



# **World Cotton Demand in the Future: Issues on Competitiveness**

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## Introduction

The global financial crisis that began in 1997 caused world economic growth to decelerate from above 4% in 1997 to 2.5% in 1998 and 3% in 1999. The crisis interrupted a four-year period of rapid expansion of world end-use consumption of textiles. With cotton prices at higher levels than prices of polyester, the major textile fiber that competes with cotton, cotton lost 1 percentage point of the textile market during this two-year period and is estimated to now represent 41.9% of the world market. As a result of the loss of both price and nonprice competitiveness, cotton lost 7 percentage points of the world textile market between 1990 and 1999. Current projections of fiber prices, and current cotton competitiveness suggest that, on a worldwide basis, cotton's market share will reach 40% in 2005. During the 1990s, cotton lost market share in both industrial and developing countries, as well as in Eastern Europe and the former USSR. Within industrial countries, however, cotton gained market share in North America and in the Japan, Australia and New Zealand group. Only in North America is cotton expected to continue to gain market share over the next five years. Despite the expected loss of market share, world end-use cotton consumption is expected to increase from 19.2 million tons in 1999 to 20.5 million tons in 2005. World textile fiber consumption is expected to reach 51 million tons in 2005.

## The Textile and Cotton Markets

World textile demand closely followed economic performance during the 1990s. The textile market entered the 1990s with a recession reflecting a deceleration of world GDP and the disintegration of the USSR. As a result, world textile fiber consumption declined by 1% in 1990. World GDP decelerated further in 1991, but in 1992 the world economy initiated an uninterrupted 5-year period of rapid expansion that was to end in 1997 with the global financial crisis. Following the overall economy, world textile fiber consumption increased by 6.2 million tons between 1993 and 1997, the fastest and longest period of growth in almost two decades.

Textile fiber consumption was sluggish in 1998 and 1999 as a result of lower economic growth. Current estimates suggest that world textile fiber consumption increased by 0.5% per year in 1998 and 1999. Current income and price projections suggest that world textile fiber consumption at the end-use level will expand by 1.1% in 2000. Consumption of end-use textile products is expected to increase in industrial and developing countries. Increases are also expected in the Eastern Europe and former USSR group of countries.

In 1999, the world economy entered the path to recovery from the financial crisis of 1997-98, and most emerging economies in crisis are now improving. With the exception of Indonesia, the other countries in Asia at the center of the crisis are expected to register positive GDP growth in 2000. The economic recessions ignited by the financial crisis in East Asia, Russia and South America are now in the past and new economic growth is expected in 2000. In addition, the Japanese economy gained unexpected strength during the first half of 1999, although slowed down again during the second half. Nonetheless, the Japanese economy is likely to register positive growth in

2000. As a result, world GDP is now expected to grow 3.5% in 2000, a full percentage point more than in 1998.

In 1998, world GDP growth decelerated rapidly from 4.2% during the previous year to 2.5%, the lowest growth in five years. The slowdown in world GDP was the result of financial turbulence in Asia, South America and Russia, compounded by a deep economic recession in Japan, the first in 24 years. Continued economic growth in the other industrial countries prevented the world economy from declining in 1998.

In 1999, cotton consumption slowly recovered from a contraction in 1998 and is estimated to have increase by 0.5%. A similar rate of growth is estimated for consumption of non-cotton fibers, which registered very rapid increases in 1996 and 1997. As a result, cotton's share of the world textile market is estimated to have remained at 42% in 1999.

World cotton consumption did not keep the pace of growth of the overall textile market during the 1990s. While the textile market expanded by 8 million tons between 1990 and 1999, cotton consumption merely gained 500,000 tons during the same period. An assortment of factors have been at work that can explain the difference in performance. First, 95% of the increase during the 1990s has been captured by noncellulosic fibers, essentially polyester. This increase has mainly been the result of the creation of new markets (plastic containers and film) that matured rapidly during the decade. Second, the inroads of chemical fibers into the apparel market, a segment of the market in which cotton is still the fiber of choice, have only been met by a decline in the promotion of cotton in major markets. And third, the price of cotton vis-à-vis the price of other fibers reversed the declining trend established during the previous two decades.

