

GENERAL AGREEMENT ON TARIFFS AND TRADE

RESTRICTED

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Textiles Committee

FIBRE CONSUMPTION FEASIBILITY STUDY

1. At its meeting of 22-27 October the Textiles Committee considered a proposal by several delegations concerning the compilation of fibre consumption statistics and instructed the secretariat to undertake a feasibility study covering the technical and financial aspects of the proposal. These calculations used to be made by the FAO and published annually in Per Caput Fibre Consumption, the latest issue relating to 1972-74 (FAO document ESCR:FC 76/1, July 1976). The secretariat therefore approached the FAO in order to obtain any information which might be useful for the feasibility assessment.
2. The FAO calculations were designed to provide basic data required for projections of demand for natural and man-made fibres by countries, areas and the world as a whole. In addition to the FAO internal work in connexion with the World Agricultural Plan and other estimates of future requirements for agricultural products, the data were extensively used by the chemical fibre industry in connexion with market research for man-made fibres and production capacity planning, and by growers' associations for future acreage assessments and export promotion studies.
3. The compilations were based on mill consumption of textile fibres (expressed in tons of the fibre used) and on foreign trade in yarn, fabrics, textile made-up articles and clothing (also on tonnage equivalent to the weight of the raw fibres used in the manufacturing process). For each of the 143 countries covered by the study, the calculations of fibre consumption at retail level began at the mill consumption stage. The data showing the volume of each fibre consumed in industry and by village craftsmen was then adjusted for the raw fibre equivalent of the balance of foreign trade in processed products made from the fibre under consideration. No adjustment was made for changes in stocks of semi-manufactured and end-products.
4. The mill consumption statistics were provided by producers' associations and submitted to the FAO by governments, or directly estimated by the FAO on the basis of fibre production, imports and exports, adjusted where possible for stock variations. The import and export figures were taken from national trade returns. Since such data usually refer to raw fibre consumed at the first stage of processing, any waste produced during processing (i.e. in combing,

spinning, weaving, etc.) is included in the total volume of fibre available for home use, although it may in fact be discarded or used to make products not usually associated with textile consumption, e.g. paper or plastics.

5. Exports and imports of processed products were taken into account insofar as their volume is recorded in, or can be estimated from, national trade statistics, and classified by their fibre content insofar as this can be distinguished or inferred. Products recorded as a mixture of two or more fibres are generally assumed to consist entirely of the predominating fibre. The division between artificial and synthetic fibre products, particularly woven and knitted fabrics and clothing, was in certain cases estimated on the basis of available information concerning production and trade patterns. To arrive at weight equivalents of the products traded, the trade figures which in the trade statistics are reported in different quantity units (e.g. length, area, or numbers), were all converted to weight. The trade conversion factors for the main types of fabrics, made-ups and clothing articles were estimated by the FAO on the basis of mail order catalogues and comments received from manufactures' associations. For each article a uniform factor was used all over the world, irrespective of the quality of the product. For blended fibre products assumptions were made with regard to the average weight of the component fibres. The conversion factors were revised occasionally, the latest revision dated 1968 or 1969. A list of the factors is shown in the 1975 edition of the FAO publication.

6. The balances of foreign trade in processed products made from each fibre are expressed in actual weight as well as in raw fibre equivalents. In order to obtain the raw fibre equivalent, average processing losses at all stages of manufacture, from spinning to making up, were estimated in consultation with the principal international organizations concerned with textile manufacture, and used to convert the weight of all articles entering international trade from actual weight to raw fibre equivalent. For example, the average loss in spinning cotton yarns was estimated at 10 per cent. Similarly, the average loss in spinning tops produced on circular combs was put at 5 per cent, while that in worsted weaving was put at 10 per cent. In the case of clothing and other made-up articles, losses in making up, and possible gains from coatings or trimmings, were also taken into account. A list of the factors used to estimate processing losses is also given in the FAO document.

