

REPORT

1962-63



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MINISTRY OF STEEL AND HEAVY INDUSTRIES
(DEPARTMENT OF IRON AND STEEL)

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ORGANISATION

The Ministry of Iron and Steel which was formed as a separate Ministry on the 15th June, 1955 became the Department of Iron and Steel within the Ministry of Steel, Mines and Fuel on 1st April, 1957. Since 1st April, 1962 this Department is a part of the new Ministry of Steel and Heavy Industries. The Department deals with the Iron and Steel (Control) Order, 1956, import and export of iron and steel, steel works in the public and private sectors, re-rolling mills and the ferro-alloy industry. It is the administrative Department responsible for the Hindustan Steel Limited, the only public undertaking under this Department and it is also entrusted with the work in connection with the setting up of a new steel plant at Bokaro in Bihar. The Department is also responsible for the pricing and production policies for the iron and steel industry.

There is only one attached office under the control of the Department at Calcutta, viz., that of the Iron and Steel Controller, which has three regional offices under it at Bombay, Madras and Delhi. The head office of the Iron and Steel Control organisation at Calcutta is under the charge of the Iron and Steel Controller who is also responsible for the administration of the Iron and Steel (Control) Order, 1956, issue of licenses for the import/export of iron and steel and for the purchase of steel.

PRODUCTION

Production of iron and steel during 1962 was as under:—
Production of Saleable Pig Iron during 1961 and 1962

(Figures in metric tonnes; for calendar years)

	1961	1962
Tata Iron and Steel Company	20,868	21,112
Indian Iron and Steel Company	267,873	204,298
Mysore Iron and Steel Works	9,934	—
Rourkela Steel Plant	99,370	60,246
Bhilai Steel Plant	393,442	334,390
Durgapur Steel Plant	314,792	325,016
Kalinga Works	30,255	28,469
TOTAL	1,136,534	973,531

Production of Finished Steel during 1961 and 1962

(Figures in metric tonnes; for calendar years)

	1961	1962
Tata Iron and Steel Company	875,588	948,422
Indian Iron and Steel Company	563,054	613,720
Mysore Iron and Steel Works	37,673	39,108
Rourkela Steel Plant	145,027	428,909
Bhilai Steel Plant	256,558	514,194
Durgapur Steel Plant	49,613	188,203
Secondary producers and registered re-rollers	753,076	827,110
Unregistered rerollers	120,269	126,422
Wire-drawing units	15,503	21,662
TOTAL	2,816,361	3,707,750

Production of Finished Steel during 1961 and 1962

(Figures in metric tonnes; for calendar years)

	1961	1962 (estimated)
Heavy Structural	230,505	208,245
Light Structural	275,658	273,983
Medium Structural	40,385	197,086
Heavy Rails (I Class)	177,862	311,222
Heavy Rails (II Class)	41,298	83,043
Light rails	11,926	9,152
Fish Plates	211	1,362
Black Sheets (P)	142,003	261,325
Galvanised Sheets (P)	24,146	30,138
Galvanised Sheets, (Corrugated)	166,022	121,797
Plates	141,253	256,182
Bars	950,773	1,027,010
Rods	263,895	316,368
Wire (Galvanised, Barbed and Misc.)	41,136	46,685
Hoops	13,553	10,863
Strips	71,117	121,669
Tinplates	87,675	94,344
Steel Sleepers	10,659	38,129
Special Sections	37,815	49,438
Spring Steel	18,167	26,679
Tool Steel	151	119
Wheels, Tyres and Axles	21,685	34,655
Skelp	170,566	188,376
TOTAL	2,816,361	3,707,750

DEMAND, AVAILABILITY AND DISTRIBUTION OF STEEL

Demand

The Indian Steel Industry has added another year of satisfactory progress and production continued to increase. However, the total availability of steel was short of the demand, particularly in respect of thinner plates, sheets, tin-plates and galvanised wire. The demand for 1962-63 was reassessed at about 5.1 million tonnes, excluding some increased requirements as a result of the declaration of the Emergency.

Availability

The total availability of steel in 1962-63 is estimated at 4.8 million tonnes (comprising of indigenous production of approximately 4 million tonnes and about 0.8 million tonnes of imports as against 4.15 million tonnes in 1961-62, made up of indigenous production of 3.15 million tonnes and about 1 million tonnes imported).

The supply position of pig iron (foundry grade) remained unsatisfactory—production ranging at about 1 million tonnes against an estimated demand of about 1.8 million tonnes.

Distribution

The policy of liberalisation of distribution control was continued in spite of shortage in some sections like plates, wire, sheets and hoops. Quota system was confined to sheets, 14 gauge and thinner, and tinplates. The indents for relaxed categories in which there is shortage, were however, scrutinised by the Steel Control before planning with a view to check inflated indenting. As the Producers were carrying large outstanding orders for Galvanised plain and galvanised corrugated sheets, fresh allotments were not made during 1962-63, except for meeting the Defence requirements and for relief work in natural calamities.

Scrap

The Committee constituted under the chairmanship of the Iron and Steel Controller to consider various problems connected with iron and steel scrap submitted its report. On the basis of the recommendations of this Committee, Government decided to remove distribution and price control on all categories of scrap other than fresh un-used defectives, re-rollable scrap and ingot moulds. Industrial scrap arisings of about 145,030 tonnes from Main and Secondary Producers, were distributed to the various States through Controlled Scrap Merchants.

General

During the year under review, one meeting of the reconstituted Iron and Steel Advisory Council, three meetings of the Standing Committee (Trade) and four meetings of the Extras Committee were held. A meeting of the representatives of the State Governments to discuss problems relating to supply and distribution of iron and steel was also held. These meetings greatly assisted Government in taking decisions on many problems connected with the distribution of iron and steel.

With the object of streamlining the present distribution system a Committee was appointed under the Chairmanship of Dr. K. N. Raj. The Committee has submitted a preliminary report, but its final report is awaited.

IMPORTS & EXPORTS

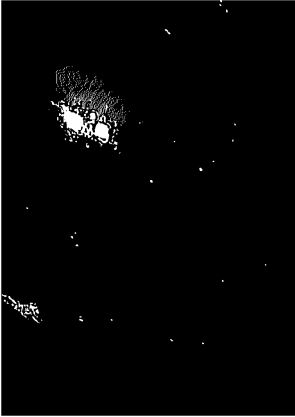
Imports

Due to the acute shortage of foreign exchange, strict watch on steel imports was continued in 1962-63. Import licences were issued to actual users only and for categories of steel which were either not at all produced or produced in limited quantities in the country. In the case of established trade, import licences were confined to a few essential items like tinplates, wire, tool and alloy steel and box strappings.

2. Purchases of steel by the Iron and Steel Controller, however, continued both against DLF and from Rupee payment countries.

D.L.F.

Under new Loan No. 217, given by AID, a further sum of Rs. 15.5 crores (\$ 32.3 million), in addition to Rs. 20.52 crores (\$ 43.0 million), given earlier, was released during 1961-63, for the import of steel. This,



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to-gether with the earlier loans received brought the aggregate to \$ 160.3 million.

3. Import of essential categories of steel on barter basis was also continued against exports of surplus steel materials and also scrap. An overall ceiling of 4 lakhs tonnes during 1962-63 for export of ferrous scrap, has been fixed.

Total imports of iron and steel in 1962, upto November, 1962 aggregated to 737,644 tonnes. The break-up of this is as follows:—

Category	Quantity (in metric tonnes)	Value (Rs. in '000)
1. Semis (blooms, billets and slabs)	63,582	33,676
2. Finished Steel	585,181	463,111
3. Spring Steel	8,772	6,468
4. Terneplates	403	455
5. Tool and Alloy Steels	53,816	130,086
6. Railway fittings	10,188	7,677
7. Castings and forgings	12,247	34,749
8. Iron and Steel scrap	3,075	1,573
9. Pig Iron	380	416
TOTAL	737,644	678,211

Exports.

Only such items of steel as could not be utilised in the country were allowed to be exported. Provision was made for export of categories of steel to East European countries with whom India has rupee payment agreements. The exports in 1962 (up to November, 1962) have been as follows.

Category	Quantity (in metric tonnes)	Value (Rs. in '000)
1. Pig Iron	21,224	5,482
2. Semis (Blooms and Billets)	103	46
3. Finished Steel	8,505	5,758
4. Iron and Steel Scrap	151,099	21,002
TOTAL	180,931	32,288

The policy of exporting only those categories of scrap which cannot be used indigenously was continued.

PRICE

In 1962 Government announced the retention prices for Pig Iron and Steel payable to the Main Producers for the period 1st April 1960 to 31st March 1962 on the basis of the Tariff Commission's recommendations. The prices of Steel which were fixed provisionally yielded an average of

about Rs. 512 per tonne. The new prices worked out to an average of Rs. 522.50 per tonne. The provisional price of Pig Iron was increased from Rs. 193 per tonne to Rs. 202 per tonne (standard foundry grade I).

The retention prices announced by Government are provisional for the period from 1st April 1962 on wards. Increases on account of the rise in rail freights and royalty on minerals, incidence of War Risk Insurance premia and implementation of the Interim Wage Board Award, are to be allowed to the producers on the basis of actuals.

The sale prices were not increased correspondingly as it was felt that the increase in retention prices allowed could by and large be absorbed by the surcharge element accruing to the Iron and Steel Equalisation Fund. However, the sale prices were revised with effect from 30th April, 1962 to the extent of the increase in the excise duty imposed by the Finance Act of 1962.

HINDUSTAN STEEL LIMITED

Introduction:

During the period under review the Company was engaged in the running of the three steel works at Rourkela, Bhilai and Durgapur and the Coal Washeries at Dugda, Bhojudih, expansion of these five units, construction of the Patherdih Washery and setting up of the Alloy Steel Plant at Durgapur.

Under its Head office at Ranchi the Company has a Central Sales Organisation, a Central Purchase Organisation and a Shipping and Transport Organisation at Calcutta and a Central Engineering and Design Bureau at Rourkela.

On 31st December, 1962 the subscribed share capital of the Company including deposit was Rs. 3499 millions and the loans from the Government amounted to Rs. 3571 millions.

Production:

There has been steady improvement in production of all the three Steel Works. Bhilai reached its rated capacity, even exceeding it in certain units, before the end of 1962. Durgapur has also reached the rated capacity of production in coke, iron and steel ingots. Rourkela's steel production also reached 90% of the rated capacity.

Commissioning of units:

In Durgapur the last open hearth furnace and the third blast furnace were commissioned in May, 1962. The Wheel and Axle Plant was inaugurated in September, 1962. Rourkela's third Coke oven battery started production in November, 1962. The fertiliser plant started production on the 30th November, 1962 and till 31st December, 1962 it had produced 3578 tonnes of Ammonia and 9489 tonnes of Nitrolime.

Exports:

During April—December, 1962 about 17,000 tonnes of iron and steel were exported and foreign exchange to the value of Rs. 4.3 million earned. These consisted mainly of pig iron delivered against past commitments

under various trade agreements. Due to adverse conditions in the International market, the overall export activities remained subdued.

Bye-products

As the synthetic organic chemical industries have not yet fully developed, there was some surplus of bye-products, i.e. coal chemicals after meeting the indigenous requirements. During April—December, 1962 about 5,300 tonnes of benzene and 1,300 tonnes of hot-pressed Naphthelene were exported and foreign exchange amounting to \$ 272,470 was earned. Arrangements for export of further quantities of benzene and Naphthelene during the remaining period of 1962-63 have also been made.

EXPANSIONS

Bhilai Steel Plant

About 3,800 tonnes of equipment have already arrived and further consignments are on the way. The total equipment to be imported from USSR is about 67,000 tonnes. Approximately Rs. 8 crores worth of plant and equipment are to be procured indigenously. A construction schedule has been drawn up on the basis of the expected dates of arrival of working drawings and fabricated steel structures, refractories and equipment.

Work on the fourth Coke Oven Battery has started and the foundations for the fourth and fifth Blast Furnaces laid. Civil engineering contracts have been awarded in the different zones.

Rourkela Steel Plant:

Tenders for main equipment are being finalised and letters of intent issued to tenders in respect of 24 items of plant and equipment pending signing of the Credit Agreement with West German Government. Tenders for civil engineering works have also been finalised. The construction work for sintering plant is making good progress and 70% of the concreting work has been completed. Civil engineering works for the second Pig Casting machine is nearly complete and erection work is in progress. Contracts for pile and pile caps and construction of open foundations in the Cold Rolling Mills and other zones have been awarded.

Durgapur Steel Plant:

Most of the tenders for the equipment have now been finalised and orders are expected to be placed shortly. The tender for extension to the Gas Distribution system, modifications to the Central Engineering and Maintenance Shops and the Sintering plant are expected to be completed by May, 1963. Tenders for civil engineering and erection work have also been received and a time-schedule prepared.

MINES AND QUARRIES:

Bhilai

Iron ore and limestone required for the Steel Plant are procured from the Company's mines at Rajhara and Nandani. Both the mines have been mechanised. Dolomite, manganese and quartzite are also obtained from Company's mines at Hirri, Balaghat and Balod. The Rajhara mines are now working very nearly to their full capacity.

Rourkela

The performance of the Ore Processing and Handling Plant at the 10th Ore Mines at Barsua was satisfactory and 75% of iron ore requirements of the plant are now being met from this source. At present it is not possible to use a higher percentage of this ore, because of its high alumina content. A Project Report for the beneficiation of the iron ore and fines mined at Barsua has been undertaken by the Central Engineering & Design Bureau.

The commissioning of the Limestone Crushing and Processing Plant at Purnapani is completed and trial runs are in progress. Meanwhile, mining of limestone at Purnapani by manual means continued during the year. The entire requirement of the plant for Blast Furnace grade limestone is now being met from this source. Steel Melting Grade limestone is being mined at Company's Limestone Quarry at Satna.

Contract for development of the Company's Dolomite Quarry at Gattinagar has been awarded and the work of removal of overburden is in progress. This quarry is expected to meet a major portion of the requirements of the Plant for dolomite.

A Limestone Cell has been formed under the Head Office at Ranchi for locating, prospecting and development of potential sources of limestone for future requirements. This Cell will work for the present in the Bhawanathpur, Shahbad and Satna areas. This cell will also undertake prospecting for dolomite, licence for which has been received in the Jalpaiguri district of West Bengal.

BOLANI ORES LIMITED

To supply iron ore to Durgapur Steel Plant a new mine has been developed at Bolani in the Gua region of Orissa where ore deposits are extensive and rich. For the development and operation of the mine, a company called Bolani Ores Limited has been set up in which the Government of India hold 50.50 per cent and the Orissa Mineral Development Company 49.50 per cent of the shares.

The first phase of development to produce 1 million tonnes of ore has been completed. The supply of ore to Durgapur steel plant was started in April, 1960. At present Bolani Ores are supplying iron ore to Durgapur steel plant at the monthly rate of about 1.20 lakh tonnes.

To meet the increased demand of the expanded Durgapur steel plant the expansion of Bolani mine is also in hand. It has been estimated that by the end of the Third Five Year Plan Durgapur Steel Plant would require approximately 3 to 3.50 million tonnes of iron ore. Plans are, therefore, in hand to expand the Bolani mine to meet the above requirements. During the year 1962-63 it is expected that the intake of Durgapur steel plant from this mine will be at a rate of 1.60 lakh tonnes per month.

ALLOY STEELS PROJECT

Tenders for most of the main plant and equipment have been obtained and examined by a Technical Committee who have submitted their recommendations. The final decision for placing of orders is expected to be taken very shortly. Specifications for the few remaining items, for which tenders are yet to be invited are awaited from the Consultants.

Major portion of land required by project has been released by the Durgapur Steel Plant. About 127 acres of land remain to be acquired. Site-levelling work and construction of temporary site office buildings, boundary walls etc. are in progress. Power and water for construction will be mostly available from the Durgapur Steel Plant.

COAL WASHERIES

With the limited reserves of metallurgical coals in the country, two measures for conserving these coals were kept in view in locating and designing the new steel works—(i) to wash all metallurgical coals so as to lower the ash content and (ii) to blend weak or semi coking coals with the fully coking coals of Jharia. In pursuance of this policy, the Hindustan Steel Limited, was to instal four coal washeries at Durgapur, Dugda, Bhojudih and Patherdih. Washery at Durgapur was commissioned in April, 1960 and is supplying washed coal to the Durgapur Steel Works. During the period April 62-January 63 the washery supplied 317572 tonnes of washed coal to the steel works. These washeries are in addition to the coal washeries at Jamadoba, West Bokaro and Lodna in the private sector and the one put up by the National Coal Development Corporation at Kargali.

Washery at Dugda is located in the Hazaribagh district of Bihar and has been in operation since December, 1961. The washery is designed for an annual input capacity of 2.4 million tonnes of raw coal producing 1.8 million tonnes of washed coal for Bhilai and Rourkela Steel Works. In the initial stages of its operation there were some difficulties due to excessive dust formation but they have since been overcome and the washery is now reaching its rated capacity.

Bhojudih washery is situated in the Purulia district of West Bengal. The construction of the washery is almost complete and the trial runs are in progress. About 1.2 million tonnes of raw coal will be fed into the washery to produce about 0.9 million tonnes of washed coal.

