



सत्यमेव जयते

GOVERNMENT OF INDIA  
TARIFF COMMISSION

**R E P O R T**  
**ON**  
**The Continuance of Protection**  
**TO**  
**The Sheet Glass and Figured Glass**  
**Industry and Grant of Protection**  
**TO**  
**Wired Flat Glass Industry**

BOMBAY 1965

## India, Tariff (—Commission)

**Report on the continuance of protection to the Sheet Glass and Figured Glass Industry and Grant of Protection to Wired Flat Glass Industry, 1965.**



## PERSONNEL OF THE COMMISSION

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## PERSONNEL OF THE COMMISSION WHICH HEARD THE CASE

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GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE

New Delhi, the 18th Nov., 1965.

**RESOLUTION**

**Tariffs**

**No. 6(1)-Tar/65.**—The Tariff Commission has submitted its Report on the continuance of protection to the Sheet Glass and Figured Glass Industry and grant of protection to Wired Flat Glass Industry on the basis of an inquiry undertaken by it under Sections 11(e) and 13 of the Tariff Commission Act, 1951 (50 of 1951). Its recommendations are as follows:—

- (1) The existing rate of protective duty on sheet glass and figured glass should be increased to 100 per cent *ad valorem* and extended for a further period of three years ending December 31, 1968. This rate should apply to flat glass comprising sheet glass manufactured by drawing by the Pittsburg Plate Glass (P.P.G.) or Fourcault process and figured and wired glass.
- (2) In order to make the nomenclature more comprehensive the industry may be referred to as flat glass. As and when there is further diversification of production in the field of flat glass the desirability of extending the scope of protection to cover other varieties too may be examined at the appropriate stage.
- (3) The Railway administration may examine in the light of the latest developments the request of Indo-Asahi Glass Co. Ltd., for allowing it to move silica sand in ordinary wagons instead of box wagons until the railway siding is constructed.
- (4) It is desirable to maintain expansion of capacity in proportion to demand and great caution is necessary for the future in allowing any further expansion or licensing of new units.
- (5) While it is presumed that the State Trading Corporation charges a high price for imported heavy soda ash in order to maintain parity with the current market price of indigenous heavy soda ash, it would help the industry to bring down costs, if such heavy soda ash as has to be imported is made available to the flat glass units under actual users licences in equitable proportions as between the several units.
- (6) Steps should be taken by Government to make soda ash and silica sand available at lower cost to manufacturers of flat glass.

- (7) Since the indigenous production of salt cake is more than sufficient to meet the requirements of flat glass industry it is necessary to discourage imports of salt cake.
- (8) Since limestone and dolomite are important minerals not only for flat glass industry but also for other industries, it would be advisable to prescribe standards for them and to ensure that the material of the right quality is supplied to flat glass producers.
- (9) Steps should be taken by the Government of India and the State Governments with the help of the interests concerned to grade silica sand in accordance with the ISI standards before consignments are despatched to users.
- (10) The case of Shree Vallabh Glass Works Ltd., which requires foreign exchange to the extent of Rs. 50,000 for installing the requisite machinery for pulverising quartz may be favourably considered by Government.
- (11) The whole position of the mining of silica sand in the district of Allahabad should be carefully examined by the Government of India and the Government of Uttar Pradesh.
- (12) The Government of Madras should consider the desirability of releasing the requisite deposits of silica sand at Ennore in favour of Madras Sheet Glass Works Pvt. Ltd., and utilising this valuable raw material to the best advantage.
- (13) The glass industry needs to pay more attention to the technique and process of packing in order to avoid breakages.
- (14) It would be worthwhile for the flat glass industry to explore the possibilities of exports to nearby countries and make efforts to promote larger exports.

2. Government have given careful consideration to recommendations (1) and (2) and having regard to the progress the industry has made so far and the fact that in the present circumstances there is no likelihood of any unhealthy competition from imports, Government consider that tariff protection to the Sheet Glass Industry need not be continued beyond 31st December, 1965.

Government, however, propose to continue the rate of duty of 100 per cent as has already been levied under the Finance (No. 2) Act, 1965 and this rate is in consonance with the rate of duty recommended by the Tariff Commission. Necessary legislation to implement Government's decisions will be undertaken in due course.

3. Government have taken note of recommendations (3) to (9) and steps will be taken to implement them as far as possible. Attention of the State Governments and producers of sheet glass is also invited to recommendation (9).



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## REPORT ON THE CONTINUANCE OF PROTECTION TO THE SHEET GLASS AND FIGURED GLASS INDUSTRY AND GRANT OF PROTECTION TO WIRED FLAT GLASS INDUSTRY

1. The Tariff Board was asked by the Government of India in 1931 on representation being received from certain glass manufacturers to examine the question of protection to this industry, and the Board recommended in 1932 that protection may be granted for a period of ten years to sheet and plate glass including figured and ribbed glass, bangles, beads, false pearls, bottles and jars, illuminating ware such as chimneys, chandeliers, etc., tableware and domestic ware such as tumblers, jugs, dishes, etc., and roofing and floor tiles. The Board also made certain other recommendations with regard to the washing and grading of sand, for advising glass manufacturers on type and size of furnace and its operation, avoidance of wastage on account of excessive use of raw materials, and establishment of an institute for research and training in glass technology. Announcing their decision in 1935, the Government of India stated that they were not in a position to accept the recommendation for the imposition of protective duties on the ground that there was no indigenous source of supply of one of the most important raw materials, soda ash and withheld their final decision on the claim of the industry for protection. By way of relief to the industry they, however, granted a refund of the entire duty on soda ash of British and British Colonial origin and of the excess over 10 per cent *ad valorem* in the case of other soda ash. Twelve years later the glass industry again approached Government with the request that a 100 per cent protective duty be imposed on imports of all kinds of glass and glassware. Government referred the request of the glass and glassware industry to the Tariff Board in 1948 for inquiry and the Board made an inquiry into sheet glass of gauges—weighing between 16 oz. and 32 oz. per square foot which were then being produced in the country—bottleware, tableware, lampware, pressedware and bangles. It recommended the conversion of the then existing revenue duty of 45 per cent *ad valorem* on sheet glass of all gauges into an equivalent protective duty which may remain in force for a period of two years. On the subject of blownware and pressedware it came to the conclusion that the estimated fair selling prices of indigenous articles were considerably lower than the landed costs of the corresponding imports and did not therefore recommend protective duty. It came to a similar conclusion in respect of the bangles industry and observed that the then existing duty of 60 per cent *ad valorem* sufficiently safeguarded the position of the industry. These recommendations were accepted by the Government in 1950 and a year later the protective duty was enhanced to 47½ per cent *ad valorem*. The third inquiry was conducted in 1954 under the provisions of Section 11(e) and 13 of the Tariff Commission Act, 1951 and the Commission recommended the continuance of protection



for a further period of three years from 1st January 1955 and increase in the rate of protective duty with immediate effect to 70 per cent *ad valorem*. This was accepted by Government. The fourth inquiry was held in 1957 and the Commission recommended the continuance of protection on the same terms. This was accepted by Government. The fifth inquiry was held in 1960 and the previous recommendation was repeated and accepted by Government. The sixth and last inquiry was held in 1962 and the same recommendations were repeated and also accepted by Government. The current period of protection expires on 31st December 1965 and the present inquiry has been undertaken under Section 11(e) read with Section 13 of the Tariff Commission Act, 1951 which empowers us to inquire into and report on any further action required in relation to protection granted to an industry with a view to its increase, decrease, modification or abolition according to the circumstances of the case.

2. The scope of protection at present covers sheet glass of all varieties and guages assessable to duty under item No. 60(7) of the First Schedule to the Indian Tariff Act, 1934. It has, however, been represented at the public inquiry that sheet glass is being substituted to a very substantial degree by flat glass of other varieties such as figured and wired glass. According to the Indian Standards Institution publication No. IS: 1382-1961 sheet glass is flat glass made by blowing or drawing and rolled glass has been defined as glass formed by rolling into plates at the time of manufacture and also flat glass formed by rolling. It would thus follow that flat glass could be divided into two categories, namely, (i) flat glass made by blowing or drawing, known as sheet glass, and (ii) flat glass manufactured by rolling known as rolled glass. Under rolled glass comes figured glass, as well as wired glass. However, in accordance with the letter No. 36(211) Cus.III/54, dated 31st March, 1955 from the Central Board of Revenue to the Collector of Customs, Bombay, figured glass was also included under I.C.T. item No. 60(7) and the same protective duty has been levied on figured glass also as on drawn sheet glass. It is somewhat anomalous that one variety of rolled glass should be included in the protected list while another variety, namely, wired glass which is now being manufactured in the country should be excluded. On the occasion of the inquiries held in the past there was almost no production of flat rolled glass including wired and figured glass. However, since the last inquiry a number of units have come up which produce flat glass of these categories. Owing to the substantial production of wired as well as figured glass, the consumption of transparent sheet glass has gone down. For transparent sheet glass was in the past used where figured or wired glass would have been more suitable but was not available. With the production of flat glass in the latter category such consumption of sheet glass has been aptly displaced by figured and wired glass. The industry as well as other interests represented were, therefore, of the view that the scope of the inquiry should be extended to figured and wired flat glass also. For, it is not possible to deal with sheet glass in isolation, when part of its demand has been taken over by figured and wired glass, and in

some uses these two varieties are interchangeable. We have, therefore, decided to expand the scope of the inquiry to include figured and wired flat glass.

3.1. A press communique was issued on 6th January 1965 inviting parties interested in the sheet glass industry to communicate their views to the Commission. Simultaneously, detailed

### 3. Method of inquiry

questionnaires were issued to producers and their association, namely, All India Glass Manufacturers' Federation, consumers and importers. The raw material suppliers were also requested to furnish relevant information regarding prices and availability of important raw materials. The Director General of Technical Development (D.G.T.D.) was requested to submit a detailed memorandum on the present position of the sheet glass industry and the progress made by it since the Commission's last inquiry in 1962. The Central Glass and Ceramic Research Institute was addressed for information regarding the research work done for improving the quality of sheet glass. The Indian Standards Institution was requested to intimate the latest position regarding the standard specifications for the sheet glass industry. Information regarding coal utilisation in the sheet glass industry was procured from the Coal Controller. The Railway Board was requested to report on the measures taken to remove transport bottlenecks. The State Trading Corporation was asked for information regarding the supply of imported soda ash. The Collectors of Customs at the principal ports and our Trade Representatives in the U.K., Belgium, France and Japan were approached for furnishing data regarding c.i.f. prices and f.o.b. quotations of imported sheet glass. The Directors of Industries of the States where the units of the industry are located were addressed to supply information regarding assistance rendered by their Governments to the units in their respective States. Letters were also issued to other State Governments for their views on this industry in case they were interested either as producers or consumers. A list showing the parties to whom letters/questionnaires were issued and those who replied or submitted memoranda is given in Appendix I. A list of factories visited by the Commission and its officers is given in Appendix II. Two units, namely, Hindusthan-Pilkington Glass Works Ltd., Calcutta and Indo-Asahi Glass Co. Ltd., Calcutta were selected for cost investigation.

3.2. A public inquiry was held in Bombay on 20th July 1965. A list of those who attended the inquiry is given in Appendix III.

4.1. Besides the main recommendation to continue protection to the sheet glass industry, the Commission also made other ancillary recommendations for the development of the industry in its last Report. The extent to which these recommendations have been implemented is indicated below:—

### 4. Implementation of the Commission's ancillary recommendations made in its last Report (1962).

#### 4.2. Recommendation 1

"Early steps should be taken by the South Eastern Railway to sanction a railway siding for Indo-Asahi Glass Co. Ltd.,

and until such a siding is constructed the decision to move sand in box wagons need not be enforced on this company."

The Ministry of Railways (Railway Board) intimated to us in 1962 that Indo-Asahi Glass Co. Ltd., deposited with considerable delay the amount for survey required under the rules, as a result of which the survey could not be undertaken expeditiously. During the course of the present investigations we have been informed by the Ministry of Railways that the Company was asked by the Eastern Railway Administration in March 1965 to communicate its acceptance of an alternative and cheaper layout suggested by the Administration. The unit has represented that owing to the absence of a suitable plot and also to comparatively higher cost of bigger siding, it has approached the railway authorities to consider alternative proposals and in the meanwhile it wishes to be allowed to move silica sand in ordinary wagons instead of in box wagons until the siding is constructed. The railway administration may examine this in the light of these developments.

#### 4.3. *Recommendation 2*

"Steps should be taken by Government to avoid wastage or destruction of glauber salt for lack of fuel and also to ensure that salt cake is made available to industrial consumers at reasonable prices by reducing the number of intermediaries between the producers and the ultimate consumers."

4.3.1. The Coal Controller, Calcutta, informed the Commission in December 1962 that coal for the production of rayon filaments and spun fibres was being recommended by the respective State Coal Controllers but that coal for calcination of glauber salt had not been taken into consideration. He had then added that owing to lack of sufficient coal the process of calcination could not make any progress at National Rayons and J.K. Rayons. It appears, however, that the position with regard to the supply of coal has since improved, for in the replies received from four manufacturers of salt cake, namely, National Rayon Corporation, Bombay, Gwalior Rayon and Silk Manufacturing Co. Ltd., Nagda, Baroda Rayon Corporation Ltd., Surat and Golden Chemicals Pvt. Ltd., Bombay, there is no indication of shortage or non-availability of coal. On the other hand some of them have offered to meet almost the whole demand of salt cake of the sheet glass industry.