#### Issues on Competitiveness

“What does the consumer want?” is an eternal and tormenting question. Nearly 2500 years ago Heraclitus, the Greek philosopher, said that nothing is lasting except change. The validity of this contention is strikingly proved by fashion in general and by the textile market in particular. The consumer, particularly the medium and high income one, is virtually insatiable and, at first glance, unpredictable. Whatever product characteristics pleased the consumer yesterday, might be indifferent to the consumer today and, perhaps, even repulsive tomorrow.

In such changing environment, products compete with each other for a piece of the disposable money of consumers. This competition takes place on several fronts. Prices are an important component of competition. A product is more competitive if it is sold at a lower price by means of higher productivity, lower labor costs, or, in international markets, by means of movements of exchange rates. Nonetheless, being competitive includes not only the ability to offer a product at a lower price but also to provide a quality product and the technology necessary to expand existing markets or even create new ones.

Accordingly, competitiveness can be broken into three main components: Price, quality and diversity of uses. While the impact of prices and diversity of uses can objectively affect consumption, the impact of quality can have objective and subjective elements.

The consumption of textile fibers takes place at three main levels. A first level of consumption is the consumption of raw fiber by mills; a second level is the consumption of semiprocessed fiber in the form of yarns and fabrics by textile manufacturers; the final consumer then consumes a finished end-use product in a third level. On a world basis, it makes no difference if the market share of a fiber is measured at the mill consumption level or at the end-use level given that the world is an autarkic entity. However, on a regional or country basis, the market share of a fiber at the mill consumption level measures only the level of specialization of the industry in a fiber since it does not take into account trade in textiles. Nonetheless, regardless of where the two intermediate levels of consumption take place, they are ultimately dependent upon consumption of end-use products where the forces of competition are finally realized.

Intuitively, a first element of competitiveness that can be detected is that of price. Given the same quality, a product of a specific fiber that commands a lower price at the retail level will be more competitive than a higher-priced product made of another fiber.

An argument often advanced is that because the price of the final textile product is several times higher than the price of the fiber content of the product, cotton or polyester or any other fiber cannot have a price competitive edge and, therefore, price competitiveness is nonexistent at the level of a fiber's market share. If valid, this argument would pose a practical limitation to the econometric specification of textile consumption and to the determination of market shares.

Price indices for textiles at the end-use level are only available in a few countries and there is no country that calculates price indices for textiles by fiber. In fact, due to this limitation most of the research on end-use textile consumption, while recognizing the need of price variables, has been done excluding price effects. Selecting a price variable that is representative of the textile market at the end-use level is a very difficult task, particularly on a world basis, because, as mentioned, only a few countries calculate such indices. By making use of a relaxed version of the mark-up theory of prices, research by the Secretariat of the ICAC determined that a consumption-weighted fiber price index could trace back to fiber prices an important part of price movements at the end-use level. Specifically, it was found that movements of fiber prices could explain 60% of changes in prices at the retail level. The price of a final textile product depends on the cost of production at the various stages where value is added to the fiber. These costs of production vary according to price conditions in the different input markets and the levels of profitability of the textile industry at each stage of production. The mark-up theory of prices proposes that a producer decides the price of a produced good by marking up by a percentage the price of the inputs. Given that fiber prices are the most volatile input prices, the set of ICAC Fiber Price Indexes represents a good proxy of the movement of prices of textiles at the end-use level.

Price competitiveness can be measured by comparing the impact of changes in the relative price of cotton on cotton consumption in the cotton equation of the ICAC Textile Demand model. The model suggests that on a world basis, a 20% increase in relative cotton prices can decrease cotton consumption by 1%.