Patherdih washery, at present under construction is, located in Dhanbad district of Bihar. Hindustan Steel Limited have placed the order for the equipment, machinery and erection of the washery with M/s Roberts & Schaefer Company of U. S. A. The civil engineering work is progressing according to schedule. About 1.8 million tonnes of raw coal will be fed into the washery to produce about 1.3 million tonnes of washed coal per annum. The washery is expected to be ready for operation by about the third quarter of 1963.

To meet the requirements of the expanded steel industry in the Third Five Year Plan, it has been decided to expand the washeries at Bhojudih and Dugda. The expansion of Bhojudih washery is already in hand and order for the equipment, machinery and erection has been placed with M/s Coppee and Co. (GB) Ltd., London who had put up the original unit. The Construction is progressing according to schedule and it is expected that the washery will be completed during 1963. After expansion the annual input capacity of the washery will be 2 million tonnes of raw coal and with an output of 1.4 million tonnes of washed coal. Under the expansion programme the washery at Dugda will be doubled by installing a second coal washing plant with a capacity of 2.4 million tonnes of raw coal per annum. Supply orders for the expansion of the washery are expected to be issued shortly.

CENTRAL ENGINEERING & DESIGN BUREAU

The Central Engineering and Design Bureau which prepared the Project Reports for the Rourkela and Durgapur Expansions continued to give consultancy service in the matter of preparation of technical specifications and tenders for main plants and equipments and scrutiny of these tenders. In addition, they undertook to take over the residual work on expiry of the consultancy agreement with Messrs. IGKD for the task of preparing a Project Report for an Iron Ore Beneficiation Plant at Barsua.

It has been decided to strengthen this Organisation by recruitment of a few foreign personnel. Four experts are expected to be obtained under the Colombo Plan. Agreement has also been reached in principle, for obtaining the services of ten German Experts.

It has also been decided to move the Bureau to Ranchi as soon as residential accommodation is ready.

RECRUITMENT

In spite of accelerated promotions given to the young engineers/technicians, a number of senior and middle grade technical posts remained vacant as it was not possible to recruit men with requisite experience from outside. Recruitment, therefore, was mainly confined to Graduate Engineers for being trained first line Supervisors. Even in this field, difficulties have been experienced. Efforts will, therefore, be made in 1963-64 to recruit greater numbers of both diploma holders and Science Graduates. At the same time, Universities and Technical Institutions will be approached to ascertain if it is possible to revise and reorient and academic syllabi so that Science Graduate and Diploma Holders with a bias for steel technology are available in larger numbers for immediate absorption in the industry.

TRAINING

The requirements of trained personnel for the million tonne stage as well as for Expansion have already been assessed and plans made for recruitment and training. The training facilities in the plants are also being expanded.

The phase of large-scale foreign training programme is practically over. During the year under review 61 engineers and 12 operatives completed their training abroad. Training facilities have been offered in the U.K. under the Colombo Plan for 23 experienced personnel of Durgapur Steel Plant. The West German Government had also offered training facilities for 20 technicians of the Rourkela Steel Plant—9 are already in West Germany; the remaining 11 will be sent shortly.

For the Alloy Steel Plant, a phased programme of training has been drawn up with Messrs. Atlas of Canada. 40 engineers are already in Canada; 34 are expected to leave in the next year and 24 in the following year.

Foreign Technicians

For efficient operation and maintenance of Steel Plants a number of foreign technicians had to be employed in all the three Steel Works of Hindustan Steel Limited.

In Bhilai it was possible to reduce the number of foreign technicians from 107 in April 1962 to 42 at the beginning of 1963. Of these, 33 are expected to leave by the middle of 1963. For Expansion construction, however, a number of Soviet Experts will be required, and 15 of them have already arrived.

In Rourkela, the number of foreign technicians had to be increased as recommended by a special delegation from West Germany who visited Rourkela during 1962. Their number in the beginning of 1963 was 218. In order to raise and stabilise production and on account of the special features of the LD Plant and the complicated Rolling Mills at Rourkela, it is proposed to increase the number to 265 shortly. Indian under-studies have, however, been placed to work with all foreign technicians for progressively replacing them in all the units.

In Durgapur the number of foreign technicians at the beginning of 1963 was 71. This number will be increased to 122 during 1963-64, particularly for initial running-in-period of the Wheel, Tyre and Axle Plant.

INDUSTRIAL RELATIONS

The industrial relations continued to be peaceful and harmonious in all the Works. A recognised labour Union is functioning in Bhilai. Recognition was also given during the year to Unions at Durgapur and Rourkela on the recommendations of the State Governments. Shop Committees and departmental committees have been formed in all the Plants.

A production bonus scheme has been introduced since December 1961. A review of the working of this scheme has been undertaken.

The Company has recently revised the pay structure of its employees. The interim relief awarded by the Wage Board for the Iron and Steel Industry has also been implemented.

TOWNSHIPS

Bhilai

7,500 permanent houses sanctioned under the one million tonne stage have been constructed. In addition, 3,000 houses for the Expansion stage have also been completed. Townships have been developed in all the three Mines. 749 quarters in Rajhara, 500 quarters at Nandini and 53 quarters at Hirri Mines have been constructed.

Durgapur

7314 houses have been completed and construction of 2,000 low cost houses is to be undertaken shortly.

Rourkela

7320 houses have been completed. Townships have also been completed at the Mines and Quarries. 439 houses have been completed for the Fertilizer Plant Township.

Hospitals, Health Centres, Dispensaries and First Aid Posts have been established in the Plant areas and the townships. A number of primary schools, middle schools and High Schools have been set up with facilities for free education, supply of uniform, shoes, and mid-day meals.

BOKARO STEEL PROJECT

A preliminary Project Report for the setting up of the Steel Works at Bokaro with an initial capacity of one million tons of steel ingots and 350,000 to 400,000 tonnes of saleable pig iron has been received from the Consultants who have now been asked to prepare a detailed Project Report which is expected by June, 1963. The Techno-Economic Survey Team from U.S.A. visited the plant site and various parts of the country to ascertain the feasibility, and its report is expected in March, 1963.

Approval has been given by the Government for acquisition of about 44,000 acres of land. About 5,000 acres of Government and forest land have since been handed over to the Project authorities. Preliminary surveys in respect of water resources, railways and topographical features for the proposed steel plant have been completed.

Lay-outs for the construction of the township have been prepared and sites examined; construction will be undertaken as soon as a decision regarding exact location of the Steel Plant is taken. Plans have been drawn up for the probable sources for meeting the raw materials requirements of the plant.

TATA IRON AND STEEL COMPANY LIMITED

While the expansion programme of Tata Iron and Steel Company Limited at Jamshedpur has been completed, the production target of two million tonnes of ingot of steel is yet to be fully achieved. It is stated that the operations have been handicapped due to certain difficulties, arising chiefly due to deterioration in the quality of raw materials and also to a certain extent from marginal deficiencies in the facilities provided under the Two-Million-Tonne Programme. Proposals have, therefore, been submitted by the Company for achieving their targets and these are being examined by Government. The Company's proposals to expand the present capacity for production of electrical grade sheets from 24,000 to 42,000 tonnes per annum have been approved. They have also been licensed to increase the capacity of their Skelp Mill from 148,000 tonnes to 250,000 tonnes.

INDIAN IRON AND STEEL COMPANY LIMITED

The Company submitted proposals for increasing the production of metallurgical coal from the Company's collieries to about 2.2 million tonnes per annum. This project is estimated to cost about Rs. 225 million and has been approved by Government who have also guaranteed a World Bank loan to the Company for financing the foreign exchange expenditure of the Scheme. They also submitted a proposal for steel expansion in two phases aimed at increasing the production of steel ingots from the existing blast furnaces to the equivalent of 1.3 million tonnes per annum in the first phase. The Scheme envisages increased production of iron from the existing blast furnaces by adopting better techniques and by the use of better coal from Chasnalla. The existing steel-making equipment will convert this extra

iron into steel by the use of improved techniques, and the extra steel, along with steel from the electric-melting furnace, will be cast directly as blooms in a continuous casting plant. The finishing mills at these works have got spare capacity for processing the additional quantity of blooms.

The first phase of this Scheme referred to above has been approved by Government in principle.

MYSORE IRON & STEEL LIMITED BHADRAVATI

The present annual capacity of the Works is about 35,000 tonnes. The daily rated capacity of the cement unit is now 260 tonnes.

During the Second Plan, the following schemes were earmarked for the Works :

- (i) *Cast Iron Spun pipe Plant* : This was completed in 1957 with a capacity of 15,000 tonnes per annum.
- (ii) *Ferro-silicon Plant* : One of the two furnaces was commissioned in December 1961 and the second furnace in May 1962, thus completing the expansion and bringing the installed capacity to 20,000 tonnes of ferro-silicon per annum.
- (iii) *Sintering Plant* : This Plant has also been completed and is in operation since 1962.
- (iv) *Steel Expansion Scheme* : This Scheme aims at increasing the production capacity of the Works to one lakh tonnes of steel ingots (85,000 tonnes of finished steel) and consists of the following :
 - (a) L.D. Plant and Electric Furnace.
 - (b) Billet and Light Structural Mill.

These Expansion Schemes were approved by Government in 1960 but it could be undertaken only towards the end of the Second Five Year Plan. It had, therefore to be carried over to the Third Plan. The orders for import of the Plant and machinery were placed by the Works in November, 1960, and most of the items have already been imported. The Expansion Programme is expected to be completed by the end of 1963.

- (v) *Expansion of foundry, yard, electricity, etc. consisting of various items to meet the various service demands on account of expanded production* : This scheme is progressing simultaneously with the Steel Expansion Scheme. The Government of India have agreed to meet Rs. 5 crores of the cost of this programme which is estimated at Rs. 7 crores.

SPECIAL STEELS PLANT

There is a proposal to convert the Mysore Iron and Steel Plant at Bhadravati into wholly a special steel plant. The Project envisages the conversion by addition of some units to the existing facilities at an estimated cost of Rs. 8 to 9 crores, of which the foreign exchange cost may be of the order of Rs. 5/6 crores. After conversion, the plant will produce about 80,000 tonnes of special steel sections and forgings.

A Company called, Mysore Iron and Steel Limited was registered under the Companies Act on 30th June, 1961 and it took over the management of the Mysore Iron and Steel Works, Bhadravati from 1st April, 1962.

ALLOY STEELS

As it takes long for alloy steels plants to develop their production capacity, in their planning Fourth Plan targets had to be kept in mind. It has been estimated that the requirements of Alloy Steels by the end of the Fourth Five Year Plan are likely to be as follows :—

	tonnes
(i) Free-cutting, spring steels, etc.	150,000
(ii) Tool steels	70,000
(iii) Constructional steels	240,000
(iv) Stainless steels	70,000
(v) Other high grade alloy steels	10,000
(vi) Alloy Steel castings	50,000
(vii) Electrical sheets (Third Plan target only)	110,000

The production of alloy steels in the country at present is not very significant. About 24,000 tonnes of alloy steels consisting mainly of spring steels and alloy steel castings are produced annually in addition to 24,000 tonnes of electrical sheets. Most of the demand is met from imports.

With a view to meeting the country's requirements of alloy steels, new units have been licensed during the last 3-4 years. During 1961-62, fifteen new schemes were sanctioned for alloy steels (apart from electrical sheets) for a total capacity of 261,000 tonnes (including 20,000 tonnes of stainless steel to be produced in the Tata's Alloy Steel Plant). Most of the parties are making arrangements for securing plant and equipment and for entering into foreign collaboration agreements for technical know-how. The manufacture of alloy steels is a highly specialised job and the planning has often to be done by foreign Consultants. The long delivery period for plant and machinery, difficulties in negotiating agreements for technical know-how, financing and other factors also contribute to the delay.

The Two licences for a total capacity of 8,400 tonnes were revoked during the year in view of the unsatisfactory progress of the schemes. During the year three schemes were approved in principle for setting up alloy steel plants each with an annual capacity of 20,000 tonnes of constructional steels. The units are proposed for erection in Punjab, Maharashtra and Gujarat.

STAINLESS STEELS

As in alloy steels, planning for stainless steels has kept the Fourth Plan targets in view. The requirements by the end of the Third Plan are estimated at 50,000 tonnes, and by the end of the Fourth Plan at about 70,000 tonnes. At present, there is no production of stainless steel in the country and the requirements are met entirely from imports.

The Durgapur Alloy Steel Plant is expected to produce about 17,000 tonnes of stainless steel in the first stage and after expansion it may supply

about 34,000 tonnes annually. To fill the gap, two other parties have been approved in principle—one plant at Madras with an annual capacity of 7,000 tonnes and another at Vatwa, near Ahmedabad with an annual capacity of 10,000 tonnes. These parties are making progress with arrangements for securing plant and equipment and for securing technical know-how.

ELECTRICAL SHEETS

The demand for electrical sheets by the end of the Third Plan has been estimated at 110,000 tonnes. The Fourth Plan estimates have not been worked out so far.

The only existing capacity is at Rourkela Steel Works for the manufacture of 50,000 tonnes of sheets per annum and in the Tata Iron and Steel Works for 24,000 tonnes of these sheets.

Recently, the expansion of the capacity of the Tata Iron and Steel Company Limited, Jamshedpur from 24,000 to 42,000 tonnes of electrical steel sheets has been sanctioned.

TINPLATES

The Working Group on Steel estimated that the requirements of tinplate by the end of the Third Five Year Plan would be 300,000 tonnes. The existing annual capacity for the production of tinplate is about 130,000 tonnes. This includes 70,000 tonnes of the Tinplate Co. of India Ltd., at Golmuri, another 50,000 tonnes at Rourkela Steel Plant (half of this capacity is ready) and about 10,000 tonnes of Khemchand Rajkumar, Calcutta.

A licence has also been granted for the establishment of a new unit in Kerala State with an annual capacity of 10,000 tonnes. Substantial expansion of the capacity of M/s. Tinplate Company of India Ltd., from 70,000 tonnes to 160,000 tonnes has also been approved. Besides, an electrolytic tinning line with a capacity of 100,000 tonnes is also being set up at the Steelworks at Rourkela. These schemes are expected to meet the estimated demand by the end of the Third Plan.

STEEL RE-ROLLING INDUSTRY

In planning for the development of the steel industry in the Third Plan, the position of the steel re-rolling industry was reviewed during 1961 taking into account the demand for sections which could be re-rolled in re-rolling mills. The review revealed excessive capacity, with an unbalanced regional distribution. In spite of the limited availability of billets, it was decided to license about 150,000 tonnes of further capacity in certain unserved/underserved States to meet local demands, the setting up of new re-rolling mills in Assam, Bihar, Gujarat, Kerala, Madras, Madhya Pradesh, Andhra Pradesh, Maharashtra and Jammu & Kashmir was sanctioned during 1961. A further capacity of 15,000 tonnes each for Mysore and Orissa was sanctioned during the year.

The availability of re-rollable scrap for this industry has been limited, with the result that many small scale units are faced with difficulty. The problem is being examined in consultation with the State Governments.

PIG IRON

In the Private Sector 7 firms have been given industrial licences for setting up pig iron plants for a total capacity of 541,000 tonnes (including 5 units with a capacity of 100,000 tonnes each). So far only one unit (M/s. Kalinga Industries) with a capacity of about 30,000 tonnes has been installed and is in production. Another unit (M/s. Textools Co. Ltd.) started working but later closed down due to technical difficulties in furnace operation. A third unit (ACME) with a capacity of 30,000 tonnes has been installed and is expected to go into production early in 1963.

Besides, Government have also approved in principle a proposal from the Andhra Pradesh Industrial Development Corporation for putting up a plant with a capacity of 100,000 tonnes of pig iron in Andhra Pradesh. In addition, the Government have approved in principle one unit with a capacity of 100,000 tonnes per annum for the manufacture of sponge iron.

Steel Wire

The estimated total demand of about 470,000 tonnes by 1965-66, includes 150,000 tonnes of high tensile and other special wires, against which the effective capacity already licensed is 130,000 tonnes. To fill the gap, Government have licensed a further capacity of 33,500 tonnes for special wires during the year.

Ferro-Manganese

The target for the Third Plan was 200,000 tonnes of ferro-manganese. Out of a total capacity of 256,000 tonnes licensed, a capacity of 24,000 tonnes was revoked during the year, as the licensee did not take effective steps. Another firm with a capacity of 30-36,000 tonnes have been asked to manufacture pig iron—an alternative final product in excess of licence—as the production of ferromanganese in the country is in excess of the internal demand, and prospects of large exports at remunerative prices have yet to be explored. The question of revoking a third licence for substantial expansion of capacity is also under consideration.

Production	year	Metric Tonnes	
		1960	1961
	1960	82,218	103,587
	1961	103,587	107,921
	1962 (Estimated)	107,921	

A Committee was appointed in November 1961 to study the various problems of the ferro-manganese industry with special reference to supply of raw materials, railway freight, production cost, export market, etc. The Committee held a number of meetings during this year also. The last meeting was held only on 16th January, 1963. The Committee will be submitting its report shortly.

Ferro-Chrome

The present target for production of Ferro-Chrome for the Third Plan is 35,000 tonnes per annum. Against a licensed capacity of 16,000 tonnes a capacity of 10,000 tonnes has been revoked during the year. Further, a capacity of 10,200 tonnes (Tatas 5,400 tonnes, Prantal Patel 4,800 tonnes) was licensed in October 1962, bringing the total licensed capacity to 16,200 tonnes. The question of licensing further capacity in the Private Sector, Public Sector is under consideration.

