



सत्यमेव जयते

GOVERNMENT OF INDIA
TARIFF COMMISSION

REPORT ON
The Continuance of Protection to the
Caustic Soda and Bleaching Powder
Industry



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GOVERNMENT OF INDIA
MINISTRY OF COMMERCE AND INDUSTRY

New Delhi, the 29th November, 1958.

RESOLUTION

Tariffs

No. 32(2)-T.R./58.—The Tariff Commission has submitted its Report on the continuance of protection to the Caustic Soda and Bleaching Powder Industry on the basis of an inquiry undertaken by it under Section 11(e) and 13 of the Tariff Commission Act, 1951. Its recommendations are as follows :—

- (1) The protective duties on caustic soda, both solid and other sorts, should be retained at existing rates of 30% *ad val.* (preferential) and 40% *ad val.* (Standard) as long as the tariff value of Rs. 28 per cwt. on solid caustic soda and Rs. 45 per cwt. on caustic soda of other sorts is retained. If a change in tariff values is effected in the future, the protective duties should be correspondingly altered. Protection to the caustic soda industry should be continued for a further period of three years, that is, till 31st December, 1961.
- (2) Protection granted to the bleaching powder industry including bleaching paste should be discontinued after 31st December, 1958, and the quantum of revenue duty on the products may be fixed according to fiscal considerations.
- (3) An examination of the question relating to open wagon movement of salt, after taking into account the steps adopted in other countries for the purpose, should be undertaken by the Railway administration in consultation with the representatives of the industries concerned.
- (4) The Railway administration may take steps to provide an increasing number of tank wagons for the transport of caustic soda in liquid form.
- (5) The Railway administration may consider the question of providing a few tank wagons on an experimental basis for the transport of liquid chlorine.
- (6) The question of developing the manufacture of dicalcium phosphate fertilizer should be kept in view when any fresh licence is issued for augmenting the production of electrolytic caustic soda.
- (7) The large scale salt works (both among existing units and those to be established in future) which propose to supply salt to industrial users should undertake production of salt of the grade acceptable to the chemical industry.

(ii)

2. Government accept recommendations (1) and (2) and the necessary legislation will be undertaken in due course.

3. Government have taken note of recommendations (3) to (6) and steps will be taken to implement them as far as possible.

4. The attention of the large scale salt works is invited to recommendation (7).

ORDER

ORDERED that a copy of the Resolution be communicated to all concerned and that it be published in the Gazette of India.

S. RANGANATHAN,

Secretary to the Government of India.



REPORT ON THE CONTINUANCE OF PROTECTION TO THE CAUSTIC SODA AND BLEACHING POWDER INDUSTRY

1.1. *First tariff inquiry.*—The claim of the caustic soda and bleaching powder industry to protection was first examined by the Tariff Board in 1946, on an application made by Mettur Chemical and Industrial Corporation Ltd. The Board recommended that Mettur Chemical and Industrial Corporation should be given a subsidy at the rate of Rs. 2 per cwt. of caustic soda and Rs. 1-13-0 per cwt. of bleaching powder for a period of 15 months from 1st October, 1946 on the basis of its actual sales, but subject to the condition that the Company would sell these chemicals at prices not higher than those of the imported products. No tariff protection or subsidy was recommended for liquid chlorine. Government accepted this recommendation, but laid down a further condition that the subsidies on caustic soda and bleaching powder would be reduced if, upon examination of the Company's accounts, it was found that the Company had made profits on the sale of liquid chlorine in excess of the profits allowed by the Board for this item in making its estimates of fair selling prices. On an examination of the Company's accounts in May, 1948, the Board found that the conditions laid down by Government were not fulfilled and it, therefore, recommended that the subsidies should not be paid. Government accepted this recommendation.

1.2. *Second inquiry (1950).*—As a result of heavy imports in 1948-49, Mettur Chemical and Industrial Corporation again sought protection in March, 1949. Government referred the case to the Tariff Board for a fresh investigation and it submitted its Report in December, 1950. It recommended the imposition of the following specific protective duties up to 31st March, 1954 :—

	Standard rate of duty Per cwt.	Preferential rate of Duty if the article is the produce or manufacture of U. K. or a British Colony Per cwt.
	Rs.	Rs.
Caustic soda	8-10-0	6-4-0
Bleaching powder	2-8-0	..
Liquid chlorine	20-2-0	14-8-0

After the Board's report was submitted, the landed cost of imported caustic soda increased to a marked extent. In the circumstances, Government did not consider it necessary to impose the above-mentioned protective duties.

1.3. *Third inquiry* (1954).—The industry renewed its claim to protection in May, 1952. The applicants for protection were Tata Chemicals Ltd., Mettur Chemical and Industrial Corporation Ltd., D.C.M. Chemical Works and Rohtas Industries Ltd. It was claimed that the costs of production of caustic soda and bleaching powder had increased and that heavy imports of these chemicals in 1951-52 had adversely affected the position of the domestic industry. Government referred the case to the Tariff Commission by the Ministry of Commerce and Industry Resolution No. 32(1)-TB/52 dated 19th July, 1952. In its Report (1954) the Commission recommended the following scheme of protection to remain in force up to 31st December, 1958 :—

- “(a) On the basis of the present tariff value of Rs. 28 per cwt. of caustic soda, a duty of 32.37 per cent. *ad valorem* is required to provide adequate protection to the domestic industry. However, in view of the desirability of maintaining the prices of caustic soda at a reasonable level, the existing preferential duty of 27.3 per cent. *ad valorem* on caustic soda of U.K. origin should be converted into a protective duty, the standard rate of duty being fixed in accordance with the terms of the relevant trade agreements. If at any time it is found necessary to change the tariff value, the rates of duty should be so adjusted as to restore the quantum of tariff protection afforded to the domestic industry by the present rates of duty.
- (b) The fair ex-works price for indigenous bleaching powder for 1954-56 is lower than the c.i.f. price of imported bleaching powder. Actual production of bleaching powder being however, very low, the present costs of production are very high. There is also considerable prejudice on the part of consumers about the quality of the indigenous product. A protective duty of 15 per cent. *ad valorem* should be imposed on bleaching powder.”

The above recommendations were accepted by Government by the Ministry of Commerce and Industry Resolution No. 32(1)-T.B./54 dated 28-1-1955. It was decided in consultation with the Commission that the protective duty to be levied on bleaching powder should also apply to bleaching paste. By Finance (No. 2) Act, 1957, the rates of duty on caustic soda were revised to 30 per cent. *ad valorem* preferential and 40 per cent. *ad valorem* standard.

2.1. Protection granted to the caustic soda and bleaching powder industry is scheduled to expire on 31st December, 1958. The present inquiry was, therefore, undertaken by us under Section 11(e) read with Section 13 of the Tariff Commission Act, 1951 which empowers us to enquire 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.

Present inquiry and its scope

2.2. The scope of the present inquiry covers two aspects: (a) continuance of protection to caustic soda, bleaching powder and bleaching paste, and (b) fixation of prices of the products of the caustic soda—chlorine industry. Government requested us to undertake an inquiry under Section 12(d) of the Tariff Commission Act, 1951 into the determination of the fair ex-works prices as also the fair selling prices (ex-works, at ports as well as at the principal internal markets) of the following products :—

1. *Caustic soda*

- (a) Flakes,
- (b) Fused solid,
- (c) 50% solution.

2. *Chlorine*

- (a) As gas, supplied for the manufacture of chlorinated products within the factory or in adjacent units,
- (b) Liquid chlorine, in cylinders.

3. *Hydrochloric acid, and*

4. *Bleaching powder.*

2.3. In this Report we deal with the case for continuance of protection to the caustic soda and bleaching powder industry. The question of fair prices of the products referred to above is dealt with in a separate Report which we are submitting shortly.

3.1. On 3rd March, 1958 we issued a press note inviting producers, consumers, importers, associations and other interests to obtain the relevant questionnaires from the Secretary to the Commission and to furnish replies. The Development Wing was requested

Method of inquiry

to furnish a detailed memorandum on the present position of the industry. The Textile Commissioner was requested to furnish a memorandum with special reference to the demand for caustic soda, bleaching powder and chlorine in the textile industry and his opinion regarding the quality of these products. Directors of Industries in the States of Bombay, West Bengal, Delhi, Madras and Kerala were addressed to furnish memoranda regarding the progress made by the industry in their respective States since our last inquiry. Collectors of Customs at different ports were asked to furnish information relating to c.i.f. prices and landed costs of the latest consignments of caustic soda and bleaching powder. Similar information was also obtained from the State Trading Corporation which has been handling exclusively the imports of caustic soda in the recent past and from the distributors nominated by it for the purpose of distribution caustic soda throughout the country. The Indian Chemical Manufacturers' Association, Calcutta and the associations of consuming industries such as, soap, paper, textiles and rayon were also

invited to send memoranda, covering various aspects of the industry with which they are concerned. A list of producers, consumers, importers, distributors and associations to whom our questionnaires were issued and from whom replies were received is given in Appendix I.

3.2. Dr. S. K. Muranjan, Shri J. N. Dutta and Shri R. S. Bhatt, Members, visited the factories of D. C. M. Chemical Works, Delhi and National Rayon Corporation Ltd., Bombay on 26th May, 1958 and 6th June, 1958 respectively. Dr. S. K. Muranjan and Shri J. N. Dutta, also visited the factories of Alkali and Chemical Corporation of India Ltd., and Hindusthan Heavy Chemicals Ltd., Calcutta on 7th and 8th August, 1958 respectively. Shri S. S. Mehta, Technical Director (Chemicals) visited the factories of Tata Chemicals Ltd., Mithapur, Alkali and Chemical Corporation of India Ltd., and Hindusthan Heavy Chemicals Ltd., on 20th June, 19th July and 22nd July, 1958 respectively.

3.3. The costs of production relating to the undermentioned five factories were examined by our Cost Accounts Officers :

Name of the Cost Accounts Officers	Name of Unit	Date of cost investigation
1. Shri S. K. Basu, S. C. A. O.	Tata Chemicals Ltd., Mithapur.	17-6-1958 to 21-6-1958.
2. Shri S. V. Rajan, S.C.A.O.	D.C. M. Chemical Works, Delhi.	1-7-1958 to 10-7-1958.
3. Shri P. M. Menon, C.A.O.	Alkali & Chemical Corporation of India Ltd., Calcutta.	10-7-1958 to 25-7-1958.
4. Shri U. R. Padmanabhan, C.A.O.	Mettur Chemical and Industrial Corporation Ltd., Mettur Dam.	30-7-1958 to 7-8-1958.
5. Shri S. R. Mallya, A.C.A.O.	Travancore-Cochin Chemicals Private Ltd., Udyogmandal.	23-7-1958 to 1-8-1958.

3.4. A public inquiry into the industry was held at our Office on 2nd September, 1958. A list of persons who attended the public inquiry is given in Appendix II.

4. In our last Report (1954), while recommending continuance of protection to the industry we made several ancillary recommendations. The latest position with regard to their implementation is given below :—

Implementation of the recommendations in our last Report (1954)

- 4.1. "The domestic production of caustic soda is sufficient to meet only 35 per cent. of the domestic requirements at present. The industry will, therefore, have to expand considerably before the country can become self-sufficient in respect of this essential material. Nearly 90 per cent of the present production of

caustic soda is by the electrolytic process. The scope for expansion of the electrolytic section, however, is severely restricted owing to the relatively small demand for chlorine. The alternative process of causticisation is free from this drawback, but is at present uneconomical because of the high cost of the indigenous soda ash. In order that production of caustic soda by causticisation may become economical, Government should formulate and put into effect as early as possible an integrated plan for expanding the production of both soda ash and caustic soda”

Government encouraged schemes for expansion of capacity and installation of new units for producing soda ash and chemical caustic soda. These schemes include the expansion of capacity for soda ash and chemical caustic soda at Tata Chemicals Ltd., Mithapur, and the installation of new units for the production of these two chemicals at Porbandar and Bombay.

- 4.2. “Government should keep a careful watch over the prices of caustic soda (both solid and liquid) and bleaching powder and, if necessary, take suitable measures under the Industries (Development and Regulation) Act to regulate them.”

We are informed by the Development Wing that it maintains a watch over the prices of caustic soda and bleaching powder and that the products were available, by and large, at a steady price during the last two years by the canalisation of imports through the State Trading Corporation. Recently, however, it appeared to Government that the industry was not maintaining the price differentials which could normally be expected in regard to the selling prices of caustic soda in different forms (namely, caustic soda flakes, fused caustic soda and 50 per cent. caustic liquor) and that its selling prices were determined *not* on the basis of actual costs of production and reasonable margins for profit and freight, but were varied from time to time with changes in the prices of imported caustic soda and conditions of the market. In the case of bleaching powder, there was an abnormal increase in the prices during 1957 as a result of several factors such as restriction on imports and the diversion of bleaching powder to certain consumers who were not in a position to obtain their normal requirements of liquid chlorine. The shortage of liquid chlorine had arisen due to a delay in the implementation of some of the expansion schemes. To remedy this shortage larger imports of bleaching powder were allowed and it is expected that the prices would reach normal levels with the availability of imported bleaching powder and of larger amounts of chlorine from the expansion schemes which have since materialised.

- 4.3. “The railway and coastal freights on caustic soda and chlorine products, particularly hydrochloric acid, should be reviewed, in order to minimise the burden on the consumer and also to assist the fuller utilisation of chlorine which is vital to the development of the electrolytic section of the caustic soda industry. The industry should also be provided with adequate transport facilities for its raw materials and finished products.”