7. The products taken into account in the calculation of balances of trade in processed products were grouped as follows:

Semi-manufactures for use in spinning: Wool tops (excluding fine hair tops); wool noils. Cotton waste, wool spinning waste, shoddy and mungo, flax tow and waste, and man-made fibre waste is excluded. Discontinuous man-made fibres (including tops) are included in mill consumption.

Yarns: Yarns for further manufacture, i.e. weaving, knitting, etc., except metallic yarns; excludes all man-made filament yarns and man-made spun yarns for ropes, cordage and fishing-nets, as well as yarns and thread, of whatever fibre, destined for retail sale.

Woven and knitted fabrics: Fabrics woven on broad looms and those knitted or crocheted on standard knitting machines (including terry cloth, pile and chenille fabrics) used for all purposes but not coated or impregnated; excludes narrow fabrics, tulle and lace, and carpets, but includes tyre cord fabrics.

Clothing: All ready-made garments, whether knitted or made up from woven or knitted fabric, or made of felt; includes hosiery, gloves, headgear made of textile materials, scarves, mufflers and neckties, but excludes footwear, bags and handkerchiefs.

Other manufactures: Yarns and thread for retail sale; narrow fabrics and small wares (ribbons, webbing, belting, bandages, etc.); tulle, lace and net, and articles made therefrom; elastic fabrics; impregnated and coated fabrics; bonded fabrics; tents and tarpaulins; incandescent gas mantles and wicks; wadding, felts and felt articles; blankets; curtains; household linen such as towels, sheets, tablecloths, etc.; handkerchiefs; carpets and rugs. Excludes certain items made from man-made fibres which are considered to compete mainly with hard fibre and jute products, such as ropes, cordage and fishing nets, heavy-duty bags and backing fabrics for tufted carpets. Goods of which a fibre product is only a component (e.g. tyres, motor vehicles, furniture, etc.) has not been taken into account.

8. Although the approach was relatively simple, the calculations were complex and required a considerable manpower resources. This was due to the fact that the conversion of the trade data into raw fibre weight equivalent was carried out in the greatest possible detail, and involved extraction (and subsequent conversion) of several hundreds of statistical items from each country's trade returns.

9. In spite of this minutious detail, the FAO calculations conceal several weak points which affect the reliability of the results. Thus:

- (i) With regard to products reported in length, surface or units, the use of one single conversion factor applicable to a product, irrespective of its quality or technology used, may introduce a serious distortion. A comparison of unit weights of apparel products, which can be made for the few countries reporting trade statistics in numbers and weight, reveals the existence of considerable differences by origin and over a period of time. A few examples of such variations calculated from the import returns of the European Communities and Japan are shown in the Annex. These examples illustrate extreme cases. Significant differences can, however, be identified for any item reported in detail. The problem does not affect all the country estimates since about two-thirds of the countries covered report trade in weight. It nevertheless does concern several important trading countries and all the area and world aggregates.
- (ii) It is doubtful that the specifications in trade statistics are sufficiently detailed to determine the exact fibre content of blended textiles and of composite apparel. The FAO approach of allocating textiles of mixed fibres to the category of the predominant fibre is most likely the only workable solution. However, an error in this respect affects not only the results for individual fibres but also the overall estimates since the conversion factor varies according to fibre content. The importance of blends has increased since the FAO started these calculations. Hence, the margin of error, which initially was likely to be negligible, has no doubt increased significantly. The fact that the exact fibre consumption of blended textiles and composite apparel cannot be determined with any degree of precision means that statistics will not reflect the precise changes in the consumption of one particular fibre as distinguished from another.
- (iii) Third, the coefficients which were applied to take account of manufacturing losses seem to be generally out of date. Furthermore, the proportion of manufacturing wastes depends on the type of technology used in the manufacturing process. Thus the application of a uniform adjustment factor may not be justified in this case.

10. Since the results served only a small number of FAO members (developing countries have apparently never made use of the data) and because of the high resource requirements, the project obtained low priority when the cost/benefit ratios of all the FAO activities were subject to scrutiny in 1976. More emphasis was then given to problems of development and the per caput fibre consumption calculations were discontinued. In spite of repeated requests from several agencies and delegations the work was never resumed. The latest compilations cover the years 1972-74.

