



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

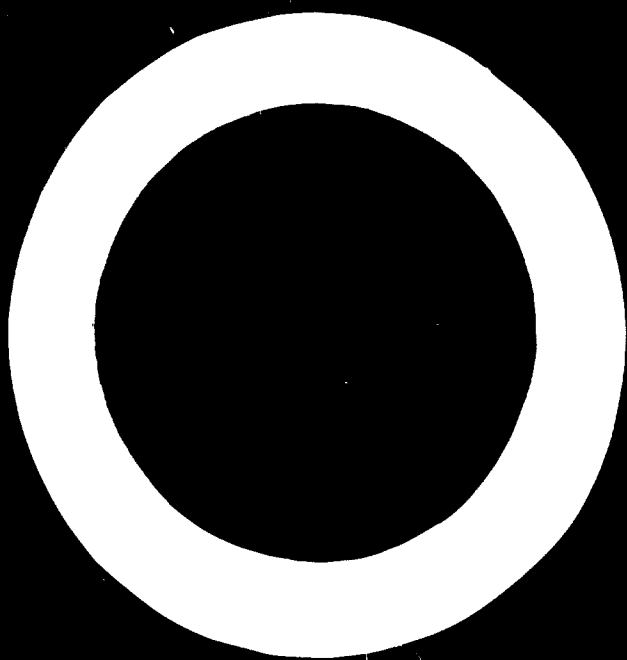
DD2758

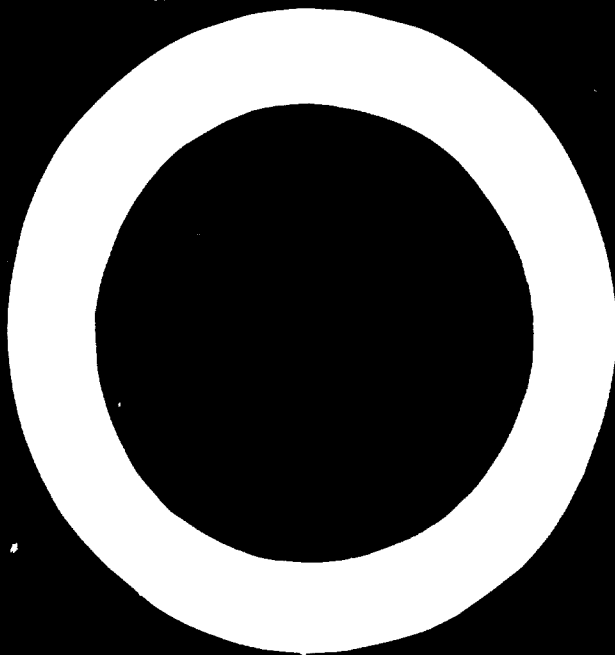
**Perspectives for Industrial Development
in the Second
United Nations Development Decade**

**THE
TEXTILE
INDUSTRY**

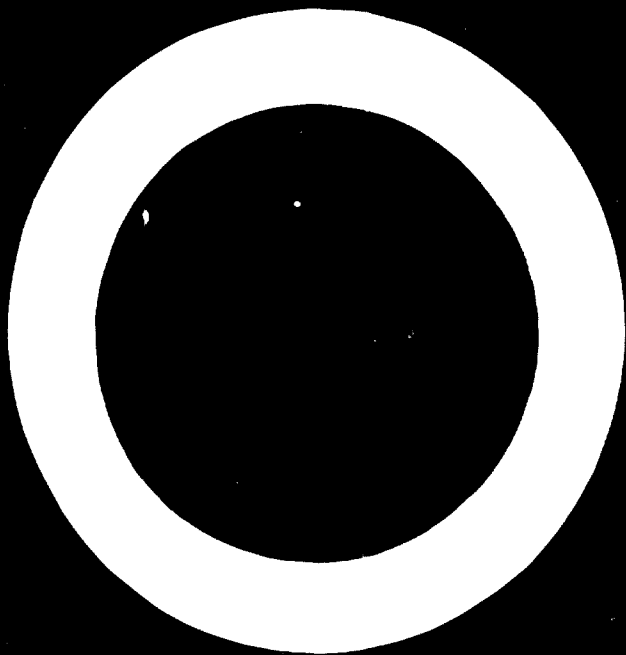


UNITED NATIONS





THE TEXTILE INDUSTRY



**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
VIENNA**

**PERSPECTIVES FOR INDUSTRIAL DEVELOPMENT
IN THE SECOND UNITED NATIONS DEVELOPMENT DECADE**

THE TEXTILE INDUSTRY



UNITED NATIONS
New York, 1971

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.

Material in this publication may be freely quoted or reprinted, but acknowledgement is requested, together with a copy of the publication containing the quotation or reprint.

ID/63

UNITED NATIONS PUBLICATION

Sales No.: E.71.II.B.14

Price: \$U.S.1.00 (or equivalent in other currencies)

FOREWORD

In the first years of the Second United Nations Development Decade, UNIDO will devote increasing attention to those problems of industrial development for which the planning time span is some five years or more. Such problems are often among the most difficult to solve. The research necessary to devise appropriate measures may take considerable time, apart from the lengthy period required for the measures to produce their full effects. Most projects for technical assistance to a developing country are of much shorter duration than five years, and while they are being devised and implemented there is some risk of putting insufficient emphasis on long-term measures.

It is not intended that UNIDO should interrupt the rhythm of its established technical assistance activities in order to give more intensive study to the problems of longer-term planning. On the contrary, an important part of the new programme will consist of taking stock of past experience to see what lessons can be drawn for the benefit of future work programmes. It is particularly important to identify certain common factors that affect the operation of the majority of projects and to evaluate their influence. It is through such factors that the progress of a large project in one branch of industry can interact on the progress of other large projects in the same or in another branch.

The most intractable difficulties experienced by the developing countries and the experience in meeting these difficulties will be a challenge to all who aim to accelerate the pace of their industrial development. These difficulties must be subjected to fresh analysis. To surmount them, new, imaginative ideas have to be propounded and new policy measures developed.

As an essential part of its Second Development Decade activities, UNIDO will publish a series of papers on trends and prospects in the developing countries of some of the main branches of industry during the 1970s. These papers should serve as preparatory material for workshops and seminars at which the proposals will be more widely debated, or for a series of regional meetings at which the recommendations will be given more precise form. The papers will normally include forecasts of consumption and production up to 1980. It goes without saying that accurate predictions cannot be made for ten years ahead. Nevertheless, quantitative forecasts help to illustrate and orient the text. No attempt will be made to impose on the consultants who collaborate in preparing these forecasts a uniform methodology or set of assumptions.

In accordance with the international development strategy for the Second United Nations Development Decade¹, manufacturing output in the developing countries should be increased by an average of 8 per cent yearly. To achieve this target, some complex problems must be resolved in the fields of planning, finance,

¹General Assembly Resolution 2626 (XXV).

management and implementation. In particular, it is essential to take full account of factors whose effects are felt only in the long term, as was stressed in the recently published "Study of the Capacity of the UN Development System"². It is hoped that the papers in the new UNIDO series will make a contribution to the long-range industrial development strategy of Governments and to the work of UNIDO and of other United Nations bodies concerned.

The textile industry, which is the subject of this first paper in the series, presents some particularly interesting features. It has been one of the earliest industries to be set up in many developing countries, in part because textile technology is relatively simple and labour-intensive. Because of the great technological changes this industry has experienced in the industrially advanced countries in recent years, the evolution of textile manufacture in developing countries in the next decade may be expected to differ significantly from its past evolution in these countries.

The present paper is based on a study prepared by the Economist Intelligence Unit Limited, London, as consultants to UNIDO (*Textile Fibres: A Sectoral Study for the Second United Nations Development Decade 1971-1980*). On the basis of this study, the UNIDO secretariat prepared a draft working paper and submitted it for discussion to an Expert Working Group, which met in Vienna in November 1969. The members of the Expert Group contributed valuable suggestions, which have been incorporated in the present publication. (Participants of the Expert Group are listed in an annex to this publication.)

The scope of the present paper is limited to textiles made from the so-called apparel fibres (cotton, wool and man-made fibres). Jute and hard fibres are excluded since data for analysing trends and prospects are not available for these fibres on such a comprehensive scale.

² *A study of the capacity of the United Nations development system* (United Nations Publication DP/5), United Nations, Geneva, 1969. See, for example, chapter five, "The United Nations Development Co-operation Cycle".

CONTENTS

	<i>Page</i>
<i>Chapter One</i> Consumption of apparel textiles	1
<i>Chapter Two</i> Textile production patterns	13
<i>Chapter Three</i> Export prospects for apparel textile manufactures	25
<i>Chapter Four</i> The investment implications of expanding textile production	33
<i>Chapter Five</i> Strategy and policies for development	38
<i>Annex:</i> List of participants at Expert Working Group Meeting on Trends and Prospects in the Textile Industry in Developing Countries during the Second Development Decade, Vienna, November 1969	47

EXPLANATORY NOTES

Reference to tons indicates metric tons, and to dollars (\$) United States dollars, unless otherwise specified.

Dates divided by a slash (e.g. 1960/1961) indicate a crop year or a financial year.

Dates divided by a hyphen (e.g. 1960-1965) indicate the full period involved, including the beginning and end years.

In statistical tables a dash (-) indicates that the amount is nil or negligible, and three dots (...) indicate that data are not available or are not separately reported.

The following abbreviations are used in this publication:

ECLA	Economic Commission for Latin America
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
IFCATI	International Federation of Cotton and Allied Textile Industries
IIC	International Institute for Cotton
LTA	Long-Term Arrangement regarding International Trade in Cotton Textiles
OECD	Organisation for Economic Co-operation and Development
UNIDO	United Nations Industrial Development Organization

CONSUMPTION OF APPAREL TEXTILES

The level of consumption as an indicator of economic and social development

Clothing, food and housing are the primary necessities for the survival of mankind. Consequently, some of the first steps taken to produce commodities relate to textiles. The level of consumption of textiles is an excellent indicator of economic and social development—at least until *per capita* incomes reach a certain height. Even at the subsistence level, however, the need for textiles is closely related to climate and affected by local custom. Apparel must protect the wearer against sun, wind, rain or snow; home furnishings, bedding and other textile articles vary according to the ambient temperature.

Even though textiles are a basic necessity, it does not follow that the level of consumption is simply related to human needs and climate. Many other factors combine to determine the level of consumption and complicate the attempt to forecast how consumption in a given country will increase in the future. The population size is, of course, always an important factor, but economic factors exercise a far greater influence. *Per capita* consumption varies from an annual average of 1.5 kg in African developing countries to over 13 kg in the developed market economies taken as a whole.

It should be explained that cotton, wool and man-made fibres are termed apparel textiles, although they are also used to make household articles and other consumer goods as well as industrial products such as tires, hose and belting, ropes, bagging. In the United States, for example, less than 40 per cent of the total consumption of apparel textiles is for apparel, while industrial products account for 19 per cent. In most African developing countries, on the other hand, almost all of apparel textile consumption is for apparel.

Admitting that the level of consumption depends to only a limited extent on human need, one must look first of all at effective demand; that is obviously related to the level of income, but the relationship is not a direct one. The pattern of consumers' behaviour, the availability of foreign currencies, the range of products manufactured within the country, and the level of textile prices compared with those of other consumer countries are all relevant factors. It might be expected in this situation that the income-elasticity of consumption would be rather high for apparel textiles. In many developing countries, however, the prevalent market conditions work against the expected growth in consumption, even where incomes are rising. In Latin America, for example, *per capita* consumption has remained approximately constant at 4 kg since 1950, and this situation is expected to continue up to 1980.

The opinion has been expressed in a publication of the Economic Commission for Latin America (ECLA) that textile consumption in Latin America has no clear relation to income.¹

These apparent contradictions in consumption trends are phenomena which are typical of a low level of development. Low consumption is both a symptom and a cause of underdevelopment. Together with low production, it forms part of a vicious circle, which is reinforced by the structural contradictions to be found in developing countries. Two contrasting economies coexist in most developing countries, with sharply different patterns of consumption. This state of affairs is poorly documented from the statistical point of view, but the concept of dualism is a useful one when analysing the prospects for consumption in the developing world.² The dual economy in a developing country might be described in the simplest terms as the coexistence of a developed, high-income economy and an underdeveloped economy within a single national territory.

Conditions in the developed part of such an economy are comparable with those in countries with developed market economies. The gross domestic product *per capita* is similar and the pattern of consumer behaviour is almost identical because the high-income stratum of population in the developing country imitates the habits of consumers in developed countries. Since the basic needs of these people have already been satisfied, there is a tendency for textile consumption to stagnate unless it can be stimulated artificially by fashion changes which accelerate wastage. Individual textile items become increasingly sophisticated and more expensive in the process. There is intense competition among fibre producers and among textile manufacturers, which tends to raise the level of consumption far beyond what is physically or socially necessary.