No reduction in shipping rates has taken place. On the other hand an increase of 15 per cent. in respect of general cargo over the rates in force prior to 15th October, 1955 has taken place in coastal shipping rates. As regards railway rates, the Railway Freight Structure Enquiry Committee examined the matter and Government have announced their decision on its recommendations. So far as transport facilities are concerned it is understood from the Development Wing that transport of hydrochloric acid in rubber drums is allowed on railways. Sixteen additional rubber lined tank wagons for transport of hydrochloric acid are reported to have arrived recently and are expected to be put into use shortly. These wagons could also be used for the transport of liquid caustic soda of the rayon grade. Some tank wagons for movement of liquid caustic soda are also provided on the Southern, Eastern and Northern Railways.

- 4.4. "The industry should be granted a rebate on the salt cess. The industry's requests for this and other similar concessions should be considered, not only from the angle of the present capacity of the industry to bear the burden but from the point of view of the desirability of minimising the burden on the consumer and of encouraging a rapid expansion of the industry so as to shorten the period for which it may need State assistance."

This recommendation was considered by Government but was not accepted as it was felt that the cess on salt constituted a negligible element in the cost of production of the finished products.

- 4.5. "In order to encourage exports of liquid chlorine, empty cylinders provided by foreign buyers should be permitted to be brought into the country without payment of duty on condition that they will be re-exported within a specified period."

The Ministry of Finance has simplified the procedure relating to free movement of filled and empty cylinders without payment of duty, for purposes of export. Actual exports, however, have not taken place to any appreciable extent.

- 4.6. "The industry should be given additional assistance by means of import control, so long as such control is in any case maintained for balance of payments reasons."

Imports of caustic soda and bleaching powder are regulated carefully. Since July, 1956, the requirements of caustic soda, except for rayon grade, are arranged by the State Trading Corporation from different parts of the world having regard to availability and level of prices. The Development Wing advises the State Trading Corporation regarding the quantities to be imported after taking into account demand, production and stocks in the country. Imports of rayon grade caustic soda are allowed to rayon manufacturers as actual users. Imports of bleaching powder are also regulated.

- 4.7. "The Government of Madras should give special consideration to the requirements of the Mettur Chemical and Industrial Corporation for electric power."

Mettur Chemicals has informed us that it had difficulties in regard to supply of power but partial relief has now been afforded. The Development Wing has stated that the situation regarding power supply is likely to improve in about a year's time when the Pykara power station starts functioning regularly at increased capacity.

- 4.8. "Government should take special measures to encourage the development of industries which require large quantities of chlorine."

Apart from the developmental assistance given to the industry, several projects have been implemented by Government since the last inquiry which have offered new outlets for chlorine. Hindustan Insecticides Ltd., Delhi commenced production of D.D.T. for which its requirements of chlorine are drawn from D.C.M. Chemical Works. This company also commenced production of D.D.T. in another unit at Alwaye where its requirements of chlorine are obtained from Travancore-Cochin Chemicals. The capacity of the units of Indian Rare Earths (Private) Ltd. has been increased both at Alwaye and Bombay and their increased requirements of hydrochloric acid will be drawn from Travancore-Cochin Chemicals and Calico Mills, Chemical Division, Bombay respectively.

- 4.9. "Transport of liquid chlorine over long distances is difficult and expensive and hence before allowing any new electrolytic plant to be set up in any region, due regard should be paid to the supply and demand position of chlorine in that region."

There has been a wider distribution of caustic soda-chlorine plants including those units which produce the chemicals for their own consumption.

- 4.10. "Government should examine the scheme of Tata Chemicals for manufacture of caustic soda from imported Magadi ash."

This matter was examined by the Development Wing, and Tata Chemicals was granted facilities for obtaining imported Magadi ash. The Company, however, made a further request for rebate of duty on imported Magadi ash in order to reduce its cost of production of chemical caustic soda. This was, however, not granted for various reasons and the Company did not implement its proposed scheme.

- 4.11. "The industry should be given all possible assistance in starting the production of high test hypochlorite."

None of the manufacturers has come forward with a scheme for the production of high test hypochlorite in view of the difficulties in getting technical know-how for its manufacture. Mettur Chemicals has stated that it investigated the project in 1955, but decided to establish

the production of an alternative material, namely, stable bleaching powder. We are informed by Tata Chemicals that the manufacture of high test hypochlorite at its factory is under consideration. It is understood from the Development Wing that the use of high test hypochlorite has decreased considerably in western countries due to the use of cheaper substitutes like hydrogen peroxide and sodium chlorite.

- 4.12. "The question of installing washing plant at the Sambhar Salt Works should be given early consideration."

We are informed by the Ministry of Commerce and Industry that this recommendation has been fully considered by Government. It would appear that quotations for installation of a plant have been received from several sources and are being examined. If negotiations regarding deferred payment are successfully completed, it is expected that a plant may be installed during the second plan period. There are possibilities that a second plant may also be established at Kharagoda.

- 4.13. "It appears that the declared value per cwt. of caustic soda as recorded in the import statistics is higher than the c.i.f. value reported to us by the principal importers. The Collectors of Customs should examine the reasons for this discrepancy."

The Director-General of Commercial Intelligence and Statistics, Calcutta, has pointed out that the discrepancy between the declared value shown in the import statistics and c.i.f. values is mainly due to the fact that the former are "real values" which conform only approximately to the latter.

- 4.14. "The c.i.f. prices charged by I.C.I. (India Ltd. for caustic soda and bleaching powder imported through them by consumers against actual user licences are higher than those at which these materials are imported by I.C.I. (India) Ltd., themselves. Government's attention is drawn to this fact in order that the profits accruing to the I.C.I. (India) Ltd., from imports of caustic soda and bleaching powder may be accurately determined."

As regards caustic soda, imports are canalised through the State Trading Corporation from July, 1956 onwards and the question of disparity of prices in the past between imports by I.C.I. as established importers and on behalf of actual users is no longer of significance. As regards imports of bleaching powder, Government has recently announced a general licensing instruction that the material must be sold at a price not higher than 15 per cent. above the landed cost.

- 4.15. "The manufacturers of electrolytic caustic soda should intensify their efforts to develop new uses for chlorine."

Besides the measures adopted by Government as enumerated in paragraph 4.8 above, the manufacturers have made efforts to establish the production of new products utilising chlorine as seen from the following :—

- (a) Mettur Chemicals has set up a plant for the production of stable bleaching powder and it has been licensed to double its capacity.
- (b) Fertilisers and Chemicals, Travancore has taken up the production of ammonium chloride from hydrochloric acid obtained from Travancore-Cochin Chemicals.
- (c) Alkali and Chemical Corporation of India has achieved production up to the full rated capacity of its benzene hexachloride plant.
- (d) Tata Chemicals has also established the production of benzene hexachloride at Mithapur. It has undertaken the production of another insecticide, namely, copper oxychloride.
- (e) D.C.M. Chemical Works has established production of bleaching earth using hydrochloric acid for activation of mineral bentonite. It has also set up equipment and completed trial runs for manufacture of ossein and discalcium phosphate from bones, using hydrochloric acid.
- (f) Several products like bromine, aluminium trichloride, phosphorus chloride and ethyl chloride are also being produced in the country.
- (g) Licences have been granted for the production of phosphorus trichloride and ethylene dichloride. Large scale consumption of chlorine is likely to take place in the near future when schemes are implemented for the production of polyvinyl chloride and chemical pulp.

4.16. "The Alkali and Chemical Corporation should try to utilise its full capacity for the manufacture of benzene hexachloride."

As mentioned above, Alkali and Chemical Corporation of India has been operating its benzene hexachloride plant at full capacity. The company is taking steps to double its production.

4.17. "The manufacturers should examine the suitability of salt production at Kandla for production of caustic soda."

We are informed that some of the manufacturers have been using salt produced in Kutch which includes Kandla.

4.18. "The manufacturers should take suitable steps to remove the defects pointed out by consumers in the quality and packing of their caustic soda."

Manufacturers have informed us that they have taken steps to improve the quality and packing of their caustic soda. Further information on the subject is given in paragraph 9.

4.19. "The manufacturers should continue to make further efforts to improve the strength and stability of their bleaching powder."

Mettur Chemicals has installed a plant for production of stable bleaching powder which is reported to be of satisfactory quality. As regards unstable bleaching powder, Tata Chemicals has stated that after due experimentation it is now using lime obtained from oyster shells which is reported to have made an improvement in the quality of the product.

5.1. Caustic Soda.

5.1.1. *Rated capacity.*—At the time of the last inquiry there were twelve units engaged in the production of caustic soda, of which seven were producing the product for sale and five were producing it for self-consumption. At present there are fifteen units of which eight produce caustic soda for sale and seven manufacture it for self-consumption. A statement of the annual rated capacity of the above units in 1954 and in September, 1958 is given below :—

Units producing caustic soda for sale	Type of product	(In tons)	
		Annual rated Capacity	
		1954	1958 (Sept.)
1. Tata Chemicals Ltd., Mithapur	Chemical	6,600	6,600
Ditto.	Electrolytic	2,525	3,300
2. Alkali and Chemical Corporation of India Ltd., Calcutta.	Do.	4,026	5,280
3. Calico Mills, Chemical Division, Ahmedabad.	Do.	2,155	2,310
4. Calico Mills, Chemical Division, Bombay	Do.	Nil	3,600
5. D. C. M. Chemical Works, Delhi	Do.	4,620	9,240
6. Hindusthan Heavy Chemicals Ltd., Calcutta	Do.	2,046	2,050
7. Mettur Chemical and Industrial Corporation Ltd. Mettur Dam.	Do.	4,290	5,180
8. Travancore-Cochin Chemicals Private Ltd., Alwaye	Do.	6,600	6,600
TOTAL .		32,862	44,160

Units producing caustic soda for self-consumption

(In tons)

Electrolytic	Annual rated capacity	
	1954	1958 (Sept.)
1. Mysore Paper Mills Ltd., Bhadravati	297	575
2. Orient Paper Mills Ltd., Brijrajnagar	Nil	3,240
3. Rohtas Industries Ltd., Dalmianagar	1,650	5,280
4. Shri Gopal Paper Mills Ltd., Jamunanagar	713	660
5. Sirpur Paper Mills Ltd., Sirpur	330	2,970
6. Titaghur Paper Mills Ltd., Titaghur	3,465	3,300
7. National Rayon Corporation Ltd., Bombay . . . . .	..	7,000
TOTAL	6,455	23,025

It will be seen from the above two statements that while the annual rated capacity in 1954 was 39,317 tons, the present capacity aggregates 67,185 tons.

5.1.2. *Production.*—In the following table we give the figures of production of caustic soda *in all forms (i.e., solid, liquid and flakes)* in the several units mentioned above during the years 1954, 1955, 1956 and 1957 and the first half year of 1958 :—

	(In tons)				
	1954	1955	1956	1957	1958 (Jan.-June)
1. Tata Chemicals Ltd., (Chemical)	3,804	3,333	2,934	4,147	1,970
Do. (Electrolytic)	1,062	1,220	2,290	2,191	1,103
2. Alkali & Chemical Corpora- tion of India Ltd.	4,049	4,469	5,450	5,876	2,875
3. Calico Mills, Chemical Divi- sion, Ahmedabad	2,192	2,303	2,462	2,538	1,257
4. Calico Mills Chemical Divi- sion Bombay . . . . .	..	..	..	..	280
5. D.C. M. Chemical Works	4,368	5,073	6,540	6,673	3,949
6. Hindusthan Heavy Chemicals Ltd.	852	1,198	1,148	1,398	676
7. Mettur Chemical & Indus- trial Corporation. Ltd.	3,982	4,356	4,019	4,655	1,924
8. Travancore-Cochin Chemicals Private Ltd.	3,389	4,732	6,471	6,371	3,675
9. Mysore Paper Mills Ltd.	206	420	455	496	259
10. Orient Paper Mills Ltd. . . . .	..	..	..	235	1,484
11. Rohtas Industries Ltd.	1,679	1,753	1,786	1,627	1,705
12. Shri Gopal Paper Mills Ltd.	635	664	653	667	347
13. Sirpur Paper Mills Ltd.	1,151	1,875	2,224	2,949	1,550
14. Titaghur Paper Mills Ltd.	1,624	3,185	3,202	3,209	1,593
15. National Rayon Corporation Ltd. . . . .	..	..	..	..	1,644
TOTAL	28,993	34,581	39,634	43,032	26,291

The break-down of the figures as related to fused solid caustic soda, liquid caustic soda, and caustic soda flakes will be found in the tables given below :—

	(In tons)			
<i>Fused solid caustic soda</i>	1954	1955	1956	1957
1. Tata Chemicals Ltd.	4,366	4,553	5,224	5,806
2. Alkali & Chemical Corporation of India Ltd.	328	..	20	492
3. D. C. M. Chemical Works	362	1,113	1,668	1,922
4. Hindusthan Heavy Chemicals Ltd. .	..	146	114	67
5. Mettur Chemical & Industrial Corporation Ltd.	3,603	3,312	2,505	2,101
6. Travancore-Cochin Chemicals Private Ltd.	828	791	862	1,721
TOTAL .	10,487	9,915	10,393	12,109

<i>Liquid caustic soda</i>				
1. Alkali & Chemical Corporation of India Ltd.	3,981	4,336	5,351	5,724
2. Calico Mills, Chemical Division, Ahmedabad	2,137	2,245	2,418	2,280
3. D.C.M. Chemical Works	3,372	3,480	4,309	3,790
4. Hindusthan Heavy Chemicals Ltd. .	852	1,198	1,148	1,398
5. Mettur Chemical & Industrial Corporation Ltd.	125	672	1,014	1,736
6. Travancore-Cochin Chemicals Private Ltd.	2,398	3,596	4,938	3,606
7. Mysore Paper Mills Ltd.	206	420	455	496
8. Orient Paper Mills Ltd. . . . .	..	..	..	235
9. Rohtas Industries Ltd.	1,679	1,753	1,786	1,627
10. Shri Gopal Paper Mills Ltd. . . .	635	664	653	667
11. Sirpur Paper Mills Ltd.	1,151	1,875	2,224	2,949
12. Titaghur Paper Mills Ltd.	1,624	3,185	3,202	3,209
TOTAL .	18,160	23,424	27,498	27,717

		(In tons)			
<i>Caustic soda flakes</i>		1954	1955	1956	1957
1.	D. C. M. Chemical Works	134	480	563	961
2.	Mettur Chemical & Industrial Corporation Ltd.	99	160	297	560
3.	Tata Chemicals Ltd. . . . .	..	..	..	532
4.	Travancore-Cochin Chemicals Private Ltd.	163	345	671	1,044
TOTAL		396	985	1,531	3,097

5.2. *Bleaching powder*.—Bleaching powder is produced by the same three units as were in production in 1954, except that since November, 1955, Mettur Chemicals is producing stable bleaching powder in addition to unstable bleaching powder.