11. The weaknesses of the results are related to the adjustments required to express the statistics on trade in textiles and clothing in terms comparable to the fibre mill consumption data. The elaboration of trade conversion factors is a difficult task in general. With regard to textiles and clothing the difficulties are particularly pronounced since the pattern of international trade undergoes permanent changes under the influence of a number of factors affecting supply and demand conditions. Hence, it is not certain that the method of conversion could ever be sufficiently improved and permanently adjusted to avoid the bias which the present calculations imply. For these various reasons a re-examination of the whole methodology and a search for alternative approaches to the fibre consumption measurement as already envisaged by the FAO, appears to be indispensable. The consideration of alternative approaches must obviously take account of all the underlying industry specific factors in the exporting and importing countries and could not be carried out without a thorough knowledge of the production pattern and of the industrial technology applied in the member countries. This expertise is not available in the secretariat. Before taking a decision on this matter, the Committee may therefore consider entrusting a group of technical experts with this task.

12. A meeting of technical experts would involve a cost which can be estimated at about SwF 70,000. This would cover one week's per diem and travel cost of some ten experts recruited world-wide. Indications concerning the cost of the compilation of the fibre consumption statistics can only be based on earlier FAO experience and the methodology previously used. When the resumption of the project was considered in the FAO in 1977 the cost of updating of the statistics for one year was estimated at \$100,000. A recent FAO estimate brings the current cost of the calculations well above the 1977 figure. Based on the past FAO manpower requirements and the Geneva cost structure, the budget for the initial year of the exercise if carried out in the GATT can be estimated as follows:

		<u>(Swiss francs)</u>
Staff:	1 Professional Statistician (P.3))	250,000
	3 Statistical Assistants (G.5))	
Computer:	Data processing	25,000
	Establishment of programme for aggregation and data editing	25,000
	Translation, typing and printing	20,000
		<hr/>
		320,000
		<hr/>

The FAO manpower estimate assumes that only the figures adjusted to raw fibre equivalent would be processed electronically. The estimate thus includes the compilation for 140 countries and 2 years of statistics on mill consumption of textile fibres on the basis of data collected by specialized agencies and of statistics on trade in textiles and clothing as published in national trade returns, their subsequent conversion into weight and raw fibre equivalent, and aggregation into product categories listed in paragraph 7. The computer cost includes data entry of the transformed basic statistics and their aggregations into country and regional totals. The professional staff cost also covers the review of the existing methodology and a critical evaluation of the conversion factors used in the past. Considering the various resource requirements for the preparation stages, the expert group, and the collection and processing of the data, the total cost of the project for its initial year of operation would be around SwF 400,000.

13. The resources necessary for subsequent annual updatings of these statistics would be less than for the initial exercise since the professional staff would then be required for supervision only; computer programming would presumably not be needed anymore and the general service staff could be reduced by about one third as data for one single year would be extracted for each annual exercise.

14. The important manpower requirements and consequently the high cost of these compilations results from the detail at which the trade data are recorded. The question may be asked whether a more simple method could be designed in order to provide, at lesser cost, the estimates of textile fibre consumption of acceptable precision for the purpose of measurement of raw fibre demand. Thus for instance, the use of the United Nations computerized trade data files could be envisaged once the majority of countries report trade statistics in full detail of the SITC/Rev.2. The whole exercise could then be computerized and the amount of manual work considerably reduced. Before this simplification is seriously considered it would be necessary to establish whether the majority of countries will in the future fully report trade quantities according to the SITC/Rev.2 and, furthermore, whether the margin of error, which would obviously be higher than if the calculations were carried out in full detail of the national trade classification, would still be acceptable for the purpose for which these statistics are designed.