The structure of the local textile industry in a developing country is likely to impose limits on the potential expansion of consumption through fashion, sophistication and competitive promotion in the high-income sector of its market. This structure will be examined closely in chapter 2. It is sufficient to point out at this stage that the historical growth of the industry in developing countries has created a very concentrated (sometimes monopolistic) group of enterprises that exercises strong power, economically and politically. The short-term interests of such groups are often opposed to those of national development and sometimes to their own long-term interests as well. For instance, these groups have sometimes persuaded Governments to grant an excessive degree of protection against imports and in this way gained easy profits. The continued low level of development of industry in terms of technology and acquisition of skills is the price paid for the excessive protection. It becomes difficult to stimulate consumption even in the high-income sector of the market, because fashion and sophistication require increasing amounts of skill and technology. Where the textile industry traditionally concentrates on this market sector, there is therefore a considerable danger that it will bring about stagnation in consumption and production during the next decade.

The other part of the dual economy is composed of sectors with extremely low-income levels and commodity consumption or even with no monetary purchases of some commodities at all.³ In this part of the economy, textile

¹ La Industria textil en América Latina, XII (E/CN.12/796).

² *Indonesian Economics: the Concept of Dualism in Theory and Policy*, W. van Hove, Ed., The Hague, 1961.

³ This applies to some rural and aboriginal populations.

consumption is still limited mainly by income. Because of its low purchasing power and extreme sensitivity to price, this market sector has been severely neglected by the textile industries of many developing countries. Where the necessary structural changes have been brought about and a dynamic policy adopted in promoting consumption, ECLA reports that there is a price elasticity of demand for textiles greater than 1.0 and an income elasticity as high as 1.3 in some cases.⁴ The price elasticity is further illustrated by statistics relating to the West African and Central African subregions. West Africa has a *per capita* GDP 4 per cent lower, but *per capita* textile consumption 45 per cent higher than that of Central Africa, presumably because its textile prices are about 50 per cent of Central African levels.

The relationships between the level of textile consumption, the degree of urbanization and the proportion of GDP not marketed are shown in table 1 for some Central African countries. *Per capita* consumption appears to be correlated positively with the degree of urbanization and negatively with the proportion of GDP that does not enter the market economy.

TABLE 1. SELECTED ECONOMIC AND SOCIAL INDICATORS IN CENTRAL AFRICA

Country	Per capita GDP (\$)	Per capita textile consumption (m ²)	Urban population as % of total	Percentage of GDP not marketed
Gabon	418	16.0	12.2	12.9
Congo, People's Rep.	156	15.7	27.1	14.6
Cameroon	127	11.1	15.0	23.4
Central African Republic	109	11.5	15.6	31.6
Congo, Dem. Rep.	79	7.9	30.5	15.1
Chad	65	3.7	8.0	37.2

Source: *The textile situation in Central Africa: Markets, industries, prospects* (E/CN.14/INR/165).

In many cases the local industry has proved unable to satisfy the primary needs of the low-income groups. The out-of-date structure of the industry and excessive tariff protection threaten to lead to frequent price increases; the possibility that the situation will deteriorate during the next decade must be taken seriously.

No systematic study is available that distinguishes clearly between the two parts of the dual economy in developing countries for the purposes of policy making in the textile sector. The forecasts of consumption that are made in the present chapter are based on national aggregates, drawing on the statistical data most readily available. They need to be carefully interpreted and to be regarded as the objective of a dynamic policy for sectoral development, not as something that will take place more or less inevitably through a process of growth that is somehow self-generating.

⁴ *La Industria textil en América Latina*, XII (E/CN.12/796).

TABLE 2. WORLD CONSUMPTION OF PRINCIPAL APPAREL FIBRES, 1960-1969

	1960	1961	1962	1963	1964	1965	1966	1967	1968 ^a	1969 ^b
	<i>Thousand tons</i>									
<i>Total consumption</i>										
Cotton	10,344	10,150	9,831	9,984	10,616	10,919	11,218	11,333	11,435	11,536
Wool	1,541	1,549	1,541	1,549	1,524	1,561	1,622	1,541	1,612	1,657
Artificial fibres	2,600	2,682	2,856	3,051	3,302	3,354	3,360	3,335	3,569	3,694
Synthetic fibres	702	830	1,080	1,332	1,688	2,042	2,470	2,861	3,749	4,390
Total	15,187	15,211	15,308	15,916	17,130	17,876	18,670	19,070	20,365	21,277
	<i>Kilograms</i>									
<i>Consumption per capita</i>										
Cotton	3.4	3.3	3.1	3.1	3.2	3.2	3.3	3.2	3.2	3.2
Wool	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Artificial fibres	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Synthetic fibres	0.2	0.2	0.4	0.4	0.5	0.6	0.7	0.8	1.0	1.2
Total	5.0	4.9	4.9	4.9	5.2	5.3	5.5	5.5	5.7	5.9

Source: Per caput fibre consumption 1964 to 1967 (ESCR.FC 70/1), FAO, 1970

^a Preliminary

^b Estimated

Recent trends in consumption

Using the term apparel textiles in the sense already defined, world consumption (that is, consumption in both market economies and centrally planned economies) of apparel textiles fibres increased during the 15 years 1953-1968 from an estimated 12.25 million tons to an estimated 20.36 million tons. This was an increase of 65 per cent. The rate of growth accelerated during this period; it was equivalent to a compound rate of 2.8 per cent yearly in the period 1953-1960 and 3.9 per cent yearly from 1960 to 1968. For comparison, it should be noted that world population has grown in recent years by about 1.9 per cent yearly.

The accelerated growth in consumption in recent years has been concentrated on the synthetic fibres, that is to say, the newer non-cellulosic man-made fibres rather than the artificial, cellulosic man-made fibres and natural fibres. The intensive promotion of synthetic fibres has not only drawn sales from the competing fibres but has probably stimulated consumption as a whole, especially in the developed countries. While the shares of consumption held by wool and artificial fibres seem to be static or declining slowly, the share of cotton is decreasing more markedly as that of the synthetic fibres increases.

There is inevitably a risk of substantial error in assuming that the experience of the developed countries in the recent past will be broadly repeated in future in the developing countries, particularly in those cases where the features of a dual economy are clearly in evidence. Table 2 shows estimates of world consumption of

TABLE 3. REGIONAL DISTRIBUTION OF APPAREL FIBRE CONSUMPTION AND POPULATION, 1964 AND 1967

	<i>Consumption</i>		<i>Population</i>	
	<i>Thousand tons</i>	<i>Percent</i>	<i>Millions</i>	<i>Percent</i>
<i>1964</i>				
Developed market economies	8,813	51.4	679	20.6
Centrally planned economies ^a	4,405	25.7	1,108	33.6
Developing countries:				
Africa	375	2.2	245	7.4
Latin America	1,009	5.9	239	7.3
Asia	2,528	14.8	1,024	31.1
World total	17,130	100.0	3,295	100.0
<i>1967</i>				
Developed market economies	9,679	50.8	701	20.0
Centrally planned economies	5,237	27.4	1,169	33.4
Developing countries:				
Africa	375	2.0	263	7.5
Latin America	1,077	5.7	260	7.4
Asia	2,702	14.1	1,107	31.7
World total	19,070	100.0	3,500	100.0

Source: Per caput fibre consumption 1964 to 1967 (ESCR, FC 70/1), FAO, 1970.

^a Includes USSR, Eastern Europe and centrally-planned countries in Asia.

apparel textile fibres in tonnage terms and in kg *per capita*. Flax and silk are excluded from discussion in this paper. The addition of flax would increase the world consumption figures in table 2 by about 3 per cent, but negligible tonnages are consumed in the developing countries. World consumption of silk is only 30,000 to 40,000 tons *per annum* and hardly any is consumed in the developing countries.

Regional trends in consumption

Table 3 shows the regional distribution in 1964 and 1967 of world consumption of the fibres included in table 2 and compares the distribution of consumption with that of population. As may be seen, the developing countries account for only 22 per cent of world consumption compared with 46 per cent of world population. Almost the inverse relationship holds good for the developed market economies, which account for 51 per cent of world consumption and 20 per cent of world population. These figures clearly indicate that textile consumption is much more closely related to income than to population.

It may be calculated from table 3 that in 1967 the *per capita* consumption in the developed market economies averaged 13.8 kg while the average for all developing countries was 2.5 kg and the world average was 5.4 kg. These regional disparities in *per capita* consumption will probably not diminish in the course of the Second Development Decade. On the contrary, if recent trends in textile consumption and population growth are maintained, they may well increase.

Forecast of consumption in the Second Development Decade

Methodology

For cotton and the man-made fibres, data of production, trade and consumption are sufficiently comprehensive over a lengthy period of time for projections to be attempted by the use of statistical techniques. For the developed market economies and developing countries combined, calculations were made of the correlation between the consumption of cotton and man-made fibres taken together, on the one hand, and estimates of the GDP in US dollars measured at constant 1958 prices, on the other hand. Data were assembled for the years 1955 to 1965 and, where the series was incomplete for any country, appropriate assumptions were made. An electronic computer was used to calculate the relationship between consumption and GDP for the world and for each region on three different assumptions. Denoting GDP by the variable X and consumption by the variable Y , it was assumed that a straight-line or linear relationship existed between X and Y , according to the first assumption; between X and the logarithm of Y , for the second assumption; and between the logarithm of X and the logarithm of Y , for the third assumption. In non-mathematical terms the first assumption means that for every increase of a million dollars in GDP there is a constant increase in the tonnage of cotton and man-made fibres consumed (for a given region or for the world as a whole). Under the second assumption, however, for each million dollars increase in GDP the result would be a constant percentage increase in consumption. Under the third assumption a 1 per cent increase in GDP would result in a constant percentage increase in consumption.

While the goodness of fit of the results was much the same for each of the three

assumptions, the first assumption gave marginally better results in nearly all cases and this does not seem an unreasonable assumption on general economic grounds. The linear relationship based on the first assumption has therefore been adopted in making the forecasts for the next decade.⁵

Having established the correlation of past consumption with GDP, future consumption was estimated on the basis of this correlation and a forecast of GDP, taking 1965 as the base year. The forecast growth rates in GDP, from 1965 to 1970 and from 1975 to 1980 are taken from a FAO study.⁶ The calculation has been made on the basis of both the high and the low growth-rate assumptions put forward by FAO, with the purpose of showing how sensitive the forecasts are to the rate of growth of GDP and in order to emphasize the point that precision should not be claimed for forecasts of this type.

The statistical data available in regard to the wool textile industry are much less comprehensive and reliable than data in respect of cotton and man-made fibres. It was not considered practical, therefore, to make statistical projections for wool on the lines described above. The analysis of demand for wool and the factors determining its supply contained in the FAO study mentioned has been drawn on in order to complete the forecasts in this chapter for the Second Development Decade. As already indicated, only a limited number of developing countries have an appreciable consumption or production of wool.

Assuming that future trends in the competition between wool and the man-made fibres have already been taken into account when forecasting wool consumption, the next step is to assess the effect of competition on the relative shares of cotton, artificial and synthetic fibres within the total consumption of cotton and man-made fibres. In the past the declining share of cotton and the growing share of synthetic fibres have formed a fairly well-established and regular pattern, but the share of artificial fibres has shown a more uncertain trend. The established declining trend in the share of cotton was projected for the fifteen years up to 1980. By contrast, the future shares of artificial and synthetic fibres were not assessed on the basis of statistical projections, but by taking account of expert opinion about the future course of technological development and relative prices.

The above procedure was used to make separate assessments of the situation for the world, excluding centrally planned economies, and for each of the developing regions.

For the centrally planned economies, it would be theoretically possible to follow a similar statistical technique, based on data of the net material product and population. It remains open to question, however, whether the correlations established could then be applied to make projections of demand for the next decade. This is because planning decisions taken centrally about the relative importance to be given to consumer goods will greatly influence demand for apparel fibres as a whole, while other planning decisions (for example, as to the development of the petrochemical industry) will greatly influence the relative shares of the various fibres. No attempt has been made to go beyond the projections in the FAO study for the year 1975, in the case of centrally planned economies.

⁵ The statistical projections for consumption of cotton and man-made fibres described in this chapter were prepared in 1969 by the Economist Intelligence Unit Ltd, on behalf of UNIDO. The data used are slightly different from those shown in tables 2 and 3 which, as indicated, were not published until 1970.

⁶ *Agricultural Commodities—Projections for 1975 and 1985*, Vol. 1 (CCP 67/3(Rev.)), FAO, Rome, 1967.

Forecast of consumption of cotton and man-made fibres in other than centrally planned economies

The relative shares of cotton, artificial fibres and synthetic fibres in consumption, omitting the centrally planned economies, displayed the following trends in the period 1955 to 1966:

The share of cotton declined steadily from 73.4 per cent in 1955 to 60.3 per cent in 1966, while the share of synthetic fibres rose from 3.1 to 18.7 per cent over the same period.

The share of artificial fibres fluctuated slightly around 23 per cent between 1955 and 1964, but then declined for two years to 21 per cent in 1966.