4.3.2. As regards the latter part of the recommendation, the quotations received from the various producers of salt cake show that the price of salt cake varied between Rs. 275 and Rs. 400 a tonne in 1964. In order to reduce the element of profit earned by intermediaries and to make salt cake available directly from the manufacturers to the sheet glass industry, the representative of the D.G.T.D. offered to make arrangements for direct purchase in case any of the units found it difficult or expensive to obtain salt cake through middlemen.

#### 4.4. Recommendation 3

“In the interest of reducing cost of production and also economising the use of coal, the Chief Combustion Engineer should inspect at an early date the furnace operations of the works of (i) Indo-Asahi Glass Co. Ltd., (ii) U.P. Glass Works Ltd., and (iii) Seraikella Glass Works (Pvt.) Ltd., and suggest what measures should be taken by them to improve their fuel efficiency.”

4.4.1. In accordance with the above recommendation, the Chief Combustion Engineer inspected the furnace operations of (i) Indo-Asahi Glass Co. Ltd., (ii) U.P. Glass Works Ltd., and (iii) Seraikella Glass Works (Pvt.) Ltd. He has reported that Indo-Asahi Glass Co. Ltd., was allowed to continue to draw 50% coal in selected B grade and the balance in grade I in steam size. At the time of the test the glass works was using on an average 2,630 tonnes of coal with 590 tonnes of fuel oil per month producing 1,880 tonnes of glass. Taking the whole of the year 1963 the fuel ratio was found to be 1.39 tonnes per tonne of finished glass. For a period when the rate of production was very high ranging between 1,800 to 2,100 tonnes per month the fuel rate was as low as 1.33 tonnes per tonne of finished glass. The Chief Combustion Engineer, therefore, came to the conclusion that even though this unit was using comparatively lower grade fuel than other sheet glass units, the fuel efficiency at this works was one of the highest. However, on a subsequent visit to the glass works by the Chief Combustion Engineer in the month of February 1965 he noticed that the unit was working at a much lower rate of production and on the basis of the finished glass the fuel ratio had gone up to 2.5 tonnes per tonne of glass. The company was advised to instal (i) waste heat boiler with suitable heating surface and to discontinue the use of coal in boilers for generating blast steam for the gas producers, (ii) to size its coal down to  $1\frac{1}{2}$ " to  $\frac{3}{4}$ " and feed the screened coal to the producers as dust-free as possible and establish the correct blast saturation temperature by attempting to maintain hydrogen level in gas near about 13%. On the third visit it was observed that the gas producers were much better run with correctly blended and graded coal and correct blast saturation temperature. However, the fuel ratio continued to be very high due to a lower production rate from a sizeable furnace. The unit has yet to instal a waste heat boiler on the main furnace flue; when done, it should considerably improve the fuel efficiency.

4.4.2. *Seraikella Glass Works Ltd.*—The ratio of fuel efficiency of this glass works in 1961-62 was 1.72 compared to the standard of 1.25 indicated by the Central Glass and Ceramic Research Institute, Jadavpur, and as against the standard of 0.66 generally adopted by the technical experts in the West subject to optimum conditions being available. The Coal Controller has reported that at the time of the investigation in 1963 its fuel ratio per tonne of finished product was about 1.7 tonne (coal). As it was high the use of properly sized coal was stressed.

4.4.3. *U.P. Glass Works Ltd.*—The consumption of this unit was the highest ranging between 2 and 2.90 tonnes of coal per tonne of finished material. The Coal Controller suggested the use of coal of the correct size and other modifications in the operating conditions. Subsequently the old type of inefficient and stationary gas generators were replaced by modern rotary grate generator. The new generator is reported to have improved the ratio of coal consumption.

#### 4.5. *Recommendation 4*

“The State Government of Gujarat should give their urgent consideration to the application of Shree Vallabh Glass Works Ltd., for power and mining lease so as to go into production early.”

The unit has gone into production in June 1964. It has stated that there was some delay owing to the emergency and shortage of materials. It appears that though a mining lease has been granted to the unit, it has not yet been able to utilise it, since the quartz needs to be pulverised before use and grinding machines have not yet been installed. The unit needs foreign exchange to the extent of Rs. 50,000 to instal the requisite machinery and we recommend that its case be favourably considered by Government.

5.1.1. At the time of the last inquiry in 1962 four units were engaged in the manufacture of sheet glass in the country. They were (i) U.P. Glass Works Ltd., Bahjoi, (ii) Hindusthan Pilkington Glass Works, Asansol, (iii) Seraikella Glass Works Pvt. Ltd., Kandra, Bihar, (iv) Indo-Asahi Glass Co. Ltd., Bhadaninagar, Bihar. Besides, five other units were licensed earlier but had not started production till the last inquiry. These are as follows:

Particulars of the unit	Year in which licensed	Capacity licensed
		Million sq. metres
1. Madras Sheet Glass Works Ltd., Madras . . .	1959	1·920
2. Indo-Belgian Glass Works Ltd., Madras . . .	1959	0·648
3. Shree Vallabh Glass Works, Vallabh Vidyanagar, Gujarat	1960	2·520
4. R. G. Ganeriwala (Window Glass Ltd.), Calcutta . . .	1960	0·675
5. Cotton Agents Pvt. Ltd., Bombay . . . . .	1960	2·490

We have been informed that the licences for the manufacture of sheet glass by R. G. Ganeriwala (Window Glass Ltd.) and the Indo-Belgian Glass Works Ltd., Madras, have been revoked and that no progress has been made by Cotton Agents Private Ltd., Bombay. This leaves two units, namely, Shree Vallabh Glass Works and Madras Sheet Glass

Works which went into production in 1964. Since the last inquiry a new unit, Andhra Pradesh Industrial Corporation, has been issued an industrial licence in 1963 and it is expected to go into production in 1968.

5.1.2. We are informed that in the field of figured and wired glass four units were licensed of which two units went into production in 1963 and two more in 1964. The particulars of these are as follows:

Sl. No.	Name of the firm	Annual capacity	Year of commencement of production
		Million sq. metres	
1.	Shree Vallabh Glass Works . . . . .	0.67	1963
2.	Window Glass Works Ltd., Calcutta . . . . .	1.34	1963
3.	Hindusthan-Pilkington Glass Works Ltd. . . . .	0.55	1964
4.	Hindustan Wired Glass Mfg. Co. Ltd., Baroda . . . . .	1.62	1964
	TOTAL . . . . .	4.18	

It would be observed that two of the units manufacturing sheet glass are also manufacturing rolled glass, namely Hindusthan-Pilkington and Shree Vallabh Glass Works. The other two units are not manufacturing sheet glass. There are thus two units manufacturing sheet glass as well as rolled glass, four units manufacturing only sheet glass and two units manufacturing only rolled glass. Of the six units manufacturing sheet glass two are located in Bihar, one each in U.P., West Bengal, Gujarat and Madras. Particulars in respect of units manufacturing sheet glass are given below:

5.2.1. *U.P. Glass Works Ltd., Bahjoi.*—This is the oldest of the units having gone into production in 1928, its registered office as well as factory are at Bahjoi in Uttar Pradesh. It is a public limited company with an authorised capital of Rs. 8 lakhs as on 31st December 1963. The subscribed and paid-up capital on the same date was Rs. 7.89 lakhs and the share of non-Indians in the paid-up capital is less than 1 per cent. The net profit of the company was Rs. 4.76 lakhs in 1962 and Rs. 2.96 lakhs in 1963, and in each of these two years it declared a dividend of 8 per cent. The company is controlled by a Board of Directors. It produces plain as well as frosted flat glass. It has an automatic gas producer with a tank furnace of annual capacity of 9,600 tonnes. Subsequent to the last inquiry, the unit has installed an oil heating standby arrangement, waste heat boilers, and an automatic furnace pressure controller. Besides, the batch charging into the furnace is automatised and waste gas is utilised for generating steam to

be used in the gas producer. In order to improve its efficiency and production it has plans to instal an automatic raw material handling system an automatic glass level controller, a glass temperature controller a morgan gas producer and a waste heat boiler. The installed capacity of the unit for the manufacture of sheet glass is 1.67 million sq. metres while the production was 0.76 million sq. metres in 1964. The average number of workers employed by the company was 313 in 1962, 309 in 1963 and 296 in 1964.

*5.2.2. Seraikella Glass Works Pvt. Ltd., Kandra.*—This unit was established in 1942. It is a private limited company with an authorised capital of Rs. 15 lakhs and paid-up capital as on 31st March 1964 was Rs. 11 lakhs. The sheet glass factory is located at Kandra in Bihar and its glass tubes factory is at Konnagar in West Bengal. The Board of Directors who manage the company are all Indians. According to its published accounts, the net profit of the company from sheet glass and glass tubes was Rs. 11.09 lakhs in 1961-62, Rs. 10.88 lakhs in 1962-63 and Rs. 9.88 lakhs in 1963-64. The installed capacity of the unit for the manufacture of sheet glass is 4.32 million sq. metres while the production was 2.71 million sq. metres in 1964. The average number of workers employed by the company was 1069 in 1962, 1089 in 1963 and 915 in 1964.

*5.2.3. Hindusthan-Pilkington Glass Works Ltd.*—This unit was established in 1954 with its registered office in Calcutta, the factory is situated at Asansol. It is a public limited company with an authorised capital of Rs. 300 lakhs; subscribed and paid-up capital as on 31st October 1963 being Rs. 212 lakhs. This capital consisted of Rs. 180 lakhs in equity and Rs. 32 lakhs in preference shares. The share of non-Indians in the total paid-up capital was 48.9 per cent in the case of equity share capital and 82.8 per cent in the case of preference share capital. Pilkington Brothers Ltd., of England are the technical advisers of this unit. According to its published profit and loss account, the company made a net profit of Rs. 20.89 lakhs during the year ending 31st October 1961 and in the corresponding period for 1961-62 it suffered a net loss of Rs. 12.16 lakhs. For the year ended 31st October 1963 it showed a profit of Rs. 11.59 lakhs. The loss in the year 1961-62 is partly attributed to the fact that from October 1961 to March 1962 the factory remained closed for changeover from 'Fourcault' to Pittsburgh Plate Glass (PPG) process. The new process was to work entirely on oil fuel. But with the lower production due to paucity of demand the use of fuel oil became very costly, and the company switched back to produce gas from coal, though it continued to use the 'PPG' process. The installed capacity of the unit for the manufacture of sheet glass is 5.10 million sq. metres while the production was 3.19 million sq. metres in 1964. The average number of workers employed was 717 in 1962, 851 in 1963 and 815 in 1964. The company erected the rolled glass plant in October 1963 for the manufacture of wired and figured glass with a capacity of 0.55 million sq. metres and produced 0.47 million sq. metres in 1964. It has also plans to manufacture toughened and silvered glass.

**5.2.4. Indo-Asahi Glass Co. Ltd.**—While the registered office of this unit is in Calcutta, the factory is situated at Bhadaninagar in Bihar. It is a public limited company with an authorised capital of Rs. 120 lakhs. The subscribed and paid-up capital was Rs. 80 lakhs, as on 31st December 1963 of which Asahi Glass Co. Ltd., Tokyo, hold shares valued at Rs. 79.78 lakhs. The company made a profit of Rs. 17.19 lakhs in 1962 which dropped to Rs. 0.95 lakh in the following year. In 1964, however, it suffered a loss of Rs. 17.95 lakhs. The company is managed by the Managing Director under the supervision of the Board of Directors, Asahi Glass Co. Ltd., of Japan are also the technical consultants of the company. After taking over the concern from the Industrial Finance Corporation in 1957 the company has carried out two cold-repairs, one in 1959 and the other in 1963. During the second cold-repairs it changed some portion of the furnace design with a view to increase the operational efficiency. The drawing machines were also reconstructed and re-fitted with new devices for making glass of 1.3 mm. It has succeeded in producing sheet glass of such a thin variety for the first time in India. This glass is particularly useful for the manufacture of microscope slides. The unit has an installed capacity of 4.60 million sq. metres while the production in 1964 was 2.47 million sq. metres only. The average number of workers employed was 1,324 in 1962, 1,316 in 1963 and 1,236 in 1964.

**5.2.5. Shree Vallabh Glass Works Ltd.**—A manufacturing licence to this unit was issued in 1960 and at the time of the last inquiry the erection of the factory at Vallabh Vidyanagar, Anand, Gujarat State, had already commenced. The registered office of this company is at the same place; it has an authorised capital of Rs. 100 lakhs. On 31st March 1964 its subscribed capital was Rs. 76.03 lakhs and paid-up capital Rs. 73.83 lakhs. The technical collaboration into which it had entered with the West German firm Messrs. Industrieofen Und Maschinen GmbH has, however, been terminated and instead the company has employed a foreign technical expert. It is a public limited company with nine Directors all of whom are Indians. Two of the Directors function as Managing Directors. The unit produces rolled glass, sheet glass, wired glass, laminated glass, safety glass and toughened glass. The sheet glass unit went into production in June 1964 and it is now manufacturing sheet glass in thickness of 2 mm., 3 mm., 4 mm., 4.8 mm. and 5.5 mm., by the Fourcault process. It has plans to introduce PPG process and to manufacture coloured sheet glass also. The installed capacity of the unit for the manufacture of sheet glass is 2.52 million sq. metres and for figured and wired glass 0.67 million sq. metres. The production of sheet glass during 1964 was 0.16 million sq. metres while the production of figured and wired glass was 0.32 million sq. metres. The average daily number of workers employed by the factory was 150 in 1964.