5.2.1. *Capacity*.—The capacity of the three units in 1954 and in September, 1958 is given below :—

		(In tons)	
		1954	1958 (Sept.)
1.	Mettur Chemical & Industrial Corporation Ltd.	Stable	..
		Unstable	1,980
2.	Rohtas Industries Ltd.	Unstable	2,190
3.	Tata Chemicals Ltd.	Unstable	4,000
TOTAL		8,170	10,020

Tata Chemicals has stated that the four bleaching powder towers in its factory were demolished after 1954, and only two were rebuilt. These two have now been rated at a capacity of three tons per day.

5.2.2. *Production*.—We give below the production achieved by the above units since 1954 :—

		(In tons)				
		1954	1955	1956	1957	1958 (Jan.-June)
1.	Mettur Chemical & Industrial Corporation Ltd.	Stable	..	218	3,729	3,844
		Unstable	2,285	2,003	235	752
2.	Rohtas Industries Ltd.	Unstable	224	214	306	237
3.	Tata Chemicals Ltd.	Unstable	414	207	387	514
TOTAL		2,923	2,642	4,657	5,347	2,936

5.3. Liquid chlorine.

5.3.1. *Rated capacity.*—At the time of the last inquiry seven units were in production of liquid chlorine with the aggregate capacity of 18,200 tons per annum. There are now ten units in production with the aggregate capacity of 36,185 tons per annum. The figures of capacity in 1954 and at present are as follows :—

	(In tons)	
	1954	1958 (Sept.)
1. Alkali & Chemical Corporation of India Ltd.	3,762	4,290
2. Calico Mills, Chemical Division, Ahmedabad	1,733	1,650
3. Calico Mills, Chemical Division, Bombay . . . . .	..	2,700
4. D. C. M. Chemical Works	4,620	8,000
5. Hindusthan Heavy Chemicals Ltd.	1,815	1,650
6. Mettur Chemical & Industrial Corporation Ltd.	3,300	3,300
7. National Rayon Corporation Ltd. . . . .	..	1,500
8. Rohtas Industries Ltd.	1,650	1,650
9. Tata Chemicals Ltd.	1,320	2,145
10. Travancore-Cochin Chemicals Private Ltd. . . . .	..	3,300
TOTAL	18,200	30,185

5.3.2. *Production.*—We give below the production achieved by the above units since 1954 :—

	(In tons)				
	1954	1955	1956	1957	1958 (Jan.-June)
1. Alkali & Chemical Corporation of India Ltd.	3,302	3,519	4,438	4,749	2,337
2. Calico Mills, Chemical Division, Ahmedabad	879	996	1,163	998	467
3. Calico Mills, Chemical Division, Bombay . . . . .	..	..	..	..	224
4. D.C.M. Chemical Works	3,062	3,695	4,777	5,044	2,794
5. Hindusthan Heavy Chemicals Ltd.	648	853	812	955	469
6. Mettur Chemical & Industrial Corporation Ltd.	1,310	1,672	2,571	2,615	1,089
7. National Rayon Corporation Ltd. . . . .	..	..	..	..	95
8. Rohtas Industries Ltd.	137	132	148	62	6
9. Tata Chemicals Ltd.	276	769	1,044	1,260	677
10. Travancore-Cochin Chemicals Private Ltd. . . . .	..	..	..	..	344
TOTAL	9,614	11,636	14,953	15,683	8,502

5.4. Hydrochloric Acid.

5.4.1. *Rated capacity.*—At the time of the last inquiry there were eight units which produced hydrochloric acid. The figures of annual rated capacity indicated against each of them in our Report (1954) aggregating 27,870 tons were not uniformly in terms of 100 per cent. hydrochloric acid. The total annual rated capacity of all the units in terms of 100 per cent. hydrochloric acid was only 9,290 tons. At present there are ten units producing hydrochloric acid with total annual rated capacity of 14,085 tons of 100 per cent. hydrochloric acid. The capacity of each unit in 1954 and in September, 1958 is given below :—

	(In tons)	
	1954	1958 (Sept.)
1. Alkali & Chemical Corporation of India Ltd.	133	720
2. Calico Mills, Chemical Division, Ahmedabad	367	660
3. Calico Mills, Chemical Division, Bombay . . . . .	..	330
4. D. C. M. Chemical Works	1,430	1,320
5. Hindusthan Heavy Chemicals Ltd.	300	330
6. Mettur Chemical & Industrial Corporation Ltd.	150	990
7. National Rayon Corporation Ltd. . . . .	..	2,640
8. Rohtas Industries Ltd.	110	110
9. Tata Chemicals Ltd.	867	880
10. Travancore-Cochin Chemicals Private Ltd.	5,933	6,105
TOTAL	9,290	4,085

5.4.2. *Production.*—We give below the production achieved by these units since 1954 in terms of 100 per cent. hydrochloric acid :—

	(In tons)				
	1954	1955	1956	1957	1958 (Jan.-June)
1. Alkali & Chemical Corporation of India Ltd.	290	428	435	504	240
2. Calico Mills, Chemical Division, Ahmedabad	244	273	318	356	212
3. Calico Mills, Chemical Division, Bombay . . . . .	..	..	..	..	3
4. D. C. M. Chemical Works	296	288	442	413	247
5. Hindusthan Heavy Chemicals Ltd.	14	58	115	89	53
6. Mettur Chemical & Industrial Corporation Ltd.	297	347	429	524	173
7. National Rayon Corporation Ltd. . . . .	..	..	..	..	234
8. Rohtas Industries Ltd.	57	56	57	58	41
9. Tata Chemicals Ltd.	486	304	610	760	307
10. Travancore-Cochin Chemicals Private Ltd.	2,619	3,578	4,970	5,383	1,907
TOTAL	4,393	5,337	7,376	8,087	3,417

6. From the information collected by us from the manufacturing units and the Development Wing we have assessed the expansion which is likely to take place in the established capacity in the country by 1961 for production of chemical caustic soda, electrolytic caustic soda and bleaching powder. We have taken note of only such expansions as are well under way or for which firm commitments have been entered into, leaving out the cases of units which have received conditional sanctions, or whose plans are based on hypothetical factors. We have also included in our assessment the capacities of new units which are expected to go into production by 1961.

6.1. *Chemical caustic soda.*—Tata Chemicals which is the only unit now in existence, has definite plans to increase its capacity from the present figure of 6,600 tons to 9,900 tons by the end of 1959. The new unit which is expected to go into production in the second-half of 1959 is Saurashtra Chemicals Ltd., which has been licensed to produce chemical caustic soda to the extent of 20,400 tons per annum. We do not expect that Bhiwandiwalla & Co., which has also been licensed for production of soda ash and chemical caustic soda will be able to complete its project by 1961.

6.2. *Electrolytic caustic soda.*

6.2.1. We deal first, with the cases of existing units which produce caustic soda for sale to consumers. Alkali and Chemical Corporation whose present annual capacity is 5,280 tons expects to increase its capacity to 6,930 tons in 1960. Calico Mills, Chemical Division, Ahmedabad, whose present annual capacity is 2,310 tons expects to increase its capacity to 3,465 tons in 1960. Calico Mills, Chemical Division, Bombay, whose present annual capacity is 3,600 tons expects to increase it to 6,900 tons by 1960. D.C.M. Chemical Works, Delhi, whose present annual capacity is 9,240 tons has been given two expansion licences, one for 1,860 tons, and the other for 6,600 tons. Firm commitments for the first expansion have been entered into, and the annual capacity is expected to increase to 11,100 tons in 1959. The second expansion is reported to depend on satisfactory deferred payment terms being entered into, and as the position regarding this is still somewhat obscure, we are leaving the expected increase in capacity out of account for the purpose of our assessment. Hindusthan Heavy Chemicals Ltd., Calcutta has no sanctioned scheme of expansion. Mettur Chemical and Industrial Corporation Ltd., whose present annual capacity is 5,180 tons has two licences for expansion, one for 1,380 tons and the other for 6,600 tons. The first expansion is being carried out and will be completed by the end of this year while the second expansion is expected to be completed by 1961. The annual rated capacity in 1961 will, therefore, be 13,200 tons. Tata Chemicals Ltd. whose present annual capacity is 3,300 tons expects to carry out progressive expansion during 1959 and 1960, and eventually increase its capacity to 4,500 tons. Travancore-Cochin Chemicals Private Ltd. has similar plans for progressive expansion of capacity from its present figure of 6,600 tons per annum to 9,900 tons by 1960.

6.2.2. As regards the units which produce caustic soda for self-consumption we have received information from the Development Wing according to which only Sirpur Paper Mills has plans for expansion from the existing capacity of 2,970 tons per annum to 6,270 tons per annum. This expansion is expected to take place in 1961.

6.2.3. We understand that three new units are expected to go into production of electrolytic caustic soda during the next three years. The first will be Dhrangadhra Chemical Works Ltd., Tuticorin, with an annual capacity of 30,000 tons; it is expected to be in production from April 1959. This unit has plans to increase the capacity by another 19,000 tons but no definite commitments have been entered into in this regard, and we do not expect that any increase in capacity will take place before 1961. The second unit is J. K. Chemicals Ltd., Bombay, with a capacity of 1,000 tons per annum. This unit is being established for the manufacture of sodium hydrosulphite, and is expected to go into production early in 1959. The third unit is Atul Products Ltd., Bulsar, with a capacity of 3,300 tons per annum. It will produce caustic soda for self-consumption, and is expected to be in production in 1961.

6.3. On the basis of the information given above, the annual capacity of the several units for the production of caustic soda will be as under in 1961 :—

	Tons	Tons
Chemical caustic soda :		
1. Tata Chemicals Ltd.	9,900	
2. Saurashtra Chemicals Ltd.	20,400	30,300
Electrolytic caustic soda :		
1. Alkali & Chemical Corporation of India Ltd.	6,930	
2. Calico Mills, Chemical Division, Ahmedabad	3,465	
3. Calico Mills, Chemical Division, Bombay	6,900	
4. D. C. M. Chemical Works	11,100	
5. Hindusthan Heavy Chemicals Ltd.	2,050	
6. Mettur Chemical and Industrial Corporation Ltd.	13,200	
7. Tata Chemicals Ltd.	4,500	
8. Travancore-Cochin Chemicals Private Ltd.	9,900	
9. Mysore Paper Mills Ltd.	575	
10. Orient Paper Mills Ltd.	3,240	
11. Rohtas Industries Ltd.	5,280	
12. Shri Gopal Paper Mills Ltd.	660	

	Tons	Tons
13. Sirpur Paper Mills Ltd.	6,270	
14. Titaghur Paper Mills Ltd.	3,300	
15. National Rayon Corporation Ltd.	7,000	
16. Dhurangadhra Chemical Works Ltd., Tuticorin	30,000	
17. J. K. Chemicals Ltd.	1,000	
18. Atul Products Ltd.	3,300	118,670
TOTAL		148,970

6.4. The indigenous demand in 1961 is estimated by us at 159,000 tons; to this figure should be added a quantity of about 10,000 tons to ensure that pipe-line and shelf-requirements are taken care of. The requirement in 1961 may thus be estimated at about 170,000 tons. As against this, indigenous production may be taken at about 145,000 tons (30,000 tons chemical and 115,000 tons electrolytic) which does not provide for any significant under-utilisation of capacity, as it has been assessed on the conservative basis of 330 days working, and in the past, most units have achieved nearly 100 per cent. of rated capacity. It will, therefore, be seen that a short-fall of about 25,000 tons of caustic soda may have to be provided for in 1961.

6.5. *Bleaching powder*.—The only expansion that is expected to take place in the rated capacity for bleaching powder relates to Metturr Chemical and Industrial Corporation Ltd. The present annual capacity of this unit for stable bleaching powder is 4,950 tons. This is expected to increase to 9,900 tons by 1961 as it is integrated with the expansion of capacity for caustic soda production (*vide* paragraph 6.2.1).