It has been assumed that cotton and artificial fibres will continue to decline in relative importance and that they will be responsible for only 43 and 16 per cent respectively by 1980, leaving 41 per cent of the market to synthetic fibres.

Table 4 shows the anticipated growth of consumption at quinquennial intervals from 1965 to 1980 for these countries as a whole, in tonnage terms and in kg *per capita*. It will be noted that by 1980 the low and the high growth-rate assumptions made by FAO result in widely divergent estimates.

TABLE 4. CONSUMPTION OF COTTON AND MAN-MADE FIBRES IN OTHER THAN CENTRALLY PLANNED ECONOMIES

	Total (thousand tons)	Per capita (kg)	Cotton	Artificial fibres (thousand tons)	Synthetic fibres
1965	11,806	5.4	7,249	2,645	1,912
<i>Forecasts:</i>					
1970 low GDP growth rate	13,596	5.6	7,614	2,719	3,263
high GDP growth rate	14,385	5.9	8,053	2,877	3,455
1975 low GDP growth rate	15,943	5.9	7,875	2,870	5,198
high GDP growth rate	17,886	6.6	8,836	3,219	5,831
1980 low GDP growth rate	18,475	6.1	7,964	2,956	7,555
high GDP growth rate	22,398	7.5	9,631	3,584	9,183

Source: The Economist Intelligence Unit, Ltd., 1969.

If the outcome proves to be midway between the two forecasts given, *per capita* consumption will reach an average of 6.8 kg in 1980 and this will represent a compound annual growth rate of 3.6 per cent, which was also the rate of growth in the decade 1955 to 1965.

Forecast consumption of cotton and man-made fibres in the developing countries

In Asia there was a sharp increase in the annual growth rate of consumption between the two halves of the period 1955 to 1965; from 3.2 to 4.6 per cent. The

growth rate slackened somewhat in the period 1965 to 1970 but is expected to accelerate again in the 1970s. In Latin America, by contrast, the annual growth rate fell from 4.1 to 2.7 per cent between the two halves of the period 1955 to 1965 but is expected by the mid-1970s to return to the rate obtaining in the period 1955 to 1960. In Africa the acceleration in the annual growth rate from 1960 to 1965 was even more marked than in Asia— from 2.0 to 4.4 per cent; here too, the growth rate has slackened since 1965 but a recovery is forecast for the 1970s.

Forecasts were composed for developing countries in the three regions, Africa, Asia and Latin America, using essentially the same methods as for market economies as a whole.

If the outturn by 1980 is midway between the results forecast for low and high GDP growth rates, consumption during the decade in the developing countries as a whole will have grown at a compound rate of 4.2 per cent yearly compared with 3.6 per cent in the world (excluding centrally planned economies).

It is more difficult to predict the relative shares of cotton, artificial fibres and synthetic fibres in developing countries than in the developed market economies as a whole. It is necessary in all countries to estimate the effect of technological development, the relative prices of the fibres, marketing policy and the habits of consumers. In the case of many developing countries, however, it is also essential to assess the effect of import policy and the situation of the local textile industry—currently and as it may develop in the future.

Latin America is the region where the consumption pattern of the developing countries is expected to resemble most closely that of the developed market economies. In other words, the share of cotton is expected to decline sharply and that of artificial fibres to decline to a lesser extent, while the share of synthetic fibres roughly is expected to double in ten years.

In Africa the share of cotton has actually increased in recent years and this may be associated with the promotion of cotton growing in several African countries. This increase has been at the expense of artificial fibres, the consumption of synthetic fibres being almost negligible. The world trend away from cotton textiles is expected to reassert itself in Africa during the 1970s, leading to an increase in the shares of both artificial fibres and synthetic fibres.

In Asia the artificial fibres are expected to maintain a steady 10 per cent of total consumption, with synthetic fibres increasing their share rapidly from 5 per cent in 1970 to 20 per cent in 1980. These are average figures, however, that conceal some very wide differences. In India and Pakistan, for example, the percentage in 1980 is not expected to reach 10, while in some other countries it is expected to exceed 30 or even 40.

Table 5 gives estimates corresponding to those in table 4, but for developing countries on a regional basis.

Despite variations from region to region and variations resulting from the alternative high and low GDP growth rate assumptions the conclusion that emerges from this analysis is that *per capita* consumption of cotton and artificial fibres will remain almost constant during the 1970s and that nearly all the growth in total textile consumption *per capita* will show up as synthetic fibre consumption.

Forecast consumption of wool in other than centrally planned economies

The FAO study to which reference has been made assumes that world demand for virgin wool will increase by some 1.5 per cent yearly between 1961-1963 and

TABLE 5. CONSUMPTION OF COTTON AND MAN-MADE FIBRES IN DEVELOPING COUNTRIES

	Total (thousand tons)	Per capita (kg)	Cotton	Artificial fibres (thousand tons)	Synthetic fibres
Africa					
1965	435	1.5	350	72	13
Forecasts:					
1970 low GDP growth rate	477	1.4	372	86	19
high GDP growth rate	517	1.6	403	93	21
1975 low GDP growth rate	543	1.5	407	103	33
high GDP growth rate	640	1.7	480	122	38
1980 low GDP growth rate	633	1.5	443	126	64
high GDP growth rate	812	1.9	568	162	82
Asia					
1965	2,132	2.2	1,876	213	43
Forecasts:					
1970 low GDP growth rate	2,464	2.2	2,095	246	123
high GDP growth rate	2,686	2.4	2,283	269	134

1975 low GDP growth rate	2,911	2.3	2,329	291	291
high GDP growth rate	3,401	2.7	2,721	340	340
1980 low GDP growth rate	3,440	2.4	2,408	344	688
high GDP growth rate	4,480	3.1	3,136	448	896
Latin America					
1965	944	3.9	738	141	65
Forecasts:					
1970 low GDP growth rate	1,120	4.0	830	156	134
high GDP growth rate	1,203	4.3	891	168	144
1975 low GDP growth rate	1,302	4.0	899	182	221
high GDP growth rate	1,525	4.7	1,052	214	259
1980 low GDP growth rate	1,539	4.1	969	200	370
high GDP growth rate	1,938	5.3	1,221	252	465

Source: The Economist Intelligence Unit, Ltd.

1975, compared with 2.5 per cent in the period 1953-1955 to 1961-1963. (There is a substantial re-utilization of wool, unlike other apparel fibres, in manufacture after processing.) Although developing countries are expected to remain minor consumers, a moderate growth of demand is foreseen in the Middle East as incomes rise and processing capacity is increased. Table 6 gives the relevant extracts from this study.

TABLE 6. WOOL: AVERAGE CONSUMPTION 1964-1965 AND DEMAND PROJECTIONS FOR 1975
(Thousand tons)

	1964-1965 average	1975-low GDP growth rate	1975-high GDP growth rate
Developed market economies	987	1,079	1,181
Developing countries:			
Africa	19	23	27
Latin America	66	83	96
Asia ^a	68	105	126
Sub-total	153	211	249
Total	1,140	1,290	1,430

Source: *Agricultural Commodities - Projections for 1975 and 1985*, Vol. 1 (CCP 67/3(Rev.)), FAO, Rome, 1967, p.274.

^aOf which the Middle East contributed 34 in 1964-1965, with projections for 1975 of 62 (low) and 75 (high).

Forecast consumption of apparel fibres in centrally planned economies

As explained in the discussion of methodology, no attempt has been made to go beyond the projections for 1975 made by the FAO. These are as follows:

	1964-1965 average	1975 - low growth rate (thousand tons)	1975 - high growth rate
Cotton	3,283	3,796	4,156
Wool	399	561	592
All apparel fibres	4,713	6,013	6,525

TEXTILE PRODUCTION PATTERNS

Present situation in the developing countries

The evolution of the modern textile industry in developing countries can be seen as passing through three stages: import substitution for the products most readily manufactured locally; self-sufficiency in meeting domestic requirements; and promotion of textile exports. In most parts of the world except Africa, self-sufficiency has been achieved by the developing countries in a given region, but not necessarily by each country. Only a few Asian countries, however, e.g. China (Taiwan), Hong Kong and the Republic of Korea, have so far reached the position of net exporters.

In general, self-sufficiency at the regional level was attained in the 1960s through the progressive expansion of local manufacture. In many cases, the textile industry had been launched as part of a national plan for industrial development, having been regarded as a particularly suitable industry owing to its relatively high demand for labour, its traditional technology and low investment requirements in relation to the value of annual output. These characteristics, however, no longer apply to the industry.

Governments of developing countries have tended to limit their intervention to organizing financial assistance and have generally refrained from supervising or controlling the industry's development in any degree of detail. This attitude has frequently led to the creation of excess capacity, the use of a low level of technology and the achievement of a low level of manufacturing efficiency.

This situation, coupled with the introduction of measures to protect the local industry against imports, has all too often promoted an unhealthy development of the industry which fails to take into account potential future demands and creates many obstacles to growth. Under-utilization of capacity and inefficiency lead to unprofitable operations; despite tariff protection, enterprises remain short of capital and raise prices, thereby reducing the volume of sales and completing the vicious circle.

The way textile technology is evolving is likely to stimulate rapid structural change. Particularly in the case of man-made fibres, the industry has become increasingly capital-intensive and technologically sophisticated. Man-power requirements will considerably decline but a higher proportion of the labour force will have to be technologically skilled. These forces are producing a growing tendency for production to be concentrated in fewer, larger manufacturing units.⁷ These trends

⁷For a detailed examination of these trends see: *Modern Cotton Industry, a capital intensive industry*, OECD, Paris 1965

and other economic forces have already brought about a substantial reduction in the number of enterprises in the long established textile industries of the developed countries, particularly since 1945, and this trend is expected to continue. In the United Kingdom, for example, the following changes are expected during the next few years among producers of cotton and allied textiles⁸:

	<i>Number of enterprises</i>	
	<i>1968 (actual)</i>	<i>1975 (estimate)</i>
Spinning sector	63	25-30
Weaving sector	279	100
Finishing trades	102	30
All sectors	375	120-150

It will be appreciated that vertical integration has led to a number of enterprises operating in more than one sector.

To a considerable extent, the same pressures will be at work in the developing countries and they are likely to aggravate the structural faults in their textile industries. Under these circumstances the domestic textiles industry of developing countries would have to show much dynamism and flexibility to accept a limitation of excessive tariff protection. In most cases, a certain degree of Government intervention would appear necessary to make possible radical changes in structure in order to rationalize the industry, improve productivity and raise the level of utilization of capacity. A sectoral development programme would have to be devised in detail and appropriate measures taken for its implementation. In particular, there is a need for co-ordination of textile production and new investment nationally, and in some cases regionally, paying special attention to problems connected with the transfer of technology.

Textile production capacity in developing regions

Cotton-spinning system capacity

Between 1958 and 1966 production capacity for cotton-system spinning rose considerably in developing countries, particularly in Africa and Asia. The share of the developing countries in the world total (excluding centrally planned economies) increased during this period from 23 to 36 per cent. It is expected that this trend will continue at least until the developing countries, as regional groups, achieve self-sufficiency in this industrial sector. The relevant statistics are shown in table 7.

Statistics of the number of spindles in place can be misleading, however, as an indication of production capacity because of differences in machine productivity. Differences in capacity utilization further reduce the significance of these statistics.

⁸*Cotton and Allied Textiles: A report on present performance and future prospects, Vol. 1, The Textile Council, Manchester, 1969.*

TABLE 7. COTTON YARN SPINNING CAPACITY, 1958-1966
(Thousands of cotton-system spinning spindles in place on 31 December)

	1958	1962	1966
Africa	1,206	1,880	2,562
Latin America	7,257	7,987	8,593
Asia	16,564	20,242	24,324
Developing regions	25,027	30,109	35,479
World total ^a	108,813	97,942	98,208

Source: *International Cotton Industry Statistics*, International Federation of Cotton and Allied Textile Industries (IFCATI)

^aExcluding centrally planned economies

During this period, most developed countries drastically reduced the number of spindles in place. In Japan, exceptionally, the number was almost static. Not only was a considerable amount of old machinery scrapped; there was also substantial investment in modernizing the less-outdated equipment and in buying new machinery. As a result of rationalization, machine and labour productivity increased sharply.

In addition to regrouping in a more concentrated structure, these cotton industries made the adjustments necessary to process man-made fibres and blends of natural with man-made fibres, as well as introducing new finishing processes. In some of these countries the emphasis in product range shifted clearly away from products exported by developing countries to new, more sophisticated ones.

In most countries of Latin America and Asia, on the other hand, the textile industry is a traditional one containing much outdated equipment. On the other hand, the African textile industry has been built up in recent years and modern machinery has been installed.

An attempt has been made, despite the difficulties, to assess the percentage utilization of the installed spinning capacity in the developing countries. It was assumed that, on the average, 22 grams of cotton yarn could be produced per hour on each spindle and that a maximum of 6,200 effective hours per year would be possible. On these assumptions the annual production capacity is 1.36 kg per spindle. If this factor is applied to the data in table 7 and the results compared with yarn production, we arrive at the estimates of capacity utilization shown in table 8.