15. Consideration should therefore be given to the purpose for which such data would be used in the framework of the Committee. The FAO methodology was elaborated for the purpose of providing a basis for measurement of per caput fibre consumption and for projection of future fibre demand by countries and areas. Utilization of this type of statistics beyond this purpose

requires qualification. In relation to industrial activity or final demand for products made of the fibres, this method would not provide a satisfactory measure since account should in such cases be taken not only of the volume of the materials used in production or embodied in the goods traded internationally, but also of the amount of processing embodied in the final products themselves. Since the output in textiles and clothing industries has been growing faster than consumption of fibres, the use of fibre consumption statistics alone would introduce a downward bias in the measurement of the output of and demand for final products. For the measurement of activity of the industries concerned, on the other hand, hours worked and value added by manufacturing (or simply employment and production indices) would provide the appropriate indicator while consumer expenditure for textiles and clothing and industrial use of textiles appear to be the best measure of overall demand. All of these measures are more precise, easier, and cheaper to obtain than the fibre consumption. The question of purpose should therefore be considered by the Committee before a mandate is given (or otherwise) to the expert group.

16. Should the Committee agree to this project, some preparatory work would be necessary before the expert group met to consider the methodology. The expert meeting could not, therefore, be scheduled in less than three months' time, at the earliest. The time necessary for the establishment of the trade conversion factors would depend on the methodology adopted. Unless the expert group confirmed the earlier procedure used by the FAO, a questionnaire requesting the appropriate trade conversion factors would have to be issued and circulated to member countries and to the major non-members. The usual response time on statistical questionnaires is 4-5 months. The conversion of the trade data could therefore not start before next summer. While some compilation could be undertaken before the replies are received, the processing of the remaining trade data and the aggregation of all the statistics will require a further six months at least. The final data could not, therefore, be expected before the end of 1981.

ANNEX

Unit Weight of Selected Imported Apparel Articles
EUROPEAN COMMUNITIES

	1975	1979
60.02.70. <u>Gloves, etc. of cotton</u>		
<u>Total</u>	<u>27</u>	<u>18</u>
United States	49	46
Hong Kong	23	18
60.03.20. <u>Stockings, etc. synthetic fibres</u>		
<u>Total</u>	<u>16</u>	<u>21</u>
Israel	5	11
Korea	22	23
60.04.71. <u>Shirts, men's and boys, cotton</u>		
<u>Total</u>	<u>152</u>	<u>187</u>
Malaysia	112	145
Hungary	204	431
60.05.33. <u>Pullovers, etc. women's and girls, wool</u>		
<u>Total</u>	<u>289</u>	<u>247</u>
Austria	327	412
Mauritius	242	234
60.05.62. <u>Trousers, synthetic</u>		
<u>Total</u>	<u>267</u>	<u>294</u>
Hungary	432	662
Hong Kong	186	210
61.02.53. <u>Dresses, women's and girls, regenerated fibres</u>		
<u>Total</u>	<u>408</u>	<u>436</u>
Poland	590	527
Hong Kong	206	320

JAPAN

		1976	1979
60.03.120.	<u>Stockings, under-stockings, socks ankle-socks, of synthetic fibres</u>		
	<u>Total</u>	<u>43</u>	<u>43</u>
	China	26	34
	Norway	102	80
60.05.111.	<u>Jerseys, pullovers, slipovers, twinsets, cardigans, jumpers, of wool or fine animal hair, contain- ing embroidery or lace, or figured</u>		
	<u>Total</u>	<u>423</u>	<u>387</u>
	Philippines	308	225
	Spain	673	881
61.01.232.	<u>Men's and boys' suits, of cotton</u>		
	<u>Total</u>	<u>837</u>	<u>1 493</u>
	U.S.	429	673
	Hong Kong	1 024	1 439
61.01.292.	<u>Men's and boys' outer garments, of cotton</u>		
	<u>Total</u>	<u>535</u>	<u>460</u>
	Philippines	155	194
	Korea, Republic of	575	482
61.04.291	<u>Women's, girls' and infants' undergarments of cotton</u>		
	<u>Total</u>	<u>58</u>	<u>120</u>
	Korea, Republic of	37	43
	China	73	128

Source: National statistics.