7.1. In our last Report, we recommended that Government should take special measures to encourage the development of industries which require large quantities of chlorine and added further that manufacturers should intensify their efforts to develop the use of chlorine. The extent to which these two recommendations have been implemented is referred to in paragraphs 4.8 and 4.11 of this Report. Not only has the manufacture of products like D.D.T., benzene hexachloride, ammonium chloride, stable bleaching powder and copper oxychloride, which take up large quantities of chlorine or hydrochloric acid, been established but extension of the usage of chlorine to include products such as dicalcium phosphate, activated earth, rayon pulp, polyvinyl chloride, and organic chemicals such as carbon tetrachloride, ethylene dichloride, are under consideration. There is evidence of greater awareness of the need for increasing the utilisation of chlorine not merely because that is the

only way to lower the cost of production of caustic soda but because it is being increasingly recognised that the establishment of the manufacture of chlorine products in the country will tend to diversify the pattern of production.

7.2. We give below a list of ten producers of caustic soda who manufacture diverse products utilising chlorine. This indicates the extent to which chlorine utilisation is taking place by diversification of manufacture.

1. Alkali & Chemical Corporation of India Ltd.	Liquid chlorine, Hydrochloric acid, Benzene hexachloride.	
2. Calico Mills, Chemical Division, Ahmedabad.	Bleach liquor, Liquid chlorine, Hydrochloric acid.	
3. Calico Mills, Chemical Division, Bombay.	Bleach liquor, Liquid chlorine, Hydrochloric acid.	
4. D.C.M. Chemical Works	Liquid chlorine, Hydrochloric acid, bleaching earth, D.D.T. Ferric chloride, Ossein and Dicalcium phosphate.	D. D. T. is produced in an adjacent factory.
5. Hindusthan Heavy Chemicals Ltd.	Liquid chlorine, Hydrochloric acid.	
6. Mettur Chemical & Industrial Corporation Ltd.	Liquid chlorine, Bleach liquor, Hydrochloric acid, Calcium chloride, Bleaching powder, stable and ordinary.	
7. Tata Chemicals Ltd.	Liquid chlorine, Hydrochloric acid, Benzene hexachloride, Copper Oxychloride, Zinc chloride, Bromine, Bleaching Powder (ord.).	
8. Travancore-Cochin Chemicals Private Ltd.	Liquid chlorine, Bleach liquor, Hydrochloric acid, Rare earth chlorides, Ammonium chloride, D.D.T.	Rare earth chlorides, Ammonium chloride and D.D.T. are produced in adjacent factories.
9. National Rayon Corporation Ltd.	Liquid chlorine, Hydrochloric acid.	
10. Rohtas Industries Ltd.	Liquid chlorine, Hydrochloric acid, Bleaching powder (ord.) and Bleach liquor.	

7.3. In the undermentioned statement we give the percentage of utilisation of chlorine as furnished by seven producers during the years 1954, 1955, 1956, 1957 and 1958 (January-June) :—

	1954	1955	1956	1957	1958 (Jan.-June)
1. Alkali & Chemical Corporation of India Ltd.	98	99	99	99	99
2. Calico Mills, Chemical Division	95	96	98	99	100

	1954	1955	1956	1957	1958 (Jan.-June)
3. D.C.M. Chemical Works .	84	86	89	93	89
4. Hindusthan Heavy Chemicals Ltd.	89	87	94	86	88
5. Mettur Chemical & Industrial Corporation Ltd. .	58	64	79	81	92
6. Tata Chemicals Ltd.	95	94	86	93	92
7. Travancore-Cochin Chemical Private Ltd.	13	38	65	69	86
Overall percentage utilisation of chlorine	72	76	85	88	91

The individual percentages as also the overall percentage indicate the achievement of considerable improvement in the position regarding the utilisation of chlorine. It is observed that utilisation varies from plant to plant and is to some extent an indication of the efforts made by each manufacturer to take up new lines of manufacture from chlorine.

7.4. In paragraph 6.4 we have estimated that the production of electrolytic caustic soda in 1961 will be about 115,000 tons; the equivalent quantity of chlorine generated will, therefore, be of the order of 102,000 tons. Taking into consideration the demand for chlorine in 1961 as assessed by us in paragraph 8.3 at about 95,000 tons, it will be seen that the problem of chlorine utilisation is not expected to be of any magnitude during the next three years.

8.1. Caustic Soda.

8.1.1. In our last Report (1954) we estimated the annual domestic demand for caustic soda at 65,000 tons during 1954 and 94,000 tons during 1956. The break-up of the above two figures is given below : —

	(In tons)	
	1954	1956
Soap	16,000	18,000
Textiles	21,000	23,000
Paper	19,000	27,000
Vanaspati	1,050	1,375
Rayon	3,750	16,250
Petroleum refining	100	1,500
Chemicals (including dyestuffs)	200	600
Aluminium	1,000	3,500
Miscellaneous	2,000	2,500
	64,100	93,725
Say	65,000	94,000

The estimates of demand received by us in the course of our present investigation are as follows :—

(In tons)

	Current 1958	Future 1961
Development Wing	124,200	160,200
Tata Chemicals	102,000	..
Imperial Chemical Industries	120,000	..
Tata Oil Mills	104,500	..

The Planning Commission's estimate of demand in 1960-61 is 141,000 tons. Most of the producers and other interests consulted by us have stated that they are in agreement with the Planning Commission's estimate of demand.

8.1.2. The following table gives the total availability of caustic soda in the country during the last 4 years, made up of indigenous production and imports :—

(In tons)

	1954	1955	1956	1957
Production	28,993	34,581	39,634	43,032
Imports	52,638	54,881	93,594	66,042
Total	81,631	89,462	133,228	109,074

It will be observed from the above statement that the import of caustic soda in 1956 to the extent of 93,594 tons was much higher than that during the previous year and the succeeding year. It was explained by the Senior Industrial Adviser to Government, who was present at the public inquiry, that the large tonnage of import was the result of a decision which was taken on the basis of a realistic estimate to provide for ample supplies in transit and for stock at retail ends to prevent fluctuation in market prices.

8.1.3. On the basis of the estimates and figures of availability referred to above, the question of present and future demand was fully discussed with the representatives of the various interests present at the public inquiry. The final estimates arrived at as regards the demand of the several industries using caustic soda were as follows.

8.1.3.1. *Soap industry.*—The current demand for caustic soda of this industry was assessed at 23,000 tons and the demand in 1961 at 28,000 tons. The assessment was based on a consumption factor of 0.13 ton of caustic soda per ton of soap by the large-scale sector of the soap

industry and 0·06 ton of caustic soda per ton of soap by the small-scale sector of the industry. The current production of soap in the large-scale sector was estimated at 120,000 tons, and that in the small-scale sector at 125,000 tons. The corresponding figures relating to 1961 were estimated at 150,000 tons and 150,000 tons respectively.

8.1.3.2. *Textile industry.*—The current demand for caustic soda by the textile industry was assessed at 34,000 tons and the demand in 1961 at 38,000 tons. These estimates were agreed to by the Textile Commissioner.

8.1.3.3. *Paper & paper boards industry.*—The current demand for caustic soda by this industry was estimated to be of the order of 26,500 tons and the demand in 1961 at 30,000 tons. It was mentioned at the public inquiry that the future increase in caustic soda consumption will not be strictly proportionate to the increase in the total production of paper because many of the new mills intend to have recovery plants for recovering caustic soda. The assessment of future demand has been made after taking note of this factor.

8.1.3.4. *Rayon industry.*—The current demand for rayon industry was assessed at 28,000 tons and the demand in 1961 at 46,000 tons. The assessment of future demand has been made after taking note of the expected increase in the capacity of existing units and the establishment of new units in the rayon industry.

8.1.3.5. *Vegetable oils and vanaspati industry.*—The current demand for this industry was estimated at 1,800 tons and the demand in 1961 at 2,500 tons. It was assumed that the consumption of caustic soda would depend on the extent of refining required in the oil and would vary between 0·5 per cent. and 0·6 per cent. of the finished product.

8.1.3.6. *Petroleum refining industry.*—On the basis of the estimates received from the three petroleum refining companies in the country, the current demand of caustic soda for their requirements was assessed at 3,000 tons and the demand in 1961 at 2,700 tons. It will be noticed that the demand is expected to go down during the next three years. It was understood that lesser quantities of caustic soda will be consumed as a result of changes in refining processes and pattern of production.

8.1.3.7. *Chemicals (including dyestuffs).*—The current demand for caustic soda in the dyestuffs, drugs and other organic chemicals industry was assessed, in agreement with the Development Wing's estimate, at 2,000 tons in 1958 and 4,000 tons in 1961.

8.1.3.8. *Aluminium industry.*—According to the estimates furnished by the two manufacturers of aluminium in the country the current demand was estimated at 1,600 tons and the demand in 1961 at 3,500 tons.

8.1.3.9. *Rare earths & Miscellaneous.*—The current demand under these two heads was assessed at 4,100 tons and the demand in 1961 at 4,300 tons.

8.1.3.10. The estimates of demand arrived at on the above bases are as follows :—

(In tons)		
	1958	1961
Soap	23,000	28,000
Textiles	34,000	38,000
Paper	26,500	30,000
Rayon	28,000	46,000
Vanaspati	1,800	2,500
Petroleum refining	3,000	2,700
Chemicals & dyestuffs	2,000	4,000
Aluminium	1,600	3,500
Rare earths and miscellaneous	4,100	4,300
TOTAL	124,000	159,000

8.2. *Bleaching powder.*—An accurate estimate of the demand for bleaching powder is difficult because there is a possibility of replacing it by other bleaching materials like liquid chlorine, bleach liquor and hydrogen peroxide. It is, at best, possible only to make rough estimates, guided by the consumption during the past four years. The figures relating to consumption are as follows :—

(In tons)			
Year	Production	Imports	Availability
1954	2,923	5,010	7,933
1955	2,642	4,393	7,035
1956	4,657	4,343	9,000
1957	5,347	1,805	7,152

Even assuming that products like hydrogen peroxide replace bleaching powder to some extent, it will be necessary to assess the future demand on a somewhat liberal basis as the consuming interests comprise of small-scale users like handloom weavers and agencies for the supply of drinking water in small towns spread all over the country. We have, therefore, assessed the current demand at about 8,000 tons and the likely demand in 1961 at 12,000 tons.

8.3. *Chlorine*.—As regards the demand for chlorine the Development Wing has estimated that the current demand is of the order of 40,000 tons and the demand in 1961 is expected to be of the order of 100,000 tons. The break-up of these two figures specifying the needs of the several products which are now being manufactured, and those which are expected to be manufactured in 1961 is given in Appendix III. These figures were discussed at the public inquiry and it was agreed that while the former figure should be accepted, there was an element of uncertainty as regards the latter, as it is based on the assumption that the utilisation of chlorine by Dhrangadhra Chemical Works Ltd. (Tuticorin) for recovery of pure salt will be to the extent indicated in the company's technical estimates. We, therefore, think it would be more realistic to estimate the demand for chlorine at around 95,000 tons after adopting a conservative assessment of chlorine utilisation by Dhrangadhra Chemical Works Ltd. at Tuticorin.

9.1. *Standard specifications*.—Indian Standard Specifications have been formulated in respect of caustic soda technical (IS : 252—1950), bleaching powder unstabilised (IS : 295—1951) and bleaching powder stable (IS : 1065—1957). The standard for stable bleaching powder was formulated after the last inquiry and a revision was made in June, 1956 to upgrade the specifications for technical caustic soda. The following three tables indicate the requirements for technical caustic soda, unstabilised bleaching powder and stable bleaching powder :—

TABLE I
Requirements for technical caustic soda as originally specified and subsequently revised

Characteristic	Requirements	
	As per original specification	As per amended specification
1. Sodium hydroxide (NaOH) content, per cent. [by weight, minimum]	93.5	95.0
2. Sodium carbonate (Na_2CO_3) content, per cent. by weight, maximum	3.0	2.5
3. Total chlorides and sulphates as sodium chloride (NaCl) and sodium sulphate (Na_2SO_4) per cent. by weight, maximum	3.0	2.5
4. Matter insoluble in water, per cent. by weight, maximum	0.3	0.2

As regards caustic soda solution, the material should comply, on dry basis, with the requirements given in the table above except that the chlorine and sulphate contents of the material on dry basis should be not more than 3.5 per cent., both taken together and expressed as sodium chloride and sodium sulphate respectively.

TABLE II

Unstabilised bleaching powder

1. Available chlorine at the time of manufacture	Not less than 25%.
2. Available chlorine at the time of delivery	Not less than 20%.
3. Difference between total chlorine and available chlorine at the time of manufacture	Not less than 3.8%.

TABLE III

Stable bleaching powder

1. Available chlorine	Not less than 33%.
2. Loss of available chlorine in stability test	Not more than 1/11th of the available chlorine before heating.

9.2. In our last Report (1954) we recommended that manufacturers should take steps to remove the defects pointed out by consumers in the quality and packing of their caustic soda. We also recommended that efforts should be made to improve the strength and stability of bleaching powder and its packing. It is now claimed by the manufacturers and accepted generally that both products are being produced to ISI standards, and that the quality of packing has greatly improved. The Textile Commissioner has stated that indigenous supplies of caustic soda and bleaching powder are found to be generally satisfactory. The general opinion of consumers and their associations is that the quality of indigenous caustic soda is satisfactory. Certain defects pointed out by the Millowners' Association, Bombay, two paper mills and a soap manufacturing company were read out at the public inquiry for the information of the concerned producers. These defects related to the comparatively low content of NaOH in caustic soda and high proportion of impurities in the products of certain manufacturers, low availability of chlorine in bleaching powder (unstable) and defective packing of both products. The manufacturers agreed to take note of these complaints and strive to eradicate them. As regards defective packing, some manufacturers still find it difficult to obtain proper quality of steel sheets for the fabrication of drums. When the supply position of acceptable steel sheets improves, defective packing should disappear.