Additional elements of competitiveness other than price would have to relate to quality and diversity of uses. Competitiveness related to diversity of uses can be historically contrasted. New cotton knitting technology in the 1980s permitted the incursion of cotton into the knitted products segment of the textile market. Until 1990, before the unification of Germany, cotton was used in the eastern part of the country as a raw material in the production of body parts for automobiles. Similarly, the use of polyester resin in the production of plastic containers, which took a 6% share of the polyester market in 1985, represented over 15% of that market by the mid-1990s. Competitiveness related to quality is more difficult to contrast given the subjective elements of quality.

Quality has to do with the tastes of consumers which, as suggested above, work at different levels of substitution. Traditional economic theory proposes that tastes cause only marginal changes in consumption and, therefore, can be considered as given. Research efforts since the 1970s on demand creation and transformational growth attempt to explain the part of consumer demand not explained by income and prices in terms of demand management by producers. According to these theories, producers spend on advertisement and invest in capturing the imagination of consumers through fashion design and the entertainment industry. With promotion, producers are able to shape the direction of demand by supplying specific information to consumers about products in the market.

Another aspect of competitiveness that might influence the subjective element of quality is that of availability due to institutional elements defining the structure of a market. Research by V. Aggarwal associates part of the decline of cotton's market share with the implementation of long

term agreements (LTA) in the early 1960s in industrial countries, which forced textile importers to advertise chemical fibers not restricted by the agreements. Similarly, with the implementation of the multifiber arrangements (MFA) in the early 1970s, which covered both cotton and chemical fibers, chemical fibers started losing ground and cotton started to regain market share.

Nonprice competitiveness data associated with the elements described above and suitable for econometric analysis are not available. However, the combined effect of all the elements of nonprice competitiveness can be measured indirectly by comparing the changes of the income elasticity of cotton and noncotton textile fibers. These elasticities as determined by the ICAC Textile Demand Model suggest that in 1998, on a world basis, nonprice competitiveness of noncotton fibers was three times that of cotton. As suggested by these elasticities, for every dollar spent on textiles a typical consumer would spend 23 cents on cotton products as opposed to 77 on other fibers.

#### Price and Nonprice Competitiveness of Cotton.

Cotton gained price competitiveness during the late 1970s and the early 1980s, a period when the market share of cotton increased from 47% to 50%. The index of relative cotton prices declined by 49% between 1976 and 1988. However, cotton's price competitiveness did not perform as well during the 1990s. Between 1988 and 1994 the index of relative cotton prices fluctuated between 60 and 80, and the market share of cotton declined from 48.7% to 45.6%. During the second half of the 1990s, the index of relative cotton prices fluctuated between 77 and 84 and cotton lost another 3.7 percentage points of market share capturing 41.9% of the world's textile fiber market in 1999.

The gains and losses of cotton's market share can also be correlated to nonprice competitiveness. In 1988, when the market share of cotton was 48.7%, nonprice competitiveness of noncotton fibers was 38% less than that of cotton. That year, the average world consumer of textile fibers spent 62 cents on cotton products out of every additional dollar spent on textile products. Nonprice competitiveness of cotton fibers declined steadily during the 1990s. By 1998, the same average world consumer spent just 23 cents on cotton products per additional dollar spent on textile products.

While relatively high cotton prices between 1994 and 1997 may have affected end-use consumption of cotton throughout the world, strong nonprice competitiveness of cotton by region in North America limited the loss of market share.

This is particularly the case of North America where nonprice competitiveness of cotton is the strongest and cotton gained 11% of the textile market between 1985 and 1999. By contrast, in Western Europe the market share of cotton increased from 37% in 1985 to 41% in 1990, but declined very rapidly to 35% in 1999. In the Japan, Australia and New Zealand group, the market share of cotton increased from 42.8% in 1985 to 46% in 1991, but declined to 43% in 1999. Cotton's market share increased from 37.5% in 1985 to 42% in 1999 in industrial countries. The market share of cotton declined in developing countries from 59% in 1985 to 42% in 1999.