Ferro-Molybdenum and Ferro-Vanadium

One unit was licensed for the manufacture of 100 tonnes per annum of Ferro-Molybdenum and 50 tonnes per annum of Ferro-Vanadium in Maharashtra State. The estimated demand for these items are 1,000 tonnes and 750 tonnes respectively by the end of the Third Plan.

Ferro-Silicon

The Mysore Iron & Steel Limited, the major producer of Ferro-Silicon in the country, have completed their expansion scheme by installing 2 new furnaces for the production of Ferro-Silicon. The first furnace went into operation in December 1961 and the second in May 1962. The installed capacity is 20,000 tonnes per annum. Of the additional capacity of 12,200 tonnes licensed, a capacity of 5,000 tonnes was revoked during the year. 2 new units for a total capacity of 17,000 tonnes were sanctioned during the year, thus bringing the capacity covered by licensing to 44,200 tonnes per annum.

Ferro-Silicon

Production of Ferro-Silicon						Metric tonnes
Year						
1960 .. .. .	..	..	..	..	..	7,039
1961 .. .. .	..	..	..	..	..	9,157
1962 (estimated)	..	..	..	..	..	11,678

PROSPECTS FOR THE FUTURE

It is proposed to set up new steel plants at Bokaro and Neyveli. The Neyveli Project is expected initially to produce pig iron only. It has been decided to obtain a detailed project report for the Neyveli Iron & Steel Project. The report is expected to be ready by the end of 1963. An interim report will be obtained for starting preliminary work like mine-cut and location of the plant etc., so that the construction work for the plant could be started as soon as the examination of the report is over.

To augment the production of pig iron which is in short supply, the question of setting up of a blast furnace complex in the Goa-Hospet region and low-shaft blast furnaces at the Hindustan Steel Plants utilising not coke are at present under consideration.

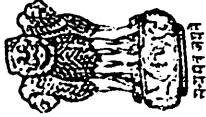
To consider the feasibility of setting up of a refractories plant at Bhilai for supplying refractories to the steel plants, it has been decided to obtain a detailed project report from the Russians.

A Steering Group comprising the representatives of the Planning Commission, Iron and Steel industry both in the public and the private sectors and the concerned Government Departments has been set up to formulate the fourth five year Plan for Iron and Steel. The Steering Group is expected to complete its study and formulate its recommendations for expansion in the Fourth Plan period by the end of 1963.

Demand studies are also being conducted through the National Council of Applied Economic Research to assess the likely demand for steel from now upto 1970-71, in order to determine the product mix for the increased capacity. To attain this higher capacity, efforts will be made to utilise the facilities available in the existing plants in the next Plan period. Having regard to the general policy of the Government about dispersal of industry, two separate studies are being conducted for the Goa-Hospet and Bailadilla-Visakhapatnam areas to ascertain the feasibility of setting up new steel plants in these regions.

The increased production in the Fourth Plan period would require careful consideration of the raw materials and transport problems. Studies for exploration of new sources and development of the existing one as well as measures for better utilisation of the raw materials, like beneficiation of iron ore, coal limestone, etc., use of fuel oil injection pelletisation and sintering of ores are being conducted.

Studies are also being conducted to formulate the plan for production of indigenous equipments for the steel plants as well as the cost indices of production.



REPORT

1962-63

MINISTRY

OF TRANSPORT AND COMMUNICATIONS

(Department of Communications and Civil Aviation)

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MINISTRY OF TRANSPORT AND COMMUNICATIONS
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INTRODUCTION

The Departments of Communications and Civil Aviation in the Ministry of Transport and Communications are responsible for the administration of:—

- (i) Posts and Telegraphs;
- (ii) Wireless Planning and Co-ordination;
- (iii) Civil Aviation;
- (iv) Air Corporations;
- (v) Meteorology;
- (vi) Overseas Communications;
- (vii) Railway Inspection;
- (viii) Indian Telephone Industries Limited, Madras.
- (ix) Hindustan Teleprinters Limited, Bangalore;

These subjects are administered through the undermentioned organisations, the Heads of which are indicated against each:—

- (i) Posts and Telegraphs Department (Director General, Posts and Telegraphs);
- (ii) Wireless Planning and Co-ordination Organisation (Wireless Adviser to the Government of India);
- (iii) Civil Aviation Department (Director General of Civil Aviation);
- (iv) Air Corporations (Chairman, Indian Airlines and Chairman, Air-India);
- (v) India Meteorological Department (Director General of Observatories);
- (vi) Overseas Communications Service (Director General, Overseas Communications Service);
- (vii) Railway Inspectorate (Commissioner of Railway Safety);
- (viii) Indian Telephone Industries Limited, Bangalore. (Managing Director, Indian Telephone Industries Limited);
- (ix) Hindustan Teleprinters Limited, Madras (Managing Director, Hindustan Teleprinters Limited).

2. A report on the administration and activities of the Posts and Telegraphs Department is contained in a separate brochure. This report deals with the activities of the other services and organisations in the Departments of Communications and Civil Aviation.

WIRELESS PLANNING AND COORDINATION

3. *International Telecommunication Union and International Conferences.*—The Indian Administration took an active part at International level in the activities of the International Telecommunication Union (I.T.U.). India participated in the 17th session of the Administrative Council of the International Telecommunication Union. The Special Working Group which met in Geneva in October 1962 to consider possible revision of Radio Regulations and Radio Conference structure.

4. *Xth Plenary Assembly of the International Radio Consultative Committee (C.C.I.R.).*—The invitation to hold the Xth Plenary Assembly of the C.C.I.R. in New Delhi from 15th January, 1963 to 16th February, 1963 was cancelled in view of the present emergency. However, India participated in some of the interim meetings of the Study Groups of the C.C.I.R. The Xth Plenary Assembly of C.C.I.R. held in Geneva from 15th January, 1963 to 16th February, 1963 was attended by two members of the Indian Administration.

5. *Plan Sub-Committee for Asia.*—The meeting of this Sub-committee, of which India is the Chairman, was scheduled to be held in New Delhi in February 1963. Due to the present emergency the venue of the meeting was changed to Geneva. India participated in this meeting with a one-member delegation.

6. *International Regulations.*—On 8th May 1962 India accepted the International Radio Regulations and Additional Radio Regulations, Geneva, 1959.

On 2nd October 1962, the International Telecommunication Convention, Geneva, 1959 was ratified and the instrument of ratification was subsequently deposited with the International Telecommunication Union.

7. *Expanded Technical Assistance Programme (EPTA) of I.T.U.*—Activities under E.P.T.A. of International Telecommunication Union continued as in the previous years. No Indian expert was selected by International Telecommunication Union during the year but contracts of the experts appointed last year at Congo and Bangkok were extended. Due to national emergency some appointments offered by I.T.U. to Indian Experts were not accepted.

A payment of Rs. 6,27,000 on account of India's share of contribution to the I.T.U.'s budget for 1963 has been made. The budget estimates for 1963-64 for I.T.U. contribution, publications etc., under Demand No. 96 amount to Rs. 6,70,000.

8. *Frequency Management.*—Work regarding the Frequency Management Procedure for High Frequency Broadcasting was continued to be executed. About 850 proposals for H.F. broadcasting were processed during the year. Over 160 broadcasts were also authorised in the shared broadcasting bands after necessary co-ordination. In addition to short wave broadcasting 265 frequency usages were also authorised to Indian users and 130 proposals for Power Line Carrier Communication Systems were coordinated. Frequency assignments were also made to all the stations licensed during the year.

Apart from 487 notifications sent to the International Frequency Registration Board for securing registrations 294 notices were sent in the U.H.F./S.H.F. bands to the International Frequency Registration Board preparatory to E.A.R.C. (Space) Conference to be held in 1963. Over 50 weekly circulars of the I.F.R.B. were examined and protests in respect of about 50 frequencies were accepted by the Board. Also 190 enquiries from the I.F.R.B. of Indian Registrations were examined and necessary information was furnished.

About 180 monitoring assignments were given to the Monitoring Stations of the Ministry. On an international programme standard frequency and tropical broadcasting bands were monitored. Monitoring was also undertaken to assist other Administrations seeking assistance.

Several recommendations were addressed to users departments for reducing the congestion in the 4-27.5 Mc/s bands. Problems arose in the utilisation of frequencies due to the emergency. These were expeditiously tackled and solutions were found.

9. *Licensing.*—The Ministry as the Wireless Licensing authority issued 462 new licences to establish, maintain and work wireless stations in various services and also renewed licences for 4025 stations during the year 1962-63. The number of wireless channels used for communication purposes is increasing from year to year. This covers practically all fields of application of radio communications, such as point to point communications, aeronautical communication and amateur wireless operations and broadcasting. Special types of wireless communication facilities continued to be adopted by important industrial projects like pipelines (Oil and Gas), Hydro-electric systems, irrigation systems, steel factories, mines urban transport and electricity departments etc. A number of wireless circuits were also utilised for carrying urgent messages, during emergencies such as locust invasions, floods, etc.

The work of issue of Duty Concession Certificates in respect of wireless reception apparatus and Import Licences in respect of wireless transmission apparatus was continued as in the previous year.

Examinations for the award of Certificates of Proficiency for different types of W/T licences were conducted at Bombay, Calcutta, Poona, Rajkot, Cuttack, Madras, Allahabad and Delhi. A total of 877 candidates appeared for the various classes of examinations at the different centres and 178 candidates were declared successful. Certificates have been issued to the successful candidates.

The Indian Wireless Telegraphy (Experimental Service) Rules, 1962 and the Indian Wireless Telegraphy (Demonstration Licence) Service Rules, 1962 were promulgated which came into force with effect from the 1st February, 1963.

10. *Monitoring.*—The project of establishing a network of monitoring stations to assist in the Ministry's task of carrying out frequency management and implementation of International and National Regulations made good progress in 1962-63.

The Monitoring Stations at Delhi, Nagpur, Bombay and Calcutta are functioning round the clock at their permanent locations. In addition, pending the construction of buildings, monitoring stations at Srinagar and Shillong are working in temporary premises.

The budget estimates for the year 1963-64 are Rs. 9,09,100 and revised Estimates for the year 1962-63 are Rs. 5,33,300 against the budget provision of Rs. 5,64,000. Provision has been made for the barest minimum.

11. *Radio and Cable Board.*—The Radio and Cable Board was constituted by the Government of India in 1953 as a high-level interministerial technical body to coordinate all the telecommunication activities in the country. Before its establishment the inter-departmental Wireless Board in the Posts and Telegraphs Department was coordinating the requirements of wireless developments of the various user departments in the country. As the inter-departmental Wireless Board with its limited functions, was not in a position to coordinate the growing needs of the user departments in respect of wireless, landlines, radio navigational aids and production of telecommunication equipment, it was decided by the Cabinet that the Radio and Cable Board with the technical representatives of the telecommunication user Ministries be formed. The Board's decisions are required to be unanimous and are binding on the user Ministries/Departments.

12. *Functions.*—The functions of the Board are broadly as follows:—

- (a) to review the adequacy of both external and internal radio, cable and other communication systems;
- (b) to ensure maximum and efficient utilization of the various communication systems; and

- (c) to coordinate the research, development, production and provision of equipment for radio, cable and other communication systems.

13. *Composition.*—The Board is composed of the technical representatives of the Ministries of Defence, Home Affairs, Information and Broadcasting, Railways, Transport and Communications (Departments of Communications and Civil Aviation and Department of Transport) and Scientific Research and Cultural Affairs, and P&T Board. The technical representative of the Ministry of Transport and Communications (Departments of Communications and Civil Aviation) is the Chairman of the Board.

14. *Committees.*—There are four Standing Committees under the Board at the Headquarters, viz., Research and Production Committee, Radio Committee, Traffic Procedure and Codes Committee and Lines Committee which advise the Board on technical aspects of the telecommunication problems. The composition of these Committees is determined by the Board. All the major user departments are represented on these Committees.

15. *Regional Committees.*—In addition to the six Regional Committees working under the Board at Delhi, Lucknow, Calcutta, Bombay, Nagpur and Madras, three more Regional Committees at Jullundur, Shillong and Srinagar were established for examining the telecommunication problems of local nature arising in their respective areas. The regional bodies of all the major user departments are represented on these committees.

16. *Subjects dealt with by the Board.*—37 meetings of the Board and its Committees were held during the period under review. The Board and its Committees dealt with several telecommunication problems during this period; and more important ones are given below:

- (i) coordination of the requirements and rationalisation and standardisation of the detailed technical specifications of various wireless and electronic equipment and its components.
- (ii) standardisation of a Hindi Morse Code for use in the country.
- (iii) procedures for carrying out tests and field trials of the wireless equipment manufactured by the Bharat Electronics Ltd.
- (iv) review of the procedure for the clearance of indents for wireless and electronic equipment.
- (v) study of existing techniques for single-side band transmission and reception for recommending suitable methods for its adoption in India.

- (vi) study of the adequacy of cable communication system in the country.
- (vii) siting of transmitting and receiving stations of the various user departments in the country.
- (viii) demarcation of important cities in the country into transmitting and receiving zones.

SECTION II

CIVIL AVIATION

17. Civil Aviation in India continued to make steady progress during the year 1962-63 as will be evident from the information given in the succeeding paragraphs:—

18. *Scheduled Air Transport Services.*—The comparative figures of air transport operations during 1962 and during the past years from 1946 onwards, in so far as scheduled operations are concerned, are given below:—

Year	Hours flown	Kilo-metres flown	Passengers carried	Freight carried (kgs.)	Mails carried (kgs)	Capacity tonne/kilometres offered	Revenue tonne/kilometres
1946	29,539	7,274,110	105,251	855,205	465,489	13,958,814	10,450,977
1947	59,312	15,065,740	254,960	2,561,253	637,221	30,409,451	23,473,564
1948	78,961	20,355,658	341,186	5,430,719	717,753	43,038,559	31,552,054
1949	93,944	24,297,781	357,415	10,203,936	2,282,067	59,747,490	38,016,850
1950	117,422	30,409,556	452,869	36,284,243	3,789,634	85,442,250	56,274,308
1951	118,684	31,377,335	449,462	39,757,473	3,256,966	93,865,492	63,797,572
1952	119,490	31,481,556	434,480	39,019,322	3,799,008	92,770,622	61,249,024
1953	114,796	30,902,403	403,992	38,467,157	4,011,873	92,471,392	60,894,560
1954	117,402	31,861,366	431,595	39,190,433	4,840,238	102,435,076	67,341,702
1955	125,655	34,224,201	468,894	44,534,986	5,205,483	122,425,007	80,458,355
1956	136,813	37,788,194	558,625	43,642,216	5,753,389	151,741,766	99,085,104
1957	134,453	37,812,238	615,321	38,862,147	5,932,251	163,358,727	107,986,155
1958	135,046	39,553,498	696,175	42,467,081	6,171,545	182,958,669	117,610,852
1959	131,397	39,817,000	736,160	33,504,096	6,825,047	197,754,024	125,277,067
1960	133,648	41,423,973	855,203	38,205,812	6,816,897	242,868,574	146,066,573
1961	138,450	44,380,144	973,941	40,069,865	7,533,853	313,694,058	170,249,308
1962	133,116	44,942,435	1,071,511	36,759,163	7,925,703	349,831,016	188,075,368

19. *Non-Scheduled Air Transport Services.*—During the year 1962, besides the two Corporations, the following seven other operators were holding permits for the operation of purely non-scheduled air services:—

- (1) Airways (India) Ltd.
- (2) Air Survey Company of India Ltd.
- (3) Bharat Commerce and Industries Ltd.
- (4) Darbhanga Aviation.

(5) Kalinga Airlines.

(6) Jamair Company (P) Ltd.

(7) Aviation Service.

Seventeen Flying Clubs continued to have the non-scheduled permits during 1962. A non-scheduled permit was issued to the Wings India (P) Ltd., on 15th December, 1962 valid upto 31st December, 1963.

During the year 1962, approximately 33,837 hours and 9,175,544 kilometres were flown on non-scheduled operations against the previous year's figures of 34,443 hours and 9,567,228 kilometres. The number of passengers and amount of freight carried were approximately 105,293 and 38,083,936 kgs. respectively as against the previous year's figures of 109,808 passengers and 39,127,178 kgs. of freight.

NOTE.—The figures for the year 1962 as given in the report are estimated.

AIR ROUTES AND AERODROMES

20. *Aerodromes.*—The number of aerodromes maintained by the Civil Aviation Department in the beginning of 1963 was 82, as shown in Appendix I. The new aerodrome at Raxaul (Bihar) is nearing completion.

21. *Works.*—A new runway 10/28 3200 metres long and 46 metres wide was constructed at Delhi (Palam) Airport and opened for use by heavy jet aircraft with effect from the 5th April, 1962. The runway is equipped with 3 element high intensity runway lighting.

The main runway 09/27 at Bombay (Santacruz) Airport was further extended by 129 metres at the eastern end. The total length of the runway is 3329 metres.

Strengthening and extension of Instrument runway at Calcutta (Dum Dum) Airport was completed and the runway was opened for use.

The secondary runway 12/30 at Madras (St. Thomas Mount) Airport was extended to 1829 metres and was provided with runway lighting.