**5.2.6. Madras Sheet Glass Works Pvt. Ltd.**—This unit was given an industrial licence in 1959. The factory had been almost completely erected by 1962 but the plant could not be commissioned owing to lack of oil burning equipment. It had plans originally to instal a gas fired



furnace but owing to difficulty in obtaining coal in the South it decided to instal an oil fired furnace. At last it managed to instal the furnace and went into production in January 1964. It is managed and controlled by a Board of Directors who are all Indians and there is no technical collaboration with any foreign organisation, though in 1964 it employed two foreign technical experts for a short period. It is a private limited company with an authorised capital of Rs. 50 lakhs and subscribed and paid-up capital of Rs. 21.30 lakhs. It is situated in Madras and is at present manufacturing only plain sheet glass by the Fourcault process. The installed capacity of the unit is 1.92 million sq. metres while the production was 0.83 million sq. metres during 1964. The average daily number of workers in 1964 was 258.

### 6.1. Capacity of the industry.

6.1.1. At the last inquiry the installed capacity of the four units in production was estimated at 13.10 million sq. metres in terms of 2 mm. thickness. Since then the installed capacity has undergone some change. According to the latest figures reported by the D.G.T.D. and units, finally agreed to both by the units and the D.G.T.D., the installed capacity of these units alone is 15.689 million sq. metres. Adding the capacity of 4.440 million sq. metres of the two new units which went into production in 1964, the total installed capacity comes to 20.129 million sq. metres. The following statement shows the annual installed capacity of the six units as adopted at the last inquiry together with the capacity as assessed at present.

		(In million Sq. metre)	
Sl. No.	Name of the unit	Annual capacity as adopted at the last inquiry (1962)	Annual capacity adopted at the present inquiry
1.	Hindusthan-Pilkington Glass Works Ltd., Calcutta	5.016	5.100
2.	Indo-Asahi Glass Co. Ltd.	3.345	4.599
3.	Seraikella Glass Works Pvt. Ltd.	3.345	4.320
4.	Shree Vallabh Glass Works Ltd.	..	2.520
5.	Madras Sheet Glass Works Pvt. Ltd.	..	1.920
6.	U. P. Glass Works Ltd.	1.394	1.670
TOTAL		13.100	20.129

6.1.2. There have been significant changes in the capacities of Seraikella Glass Works Ltd., U.P. Glass Works Ltd. and that of the Indo-Asahi Glass Co. Ltd. In the case of the first two the licensed capacity has now been adopted, these being higher than the installed

capacity claimed by the units. As for Indo-Asahi Glass Co., it transpired at the public inquiry that this unit is successor to Sodepur Glass Works Ltd., which had been set up before the enforcement of the Industries (Development & Regulation) Act, 1951 and consequently no licence was issued and an estimated figure of capacity had therefore been registered. The unit claimed a capacity of 45,99,000 sq. metres per year in terms of 2 mm. thickness and its production in 1962 as well as 1963 fully justifies this figure. This revised capacity has therefore been adopted by us in the case of this unit.

6.1.3. *Utilisation of capacity.*—The following table shows the utilisation of capacity during the year 1962, 1963 and 1964.

(In million sq. metres)

Sl. No.	Name of the producer	Year	Capacity	Production	Percentage
1.	Hindusthan Pilkington Glass Works Ltd.	1962	5.02	1.73	34.5
		1963	5.02	3.91	77.9
		1964	5.10	3.19	62.5
2.	Indo-Asahi Glass Co. Ltd.	1962	3.34 (Est)	4.61	138.0
		1963	3.34 (Est)	3.24	97.0
		1964	4.60 (Rev)	2.47	53.7
3.	Seraikella Glass Works Pvt. Ltd.	1962	3.34	3.18	95.2
		1963	3.34	2.81	84.1
		1964	4.32	2.71	62.7
4.	Shree Vallabh Glass Works Ltd.	1964	2.52	0.16	6.3
5.	Madras Sheet Glass Works Pvt. Ltd.	1964	1.92	0.83	43.2
6.	U. P. Glass Works Ltd.	1962	1.39	0.74	53.2
		1963	1.39	0.71	51.1
		1964	1.67	0.76	45.5
TOTAL		1962	13.09	10.26	78.4
		1963	13.09	10.67	81.5
		1964	20.13	10.12	50.3

There has been a steady fall in the utilisation of capacities and the fall is particularly significant in the year 1964. The main reason for the fall is said to be reduction in demand caused by transfer of part of the consumption to figured and wired glass. Shree Vallabh Glass Works Ltd., commenced production in June 1964 and the Madras Sheet Glass Works in January 1964.

## 6.2. Domestic production.

6.2.1. A statement showing unit-wise production of sheet glass according to different gauges is given in Appendix IV. A summary of the same is given below:

Production of sheet glass during 1962-1964.

(Figures in '000 sq. metres)

Gauges	1962		1963		1964	
	Quantity (in terms of 2mm thick- ness)	Per- centage	Quantity (in terms of 2mm thick- ness)	Per centage	Quantity (in terms of 2mm thick- ness)	Per- centage
1	2	3	4	5	6	7
1.3 mm . . .	..	..	..	..	2	..
2.0 „ . . .	5428	52.9	5660	53.0	5360	52.9
2.4 „ . . .	1	..	..	..	..	..
2.6 „ . . .	28	0.3	49	0.5	173	1.7
3.0 „ . . .	2434	23.7	2701	25.3	1974	19.5
4.0 „ . . .	801	7.8	747	7.0	890	8.8
4.8 „ . . .	154	1.5	155	1.5	357	3.5
5.0 „ . . .	..	..	..	..	19	0.2
5.5 „ . . .	1372	13.4	1356	12.7	1181	11.7
6.4 „ . . .	..	..	..	..	6	0.1
Unspecified . .	40	0.4	..	..	160	1.6
TOTAL .	10258	100	10668	100	10122	100

The total production of sheet glass in the country in terms of 2 mm. thickness increased from 10.26 million sq. metres in 1962 to 10.67 million sq. metres in 1963 and went down to 10.12 million sq. metres in 1964. Notwithstanding the fact that in 1964, 0.986 million sq. metres was produced by two new units the actual position is that the four units which were in production before 1964 produced only 9.136 million sq. metres in 1964 as against 10.668 million sq. metres in 1963. It has also been stated by the D.G.T.D. that there was a slump in the building industries. The main reason however appears to be a shift in demand to wired and figured glass from sheetglass. The U.P. Glass Works Ltd., has, however, stated that in 1963 it was allotted less of select B grade coal as a result of which it could not maintain enough temperature in the furnace and production decreased by over four per cent. Its production showed a comparative increase in 1964 as a result of better supply of coal. It also experienced some shortage of silica sand in 1964 in spite of the fact that its factory is situated in U.P. which is almost the sole supplier of silica sand to all the glass factories in the country.

6.2.2. The bulk of the production continued to be of sheet glass of 2 mm. thickness which accounted for about 53 per cent during the last three years. The production of sheet glass of 3 mm. thickness which was next in the order of bulk of production accounted for 25.3 per cent in 1963 but fell down to 19.5 per cent in 1964. A new feature in 1964 was the production of sheet glass of the thickness of 1.3 mm. suitable for microscope slides. Similar diversification was successfully achieved in thick glass by production of sheet glass of 6.4 mm. thickness.

6.2.3. The figures of production of sheet glass are expressed in terms of gross and net production. There is usually a substantial difference between the quantity of gross production and that of net production. This difference results from wastage occurring on account of cutting, breakages and rejections which in the case of six factories in production have ranged from 23 to 45 per cent. The breakages go into the furnace again as cullet and therefore there is no loss of material though there is a corresponding production loss. This loss though inevitable should be capable of reduction.

6.2.4. *Coloured sheet glass.*—It had been stated in the last Report that Seraikella Glass Works had installed a small tank furnace for the manufacture of coloured sheet glass. The unit has reported that its production of coloured sheet glass still continues to be on an experimental basis. Shree Vallabh Glass Works has informed us that it has plans to manufacture coloured sheet glass also.

6.2.5. *Wired and figured glass.*—The data of production in respect of wired and figured glass as furnished by the D.G.T.D. are as follows:—

Sl. No.	Name of the firm	(Million Sq. Metres)	
		1963	1964
1.	Hindusthan-Pilkington Glass Works . . . . .	..	0.47
2.	Shree Vallabh Glass Works . . . . .	0.027 (for two months)	0.32
3.	Hindusthan Wired Glass Works Co. Ltd. . . . .	..	1.10
4.	Window Glass Works Ltd. . . . .	0.083 (for two months)	0.46
TOTAL . . . . .		0.110	2.35

The quantities indicated above have not been reduced to a uniform thickness and represent thicknesses between 3 mm. and 6 mm. If these were to be reduced to the thickness of 2 mm. in which the data for sheet glass has been expressed, the quantity would be more than doubled. Since figured and wired glass are not manufactured in thin

varieties such a conversion would be misleading. The figures of surface measurement only have therefore been given irrespective of thickness.

6.3. The following are the figures of offtake and stocks of sheet glass during the year 1962, 1963 and 1964.

*Statement showing unit-wise production, off-take and closing stocks for the years 1962, 1963 and 1964.*

(In Million sq. metres)

Sl. No.	Name of the producer	Year	Opening stock	Production	Total	Off-take	Closing stock
1	2	3		5	6	7	8
1.	Hindusthan-Pilkington Glass works Ltd.	1962	0.01	1.73	1.74	1.43	0.31
		1963	0.31	3.91	4.22	3.93	0.29
		1964	0.29	3.19	3.48	3.32	0.16
2.	Indo-Asahi Glass Co. Ltd.	1962	0.20	4.61	4.81	4.47	0.34
		1963	0.34	3.24	3.58	3.00	0.58
		1964	0.58	2.47	3.05	2.62	0.43
3.	Seraikella Glass Works Pvt. Ltd.	1962	0.16	3.18	3.34	3.19	0.15
		1963	0.15	2.81	2.96	2.84	0.12
		1964	0.12	2.71	2.83	2.19	0.64
4.	*Shree Vallabh Glass Works Ltd.	1964	..	0.16	0.16	0.16	Nil
5.	*Madras Sheet Glass Works Pvt. Ltd.	1964	..	0.83	0.83	0.71	0.12
6.	U. P. Glass Works Ltd.	1962	0.01	0.74	0.75	0.69	0.06
		1963	0.06	0.71	0.77	0.69	0.08
		1964	0.08	0.76	0.84	0.77	0.07
TOTAL		1962	0.38	10.26	10.64	9.78	0.86
		1963	0.86	10.67	11.53	10.46	1.07
		1964	1.07	10.12	11.19	9.77	1.42

\*Commenced production in 1964

These figures indicate that not only was there a reduction in the off-take of the four units working from before 1964 but there was also an overall reduction in the offtake even including the sales of the two new units. This resulted from the emergence in the field of four units manufacturing wired and figured glass. However the overall offtake of flat glass of all varieties registered a rise from 10.57 million sq. metres in 1963 to 11.89 million sq. metres in 1964 and as such there is no ground to assume that there was any general fall in the use of flat glass in the country.

#### 6.4. Future expansion

6.4.1. A reference to the units licensed and those which have come up already has been made in paragraph 5. It will be observed from paragraph 5.1 that Cotton Agents Private Ltd., and Andhra Pradesh Industrial Corporation have still to implement the industrial licences issued to them. It was gathered at the public inquiry that the Cotton Agents Pvt. Ltd., who were likely to instal their factory in Baroda have not taken any action so far to set it up. This leaves only Andhra Pradesh Industrial Development Corporation Ltd., in the field with a capacity of 2.20 million sq. metres. This unit is being set up with an authorised capital of Rs. 300 lakhs; it has entered into technical collaboration with Messrs. Komplex of Hungary and the factory was expected to start construction in April 1965. It is expected to produce sheet glass by 1968. In addition to the production of sheet glass, it has plans to manufacture glass tubes, crystal glass and glassware. The D.G.T.D. has stated that since the sheet glass factories were predominantly located in the East, *i.e.*, in Bihar and West Bengal, the Government of India felt the need for a factory in the South and therefore licensed this unit in Andhra Pradesh. They have also issued a letter of intent to Shri D. N. Agrawal to set up a factory near Meerut in U.P. but the venture has not made any progress so far.

6.4.2. The total existing capacity of the sheet glass units in operation works out to 20.13 million sq. metres as against the production of 10.12 million sq. metres and offtake of 9.77 million sq. metres in 1964. The existing manufacturers have objected to the licensing of new units and they are to a considerable extent justified in their protest. It is not possible to separate the licensed capacity of flat glass of other variety from flat glass manufactured by the process of drawing and when considering capacity, production and demand it is necessary to take both of these into consideration. The total capacity for flat glass in the country today is 24.31 million sq. metres computing sheet glass in the thickness of 2 mm. and wired and figured glass in thicknesses between 3 mm. and 6 mm. as against the production of 12.47 million sq. metres and the offtake of 11.89 million sq. metres. The units have deliberately reduced their production as there was a fall in demand. The existence of idle capacity not only increases the overall cost of production but also operates as a drag on the economy. It is desirable to maintain expansion in proportion to demand and great caution is necessary for the future, in allowing further expansion or licensing of new units. Indeed after the two new units in the field of sheet glass come into production there is likely to be an imbalance between demand and production for many years.