In Eastern Europe and the former USSR the market share of cotton was maintained around 47% between 1985 and 1990. However, with the political and economic disintegration of the Soviet Union in 1991, production in the chemical fiber industry in the region declined at a faster rate than production in the cotton fiber industry. With relative low levels of trade, the market share of cotton increased to 49% in 1992. However, the process of disintegration left independent cotton processing and cotton producing republics, and cotton in republics like Russia, which processed most of the cotton of the former USSR, had to be imported. The chemical fiber industry started recovering at a faster pace in 1993 and, as a result, the market share of cotton fell to 39% in 1995 and slowly recovered to 43% in 1999.

Cotton promotion programs might explain the strength of cotton's nonprice competitiveness by region. With the exception of those in the United States, cotton promotion programs have been greatly reduced or discontinued in industrial and developing countries since 1990. In the United States, the cotton promotion and research activities of Cotton Incorporated increased from \$18.5 million dollars in 1986 to \$26.5 million in 1990, \$47.4 million in 1994 and \$63 million in 1998.

### The Next Five Years

Given the current state of cotton's competitiveness and assuming that the relative price of cotton will maintain the trend observed during the 1990s, the world's market share of cotton will likely fluctuate between 40% and 42% in the next ten years. Projected losses of market share in developing countries, from 58% in 1990 to 37% in 2005, would only be partially offset by small gains in industrial countries from 41.8% in 1990 to 42.2% in 2005. The market share of cotton in Eastern Europe and the former Soviet Union will likely recover in 2005 to reach the 1990 level of 47%.

Current projections of fiber prices, income and population suggest that world end-use textile fiber consumption can reach 51 million tons in 2005. Projections of the market share of cotton combined with projections of textile fiber consumption suggest that end-use consumption of cotton could be 20.4 million tons in 2005.

Further deterioration of cotton's competitiveness will, of course, result in less consumption than currently projected. In a like manner, actions to strengthen cotton's competitiveness will likely result in higher than expected consumption.

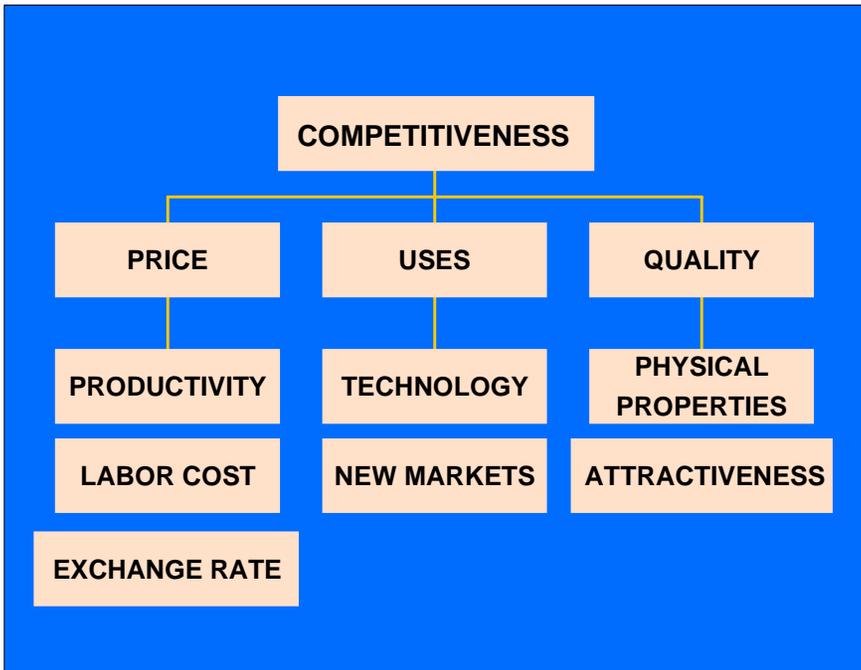
On the price front, which is just one factor affecting cotton's competitiveness, we have recently witnessed a rapid increase of oil prices which is likely to affect for some time polyester prices. However, the factors behind higher productivity of cotton production, which ultimately determines the relative price of cotton, are still to be realized. The member governments of ICAC passed a resolution in 1997 offering guidelines on ways to reduce the cost of cotton production as well as other elements affecting cotton's market share.