10.1. *Chemical caustic soda.*—The principal raw materials required for the manufacture of chemical caustic soda are soda ash and lime.

Raw materials, power and fuel Tata Chemicals is the only producer of chemical caustic soda at present. It experiences no difficulty in procuring these two materials. It uses its own soda ash which, as a raw material for caustic soda, is expensive.

10.2. *Electrolytic caustic soda.*

10.2.1. *Salt.*—The principal raw material required for the manufacture of electrolytic caustic soda is common salt. Manufacturers have not experienced difficulty in obtaining adequate quantities of salt but the cost of transporting the material over long distances is still excessive. The main sources of salt supply for the whole country at present are in Saurashtra, Kutch and Rajasthan (Sambhar). Most of the existing units producing caustic soda are located at considerable distances from salt producing centres so that the incidence of freight on the cost of this important raw material is of considerable significance. We give below a statement indicating the supply prices, freight and total costs of salt to eight units during the years 1955, 1956 and 1957 :—



Statement showing the source of supply and the cost per ton of salt during 1955, 1956 and 1957

Name of the Unit	Source of supply	1955			1956			1957		
		Supply price	Freight	Total cost at works	Supply price	Freight	Total cost at works	Supply price	Freight	Total cost at works
1	2	3	4	5	6	7	8	9	10	11
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Alkali and Chemical Corporation Ltd.	Saurashtra/Kutch (1500 miles).	..	..	61.30	..	..	67.30	..	..	67.34
2. Calico Mills Chemical Division.	Kharagoda (65 miles)	31.64	7.11	38.75	32.57	7.50	40.07	35.68	7.37	43.05
3. D. C. M. Chemical Works.	Sambhar lake (189 miles)	..	..	53.83	..	..	54.78	..	..	55.72
4. Hindustan Heavy Chemicals Ltd.	Kandla/Porbandar/Jamnagar (1500 miles).	39.00	35.00	74.00	44.00	40.00	84.00	70.00	40.00	110.00
5. Mettur Chemical and Industrial Corporation Ltd.	Own salt works at Adirampatnam (254 miles).	17.14	14.69	31.83	24.56	14.69	39.25	20.30	15.61	35.91
6. Rohtas Industries Ltd.	Sambhar Salt (700 miles).	..	..	57.68	..	..	58.25	..	..	64.90
7. Tata Chemicals Ltd.	Own salt works at site.	..	..	9.57	..	..	12.27	..	..	16.26
Travancore - Cochin Chemicals Private Ltd.	Kutch/Saurashtra (1500 miles).	32.13	21.00	53.13	27.97	23.48	51.45	28.29	26.33	54.62

10.2.2. It will be seen from the above statement that all units excepting Tata Chemicals pay comparatively high prices for salt. The requirements of the two units situated at Calcutta and the unit situated in Kerala are generally obtained by sea, and the high cost of ocean freight is an additional factor to be reckoned with by these units. Manufacturers have noted with some satisfaction Government's decision not to increase railway freight on salt, but were extremely critical of the increases of 35 per cent. and 25 per cent respectively (since 1954) of the ocean freight rates between Saurashtra and Cochin and Saurashtra and Calcutta. It was pointed out that ocean freight rates have been increased by Indian Shipping companies after the reservation of coastal shipping to Indian shipping lines. It was suggested that, as the provision of railway wagons for movement of salt was limited, the coastal shipping companies have been in a position to operate without competition from the railways, and that consequently there was a complete absence of pressure on them to reduce the rates. It seems to us that this is a problem which should engage the attention of Government in the interest of national economy. Linked with this question is the one relating to establishment of salt works in the eastern, southern and northern zones of the country whereby the need for long leads for transport will be eventually eliminated. One of the major handicaps of indigenous manufacturers of strategic chemicals using salt as basic material, as compared with their overseas counterparts, is the scarcity in this country of brine wells and salt deposits such as are in abundance in countries like U.S.A., U.K. and Germany. To a large extent, this handicap contributes to the high cost of production of soda ash and caustic soda in our country. The handicap could be reduced in some measure by establishment of a few regional centres of salt production. In any event, increased production of salt in the country will require to be encouraged in future to satisfy the requirements of expanding industries like soda ash and caustic soda, although at the present moment our production of salt is reported to be slightly more than what is required for internal consumption.

10.2.3. The salt which is now normally produced is marine salt containing impurities. In the case of Sambhar salt the impurity is sodium sulphate. We have a standard specification No. IS: 797—1955 for salt for chemical industries, but this type of salt is not produced. Consequently, all manufacturers have found it necessary to have purification plants in their units. While it is admitted that some measure of brine purification would have to be undertaken by the manufacturers at their plants, considerable duplication of equipment and expenditure could be avoided if the salt producing units themselves undertake production of pure salt. In this context, therefore, we invite attention to our recommendation in our 1954 Report regarding the installation of washing plant at Sambhar Salt Works. We now recommend that the large scale salt works, (both among existing units and those to be established in future) which propose to supply salt to industrial users should undertake production of salt of the grade acceptable to the chemical industry. By doing so they will cater to the needs of the developing soda ash and caustic soda industries. In our Report on Soda Ash (1958), we have recommended

that an examination of the question relating to open wagon movement of salt, after taking into account the steps adopted in other countries for the purpose, was of immediate importance and that such an examination should be undertaken by the Railway administration in consultation with the representatives of the industries concerned. We reiterate this recommendation. We are of the view that industrial users of salt should not be required to transport salt in bags. As such requirement involves avoidable expenditure on gunny bags and corresponding increase in the cost of salt we feel that the Railway administration should be in a position to provide suitable wagons for open movement of salt in the country.

10.3. Power and fuel.

10.3.1. The electrolytic process of producing caustic soda involves large consumption of electrical energy. It is essential that electrical energy should be available at as low a rate as possible because of its high incidence in the cost of production of caustic soda and allied chemicals. In the five units whose costs of production have been investigated by us in this inquiry it is observed that the rate per KWH of energy in 1957 was as under :—

	Rate (nP).
1. Alkali and Chemical Corporation of India Ltd.	4.37
2. D. C. M. Chemical Works	7.20
3. Mettur Chemical and Industrial Corporation Ltd.	2.26
4. Tata Chemicals Ltd.	8.20
5. Travancore-Cochin Chemicals Private Ltd.	2.00

Among the five units referred to above, Tata Chemicals produces its own electric energy and D.C.M. Chemical Works produces part of its requirements in its own plant, and purchases the balance from the Delhi State Electricity Board. The cost of self-produced energy is mostly related to the cost of coal.

10.3.2. It would be of some interest to note in this connection that on the basis of an average usage of about 3,600 KWH per ton of caustic soda every naya païsa in the rate of electrical energy will result in a difference of Rs. 36 in the per ton cost of production. In this context, therefore, the Indian Chemical Manufacturers' Association has put forth the suggestion that a special concessional rate should be recommended for electrical energy to be used by electro-chemical industries. We have given this matter careful thought and feel that while there may be practical difficulty in securing a uniform concessional rate throughout the country for electro-chemical industries from the several agencies producing electrical energy, both thermal and hydro-electric, these agencies should at least be requested not to effect increases in existing rates during the present plan period when development is taking

place under difficult conditions. We find that recently, the Punjab Government has increased the cost of electricity by 25 per cent. and that the Kerala Government has passed an Act levying duty on electrical energy-at 25 nP. per KWH for consumers taking supply at 11 KV and 22 KV, and 2 nP. per KWH for consumers taking supply at 66 KV and 110 KV, although at present it proposes to implement these measures only to the extent of 0·25 nP. in the case of the former and 0·20 nP. in the case of the latter. These increases will doubtless result in increasing the manufacturing costs of the industries in the respective regions using large quantities of electric power. Increases in manufacturing costs arising from increases in power and fuel invariably lead to increases under several heads and tend to distort the basic assumptions on which industries have been started in areas after balancing a variety of considerations. We, therefore, suggest that Government may take suitable steps to relieve industries of uncertainties regarding rates for the supply of electrical energy.

11. Representations were received from some of the manufacturers regarding certain types of developmental assistance required by the industry which would help in accelerating the use of liquid caustic soda, chlorine and chlorine products. These representations are dealt with below.

11.1. *Tank wagons for transport of liquid caustic soda.*—Several industries consuming caustic soda would be prepared to accept the material in liquid form of 50 per cent. or 75 per cent. concentration. The sale of caustic soda in liquid form is to be encouraged because it will lead to saving in fuel for fusion and steel sheets which are required for the fabrication of drums. Steel sheets are in short supply. Some tank wagons have been provided for the movement of caustic liquor but the industry has represented that the number should be increased as early as possible. We recommend that the railway administration may take steps in this direction.

11.2. *Tank wagons for transport of liquid chlorine.*—Liquid chlorine is a commodity which finds application in industrial, public health and sanitation requirements. At present liquid chlorine is transported in cylinders of various sizes up to 1 ton capacity. In order to economise in the cost of transport of liquid chlorine it is necessary to provide tank wagons for movement of the product from producing centres to large industrial consumers such as paper mills and also to several public health authorities and municipalities. It was represented at the public inquiry that as these tank wagons have to be imported from abroad the wagons that are imported will be utilised to the fullest extent and that none will remain idle. It is difficult to obtain such assurance from any quarter but it would not be an unfair risk for the railways to undertake the provision of a few experimental wagons to start with, before increasing the supply. A beginning has to be made in this direction and we recommend that the question of providing a few wagons on an experimental basis may now be considered.

11.3. *Dicalcium phosphate fertilizer*.—We understand that, from time to time, discussions have taken place regarding the advisability of employing hydrochloric acid produced from chlorine for decomposition of phosphate rock for the purpose of manufacturing a dicalcium phosphate fertilizer. On the recommendation of the Development Council for Acids and Fertilizers the Ministry of Food and Agriculture was requested to undertake trials to ascertain the suitability of dicalcium phosphate as a fertilizer. The Ministry would appear to have agreed to undertake such trials provided an initial supply of 10,000 tons of the material was made available. It was also stipulated that the price of the material should compare with that of single superphosphate. In the meantime, most of the manufacturers were able to find outlet for their chlorine and none of them took up the question of erecting a plant to produce dicalcium phosphate. The development and production of dicalcium phosphate would again assume importance when surplus chlorine becomes available in the country. Although, according to our estimates this problem is not likely to arise during the next three years, we recommend that the question of developing the manufacture of dicalcium phosphate should be kept in view when any fresh licence is issued for augmenting the production of electrolytic soda.

12.1. *Import control policy for caustic soda and bleaching powder*.—Caustic soda and bleaching powder are classified under Serial Nos. **Import Control Policy & Import** 22(a) and 23 respectively of Part V of the Import Trade Control Schedule. The import control policy followed in respect of caustic soda and bleaching powder since the licensing period January-June 1955 is given below :—

12.1.1. *Caustic Soda*.

January-June 1955.—(i) Licences were issued to established importers to the extent of $7\frac{1}{2}$ per cent. of one-half of their best year's imports during any one of the five financial years ending 1950-51.

(ii) Quota licences were not valid for the import of rayon grade caustic soda and applications from actual users for rayon grade caustic soda were considered on an *ad-hoc* basis.

(iii) Actual users were granted licences for half of their certified requirements only.

(iv) Applications for additional imports of caustic soda were to be considered "*ad-hoc*".

July-December 1955.—The policy was the same as in the first half of 1955. Additional licences were to be granted to established importers to the extent of 5 per cent., of one-half of their best year's imports subject to a minimum value of Rs. 2,000 and a maximum ceiling of one lakh of rupees in the case of any individual established importer.

January-June 1956.—The policy for established importers was not announced pending a decision regarding canalisation of imports. Licences were issued to actual users on an *ad-hoc* basis. Applications from actual users for rayon grade caustic soda continued to be considered *ad-hoc*.

July-December 1956; January-June 1957; July-September 1957; October 1957-March 1958 and April-September 1958.—During the licensing period July-December 1956 imports of caustic soda were canalised through an agency approved by Government, namely, the State Trading Corporation of India Private Ltd. Applications from actual users for rayon grade caustic soda, however, continued to be considered on an *ad-hoc* basis. This policy continued during the periods January-June, 1957 and October, 1957-March, 1958. [During the period of three months July to September, 1957 applications for the import of caustic soda were not entertained]. During the current licensing period, *i.e.*, April-September, 1958 the import policy for caustic soda (including rayon grade) remains unchanged.

12.1.2. Bleaching Powder.

January-June, 1955.—Licences were issued to established importers to the extent of $33\frac{1}{3}$ per cent. of one-half of their best year's imports. Actual users were also allowed to apply. Applications from Municipalities and State Governments for their requirements were considered *ad-hoc*. Licences were valid only for imports of stabilised bleaching powder containing a minimum of 30 per cent. chlorine.

July-December, 1955; January-June, 1956 and July-December, 1956.—The quota for established importers was increased to 40 per cent. of one-half of their best year's imports. In other respects, the policy remained unchanged.

January-June, 1957.—The quota for established importers was reduced to 15 per cent.; in other respects, the import policy remained unchanged.

July-September, 1957.—Applications for the import of bleaching powder were not entertained during this period of three months.

October, 1957-March, 1958.—During this licensing period no licences were to be issued to established importers. As a result of representations from the trade, it was decided in December, 1957 to modify the policy as follows :—

- (i) The quota for established importers was fixed at 15 per cent. of one-half of their best year's imports.
- (ii) Licences issued were valid only for the import of stabilised bleaching powder containing a minimum of 33 per cent. chlorine.