7.1. In our last Report we estimated the demand for sheet glass in 1961 at 10 million sq. metres in terms of thickness of 2 mm. and expected an increase in demand at the rate of fifteen per cent every year during the next three years, assuming thus a pattern of demand for 1962 at 11.50 million sq. metres, for 1963 at 13 million sq. metres and

#### 7. Domestic demand

for 1964 at 14.50 million sq. metres. The apparent consumption based on offtake of domestic sheet glass plus imports minus exports during the last three years was however as follows:

(In million sq. metres)				
Year	Offtake	Imports	Exports	Apparent consumption
1962 . . . .	9.78	0.12	..	9.90
1963 . . . .	10.46	0.12	..	10.58
1964 . . . .	9.77	0.14	0.33	9.58

7.2. It has been mentioned already that a part of the demand for sheet glass has now shifted to figured and wired glass owing to the production and availability of rolled glass of the latter varieties in the country. There are specific and well defined uses of flat glass of each variety, namely, transparent sheet glass, wired glass and figured glass. Wired glass is generally used in workshops and factories where safety factors are of paramount importance; figured glass is used for areas from which translucence together with a pleasing pattern is needed but not visibility; transparent sheet glass is used for areas through which visibility is desired. It appears that even though there has always been a demand for figured and wired glass, owing to lack of supplies or economic prices, consumers have had to use sheet glass instead. As soon as the production of figured and wired glass commenced, the demand shifted to the actual article needed. This has affected the demand and consumption of drawn sheet glass to an appreciable degree. It is, therefore necessary in order to get a more correct estimate of the consumption to take into account the quantity of figured and wired glass produced and consumed particularly in the year 1964. The figures in this respect are as follows:

(In million sq. metres)		
Year	Production	Estimated off-take
1962 . . . .	..	..
1963 . . . .	0.110	0.110
1964 . . . .	2.35	2.12

7.3. In our last Report we had estimated the demand for sheet glass for the year 1964 at 14.5 million sq. metres. In fact the apparent consumption of sheet glass during the year 1964 was 9.58 million sq. metres and of wired and figured glass 2.12 million sq. metres, a total of 11.70 million sq. metres. Our estimates have therefore proved to be on the higher side.

7.4. In connection with the present inquiry we have received estimates of the present and future demand from the D.G.T.D. and producers. These estimates are tabulated as under:—

(In million sq. metres)

	1965	1966	1967	1968
D.G.T.D. . . . .	10.50	11.55	12.70	..
Indo-Asahi Glass Co. . . . .	11.22	12.12	13.09	14.13
Shree Vallabh Glass Works . . . . .	16.7	17.9	19.7	21.4

7.5. The D.G.T.D. has stated that wired and figured glass is replacing sheet glass in a number of uses for glazing and construction and expects that in the next three years a new pattern of consumption would emerge in which about a quarter of the total demand of flat glass would go to figured and wired glass. The Directorate is therefore of the view that the estimate of fifteen million sq. metres for the last year of the Third Five Year Plan would not be achieved, and has further stated that the production of sheet glass by the close of the Third Plan would not exceed 10.5 million sq. metres. The D.G.T.D. has however, estimated that an annual and recurring increase in demand of ten per cent can be safely adopted and that the demand of sheet glass would come to 17 million sq. metres by 1970-71. The gauge-wise demand as furnished by D.G.T.D. for the years 1965, 1966 and 1967 is as follows:—

(In million sq. metres)

Category	1965	1966	1967
2 mm. . . . .	5.25	5.78	6.35
3 mm. . . . .	1.78	1.96	2.16
4 mm. . . . .	1.05	1.16	1.27
4.8 mm. . . . .	0.32	0.34	0.38
5.5 mm. . . . .	2.10	2.31	2.54
TOTAL . . . . .	10.50	11.55	12.70

7.6. Some producers have, however, taken a more optimistic view of future production notwithstanding their depressing experience in the previous year. Shree Vallabh Glass Works has furnished gauge-wise demand as follows:—

(In million sq. metres)

Category	1965	1966	1967	1968
2 mm. . . . .	8.2	8.7	9.0	9.3
3 mm. . . . .	3.0	3.2	3.8	4.5
4 mm. . . . .	1.5	1.7	2.3	2.8
5.5 mm. . . . .	4.0	4.3	4.6	4.8
TOTAL . . . . .	16.7	17.9	19.7	21.4



7.7. Seraikella Glass Works has stated that the demand for sheet glass is declining and the estimated demand for 1968 is not likely to exceed the production of 1964 and has gone on to say that the requirements for the current year and the next two years may be worked out at 5 to 10 per cent lower than the estimates of demand for 1968. Madras Sheet Glass Works has expressed the same view about the current and future demand. No estimates of demand have been furnished by Hindusthan-Pilkington Works, the All India Glass Manufacturers' Federation and the All India Glass Merchants' Association. Hindusthan-Pilkington Glass Works has cautiously stated that in the extremely unstable conditions prevailing at present, it is not possible to make any estimate. A similar view has been also expressed by the All India Glass Merchants' Association.

7.8. While the distress of the sheet glass industry is partly due to the shift of demand to the figured and wired glass industry, it is noticeable that even the figured and wired glass units which have been set up recently are not doing well. This was pointed out at the public inquiry, and there have also been reports in the press that owing to lack of demand and severe competition not only have the prices of wired glass fallen from as much as Rs. 5.50 to Rs. 1.50 per square foot in a few months and from Rs. 1.75 per sq. foot to Re. 0.65 for figured glass, stocks have also piled up. The general consensus of opinion at the public inquiry was that the total demand for sheet glass, figured glass and wired glass for the current year should be estimated at the same figure as the production of 1964 which is 12.49 million sq. metres and an annual rise of only 5 per cent may be expected for the next three years. It is estimated that the demand for 1965 would be 12.50 million sq. metres for the above varieties of flat glass of which 25 per cent would be for figured and wired glass. Adopting this rather conservative forecast we consider that there is likely to be an increase in demand at the rate of five per cent annually during the next three years.

7.9. We have already made an observation in this regard in paragraph 8 but we would like to reiterate that considering the situation in which the industry finds itself today and the fact that the present demand and consumption is less than half the capacity for all varieties of flat glass, a great deal of restraint is necessary in sanctioning additional units for further expansion of capacity. For additional licensing of capacity would in no way contribute to the betterment and progress of the industry.

8.1. Silica sand, soda ash and anhydrous sodium sulphate or salt cake and cullet are the basic raw materials required for the manufacture of sheet glass. In addition to these, limestone, dolomite and felspar, borax and arsenic trioxide are also used for special purposes. The

#### 8. Raw materials

last two items are needed in very small quantities only. The approximate percentages in which these raw materials are used are as follows:

Silica sand	.	.	.	.	.	.	61 per cent
Soda ash	.	.	.	.	.	.	17 per cent
Dolomite	.	.	.	.	.	.	15 per cent
Limestone	.	.	.	.	.	.	4 per cent
Salt cake	.	.	.	.	.	.	2 per cent
Felspar	.	.	.	.	.	.	1 per cent

TOTAL . 100

Coal and furnace oil are the main fuels used. Refractories need to be made of ordinary fire-clay bricks to the extent of three fourth of the requirements and of corhart, zirconite and sillimanite bricks for the remaining. The position in respect of the major raw materials is as follows:

8.1.1. *Silica Sand*.—Sheet glass units continue to get their requirements of silica sand from Bargarh, Lohgara and Shankargarh in Allahabad District in Uttar Pradesh and to some extent from Bundi in Rajasthan. The total estimated requirement of silica sand of all the flat glass units in the year 1964 was 50,000 tonnes most of which was supplied from Allahabad mines. The D.G.T.D. has reported that silica sand used by most of the sheet glass factories conforms to the Indian Standard Specifications I.S. 488-1963 (Revised) for glass making sand. The typical composition of the sand available in the Allahabad deposits and compared to the standard specification is as follows:

	Typical composition of sand	Standard specifica- tion as per I.S. 488-1963 (Revised) for glass making sands (Grade 3)
1. Silica ( $\text{SiO}_2$ ) per cent by weight	98.23	Min 97.00
2. Iron oxide (as $\text{Fe}_2\text{O}_3$ ) per cent by weight	0.06	Max 0.12
3. Alumina ( $\text{Al}_2\text{O}_3$ ) per cent by weight	1.10	..
4. Calcium oxide ( $\text{CaO}$ ) per cent by weight	0.22	..
5. Loss on ignition per cent by weight	0.64	..

8.1.2. In the previous Report the Commission emphasised the importance of grading of sand since unevenness in the particle size results in irregular melting and presence of blemishes and stones in the glass. The Commission also recorded that in order to minimise any variation in the quality of sand supplied to glass factories, the U.P. Government had established a pilot sand washing plant with a daily

capacity of 18 tonnes and had also set up a testing laboratory at Shankargarh. Quarry owners were also advised to instal sand washing and grading plants. The D.G.T.D. has now informed us that adequate facilities for washing sand for its grading are not available at the quarries. This is presumably due to the fact that quarrying of silica sand in the district of Allahabad in U.P. is being carried on in a haphazard and unplanned basis. The quarries in Allahabad being the major deposits for silica sand in the country, need greater attention with a view to their optimum utilisation and conservation. They have, therefore, to be worked on a regular and planned basis. The estimated requirement of silica sand has been placed at 3,72,000 tonnes by the Planning Commission at the end of the Third Five Year Plan for various industries including the sheet glass industry. We therefore recommend that the whole position should be carefully examined by the Government of India and the Government of Uttar Pradesh.

8.1.3. None of the sheet glass manufacturers except Madras Sheet Glass Works has expressed any difficulty about the supply of silica sand. This unit has complained that the factory was set up at Madras on the understanding that silica sand would be available from deposits at Ennore which are only a few kilometres from the site of the factory. But the Madras Government has not yet made these deposits available to this factory. It has therefore to obtain its requirements from Allahabad and incur an extra expenditure on railway freight of about Rs. 50 per tonne. In view of this avoidable expenditure which adds to the cost of production we suggest that the Government of Madras should consider the desirability of releasing the requisite deposits in favour of this unit, and utilising this valuable raw material to the best advantage.

8.1.4. General dissatisfaction was expressed by producers with regard to the quality of sand available. Hindusthan-Pilkington has stated that the Allahabad sand needs to be washed prior to its use for removal of clays which otherwise cause stone and other faults in the finished product. Shree Vallabh Glass Works has pointed out that the quality of silica sand obtained from the sources other than Bundi (Rajasthan) is sub-standard, being contaminated with impurities. This factory is experimenting with the local quartz by calcining and grinding it, but it has not yet been able to find any solution for the removal of yellow iron scales in the lumps. The U.P. Glass Works has commented that there is no consistency of purity in the sand supplied to it. Indo-Asahi Glass Company has expressed that the quality of silica sand obtained is sub-standard since the suppliers do not practise standardisation.

8.1.5. The I.S.I. has formulated standards for glass making sands under which the sands are distributed in four grades. Special Grade is intended for the manufacture of high grade colourless glass, such as crystal glass, tableware and decorated ware. Grade I is intended for the manufacture of decolourized glassware such as containerware, lampware, etc. Grade 2 is intended for the manufacture of glassware where a light tint is permissible. Grade 3 is intended for the manufacture of

undecolourized glasses like sheet glass and some coloured glasses like iron-sulphur amber glass. We recommend that steps be taken by the Government of India and the State Governments with the help of the interests concerned to grade silica sand in accordance with these standards before consignments are despatched to users.

8.1.6. At the time of the last inquiry there was a general complaint about lack of transport facilities for silica sand. Madras Sheet Glass finds that at times there is shortage of wagons for the supply of silica sand from Shankergarh. Vallabh Glass Works has also been experiencing some difficulty in the matter of availability of wagons. However it appears that the position has generally improved as a consequence of Railway priority being raised from E to D.

8.2. *Soda ash.*—The most expensive of raw materials per unit of composition is soda ash, the cost being about 64 per cent of the total value of the raw materials used. The industry needs heavy soda ash and its requirement is estimated at between 18,000 and 20,000 tonnes per annum. According to the D.G.T.D. almost the whole requirement is met from imports by the S.T.C. In this connection it may be observed that there are two indigenous units producing heavy soda ash and their total production for the year 1964 was 36,000 tonnes. The price of heavy soda ash as reported for the year 1964 varied between Rs. 500 and Rs. 600 per tonnes and computing at the lowest price the requirement of the industry in terms of value would amount to about rupees one crore. With a little more attention to the production of heavy soda ash by the indigenous units about half of this amount which is now a drain on foreign exchange could perhaps be prevented.

8.3. It is not only necessary to explore the possibility of satisfying the demand of soda ash from the indigenous units, it is also necessary to ensure improvement in quality as well as reduction in prices. For almost all the units have been complaining against the quality of whatever indigenous soda ash was supplied. There are also complaints of erratic supplies of imported soda ash through the S.T.C. which caused dislocation in the running of the factories, difficulties of storage as well as problems of financing, and of the high prices charged by the S.T.C. It has also been urged that while the international price of soda ash was about Rs. 220 per tonne, the S.T.C. made the supplies at Rs. 520 per tonne. Madras Sheet Glass Works Ltd., has also complained that instead of its supplies being released from Madras, it has to obtain them from Bombay or Calcutta which involves heavy freight charges. Availability and supply of heavy soda ash of the right quality and at a lower price to the glass manufacturers needs the attention of the Government. While it is presumed that the S.T.C. charges a high price in order to maintain parity with the current market price of indigenous soda ash, it would help the industry to bring down costs, if such soda ash as has to be imported, is made available to the flat glass units under actual users licences in equitable proportion as between the several units.