On the market development front, can the textile machinery sector deliver technological advancements within the next five years that resemble the advances during the early 1980s and allow cotton to conquer new markets? That is another question that does not have an indelible answer.

On promotion, a necessary although not a sufficient condition for increased cotton demand, member governments of the ICAC have recently noted the need for national cotton organizations to promote cotton in the domestic markets. There is evidence that promotion matters and cotton would benefit as it did during the 1980s if the consumer in major markets is appropriately informed of the attributes of cotton.

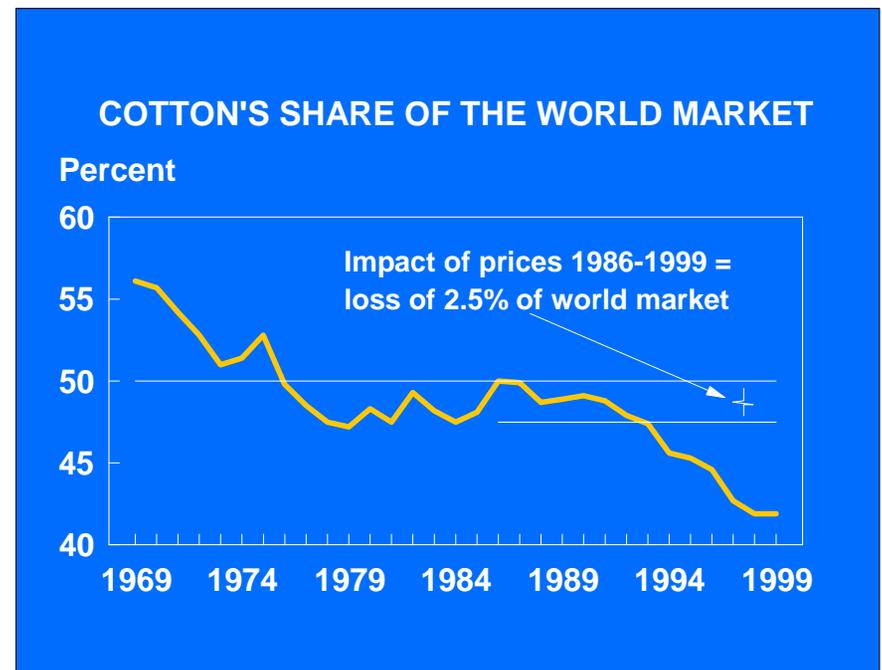
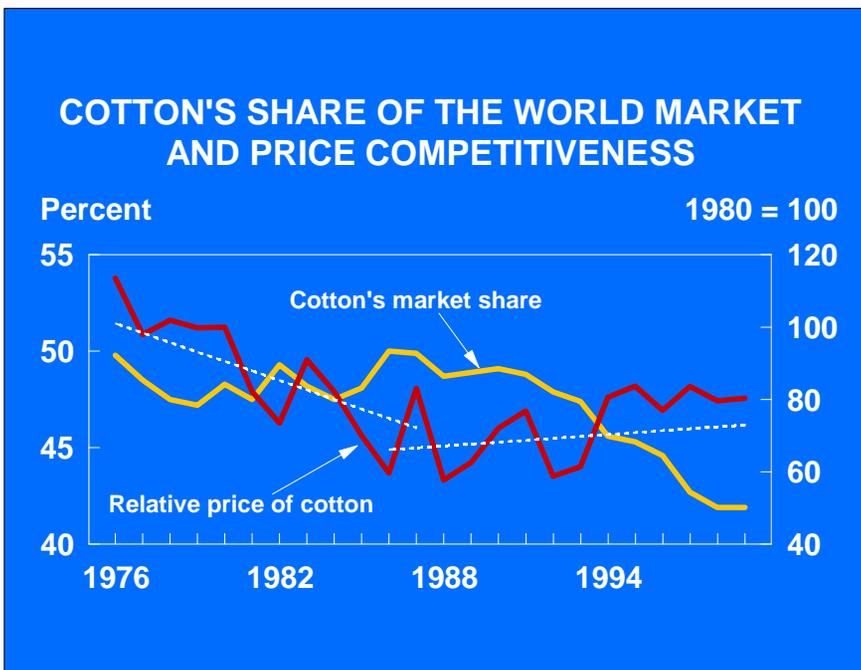
The globalizing economy has led to changes in consumer behavior. Lifestyles are less formal and untailored; consumers have an increased environmental and safety awareness. The world cotton industry, as any successful industry, shall respond to such challenges and meet new demands by consumers by bringing new technologies in production and processing of cotton at a more rapid pace.