April-September, 1958.—The quota for established importers has been increased to 25 per cent. Applications from established importers for the import of tropical bleaching powder containing a minimum of 33 per cent. available chlorine are also considered on an *ad-hoc* basis.

12.2. *Imports.*—Quantity and value of imports of caustic soda and bleaching powder during the years 1954 to 1958 (January-April) are given in the statement below :—

Statement showing the quantity and value of caustic soda and bleaching powder imported during the years 1954 to 1958 (January-April)

Name of product	(Quantity in tons and value in lakh Rs.)									
	1954		1955		1956		1957		1958 (Jan.-April)	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
A. CAUSTIC SODA :										
(i) Imports according to grades:										
Commercial	46,504	279.97	9,454	61.63	..	..	..	..	..	..
Rayon Grade	6,134	37.60	3,004	20.57	..	..	..	..	..	..
Flakes . . . . .	..	..	1,876	12.88	4,974	33.46	1,916	12.08	7	0.13
Solid . . . . .	..	..	37,341	210.06	87,218	501.38	63,927	374.37	20,168	110.36
Others . . . . .	..	..	3,206	21.63	1,402	9.74	199	1.77	19	0.30.
TOTAL	52,638	317.57	54,881	326.77	93,594	544.58	66,042	388.22	20,194	110.79
(ii) Imports according to country of origin:										
United Kingdom	46,811	287.06	45,663	271.87	63,089	374.36	49,506	301.35	5,771	38.81
Japan	4,976	25.18	8,246	49.87	15	0.11	..	..	..	..
Other countries	851	5.33	972	5.03	30,490	170.11	16,536	86.87	14,423	71.98
TOTAL	52,638	317.57	54,881	326.77	93,594	544.58	66,042	388.22	20,194	110.79
B. BLEACHING POWDER :										
United Kingdom	4,927	25.49	4,382	29.66	4,269	29.53	1,680	12.32	640	4.48
Other Countries	83	0.45	11	0.07	74	0.74	123	1.26	..	..
TOTAL	5,010	25.94	4,393	29.73	4,343	30.27	1,805	13.58	640	4.48

12.3. When discussing import control policy at the public inquiry certain representatives of consumers and producers pleaded for greater attention being paid to ensuring even flow of imports and avoidance of periods of scarcity so that rumours of short supply, which were often set afloat by retailers, do not result in spurts in prices. Such a situation would appear to have existed during the first half of this year when consumers who had been relying on obtaining their requirements from imported stocks had to pay high premium prices for caustic soda. It was stated at the inquiry, and duly recognised by the complaining interests, that in spite of its best efforts the State Trading Corporation does not always find it possible to ensure an even flow of supplies from abroad owing to difficulty in obtaining shipping space. There is need, however, to make maximum efforts in this direction. One way of easing the situation would be to give wide publicity in leading English and Indian language newspapers to the expected arrivals of imported stocks, indicating the date and quantity, as soon as a definite announcement is possible. The psychological climate created by such periodical announcements would, we believe, tend to reduce the pernicious influence of anti-social operations in retail markets.

13. Caustic soda and bleaching powder are assessed to customs duty under item Nos. 28(34) and 28(1) respectively of the first schedule to the Indian Customs Tariff Act, 1934. The relevant extracts are produced below :—

Existing rates of customs duty



14. A statement showing the c.i.f. prices and landed costs of latest imports of caustic soda (solid) and bleaching powder as furnished by C.i.f. prices and landed costs the Collectors of Customs, the State Trading Corporation of India Private Ltd., and importers is given in Appendix IV. No recent imports of caustic soda of other sorts including flakes appear to have taken place.

15.1. Fused solid caustic soda.

15.1.1. As stated in paragraph 3.3 the costs of production of caustic soda (solid fused and in flakes), caustic liquor, liquid chlorine, hydrochloric acid and bleaching powder (both stable and unstable) have been examined by our Cost Accounts Officers at Alkali and Chemical Corporation of India Ltd., D.C.M. Chemical Works, Mettur Chemical and Industrial Corporation Ltd., Tata Chemicals Ltd., and Travancore-Cochin Chemicals Private Ltd. On the basis of the data obtained in the examination of costs, estimates of future costs have been made by us after taking into account consumption factors, prices of raw materials, future production, etc. Of the products mentioned above, those that are relevant for the purpose of this Report relating to protection are only caustic soda (fused solid and in flakes) and bleaching powder. The examination of costs relating to the other products was undertaken for the purpose of fixing fair selling prices of the commodities under Section 12(d) of the Tariff Commission Act, 1951, in accordance with a request from Government. As stated in paragraph 2.3 we are forwarding a separate Report to Government dealing with the question of fair selling prices of all the commodities mentioned above. Detailed information regarding costs of production and our estimates of future costs, etc., are furnished in that Report. With a view to avoiding repetition these particulars are not included in this Report.

15.1.2. As regards fused solid caustic soda our future estimates of fair ex-works prices details of which are furnished in our Report relating to fair selling prices, are as follows :—

	Estimated pro- duction (Tons)	Fair ex- works price (Rs.)
<i>Fused solid caustic soda—Electrolytic:</i>		
Alkali and Chemical Corporation of India Ltd.	102	968.49
D. C. M. Chemical Works	6,260	629.62
Mettur Chemical and Industrial Corporation Ltd.	4,600	591.98
Tata Chemicals Ltd.	3,550	615.26
Travancore-Cochin Chemicals Private Ltd.	2,100	692.72
<i>Fused solid caustic soda—Chemical:</i>		
Tata Chemicals Ltd.	5,550	843.59

15.1.3. For the purpose of arriving at the representative cost of the industry for fused solid caustic soda we propose to adopt the weighted average of the fair ex-works prices of electrolytic caustic soda produced by D.C.M. Chemical Works, Mettur Chemicals, Tata Chemicals and Travancore-Cochin Chemicals. The weighted average works out to Rs. 624·07 per ton. We have not taken into account the fair ex-works price relating to Alkali & Chemical Corporation as it is based on a small production of only 102 tons, and the high cost of Rs. 968·49 is mainly due to this factor. Nor have we taken into account the fair ex-works price relating to chemical caustic soda produced by Tata Chemicals which is also as high as Rs. 843·59 per ton. Our reason for doing so is that while the predominant production in the country at present is of electrolytic caustic soda, neither the volume of Tata Chemicals contribution nor its cost of production justifies its inclusion in the calculation of a representative cost for the industry for arriving at the quantum of protection.

15.2. *Bleaching powder.*—Of the units selected for cost investigation only two units manufacture bleaching powder at present, viz., Tata Chemicals and Mettur Chemicals, and only the latter manufactures stable bleaching powder. The estimate of fair ex-works price of stable bleaching powder manufactured by Mettur Chemicals was worked out on a production of 5,000 tons. Similar estimates for non-stable bleaching powder were worked out on a production of 1,000 tons for Mettur Chemicals and 720 tons for Tata Chemicals. We are of opinion that the fair ex-works price of stable bleaching powder at Mettur Chemicals should be taken as representative of the indigenous industry for purpose of calculating the quantum of protection required by it against bleaching powder of foreign manufacture, the whole of which is of the stable variety. The fair ex-works price of stable bleaching powder at Mettur Chemicals, is estimated by us at Rs. 462·22 per ton. To this figure should be added the railway freight disadvantage of Rs. 46·82 (the amount equal to the freight for a distance of 600 miles) which will enable the domestic producer to overcome the handicap which he suffers *vis a vis* the importer at the ports and in the areas far removed from his factory. The total fair ex-works price plus freight disadvantage amounts to Rs. 509·04 per ton or Rs. 25·45 per cwt.

16.1. *Fused solid caustic soda.*

16.1.1. The fair ex-works price of indigenous fused solid caustic soda as determined by us in paragraph 15.1.3 comes to Rs. 31·20 per cwt. This has to be compared with the landed

Measure of protection cost ex-duty of imported caustic soda. The latest c.i.f. price of imported caustic soda of Chinese origin is reported to be Rs. 16·54 per cwt. Adding clearing charges of Rs. 0·41, the landed cost ex-duty amounts to Rs. 16·95. In the following table we indicate the quantum of protective duty which will be needed by the indigenous caustic soda industry on the basis of the above imported price of Chinese caustic soda :—

	Rs.
(i) Fair ex-works price	31·20
(ii) C. i. f. price	16·54

	Rs.
(iii) Landed cost without duty	16.95
(iv) Difference between (i) and (iii)	14.25
(v) Difference as a percentage on tariff value of Rs. 28 per cwt.	50.9%
(vi) Existing rate of duty	40% (Standard)

It would appear from the above table that on the basis of the existing tariff value a standard rate of duty of 50.9% *ad valorem* is required to provide adequate protection to the domestic industry. Before accepting this assessment, however, it would be necessary to take note of the following factors, *viz.* :—

- Out of a total imported tonnage of 66,042 tons in 1957, imports from China amounted to only 14,854 tons;
- the c.i.f. price of imported Chinese caustic soda ruled round about Rs. 19 per cwt. during 1957, and came down to the present figure of Rs. 16.54 only from July-August, 1958;
- the c.i.f. price of imported caustic soda of U.K. origin ranged round about Rs. 25 per cwt. during 1957 and came down to Rs. 23 per cwt. in July, 1958.

It is by no means certain that the trend of prices of imported caustic soda will be downward in future nor is it possible to state that adequate imports to meet our entire requirements will all be available from China and at the low price quoted above. A measure of caution is, therefore, indicated in formulating our recommendation regarding the duty which should prevail for the next three years.

16.1.2. In the statement given below we have worked out the quantum of duty that would be required on the basis of c.i.f. prices of imported caustic soda of U.K. origin :—

	Rs.
(i) Fair ex-works price of indigenous caustic soda per cwt.	31.20
(ii) C. i. f. price of U. K. caustic soda	23.00
(iii) Landed cost without duty	23.50
(iv) Difference between (i) and (iii)	7.70
(v) Difference as a percentage on Tariff value of Rs. 28 per cwt.	27.5%
(vi) Existing rate of duty	30% (Preferential).

It will be seen from the above statement that while the duty indicated to protect indigenous caustic soda from the product of U.K. origin is about 28 per cent. (on the basis of the existing tariff value) the prevailing rate of duty is 30 per cent. As imports of caustic soda are being strictly regulated to fill the gap between indigenous production and

demand and are being handled by the State Trading Corporation, the influence of the protective duty on internal prices (which, in any case will be fixed by Government) or as a measure of protection to domestic producers, is very limited. We, therefore, recommend that the protective duties on caustic soda both solid and other sorts may be retained at existing levels, as long as the tariff value of Rs. 28 per cwt. on solid caustic soda and Rs. 45 per cwt. on caustic soda of other sorts is retained. If a change in tariff values is effected in the future the protective duties should be correspondingly altered. We do not, however, envisage that an occasion will arise for change in tariff values as long as market prices are controlled by Government.

16.1.3. The tariff value of Rs. 45 per cwt. relating to other sorts of caustic soda applies, in particular, to imported caustic soda in flakes. The difference of Rs. 17 per cwt. between the two tariff values is more than what is necessary to protect domestic caustic soda in flakes. According to our investigation of fair ex-works prices, the difference between those of fused solid caustic soda and flakes ranges between Rs. 4.5 and Rs. 6.5 per cwt. at the units producing the products. As the manufacture of caustic soda in flakes has been undertaken by four units in the country we see no need for any imports of this product in future. Indeed, we observe that there have been no imports of caustic soda in flakes during recent months. We are, therefore, of opinion that the existing protective duties on caustic soda, standard as well as preferential, are sufficient to protect indigenous caustic soda *in flakes* on the basis of the current tariff value of Rs. 45 per cwt. We recommend, therefore, that protection to the caustic soda industry should be continued for a further period of three years, that is, till 31st December, 1961, and that protective duties at existing rates should hold good during the period.

16.2. *Bleaching powder*.—The following statement gives a comparison of the fair ex-works price (plus freight disadvantage) of indigenous bleaching powder (*vide* paragraph 15.2) with the landed cost of imported bleaching powder, the lowest c.i.f. price of which was Rs. 26.40 per cwt. for a product of U.K. origin imported in July, 1958. The landed cost excluding duty of this consignment was Rs. 27.90, allowing for clearing charges of Rs. 1.50 per cwt.

	Rs.
(i) Fair ex-works price (including freight disadvantage)	25.45
(ii) C. i. f. price	26.40
(iii) Landed cost without duty	27.90
(iv) Difference between (i) and (iii)	(—)2.45
(v) Existing rate of duty	15% <i>an valorem</i>

It will be seen from the above that no duty is required to protect indigenous bleaching powder. At the time of the last inquiry the position regarding quantum of protective duty required was similar to what it is at present. Yet, we recommended that a duty of 15% *ad valorem* should be imposed as against duty-free imports which were then allowed. In support of our recommendation we cited that the industry was not then working to full capacity, that the quality of its product was below standard, that there was considerable consumers' prejudice in operation, and that the availability of free imports was a factor detrimental to its interests. None of these factors is in operation at present. Since the last inquiry Mettur Chemicals has undertaken the production of stable bleaching powder and has been operating its plant to full capacity. Imports have been restricted to the extent required to fill the gap between demand and domestic production. The quality of the indigenous product is as good as its foreign counterpart and consumers' prejudice has practically vanished. We, therefore, recommend that protection granted to the manufacture of bleaching powder including bleaching paste may be discontinued after 31st December, 1958 and that the quantum of revenue duty on the product may be fixed according to fiscal considerations.