8.4. *Salt Cake*.—Salt cake or anhydrous sodium sulphate required for the sheet glass industry is obtained as a by-product mostly of Rayon factories and to a certain extent of Bichromate factories. Four rayon factories, namely National Rayon, Century Rayon, Baroda Rayon and Gwalior Rayon produce sodium sulphate, of which the product of National Rayon is more readily acceptable to the sheet glass industry. From the information received by us, it appears that some of these factories are now in a position to supply substantial quantities of salt cake and there should therefore be no difficulty in so far as supplies are concerned. The D.G.T.D. has reported that salt cake is imported through the S.T.C. to augment the indigenous supplies. From the information that we have received it appears that three rayon units viz., National Rayon, Gwalior Rayon and Baroda Rayon and Golden Chemicals, a bichromate manufacturer, are in a position to supply a total of about 13,000 tonnes of salt cake while the annual requirement of the industry based on the production of 1964 was only 1,200 tonnes. The production of these units should not only meet the requirements of the sheet glass industry many times over but also the requirements of other industries too. It would therefore be necessary to discourage imports of salt cake. At the last inquiry diffidence was expressed with regard to the availability of coal for the conversion of glauber salt into salt cake. This problem has, however, since been resolved and it appears that coal in adequate quantities is available for the conversion. Some of the producers had complained of the high price of salt cake owing to the existence of a chain of middle men through whom supplies are made. The representative of the D.G.T.D. offered at the public inquiry to arrange for the supply to such producers as experience any difficulty directly from the manufacturers eliminating the chain of middlemen. We hope that the advantage of this offer would be taken by the producers concerned.

8.5. *Felspar*.—No complaints have been received in respect of supply of this raw material and it is therefore presumed that it is available in the requisite quality and quantity.

8.6. *Dolomite and limestone*.—U.P. Glass Works has reported that there is no consistency of purity in the case of limestone and dolomite supplied to it. Seraikella Glass Works has expressed the view that there is a shortage of dolomite and limestone and has also complained that the supplies of these raw materials are sub-standard. Madras Sheet Glass Works has reported that the dolomite it gets from Salem is not of uniform quality and the prices are high. It has added that the deposits near Salem have been reserved for the Salem Steel Plant and it apprehends therefore that supplies from this area would not be available to it in future. Indo-Asahi has complained about the quality of dolomite. Since limestone and dolomite are important minerals not only for this but also for other industries, it would be advisable to prescribe standards for them and to ensure that the material of the right quality is supplied to flat glass producers.

8.7. *Borax and arsenic oxide.*—The indigenous production of borax has started only recently and the capacity of Borax Morarjee Ltd., is stated to be of the order of 20,000 tonnes while the requirement of this industry is not likely to exceed more than a few hundred tonnes. The entire requirements of the flat glass industry are therefore likely to be met from indigenous sources. Arsenic trioxide has to be imported and the S.T.C. arranges for the imports. No adverse comments in respect of these items have been received from any of the producers.

8.8. *Refractories.*—As mentioned already fire clay refractories as well as fusion-cast blocks such as corhart and zirconite are needed. Fire clay refractories are needed for the body and casing while corhart and zirconite are required for the melting chamber of the sheet glass tanks. There are at present 45 refractory manufacturers having a total installed capacity of nearly one million tonnes per annum. The requirement of the sheet glass industry is only 1,000 to 2,000 tonnes. It has been reported that only sillimanite available from Khasi Hills of Assam is suitable as a substitute for imported corhart blocks and is being increasingly used by the sheet glass industry. The supply of sillimanite blocks is also inadequate owing to difficulties of transport between Assam and Calcutta.

8.9. *Fuels.*—Coal and furnace oils are used by the sheet glass industry. In terms of the calorific value the ratio between coal and fuel oil is 1:1.8. In terms of prices, however, the cost of fuel oil as compared to that of coal is about four times. Of the six units now working, two, namely Shree Vallabh Glass Works Ltd. and Madras Sheet Glass Works have oil-fired furnaces and the remaining four coal-fired furnaces. Hindusthan-Pilkington Glass Works Ltd., switched over to fuel oil, but owing to disproportionate rise in cost resulting from reduction in production and demand, went back to coal. The different units in the industry have pressed for the supply of the higher grades of coal. Their demands vary from the modest request of Indo-Asahi for the supply of 75 per cent selected B to the request of the All India Glass Manufacturers' Federation for the supply of the entire requirement in selected A. While it may not be possible for the Coal Controller to satisfy the entire demand for the select Grades asked for, it appears that on the whole the supply position is not as difficult as it was at the time of the last inquiry.

9.1. The Indian Standards Institution has communicated to us the latest position about the formulation of standards connected with sheet glass industry. These are as follows:—

9.1.1. Amendment No. 1 to IS:1761-1960, Transparent sheet glass for glazing and framing purposes has recently been finalised by the Glassware Sectional Committee, C.D.C. 10 of I.S.I. No licence for I.S.I. Certification Mark in respect of this has been taken.

9.1.2. The following draft standards are stated by I.S.I. to be in various stages of formulation.

*Transparent sheet glass (selected quality).*—Draft standard has recently been finalised by the Glassware Sectional Committee, CDC 10.

*Glass mirrors silvered.*—Draft specification has been finalised.

*Slides and cover slips for microscopes.*—Specification No. IS:3099-1965 is in press.

*Wired and figured glass.*—Draft standard has been approved for wide circulation.

9.2. I.S.I. has also stated that in the opinion of its Committee CDC 10, sheet glass industry should better be called flat glass industry. This accords with the observation we have made in paragraphs 2 and 16.2.

10. By and large the quality of the sheet glass produced in the country has improved and the industry has been able to produce sheet glass of the thickness of 1.3 mm. for use as microscope slides and of 6.4 mm. thickness considered to be a suitable substitute for plate glass for many of its end uses which speaks of the capacity for diversification and increase in the efficiency of the plants. However, there have been complaints on two scores, firstly, in respect of the quality of the sheet glass and secondly about packing. Many of the consumers who responded to the Commission's questionnaire have expressed dissatisfaction in various degrees with indigenous products and have stated that sheet glass produced in the country is sometimes found to have waviness, uneven thickness, scratches, air bubbles, blisters, corns, stones and is sometimes dark in shade. It has been pointedly brought to our notice that the indigenous sheet glass is not suitable for silvering, as it gives distorted reflection. At the public inquiry the chief complaint voiced was about faulty packing which resulted in heavy breakages. The consensus of opinion, however, is that there has been improvement in the quality and we hope that this improvement will be maintained. The industry needs, however, to pay more attention to the technique and process of packing in order to avoid breakages.

11.1. Sheet glass has been classified along with plate glass under Serial No. 244 of Part IV of the Import Trade Control Schedule. The import quota of sheet glass for established importers has been progressively reduced since 1961. During the licensing period from April 1963 to March 1964 imports of sheet glass were totally banned for established importers, though applications from mirror manufacturers for import of plate glass were considered under actual user licences in consultation with the D.G.T.D. Imports of silvered glass were not allowed even to actual users. The same policy was continued during the subsequent period from April 1964 to March 1965 except that in addition to plate glass, float glass was allowed to be imported by mirror manufacturers. During the current licensing

10. Quality of the indigenous product

11. Import control policy and imports

period also, namely, April 1965 to March 1966, while there is a ban on import of sheet glass by established importers, there is provision for the issue of licences to actual users.

11.2. The following table which is based on the Monthly Statistics of the Foreign Trade of India gives a summary of imports of sheet glass during the years 1962, 1963 and 1964. A detailed statement showing country-wise imports is given in Appendix V.

Items	1962		1963		1964	
	Quantity (Sq. metres)	Value (Rs.)	Quantity (Sq. metres)	Value (Rs.)	Quantity (Sq. metres)	Value (Rs.)
Window Glass	15,414	75,445	5,790	55,747	17,390	90,520
Other Sheet Glass.	104,299	442,756	116,472	495,166	120,442	1087,456
<b>TOTAL</b>	<b>119,713</b>	<b>518,201</b>	<b>122,262</b>	<b>550,913</b>	<b>137,832</b>	<b>1177,976</b>

In spite of the restrictions on imports of sheet glass the total imports have been rising since 1962 both in quantity and value; in terms of value they were double in 1964 as compared to the imports of 1962 or 1963. A peculiar feature of the import was that while imports in the previous years were mostly from the West European countries, the bulk of the imports—amounting to 78 per cent—and in value to Rs. 9.74 lakhs was from the U.S.S.R. in 1964. It was stated at the public inquiry that the entire consignment consisted of wired glass even though uncleared stocks of the same article were lying in the godowns of the factories in the country. In spite of our efforts we could not ascertain the reason for this increase in imports particularly when the indigenous industry was in doldrums owing to internal competition resulting from excessive production unmatched with demand.

12.1. The following statement shows the export of sheet glass during the years 1962, 1963 and 1964 as recorded in Monthly Statistics of the Foreign Trade of India.

#### 12. Exports

	Quantity	Value
	(Sq. metres)	(Rs.)
1962 . . . . .	445	8,790
1963 . . . . .	1,435	22,001
1964 . . . . .	330,848	11,62,117

While the export of sheet glass was negligible in the years 1962 and 1963 it went up to 0.33 million sq. metres valued at Rs. 11.62 lakhs in 1964. Most of this export was made to South Vietnam. The export to



the rest of the countries being almost negligible. This export was possible only on account of the limitation on the choice of the countries from which the purchase could be made by the purchasers in terms of the aid which financed these transactions. Had the Indian manufacturers to compete with manufacturers of other industrialised countries they would not have been able to quote competitive rates. Nevertheless, it would be worthwhile to explore the possibilities of exports to nearby countries and make efforts to promote larger exports. We are informed by the Chemical and Allied Products Export Promotion Council that the export incentive scheme for sheet glass consists of (i) import entitlement of 70 per cent of the f.o.b. value of exports. The raw materials permitted to be imported include heavy soda ash (up to 50 per cent of the f.o.b. export value), arsenic oxide, clays and other chemicals and (ii) the industry is allowed drawback of customs duty at Rs. 35.80 per tonne.

12.2. The industry has attributed high cost of indigenous production of sheet glass as the main reason for its poor performance in the export market and has asked for a number of concessions including subsidy to Indian manufacturers, removal of duty on imported raw materials and concessional railway freight rates.

13.1. *Import Duty*.—Sheet glass is assessed to protective duty under item No. 60(7) of the First Schedule to the Indian Tariff Act, 1934. The relevant extract is reproduced below:

Item No.	Name of article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of			Duration of protective rate of duty
				The United Kingdom	A British Colony	Burma	
60(7)	Sheet Glass	Protective	70 per cent <i>ad valorem</i>	—	—	24 per cent <i>ad valorem</i>	December 31st, 1965

NOTES: (1) Imported sheet glass is subject to countervailing duty at the rate equal to the excise duty leviable on like indigenous product.

(2) Under the Finance Act, 1965 a surcharge of 10 per cent is leviable on all imported articles. This is to remain in force up to 31st March, 1966.

(3) In addition to the customs duties already chargeable, a regulatory duty of 25 per cent of the rate or 10 per cent of the value whichever is higher is leviable under the Finance Act, 1965. This regulatory duty is to remain in force up to 15th May, 1966.

13.2. *Figured Glass*.—Figured glass is also assessed to the same protective duty as sheet glass as clarified in letter No. 36(211) Cus.III/54, dated 31st March 1955 from the Central Board of Revenue to the Collector of Customs, Bombay.

13.3. *Wired Glass*.—Wired glass is assessed to revenue duty under item No. 60 of the First Schedule to the Indian Tariff Act, 1934, at the same rate of duty as sheet glass.

13.4. *Excise duty*.—An excise duty of 10 per cent *ad valorem* is levied on sheet, wired and figured glass (Item No. 23A) under the Central Excise and Salt Act, 1944. In addition, a special excise duty of 20 per cent on the total amount is also levied. This duty is to remain in force up to 31st March, 1966.

13.5. Under the Finance (No. 2) Bill, 1965 the protective rate of duty in respect of I.C.T. item No. 60(7) and the revenue duty in respect of item No. 60 have been raised to 100 per cent *ad valorem*. Under the said Finance Bill, the surcharge of 10 per cent of the duty leviable has been abolished.

14.1. Our Assistant Cost Accounts Officer has examined the cost of production of sheet glass manufactured by Hindusthan-Pilkington Glass Works Ltd., and Indo-Asahi Glass Co. Ltd. The periods selected for costing were the years ending 31st October 1964 for the former unit and calendar year 1964 for the latter. We mentioned in our previous Report that Indo-Asahi Glass Co. Ltd., would be able to complete its rehabilitation by about the middle of the year 1965. This could not be done because of its inability to make the necessary investment in the venture as a result of adverse business conditions. The details of the cost of production worked out by our Assistant Cost Accounts Officer were discussed separately with the representatives of the two companies. As they desired that details of their costs should not be disclosed, we are forwarding to Government the reports of our Assistant Cost Accounts Officer as confidential enclosures to our Report.

14.2.1. On the basis of our discussion with the representatives of the companies, we have estimated their fair ex-works prices for the future. In constructing the estimates we have made the following assumptions:

14.2.2. *Production*.—The present recession in the sheet glass industry is not likely to persist. The demand for sheet glass is bound to go up. However, taking into consideration the present low offtake and that the demand may pick up only gradually, we have assumed for the purpose of determining costs the efficiency and economy of production at 4.26 million sq. metres per annum for Hindusthan-Pilkington and 3.90 million sq. metres per annum for Indo-Asahi in terms of sheet glass of 2 mm. thickness.

14.2.3. Consumption of raw materials, coal, etc., has been assessed on the basis of actuals with suitable adjustments in consultation with the respective units, and they have been valued at the latest available rates inclusive of increase in railway freight rate. Provision has been made for the re-lining and cold repairs of furnaces, for normal

annual increments in the wages and salaries, and for increase or adjustment of other factors according to the merits of each case. Depreciation has been calculated at normal income-tax rates inclusive of shift allowance, as applicable, on written down values including planned additions to fixed assets.

14.2.4. *Contingencies*.—An allowance for contingencies at the rate of 5% on the cost of manufacture excluding depreciation and technical consultants' remuneration was provided in our previous estimates in order to cover unforeseen increases in costs. As necessary weightage has been given while framing estimates under different elements of costs, we do not consider the necessity to provide any further allowance on this account.