The development of Madras (St. Thomas Mount) Airport for Boeing Jet aircraft, involving an expenditure of more than a crore of rupees, is in progress. The project includes the work of extension of the main runway to 2818 metres as well as its strengthening.

A new concrete runway 09/27 1097 metres × 30 metres was commissioned for use at Aurangabad.

144 M. of T.C.—2.

The new terminal buildings at Baroda, Agra and Trivandrum are almost complete and are expected to be commissioned shortly. The construction of new terminal buildings at Kumbhirgram and Mohanbari is nearing completion.

Construction of a new freight Block at Bombay (Santacruz) Airport is nearing completion. The building is intended to be used by the Airlines for storage of freight etc.

Residential quarters of various types were constructed during the year for the staff of Civil Aviation Department at Bhavnagar, Jharsuguda, Kumbhirgram, Mangalore and Kamalpur aerodromes.

Community centres were constructed at Calcutta (Dum Dum) and Bombay (Santacruz) Airports to be used for social, recreational and cultural activities of the residents working at these airports.

22. *Runway Lighting*.—Installation of high intensity runway and threshold lighting on the new 10/28 instrument runway at Delhi (Palam) and new instrument runway at Calcutta (Dum Dum) airports was completed. Installation of runway lighting at Tiruchirapalli was completed. Temporary Runway lighting was installed at Patna by diverting the fittings from Kotah. Installation of runway lighting at Ahmedabad, Amritsar, Kotah and Bhuj is in progress.

23. *Aeronautical Information Publications*.—During the year 1962-63, 16 Approach/Landing Charts in respect of 11 aerodromes (Bhopal, Aurangabad, Vijayawada, Mohanbari, Kotah, Patna, Rajkot, Jharsuguda, Indore, Nagpur and Allahabad) and 11 Aerodrome Obstruction Charts Type 'A' in respect of 4 Aerodromes Delhi (Palam), Madras, Tiruchirapalli and Calcutta (Dum Dum) were issued by the Civil Aviation Department.

24. *Aeronautical Telecommunications*.—During 1962-63, the second year of the Third Five Year Plan, the work of modernisation, improvement and reorganisation of the Aeronautical Telecommunication Service, begun during the first year of the Plan, was continued. Improvement of radio aids to navigation, introduction of additional Radio Tele-type circuits, replacement of Manual Very High Frequency Direction Finders by automatic types, provision of automatic speech Recorders and installation of additional Very High Frequency Omnidirectional Radio Ranges were some of the important features. There are, at present, 83 Aeronautical Communication Stations providing 145 radio aids to navigation and 532 aeronautical communication channels. A list of the Aeronautical Communication Stations maintained by the Civil Aviation Department is given in Appendix II.

The old Non-Directional Beacon equipment at Aurangabad, Mohanbari and Port Blair was replaced by more modern equipment. Installation of low power Non-Directional MF Beacons at Bellary, Cuddapah and Ghaziabad was completed. The SRA Radio Range with the Z Marker at Bombay was withdrawn and replaced by a Locator Beacon. Installation of the Very High Frequency Omnidirectional Radio Range was completed at Lucknow and Belgaum. Installation of the Very High Frequency Directional Finders type AD-200 was completed at Belgaum and Ahmedabad. The Airfield Control Radar type Decca 424 was installed at Madras Airport. The Airport Surveillance Radar (ASR-3) at Bombay was modified for circular polarisation to enable aircraft being tracked with ease during conditions of heavy precipitation. The Middle marker and the MF Locator which are part of the Standard Instrument Landing System were installed at Nagpur. The other components of the Instrument Landing System are under installation. The RDARA frequency on 8930 Kc/s was implemented at Madras, Nagpur, Ahmedabad, Begumpet, Bangalore and Trivandrum to cater to the needs of domestic flights. The Air/Ground VHF R/T facility on 119.3 Mc/s was introduced at Delhi. The Air/Ground VHF R/T facility on 118.1 Mc/s was introduced at Passighat. The Radio Teletype circuit between Bombay and Karachi was brought into operation to replace the existing Manual Simplex circuit. Arrangements were made to replace the existing Manual W/T circuit between Bombay and Beirut by a Radio Teletype circuit. The equipment has been installed and tests are in progress. Madurai has joined the point-to-point fixed circuit as an additional correspondent. A Landline Teleprinter circuit was introduced between Bombay and Ahmedabad in place of the Telex circuit. The receive leg of the Calcutta Sadarjung Landline Teleprinter circuit was extended to Palam so that messages for Palam could be directly received. A new Aeronautical Communication Station was established at Panagarh with effect from 10th November, 1962 and the Aeronautical Communication Station at Asansol was closed down. In order to assist the Indian Air Force during the emergency, the aeronautical communication facilities at Stations in the Assam area and at other locations were put into operation on a continuous basis. All other assistance was also given to the IAF to enable them to augment the special facilities required.

AIRCRAFT

25. A twenty four hour supervision on the maintenance and overhaul of aircraft at major aerodromes was continued in order to ensure the airworthiness of aircraft and to promote the safety of operations. During the period from 1st April, 1962 to 30th January, 1963, 14 new aircraft were registered, the change of ownership of 20 aircraft was effected and the registration of 38 aircraft was cancelled. One hun-

and eighty six aircraft were inspected for issue or renewal of certificates of Airworthiness of which 8 aircraft were of foreign nationality.

Five hundred and fifteen aircraft held current Certificates of Registration and 209 aircraft held current Certificates of Airworthiness on 30th January, 1963.

26. *Aircraft Maintenance Engineers.*—During the period from 1st April, 1962 to 30th January, 1963, 14 fresh Aircraft Maintenance Engineers Licences were issued and 218 A.M.E.S. Licences were extended. The total number of Aircraft Maintenance Engineers' Licences current on 30th January, 1963 was 1201.

27. *Flying Clubs.*—At the end of January, 1963 there were 17 subsidised Flying Clubs in India with their headquarters at Delhi, Bombay, Madras, Calcutta, Patna, Bhubaneswar, Nagpur, Jullundur, Jaipur, Lucknow (with Branches at Allahabad, Kanpur and Varanasi), Indore (with a Branch at Bhopal), Bangalore, Gauhati, Hyderabad, Coimbatore, Trivandrum and Baroda. An expenditure of Rs. 21,42,389/- was incurred on the payment of subsidies to the Flying Clubs during 1961-62. 218 'A' and 9 'B' pilots were trained at the various Flying Clubs during the period from 1st January, 1962 to 31st December, 1962.

In order to promote air-mindedness among the youth of the country, the Government of India sanctioned during 1962-63, 60 scholarships for free flying training at the Flying Clubs.

28. *Gliding Centres/Clubs.*—The Government Gliding Centres at Poona, Allahabad and Bangalore, and the Delhi Gliding Club, New Delhi and the Birla Gliding Club, Pilani (Rajasthan) continued to provide necessary training facilities. On 31st December, 1962, there were nearly 1700 flying members at the three Government Gliding Centres at Poona, Allahabad and Bangalore, and the two subsidised Gliding Clubs at New Delhi and Pilani. An expenditure of Rs. 52,037/- was incurred during 1961-62 on payment of subsidies and subvention to the two Gliding Clubs. The running expenditure incurred on the three Government Gliding Centres during 1961-62 was of the order of Rs. 1,50,159/-.

Grants-in-aid of Rs. 7,000/- and Rs. 5,000/- were given to the Aero Club of India Limited during the years 1961-62 and 1962-63 respectively. Under the auspices of the Aero Club of India a conference of the Flying and Gliding Clubs was held on the 12th and 13th December, 1962.

A grant of Rs. 80,000/- was sanctioned to the Aeronautical Society for construction of an Administrative Block of its building in New Delhi.

The All-India Aeromodellers' Association, Calcutta were also given grants-in-aid of Rs. 2,000/- and Rs. 1,000/- during the years 1961-62, and 1962-63 respectively.

A Committee was appointed in May, 1962 under the Chairmanship of Shri G. Narayanaswamy to review the Scheme of Subsidy and Subvention to Flying Clubs and Gliding Clubs. The Committee submitted its report to the Government on the 14th January, 1963 which is under consideration.

29. *Civil Aviation Training Centre, Allahabad.*—The Civil Aviation Training Centre, Allahabad comprising of Flying, Aerodrome and Communication Schools, with an allied repair and overhaul organisation, continued to provide efficient training facilities. The Engineering School at the Centre was closed from 1st May, 1962. The Flying School is being handed over to the Ministry of Defence.

During the period from 1st January to 31st December, 1962, 14 trainees completed the Aerodrome Operators' *ab initio* Course, 12 trainees completed the Airways Course, 13 trainees completed the Crash Fire Rescue Course and 44 Fire personnel underwent Refresher Course, at the Aerodrome School. At the Communication School, 18 trainees completed the Radio Operators Refresher Course, 34 trainees completed the Radio Technicians Advanced Refresher Course, 28 trainees completed the Radio Technicians Specialist Course and 24 trainees completed the Radio Technicians, Radio Tele-type Specialist Course. Eleven Communication Assistants and 10 Teleprinter operators underwent Refresher Course and 7 trainees completed the Radio Technicians *ab initio* Course for Scheduled Caste/Tribe. At the Flying School, 17 trainees including two Nepalese nationals completed the Commercial pilots Licence Course.

At the end of December, 1962, there were 59 trainees on the rolls of the Civil Aviation Training Centre, undergoing training in different courses. This number included six Nepalese nationals, and one Ceylone.

30. *Indian Aircraft Rules, 1937.*—The Indian Aircraft Rules, 1937 were revised to bring the rules pertaining to personnel licensing in India in line with the minimum standards prescribed in Annexure I (Personnel Licensing) to the Convention on International Civil Aviation.

31. *Research and Development.*—Design of the 'Bharat' sailplane was successfully completed and the first prototype made its maiden test flight in April, 1962. The design of the Single-Seater High Performance sailplane 'Kartik' has been completed and the first prototype is in the final

stage of assembly. The third prototype 'Rohini' glider incorporating certain improvements and modifications was successfully completed and test-flown in November, 1962. 'Procedure of issue of Type Certificate for Civil Aircraft' was prepared to serve as a guide to designers and manufacturers in the country. Detailed technical studies of leading particulars and comparative economics of Boeing-727, Caravelle VI, BAC-111 and DH-121 were made. Work has been undertaken on the design and construction of Low-speed wind tunnel for testing of gliders and light aircraft models. Development tests on aircraft quality materials like steel, tubes, wood, plywood, glue, inclinometers, passenger seats etc. were undertaken to determine their suitability for aeronautical purposes.

INTERNATIONAL RELATIONS

32. *India-Italy Air Services Agreement*.—An agreement between the Government of India and the Government of Italy, relating to air services, which was signed at Rome on July 16, 1959, came into force on March 12, 1962, as a result of the Exchange of Instruments of Ratification between Shri M. M. Philip, Communications Secretary, and Dr. Justo Giusti del Giardino, the Italian Ambassador in India.

33. *India-U.A.R. Air Talks*.—Discussions between the delegations of the Government of India and the Government of United Arab Republic were held in New Delhi from 26-3-62 to 31-3-62 and in Cairo from 12-10-62 to 25-10-62.

The two delegations exchanged views on problems of mutual interest in the field of air transport and approved the operating plans of Air-India through Cairo and of United Arab Airlines through India. The two delegations also agreed to revise the text of the India-U.A.R. Air Services Agreement.

34. *India-Lebanon Air Talks*.—Negotiations between the Delegations of the Government of India and the Government of Lebanon were held in Beirut between July 24 and August 3, 1962 to consider the amendment of the Annex to the Agreement signed on March 13, 1958 and the letters associated therewith as also to review matters of mutual interest regarding the operation of the services by the airlines of both countries.

The Indian delegation was led by Shri M. M. Philip, Communications Secretary and the Lebanese delegation was led by Mr. F. Chader, Director General of Transport.

INTERNATIONAL CIVIL AVIATION ORGANISATION

35. *Fourteenth Session of the International Civil Aviation Organisation Assembly and Fourteenth Session of Legal Committee of the International Civil Aviation Organisation*.—India was represented at the Fourteenth Session of the International Civil Aviation Organisation Assembly and the Fourteenth Session of the Legal Committee of the International Civil Aviation Organisation held in Rome in August-September, 1962. The Indian delegation was led by Shri Ahmed Mohiuddin, Deputy Minister in the Ministry of Transport & Communications and included Shri R. N. Kathju, Director General of Civil Aviation, Shri B. S. Gidwani, Director of Regulations and Information, Civil Aviation Department and Shri S. C. Bose, Representative of India on the Council of the International Civil Aviation Organisation.

At the Assembly Session India was re-elected as a member of the Council of the International Civil Aviation Organisation. India has been a member of the Council of the International Civil Aviation Organisation since its inception.

DEPUTATIONS

36. The services of Shri R. Prasada, Senior Aircraft Inspector, were placed at the disposal of the International Civil Aviation Organisation, with effect from the 2nd January, 1962, for appointment as Aircraft Mechanic Inspector at the Engineering Institute at Cairo.

The deputation with ICAO of Shri N.V.S. Iyengar, Controller of Communication was extended for a period of 3 years with effect from the 1st July, 1962, for employment as Communication Expert at Bangkok, and that of Shri S. N. Bahl, Controller of Communication was extended upto the 31st December, 1962 for continued appointment as Radio Operations Instructor with the International Civil Aviation Organisation's Technical Assistance Mission in Afghanistan.

The services of Shri Santokh Singh, Officiating Director of Air Transport, were placed at the disposal of the Government of Punjab for appointment as Aviation Adviser for a period of one year with effect from the 16th February, 1962.

37. *Assistance to Foreign Countries*.—The services of Sarvashri A. V. Vartak, Chief Engineer, Civil Aviation Training Centre, Allahabad, and A. K. Kapoor and S. N. Kohli, Senior Aircraft Inspectors, were placed at the disposal of the Government of Iraq for a further period of one year with effect from the 24th February, 1962, respectively.

38. *Training of Officers Abroad*.—Sarvashri M. A. H. Faruqui, B. Krishnaswamy, Assistant Aerodrome Officers, P. N. Ninan, Senior Technical Officer, K. B. Ganesan, Scientific Officer and C. V. Swaminathan,

Assistant Aircraft Inspector, were sent on deputation to U.K. for a period of six months, for training under International Civil Aviation Organisation's Technical Assistance Programme.

Shri H. B. Singh, Aircraft Inspector, Inspection Office, Nagpur, was placed on deputation to the United Kingdom for training in "Manufacture, maintenance and overhaul of Conway engines" under the Colombo Plan, with effect from the 24th September, 1962.

ACCIDENTS

39. During the period from the 1st April, 1962 to the 31st January, 1963 there were 13 major accidents involving 12 Indian registered aircraft and one glider. Two of the Indian registered aircraft were involved in accidents in a foreign country. In addition there was one accident in India involving a foreign registered aircraft. Six of the accidents were fatal resulting in the death of 117 persons (31 members of the crew including 10 members of ejection party; 85 passengers and 1 third party).

In addition, one Indian registered aircraft was also involved in a fire incident which is being investigated by a Committee of Inquiry appointed by the Government of India.

Eight airmiss incidents involving civil and I.A.F. aircraft were reported during the period from 1st April, 1962 to the 31st January, 1963.

Three of the Indian registered aircraft involved in major accidents were engaged on scheduled passenger services, one aircraft was engaged on non-scheduled passenger service and five aircraft were engaged on non-scheduled freighter services. Of the remaining aircraft involved in major accidents, two were engaged on instructional flights and one on miscellaneous flight. The only Glider involved in the accident was engaged on instructional flight. The foreign registered aircraft involved in major accident was engaged on international scheduled passenger service.

Eight accidents to the Indian registered aircraft were investigated departmentally. The accident to the foreign registered aircraft is being investigated by a Court of Inquiry appointed by the Government of India. The remaining accidents are under investigation.

The particulars of the fatal accidents are given below:—

A Dakota aircraft VT-AYG, belonging to Darbhanga Aviation crashed 1½ miles north of Talanda village in Rajshahi Distt. (E. Pakistan) on the 24th May, 1962, while engaged on a non-scheduled freighter service. All the four persons on board were killed and the aircraft was destroyed by impact and fire.

Fatal accident to Alitalia DC-8 aircraft I-DIWD took place about 25 miles west of Junnar on Poona-Nasik Road on a hill on the night of 6th/7th July, 1962. The aircraft was on its way from Bangkok to Bombay. All the 85 passengers and 9 members of the crew on board were killed and the aircraft was completely destroyed.

A Dakota aircraft VT-AUS belonging to the Indian Airlines Corporation, was hit by a bird approximately 30 to 40 miles from Lahore while operating a freighter service from Kabul to Amritsar on the 15th July, 1962. The Co-pilot was seriously injured and later died in Hospital.

A Dakota aircraft VT-DFZ operated by the Kalinga Airlines crashed about one mile North of Loheshyphu Dropping Zone (Naga Hills) on the 16th July, 1962. The aircraft was engaged in supply dropping operations. All the persons on board viz., 3 members of crew, 5 members of the ejection party and one Supply Inspector, were killed. The aircraft was destroyed by impact and fire.

An Auster aircraft VT-CLO, belonging to and operated by Aviation Services crashed on the 10th August, 1962, near Bazpur, Distt. Nainital, while engaged in crop-spraying operations. The Pilot, who was the sole occupant, was killed.