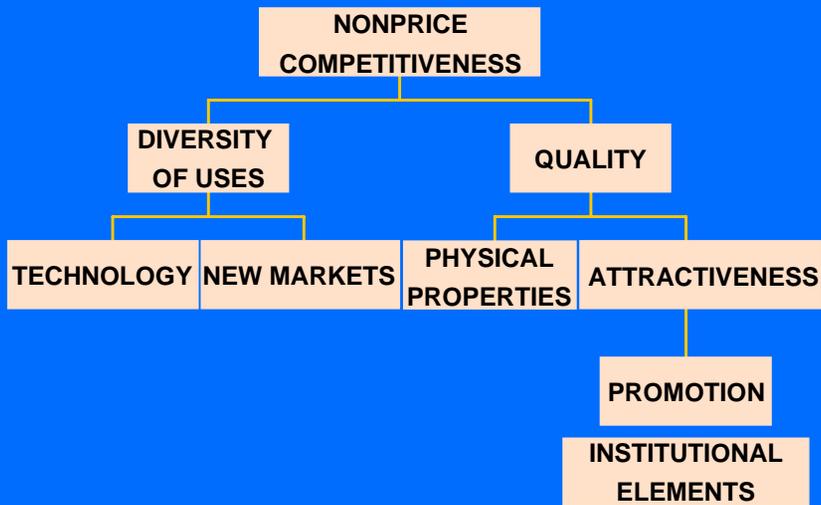
Note: Detailed Statistics presented in this paper can be found in *World Textile Demand*, ICAC October 1999 and *The World Cotton Market: Projections to 2005*, ICAC/FAO September 1999. These publications are available for sale at <http://www.icac.org> or by E-mail: [publications@icac.org](mailto:publications@icac.org).