Capacity utilization in the developing countries can thus be seen to be at a low level. This is the main reason for the low productivity. In the year 1966 for example, the number of active spindles in Argentina never exceeded 56 per cent of those installed, the corresponding percentages for Peru and Brazil being 72 and 85.⁹

A supplementary reason is the low operational efficiency of the spindles that are active. This can be due to a variety of factors such as outdated technology, worn out machinery, low labour productivity or bad management.

⁹*La industria textil en América Latina*, XII (E/CN.12/796) p.68.

TABLE 8. ESTIMATED UTILIZATION OF SPINNING CAPACITY, 1958-1966

	<i>Africa</i>	<i>Latin America</i>	<i>Asia</i>
<i>1958</i>			
Capacity in thousand tons	164	985	2,250
Production in thousand tons	127	538	1,306
Per cent utilization	77	55	58
<i>1962</i>			
Capacity in thousand tons	256	1,085	2,750
Production in thousand tons	180	697	1,647
Per cent utilization	70	64	60
<i>1966</i>			
Capacity in thousand tons	348	1,170	3,310
Production in thousand tons	277	761	1,924
Per cent utilization	80	65	58

Source: International Cotton Industry Statistics, IFCATI.

The statistics of the weight of cotton yarn spun per man-hour in various countries show a wide range of variation. Compared with Western Europe the figure for the US is nearly 50 per cent higher, while the Latin American "standard" that has been proposed as a target by the Economic Commission for Latin America barely exceeds 50 per cent of the achievement in Western Europe, and in most Latin American countries the current achievement is less than 30 per cent of that in Europe. These differences, however, are not due solely or even mainly to underutilization of capacity. Other things being equal, the difference between new and old spinning machinery can double the weight of yarn spun per man-hour.

The utilization of spinning capacity in many developing countries is clearly unsatisfactory but the policy measures to cure this situation require a detailed examination of the industry on a country-by-country basis. The contribution which rationalization of production facilities and improved management can make to lowering costs and increasing output, without requiring a large infusion of capital, needs to be specially emphasized, because from the institutional point of view it is generally simpler to prepare projects for new investment.

Weaving capacity in cotton mills

The looms installed in cotton mills often weave material from yarn made of artificial and synthetic fibres as well as cotton. There is therefore no longer a close connexion between the weaving capacity in cotton mills and the consumption of cotton cloth.

During the period 1958–1966, in weaving as in spinning, the percentage share of the developing countries in the total world capacity (excluding centrally planned economies) rose substantially—from 24 per cent to 34 per cent. The statistics are given in table 9 which distinguishes between mechanical and automatic looms.

TABLE 9. WEAVING CAPACITY IN COTTON MILLS, 1958 AND 1966
(Thousands of operable looms, minimum width 18 inches, in place on 31 December)

	1958			1966		
	Mechanical	Automatic	Total	Mechanical	Automatic	Total
Africa	15	12	27	14	49	63
Latin America	125	91	216	76	124	200
Asia	226	53	279	238	158	396
Developing regions	366	156	522	328	331	659
World total ^a	1,272	884	2,156	863	1,098	1,961

Source: *International Cotton Industry Statistics* IFCATI.

^aExcluding centrally planned economies

In weaving as in spinning, the reduction in capacity in the developed countries has been accompanied by modernization and rationalization. The expansion in Africa has taken place mainly outside the United Arab Republic which, however, still accounted for 40 per cent of the capacity of African developing countries in 1966.

Total capacity in Latin America actually declined over this period, although its share of world capacity remained approximately constant. A major rationalization programme took effect in Brazil during this period, which reduced the number of looms from 127,000 in 1960 to 90,000 in 1966, more than offsetting expansion in other countries of this region.

In the developing countries of Asia the expansion was particularly rapid in China (Taiwan), Hong Kong, Iran, the Philippines and Thailand.

During this period considerable modernization took place, to such an extent that by 1966 the proportion of automatic looms exceeded the world average in Africa and Latin America. The over-all figures for Asia conceal wide differences: in India, the largest producer, only 13 per cent of looms were automatic or had automatic attachments, compared with 100 per cent in Hong Kong and the Philippines and with 70 per cent in Pakistan. All looms are automatic in Canada and the United States; 83 per cent are automatic in the European Economic Community.

Equipment installed in the wool system

Information on the installed capacity for wool spinning and weaving is so scarce for most of the major producing countries in the developing regions that it is not practicable to attempt the kind of analysis given above for the cotton system.

In Latin America, where nearly half the woollen textile output of the developing world is located, Argentina and Brazil have the largest capacity. The total for the

region is somewhat below a million spindles and 40,000 looms in place. In most countries of this region utilization is poor and much of the equipment is obsolescent. Some of the Governments are attempting to remedy this situation by organizing modernization programmes.

In Asia, India had over 200,000 spindles and 2,300 looms in place in 1964. The other main producers in this region are China (Taiwan) and Pakistan in the Far East; Morocco, Turkey and the United Arab Republic in the Middle East.

Man-made fibres

The rapid growth in consumption and production of man-made fibres in the industrially developed countries has so far found little echo in the developing countries. Although the share of developing countries in the total world production of these fibres has risen in the 1960s, it is still less than 10 per cent, with developing countries accounting for 9.3 per cent of artificial fibres and 6.0 per cent of synthetic fibres in 1970. Production facilities for man-made fibres, and particularly those for the synthetic ones, are capital-intensive and require much higher technical and administrative skills than, for example, cotton growing and ginning. In many developing countries, therefore, the artificial and synthetic yarn would have to be imported for weaving on local looms, and their Governments have been reluctant to allow the requisite expenditure of foreign exchange.

In Africa, only the United Arab Republic has any facilities for producing man-made fibres. Latin America and Asia have a number of plants for artificial fibre production and the production techniques are well established. The scale of operation is, however, generally small and unit costs are correspondingly high. The developing countries have a quarter of the number of artificial fibre production units in the world, excluding the centrally planned economies, but account for under 10 per cent of world output.

The relatively small scale of production units in the developing countries is even more evident in the case of synthetic fibres: they account for 22 per cent by number but only 6 per cent by output capacity of the world total, excluding centrally planned economies.

Table 10 shows the distribution of man-made fibre production units in developing countries in 1969.

TABLE 10. NUMBER OF MAN-MADE FIBRE PRODUCTION UNITS IN DEVELOPING COUNTRIES, 1969

	<i>Artificial fibre</i>	<i>Synthetic fibre</i>	<i>Total</i>
<i>Africa</i>			
United Arab Republic	2	1	3
<i>Latin America</i>			
Argentina	4	17	21
Brazil	9	17	26
Chile	2	5	7

	<i>Artificial fibre</i>	<i>Synthetic fibre</i>	<i>Total</i>
Colombia	2	8	10
Cuba	1	—	1
El Salvador	—	3	3
Mexico	4	19	23
Peru	2	7	9
Uruguay	1	3	4
Venezuela	2	7	9
<i>Asia</i>			
India	12	21	33
Iran ^a	—	1	1
Iraq	1	—	1
Korea, Rep. of	2	14	16
Pakistan	2	4	6
Philippines ^a	—	1	1
Thailand	—	2	2
Total	46	130	176

Source: *Textile Organon*, June 1969.

^a Due to start production in 1970 or 1971.

Regional self-sufficiency of textile production

A comparison of consumption with production on a broad regional basis illustrates the progress of industrial development and is particularly relevant in the context of proposals for regional economic integration.

As regards cotton yarn and cotton cloth, the Latin American and Asian regions have produced 95 per cent or more of their consumption for over a decade. Since 1964 Asia has become a net exporting region, although many countries such as Burma, Ceylon, Indonesia, Iraq, and Malaysia are still mainly dependent on imports. African developing countries as a group have long been net exporters of cotton yarn and are making rapid progress in meeting their requirements of cotton cloth, for which the self-sufficiency ratio has risen from 39 per cent in 1954 to 54 per cent in 1960 and to over 70 per cent since 1966.

The production of artificial fibres in Latin America as a percentage of consumption has been about 78 per cent during the 1960s, while the corresponding percentage for synthetic fibres has risen from an estimated 44 in 1960 to 78 by 1966. In the other regions the degree of self-sufficiency, though growing, is still very

much lower: in Africa the estimates for 1966 are 19 per cent for artificial fibres and 8 per cent for synthetic fibres, while those for Asia are 41 per cent for artificial fibres and 17 per cent for synthetic fibres.

Development in textile technology

The most significant general trend is that the textile industry, so long regarded as one of the main labour-intensive manufacturing industries even in the developed countries, has become increasingly capital-intensive. It is now quite common for the value of fixed assets in new production facilities to represent \$20,000 per employee or even more.¹⁰

As a result, output per man-hour has doubled in the last fifteen years. (The textile industry occupies second place when industries are ranked according to the increase in labour productivity since the end of the war.) In other words, labour costs as a proportion of total manufacturing costs have fallen in the textile industry, thereby reducing the advantage which developing countries derive from low wage rates.

Automation has played an essential part in this increase in productivity but in addition processing machinery has been redesigned to give much higher hourly output with little or no increase in the labour requirements. These developments reduce still further the advantage of low labour costs in the developing countries, because they make it more difficult to use additional labour as an alternative to capital and because relatively more technicians and highly skilled operatives are required in the reduced labour force.

It is the general experience that as industry becomes more capital-intensive the pressure grows to reduce depreciation charges per unit produced by resorting to multiple-shift continuous operation. Many developing countries have experienced difficulty in making satisfactory arrangements for night work, for example, in providing extended transport facilities, meals and so forth. In these circumstances absenteeism grows and the potential advantages of continuous operation are largely lost.¹¹ The more sophisticated textile technology demands a higher level of discipline among the operatives. To this extent, the textile industry is less attractive than in the past for launching the industrial development programme of a country with little previous industrial experience.

At the spinning stage a most interesting development has been the texturizing of the yarns of man-made fibres in filament form. The process can be applied to yarns made from acetate, polyamide, polyester, olefin and textile glass fibres. The normally smooth filaments are bulked (with a reduction of their length) in order to give the appearance of a rough surface.

When these texturized filaments are woven into cloth the appearance and handle resemble those of cotton or wool cloth, markedly different from the smooth, satinlike cloth woven from conventional acetate or nylon filament yarn. To produce filament yarn and then texturize it requires less capital expenditure than producing man-made staple fibres and putting them through the normal spinning stages. Texturization is a relatively simple process and appears to have gained consumer

¹⁰ *Modern Cotton Industry, a capital intensive industry*, OECD, Paris, 1965.

¹¹ *The effects of structural and technological changes on labour problems in the textile industry*, ILO, 1968.

acceptance. It is more than possible that by the end of the next decade half the output of synthetic filament yarn will be texturized and that this would represent about 9 per cent of all yarn production.

At the weaving stage developing countries will still generally find it preferable to install the modern automatic loom rather than the shuttleless loom that has already gained wide acceptance in developed countries. Detailed costing information will be found in the UNIDO Report of the Expert Group Meeting on the Selection of Textile Machinery.¹² However, each project has to be judged on its own merits.

The most noteworthy development in cloth production, however, is the growth of knitting as an alternative to weaving. The technology is simple and calls for a relatively high use of labour. Nevertheless, production costs per unit of output are low. Furthermore, knitting machines can use man-made fibres, including texturized yarns, without difficulties. For these reasons it may be expected that during the next decade a number of developing countries will find it interesting to produce a growing proportion of textile cloth from knitted rather than woven yarn. By 1980 the proportion might reach between 20 and 30 per cent.

Table 11 gives the results of an investigation made in the United Kingdom. It shows the growth in the popularity of knitted fabrics during the years 1955 to 1968 and forecasts further growth in the period to 1975.

TABLE 11. PROPORTION OF WOVEN AND KNITTED FABRICS IN THE UNITED KINGDOM TEXTILE CONSUMPTION
(Percentage shares)

	1955	Actual 1962	1968	Forecast 1970	1975
<i>Woven fabrics</i>					
Cotton, spun man-made fibre and mixture	65	61	50	46	37
Filament	9	10	12	12	13
Wool and mixture	11	10	8	8	7
Total woven	85	81	70	66	57
<i>Knitted fabrics</i>					
Warp	3	6	14	16	20
Weft	12	13	15	16	18
Total knitted	15	19	29	32	38
<i>Non-conventional</i>	—	—	1	2	5
Total	100	100	100	100	100

Source: *Cotton and Allied Textiles: A report on present performance and future prospects*, Vol. I, The Textile Council, Manchester, 1969.

¹² UNIDO reference ID/WG.8/1.

In the finishing sector of the industry, the introduction of man-made fibres has caused modifications of the traditional technology, for example, heat setting of synthetics, high-pressure dyeing and resin condensation. These techniques and some of the special finishes that have been developed require new and expensive machinery and also greater technical skill on the part of the operatives. Much of the machinery is automatic, capable of considerably higher output than the machinery it has replaced. These factors have increased the optimum economic size of finishing plants and this has created pressures to concentrate capacity in fewer enterprises.