A Dakota aircraft VT-DGX operated by Kalinga Airlines and engaged in supply dropping operations crashed at Sela Pass in NEFA area on the 21st September, 1962. All the persons on board viz., 3 members of crew and 5 members of ejection party were killed and the aircraft was completely destroyed.

SECTION III

AIR CORPORATIONS

AIR INDIA

40. *Financial Results.*—The year 1961-62 ended with a net surplus of Rs. 38.86 lakhs. According to the Budget Estimates for 1962-63, the Corporation expected to make a profit of Rs. 54.00 lakhs. On the basis of the provisional figures of revenue and expenditure available for the first seven months (April–October, 1962) of the current financial year, the profit estimated for the year is likely to be more.

41. *Capital.*—Upto 31st March, 1962, the capital provided by Government amounted to Rs. 2520.46 lakhs. For the current financial year a provision of Rs. 151.43 lakhs has been made in the Revised Estimates. In accordance with the arrangement agreed to by Government 50 per cent of the capital is treated as equity capital and 50 per cent as loan capital. Payment of interest on the latter however has been waived by Government upto 1st October, 1966.

144 M. of T.C.—3.

The total borrowing of the Corporation on account of dollar loans obtained from the World Bank and the 5 U.S. Commercial Banks has amounted to \$ 20.404 million or Rs. 971.23 lakhs. The Corporation has repaid upto date from its internal resources an aggregate amount of \$ 8.640 million or Rs. 411.27 lakhs against the U.S. Commercial Banks' loan. With one further instalment of repayment before the end of the current financial year, the total repayments will amount to \$ 10.326 million or Rs. 491.24 lakhs leaving a balance of \$10.084 million or Rs. 479.99 lakhs.

The Corporation has paid, also from its own resources, as interest and incidental charges, an amount of Rs. 161.76 lakhs in connection with the above loans upto 31st March, 1962. The expected payment on this account during the current financial year is Rs. 32.57 lakhs.

42. *Aircraft fleet.*—The transfer of the Super-Constellation fleet and the DC 3 Freighter to the Defence Ministry for use of the Indian Air Force was completed by June, 1962. With the disposal of this piston-engined equipment, the Corporation became the first all-jet operator in the world with a fleet of 6 Boeing 707 jet aircraft. The Corporation's proposal to go in for an additional Boeing 707-320B Jet Aircraft at a cost of Rs. 5.50 crores has been approved by the Central Government on the basis that the Corporation would secure necessary credits from abroad to finance the cost of the project.

On 1st December, 1962, one of the Boeing aircraft viz. VT-DJJ 'Annapoorna' was seriously damaged as a result of an accidental fire. The aircraft is insured against full risk for Rs. 292.00 lakhs. Its re-insurance has been arranged in such a way that in the event of a claim, it would be paid in U.S. dollars. A team of experts from the Boeing Airplane Company surveyed the damaged aircraft and confirmed that it was repairable. The Boeing personnel entrusted with this job have already arrived in Bombay and started the repair work, and the aircraft will be back in service latest by April, 1963. The total cost of repairs amounting to \$ 2.200 million, of which the foreign exchange part will be \$ 2.020 million (Rs. 96.15 lakhs) and the rupee expenditure will be Rs. 8.57 lakhs, will be met entirely by the Insurance Company.

As a result of the temporary loss of the above aircraft, the Corporation re-arranged their schedules but kept to the minimum the changes in operations. They firstly reduced the Atlantic frequencies during winter from 4 to 3 and secondly provided for a quick turn round at London for the terminating services and thirdly cut down the IAC charters between Bombay and Delhi from daily to 4 times a week. The first two changes indicated above will continue till 31st March 1963 but the daily frequency of the IAC charter services has since been restored from 12th February, 1963.

43. *Workshop Programme.*—The construction of the Jet Engine Overhaul shop and the Test House at a cost of approximately Rs. 52.00 lakhs was completed by October and was formally opened on 12th January, 1963. The overhaul work will henceforth be done by the existing Engineering staff and this facility is expected to result in a saving of foreign exchange expenditure of Rs. 25.00 to Rs. 30.00 lakhs per annum.

44. *Commercial.*—With the introduction of the Boeings on the India Australia route effective 7th May, 1962, the service which hitherto was routed through Madras and Djakarta was re-routed through Bangkok and Singapore omitting Madras and Djakarta as the Madras Airport is not yet ready for use by large jet aircraft and Boeings could not operate through Djakarta without an unacceptable loss of pay load. The work relating to lengthening and strengthening of the Madras airport is under progress. Effective October, 1962, the Corporation introduced Perth on the Bombay/Sydney route omitting Darwin which was merely a refuelling station without any traffic potential.

The working of the revenue pooling arrangements with BOAC and Qantas, Aeroflot and C.S.A. has been satisfactory during the year.

45. *Industrial Relations and Welfare.*—The average number of employees in the Corporation during the year was 5877.

The relations between the Management and the various staff Associations continued to be cordial throughout the year. The various important matters raised by the several Unions were amicably settled between the Management and the respective Unions.

The Labour Relations Committee was reconstituted during the year and has so far held 3 meetings. Recommendations made by the Labour Relations Committee in the matter of medical facilities, holiday homes, canteen facilities for visitors etc. have either been implemented or are in the process of implementation.

INDIAN AIRLINES

46. *Financial Results.*—For the third year in succession the Indian Airlines Corporation made a small profit of Rs. 7.88 lakhs in the year 1961-62. This profit was made despite the continued upswing in prices and wages, increase in taxation, the loss of a Viscount at the height of the winter season, and the delay in obtaining additional Viscounts. The expenditure in 1961-62 rose to Rs. 1494.47 lakhs as against Rs. 1301.59 lakhs in 1960-61 while the earnings which in 1960-61 stood at Rs. 1306.27 lakhs rose to Rs. 1502.35 lakhs in 1961-62. For the year 1962-63 the Corporation have estimated a profit of Rs. 81.07 lakhs.

47. *Capital.*—The total capital advanced to the Corporation by the Central Government stood at Rs. 1921.99 lakhs as on 31st March, 1962.

In accordance with the arrangement agreed to by Government 50 per cent of this is treated as equity capital and 50 per cent as loan capital. Payment of interest on the latter however has been waived by Government up to 1st October, 1966.

48. *Fleet*.—On the 1st April 1962, the Indian Airlines Corporation had an operational fleet of 69 aircraft, and on the 30th November, 1962 it was 66 as detailed below:—

	Operational Fleet	
	As on 1-4-1962	As on 30-11-1962
Dakotas	45	43
Skymasters	5	5
Viscounts	14	13
Friendships	5	5
TOTAL	69	66

Two of the Skymasters were involved in accidents at Calcutta and Haveri on 3rd and 7th May, 1962 respectively and had since been written off. Two Dakota aircraft were sold. One of the Viscounts which had met with an accident at Colombo on 14th November, 1961 was written off.

The Viking aircraft, their engines and spares were disposed of as scrap for Rs. 3.00 lakhs. Out of the 8 Herons purchased by the Corporation in 1955, one had been disposed of in the year 1958 and three Herons their spare engines and spares were disposed of during the year to outside parties for a total sum £ 36,000/-. The remaining 4 Herons and spare engines and spares have been sold for Rs. 9.75 lakhs.

The Corporation had acquired five Friendships in April/May 1961; these were introduced in the Eastern region and on the regional sector Calcutta/ Banaras/Delhi. The Corporation had placed orders for additional five Fokker Friendship Aircraft in October, 1961. Three of these aircraft were delivered to them one each in December, 1962, January, 1963 and February, 1963 and the remaining two will be delivered in March, 1963. These aircraft will be put into service mostly on the West Coast and the Southern Region and on the Delhi-Jaipur-Jodhpur and Delhi-Ahmedabad-Bombay routes.

The programme for replacement of Dakotas, which have become highly uneconomic has acquired urgency. A provision had been made in the Third Five Year Plan for the purchase of 30 medium size turbo-prop aircraft for replacement of Dakotas. On a study of the traffic

growth, the Corporation, however, came to the conclusion that the re-equipment programme for the trunk routes was much more urgent. The traffic estimates indicated the need for a bigger and faster aircraft for use on the trunk routes. After studying the various aircraft available, the Corporation recommended the purchase of four Caravelles and their ancillary equipment at a cost of Rs. 9.00 crores. The proposal is under consideration of Government. In order to meet the traffic demand on the trunk routes during the winter of 1962-63, the Corporation made arrangements with Air-India to operate a daily Boeing service on the route Bombay/Delhi/Bombay on a charter basis.

49. *Route Schedules*.—With effect from 1st October, 1962 when the Winter Schedules were introduced, the pattern of Night Air Mail Services was revised. The previous pattern provided for aircraft from the four main centres namely, Delhi, Bombay, Madras and Calcutta to converge at Nagpur and after exchange of mails and passengers proceed back to their respective bases. From the operational point of view this was not a very satisfactory arrangement as a delay on any of the outward flights was reflected on all the services returning from Nagpur. With a view to eliminating this defect and to provide additional capacity the Corporation introduced the revised pattern with effect from 1st October, 1962 under which direct Viscount Night Air Mail Services were operated between Bombay/Delhi, Bombay/Madras, Calcutta/Delhi and Calcutta/Madras. The Delhi/Madras/Delhi Service was however routed through Nagpur. Similarly, the night service between Bombay and Calcutta operated through Nagpur. These services via Nagpur did not interchange loads at that station.

Due to various factors the revised pattern has been unable to attract sufficient traffic. The night services between Delhi and Bombay and Bombay and Madras had therefore to be suspended. The Corporation have now decided to revert to the old pattern of Night Air Mail Services with effect from 1st March, 1963.

Effective from 1st February, 1963, a Friendship service has been introduced to operate on the route Bombay/Ahmedabad/Udaipur/Jaipur/Delhi. Friendships have also been introduced on the following other routes with effect from 10th January, 1963.

(I) Madras-Bangalore

(II) Bombay/Hyderabad/Bangalore/Coimbatore.

A new service Delhi/Lucknow/Kanpur/Delhi has been introduced with effect from 1st February, 1963.

The Delhi/Chandigarh/Kulu and Delhi/Phoolbagh services were resumed during summer under short-fall guarantee arrangements with

the Punjab and Uttar Pradesh Governments respectively. Also a service was introduced between Hyderabad and Visakhapatnam via Vijayawada under short-fall guarantee arrangements with Andhra Pradesh Government. A newspaper special service under a short-fall guarantee arrangement with the 'Hindu' for the carriage of their newspapers was introduced on the Madras/Bangalore/Coimbatore/Madurai route.

50. *Traffic Trends*.—The traffic has maintained an upward trend as will be seen from the following figures for 1961-62 and 1962-63 (9 months) ending December, 1962:

	1960-61	1961-62	April to December 1962-63
1. Capacity tonne-Kilometres produced	11,30,49,520	12,07,91,515	9,27,78,991
2. Total revenue tonne-Kilometres flown	8,31,99,107	8,74,24,015	6,47,68,094
3. No. of Revenue passengers carried	7,87,187	8,80,882	6,57,205
4. Cargo (including excess baggage) carried in tonnes	43,157	36,688	27,095
	6,107	6,708	5,182
5. Mail carried in tonnes	1306.27	1436.18	1130.01
6. Revenue earned (in lakhs)			

During the peak periods, there was shortage of capacity for the freighter operations in Eastern India. Aircraft had also to be withdrawn from the freighter pool in Calcutta to meet the requirements of freighting between India and Afghanistan, for which there has been a heavy demand. In addition to a Dakota from Amritsar, Skymasters were used between Delhi and Kabul as and when available to step up freight movement between the two countries. Where Indian Airlines was unable to provide adequate capacity 'No Objection' certificates were given to Private operators to operate freighter flights in Eastern India and on the India/Afghanistan route.

51. *Rates & Tariffs*.—The passenger fares were revised during the year 1961-62. The Charter rates were revised during the period under review in the light of the increase in cost of operation and market trends. Indian Airlines joined the Universal Air Travel Plan as a "Ticketor" under which scheme Indian Airlines is required to accept UATP credit cards and issue travel documents against such credit cards.

52. *Engineering*.—The Engineering Workshops continued to overhaul aircraft and engines of the Corporation. Facilities of overhaul were expanded to provide for the overhaul of Friendship aircraft during the year.

53. *Training*.—Eighty engineering personnel were given training on Friendship airframes and engines. In addition, arrangements were made for short term training of a number of engineers at the Works at

Amsterdam of the manufacturers of Friendship aircraft. One of the Chief Engineers was deputed for training in Industrial Management at the Graduate School of Business Administration, Harvard University under the U.S.I.A.D. Fellowship programme.

Training facilities were provided in the Corporation workshops to 80 students from different Technological Institutes in the country. Two Engineers of M/s. Air Ceylon were given Training on Dakota Aircraft Overhaul and repair, maintenance and overhaul of propellers.

A training programme under the National Apprenticeship Scheme has been introduced from January, 1963.

With the acquisition of Friendship aircraft arrangements were made for the training of pilots on Friendships. In order to give synthetic training the Corporation proposes to purchase a Friendship Type Trainer.

To give intensive synthetic training on Viscounts to the pilots a Viscount Type Trainer was installed at the Central Training Establishment, Hyderabad. While cutting down the training expenses, this Type Trainer gives intensive training for Instrument flying and Emergencies on Viscount type aircraft.

54. *Industrial Relations & Welfare*.—Among the Corporation's welfare activities are Holiday Homes established for its employees and their families at Mussoorie, Darjeeling and Matheran. The Holiday Homes have been set up in pleasant surroundings and are well furnished. The charge for the occupation of these Homes is Re. 1/- per family per day. The Corporation has a proposal to open an additional Holiday Home.

Adequate Medical facilities are provided by the Corporation and Medical Officers have been appointed at all stations of the Corporation. The dispensaries attached to the workshops are open round the clock.

The Corporation propose to construct houses for at least 25 per cent of its employees during the Third Five Year Plan. Land has been purchased at Calcutta and Delhi. Thirty acres of land has been allotted to the Corporation at Delhi. At Madras negotiations are being carried on with private parties for the purchase of land.

55. *Advisory Committee*.—The Advisory Committee for the Indian Airlines, constituted by the Central Government under Section 41 of the Air Corporations Act 1953, held two meetings, one on the 15th June, 1962 and the other on the 18th January, 1963. Most of its suggestions for improving the Corporation's services and amenities to passengers were accepted and put into effect.

the Punjab and Uttar Pradesh Governments respectively. Also a service was introduced between Hyderabad and Visakhapatnam via Vijayawada under short-fall guarantee arrangements with Andhra Pradesh Government. A newspaper special service under a short-fall guarantee arrangement with the 'Hindu' for the carriage of their newspapers was introduced on the Madras/Bangalore/Coimbatore/Madurai route.

50. *Traffic Trends*.—The traffic has maintained an upward trend as will be seen from the following figures for 1961-62 and 1962-63 (9 months) ending December, 1962:

	1960-61	1961-62	April to December 1962-63
1. Capacity tonne-Kilometres produced	11,30,49,520	12,07,91,515	9,27,78,991
2. Total revenue tonne-Kilometres flown	8,31,99,107	8,74,24,015	6,47,68,094
3. No. of Revenue passengers carried	7,87,187	8,80,882	6,57,203
4. Cargo (including excess baggage) carried in tonnes	43,157	36,688	27,035
5. Mail carried in tonnes	6,107	6,708	5,182
6. Revenue earned (in lakhs)	1306.27	1436.18	1130.01

During the peak periods, there was shortage of capacity for the freighter operations in Eastern India. Aircraft had also to be withdrawn from the freighter pool in Calcutta to meet the requirements of freighting between India and Afghanistan, for which there has been a heavy demand. In addition to a Dakota from Amritsar, Skymasters were used between Delhi and Kabul as and when available to step up freight movement between the two countries. Where Indian Airlines was unable to provide adequate capacity 'No Objection' certificates were given to Private operators to operate freighter flights in Eastern India and on the India/Afghanistan route.

51. *Rates & Tariffs*.—The passenger fares were revised during the year 1961-62. The Charter rates were revised during the period under review in the light of the increase in cost of operation and market trends. Indian Airlines joined the Universal Air Travel Plan as a "Ticketor" under which scheme Indian Airlines is required to accept UATP credit cards and issue travel documents against such credit cards.

52. *Engineering*.—The Engineering Workshops continued to overhaul aircraft and engines of the Corporation. Facilities of overhaul were expanded to provide for the overhaul of Friendship aircraft during the year.

53. *Training*.—Eighty engineering personnel were given training on Friendship airframes and engines. In addition, arrangements were made for short term training of a number of engineers at the Works at

Amsterdam of the manufacturers of Friendship aircraft. One of the Chief Engineers was deputed for training in Industrial Management at the Graduate School of Business Administration, Harvard University under the U.S.I.A.D. Fellowship programme.

Training facilities were provided in the Corporation workshops to 80 students from different Technological Institutes in the country. Two Engineers of M/s. Air Ceylon were given Training on Dakota Aircraft Overhaul and repair, maintenance and overhaul of propellers.

A training programme under the National Apprenticeship Scheme has been introduced from January, 1963.

With the acquisition of Friendship aircraft arrangements were made for the training of pilots on Friendships. In order to give synthetic training the Corporation proposes to purchase a Friendship Type Trainer.