14.2.5. *Return*.—Taking into consideration the statutory liability for payment of minimum bonus, recommended by the Bonus Commission, as well as upward revision of bank rates, we have allowed return at 15 per cent on capital employed, which is computed at an amount equivalent to the sum of the average net fixed assets and working capital assessed at four months' cost of production excluding depreciation.

14.2.6. The following two tables give a summary of our estimates of future fair ex-works prices of sheet glass of the sizes manufactured by the two costed units. It is necessary to point out that the fair ex-works prices worked out hereunder are for the purpose of ascertaining the quantum of protection needed by the industry. Such prices, however, cannot be taken as fair prices at which these products should be available to the consumers as they do not include any provision for such factors as, for example, selling and distribution expenses.

*Estimates of future fair ex-works prices of sheet glass manufactured by Hindusthan-Pilkington Glass Works Ltd.*

(Rupees per 10 sq. mts.)

Sizes	2·00 m.m.	2·90 m.m.	4·00 m.m.	4·80 m.m.	5·50 m.m.
Production in square metres	639,600	917,606	332,638	173,192	408,110
Yield	65%	68%	70%	70%	70%
1. Raw Materials . . .	8·94	13·30	18·34	22·02	25·27
2. Conversion Charges . .	14·59	20·89	28·29	33·95	38·90
3. Depreciation . . .	2·52	3·59	4·84	5·81	6·66
4. Packing . . .	5·27	7·64	10·54	12·65	14·49
5. Cost of Production . .	31·32	45·42	62·01	74·43	85·32
6. Return . . .	4·88	7·26	10·02	12·03	13·78
7. Fair ex-works price . .	36·20	52·68	72·03	86·46	99·10
8. Fair ex-works price per sq. metre.	3·62	5·27	7·20	8·65	9·91

*Estimates of future fair ex-works prices of sheet glass manufactured by  
Indo-Asahi Glass Company Ltd.*

(Rupees per 10 sq. mts.)

Sizes	2·00 m.m.	3·00 m.m.	4·00 m.m.	5·50 m.m.
Production in square metres	1,950,000	609,375	109,200	206,471
Yield	60%	62%	65%	65%
1. Raw Materials . . . . .	10·98	17·58	27·45	47·22
2. Conversion Charges . . . . .	21·51	33·10	48·44	65·99
3. Depreciation . . . . .	4·07	6·30	9·36	12·73
4. Packing . . . . .	4·24	6·36	8·49	11·67
5. Cost of Production . . . . .	40·80	63·34	93·74	137·61
6. Return . . . . .	4·72	7·56	11·80	16·60
7. Fair ex-works price . . . . .	45·52	70·90	105·54	153·67
8. Fair ex-works price per sq. mt. . . . .	4·55	7·09	10·55	15·37

15. For the purpose of comparison with landed cost, ex-duty, of the imported products we have taken the simple average of the fair ex-works prices of the two costed units given in the preceding paragraph. The statement below gives a comparison of the fair ex-works prices of indigenous sheet glass with the landed costs, without duty, of the imported products.

15. Comparison of the fair ex-works prices of indigenous sheet glass with landed cost ex-duty of imported sheet glass

(Rs. per 10 sq. metres)

Sizes	2 m.m.	3 m.m.	4 m.m.	4·8 m.m.	5·5 m.m.
1. C.i.f. price . . . . .	20·52	30·74	48·28	52·27	58·55
2. Clearing charges at 1% . . . . .	0·21	0·31	0·48	0·52	0·59
3. Landed cost without duty . . . . .	20·73	31·05	48·76	52·79	59·14
4. Fair ex-works price . . . . .	40·86	61·79	88·79	86·46	126·39
5. Difference between 4 and 3 . . . . .	20·13	30·74	40·03	33·67	67·25
6. Difference as percentage on c.i.f. . . . .	98·10	100·00	82·91	64·42	114·86

16.1. It has been stated in paragraph 2 that with the production of figured and wired glass it is no longer possible to review and examine the protection of sheet glass only in isolation from other varieties of flat glass produced in the country. As it happens one of the varieties of

16. Measure of protection

flat glass namely figured glass already enjoys the same protective rate of duty as sheet glass. The only other variety in production in substantial quantities in the country is wired glass, the method and process of manufacture of which is the same as that of figured glass.

16.2. In order to make the nomenclature more comprehensive the industry may be referred to as flat glass. As and when there is further diversification of production in the field of flat glass the desirability of extending the scope of protection to cover other varieties too may be examined at the appropriate stage.

16.3. The figures given in paragraph 15 show that the domestic industry suffers from disadvantages ranging from 64.42 per cent to 114.66 per cent. The disadvantage in respect of sheet glass of the thickness of 2 mm. which is the major item of production, amounts to 98.10 per cent. The disadvantage is lower in the case of sheet glass of the thickness of 4 mm. and 4.8 mm. which accounted for 12.3 per cent of domestic production of 1964. Generally therefore the disadvantage is of the order of 100 per cent. All the producers excepting Hindusthan-Pilkington have asked for continuance of protection beyond 31-12-1965. So have the All-India Glass Manufacturers' Federation. A majority have asked for protection for a period of 5 years. Hindusthan Pilkington Glass Works have stated that with the present extreme shortage of foreign exchange and consequent import control, the question of protection has assumed a theoretical significance and will arise for consideration in its proper perspective only when the foreign exchange position eases and import controls are relaxed. The point made by Hindusthan-Pilkington Glass Works is no doubt of current validity but when the long term interests of the industry are considered the issue of protection should be independent of temporary advantages like those arising out of restriction of imports. Also there would be occasion for imports against barter deals, export incentives and so forth which have to be taken into account. *Prima facie* therefore an import duty of 100 per cent would be justified.

16.4. However, there are some other aspects which also have to be taken into consideration. It is noticeable that one of the production units was viable even when there was no protective duty and imports were free. This may be due to the fact that every factory away from the ports would have a freight or other local advantages over imports. In fact this unit has been in existence since 1931 on a remunerative basis. The main difficulties of the industry arise out of the high cost of raw materials particularly soda ash and silica sand. The cost of raw materials is about 25 to 33 per cent of the fair ex-works price and of this about 65 per cent is accounted for by soda ash alone and a further 20 per cent by silica sand. Significant reductions of cost can therefore be secured if the costs of these two raw materials are brought down. Further economies will be possible if the scale of production were to go up, since overheads account for nearly 30 per cent of the ex-works price. While economies due to scale are bound to arise as internal demand goes up we would like to stress that steps should be taken by

Government to make soda ash and silica sand available at lower cost to manufacturers of sheet glass. As regards soda ash the price before de-control in December 1963 was Rs. 400 per tonne though immediately after de-control it rose to Rs. 435 and even more. The c.i.f. price of imported soda ash is now in the neighbourhood of Rs. 210 though the S.T.C. has been selling such soda ash at Rs. 500 to Rs. 520 to keep in line with market prices which are obviously un-reasonable. We feel that if the S.T.C. were to sell to consumers at the fair ex-works price of Indian soda ash the market would be controlled at a lower level and this important raw material would be available to glass manufacturers at a more reasonable price than at present. In our Report on the Soda Ash Industry (1964) we estimated the fair price of heavy soda ash at Rs. 407.01 which included a profit element of Rs. 63. Since then the production of soda ash has gone up and the present fair ex-works price may conceivably be lower. As regards silica sand the main difficulty is that it is produced without a proper organisation or system by small producers and efforts by the State Governments concerned may make this material available in better quality and at cheaper prices.

16.5. However, for the present it is clear that the high cost of the industry is largely due to reasons beyond its control and production at levels of cost obtaining in Europe or in Japan is not practicable. The protective duty of 70 per cent *ad valorem* has recently been proposed to be increased by Government to 100 per cent which is in line with the results of our investigation. We, therefore, recommend that the existing rate of protective duty should be increased to 100 per cent *ad valorem* and extended for a further period of three years ending December 31, 1968. This rate should apply to flat glass comprising sheet glass manufactured by drawing by the P.P.G. or Fourcault process and figured and wired glass.

17.1. The selling arrangements of the producers continue to be the same as at the time of the last inquiry.

17. Selling system and selling prices      There have been no complaints of any difficulty in obtaining sheet glass. The supply position has not only been satisfactory, substantial stocks are also held by some of the units.

17.2. *Selling prices.*—At the time of the last inquiry the Commission had made a suggestion to the representatives of the industry that they should publish periodically in the press their ex-factory prices at important centres and also ensure that their authorised and regular dealers display prominently in their premises the retail prices of the different varieties of sheet glass. It was also suggested that the manufacturers should open a few fair price shops at important centres like Bombay, Ahmedabad, Kanpur, Calcutta and Madras where consumers may buy their requirements at reasonable prices. This recommendation was made by the Commission when there was scarcity of sheet glass during the latter part of the year 1961 and early 1962. Subsequently, the Government of India referred the case of fixation of prices of sheet glass to the Commission under section 12(d) of the Tariff Commission

Act, 1951 and the Commission submitted its Report in October 1962, but sheet glass was decontrolled with effect from 16th December, 1963. Since then there is no control over the prices of sheet glass and as a result of acute slump in the market the prices of some of the varieties have gone below the level fixed by the Government during the period of price control. Supply is in excess of demand and it was, therefore considered unnecessary to open fair price shops or to publish the prices in the press.

17.3. Two statements showing the selling prices of different gauges of sheet glass for the period from 1962 to 1964 as reported by the producers are given in Appendix VI. The first statement relates to sheet glass of 2 mm. to 4 mm. and the prices are quoted for 10 sq. metres. The second statement relates to thick varieties from 4.5 mm. to 5.5 mm., in thickness and the prices are quoted per sq. metre. It would be observed that Indo-Asahi Glass Co. has reduced its prices below those in 1963. In the case of Seraikella Glass Works, however, there has been an increase of about 1 to 8 per cent over the prices of 1962. U.P. Glass Works has raised the price of 2 mm. thickness by 11.8 per cent and that of 3 mm. thickness by 6.4 per cent. Hindusthan-Pilkington has raised its prices on certain items and reduced on certain others.

Our conclusions and recommendations are summarised as  
 18. Summary of conclusions and recommendations under :—

18.1. We have decided to expand the scope of the inquiry to include figured and wired flat glass.

[Paragraph 2.]

18.2. The Railway administration may examine in the light of the latest developments the request of Indo-Asahi Glass Co. Ltd., for allowing it to move silica sand in ordinary wagons instead of box wagons until the railway siding is constructed.

[Paragraph 4.2]

18.3. The case of Shree Vallabh Glass Works Ltd., which requires foreign exchange to the extent of Rs. 50,000 for installing the requisite machinery for pulverising quartz may be favourably considered by Government.

[Paragraph 4.5]

18.4. It is desirable to maintain expansion of capacity in proportion to demand and great caution is necessary for the future in allowing any further expansion or licensing of new units.

[Paragraphs 6.4.2 and 7.9]

18.5. The total demand for sheet glass, figured glass and wired glass during 1965 is estimated at 12.50 million sq. metres of which 25 per cent would be for figured and wired glass. There is likely to be an

increase in demand at the rate of five per cent annually during the next three years.

[Paragraph 7.8]

18.6. The whole position of the mining of silica sand in the district of Allahabad should be carefully examined by the Government of India and the Government of Uttar Pradesh.

[Paragraph 8.1.2]

18.7. The Government of Madras should consider the desirability of releasing the requisite deposits of silica sand at Ennore in favour of Madras Sheet Glass Works Pvt. Ltd. and utilising this valuable raw material to the best advantage.

[Paragraph 8.1.3]

18.8. Steps should be taken by the Government of India and the State Governments with the help of the interests concerned to grade silica sand in accordance with the ISI standards before consignments are despatched to users.

[Paragraph 8.1.5]

18.9. While it is presumed that the State Trading Corporation charges a high price for imported heavy soda ash in order to maintain parity with the current market price of indigenous heavy soda ash, it would help the industry to bring down costs, if such heavy soda ash as has to be imported is made available to the flat glass units under actual users licences in equitable proportions as between the several units.

[Paragraph 8.3]

18.10. Since the indigenous production of salt cake is more than sufficient to meet the requirements of flat glass industry it is necessary to discourage imports of salt cake.

[Paragraph 8.4]

18.11. Since limestone and dolomite are important minerals not only for flat glass industry but also for other industries, it would be advisable to prescribe standards for them and to ensure that the material of the right quality is supplied to flat glass producers.

[Paragraph 8.6]

18.12. The glass industry needs to pay more attention to the technique and process of packing in order to avoid breakages.

[Paragraph 10]

18.13. It would be worthwhile for the flat glass industry to explore the possibilities of exports to nearby countries and make efforts to promote larger exports.

[Paragraph 12.1]



18.14. In order to make the nomenclature more comprehensive the industry may be referred to as flat glass. As and when there is further diversification of production in the field of flat glass the desirability of extending the scope of protection to cover other varieties too may be examined at the appropriate stage.

[Paragraph 16.2]

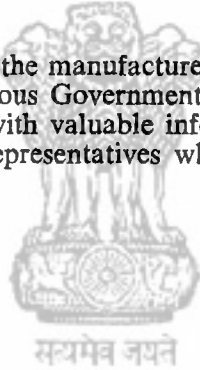
18.15. Steps should be taken by Government to make soda ash and silica sand available at lower cost to manufacturers of flat glass.

[Paragraph 16.4]

18.16. The existing rate of protective duty on sheet glass and figured glass should be increased to 100 per cent *ad valorem* and extended for a further period of three years ending December 31, 1968. This rate should apply to flat glass comprising sheet glass manufactured by drawing by the P.P.G., or Fourcault process and figured and wired glass.