Generally speaking, the technological developments of recent years have increased the technical minimum size of plant in all sectors of the textile industry. A number of studies have been made of the economies of scale.¹³ In most developing countries, however, it is more effective to lower production costs by improving labour efficiency and capacity utilization than to lower investment costs per unit of annual production by constructing new plants of economically optimum size. The first of these alternatives calls for less investment in absolute terms.

Competition between the textile fibres depends on performance characteristics as well as price. The main advantage of cotton in this competition has been its capacity to absorb moisture and its lower price. The closest competitor in terms of price is regular rayon staple as a spun yarn. In most developing countries, however, this product is still clearly more expensive because of the relatively small scale of production and/or the level of import duties. Exporters of cotton textiles to the developed countries have to face the fact that raw cotton prices are barely low enough to meet the competition of artificial fibres, particularly in North America. It is claimed that the recently developed polynosic rayon absorbs moisture as effectively as cotton. It was initially more expensive than cotton but in North America its price as a spun yarn has already fallen to a level competitive with cotton yarn.

The most dynamic sector of the textile industry has undoubtedly been that based on the synthetic fibres which, although they remain more expensive than cotton, still show a long-term downward trend in prices. The acceptance of synthetic fibres in textile goods despite higher prices has been achieved because in certain respects, for example, their easy care properties, they show a superiority over cotton. These advantages had been skilfully explained in sales promotion campaigns. It does not follow that consumers in the developing countries will always make a similar choice to those in the developed countries when weighing the special performance qualities of synthetic fibres against the lower cost of cotton.

The major cotton producing and exporting countries responded to the growing competition of synthetic fibres by establishing in 1966 the International Institute for Cotton (IIC). The membership of the IIC consists of India, Mexico, Spain, Sudan, Tanzania, Uganda, United Arab Republic and the United States. Its aim is to increase the consumption of cotton by initiating research and promotional activities. It is financed by a levy of \$1 per bale of cotton exported by these countries to Western Europe and Japan, reportedly bringing in an annual income of about \$4 million.

Another way in which the cotton textile industries of developed and developing countries have sought to meet the competition of man-made fibres is by blending cotton and man-made fibres at the spinning stage. In this way, fabrics can be

¹³ See among other, *Economies of scale in the cotton spinning and weaving industry* (ST/ECLA/CONF.23/L.9), 1966 (mimeo.).

produced at prices only slightly higher than if they had been made entirely of cotton, yet the manufacturer can offer some of the special qualities of man-made fibres.

In fact, blends are likely to be the major trend in the coming years and some blended products are even more expensive than entirely synthetic ones because of special finishing processes. It is to be expected, therefore, that the share of man-made fibres in textile consumption will continue to increase. Polynosic rayon and, among the synthetics, polyester fibre are expected to show the highest growth rates.

Cost comparisons

International cost comparisons are notoriously difficult to make. No systematic work has been done to compare the costs of textile commodities in developing countries and in the industrially developed ones. Various studies have emphasized, however, the areas in which costs tend to be relatively high in the developing countries.

The cost of capital equipment is generally much higher, because it has to be transported over greater distances and experts may have to be brought from another country to install it. Spare parts for the machinery are often more expensive, partly for the same reasons, but also because larger stocks have to be held in order to avoid the risk of production breakdown if spare parts need to be imported. In addition, where the purchase of capital equipment has to be financed, interest charges tend to be higher and the repayment period shorter when money has to be borrowed in a developing country than is the case in most developed countries. In a study made by the Economic Commission for Africa¹⁴ it is estimated that a plant in Nigeria would require in fixed capital equipment an average investment of \$380,000 per million square yards of cotton cloth, compared with \$260,000 in Europe.

The cost of direct operatives per hour is less in a developing country, sometimes very considerably less, than in the industrially developed countries. Nevertheless, the direct labour cost per unit of output is often much higher and this can reflect inefficient labour utilization as well as differences in the level of technology. Managerial and technical staff, on the other hand, often cost more per year than in the developed countries because they may have to be brought from developed countries in the absence of suitably qualified and experienced nationals.

In the first stage of industrial development, the emphasis is generally on import substitution in order to save foreign exchange, provide employment and stimulate economic growth. At this stage competitiveness internationally may not be given a high priority and indeed may be impossible to achieve. This is the infant industry argument, on the strength of which protection is given against imports by raising a tariff barrier. It is most important, however, that this protection should not be excessive, otherwise the local industry will not approach international competitiveness.

In the longer term, the achievement of competitiveness is essential if there is to be further development of the industry. To achieve the necessary reduction in costs, structural adjustment is required both within and without the textile industry. Machine utilization and manpower productivity need to be substantially improved until they compare favourably with international standards. One of the most powerful measures that Governments can take to bring about the necessary adjustments is a progressive liberalization of textile imports, in order to increase the competition to which local manufacturers are exposed.

¹⁴ *The textile situation in West Africa: markets--industries--prospects* (E/CN.14/INR/129).

Raw materials supply

Local availability of natural fibres as raw material has been a major argument for installing the textile industry in some developing countries. There are, however, many cases of prosperous textile industries based on imported raw materials, for example in Chile, China (Taiwan) and Hong Kong, the latter two being net exporters.

The increasing use of man-made fibres instead of natural fibres has further weakened the argument for establishing a textile industry on the ground that natural fibres are locally available. In this new situation a more sensible goal would appear to be the achievement of self-sufficiency in all textile raw materials on a subregional or regional basis, adding local production of man-made fibres to the available natural raw materials.

In any event, it is of fundamental importance to co-ordinate the development of raw material supplies with the programme for the development of the textile manufacturing sector. This means that investment plans for the production of various man-made fibres should be correctly phased in relation to investment plans for spinning, weaving and finishing of textiles. Such co-ordination also includes the more difficult task of harmonizing agricultural programmes for cultivating natural fibres with the rest of the agricultural programme and with the plans for the textile industrial sector.

EXPORT PROSPECTS FOR APPAREL TEXTILE MANUFACTURES

Trade as a catalyst of development

The export of manufactures by developing countries is generally considered an important catalyst in their industrial development because it can make possible the full utilization of productive capacity which exceeds the level of domestic demand, thereby reducing costs and earning foreign exchange. Because of the downward trend in prices of the raw materials which developing countries traditionally export and the rising trend in prices of many manufactured goods that they import from the developed countries, there has been a tendency for the terms of trade of many developing countries to deteriorate steadily. The promotion of exports of manufactures by developing countries is generally regarded as an essential ingredient in the solution of this problem.

It has to be admitted, however, that the balance of visible trade of the developing countries as a whole has remained adverse and it seems even likely that the gap will increase in the coming years. Contrary to expectations, textile exports have increased more slowly than those of most other commodities exported by the developing countries.

There are two main reasons for this disappointing situation: the limitation by developed countries of imports from developing countries and the structural changes taking place in the textile industries and the consumption patterns of the developed countries. Technological developments have compelled the textile industry in developed countries to undergo structural adjustment in order to increase over-all productivity and restore cost competitiveness. At the same time, the massive switch from cotton to man-made fibres in the textile consumption of developed countries has reduced the export prospects of those developing countries that can only offer cotton manufactures.

Throughout most of the last decade, world trade in textiles has been considerably affected by the Long Term Arrangement regarding International Trade in Cotton Textiles (LTA) negotiated by a number of the major importing and exporting countries under the auspices of the General Agreement on Tariffs and Trade (GATT). The extent to which the LTA has helped or hindered developing countries to export is likely to remain a matter of controversy. Some would argue that without the LTA the developing countries would have faced severer restrictions on the import of cotton textiles into some developed countries. Others claim that the way in which categories of textile goods have been defined for the administration of the LTA has had the effect of impeding the introduction of capital-intensive

industries in developing countries and that the Arrangement ought to have been extended to include the man-made fibres. The complexity of the factors involved is such that neither argument can be unequivocally proved or disproved.

Since its second session held in New Delhi early in 1968, the United Nations Conference on Trade and Development (UNCTAD) has been concerned, through a Special Committee on Preferences, to promote "the early establishment of a mutually acceptable system of generalized non-reciprocal and non-discriminatory preferences which would be beneficial to the developing countries"¹⁵. After intensive consultations during meetings of the Special Committee between prospective preference-giving countries and developing beneficiary countries, agreement was reached in October 1970 on arrangements for such a system, which were transmitted to the United Nations General Assembly and incorporated in the international development strategy for the Second Development Decade. The declared aim is to implement the preferential arrangements through the necessary national legislative action as early as possible in 1971.¹⁶

In so far as cotton textiles are concerned, however, it would appear that the major importing countries have not shifted very far from the positions they adopted in the LTA. Canada, the United Kingdom and the United States, among other countries, have placed cotton textiles on their exceptions lists to the new system of preferential treatment for exports from developing countries to the markets of developed countries. The European Economic Community has offered duty-free preferences to cotton textiles subject to a quota limitation and, in the case of non-signatories to the LTA, provided undertakings are given to the Community analogous to those given under the Arrangement. The Community also reserves its position in the event of the LTA being terminated. Japan has offered to accept imports of cotton textiles at half the normal duty or duty-free, according to product, but always subject to quota limitation.

For these reasons, there is great difficulty in forecasting the trend of world trade in textiles during the next decade. Exports of cotton textiles and perhaps of mixtures with man-made fibres are expected, even on the more pessimistic assumptions, to maintain a slow rate of growth in the period to 1980. A further liberalization of world trade in textiles and, even more important, the application to textiles of special tariff preferences for the developing countries, would favour a much more dynamic growth in this trade.

In terms of comparative advantage in international trade, the developing countries may continue in a less favoured position for the production of man-made fibres and certain types of fabric made from them. As regards made-up clothing, however, the prospects look much more promising. Cutting and making up of apparel remains a labour-intensive operation. In the developing countries cheap manpower can be used, although it should not be thought that no skill is required to produce clothing of a competitive standard for the international markets. However, China

¹⁵ UNCTAD, resolution 21(II). For the reports of the four sessions of the Special Committee held between November 1968 and October 1970 see *Records of the Trade and Development Board, Eighth Session, Supplement No. 4 (TD/B/218/Rev.1), Ninth Session, Supplement No. 4 (TD/B/243/Rev.1, TD/B/262/Rev.1, TD/B/300 and Add.1, TD/B/329)*.

¹⁶ General Assembly resolution 2626(XXV).

(Taiwan), Hong Kong, Korea and other developing countries have already shown what can be achieved in this sector.

A concerted effort is desirable with the object of developing the fabric finishing, knitting and made-up clothing sectors in developing countries. Technical assistance on a considerable scale may prove necessary in order to enable developing countries to manufacture and market sophisticated products in the developed countries. The greater the success of developing countries in creating competitive production of made-up clothing the more likely it seems that appropriate trade agreements may have to be negotiated concerning access to markets in the developed countries.

It would be a gross over-simplification to envisage world trade in textiles in terms of developing countries producing competitively priced goods, which they seek to export in ever growing quantities to developed countries, while the latter plead disruption of their domestic markets and impose import restrictions to protect their own textile industries. As more and more developing countries have not only established textile industries but progressed to the stage of virtual self-sufficiency in many textile products, so the competition has grown between developing countries as exporters. The developing countries that export textile goods do not always have a liberal regime for importing textiles and this reduces the volume of trade between developing countries far below the level which would be established by comparative advantage in textile production. This is part of a much wider problem, namely the tendency of developing countries to retain tariff protection of infant industries after the economic justification for this measure has disappeared. Projects for creating integrated markets on a subregional or regional basis have this advantage, among others, that they serve to minimize the economic damage caused in this way.

Exports of developing countries to developed market economies

Exports of textile and clothing of all fibres from developing countries to developed market economies rose from \$1.1 billion in 1964 to \$1.4 billion in 1967 and \$1.7 billion in 1968.¹⁷ Thus, exports of textiles by developing countries grew during the four-year period at an average rate of 6 per cent yearly compared with 6.3 per cent for the world as a whole. In contrast, the rate of increase for clothing was 21 per cent in developing countries compared with 14.9 per cent for the world as a whole. In consequence, compared with 1964 the share of the developing countries in the imports of 18 developed market economies declined very slightly to 14.6 per cent in 1968 in the case of textiles and rose considerably to 25.6 per cent in 1968 in the case of clothing. While clothing and textiles remain the two largest categories (in terms of value) within the export of manufactures by developing countries, they represented only 31 per cent of the total in 1968 compared with 33 per cent in 1964.

¹⁷ For detailed statistics see 1969 *Review of Trade in Manufactures of Developing Countries*, UNCTAD (TD/B/C.2/90 and Add.1). Textiles and clothing are covered by Standard Industrial Trade Classification groups 65 and 84. Yugoslavia is included among developing countries.