To give intensive synthetic training on Viscounts to the pilots a Viscount Type Trainer was installed at the Central Training Establishment, Hyderabad. While cutting down the training expenses, this Type Trainer gives intensive training for Instrument flying and Emergencies on Viscount type aircraft.

54. *Industrial Relations & Welfare*.—Among the Corporation's welfare activities are Holiday Homes established for its employees and their families at Mussoorie, Darjeeling and Matheran. The Holiday Homes have been set up in pleasant surroundings and are well furnished. The charge for the occupation of these Homes is Re. 1/- per family per day. The Corporation has a proposal to open an additional Holiday Home.

Adequate Medical facilities are provided by the Corporation and Medical Officers have been appointed at all stations of the Corporation. The dispensaries attached to the workshops are open round the clock.

The Corporation propose to construct houses for at least 25 per cent of its employees during the Third Five Year Plan. Land has been purchased at Calcutta and Delhi. Thirty acres of land has been allotted to the Corporation at Delhi. At Madras negotiations are being carried on with private parties for the purchase of land.

55. *Advisory Committee*.—The Advisory Committee for the Indian Airlines, constituted by the Central Government under Section 41 of the Air Corporations Act 1953, held two meetings, one on the 15th June 1962 and the other on the 18th January, 1963. Most of its suggestions for improving the Corporation's services and amenities to passengers were accepted and put into effect.

56. *Technical Assistance.*—Technical assistance continued to be rendered to Iraqi Airways by the deputation of engineers, pilots and administrative staff. In all 21 persons were on deputation to Iraqi Airways on 31st March 1962, including the Financial Comptroller of the Corporation.

The Corporation has also extended technical assistance to Nigeria Airways. The services of the Corporation's Engineering Manager, were made available to that airline for appointment as General Manager with effect from 1st May 1962. In addition, 10 Pilots and five engineers were deputed to that airline.

57. *Budgetary Position in respect of Civil Aviation and Air Corporations.*—The table below gives the Budget Estimates for the Year 1962-63 and 1963-64 :—

	Budget Estimates, 1962-63 Rs.	Revised Estimates, 1962-63 Rs.	Budget Estimates, 1963-64 Rs.
(i) <i>Air Corporations :</i>			
(a) <i>Indian Airlines :—</i>			
Purchase of Aircraft	1,82,50,000	2,00,00,000	28,17,000
Buildings	63,00,000	57,52,000	18,00,000
Miscellaneous Item of Capital Expenditure	18,00,000	18,00,000	..
(b) <i>Air-India :—</i>			
Purchase of Aircraft	1,81,78,000	1,51,43,000	..
Workshop expansion	15,50,000	1,000	..
(ii) <i>Air Transport Council</i>	2,000		
(iii) <i>Civil Aviation Department :</i>			
(a) <i>Capital expenditure (including 'charged' expenditure)</i>	3,97,76,000	3,04,00,000	3,59,00,000
(b) <i>Revenue expenditure</i>	5,65,42,000	5,65,85,000	5,51,38,000

Revenue Receipts.—The revenue likely to be derived by way of landing and housing charges, leasing out of hangars, buildings and lands etc. at Civil Aerodromes for the year 1962-63 and 1963-64 is estimated at Rs. 1,17,42,000 and Rs. 1,17,05,000 respectively.

SECTION IV

INDIA METEOROLOGICAL DEPARTMENT

58. *Functions and organisation of the department.*—During the year, the department made good progress in implementation of its development activities both in scientific and service fields. As usual the department continued to provide weather service to a large number of national

interests, such as civil and military aviation, mercantile and naval shipping, ports, agriculture and community project centres, public works, railways, posts and telegraphs, industries, public health and the general public. In addition to meteorology and climatology, the scientific activities of the department included geophysics and the allied fields of Seismology, Geomagnetism, Astrophysics, Astronomy, Atmospheric Electricity and Ionospheric Physics.

The department maintained two central offices, one at Delhi for administrative and technical control and the other at Poona for technical control. The observational network and the provision of meteorological services to various interests were in charge of five Regional Meteorological Centres located at Bombay, Calcutta, Madras, Nagpur and New Delhi. Weather service to various users was also provided by the Central Weather Office at Poona, the Meteorological Offices located at the airports Calaba (Bombay), six Main Meteorological Offices (Calcutta) and of Bombay (Santacruz), Calcutta (Dum Dum), Madras (Meenambakam), Nagpur (Sonagaon), New Delhi (Safdarjung) and Gauhati (Borjhar) and a large number of smaller meteorological offices and observatories. The Colaba and Alibag Observatories dealt with terrestrial magnetism and atmospheric electricity and had two field magnetic observatories at Anna-malainagar (Madras) and Trivandrum (Kerala) under its control. The Astrophysical Observatory at Kodaikanal continued the study of Solar Physics. It is also equipped for stellar astronomy and spectroscopy, radio-astronomical observations and ionospheric work besides magnetic and seismological observations. The Seismological Observatory at Shillong was the co-ordinating centre for the collection of data from various seismic stations in India. A section of the Regional Meteorological Centre, Calcutta, was responsible for the compilation of the Indian Ephemeris and Nautical Almanac. The offices at Bombay and Calcutta also issued time signals for the use of ships at sea, the telegraphic system in the country and the public. A new unit, the Northern Hemisphere Analysis Centre, was set up during the year for analysis and study of weather data being received in the Northern Hemisphere Exchange Centre through Delhi-Moscow and Delhi-Tokyo RTT channels. The Institute of Tropical Meteorology, a Unit which would be exclusively devoted to research, was also established during the year.

59. *Observational Organisation.*—5 Surface Observatories were started during the year and 4 observatories were closed down. Radiosonde and Rawin observatories were started at Srinagar and Bangalore.

The observational organisation at the end of the year (as on 1st January 1963) consisted of the following.

Surface observatories—443; Hydrometeorological observatories—262;

Pilot Balloon Observatories- 52; Radiosonde observatories-14;

Rawin observatories-14 besides other types of special observatories.

60. *Meteorological Service to Aviation.*—During the year, several steps were taken for the introduction of chart form of documentation for high level aviation as recommended by the International Civil Aviation Organisation. For this purpose, preliminary action was taken for starting Extended Analysis and Prognostic Centres at the Main Meteorological Offices Santacruz and Dum Dum catering to international aviation. A memorandum on "Techniques of High Level Analysis and Prognosis" is under preparation. For improving Met. Services to international aviation, the scheme for exchange of Upper Air Data was extended to cover most of the Middle East and the Far East. Action was taken for quicker dissemination of the Indian Met. Data to foreign countries.

At the end of the year, the Meteorological Organisation for aviation, national and international, consisted of 6 Main Met. Offices 8 Dependent Met. Offices, 17 Supplementary Met. Offices and 44 Current Weather Observatories along air routes. Weather reports and forecasts were broadcast from R.T.F. Volmet Broadcast Centre at Calcutta and 35 Aero broadcast stations.

61. *Meteorological Service for the Defence Services.*—The reciprocal arrangements under which the Department meets the requirements of the Indian Air Force were continued as in previous years. Meteor reports, upper air temperature, pressure and humidity data were supplied to the Army, whenever required for anti-aircraft and special equipment firing practices.

62. *Service to Shipping, Ports and Fishing Crafts.*—A scheme for broadcasting of weather forecasts for sailing and fishing crafts was introduced during the year. Two routine weather bulletins and "extra", "storm" and "Special" weather bulletins continued to be issued during disturbed weather in Indian Seas. Warning messages were continued to be issued to ports for hoisting signals and to Fishery Officials of Madras, Mysore, Kerala and Andhra Pradesh States for transmission to small fishing crafts before they are put out to sea.

Ships of Indian Voluntary Observing Fleet number 117 at the end of 1962. "Excellent Awards" in the form of Scientific books were made to officers of 10 ships and 16 ships were issued certificates of merit.

63. *Inland warnings.*—The issue of warnings for adverse weather continued to be one of the principal responsibilities of the Department. Among the warnees were district and police authorities and officials of Railways, Telegraphs, Public Works, Agriculture, Irrigation, Fisheries,

Central Water and Power Commission, River Valley Projects and several other Government Departments and public organisations.

64. *Service to Agriculture and Community Project Centres.*—Farmers' Weather Bulletins containing forecasts for the next 36 hours with "further outlook" for subsequent 2 days continued to be broadcast in different regional languages. These Bulletins were also published in the daily newspapers.

About 390 community Project Centres were telegraphically informed on important occasions like the first burst of monsoon rain, heavy rain fall, strong winds cyclonic storms, breaks in the monsoon rain etc. and a close liaison was maintained with the Community Development Blocks.

65. *Weather Service to the Public.*—The issue of All-India Daily Weather Reports from Poona and Regional Daily Weather Reports from Bombay, Calcutta, New Delhi, Nagpur and Madras were continued. Telegraphic summaries were supplied to subscribers. The Weekly Weather Reports, the Monthly Weather Review and the Annual Summary for India continued to be issued from Poona. A modified scheme of weather broadcasts was introduced from 1st July, 1962; according to which the main weather bulletins, including Special Weather Warnings for public services, are broadcast at fixed times from 24 All India Radio stations during the mid-day transmissions. Requests from Government officials and private Organisations for weather forecasts and weather information were catered to. Telephone Weather Service at Calcutta, Delhi, Bombay, Madras, Begumpet and Lucknow, by which local forecasts can be obtained over phone was continued.

Weather bulletins were issued from the Meteorological Offices at Safdarjung Air Port and Alipore (Calcutta) for broadcast through All India Radio for the benefit of 9 Himalayan Expeditions.

66. *Meteorological Training.*—The Training Section at Poona continued to provide training in Meteorology to the Departmental and extra-departmental candidates at Elementary, Intermediate and Advanced course levels. During the year, 94 candidates completed their training.

Training in Radio-sonde/Rawin and radar work was started during the year at New Delhi. Three batches were trained during the year.

Special courses in Meteorology were conducted as usual for pilots and aircrew of the Indian Airlines Corporation at the Main Aviation Meteorological Offices. A Meteorologist of the department continued

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to be posted as Instructor in Meteorology at the Civil Aviation Training Centre, Bamrauli.

Examinations in Meteorology for New Aircrew Licences were introduced in September, 1962. 8 examinations for various licences were conducted during the period and 80 candidates appeared at these examinations.

67. *Meteorological Telecommunications.*—The Sub-continental broadcasts from New Delhi were radiated on high power transmitters on Morse and Radio teletype. Trial transmission of weather charts by facsimile was commenced on a routine basis from November, 1962. Three charts were transmitted daily, viz. two analysed upper air charts for 00 GMT and one prognostic chart valid for the next 24 hours. These charts were intercepted by all main meteorological offices in the country.

To ensure satisfactory reception of basic data by forecasting offices in Assam, a scheme for utilising the Civil Aviation Department, and Posts and Telegraphs R.T.T. channels in Assam has been approved for early implementation.

68. *Hydrometeorology.*—Service in the field of hydrometeorology was rendered to the Central Water and Power Commission and to the engineers connected with various river valley and flood control projects. Hydrometeorological units continued to work for this purpose at New Delhi, Poona and Calcutta. Monthly rainfall data of some 104 hydro-meteorological observatories in Nepal for the period 1957-61 was supplied to the Sub-Regional Office, Food and Agriculture Organisation of the United Nations, New Delhi, for use by their Survey Engineer stationed in Nepal. Under the provision of article VI(2) of Indus Water Treaty, 1960, rainfall associated weather conditions and storm periods from 1893 to 1929 in respect of 10 stations now in Pakistan, were supplied to the Government of Pakistan, through the Ministry of Irrigation and Power.

69. *Agricultural Meteorology.*—The collection and study of crop-weather data on paddy, wheat, jowar, cotton and sugar-cane under the All-India Co-ordinated Crop-weather Scheme was continued.

The number of crop-weather stations was 57 during the year. Besides these, agricultural meteorological stations functioned at 49 stations for meeting the specific needs of the local agricultural and allied interests including Soil Conservation Research stations. Qualitative observations on incidence of pests and diseases were recorded at a network of about 120 stations and phenological observations on one or more of four trees (viz. mango, neem, tamarind and babul) at about 300

stations. A revised edition of the pamphlet, "Weather and the Indian Farmer" which was brought out on the occasion of the Second World Meteorological Day on 23rd March 1962, was distributed to various agricultural and allied interests. The Crop-Weather Diagrams for the year 1957-58 were printed and distributed to the various agricultural interests and the preparation of the diagrams for subsequent years was on hand. Work was in progress on the following two schemes sanctioned under 'Developments in Agricultural Meteorology' during the Third Five-Year Plan:—

(i) Preparation of Agroclimatic Atlas of India

(ii) Measurement of Evapotranspiration.

70. *Seismology.*—The Central Seismological Observatory Shillong continued the work of determination of earthquake epicentres from data received from Indian Observatories. Overhauling, development and construction of special types of Seismographs was done as usual at the local workshops. Seven persons were trained in Seismology at C.S.O. Shillong, during the year. The scrutiny and compilation of Seismological data and issuing of the monthly Seismological bulletin was shifted to H.Q. Office from Shillong.

In connection with the determination of ground coefficient for the construction of Beas Dam, a party headed by Director, Seismology, participated in the experiments conducted at the Dam site in September, 1962.

Besides the construction of usual Electro-magnetic Seismometers and recorders, a new pen-recording seismometer, with a transistorised amplifier for use with the recorder, was constructed at the H.Q. at New Delhi.

71. *Meteorological Instruments.*—The workshops at New Delhi and Poona were actively engaged in the manufacture of a large number of surface and upper air instruments. Over 1,000 radio-meteorographs per month were manufactured, calibrated and supplied to out-stations. In addition, several instruments such as anemometers, wind vanes, rain gauges, barometers, radiation instruments, pilot balloon accessories were manufactured at Poona and Delhi. The Hydrogen factory at Agra continued to manufacture and supply hydrogen to departmental observatories, defence establishments and other scientific institutions in the country, for research and observations.

The Decca wind finding radar (WF-2), installed at the observatory at New Delhi, was put into regular use from the beginning of the year. A Bendix weather radar type WTR-1 was installed at Agartala airport on 8th January, 1962.

Further progress was made in development and designing of the instruments:—

- (i) A special radiosonde equipment for use of INS Vikrant was designed and installed.
- (ii) An intensity rain gauge, using the photo-electric principle, was developed in the laboratory and put under field test. The results have been satisfactory.
- (iii) C-type meteorographs, with double-spring clock mechanism, were designed. The tests have shown that the clocks run continuously for time durations lasting between 90 and 180 minutes.
- (iv) A mechanical valve has been designed for use with high-level balloons to regulate the inflation of the balloons and consequently improve the heights reached. The device is under field test.
- (v) An interim reference precipitation gauge, according to the specifications recommended by the World Meteorological Organisation, was constructed.
- (vi) Work is in progress on the construction of a transmissometer for continuous recording of visibility.
- (vii) A radiosonde meteorograph, using rolled hair as its humidity element, was developed in the laboratory.

72. Geomagnetism, Atmospheric Electricity, Radiation and Ozone Observations.—The primary magnetic observatory at Alibag and the other magnetic observatories at Kodaikanal, Trivandrum and Annamalainagar continued their activities in geomagnetism. Information relating to magnetic disturbances as and when they occur were disseminated to parties concerned. Special magnetic observations were carried out at a number of places in South India in connection with location of the Rocket Base at the magnetic equator and also at Marmagao, in co-operation with the Geological Survey of India.

Observations of the surface electrical potential gradient were continued at New Delhi, Calcutta and Poona. Observations of sferics were continued at Sriniketan (West Bengal) and New Delhi and a new station was established at Nagpur. Warnings of anticipated magnetic and ionospheric disturbances were issued, whenever necessary, to the Press and the other interested institutions.

Radiation observations were continued at 8 stations in the country and two more stations were opened during the period. Regular observations of atmospheric ozone were made with the Dobson Ozone Spectrophotometer, at New Delhi and Kodaikanal.

73. Astrophysics and Astronomy.—The Astrophysical Observatory, Kodaikanal, continued its work in the fields of Solar Physics, Stellar Physics and Radio Astronomy. The modification of the solar telescope tower, to facilitate observations soon after sunrise, was completed and the instrument was re-erected and adjusted. A second Babcock grating was received on loan from the Mount Wilson and Palomar Observatories. Construction of a 21-foot solar spectrograph using this grating is in progress in the workshop for use in routine observations of sunspot magnetic fields. The construction of a photometer, for use with the 8" Madras refractor, was completed. In the field of radio-astronomy, regular recordings of solar noise flux, on a frequency of 100 mc/s were continued. Under a joint Kodaikanal-Yale University project, Jupiter radio radiation recordings at a frequency of 22.2 mc/s were commenced in August 1962, using a phase switching interferometer.

74. Indian Ephemeris and Nautical Almanac.—The printing of the seventh issue of the Indian Ephemeris and Nautical Almanac for the year 1964 was nearing completion, and the computational work of the Almanac for the year 1965 was commenced. The tables of Sunrise, Sunset, Moonrise and Moonset for several Indian stations (which constitute a reprint from the Indian Ephemeris and Nautical Almanac) was published. The Rashtriya Panchangs for 1884 S.E. (sixth year of publication) were published in twelve languages. The English edition of the issue for 1885 S.E. was published and the other editions for that year were under preparation.