17. Our conclusions and recommendations are summarised below :
Summary of conclusions and recommendations

17.1. The present annual rated capacity of the several units for the production of caustic soda is 67,185 tons. The rated capacity in 1961 is expected to be about 148,970 tons.

[Paragraphs 5.1.1 and 6.3]

17.2. The present annual rated capacity for the production of bleaching powder is 10,020 tons. The rated capacity in 1961 is expected to be about 14,970 tons.

[Paragraphs 5.2.1 and 6.5]

17.3. As against the expected internal demand for caustic soda in 1961, the indigenous production in the country in that year may be short by about 25,000 tons.

[Paragraph 6.4]

17.4. The problem of chlorine utilisation is not expected to be of any magnitude during the next three years.

[Paragraph 7.4]

17.5. The current annual domestic demand for caustic soda is about 124,000 tons. The demand in 1961 is expected to be about 159,000 tons.

[Paragraph 8.1.3.10]

17.6. The current annual domestic demand for bleaching powder is about 8,000 tons. The likely demand in 1961 is 12,000 tons.

[Paragraph 8.2]

17.7. The estimated demand for chlorine in 1961 is 95,000 tons.

[Paragraph 8.3]

17.8. The large scale salt works (both among existing units and those to be established in future) which propose to supply salt to industrial users should undertake production of salt of the grade acceptable to the chemical industry.

[Paragraph 10.2.3]

17.9. An examination of the question relating to open wagon movement of salt, after taking into account the steps adopted in other countries for the purpose, should be undertaken by the Railway administration in consultation with the representatives of the industries concerned.

[Paragraph 10.2.3]

17.10. The Railway administration may take steps to provide an increasing number of tank wagons for the transport of caustic soda in liquid form.

[Paragraph 11.1]

17.11. The Railway administration may consider the question of providing a few tank wagons on an experimental basis for the transport of liquid chlorine.

[Paragraph 11.2]

17.12. The question of developing the manufacture of a dicalcium-phosphate fertilizer should be kept in view when any fresh licence is issued for augmenting the production of electrolytic caustic soda.

[Paragraph 11.3]

17.13. The protective duties on caustic soda both solid and other sorts should be retained at existing rates of 30 per cent. *ad valorem* preferential and 40 per cent. *ad valorem* standard as long as the tariff value of Rs. 28 per cwt. on solid caustic soda and Rs. 45 per cwt. on caustic soda of other sorts is retained. If a change in tariff values is effected in the future, the protective duties should be correspondingly altered. Protection to the caustic soda industry should be continued for a further period of three years, that is, till 31st December, 1961.

[Paragraphs 16.1.2 and 16.1.3]

17.14. Protection granted to the bleaching powder industry including bleaching paste should be discontinued after 31st December, 1958, and the quantum of revenue duty on the products may be fixed according to fiscal considerations.

[Paragraph 16.2]

18. We wish to convey our thanks to the manufacturers, importers, consumers and the various associations who furnished us with detailed information in connection with this inquiry and **Acknowledgements** to their representatives who tendered evidence before us at the public inquiry.

C. RAMASUBBAN,
Chairman.

S. K. MURANJAN,
Member.

J. N. DUTTA,
Member.

R. S. BHATT,
Member.

RAMA VARMA,
Secretary.

BOMBAY ;

Dated 27th September, 1958.



APPENDIX I.

(Vide Paragraph 3.1.)

List of firms, bodies, associations and Governments Departments to whom the Commission's questionnaires and letters were issued and from whom replies or memoranda were received.

*Those who have replied in detail.

(A) PRODUCERS:

- *1. Mettur Chemical and Industrial Corporation Ltd., Mettur Dam R. S., Salem District Madras State.
- *2. Tata Chemicals Ltd., Bombay House, Bruce Street, Fort, Bombay.
- *3. D. C. M. Chemical Works, P. B. No. 1211, Delhi.
- *4. Calico Mills, Chemical Division, P. O. Box No. 12, Ahmedabad.
- *5. Alkali and Chemical Corporation of India Ltd., 34, Chowringhee, Calcutta-16.
- *6. Rohtas Industries Ltd., 11, Clive Row, Calcutta.
- *7. Travancore-Cochin Chemicals Private Ltd., Udyogmandal P. O., (via) Alwaye, Kerala State.
- *8. Hindusthan Heavy Chemicals Ltd., Hindusthan Buildings, 4, Chittaranjan Avenue, Calcutta-13.
9. Heavy Chemicals Ltd., 19/20, Beach Road, Tuticorin, Madras State.

(B) PROSPECTIVE PRODUCERS:

1. D. C. M. Chemical Works, Najafgarh Road, Delhi.
- *2. National Rayon Corporation Ltd., Ewart House, Bruce Street, Fort, Bombay.
- *3. Calico Mills, Chemical Division, Shahibag House, Witter Road, Bombay-1.
- *4. Rohtas Industries Ltd., Dalmianagar, Bihar.
- *5. Dhrangadhra Chemical Works Ltd., 15-A, Elphinstone Circle, Fort, Bombay-1.
6. Mettur Chemical and Industrial Corporation Ltd., Mettur Dam R. S. (Salem Dt.).
- *7. Nepa Chemicals Ltd., Pratiba Press Building, Wardha Road, Nagpur-1.
8. Orient Paper Mills Ltd., 8, Royal Exchange Place, Calcutta.
9. Tata Chemicals Ltd., Bombay House, Bruce Street, Fort, Bombay-1.
- *10. Saurashtra Chemicals, Porbandar.
11. Bhiwandiwalla and Co., 583, Chira Bazar, Bombay-2.
- *12. J. K. Chemicals Ltd., J. K. Building, Dougall Road, Ballard Estate, Bombay-1.

(C) PAPER MILLS:

- *1. Shree Gopal Paper Mills Ltd., 5, Royal Exchange Place, P. B. No. 2037, Calcutta.
- *2. The Sirpur Paper Mills Ltd., Sirpur-Kaghaznagar (C. Rly.), Hyderabad (A.P.).
- *3. Titaghur Paper Mills Co. Ltd., P. B. No. 185, Chartered Bank Buildings, Calcutta.
- *4. Mysore Paper Mills Ltd., Bhadravati (S. Rly.), Mysore State.
- *5. Orient Paper Mills, Brijrajnagar, Sambalpur Dt., Orissa State.

(D) PRODUCERS' ASSOCIATION :

*Indian Chemical Manufacturers' Association, India Exchange, India Exchange Place, Calcutta-1.

(E) CONSUMERS :

- *1. The Bengal Paper Mill Co. Ltd., 21, Netaji Subhas Road, Calcutta-1.
- *2. India Paper Pulp Co. Ltd., 8, Clive Row, Post Box No. 150, Calcutta-1.
3. National Newsprint and Paper Mills Ltd., Nepanagar (M.P.).
- *4. Orient Paper Mills Ltd., Brajrajnagar (Near Jharuguda), Dt. Sambalpur, Orissa.
- *5. Hindustan Insecticides (P) Ltd., Udyogmandal P. O., Kerala State.
- *6. Indian Aluminium Co. Ltd., 31, Chowringhee Road, Calcutta-16.
- *7. Aluminium Corporation of India Ltd., 7, Council House Street, Calcutta.
- *8. The Standard Vacuum Refining Company of India Ltd., Post Box No. 6516, Bombay.
- *9. Burmah-Shell Refineries Ltd., P. O. Box No. 1725, Bombay.
- *10. Caltex Oil Refining (India) Ltd., Post Box No. 145, Visakhapatnam-1.
- *11. Hindustan Lever Ltd., Scindia House, Ballard Estate, Bombay-1.
- *12. Godrej Soaps Ltd., 316, Delisle Road, P. O. Jacob Circle, Bombay-11.
- *13. Tata Oil Mills Co. Ltd., Bombay House, Bruce Street, Bombay-1.
- *14. National Rayon Corporation Ltd., Ewart House, Bruce Street, Fort, Bombay-1.
- *15. Travancore Rayons Ltd., Rayonpuram P. O., Kerala State.
- *16. Indian Oxygen Limited, 48/1, Diamond Harbour Road, Calcutta-27.
- *17. The Atul Products Ltd., P. O. Atul, (via) Bilsar (W. Rly.)
- *18. Dunlop Rubber Co. (I) Ltd., 57-B, Free School St., Calcutta-16.
19. Indian Plastics Ltd., Poisar Bridge, Kandivlee, Bombay-47.
- *20. Amar Dye Chem Ltd., Post Box No. 6471, Mahim, Bombay-16.
- *21. Shambu Nath and Sons Ltd., Post Box No. 12, G.T. Road, Amritsar.
- *22. The Deccan Paper Mills Company Ltd., Commonwealth Building, Laxmi Road, Poona-2.
- *23. Punalur Paper Mills Limited, Punalur, Kerala State.
- *24. Gwalior Rayon Silk Mfg. (Wvg.) Co. Ltd., Birlagram, Nagda (W. Rly.).
- *25. Sirsilk Ltd., Sirpur Kaghaznagar (C. Rly.). Andhra Pradesh.
- *26. Century Rayon, Industry House, 159, Churchgate Reclamation, Bombay-1.

(F) CONSUMERS' ASSOCIATIONS.

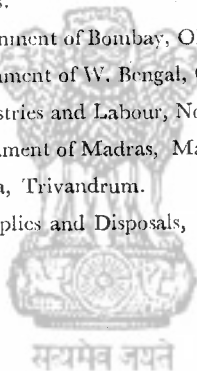
- *1. Indian Soap and Toiletries Makers' Association, P-11, Mission Row Extension, Calcutta-1.
- *2. The Secretary, Millowners' Association, P. O. Box 95, Bombay-1.
3. Indian Paper Mills Association, India Exchange, India Exchange Place, Calcutta.
- *4. The Ahmedabad Millowners' Association, Post Box No. 7, Navarangpura, Ahmedabad-9.
5. Indian Paper Makers' Association, Royal Exchange, Post Box No. 280, Calcutta.
- *6. Vanaspati Manufacturers' Association of India, India House, Fort Street, Bombay-1.
- *7. The Karur Weaving and Knitting Factory Owners' Association Ltd., Karur (S.I.).

(G) IMPORTERS :

- *1. State Trading Corporation of India Private Ltd., Post Box No. 79, New Delhi-1.
- *2. Imperial Chemical Industries (India) Private Ltd., I. C. I. House, 34, Chowringhee, P. O. Box No. 182, Calcutta-1.
- *3. Tata Oil Mills Co. Ltd., Bombay House, Bruce Street, Fort, Bombay-1.
- *4. Chemical Importers and Distributors P. Ltd., P-21/22, Radhabazar Street, Calcutta-1.
- *5. Chemical and Alkali Distributors Private Ltd., 242, Samuel Street, Vadgadi, Bombay-3.
- *6. Biddle Swayer and Company (India) Private Ltd., 25, Dalal Street, Fort, Bombay-1.
- *7. New Standard Chemicals Co. Private Ltd., 281, Samuel Street, Vadgadi, Bombay-3.

(H) GOVERNMENT DEPARTMENTS :

- *1. The Chief Industrial Adviser, Ministry of Commerce and Industry (Development Wing), Udyog Bhavan, King Edward Road, New Delhi.
- *2. The Textile Commissioner, Deptt. of Commerce and Light Industries, Witter Road, Ballard Estate, Bombay-1.
- *3. Collector of Customs, New Custom House, Bombay-1.
- *4. Collector of Customs, Custom House, Calcutta.
- *5. Collector of Customs, Madras.
- *6. Director of Industries, Government of Bombay, Old Custom House Yard, Bombay-1.
- 7. Director of Industries, Government of W. Bengal, Calcutta.
- *8. Office of the Director of Industries and Labour, No. 1, Rajpur Road, Delhi.
- 9. Director of Industries, Government of Madras, Madras.
- 10. Director of Industries, Kerala, Trivandrum.
- 11. The Director-General of Supplies and Disposals, Shahjahan Road, New Delhi.



APPENDIX II

(Vide Paragraph 3.4.)

List of persons who attended the Commission's public inquiry on 2nd September, 1958

(A) PRODUCERS :

1. Lala Charat Ram	}	Representing	The Delhi Cloth and General Mills Co., Ltd., Bara Hindu Road, Post Box No. 1039, Delhi.
2. Shri M. L. Seth			
3. Shri R. Sahai			
4. Shri T. R. Parcek			
5. Shri L. R. Gautam			
6. Shri D. C. Mittal			
7. Shri Prahlad Bhagat			
8. Shri B. R. Bhatia	}	"	The Travancore-Cochin Chemicals Private Ltd., Udyogmandal P. O., (via) Alwaye, Kerala State.
9. Shri R. V. Ramani			
10. Shri V. Padmanabhan			
11. Shri L. R. Krishnamoorthy			
12. Shri P. S. Krishnamoorthy	}	"	The Alkali and Chemical Corporation of India Ltd. 18, Strand Road, Calcutta-1.
13. Mr. H. Hayman			
14. Shri S. Ramaswamy			
15. Shri R. Chakravarthy			
16. Shri T. M. Krishan Rao			
17. Shri R. Natarajan	}	"	The Mettur Chemical and Industrial Corporation Ltd., Mettur Dam R. S. (Salem District).
18. Shri P. A. Narielwala			
19. Shri C. R. Rao			
20. Shri P. A. L. N. Sarma			
21. Shri H. P. Shroff			
22. Shri T. S. Natarajan			
23. Shri S. A. Kher	}	"	Tata Chemicals Ltd., Bombay. House, Bruce Street, Bombay-1.
24. Shri C. A. Gharekhan			
25. Shri V. S. Mankikar			
26. Shri J. A. Gandhi			

27. Shri T. C. Roychoudhury	}	Representing	Hindusthan Heavy Chemicals Ltd., Hindusthan Buildings, 4, Chittaranjan Avenue, Calcutta-13.
28. Shri S. Sinha			
29. Shri A. K. Jain	}	"	Rohtas Industries Ltd., Dalmia Nagar, Dehri-on-Sone Rly. Station, Bihar.
30. Shri M. B. Kanan			
31. Shri P. A. Porecha	}	"	J. K. Chemicals Ltd., J. K. Building, Dougall Road, Ballard Estate, Bombay-1.
32. Shri K. Ramdas			
33. Shri S. C. Jain	}	"	Dhrrangadhra Chemical Works Ltd., 15-A, Elphinstone Circle, Bombay-1.
34. Shri M. Nilkantan			
35. Shri D. P. Patkar		"	Saurashtra Chemicals, Porbandar.
36. Shri C. G. Mahant		"	National Rayon Corporation Ltd., Ewart House, Bruce Street, Bombay-1.