The value of these imports is summarized below:

	<i>Trade of 18 developed market economies (Million dollars)</i>					
	<i>Textiles</i>			<i>Clothing</i>		
	<i>1964</i>	<i>1967</i>	<i>1968</i>	<i>1964</i>	<i>1967</i>	<i>1968</i>
Total imports	4,819	5,397	6,154	1,788	2,552	3,113
Imports from developing countries	712	828	899	374	597	797

The principal sources of the imports of these countries from developing countries in 1967, in diminishing order of value, were as follows (in million dollars):

Hong Kong	511.5	Korea, Rep. of	73.9
India	327.8	China (Taiwan)	56.4
Pakistan	87.1	Mexico	52.2
Iran	85.8	United Arab Republic	14.6
Philippines	78.4	Jamaica	10.3

The principal countries of destination in 1967 and the value of their imports (in million dollars) were:

USA	604	Canada	72.0
United Kingdom	248	Japan	31.0
Germany, Fed. Rep. of	170	France	17.0

In interpreting the above statistics it should be borne in mind that they include non-apparel textiles such as jute and hard fibres. This applies particularly to the imports from India, Pakistan, and the Philippines. Iran is also rather a special case, since the imports from this source consist mainly of Persian carpets.

Since October 1962, the bulk of world trade in cotton textiles and clothing has been regulated by the LTA. In 1962 many importing countries had taken the view that their imports of textiles were increasing so rapidly as to cause or threaten to cause disruption of their domestic market for cotton textiles and had imposed restrictions inconsistent with the provisions of the GATT. Under the provisions of

the LTA, these countries agreed to relax those restrictions progressively each year and not to introduce new restrictions inconsistent with their obligations under the GATT. In general, import quotas were to be increased by 5 per cent annually. Canada and the United Kingdom were already importing cotton textiles in considerably larger volume than the other signatories of the LTA, because they granted tariff preferences to Hong Kong, India and Pakistan, and their Governments refused to accept any obligation to increase imports automatically. The remaining signatories accepted the validity of these reservations (except Pakistan in respect of the United Kingdom).

An escape clause in the LTA, however, permitted an importing country to impose restrictions in the future on any category of cotton textile products whose import caused or threatened to cause disruption in the market. The LTA laid down machinery for consultation in such cases and for periodic reporting on the situation to the Cotton Textiles Committee of the GATT.

The LTA was envisaged as a special measure to be applied during a period of a few years, to meet a special situation in the field of cotton textiles, and the measures adopted were not to be considered as lending themselves to application in other fields. The Arrangement was originally for a period of five years but its validity has since been extended without a break. Including countries which acceded after 1962, the number of participating countries had reached 33 by October 1968; of these thirteen are developing countries. Participating countries account for over 90 per cent of cotton yarn, over 70 per cent of cotton cloth and over 80 per cent of cotton clothing in world exports.

Whatever the outcome might have been in the absence of the LTA, there is no doubt that some developing countries increased their exports of cotton textiles and clothing very substantially between 1962 and 1968. The exports of the Republic of Korea in 1968 were seven times the level of 1962 and in Pakistan the growth was even greater. In the United Arab Republic, China (Taiwan) and Hong Kong the level in 1968 was 255, 230 and 167 per cent respectively of their exports in 1962. In money terms these increases totalled nearly \$370 million. The most successful exporters among the developing countries contend, not surprisingly, that their performance would have been even better if access to markets in the developed market economies had not been subject to import restrictions.

It should not be overlooked that, in addition to quantitative restrictions, exports of cotton textiles are still subject to relatively high tariffs in each of the major markets, despite the concessions granted under the Kennedy Round of tariff negotiations.¹⁸ After full implementation of the concessions negotiated in the Kennedy Round, the duties on cotton textiles will still be over half the previous level. The European Economic Community and the United States agreed to reduce duties to about 80 per cent of their previous level on condition that the LTA was renewed when it expired in 1970. The United Kingdom has announced the abolition of quotas and the end of duty-free imports of textile products from Commonwealth countries from 1 January 1972. On that date a new tariff will enter into effect with duties ranging from 6.5 per cent for cotton yarn to 15 per cent for cotton cloth and 17 per cent for garments and made-up textiles.

¹⁸ See *the Kennedy Round: estimated effects on tariff barriers*, UNCTAD (TD/6/Rev.1), New York, 1968.

Summarizing the main factors that appear likely to determine the course of international trade in textiles and clothing during the next decade:

- (a) Demand for cotton textiles in developed market economies is static or declining;
- (b) Cotton textile producers in these countries, having ceased to be competitive with producers in some developing countries, are modernizing and rationalizing their production facilities and also diversifying into man-made substitutes;
- (c) The developed countries are generally at an advantage compared with developing countries in introducing capital-intensive technology, especially in the case of man-made fibres;
- (d) The developing countries may have a comparative advantage in the field of made-up clothing and perhaps in the knitting sector of apparel textiles;
- (e) Whether through the mechanism of the LTA or by other means, the Governments of the developed market economies may be expected to give their domestic industries some shelter against the competition of imports, whenever these increase so rapidly that the local industry appears unable to adapt fast enough to the new situation and is threatened with a drastic contraction.

The most likely outcome during the next decade would appear to be that exports of apparel textiles from developing countries to the developed market economies will continue to increase at the present modest rate of 5 or 6 per cent annually. Within the total, however, cotton textiles may show little or no increase and man-made fibres a much higher rate of growth. As regards wool manufactures, which totalled nearly \$300,000 in 1968, much depends on whether Hong Kong can continue the rapid expansion of its trade (from \$50,000 in 1963 to \$140,000 in 1968). Nearly all the developing countries outside Latin America that export wool manufactures have also increased their trade during the last decade. It seems reasonable to suggest that the trade in wool apparel textiles (as distinct from carpets and rugs) will increase by an average of at least 10 per cent annually during the next decade.

As regards made-up clothing, for the reasons already stated it should be possible with technical assistance to increase the exports of the developing countries by at least 15 per cent annually in the next decade.

Exports by developing countries to centrally planned economies

Total exports of textiles from developing countries to the centrally planned economies rose from \$39 million in 1962 to \$166 million in 1967. Nearly one third of the total however consists of jute goods exported by India, mainly to the USSR.

The export of apparel textiles, therefore, has been running at a little over \$100 million annually in the recent past compared with under \$30 million in 1962. A large part of this increase is accounted for by the United Arab Republic, whose exports rose from \$10 million in 1962 to \$66 million in 1967.

This trade is regulated by bilateral agreements and the statistics display no regular pattern. It is difficult to forecast the future evolution of trade with the centrally planned economies. These countries might, for example, decide to make

longer-term trade agreements under which the developing countries would specialize in weaving cotton cloth and they themselves would concentrate on the finishing sector and on man-made fibres. In such circumstances, the trade would probably increase by 10 per cent or more annually.

Trade between developing countries

The trade in textiles between developing countries is much less than their textile trade with the developed market economies: for 1961 it was estimated at \$416 million and by 1967 it had increased to only \$547 million. In 1961, trade in textiles

TABLE 12. REGIONAL ANALYSIS OF TEXTILE EXPORTS, 1961 AND 1967

Exports from	Exports to Year	Developing countries				Developed market economies	Centrally planned economies	World total ^b
		Africa	Latin America	Asia	Total ^a			
<i>Value (million dollars)</i>								
Africa	1961	11	6	4	21	15	10	48
	1967	34	4	12	49	29	67	145
Latin America	1961	—	5	8	14	24	—	43
	1967	—	36	—	36	44	—	81
Asia	1961	89	41	243	381	452	23	870
	1967	115	16	320	462	654	93	1,209
<i>Regional distribution (per cent)</i>								
Africa	1961	23	13	8	44	31	21	100
	1967	23	3	9	34	20	46	100
Latin America	1961	—	12	19	33	56	—	100
	1967	—	44	—	44	54	—	100
Asia	1961	10	5	28	44	52	3	100
	1967	10	1	27	38	54	8	100
<i>Annual growth 1961–1967 (per cent)</i>								
Africa		21	-7	21	15	12	37	20
Latin America		—	39	...	17	11	—	11
Asia		5	-17	5	3	6	26	6

Source: 1969 Review of Trade in Manufactures of Developing Countries, UNCTAD (TD/B/C.2/90 and Add.1).

^aIncludes in some cases exports to Caribbean and/or Pacific Islands, not shown under the relevant region(s).

^bIncludes special category exports, whereas individual regions do not include them.

represented more than a third of the total trade in manufactures between developing countries: by 1967 the proportion had dropped to 25 per cent. In other words, the textile trade between developing countries is expanding more slowly than the trade between these countries in other manufactures and also more slowly than their trade in textiles with the rest of the world.

Table 12 gives a regional analysis of textile exports in 1961 and 1967. It should again be emphasized that these figures include jute and hard fibres as well as apparel textiles. The value of textile trade between developing countries increased by 31 per cent (and that between developing regions was static) during six years in which the value of world textile trade increased by 49 per cent. Trade between the developing countries in Africa tripled and between those in Latin America reached seven times the 1961 level, but the absolute value of these trade flows is still small.

The future development of intra-regional trade will clearly depend on trade agreements and the progress made in subregional or regional integration. The trade potential is far greater than the actual level and considerable advantages would result from the integration of markets in the form of greater specialization, keener competition and the lower prices made possible by improved efficiency. Unless such measures of market integration are promoted, the likelihood is that yet more developing countries that have imported textiles in the past will establish small local industries to substitute for imports. In those circumstances, the growth in intra-regional trade could come to a halt.

THE INVESTMENT IMPLICATIONS OF EXPANDING TEXTILE PRODUCTION

Plant utilization and expansion of capacity

In the following discussion it is assumed that the trend towards regional self-sufficiency in textile production will be maintained. In Latin America and Asia the installed production capacity exceeds current consumption but not the level of consumption forecast for 1980. Some investments to expand capacity will therefore be necessary during the decade. In Africa, on the other hand, production is generally below the current level of consumption and the incentive to expand capacity already exists.

In most cases the full utilization of the capacity at present installed involves much more than having access to a sufficiently large market for the sale of the products manufactured. Full utilization generally means that productivity has to be increased by training and maintenance programmes, by better management techniques and so on. The importance of such activities cannot be overemphasized, because they make possible substantial reductions in the total investment otherwise required to set up additional production capacity.

Whether modernizing existing capacity or adding new capacity, due account must be taken of technological developments. The opportunity should be taken to assess the desirability in any expansion programme of switching to knitted instead of woven cloth and, in the field of man-made fibres, of manufacturing filament yarn and then texturizing it rather than making staple fibre and spinning it. There must also be sufficient flexibility to produce blends of natural and man-made fibres.

Africa

Large investments will be required to bring Africa at all close to subregional or regional self-sufficiency in textiles. However, the value of the imports that can be saved through such a programme is a similarly large sum of money. It is particularly important in Africa to examine the prospects for manufacturing knitted cloth and made-up clothing, because these activities are effectively competitive at the much smaller plant sizes that are appropriate to the relatively small markets in many of these developing countries.

Most developing countries in Africa, especially those that grow cotton, now aim at greater self-sufficiency in cotton textiles. In East Africa the planned expansion would take capacity above the level of demand in the area.

Latin America

The textile industry is long established in Latin America and no single country appears to offer immediate scope for substantial import substitution, at any rate in the cotton sector. The major producers are in the middle of programmes designed to rectify a situation in which outdated machinery and excess capacity, high prices and low consumption constitute an all-too-familiar vicious circle. Studies by the Economic Commission for Latin America and the development programmes of individual countries recognize that the emphasis must be on modernization and replacement of capacity rather than increasing the total capacity installed in the region.

Asia

The cotton textile industry is already well established in certain countries of this region which, however, also includes some major importers. In particular, there are well established industries in China (Taiwan), Hong Kong, India, Iran, Pakistan and South Korea, all of whom are self-sufficient. The major importers include Ceylon, Indonesia, Malaysia and the Philippines, each of which has decided to include self-sufficiency in cotton textiles in its general development policy. If this import substitution takes place the countries in the former group will lose some of their export markets. A further important factor, especially in India, is the coexistence of a substantial hand-loom sector and a modern one within its textile industry. Social as well as economic considerations must play a large part in deciding the future importance of the hand-loom sector in textile production.

Investment projections for the spinning sector

Since wool consumption is relatively static and only a few developing countries manufacture woollen yarn, the discussion here is confined to cotton-system spinning. It will be appreciated that man-made staple fibre as well as cotton is spun into yarn on these facilities. The investment needed for the manufacture of man-made fibres, in staple or filament form, lies outside the scope of this publication.¹⁹

The investment requirements for cotton-system spinning have been estimated on the following basis. It was assumed that consumption in 1980 in each region would attain a level midway between the projections given in table 5 for low and for high GDP growth rate. The next assumption was that each region would be fully self-sufficient by 1980. Thirdly, it was assumed that half the consumption of man-made fibres would be in staple form, that is to say, that capacity for cotton-system spinning must be sufficient to satisfy all the cotton and half the man-made fibre consumption.