75. Overseas Training Programme.—Shri H. M. Chaudhury, Meteorologist, who was on deputation to Japan for training in Seismology under the Colombo Plan completed his training and returned to India in April, 1962. Shri A. J. Shirgaokar, Assistant Meteorologist, was on deputation to Japan, for training in Geomagnetism, under the Colombo Plan, from May to November, 1962.

76. Advisory Committees, Scientific bodies, Symposia etc.—The Director General of Observatories and the other officers of the department participated in the meetings of advisory committees, functioning under other scientific departments or institutions.

The Director General of Observatories and two other senior officers of the department were nominated to the Indian National Committee for Space Research (INCOSPAR), which was constituted by the Department of Atomic Energy, Government of India.

The Conference of Directors of the India Meteorological Department was held at Poona in August, 1962 and was inaugurated by Shri Jagjivan Ram, Minister for Transport and Communications.

77. *International Collaboration.*—The department continued to take an active part in the activities of the World Meteorological Organisation and the International Civil Aviation Organisation. Necessary facilities and co-operation were extended to an ICAO team which visited the Meteorological Offices at Bombay, Calcutta, Delhi and Poona. A number of senior officers from the department participated in the International Conferences of the two bodies mentioned above.

Shri C. Ramaswamy, Deputy Director General of Observatories, and Dr. S. N. Sen Director, represented India, at the Third Session of the Commission for Synoptic Meteorology of the World Meteorological Organisation, held at Washington (USA), in March/April, 1962. Dr. Sen was elected President of the Commission. Shri A. K. Mallik, Deputy Director General of Observatories, attended the Third Session of the Commission for Agricultural Meteorology of the World Meteorological Organisation (as India's delegate) held at Toronto, Canada, in July, 1962.

The Third Session of the Regional Association II for Asia of the World Meteorological Organisation was held at Bangkok, Thailand, in October 1962. India was represented at the Session by a delegation consisting of Shri P. R. Krishna Rao, Director General of Observatories (Leader) and Shri C. Ramaswamy and Dr. R. Ananthakrishnan, Deputy Directors General of Observatories.

The department was in close touch with the U.S. Weather Bureau regarding developments in satellite meteorology. The U.S. Weather Bureau, at our request, arranged special programming of their weather satellite for making photographic scan from space, of tropical storms in the Bay of Bengal and the Arabian Sea. Regular cloud observations from "TIROS", the U.S. Weather satellite, were also received, as part of a world-wide exchange scheme for satellite meteorological information.

A number of officers of this department have been nominated or elected to serve as expert members of the technical commissions and of Working Groups of the World Meteorological Organisation and of International Organisations.

78. *Collaboration with and technical aid to neighbouring countries.*—The department continued to participate actively in the technical co-operation activities of the U.N. and W.M.O., by deputing experts on technical assistance mission to various countries.

A Supplementary Meteorological Office of this Department continued to function at Kathmandu in Nepal. During the year that Office was shifted from the Indian Embassy Compound to Gauchar Airfield.

Mr. T. K. Sengdara of Laos underwent training in Agricultural Meteorology at the Meteorological Office, Poona, under U.N. Fellowship, from July, 1962.

79. *International Indian Ocean Expedition.*—During the year, the meteorological programme of India relating to the International Indian Ocean Expedition was commenced with the starting of a meteorological observatory at Port Okha (Gujarat), from 12th December, 1962 and participation by meteorological personnel in the cruises of Expedition ships. In all the cruises of INS Kistna, which is one of the two ships participating in the Indian meteorological programme of the International Indian Ocean Expedition, meteorological personnel were deputed for recording of surface and aerological observations. Dr. A. A. Rama Sastry, Meteorologist, was deputed for training in sea-air interaction in connection with the International Indian Ocean Expedition in some oceanographic institutes/laboratories in U.K., U.S.A., and Japan, during the period September–December, 1962. Shri C. P. Rao, Assistant Meteorologist, was deputed for training aboard the Russian Research vessel 'VITYAZ' during its cruise from Jakarta (Indonesia) to Madras, from July to September, 1962.

The International Meteorological Centre, organised for carrying out the meteorological programme of the Expedition, commenced functioning from 1st January, 1963. The Centre is principally devoted to investigational work and its functions include collection and processing of basic meteorological data over Indian Ocean and adjoining areas, preparation and analysis of weather charts extending well into the northern and southern hemispheres and interpretation of weather processes over the Indian monsoon area. Dr. C. S. Ramage, Scientific Director for Meteorology of the International Indian Ocean Expedition, who arrived in India in August, 1962, has been planning the international activities at the Centre, with the active co-operation of the department. Three weather experts, one communication expert and two instrumentation experts, have arrived at the Centre from the U.S.A. The Centre forms part of the Institute of Tropical Meteorology and in response to a request from India for aid to set up the Institute of Tropical Meteorology/International Meteorological Centre, the U.N. Special Fund has approved, in January, 1963, a grant of 8,78,500 dollars.

80. *Meteorological Information and Publicity.*—The "Second World Meteorological Day was celebrated by the department with "Meteorology in relation to agriculture and food production" as the theme. The main function was held at the Meteorological Office, Poona, and was presided over by Shri S. K. Patil, Union Minister for Food and Agriculture. Similar functions were held at other departmental offices and observatories.

81. *Scientific Publications.* "The Indian Journal of Meteorology and Geophysics" was published regularly every quarter from the headquarters office at New Delhi. The publication of the Kodaikanal Observatory Bulletin, the Annual Volume of the Colaba and Alibag Observatories, the Seismological bulletin, Indian Ephemeris and Nautical Almanac, Rashtriya Panchangs, Indian Daily Weather Reports, Monthly Weather Reports, and Indian Weather Review (Annual Summary) was continued.

82. *Investigation and Research.*—As in the previous years, considerable attention was devoted to the promotion of research both at the official level and by encouragement of individual workers. The first biennial award for the best research paper, published in the Indian Journal of Meteorology and Geophysics in 1960 and 1961, was presented to Dr. M. V. Sivaramakrishnan, Meteorologist, Poona.

The Northern Hemisphere Analysis Centre, set up earlier in the year, experimented with different techniques for preparation of prognostic weather charts. Suitable graphical techniques were developed and used on a routine basis for facsimile transmission. Further experiments are in progress to develop more refined techniques for giving better indication of weather development on a large scale.

The Institute of Tropical Meteorology, two divisions of which were sanctioned during the year, will function as a separate unit of the department devoted wholly to research. Pending its full growth, the Institute is currently engaged in compiling a Manual of weather forecasting for the Himalayan Region. The Institute is also guiding research students on meteorological problems of their choice.

Research in other branches of meteorology and allied fields such as Geophysics and Astronomy was carried out in departmental offices, in addition to normal work.

83. *Staff welfare, Canteen and Recreational facilities.*—Amenities for the welfare of staff, such as recreational clubs with facilities for indoor and outdoor games, small libraries and reading room facilities, screening of popular films etc., were provided at New Delhi, Poona, Calcutta, Bombay, Madras and at a few other places. The grant-in-aid sanctioned to various clubs during 1962-63, came to Rs. 9129/-.

Canteen run by departmental staff themselves, on a 'no profit no loss' basis, functioned at several offices of the department.

Co-operative societies for the benefit of the departmental personnel exist at New Delhi, and Poona at present.

84. *Budget.*—A sum of Rs. 11.72 lakhs has been provided under Capital Grants during 1962-63 for the purchase of Capital Equipment in connection with the implementation of various development schemes.

The Standing Charges of the Budget for 1963-64 were reviewed by the Internal Economy Board of the Ministry and the budget provisions proposed by the Department were suitably modified keeping in view the general need for economy.

The table below shows the Budget and Revised Estimates for 1962-63 and the Budget Estimates for 1963-64:—

	Budget Estimates 1962-63	Revised Estimates 1962-63	Budget Estimates 1963-64
	Rs.	Rs.	Rs.
(a) Revenue Demand	2,12,00,000	2,03,03,000	2,11,35,000
(b) Capital Demand	11,72,000	11,22,000	7,05,000
(c) Contribution to the W.M.O.	90,000	1,12,000	90,000

SECTION V

OVERSEAS COMMUNICATIONS SERVICE

85. The Overseas Communications Service is responsible for handling of overseas Telegraph, Telephone, Radiophoto and Telex Services between India and foreign countries. The administrative head of the department is the Director General with his headquarters at Bombay.

The Service has 4 gate-way Centres for handling of international communications at Bombay, Calcutta, New Delhi and Madras. The overseas communications networks, operated by the Overseas Communications Service, consists of submarine telegraph cable system from Bombay and Madras and Wireless telegraph and Radio telephone systems from all the four Centres. The submarine cables as such are owned and maintained by the Cable & Wireless Ltd., London.

86. The following direct and switched telegraph, telephone, radiophoto and telex services are now operated by the Overseas Communications Service:—

Direct Wireless Telegraph Service.—India has direct Radiotelegraph links with the following countries:—

Afghanistan, Australia, Britain (1 independent circuits), Burma, China (2 independent circuits), Egypt, France, Federal Republic of Germany, Hanoi, Indonesia, Iran, Iraq, Italy, Japan, Philippines, Poland,

Roumania, Saigon, Singapore, Switzerland, Thailand, U.S.A. (2 independent circuits), U.S.S.R. and Yugoslavia.

Telegraph service with all other countries of the world is also provided, through our direct links with the international Networks.

Direct Radio Telephone Service. India has direct Radiotelephone Service with the following countries:—

Aden, Afghanistan, Australia, Bahrain, Britain (3 circuits), Burma, China, East Africa, Egypt, Ethiopia, Federal Republic of Germany, France, Hongkong, Indonesia, Iran, Iraq, Italy, Japan, Malaya, Poland, Singapore, Saudi Arabia, Switzerland, U.S.S.R. and Vietnam (South).

Switched Radiotelephone Services.—Radiotelephone Service via our direct connection with International networks is available:—

(a) with the following countries:—

Abadan, Algeria, Argentina, Asmara, Austria, Balearic Islands, Barbados, Belgium, Bermuda, Brazil, British Guiana, Bulgaria, Canada, Canary Islands, Ceuta, Chile, Cuba, Costa Rica, Cyprus, Czechoslovakia, Denmark, Doha, Dubai, Faroe Islands, Finland, French Sahara, Frobisher Bay (Canada), Greece, Ghana, Gibraltar, Goosbay Labrador (Canada), Irish Republic (Eire), Israel, Jamaica, Jordan, Kuwait, Lebanon, Leeward Islands, Luxembourg, Manila, Mexico, Morocco, Muscat, Nairobi, Netherlands, Newfoundland, New Zealand, Nicaragua, Nigeria, Norway, Panama, Rhodesia, Ryukyu Islands, Spain, Spanish North Africa, South Africa, South West Africa, Sudan, Sweden, Tangier, Trinidad, Tunisia, United States of America, Vatican City, Windward Islands and Yugoslavia.

(b) with a number of Ocean Liners at sea, including:—

America, Athlone Castle, Capetown Castle, Caronia, Corinthia, Constitution, Edinburgh Castle, Empress of England, Empress of Britain, Eastriver, Israel, Ivernia, Independence, Maasdam, Mauretania, Nevasa, Nieuw Amsterdam, Olympia, Elir, Orion, Orcades, Oronsay, Orsova, Oxfordshire, Oslofjord, Pretoria Castle, Pendennis Castle, Queen of Bermuda, Queen Elizabeth, Queen Mary, Reina Del Mar, Rijndam, Stirling Castle, Sylvania, Saxonia & Zion.

Direct Radiophoto Service.—Radiophoto Services are available directly with the following countries through each of the three Gateway Stations from India viz. Bombay, Calcutta and New Delhi:—

Britain, France, Federal Republic of Germany, Italy, Japan and U.S.S.R.

Additionally, from New Delhi only: with China and Poland.

Switched Radiophoto Services.—Radiophoto Service via our direct connections with international trunk routes is available with the following countries:—

Australia, Belgium, Canada, Czechoslovakia, Denmark, Egypt, Finland, Germany, Greece, Ghana, Kingston, Jamaica, Nigeria, Norway, Portugal, Singapore, Sweden, South Africa, Switzerland, U.S.A. and Yugoslavia.

Multi-Address Press Broadcast (Telegraph).—Overseas Communications Service provides simultaneous news-transmissions by Radio Telegraph on behalf of the Ministry of External Affairs, to about 39 Indian Consular posts around the world.

Programme Transmissions.—Facilities are offered for programme transmissions by News Agencies and correspondents to broadcast to their principal live despatches.

Leased Telegraph channels.—Leased teleprinter channels for private customers on rental basis, introduced during the year 1957, were extended further. Twenty-one such channels are in use at present by business concerns and Government. This facility provides means of telegraph communication directly between the parties.

International Telex Service.—The International Telex Service, introduced first in India in June, 1960, was further extended from Bombay/Ahmedabad to several more countries. It is now available to 42 countries, viz. Argentine, Australia, Austria, Belgium, Bermuda, Brazil, Britain, Bulgaria, Canada, Czechoslovakia, Denmark, Faroe Islands, Federal Republic of Germany, Finland, France, German Democratic Republic, Ghana, Greece, Hongkong, Hungary, Iceland, Irish Republic, Israel, Italy, Japan, Kenya-Uganda-Tanganyika, Luxemburg, Malaya, Malta, Netherlands, Norway, Poland, Republic of Sudan, Roumania, Singapore, Spain, Sweden, Switzerland, U.S.A., U.S.S.R. and Yugoslavia.

87. General.—The Service has kept abreast with other advanced countries in adopting modern techniques in the field of telecommunications. The latest electronic systems of automatic error-correction have been introduced on several major Wireless Telegraph Circuits. Plans for extension

sion of these facilities on further circuits, as well as modernisation of other operational aspects, are in progress.

88. India is a member of the Commonwealth Tele-communications Board. The contributions by the Overseas Communications Service to the C.T. Board for office expenses during 1961-62 and 1962-63 were Rs. 36,000 and Rs. 58,000 respectively.

89. *Budgetary position.*—The net profit for 1961-62 amounted to Rs. 99,66,036 against Rs. 69,32,066 for 1960-61. The net profits for the two years are shown below in terms of percentages. Increase in profit is due to the increase in revenue and decrease in certain items of expenditure, particularly due to *ad hoc* remission of a portion of Overseas Communications Services wayleave liability.

	1961-62	1960-61
Net profit as percentage of Government capital	37.05	28.42
Net profit as percentage of traffic revenue	42.30	32.58
Net profit as percentage of total revenue	41.91	32.27

The Budget Estimates and the Revised Estimates for the year 1962-63 and the Budget Estimates for 1963-64 are given below:—

	Budget Estimate, 1962-63 Rs.	Revised Estimate, 1962-63 Rs.	Budget Estimate, 1963-64 Rs.
1. Revenue Expenditure	1,49,94,000	1,29,64,000	1,39,74,000
2. Capital Expenditure	48,21,000	46,42,000	40,02,000

SECTION VI

RAILWAY INSPECTORATE

90. The duties and functions of the Addl. Commissioners of Railway Safety, as laid down in section 4 of the Indian Railways Act of 1890, are:—

- holding of enquiries into serious Railway Accidents;
- inspection of new railway lines prior to their opening to passenger traffic;
- periodical inspection of non-Govt. lines;
- recommendations with regard to the running of new types of block instruments, locomotives and rolling stock;
- sanction to the opening for passenger traffic of new works, such as deviation lines, bridges, signalling and interlocking installations, stations, junctions and crossings on the level;
- additions, alterations and reconstructions materially affecting the character of works which form part of, or are directly

connected with the working of Railways already open for the public carriage of passengers;

- sanction to the movement of over dimensional consignments; and
- disposal of applications relating to infringements of standard dimensions.

91. During the nine months ended 31st December, 1962, the Railway Inspectorate carried out Statutory enquiries into 12 serious accidents to passenger trains on Indian Railways. These included 5 collisions and 6 derailments, apart from one accident resulting in serious loss of life due to pilgrims travelling on the roof of coaches of a train running through a bridge. Besides these serious accidents, a major accident occurred during the year at Dumraon in Bihar, on the 21st July, 1962, for which a Commission of Inquiry, consisting of a High Court Judge, was appointed. On 4th January, 1963, another serious accident occurred at Umeshnagar in Katihar District, North Bihar, for which the Commissioner of Railway Safety himself held the inquiry.

92. During the period April to December, 1962, 510 kilometres of new lines, including doublings, were opened to passenger traffic, after inspection by the Additional Commissioners of Railway Safety.

93. The Commissioner of Railway Safety and his personnel assisted the Railway Accidents Committee with detailed information and technical opinion, as and when required.

