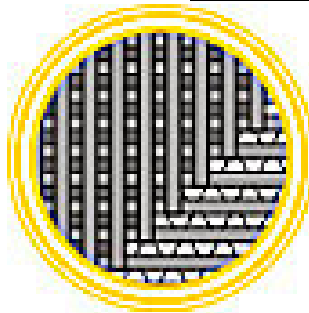
GRP



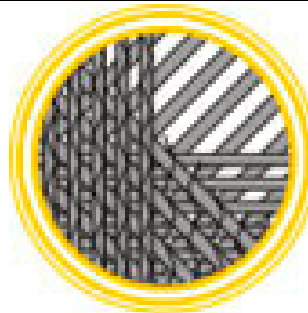
Construction of Saertex fabrics



unidirectional



biaxial



multiaxial



stitched mats



stitched bonded, glued
or needled sandwich

Source: Saertex

High performance composite reinforcements: Many suitable applications in India

Wind energy



Marine



Chemical industry Exploration



Mobiletech



Technical Textiles trends

Raw Material aspects

High growth technologies

Conclusions

Conclusions

- ❑ Technical Textiles will continue to grow worldwide – especially in the emerging markets
- ❑ Asia will become a major global player in Technical Textiles due to the high growth rates of local markets and increasing installation of local state-of-the-art production capacity
- ❑ India is in an emerging state. Many TechTex applications are underdeveloped compared to the world average
- ❑ Unlike conventional textiles, which is highly export intensive, the technical textile industry is import intensive. As per ASSOCHAM, India imports around Rs. 4,000 crores of products mainly from China, Malaysia annually
- ❑ Natural fibres (cotton, jute) still account for over 50% raw materials consumed in TechTex produced in India; potential to diversify exists
- ❑ There is a further potential to increase PET recycling in India
- ❑ Textile reinforcement of high performance composites (with glass fibres / roving or with carbon fibres / tapes) is becoming more and more important in respect to reducing weights compared to steel or aluminium (such as in airplanes, trains and cars, machine parts, etc.) or stemming from demand from new sectors like wind energy

Conclusions (continued)

- ❑ New manufacturing technologies show above average growth rates (and often there is not enough modern capacity for the growing demand):
 - Nonwovens
 - Lamination
 - Multiaxial technology
 - Wide width fabrics (beyond 3,5 m)

- ❑ Climate changes leading to floods, hurricanes, etc. as well as the modernisation of infrastructure favours the worldwide use of geotextiles

- ❑ The need to protect the environment continues to foster the growth of the filtration business

- ❑ Function is becoming increasingly important also in garmenting as shown by the high growth rates of the outdoor segment and increasing use of professional workwear and protective wear