The calculations are made at European price levels, f.o.b., without credit terms. In practice, the price would be increased by the cost of long-term credit, transport and insurance costs, and other additional expenditure that has to be incurred when equipment is installed in developing countries. Taken together, these cost elements add from 50 to 60 per cent to European prices f.o.b.

The estimate of investment requirements depends on whether or not it is assumed that the existing production capacity in developing countries can be used in

¹⁹ It will be examined in a companion paper to be published in this series, dealing with the petrochemical industry.

future with greater productivity; and also on whether it is assumed that additions to capacity will be operated at the productivity level of which they are capable instead of the much lower level suggested by the previous experience of developing countries.

In financial terms, it will make a very great deal of difference where the truth lies between these various assumptions. In the calculations given below, Alternative I is the most optimistic one, in that it assumes that the existing equipment will be operated at 90 per cent of its actual capacity and that, as a result of dynamic sectoral development planning, the same will be true of new capacity installed during the decade. It should be borne in mind that the rated capacity of existing equipment already takes into account working conditions in developing countries, so that the target is a realistic one that can be achieved by intensive utilization and modernization. The modernization will involve some capital expenditure but this has not been included in the investment estimate shown below.

Alternative II makes the less optimistic assumption that no significant improvement in productivity will be achieved with the production capacity already installed but that additions to capacity will be utilized at the 90 per cent level. In effect, therefore, the output achieved in 1966 is taken as the installed production capacity in that year and the difference between this figure and the production target for 1980 represents the additional capacity to be installed in the period 1967 to 1980.

Alternative III follows Alternative II in its assessment of the installed capacity in 1966, but makes the pessimistic assumption that all new capacity installed in the period 1967 to 1980 will be operated at the low levels of machine utilization achieved in 1966, as estimated in table 8. Since the African region contained much more modern machinery utilized at a high level of productivity, the adoption of Alternative III leads to only a modest increase in the estimated investment requirements for Africa. In the other two regions, however, the difference between the various alternatives can only be described as startling. The estimates may be summarized as follows:

	<i>Alternative estimates of investment</i>		
	<i>I</i>	<i>II</i>	<i>III</i>
	<i>(million dollars)</i>		
Africa	910	945	1,070
Latin America	370	670	930
Asia	395	1,470	2,200

The technical assumption throughout is that new spindle capacity in the period up to 1980 will have a productivity 20 per cent above the current level, in order to allow for future technological developments, which implies 163 kg per spindle year. For example, 90 per cent utilization would yield an output of 147 kg per spindle year. The investment cost f.o.b. on a cash basis is assessed at \$150 per spindle.²⁰

²⁰ This is 25 per cent higher than the estimate in *Technological and Economic Aspects of Establishing Textile Industries in Developing Countries* (ID/7) UNIDO, Vienna, 1967.

Table 13 summarizes the tonnages of yarn and the number of spindles that correspond to the foregoing investment estimates.

TABLE 13. PROJECTED REQUIREMENTS OF COTTON - SYSTEM SPINDLES, 1967-1980

	<i>Alternative</i>		
	<i>I</i>	<i>II</i>	<i>III</i>
<i>Africa</i>			
Capacity in 1966 (thousand tons)	313	277	277
Consumption in 1980 (thousand tons)	1,204	1,204	1,204
New capacity required (thousand spindles)	6,060	6,300	7,130 ^a
<i>Latin America</i>			
Capacity in 1966 (thousand tons)	1,053	761	761
Consumption in 1980 (thousand tons)	1,416	1,416	1,416
New capacity required (thousand spindles)	2,470	4,460	6,200 ^b
<i>Asia</i>			
Capacity in 1966 (thousand tons)	2,979	1,924	1,924
Consumption in 1980 (thousand tons)	3,366	3,366	3,366
New capacity required (thousand spindles)	2,680	9,800	14,700 ^c

^a At 80 per cent utilization, or 130 kg per spindle year.

^b At 65 per cent utilization, or 106 kg per spindle year.

^c At 60 per cent utilization, or 98 kg per spindle year.

The investment savings represented by the difference between the alternatives would take the form, to a very large extent, of savings in foreign exchange. Corresponding calculations for the three alternatives have not been made in respect of the weaving section, but the savings on looms might be about half those on spindles.

Investment projections for weaving

Not all yarn is further processed by weaving. The growing importance of knitting as an alternative way of producing textile cloth has already been mentioned. In addition, there are yarn products such as sewing thread, nylon rope and cord. It was therefore decided to estimate the investment required for weaving by indirect means.

It was supposed that the utilization levels in weaving in 1966 were no more (and no less) satisfactory than in spinning, so that the relationship between the number of spindles and the number of looms in place reflected a state of balance. The available data indicate a requirement of 1 loom for each 32 spindles. A modern automatic loom was estimated to cost \$2,500 f.o.b. on a cash basis.

Of the Alternatives discussed in the projections for spinning, Alternative II appears to be the most realistic to use. It has to be recognized that the weaving section is much more decentralized than spinning and that its traditional features are likely to prove an obstacle to the introduction of measures to increase productivity. On the other hand, when new weaving units are set up the opportunity could be taken to create an appropriate structure for this sector and, by energetic control of the projects, to achieve a high level of efficiency.

Calculations made on these assumptions admittedly fail to make any allowance for the greater use of knitting in substitution for weaving processes in the future. In so far as production capacity for knitting is expected to be less expensive than that for weaving, the investment cost is therefore overstated.

To match the spindle capacity to be installed during 1967-1980, as shown under Alternative II in table 13, it would be necessary to install 197,000 looms in the African region at an estimated cost of \$492 million; the corresponding figures for Latin America would be 140,000 looms costing \$350 million and for Asia 306,000 looms costing \$765 million.

STRATEGY AND POLICIES FOR DEVELOPMENT

Development strategy for the apparel textile industry in developing countries

A characteristic which is common to many developing countries is their limited capability to develop in response to the needs of their population or even to make good use of their existing production facilities. The slow and uneven growth achieved by most developing countries has increased the gap in living conditions between them and the developed countries, both qualitatively and quantitatively. The causes of this situation are deep-seated in the economic and social relationships within the developing countries and between them and the developed countries. The development "take-off" must generally be preceded by some fundamental changes in those relationships that cause these countries to remain at a low level of development. As summed up by the United Nations Committee for Development Planning, "there is a need for the continuing effort to modify the economic and social structure with a view to greater efficiency and equity and to meet the basic requirements of a self-sustained development."²¹

With a few important exceptions, the textile industries of developing countries are faced with problems which derive from the low level of development in these countries. The brief analysis of textile industries that has been given in this study leads one to anticipate the danger of an impasse in their further development. So long as most individual incomes are low and almost stagnant, the bulk of the population will be unable to purchase its full basic requirements of textiles or even to break out from a subsistence economy to make any cash purchases of textiles. The uneven income distribution in a dual economy may well mean that the trend in *per capita* GDP is not a very satisfactory indicator to use in forecasting the consumption of textiles. It is fairly certain, however, that without growth in GDP there will be none in textile consumption and that even the less optimistic of the projections of consumption in 1980 made in this document are not going to happen automatically, but will depend on framing a correct development strategy and following it up with appropriate policy measures.

Uneven growth and an inappropriate development of the structure of the textile industry in the past have resulted in a considerable excess of installed capacity in many countries of Latin America and Asia, so that consumption will have to increase

²¹ *The International development strategy for the 1970's: a preliminary sketch (E/AC54/L/50).*

by between 50 and nearly 100 per cent in many countries before the need to expand capacity will arise. It is hard to foresee a substantial increase in consumption, however, so long as textile sales stem mainly from a limited high-income group in which the level of demand is soon saturated unless regularly stimulated by changes in fashion and sophistication of products. To make matters worse, this sophistication and innovation depend on keeping pace with technological developments in the developed countries and this is very difficult to achieve by an industry burdened with excess capacity and inefficient operation.

The stimulation of local textile demand has to come essentially from general economic development and the growth in the developing countries of the urban-type patterns of income and consumption characteristic of the developed countries. Lower prices (in real terms) for textiles also have a role to play, since there are grounds for believing that textile demand is strongly sensitive to prices at the income level of most people in developing countries. Lower prices can only be expected in a context of lower costs, resulting from major structural changes in the industry.

Current trends in international trade are not helping to eliminate this underdevelopment and to put an end to the disparity of growth rates between the developed and developing countries. The primary products which still constitute so much of the exports of developing countries to developed countries suffer from unstable and very often downward price trends. This has been a compelling reason for developing countries to try to build up exports of manufactures and textile manufactures in particular. The expansion of textile exports, however, is threatened by the limitations imposed by many developed countries in order to protect their local textile industries. It also becomes progressively harder for the textile industries in developing countries to manufacture the products required in export markets if they have to manufacture a very different range of products for their domestic markets, in consequence of the growing disparity in income levels at home and abroad.

According to FAO projections²², "certain considerable expansion in cotton textile capacity of low income countries, combined with the relatively slow growth of demand for cotton goods in net importing countries (particularly in developed regions), may result in an 18-22 per cent excess of export availabilities (in 1975) over constant or shrinking import requirements, and consequently in severe pressure on the world price of cotton textiles. Although the developing countries may gain by exporting their cotton in processed form rather than in the raw state, the benefit to their balance of payments may thus be limited by falling prices." This FAO study goes on to point out that if the competition from man-made fibres proves to be even more successful than it has assumed, the extent of the imbalance between export availability and import requirements of cotton goods might well reach 38 per cent by 1975.

Given this difficult export environment, it is not expected that the volume of textile exports by developing countries will increase during the next decade by as much as 5 per cent yearly. If the downward trend in cotton prices persists, this could even mean that the value of these exports decreased in future years.

There are two implications from the point of view of strategy that follow from this assessment. The first is that in making any appraisal of textile industry

²² *Agricultural commodities projections for 1975 and 1985*, Vol. 1 (CCP67/3) FAO, Rome, 1967, p.281.

investments, a developing country should be very cautious in approving projects whose viability is heavily dependent on export sales. The second implication is that a developing country without a textile industry should not automatically assume that the best use of its limited investment funds is to establish one. If the prospect is that the prices of imported textiles will be static or even decline, while those of many other imported goods may be expected to rise, it may be that other industrial sectors are better candidates for the use of investment funds, from the point of view of saving foreign exchange and indeed from the point of view of international comparative cost advantages. The likelihood that this will prove to be the case has been increased by the technological evolution of textiles into a capital-intensive industry.

The growing size of the capital investment required for production facilities and the rising costs of borrowing money, within developing countries and abroad, have increased the dependence of the textile industry on the capital market and this has had the inevitable effect of reinforcing the position of established manufacturers.

Where there is political and economic instability or inflation the investors inevitably try to recoup the capital they invest over a correspondingly shorter period and to charge higher interest rates for loans. This attitude contributes in turn to the inflation of costs and thus to the stagnation of consumption.

A comprehensive strategy for the future development of textile industries should take into account the fact that they have reached widely different stages of development in different developing countries. Broadly speaking, three successive stages may be defined. In the first stage, the beginnings of a textile industry have been brought into existence and the process of import substitution has begun. Most African and many Asian developing countries are at this stage, where a substantial proportion of total requirements is still imported.

The second stage is one in which the local textile industry has been broadened in scope and size until it is capable of producing virtually the full range and volume of textile goods required by the domestic market. It is not inevitable that such an industry should be non-competitive internationally and should suffer from excess capacity, out-of-date machinery and operational inefficiency. It is nevertheless true that many developing countries are confronted with this kind of situation.

In the third stage, attained by a very few countries, the textile industry, by extensive and/or intensive development, is internationally competitive and vigorously promotes the sale of its manufactures in the domestic and export markets.

The objective set before the group of countries that are in the first stage, the net importers, is to achieve an increasing measure of self-sufficiency within the decade. If they plan realistically in order that the expansion of capacity should not be achieved at the expense of efficiency, the development of their textile industries can be accelerated, yet remain soundly based and avoid the problems that so many countries at the second stage have faced. Special attention should be given to planning raw material supplies and to technical education. Technical assistance should be secured for these development programmes from international sources. Moreover, each developing country needs to assure itself, using appropriate social costing methods, that the goal of self-sufficiency in textiles is justified in its particular case. Many smaller countries, especially in Africa, are likely to find that this is only so if they co-operate with other developing countries on a subregional basis in establishing a single integrated market. Cost-benefit analysis, with due allowance for the social factors, should also be employed to determine the order of priority in a programme

of self-sufficiency. For example, it may be that knitting and made-up clothing manufacture should be tackled before production of nylon yarn.

While those countries at the second stage whose industries are efficient may embark on testing their competitive power in the export markets, most of the countries in this group need to consolidate their textile industries by adding efficiency to self-sufficiency. This is not something that can be achieved in the short term. A powerful lever for making the structural adjustments which are needed in these existing industries is for the Governments to bring about a progressive liberalization of regional trade in textiles. Major emphasis must be placed on the improvement of productivity, management skills and marketing techniques, as well as on raising the level of technology employed. As efficiency and technical skill grow, production costs will fall and competitiveness improve. Such a far-reaching readjustment of the textile sector needs careful planning and implementation, in which the industry and government agencies co-operate closely.