[Paragraph 16.5]

19. We wish to thank the manufacturers, consumers and importers of flat glass as well as various Government departments who furnished 19. Acknowledgements us with valuable information in connection with this inquiry and to their representatives who tendered evidence before us.



M. P. PAI,  
Chairman.

B. G. GHATE,  
Member.

M. ZAHEER,  
Member.

PRAMOD SINGH,  
Secretary

BOMBAY, 4th September, 1965.

## APPENDIX I

[Vide Paragraph 3.1]

*List of parties to whom Questionnaires/letters were issued and from whom replies were received*

\*Indicates those who replied.

@Indicates those who were not interested.

### A. PRODUCERS.

- \*1. Hindusthan-Pilkington Glass Works Ltd., Hindusthan Buildings, 4, Chittaranjan Avenue, Calcutta-13.
- \*2. Seraikella Glass Works (Pvt.) Ltd., P. O. Kandra, S. E. Rly., Distt. Singhbhum.
- \*3. U. P. Glass Works Ltd., Bahjoi, Distt. Moradabad.
- \*4. Indo-Asahi Glass Co. Ltd., 30, Chittaranjan Avenue, Calcutta-12.
5. Paisa Fund Glass Works, Talegaon-Dabhade, Distt. Poona.
- \*6. Madras Sheet Glass Works (Pvt.) Ltd., Tiruvottiyur, Madras-19.
- \*7. Shree Vallabh Glass Works Ltd., Vallabh Vidyanagar (Gujarat).
- \*8. The Cotton Agents Private Ltd., Industry House, 159, Churchgate Reclamation, Bombay-1.
- \*9. Window Glass Ltd., B-5, Gillander House, 8, Netaji Subhas Road, Calcutta-1.
- \*10. Andhra Pradesh Industrial Development Corporation Ltd., B-1-174, Fateh, Maidan Road, Hyderabad-4 (A.P.).
- \*11. Hindustan Wired Glass Manufacturing Co. Ltd., Mira Baug, Vishvamitri Road, Baroda.

### B. PRODUCERS' ASSOCIATION.

- \*1. The Secretary, All India Glass Manufacturers' Federation, 7/7, Desh Bandhu Gupta Road, Paharganj, New Delhi-1.

### C. IMPORTERS.

- @1. D. Ramaiah Chetty & Sons, 228-230, Devaraja Mudali Street, Madras-3.
- \*2. F. IHL & Co., Kerawala Mansion (1st Floor), Carnac Road, Bombay-2.
- @3. Goolamhoosein Valiji Arsiwalla, 116, Abdul Rehman Street, Bombay-3.
- \*4. Hargovind Dharamsi & Co., 344, New Nagpada Road, Bombay-8.
- \*5. G. Jarvis (Representing Pilkington Brothers Ltd.), P. O. Box No. 682, Bombay-1.
6. Karimji Ebrahimji Arsiwalla, 118/120, Abdul Rehman Street, Bombay-3.
7. Koonjo Behary Chandra & Sons Private Ltd., 10/1, Swallow Lane, Calcutta.
- @8. M. Mitter & Co. (Private) Ltd., 114/1, Hazra Road, Calcutta-26.
- \*9. Mitsubishi Shoji Kaisha Ltd., Kasturi Building, Jamshedji Tata Road, Churchgate Reclamation, Bombay-1.
- \*10. Sepulchare Brothers (India) Pvt. Ltd., Taj Building, D. Naoroji Road, Fort, Bombay-1.

- @11. Tribhovandas Maneklal Taktawala, Taktawala House, 1924, Gandhi Road, Ahmedabad.
- 12. Hill Elliot & Co., 15, Graham Road, Ballard Estate, Bombay-1.
- \*13. The All India Glass Merchants' Association, 116, Abdul Rehman Street, Bombay-3.
- 14. Calcutta Glass Association, 10/1, Swallow Street, Post Box No. 2379, Calcutta.

#### D. CONSUMERS.

- \*1. The Controller of Stores, Bombay Port Trust, Mazagaon, Bombay-10. DD.
- \*2. Controller of Stores, Central Railway, V. T., Bombay.
- \*3. Controller of Stores, Western Railway, Churchgate, Bombay-1.
- \*4. Bawa Glass Co., Fatehpuri, Delhi-6.
- \*5. D. N. Agrawal & Sons, 202, Old China Bazar Street, Calcutta-1.
- 6. M. Latif Beg, 94, Canning Street, Calcutta-1.
- \*7. Indore Glass House, 39, Mahatma Gandhi Road, Indore City.
- \*8. The Tata Iron & Steel Co. Ltd., Jamshedpur.
- \*9. Director of Co-ordination and Statistics, Directorate General of Supplies and Disposals, N-1 Building, Parliament Street, New Delhi.
- @10. K. G. Rajan & Co., 99, Big Bazar Street, Tiruchirapalli-8.
- \*11. T. V. Sundaram Iyengar & Sons Pvt. Ltd., 211, South Veli Street, Madurai.
- \*12. Jayanand Khira & Co., Pvt. Ltd., Swami Vivekanand Road, Santa Cruz, Post Box No. 6905, Bombay-54.
- @13. Hyderabad Allwyn Metal Works Ltd., Sanatnagar, P. O., Hyderabad-18.
- 14. Intergal Coach Factory, Perambur.
- \*15. Hindusthan Aeronautics Ltd., Bangalore.
- \*16. General Manager, B. E. S. T. Undertaking, BEST HOUSE, Bombay-1.
- 17. The Premier Automobiles Ltd., Construction House, Ballard Estate, Bombay.
- \*18. Standard Motor Products of India Ltd., 29, Mount Road, Madras-2.
- 19. Hindusthan Motors Ltd., 8, Royal Exchange Place, Calcutta-1.
- \*20. Divecha Glass Works, 344, New Nagpada Road, Bombay-8.
- 21. Prakash Mirror Co., 463, Tardeo, Arthur Road, Bombay-7.
- 22. Modern Mirror Works, A-9, Meghji Building, 104, Mazagaon Road, Bombay.

#### E. RAW MATERIAL SUPPLIERS.

- \*1. Tata Chemicals Ltd., Bombay House, Bruce Street, Fort, Bombay-1.
- \*2. Saurashtra Chemicals, Porbander.
- 3. Sahu Chemicals and Fertilizers, Sahupuri, Varanasi.
- \*4. The National Rayon Corporation Ltd., P. B. No. 200, Ewart House, Bruce Street, Fort, Bombay-1.
- \*5. Golden Chemicals Ltd., Vile Parle, Bombay-56.
- 6. J. K. Rayons, Kamla Tower, Kanpur (U.P.).
- \*7. The Gwalior Rayon Silk Mfg. (Wvg.) Co. Ltd., Birlagram, Nagda (M.P.).
- 8. The Baroda Rayon Corporation Ltd., Bombay-1.
- 9. Century Rayons, Industry House, Churchgate, Bombay-1.
- 10. Belpahar Refractories Ltd., Belpahar, Orissa.

- 11. Kumardhubi Fireclay & Sillico Works Ltd., (Bird Refractories), P. O. Kumardhubi, Bihar.
- \*12. Orissa Cement Ltd., Rajgangpur, Orissa.
- \*13. Assam Sillimanite Ltd., Gauhati, Assam.

#### F. GOVERNMENT DEPARTMENTS.

- \*1. The Director General of Technical Development, (Glass Directorate), Udyog Bhavan, Maulana Azad Road, New Delhi.
- \*2. Director, Central Glass & Ceramic Research Institute, P. O. Jadavpur College, Calcutta-32.
- \*3. The Collector of Customs, Customs House, Bombay.
- \*4. The Collector of Customs, Calcutta.
- @5. The Collector of Customs, Madras.
- @6. The Collector of Customs, Cochin.
- \*7. Minister (Economic), High Commission of India in U. K., Aldych, London, W.C. 2.
- \*8. First Secretary (Commercial), Embassy of India, No. 2, Rue Godot de Manroy, Paris-9E.
- \*9. First Secretary (Commercial), Embassy of India, 583, Avenue Louise, Brussels.
- 10. First Secretary (Commercial), Embassy of India, Naigai Building, No. 18-2, Chome, Marunouchi 'Chiyoda-Ku', Tokyo.
- \*11. Coal Board, 11/A, Hastings Street, Calcutta-1.
- \*12. The Director of Industries, Government of Bihar, Patna.
- \*13. The Director of Industries, Government of West Bengal, Calcutta.
- \*14. The Director of Industries, Government of Gujarat, Ahmedabad.
- @15. The Director of Industries, Government of Madras, Madras.
- \*16. The Director of Industries, Government of Maharashtra, Bombay.
- \*17. The Director of Industries, Government of Uttar Pradesh, Kanpur.
- \*18. The Secretary, Railway Board, Ministry of Railways, New Delhi.
- \*19. The Secretary State Trading Corporation, Express Building, Bahadur Shah Zafar Marg, New Delhi.
- \*20. The Director, Indian Standards Institution, Manak Bhavan, 9, Mathura Road, New Delhi.
- \*21. The Secretary, Chemical and Allied Products, Export Promotion Council, 14/1-B, Ezra Street, (2nd Floor), Calcutta-1.
- \*22. The Director, Geological Survey of India, 27, Chowringhee, Calcutta-13.

#### G. CHIEF SECRETARIES OF STATES.

- 1. The Chief Secretary to the Government of Andhra Pradesh, Hyderabad.
- @2. The Chief Secretary to the Government of Assam, Shillong.
- \*3. The Chief Secretary to the Government of Bihar, Patna.

- \*4. The Chief Secretary to the Government of West Bengal, Calcutta.
- 5. The Chief Secretary to the Government of Gujarat, Ahmedabad.
- @6. The Chief Secretary to the Government of Jammu & Kashmir, Srinagar.
- @7. The Chief Secretary to the Government of Kerala, Trivandrum.
- @8. The Chief Secretary to the Government of Madhya Pradesh, Bhopal.
- @9. The Chief Secretary to the Government of Madras, Madras.
- @10. The Chief Secretary to the Government of Maharashtra, Bombay.
- @11. The Chief Secretary to the Government of Mysore, Bangalore.
- @12. The Chief Secretary to the Government of Orissa, Bhubaneswar.
- @13. The Chief Secretary to the Government of Punjab, Chandigarh.
- @14. The Chief Secretary to the Government of Rajasthan, Jaipur.
- @15. The Chief Secretary to the Government of Uttar Pradesh, Lucknow.
- @16. The Chief Commissioner, Delhi Administration, Delhi.
- @17. The Chief Commissioner, Himachal Pradesh, Simla.



**APPENDIX II**  
(*Vide Paragraph 3.1.*)

*List of factories visited by the Commission and the Officers*

Name of the factory	By whom visited	Date of visit
1. Madras Sheet Glass Works, Madras.	1. Chairman . . . . . 2. Dr. B. G. Ghate, Member . 3. Shri M. Zaheer, Member . 4. Dr. P. V. Gunishastri, Director (Reviews and Research). 5. Shri M. S. Marballi, Research Officer (Chemicals).	8-2-65 4-8-65 9-4-65 10-7-65 13-5-65
2. Hindusthan-Pilkington Glass Works Ltd., Calcutta.	1. Shri S. Saha, Technical Director (Chemicals). 2. Shri A. K. Ganguli, Asstt. Cost Accounts Officer.	20-4-65 17-4-65 to 20-4-65
3. Indo-Asahi Glass Co. Ltd., Calcutta.	1. Shri S. Saha, Technical Director (Chemicals). 2. Shri A. K. Ganguli, Asstt. Cost Accounts Officer.	21-4-65 21-4-65 to 25-4-65
4. Shree Vallabh Glass Works, Anand.	1. Shri S. Saha, Technical Director (Chemicals).	1-5-65

## APPENDIX III

(Vide Paragraph 3.2.)

*List of persons who attended the Commission's Public inquiry on 20th July, 1965*

### A. Producers

- |                             |   |              |   |
|-----------------------------|---|--------------|---|
| 1. Shri T. C. Roy Choudhury | } | Representing | Hindusthan-Pilkington Glass Works Ltd., Hindusthan Buildings, 4 Chittaranjan Avenue, Calcutta-13.   |
| 2. „ D. Mookerjee           | } |              |   |
| 3. „ G. Jarvis              | . | .            | 1. Hindusthan-Pilkington and<br>2. Pilkington Brothers Ltd., P.O. Box. No. 682, Bombay-1.   |
| 4. „ A. Hibino              | . |              |   |
| 5. „ P. K. Dutta            | } | „            | Indo-Asahi Glass Co. Ltd., 30, Chittaranjan Avenue, Calcutta-12.  |
| 6. „ H. C. Varshnei         | . | .            | 1. Seraikella Glass Works (P) Ltd., P. O. Kandra, Dist., Singhbhum.<br>2. U. P. Glass Works Ltd., Babjoi, Dist. Moradabad. and<br>3. Madras Sheet Glass Works, Tiruvottiyur, Madras-19. |
| 7. Shri P. P. Chandra       | . | .            | Seraikella Glass Works (P) Ltd., Kandra.  |
| 8. „ J. A. Taktawala        | . |              |   |
| 9. „ C. A. Taktawala        | } | „            | Shree Vallabh Glass Works Ltd., Vallabh Vidyanagar, Anand.  |
| 10. „ Seidel                | } |              |   |
| 11. „ H. C. Domani          | . |              |   |
| 12. „ V. K. P. Kartha       | } | „            | Hindustan Wired Glass Mfg. Co. Ltd., Indira Avenue Road, Near Vishvamitri Bridge, Baroda.   |
| 13. „ N. K. Mahadevia       | } |              |   |
| 14. „ C. S. Shah            | } |              |   |
| 15. „ K. J. Shah            | } |              |   |
| 16. „ B. L. Kheruka         | . | .            | Window Glass Ltd., B-5 Gillander House, 8, Netaji Subhas Road, Calcutta-1.  |
| 17. „ R. N. Jatia           | . | .            | Associated Glass Industries, 1-10-63 64, Rockland, Begumpet, Hyderabad.   |

### B. Associations

- |                       |   |   |  |
|-----------------------|---|---|--|
| 18. Shri H. C. Gupta  | . | . | „ All India Glass Manufacturers' Federation, 7/7 Desh Bandhu Gupta Road, Paharganj, New Delhi-1. |
| 19. „ T. F. Kachwalla | . |   |  |
| 20. „ C. C. Desai     | } | „ | All India Glass Merchants Association, 116, Abdul Rehman Street, Bombay-3.                       |
| 21. „ T. D. Kachwalla | } |   |  |
| 22. „ J. N. Shah      | } |   |  |

**C. Consumers**

23. Shri R. G. Rave . . . Representing Jayanand Khira & Co. P. Ltd.,  
Swami Vivekanand Rd., P.  
Bag No. 6905, Bombay-54.
24. „ K. Chinnikrishna . . . „ Controller of Stores, Central  
Railway, V. T., Bombay-1.
25. „ K. R. Narayanaswamy . . . „ Controller of Stores, Western  
Railway, Churchgate, Bom-  
bay-1.