(B) PRODUCERS' ASSOCIATION :

37. Shri C. G. Chandrasekhar	"	Indian Chemical Manufacturers' Association, India Exchange, India Exchange Place, Calcutta-1.
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(C) IMPORTERS/DISTRIBUTORS :

38. Shri S. R. Gupta	"	State Trading Corpn. of India Private Ltd., Post Box. No. 79, New Delhi.	
39. Shri V. S. Bhatia	"	Imperial Chemical Industries (India) Private Ltd., I.C.I. House, 34, Chowringhee, Calcutta-1.	
40. Shri P. T. John	}	"	Tata Oil Mills Co. Ltd., Bombay House, Bruce Street, Bombay-1.
41. Shri R. F. Vakharia			
42. Shri N. Ramamoorthy	}	"	Chemical and Alkali Distri- butors Ltd., 242, Samuel Street, Vadgadi, Bombay-3.
43. Shri N. B. H. Kulkarni			
44. Shri K. H. Mohite	"	Gillanders Arbuthnot and Co. Ltd., Post Box No. 281, 16, Queen's Road Estate, Chur- chgate, Bombay.	
45. Shri A. S. K. Nair	"	T. T. Krishnamachari and Co., Vulcan Insurance Bldg., 202-A, Veer Nariman Road, Bombay-1.	

(D) CONSUMERS :

46. Shri R. A. Taraporewalla	"	Hindustan Lever Ltd., Scindia House, Ballard Estate, Bombay-1.
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47. Shri K. R. Gokulam . . . Representing Indian Soap and Toiletries Makers' Association, P-11, Mission Row Extension, Calcutta.
&
Godrej Soaps Ltd., 316, Delisle Road, P. O. Jacob Circle, Bombay-11.
48. Shri S. P. Mandelia . . . , Century Rayon, Industry House, 159, Churchgate Reclamation, Bombay-1.
49. Shri M. Prabhakar . . . , The Standard Vacuum Refining Co. of India Ltd., Post Box No. 6516, Bombay-26.
50. Shri S. K. Soman . . . , The Atul Products Ltd., P.O. Atul, (via) Bulsar, Western Railway.

(E) CONSUMERS' ASSOCIATIONS :

51. Shri S. P. Hutheesing . . . , The Ahmedabad Millowners' Association, Navarangpura, P. B. No. 7, Ahmedabad.
52. Shri H. M. Vyas . . . , The Millowners' Association, Elphinstone Building, Veer Nariman Road, Bombay-1.

(F) GOVERNMENT DEPARTMENTS:

53. Dr. G. P. Kane, Senior Industrial Adviser (Chemicals). }
54. Shri P. K. Seshan, Deputy Development Officer (Heavy Chemicals). } Ministry of Commerce and Industry, Development Wing, Udyog Bhavan, King Edward Road, New Delhi.
55. Shri S. S. Nadkarni, Divisional Commercial Supdt. (General). , Office of the Chief Commercial Superintendent, Victoria Terminus, Central Rly, Bombay-1.
56. Dr. H. V. K. Udupa, Asstt. Director. , Central Electro-Chemical Research Institute, Karaikudi, Madras State.
57. Dr. S. R. Ramachandran, Director (C.P.). , Office of the Textile Commissioner, Wittet Road, Ballard Estate, Bombay.
58. Dr. J. D. Joshi, Assistant Director of Industries (Chem.). , Office of the Director of Industries and Statistics Authority, Old Custom House Yard, Bombay-1.
59. Shri M. M. Razdan, Appraiser . . . , The Collector of Customs, New Custom House, Bombay.
60. Shri A. B. Rao, Asstt. Director . . . , Indian Standards Institution, Manak Bhavan, 9, Mathura Road, New Delhi.
61. Shri P. B. Sarkar, Deputy Director of Supplies. , Director-General of Supplies & Disposals, New Delhi.

APPENDIX III

(Vide Paragraph 8.3)

Current and future estimates of demand for chlorine by the Development Wing

(In tons)

Sl.	Name of the consuming product/ Industry	Basis: Ton of Chlorine per ton of product	Current demand			Future demand				
			1958	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9	10	11
1 Chlorine as liquid chlorine or as bleaching powder or bleach liquor:										
a.	Paper industry	0.07/0.08	2,25,000	15,800	2,75,000	19,300	3,00,000	24,000	3,50,000	24,500
b.	Textile industry	.	..	5,400	..	5,700	..	5,900	53,500	6,100
c.	Water treatment	.	..	2,500	..	3,000	..	4,000	..	5,000
d.	Bleaching powder	0.35/0.40	6,000	2,200	7,000	2,500	10,000	3,500	12,000	4,500
SUB-TOTAL			..	25,900	..	30,500	..	37,400	..	40,100
2 Chlorine as Hydrochloric acid:										
a.	Direct use for brine purification	.	..	700	..	1,000	..	1,500	..	2,000
b.	Sales for miscellaneous industry	.	..	300	..	500	..	700	..	1,000
c.	Ammonium chloride	0.70	6,000	4,200	6,500	4,550	7,000	4,900	8,000	5,600
d.	Rare earth chloride	.	..	500	..	600	..	700	..	800
e.	Zinc chloride	0.55	800	450	850	475	900	500	1,000	550
f.	Ferric chloride	0.70	150	100	175	125	200	150	250	175

1	2	3	4	5	6	7	8	9	10	11
	g. Calcium chloride	0.70	125	90	150	110	175	120	200	150
	h. Other inorganic chlorides	..	..	110	..	120	..	200	..	300
	i. Dyestuffs	..	..	300	..	400	..	1,000	..	1,200
	j. Bleaching earth	..	..	400	..	500	..	600	..	700
	k. Dicalcium phosphate, Ossein	..	..	..	..	300	..	1,000	..	3,000
	Sub-Total	..	..	7,150	..	8,680	..	11,370	..	15,475

3 Chlorine as liquid or pure gas:

a. Benzene hexachloride	0.75	3,500	2,650	4,000	3,000	4,500	3,400	4,500	3,400
b. D.D.T.	2.00	2,000	4,000	2,500	5,000	2,800	5,600	2,800	5,600
c. Copper oxychloride	0.20	700	150	900	200	1,100	250	1,100	250
d. Bromine liquid	0.70	200	150	250	175	250	175	250	175
e. Polyvinyl chloride plastics	0.50	..	..	..	..	1,200	600	1,600	800
f. Miscellaneous organic products solvents and petroleum	..	..	..	250	200	300	750	700	2,000
Sub-Total	..	..	7,200	..	8,675	..	10,725	..	12,225

4 Chlorine as Hydrochloric acid for salt purification

GRAND TOTAL	40,250	..	63,855	..	83,495	..	99,800
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APPENDIX IV

(Vide Paragraph 14)

Statement showing c. i. f. prices, customs duty, clearing charges and landed costs of caustic Soda and bleaching powder

A: CAUSTIC SODA (SOLID)

Sl. No.	Source of information	Origin of import	Date of import	Specifications	C.i.f. price	Customs duty*	Clearing charges	Landed cost	(Per cwt.)		Remarks
									Rs. nP.	Rs. nP.	
1		3	4	5	6	7	8	9	10		
1	Collector of Customs, Calcutta.	China	..	..	19.27	11.20	0.90	31.37	31.37		* Customs duty is calculated at the rate of 30% <i>ad valorem</i> preferential and 40% <i>ad valorem</i> standard on tariff values which are as follows:—
2	Collector of Customs, Bombay.	U. K. } China }	4-7-58 25-7-58	.. ..	23.00 16.10	8.40 11.20	1.60 3.70	33.00 31.00	33.00 31.00		Caustic soda solid. Rs. 28. per cwt.
3	Collector of Customs, Madras.	China } China }	28-3-58 5-6-58	.. ..	18.23 18.00	11.20 11.20	0.20 0.20	29.63 29.40	29.63 29.40		Caustic soda other sorts Rs. 32 per cwt.
4	State Trading Corporation of India Private (Ltd.).	U. K. (15,000) Tons	June, 1957-September.	98.99%	25.45	8.40	0.41	37.65	37.65		
		China (15,000) Tons	November, 57 January, 58.	98%	19.00	11.20	0.41	34.00	34.00		(i) Clearing charges have not been included in calculating landed cost.

1	2	3	4	5	6	7	8	9	10
	State Trading Corporation of India Private (Ltd.) <i>Contd.</i> June, 1958 (2,500 Tons).								
		China (10,000) Tons	March-April 1958 (7500 Tons)	98%	17.61	11.20	0.41	33.16	(ii) Landed cost includes distributors' commission @ Rs. 70 per ton and Rs. 6 per ton (average) as port dues.
		China (15,000) Tons	July-August, 1958 (5,500 Tons).	98%	16.54	11.20	0.41	31.54	
5	Tata Oil Mills Company Ltd., Bombay.	U. K. . .	2-7-57	..	24.03	8.40	0.21	32.64	
		U. K. . .	3-9-57	..	25.00	8.40	0.21	33.61	
		U. K. . .	9-9-57	..	25.07	8.40	0.21	33.63	
		U. K. . .	11-9-57	..	25.00	8.40	0.44	33.84	
		China . .	29-11-57	..	19.18	11.20	0.42	30.80	
		China . .	20-11-57	..	19.19	11.20	0.43	30.82	
		China . .	4-12-57	..	19.19	11.20	0.21	30.60	
6	Imperial Chemical Industries (India) Private Ltd., Calcutta.	U. K. . .	July, 1957	..	25.24	8.40	0.21	33.85	
		U. K. . .	July, 1957	..	25.84	8.40	0.21	34.45	
		U. K. . .	July, 1957	..	25.48	8.40	0.21	34.09	

U. K.	July, 1957	..	25° 79	8° 40	0° 22	34° 41
U. K.	July, 1957	..	25° 32	8° 40	0° 21	33° 93
U. K.	August, 1957	..	25° 48	8° 40	0° 42	34° 30
U. K.	August, 1957	..	25° 24	8° 40	0° 42	34° 06
U. K.	August, 1957	..	25° 00	8° 40	0° 21	33° 61
U. K.	September, 1957	..	25° 48	8° 40	0° 41	34° 29
U. K.	September, 1957	..	25° 00	8° 40	0° 41	33° 81
U. K.	September, 1957	..	24° 99	8° 40	0° 41	33° 80
U. K.	September, 1957	..	25° 93	8° 40	0° 21	34° 54
China	December, 1957	..	19° 21	11° 20	0° 42	30° 83
China	December, 1957	..	19° 19	11° 20	0° 42	30° 81
China	December, 1957	..	19° 19	11° 20	0° 21	30° 60
China	December, 1957	..	19° 20	11° 20	0° 22	30° 62
China	December, 1957	..	19° 15	11° 20	0° 21	30° 56
China	January, 1958	..	18° 87	11° 20	0° 31	30° 38
China	March, 1958	..	17° 41	11° 20	0° 21	28° 82
China	April, 1958	..	17° 46	11° 20	0° 41	29° 07

B: BLEACHING POWDER

Sl. No.	Source of information	Origin of Import	Date of import	Specifications	(per cwt.)			
					C.i.f. price	Customs duty* (at 15%)	Clearing charges	Landed cost
1	2	3	4	5	6	7	8	9
1	Collector of Customs, Bombay	U. K.	5-7-58.	Tropical bleaching powder containing 34/36% of available chlorine.	Rs. nP. 29'30	Rs. nP. 5'17	Rs. nP. 1'72	Rs. nP. 36'19
		U. K.	5-7-58	Do.	26'40	4'50	1'50	32'40
		U. K.	5-7-58	Do.	34'48	5'17	1'72	41'37
		U. K.	5-7-58	Do.	30'37	4'84	1'61	36'82
		W. Germany	6-7-58	Do.	34'00	5'10	1'70	40'80
	Collector of Customs, Madrás	U. K.	16-4-58	Tropical	37'36	5'60	0'20	43'16
		U. K.	1-7-58	Do.	35'46	5'32	0'20	40'98
		U. K.	29-7-58	Do.	30'67	4'60	0'20	35'47
3	Collector of Customs, Calcutta	U. K.	16-5-58	..	26'50	4'56	0'90	31'96
			10-7-58 20-7-58	..	29'41	5'17	0'90	35'48
4	Imperial Chemical Industries (India) Private Ltd.; Calcutta.	U. K.	3-3-58	..	26'49	5'07	0'90	32'46
		U. K.	15-3-58	..	29'40	5'62	0'90	35'92

*The duty is calculated on the assessed value and not the c.i.f. value.