For the group of countries that have reached the third stage, the development strategy recommended is to bring about self-sustained dynamic growth in the textile sector through steady expansion of exports and domestic demand. In the short-term, effort must be concentrated on maximizing the volume of exports to the developed countries. Since export markets are expected to expand relatively slowly and growing competition is anticipated between the developing countries, thereby reducing the profitability of exports, textile industries in these countries should endeavour to increase the unit value of the goods they export by further sophistication in quality and styling. Technical assistance will generally be required with this specific object in mind and to improve techniques of marketing their goods in the developed countries.

In the medium term, a point is likely to be reached at which the main scope for further expansion of exports lies in intra-regional exchanges. For this to take effect, the principle of self-sufficiency in each developing country would have to give way to co-operation and liberalization of trade. This would have to be on a reciprocal basis in order to make politically possible the promotion of the necessary structural changes in the individual textile industries.

In the long term, however, the only viable basis for a self-sustained development of the textile and clothing sectors will be the regular growth of domestic demand. In the last analysis this can only take place if there is an increase in effective incomes and an improvement in the distribution of incomes so that the majority of the population become consumers of manufactured products. The rise in consumption is the dynamic lever that raises production capacity through providing the incentive for capital investment.

Policy recommendations

Policies at the international level

It may take more than a decade to achieve completely the objectives for accelerated development that depend on international action but some improvements within the decade could have important repercussions on international development. Wherever possible the declining trend in exports by developing countries of natural raw materials should be checked. Concurrently, efforts should be made to promote the exports of manufactures. The first half of this policy may sometimes involve the search for new markets or new applications of a raw material. Sometimes it may need

the negotiation of commodity agreements between exporters and the importing countries who are the major consumers, with the object of limiting fluctuations in output and price levels. Implicit in such agreements is the willingness and ability of the exporting developing countries to co-operate in working such agreements which are in the short run to the advantage sometimes of one exporter, sometimes of another. The promotion of exports of manufactures involves the solution of many problems in the field of technology, price competitiveness, marketing and after-sales service. In order to deal with price competitiveness, proposals have been made that the developed countries should concede a general preference in their import tariffs for manufactured goods originating in developing countries.

In the specific case of textile manufactures the policy should be to aim at a progressive liberalization of imports, first of all by the developed countries but in the longer term by the developing countries as well. In order to permit this to take place, the importing countries may wish to be assured that their textile markets will not be disrupted by exports promoted at any cost, including dumping. Some international trade agreements, whether multilateral or bilateral, are likely to be necessary for many years to come. Their terms inevitably reflect the bargaining power of the participants. In the last analysis the developed countries cannot sell their exports to the developing countries unless they are prepared to accept imports from the developing countries. There is scope for compromises that relate trade liberalization by the developed countries to, for example, the treatment accorded to foreign investment in developing countries.

In the long term, however, it may be found that the greatest scope for expansion of international trade lies in trade within regions or sub-regions, provided that measures are taken to liberalize such trade in co-ordination with the promotion of consumption in the countries concerned. In the major agricultural and industrial sectors, the developing countries may find that their most advantageous course is to aim at regional self-sufficiency, particularly for those sectors where the prospect of increasing the volume of exports to the developed countries without causing a decline in prices is not encouraging. In such sectors the promotion of local and regional consumption becomes imperative and liberalization of regional trade (as distinct from imports from the developed countries) is an important means to this end.

The estimates in Chapter 4 show that considerable investment in fixed assets will be required in the textile industries of the developing countries during the coming decade. Much of this investment will have to come from sources outside the developing countries. International and national agencies are likely to prove the most suitable instruments to organize this foreign investment and to screen the proposals made by developing countries. As far as possible, credit should not be in the form of tied loans. In other words, the developing country should remain free to obtain machinery, equipment and technical assistance from the most appropriate sources. In this connexion UNIDO could play an important advisory role.

Any measures of regional co-ordination, even when they stop well short of the complete integration of markets, imply that the individual national investment programmes cannot be drawn up in isolation. The extent of the collaboration between Governments, with the object of achieving both efficiency and a balanced distribution of textile establishments within the region, must inevitably be a matter of negotiation and agreement. The precise institutional form which such consultations should take can likewise not be decided *a priori*. The regional economic

commissions of the United Nations provide a convenient forum where the Governments of the developing countries can have preliminary discussions and even initiate the substantive consultations.

The following are the principal factors influencing textile development that need to be taken into account in regional or subregional planning.

The actual and projected consumption of textile goods and its distribution according to type of fibre;

Alternative location patterns on a subregional basis for textile enterprises, bearing in mind the geographical distribution of the market and the supply factors;

The prospects for exports outside the region or subregion;

Promotion plans for increasing the efficiency of the textile sector;

The technical and economic aspects of the various stages of textile processing;

Availability of raw materials, with special reference to co-ordination between the plans for textile manufacture, petrochemicals and the development of agriculture;

Where there is a cottage textile industry, the level of skill displayed by those who work in it;

The mobilization of international finance for investment.

In parallel with these activities, it is necessary to prepare up-to-date surveys of the textile industry in all the countries of the region or subregion, in order to provide the necessary information for feasibility studies and planning, as well as for field work when the implementation stage is reached. Special attention should be paid to areas within the region where there is a dual economy.

If these surveys are prepared by a single institution acting on behalf of all the developing countries in the region or subregion concerned, a logical extension of its activities would be to provide on-the-spot assistance in technical and marketing matters, particularly where the export of finished textile goods forms part of the regional plan. An intensive educational programme should also be organized on a regional basis to co-ordinate national textile educational programmes and to supplement them if need be in subjects such as the latest technological developments and methods of sectoral planning.

Policies at the national and sectoral level

As a result of a better understanding of the policy measures available to them, the Governments of developing countries have come to regard economic development as one of their primary objectives. The achievement of development goals in any sector of the economy or in any branch within a particular sector can be made possible only if the Government of the country concerned adopts (both at the macro-economic and sectoral level) policy measures designed to facilitate the achievement of such goals and refrains from consciously or unconsciously following a line that is likely to compromise the achievement of development objectives. These considerations apply as much to the textiles industry as to any other industry or, indeed, to any other economic sector. At the national level, therefore, appropriate

decisions are required in the main areas of policy-making, especially with regard to fiscal, financial and balance of payment policies. An "appropriate" macro-economic policy cannot, of course, be determined *a priori* in view of the differences in the socio-economic framework of developing countries but will have to be decided within the context of each particular country.

Excess capacity, inefficiency and high prices characterize the textiles and clothing industries of many developing countries. Policy measures can be devised for curing these defects but, if appropriate policies had been followed at the sectoral level, these defects would not have arisen in the first instance. This would argue in favour of a close co-operation between governments, on the one hand, and textile industrialists, on the other. Such co-operation would make it possible for the Government to keep track of developments in this branch and would place it in a better position to take appropriate policy decisions rapidly.

Co-ordination is necessary not only of the various factors that influence the development of the textile sector but also between the textile and other industrial sectors. The regional economic commissions for Latin America and Africa have drawn attention to the necessity of drawing up sectoral development programmes for textiles.²³

In order to achieve its strategic goal, a sectoral development programme must pay attention to the following main aspects: consumption, investment, technology, productivity, training, management and exports.

It is recommended that knitting should be included as well as other textile processes and that a single promotional activity should deal with made-up clothing as well as textiles. It is considered that knitting and made-up clothing will be of fundamental importance during the next decade both for domestic and export markets of the developing countries.

Investment policy in developing countries should recognize the great scope for expansion potentially inherent in the textile industry. In the short and medium term priority of investment should go to rationalization and correction of the unsuitable production structure. Only in the longer term should capacity be expanded, in order to match the further expected growth in consumption. A development agency can help to secure the effective distribution of foreign contributions to the textile investment programme. All new investment should be keyed to a careful assessment of market prospects. In some African countries in particular, only a market organized on a subregional basis may prove large enough.

Textile enterprises in the developing countries are in general too small to undertake technological research and application work. Institutes of textile technology need to be established (where they do not already exist) in order to organize the transfer of technical knowledge. Their function would be to provide technical assistance in adapting and modernizing the industry and to increase productivity. Many major problems in the industry could be resolved in on-the-spot investigations by technical experts. Nevertheless, low productivity is part of the deficient structure of the industry and by concentrating on raising productivity the institutes can co-ordinate the several related measures. On-the-job training of personnel, including technical and managerial staff, is a particularly important function.

²³ See *La Industria textil en América Latina*, XII (E/CN.12/796) and *The textile situation in West Africa: markets - industries - prospects* (E/CN.14/INR/129).

It may prove economical to set up centralized maintenance and spare parts services, in co-ordination with textile machinery manufacturers, in order to facilitate maintenance work and reduce the amount of time that production capacity is unusable. Feasibility and viability studies should be made of the manufacture of textile machinery and spare parts on a national or regional basis, related to the plans for modernization and expansion of textile manufactures.

In order to facilitate subregional co-operation and lower the production and distribution costs, the communications infrastructure has to be improved; this is most urgent in Africa.

As stated above, a policy of protectionism for the local textile industry should progressively give way to trade liberalization on a subregional or regional basis, at least in those countries that have virtually achieved self-sufficiency. Where some degree of protection is still necessary the Government should supervise prices of textile goods. It is also important to improve the structure of marketing and distribution of textile goods.

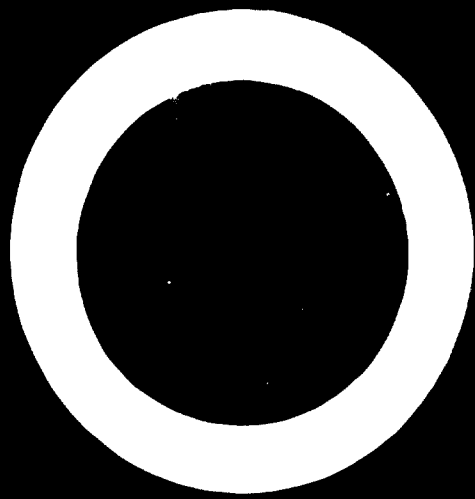
No long-term programme can ignore the necessity to plan technical education so that trained personnel and technical staff will be forthcoming in the numbers required. Special attention should be given to technical training for middle-rank personnel such as foremen and supervisors.

Rigorous quality standards are a prerequisite to the export of textile manufactures and made-up clothing on any wide scale. The first step is to resolve the technical problems associated with the level of sophistication required, including style and design. Assistance in marketing, possibly under arrangements in which several enterprises operate jointly, must be organized next and without delay, otherwise potential exporters may prove unable to gain access to foreign markets.

Conclusion

The combination of policy measures at the international, national and sectoral level outlined in these pages should make it possible to eliminate within the next development decade the major deficiencies that currently affect the textile industry in most developing countries. Such an achievement would make a great contribution towards creating the conditions in which countries can reach the take-off point in the path of their development.

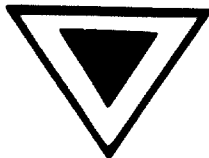
The measures do not and cannot add up to a detailed blueprint, however. That has to be elaborated in the developing country itself, to match its specific needs, often with the aid of externally provided technical assistance. No matter how deep-rooted may be the basic causes of a low level of development and however daunting the present deficiencies in economic organization appear, the possibilities of a sound and independent development are always present. There must, however, be a determination to succeed and the political will to forge stronger links of co-operation among the developing countries.



ANNEX

List of participants at Expert Working Group Meeting on Trends and Prospects in the Textile Industry in Developing Countries during the Second Development Decade: Vienna, Austria, 3-7 November 1969

- Mr. A. Belkora United Nations Conference on Trade and Development
(UNCTAD)
Geneva
- Mr. J. Boer Koninklijke Textielfabrieken
Nijverdal
ten Cate NV
Almelo, Holland
- Mr. Ho Chun Yuen University of Hong Kong
Department of Economics and Political Science
Hong Kong
- Mr. St. B. Hunt Textile Economics Bureau Inc.
Publisher of Textile "Organon"
10 East 40th Street
New York 10016, USA
- Mrs. H. V. Klein Food and Agriculture Organization
(FAO), Rome
- Mr. A. Van Lancker Corporacion de Fomento de la Produccion (CORFO)
(Rapporteur) Ramon Nieto 920 of. 638
Santiago de Chile
- Mr. R. Robson Economic Commission for Africa
(Chairman) (ECA), Addis Ababa
- Mr. K. H. Rönitz Farbwerke Hoechst AG
Wirtschaftspolitische Abtlg.
Postfach 800320
6230 Frankfurt/Main
Fed. Rep. of Germany
- Mr. J. Sinclair Economist Intelligence Unit (EIU)
Spencer House
27 St. James's Place
London, S.W.1.
- Mr. J. Szabó Hungarian National Committee for UNIDO
Kossuth Lajos Tér 2-4
Budapest V
Hungary



14.3.72