**D. Selling Agents**

26. Shri T. Hirano } „ Mitsubishi Shoji Kaisha Ltd.,  
27. „ S. Hayashi } Kasturi Building, J. Tata Road,  
28. „ Mangaldas Goradia } Bombay-1.

**E. Importers**

29. Shri K. A. Dotiwalla . . . „ F. IHL. and Co., Kerawala  
Mansion (1st Floor), Carnac  
Road, Bombay-2.
30. „ J. M. Parekh . . . „ J. M. Parekh, Amersi Road,  
Malad, Bombay-64.
31. „ M. G. Trehan . . . „ Pals Agencies, 20, Geeta Bhu-  
van-B, Warden Road, Bom-  
bay-26.

**F. Raw Material Suppliers**

32. Shri A. K. Banerji . . . } „ Tata Chemicals Ltd., Bombay  
33. „ P. V. Manyam . . . } House, Bruce Street, Bombay-1.  
34. „ R. G. Patankar . . . }  
35. „ Y. M. Raval . . . „ Golden Chemicals Ltd., Vile  
Parle, Bombay-56.

**H. Government Departments**

36. Shri S. R. Khanna . . . „ The Directorate General of  
Technical Development, Udyog  
Bhavan, Maulana Azad Road,  
New Delhi.
37. „ S. B. Sarkar . . . „ The Coal Controller, 1, Council  
house Street, Calcutta.
38. „ K. D. Sharma . . . „ Central Glass and Ceramic Rese-  
arch Institute, P.O. Jadhavpur  
College, Calcutta-32.
39. „ U. Chatterji . . . „ Director of Industries, Govern-  
ment of West Bengal, Cal-  
cutta.
40. „ A. D. Dua . . . „ Director of Industries, Govern-  
ment of Bihar, Patna.
41. „ D. S. Parikh . . . „ Director of Industries, Govern-  
ment of Gujarat, Ahmedabad.
42. „ N. K. Ramaswamy . . . „ Indian Standard Institution, Ma-  
nak Bhavan, 9, Mathura Road,  
New Delhi.
43. „ M. Mahadevan . . . „ Collector of Customs, Bombay.





## APPENDIX V

(Vide paragraph 11.2)

*Statement showing imports of sheet glass during the years 1962, 1963 and 1964.*

Country of Origin	1962		1963		1964	
	Quantity (Sq. mts.)	Value (Rs.)	Quantity (Sq. mts.)	Value (Rs.)	Quantity (Sq. mts.)	Value (Rs.)
<b>A. Window Glass</b>						
Belgium . . . . .	7,761	42,212	3,720	33,886	12,901	58,295
W. Germany . . . . .	80	704	1,687	18,665	2,759	36,332
Poland . . . . .	5,688	20,223	..	..	..	..
U. K. . . . .	1,541	7,099	218	2,252	1,603	6,355
U.S.A. . . . .	100	1,500	20	241	..	..
Netherlands . . . . .	..	..	145	703	..	..
Czechoslovakia . . . . .	..	..	..	..	127	468
Small value transactions . . . . .	244	3,707	..	..	..	..
<b>TOTAL</b> . . . . .	<b>15,414</b>	<b>75,445</b>	<b>5,790</b>	<b>55,747</b>	<b>17,390</b>	<b>90,520</b>
<b>B. Other Sheet Glass</b>						
Belgium . . . . .	26,673	119,405	17,865	106,476	9,075	59,991
Czechoslovakia . . . . .	7,976	50,150	..	..	..	..
France . . . . .	58	629	1,193	14,176	224	4,892
W. Germany . . . . .	4,349	37,582	2,353	20,687	3,019	43,480
Hongkong . . . . .	355	1,064	..	..	..	..
Italy . . . . .	10,610	42,441	..	..	..	..
Japan . . . . .	30,325	75,154	7,087	23,554	232	1,172
Poland . . . . .	11,860	38,363	530	2,320	..	..
U. K. . . . .	8,801	56,751	16,729	80,370	374	4,110
U.S.S.R. . . . .	..	..	70,715	2,47,583	107,518	9,73,811
Small value transactions . . . . .	3,292	21,217	..	..	..	..
<b>TOTAL</b> . . . . .	<b>104,299</b>	<b>442,756</b>	<b>116,472</b>	<b>4,95,166</b>	<b>120,442</b>	<b>10,87,456</b>
<b>TOTAL OF A AND B</b> . . . . .	<b>119,713</b>	<b>5,18,201</b>	<b>122,262</b>	<b>5,50,913</b>	<b>137,832</b>	<b>11,77,976</b>

# APPENDIX VI(a)

(Vide paragraph 17.3)

I—Statement showing selling prices of sheet glass of 2 mm to 4 mm—thickness

(Price in Rs. per 10 sq. metres)

Name of the producer	Year	Cut sizes	2 mm	2.6 mm	2.90 mm	3 mm	3.3 mm	4 mm	Remarks
1	2	3	4	5	6	7	8	9	10
1. Seraikella Glass Works Pvt. Ltd.									
(a) For Ahmedabad, Bombay, Delhi and Nagpur.	1962 @ (from April)		31.00	38.75	..	46.50	..	70.00	Prices quoted from 1962-1963 (upto 19-7-63) relate to 9.29 sq. metres.
	1963 @ (W.e.f. 15-4-63)		32.00	38.00	..	45.00	..	72.00	
	1963 (W.e.f. 20-7-63)		36.00	45.00	..	52.00	..	75.00	
	1964 (W.e.f. 1-8-64)		36.00	44.10	..	52.15	..	76.00	
(b) For Calcutta and Hyderabad,	1962 @ (W.e.f. 1-4-62)	..	32.00	40.00	..	48.00	..	70.00	
	1963 @ (W.e.f. 15-4-63)	..	32.00	38.00	..	45.00	..	72.00	
	1963 (W.e.f. 20-7-63)	..	36.00	45.00	..	52.00	..	75.00	

1964 (W.e.f. 1-8-64)	36.00	44.10	52.15	76.00
2. U. P. Glass Works Ltd. 1962 @ 1963	32.00		48.00	@ Prices relate to 9.29 sq. metres.
1964 (upto Sept.)	36.50		51.00	
1964 (W.e.f. 1-10-64)	33.50		46.50	
1964 (W.e.f. 1-10-64)	38.50		55.00	
3. Indo-Asahi Glass Co. Ltd. 1963 (W.e.f. 25-4-63)	Upto 100 U/cms.	40.00	54.00	78.25
	Over 100-150 U/cms.	42.00	58.00	90.00
	151-200 U/cms.	45.00	68.00	101.75
	201-250 "	..	75.00	110.00
	251-300 "	..	..	125.00
1964 (W.e.f. 1-1-64)	Upto 100 U/cms.	40.00	54.00	75.00
	101-150 "	40.00	54.00	80.00
	151-200 "	43.00	65.00	85.00
	201-250 "	..	70.00	92.00
	251-300 "	..	..	100.00
1964 (W.e.f. 20-7-64)	Upto 100 U/cms.	38.00	54.15	77.90
	To 150 "	38.75	56.05	79.80
	Above 150 "	40.85	63.65	81.70

Name of producer	Year	Cut sizes	2 mm	2.6 mm	2.90 mm	3 mm	3.3 mm	4 mm	Remarks
1	2	3	4	5	6	7	8	9	10
4. Madras Sheet Glass Works Pvt. Ltd.	1964 (W.e.f. 1-1-64)	Upto 100 U/cms.	37.00	46.00	..	52.00	..	78.00	
		To 150 "	38.00	49.00	..	57.00	..	85.00	
		" 200 "	41.00	52.00	..	63.00	..	92.00	
	1964 (W.e.f. 7-3-64)	" 225 "	43.00	55.00	..	68.00	..	100.00	
		Upto 62 U/cms.	35.00	44.00	..	50.00	..	76.00	
		To 100 "	36.00	45.00	..	51.00	..	77.00	
		" 150 "	37.00	48.00	..	56.00	..	84.00	
		" 200 "	40.00	51.00	..	62.00	..	91.00	
		" 225 "	42.00	54.00	..	67.00	..	99.00	
	1964 (W.e.f. 21-7-64)	Upto 62 U/cms.	38.00	46.00	..	54.00	..	80.00	@@ From 8th August, 1964 price of 2 mm reduced from Rs. 38 to Rs. 37.
5. Shree Vallabh Glass Works Ltd.	1964 (W.e.f. 15-10-64)	To 100 "	39.00	47.00	..	55.00	..	81.00	
		" 150 "	40.00	50.00	..	60.00	..	85.00	
		" 200 "	43.00	53.50	..	64.00	..	89.00	
		Above 200 "	45.00	56.50	..	67.00	..	91.00	
		Upto 150 U/cms.	40.00	..	..	50.00	..	72.00	
6. Hindusthan-Pilkington Glass Works Ltd.	1962 (W.e.f. 9-5-62)	Above 150 "	42.00	..	..	58.50	..	75.00	
		Upto 100 U/cms.	34.56 to 37.26	..	46.44 to 50.22	..	59.67 to 64.26	72.36 to 78.30	

To 150 "	35.64 to 38.61	49.95 to 54.27	66.15 to 71.35	79.65 to 86.67
" 200 "	41.04 to .. 44.55	58.86 to .. 63.72	75.87 to 82.35	92.34 to 99.90
" 250 "	48.33 to .. 52.11	69.39 to .. 75.06	89.37 to 96.39	108.27 to 117.45
" 300 "	53.46 to .. 57.78	80.19 to .. 86.67	99.09 to 106.92	120.42 to 130.41
To 150 U/cms.	40.75	57.00	..	82.00
" 200 " and above	43.00	67.00	..	86.00

1964

(W.e.f. 9-1-64)

# APPENDIX VI(b)

## II—Statement showing selling prices of sheet glass of 4.8 mm and 5.5 mm

(Price in Rs. per sq. metre)

Name of the producer	Year	Cut sizes	4.8 mm.	5.5 mm.
1. Indo-Asahi Glass Co. Ltd.	1963 (w.e.f. 25-4-63)	Upto 0.18 sq. m.	..	11.00
		To 0.27 "	..	14.00
		To 0.45 "	..	17.00
		To 0.66 "	..	19.00
		To 0.93 "	..	21.00
		To 1.35 "	..	22.00
		To 2.25 "	..	24.00
	1964 (w.e.f. 1-1-64)	Upto 0.18 sq.m.	..	10.10
		To 0.27 "	..	13.00
		To 0.45 "	..	17.00
		To 0.66 "	..	18.00
		To 0.93 "	..	20.00
		To 1.35 "	..	20.50
		To 2.25 "	..	22.50
	1964 (w.e.f. 20-7-64)	To 0.19 Sq. m.	..	10.90
		To 0.28 "	..	13.70
		To 0.47 "	..	17.55
		To 0.66 "	..	18.50
		To 0.93 "	..	20.55
		To 1.41 "	..	21.50
		To 2.31 and above	..	23.10
2. Shree Vallabh Glass Works Ltd.	1964 (w.e.f. 15-10-64)	Upto 0.19 sq. m.	9.00	10.00
		To 0.28 "	11.50	12.00
		To 0.47 "	14.50	15.00
		To 0.66 "	16.00	16.00
		To 0.93 "	..	18.00
		To 1.41 "	..	20.00
		To 2.31 "	..	22.00

(Price in Rs. per sq. metre)

Name of the producer	Year	Cut-sizes	4.8 mm.	5.5. mm.
Hindusthan-Pilkington Glass Works Ltd.	1962 (w.e.f. 9-5-62)	To 0.18 sq.m.	8.53 to 10.15	9.72 to 11.45
		„ 0.27 „	11.45 to 13.50	12.74 to 14.90
		0.45 „	14.90 to 16.52	16.52 to 18.25
		0.66 „	16.09 to 17.82	17.82 to 19.44
		0.93 „	17.82 to 19.44	19.87 to 22.03
		1.41 „	18.68 to 20.30	20.84 to 22.79
		2.31 „	20.30 to 22.46	23.22 to 24.95
	1964 (w.e.f. 9-1-64)	0.18 „	10.15	11.80
		0.27 „	13.50	14.80
		0.45 „	16.52	19.00
		0.66 „	17.82	20.00
		0.93 „	19.44	22.25
		1.41 „	..	23.00
		2.31 „	..	25.00

सत्यमेव जयते