**LEVELS OF CONSUMPTION**

- CONSUMPTION OF RAW COTTON BY MILLS
- CONSUMPTION OF YARNS AND FABRICS
- CONSUMPTION OF FINAL PRODUCTS

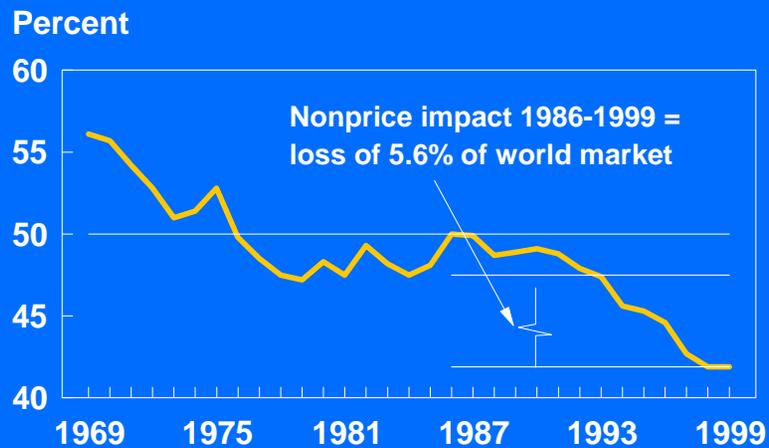




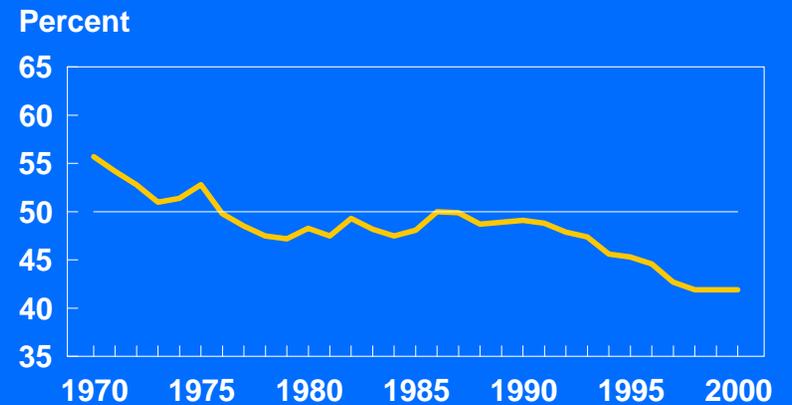
## COTTON'S SHARE OF THE WORLD MARKET AND NONPRICE COMPETITIVENESS



## COTTON'S SHARE OF THE WORLD MARKET

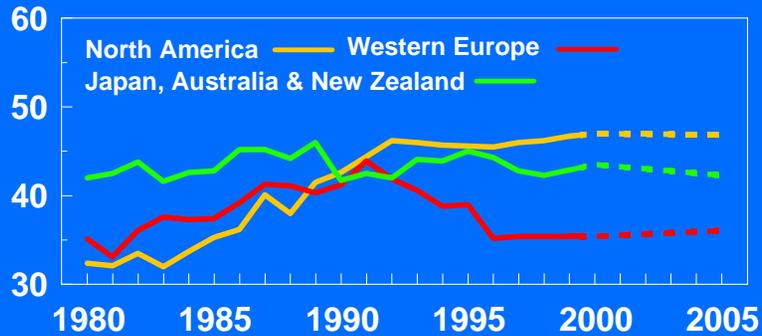


## COTTON'S SHARE OF THE WORLD MARKET End-use Consumption



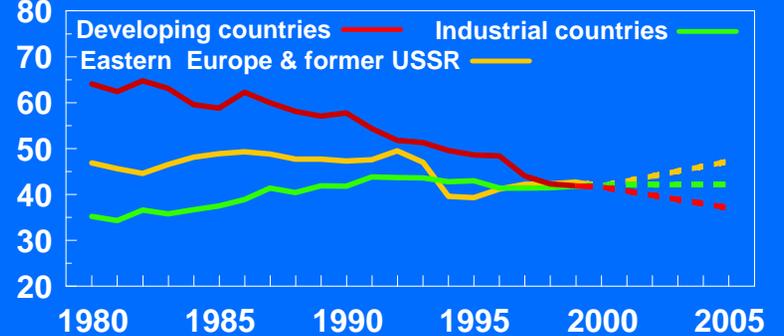
## MARKET SHARE OF COTTON INDUSTRIAL COUNTRIES

Percent



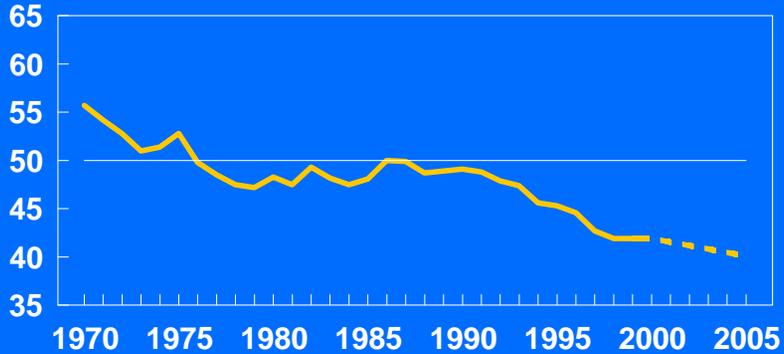
## MARKET SHARE OF COTTON BY REGION

Percent



## COTTON'S SHARE OF THE WORLD MARKET End-use Consumption

Percent



## WORLD COTTON CONSUMPTION (END-USE)

Million tons