94. The following table shows the Budget and Revised Estimates for 1962-63 and the Budget Estimates, 1963-64 in respect of the Inspectorate:—

	Budget Estimates, 1962-63	Revised Estimates, 1962-63	Budget Estimates, 1963-64
General Administration and Establishment Charges	4,92,000	5,08,600	5,27,100
Railway Board's contribution towards the cost of the Railway Inspectorate	2,85,000	2,85,000	2,85,000
Incidence on General Revenues	2,07,000	2,73,600	2,42,100

SECTION VII

INDIAN TELEPHONE INDUSTRIES LTD., BANGALORE

95. The progress of the factory has been maintained during the year.

96. *Production.*—In respect of the main items of production, the achievements during 1961-62, the targets for 1962-63 and the achievements upto the end of December, 1962 are given below:—

	Achieved during 1961-62	Targets for 1962-63	Achieved upto 31-12-62
Telephones			90,503
Multiple Racks	1,16,701	1,30,000	511*
Misc. Racks	614	865*	422*
Small Exchanges	532	622*	726
8 Channel Systems	781	1,240	26
3 Channel Stackable Channels	35	50	235
F.M.V.F.T. Channels	303	400	330*
12. Channel Bays	450	630	79
	105	151	

During the period under review, the Pilot Production Department of the factory took up 12 pilot projects. Among new items for which batch production was taken up for the first time are: Monitoring Equipment for A.I.R., Test Sets for Auto Telex, Digit Key, Bank Screw Extractor, 2-Home Position Unselector, Monitory Display Buzzar, 20-Way Inter-communication Equipment and 8-Channel System for working on Cables. Development of as many as 50^{new} items was also completed during the period. Several precision measuring instruments have been developed and gone into production. These are, Selective Level Meter, Psophometer, Cathode Ray Oscilloscope, Channel Synchroniser, 1600 c/s Oscillator, V.T.V.M. (10 c/s to 4 Mc/s), Frequency Counter, Megger, Ringer & Tone Generator for Telephone Exchanges, Headgear Set No. 10, 11, 13 and 15, Field Telephone for the Army and Flasher Unit.

97. *Exchanges Installed or Maintained.*—The total number of Private Automatic Exchanges installed and maintained in the five principal cities viz. Bangalore, Bombay, Calcutta, Delhi and Madras was 311 and 973 respectively during the period ended 31st December, 1962. The following are some of the large automatic exchanges installed by the Company during the period under review:

- | | |
|--|-----------------------------|
| 1. Hindustan Machine Tools Ltd., Bangalore | 300 line Auto Exchange. |
| 2. A.P.V. Project, Durgapur | 200/600 line Auto Exchange. |
| 3. N.F. Railway, Pandu | 400/600 line Auto Exchange. |
| 4. Rourkela Auto (P&T). | 1,800 line Auto Exchange. |

98. *Finance & Accounts.*—In the Statement of Accounts for the year ended 31st March, 1962, the Company showed a net profit of Rs. 64.48

*Composite racks which were included under Misc. Racks during 1961-62 have been included under Multiple Racks.

lakhs. Adding the amount brought forward from the previous year's account, a total sum of Rs. 64.81 lakhs was available for distribution. After making provision for taxes (Rs. 39.5 lakhs) and reserves (Rs. 10.9 lakhs), the Company declared a dividend at 3½% during the year 1961-62, the Government of India's share of dividend out of a total of Rs. 14 lakhs being roughly Rs. 12.55 lakhs.

The authorised capital of the Company which is fully paid up continued to be Rs. 4 crores. The total amount of loans granted by the Central Government to the Company stood at Rs. 1,91,84,200 at the end of December, 1962. Interest on all the loans is being paid by the Company regularly.

99. *Sales.*—The value of sales during the year 1962-63 is anticipated to be of the order of Rs. 700 lakhs. Upto the end of December, 1962 goods worth Rs. 462.85 lakhs were sold.

Continued attention was paid to the promotion of export trade. Orders worth Rs. 4.72 lakhs for RAXs. and Automatic Exchange Equipments have been received from Ceylon and the goods are expected to be shipped to Ceylon by March, 1963. Upto the end of October, 1962 the value of sales in foreign countries amounted to Rs. 35,343.70 nP.

The Company also participated in the International Trade Fair Lagos (Nigeria), the Tunis International Fair (Tunisia) and the India Show Room—Beirut (Lebanon).

100. *Labour Relations.*—Labour relations continue to be cordial.

101. *Wage Structure.*—The wage structure was further revised from 1st January, 1962. During the period under review, non-operative staff also were made eligible for over-time payment at normal rate. An agreement on the production bonus and incentive payment schemes was signed in November, 1962 between the management and the Employees' Union. This agreement is valid for a period of three years from the 1st April, 1962.

102. *Personnel.*—The total staff strength of the factory as on the 31st December, 1962 was 8,965.

SECTION VIII

THE HINDUSTAN TELEPRINTERS LIMITED, MADRAS.
103. The Hindustan Teleprinters Limited, Madras, was registered as a Government Company on the 14th December, 1960. The Company is

at present located in temporary premises in the Industrial Estate at Guindy, Madras. Land for the construction of the factory buildings was handed over by the Government of Madras free of cost in April, 1962 and the construction work is in progress. It is expected that the entire factory building will be ready by about the end of March, 1964.

104. *Production.*—The production target of the Company is fixed for periods of half years may to November and December to April. For the period May, 1962 to April, 1963 the Company is expected to assemble 850 Teleprinters. They had actually assembled 510 Teleprinters upto the 31st December, 1962. Practically all the machinery required for the factory has been ordered and about 80% of it has been received. The tooling for the manufacture of Teleprinters has also been ordered and about 25% has been received. The indigenous manufacture of components is being progressively increased. At present, about 20% of the components are being made indigenously.

105. *Finance.*—The Company is being run as a Private Limited Company, fully-owned by the Central Government, with an authorised capital of Rs. 3 crores. The paid up capital of the Company as on the 31st March, 1962 was Rs. 50.2 lakhs. During the year 1962-63, the Central Government have invested Rs. 17 lakhs and propose to invest another sum of Rs. 7.8 lakhs by purchase of shares of the Company. The total amount of share capital of the Company at the end of the year 1962-63 will be Rs. 75 lakhs. During the year 1962-63, the Central Government have so far sanctioned a loan of Rs. 15 lakhs and propose to sanction a further loan of Rs. 13.2 lakhs before the end of the financial year to the Company. During 1963-64, the fund requirements of the Company from the Central Government have been estimated as Rs. 38 lakhs, the entire amount being provided in the shape of loans.

In the first Statement of Accounts covering the period ending March, 1962 the Company showed a nett loss of Rs. 1,91,590. The Company was not expected to make a profit in the initial stages.

106. *Personnel.*—The staff strength of the Company as on the 1st January, 1963 was 163 which included 8 Italian experts.

SECTION IX MISCELLANEOUS

107. *O. & M. Activities.*—The O. & M. activities of the Ministries continue to be governed by the "Work Study" approach. Special attention was paid to identify and study sectors of administration requiring attention from the point of view of cost reduction. Some of the important studies carried out by the two Air Corporations and the

Indian Telephone Industries and the results achieved by them during the year are as follows:—

Field of Study 1	Results achieved 2
(a) Air India Corporation :	
(i) Control over fuel and oil consumption—Contract for supplies of fuel and oil.	<p>A saving of Rs. 1.50 lakhs per annum on fuel bill is expected by adopting long range cruise technique wherever possible, by avoiding dead flying etc.</p> <p>As a result of a fresh contract for supply of fuel to the Boeing aircraft at Delhi on an annual basis, expenditure on fuel is likely to be reduced by about Rs. 3.10 lakhs per annum.</p> <p>A contract for supply of fuel at Tokyo is under negotiation with a Japanese Company which is likely to result in a saving of Rs. 1.70 lakhs per annum.</p> <p>Similar enquiries regarding alternate sources of supply, with a view to save on fuel bill particularly in Italy, are being made. It is also proposed to maintain close liaison and collaboration with the Indian Oil Company.</p>
(ii) Engineering man-power utilization and enhancement in the period between overhauls of jet engines.	<p>The periods of overhaul of Boeing 707 aircraft have been substantially increased. This is likely to result in significant saving both in regard to material consumption and labour.</p> <p>As a result of the increase in the periods of overhaul of Rolls-Royce Conway Jet Engines, expenditure on engine overhaul is likely to come down by about Rs. 2 lakhs per annum of which Rs. 0.60 lakh will represent savings in foreign exchange.</p> <p>Arrangements have been made for the overhaul of the Conway Jet Engines at the Overhaul Workshop recently set up by the Corporation at a total capital cost of Rs. 52 lakhs. The engines were hitherto being overhauled by Rolls Royce at their Workshops in U.K. on a contract basis. As a result of these arrangements a saving of Rs. 25 to 30 lakhs per annum is expected.</p> <p>Arrangements have also been made for the overhaul of the Sunstrand Constant Speed Drive Unit, one of the major accessories of the jet engines, hitherto being attended to in the United Kingdom, in the Corporation's Engineering Works at Santa Cruz, Bombay. This is likely to result in a saving of Rs. 2.50 lakhs per annum, including Rs. 1.00 lakh in foreign exchange.</p>
(iii) Development of indigenous material.	<p>Indigenous procurement of aircraft carpets and upholstery material will result in a saving of Rs. 1.86 lakhs per annum including Rs. 4.51 lakhs in foreign exchange.</p>

- (ii) Crew accommodation cost in U.S.A. Crew accommodation costs at New York have been reduced by approximately Rs. 13,000 a quarter (effective only during the summer season when the frequency across the Atlantic would be on a daily basis).
- (v) Technical handling in Bangkok. With effect from 1st September, 1962, the Corporation have started doing their own technical handling of their services at Bangkok Airport which was hitherto being done by KLM. This arrangement will result in reduction of expenditure of approximately Rs. 2 lakhs per annum in foreign exchange.
- (vi) Introduction of budgetary control at out-stations. A beginning has been made by introducing a budgetary control of expenditure of out-stations over some specified and controllable items of expenses.
- (b) Indian Airlines Corporation :
- (i) Optimum utilisation of man power covering such matters as job evaluation, methods of work, training and incentive schemes. The services of a foreign expert were obtained to study the Indian Airlines Corporation engineering set-up with a view to suggesting a suitable incentive scheme. The expert has since submitted a preliminary report suggesting a complete study of the entire engineering set up. According to the suggested time-table, the study will take a period of 2 years. The Indian Airlines Corporation are considering the question of securing the services of an expert under the Colombo Plan for the proposed study. The study will also include an examination of :—
- (a) optimum utilisation of man power, and
- (b) use of accounting as a tool of management.
- (iii) Improvement of stores provisioning and inventory control. This will also form part of the study of the foreign expert referred to above. However, the matter is also receiving Indian Airlines Corporation's attention separately and improved methods are under study.
- (iv) Improvements of decision making process with special reference to delegation of powers and definition of responsibilities. Adequate powers have been delegated to Senior Officers, e.g. Area Managers, in the matter of disposal of surplus, obsolete and redundant articles.
- (c) Indian Telephone Industries :
- () Sales Billing Group Project . Savings in staff, forms, operations and movement of documents and higher productivity with an increase in output of 60% over the original method. A total annual saving of Rs. 22,770/- is expected on these counts.
- (ii) Purchase Organisation . The existing procedures have been considerably simplified which will result in a saving of Rs. 14,000 per annum to the Company.

108. Other O. & M. Activities.

(a) *Compilation of Codes and Manuals.*—The Overseas Communications Service have revised the Manual of Local Traffic Orders for Bombay and Madras Centres. The compilation of a Manual of Technical Instructions for Observatories by the India Meteorological Department and the revision of the Overseas Communications Service Handbook of Departmental Office Procedure is in hand. The Indian Aircraft Rules are also being revised by the Civil Aviation Department.

(b) *Records Management.*—About 19,000 files which had out-lived their usefulness were weeded out during the year by the Main Ministry and the offices of the Civil Aviation Department and the Overseas Communications Service. The periods of retention prescribed for the preservation of various types of records are also being reviewed.

(c) *Weekly Arrears Statement.*—A revised form of Weekly Arrears Statement which was introduced last year in certain Sections of the Main Ministry as an experimental measure, was introduced this year in all the Sections of the Ministry. The introduction of the new form has served the twin object of effecting economy in paper and of knowing at a glance improvement or deterioration, if any in the performance of a particular dealing hand as well as of the Section as a whole over a period of time.

109. *Inspections.*—Forty six inspections as shown below were conducted in the Ministry and the Civil Aviation Department during the year:—

	Annual Inspections conducted by officers of the rank of Deputy Secretary	Quarterly and half yearly inspections conducted by officers of the rank of Under Secretary
Ministry		26
Civil Aviation Department	4	11
TOTAL	5	37
	9	

The defects observed in these inspections were brought to the notice of the Sections concerned for remedial action.

110. *Progress made in the use of Hindi.*—The position in this regard in respect of the various organisations is summarised below:—

Ministry (Main).

(Depts. of Commns. & Civil Aviation).

111. A Hindi unit under the charge of a gazetted Hindi officer has been established in the Ministry (main) to deal exclusively with Hindi work. Besides this, the services of Hindi knowing officers and staff are also utilised as and when necessary.

In accordance with the instructions issued by the Ministry of Home Affairs, necessary rosters in respect of non-Hindi knowing staff have been prepared and the staff is deputed for training in Hindi, Hindi stenography and Hindi typewriting.

All communications received in Hindi are invariably replied to in Hindi. Orders, Circulars and reports etc., which are of a general nature, and those relating to Class IV staff, are issued in Hindi.

There is sufficient number of Hindi typewriters to meet the present needs.

112. *Civil Aviation Department.*—The Department continued to sponsor employees for training in Hindi medium including training in Hindi typewriting and Hindi stenography as per requirements of the Hindi Teaching Scheme.

As a step towards the translation of Departmental literature into Hindi language during the period under review, this Department forwarded the entire manuals, codes, rules and regulations of non-statutory nature with which this Department is concerned to the Central Hindi Directorate for translation into Hindi language.

A more significant event of the year has been the introduction of noting and drafting in Hindi language in a number of sections in Headquarters office. Hindi Section has been permitted to carry out its work in Hindi language while all other sections/Units at Headquarters have been permitted to correspond with Hindi Section in Hindi language. The number of such Sections which have accordingly started noting and drafting in Hindi language is seven out of a total number of thirty-four sections/Units. Out of these 34 sections 10 sections have more than 60 per cent of their staff already trained in Hindi.

Supply orders have been issued for purchase of Hindi typewriters for use of the regional staff posted at Bombay, Calcutta and Delhi. In addition Hindi Section at Headquarters and Civil Aviation Training Centre at Allahabad have also been provided with one Hindi typewriter each.

A Senior Departmental Expert is being nominated who will be available to Central Hindi Directorate for consultation/advice in connection with the translation of non-statutory manuals, codes etc. pertaining to Civil Aviation.

113. *India Met. Department.*—In pursuance of the Presidential Order of 1960, the programme of in-service training in Hindi under the Hindi Teaching Scheme was intensified. Members of the departmental staff at all important stations, except at Kodaikanal, availed of the Hindi Training facilities provided under the Scheme. Starting of such classes at Kodaikanal was under consideration.

Arrangements were continued for sending replies in Hindi to all letters received in Hindi wherever replies were called for. In order to make full utilisation of the persons trained in Hindi, their services were utilised in drafting/ translating letters in Hindi. Purchase of Hindi typewriters for use by persons trained in Hindi typewriting was also sanctioned for some of the departmental offices.

114. *Railway Inspectorate.*—Letter-heads and office name boards in all the circle offices have already been or are being printed in the bilingual form. Hindi typewriters were purchased by the offices of the Additional Commissioner of Railway Safety, Eastern and Western Circles, during the year. To start with arrangements have been made in two of the five circle offices of the Railway Inspectorate, namely in the offices of the Additional Commissioner of Railway Safety, Northern Circle, Lucknow, and Western Circle, Bombay, for replying in Hindi communications received in that language. In the latter office, notings in some cases are also being written in Hindi.

Three departmental forms which are in use in the Circle Offices were translated into Hindi during the year. The annual report of the Commissioner of Railway Safety on the working of the Railway Inspectorate is also being regularly published in Hindi. There are no departmental manuals, codes etc., in the Railway Inspectorate, which are required to be translated into Hindi.

115. *Wireless Planning & Co-ordination Organisation.*—Forms pertaining to the Monitoring Organisation have been translated into Hindi and necessary instructions and orders to Class IV staff are being issued in Hindi. The other instructions issued by the Ministry of Home Affairs are also being followed. The form used for application in the Radio and Cable Board for siting of transmitting and receiving wireless stations has been rendered in Hindi and English.

APPENDIX I
LIST OF AERODROMES IN INDIA MAINTAINED BY THE CIVIL AVIATION DEPARTMENT AS ON 1ST JANUARY 1963

S. No. Name of Aerodrome

I—International Aerodromes

1. Bombay Airport (Santa Cruz)
2. Calcutta Airport (Dum Dum)
3. Delhi Airport (Palam)

II—Major Aerodromes

4. Agartala
5. Ahmedabad
6. Begumpet
7. Delhi (Safdarjung)
8. Gauhati
9. Madras (St. Thomas Mount)
10. Nagpur
11. Tiruchirappalli

III—Intermediate Aerodromes

12. Amritsar
13. Aurangabad
14. Baghdogra
15. Balurghat
16. Baroda
17. Belgaum
18. Bhavnagar
19. Bhopal
20. Bhubaneswar (Cuttack)
21. Bhuj
22. Bhuntar (Kulu)
23. Bombay (Juhu)
24. Coimbatore
25. Cooch-Bihar
26. Gaya
27. Indore
28. Jaipur
29. Junagadh (Keshod)
30. Kailashahar
31. Kamalpur
32. Kandla
33. Khowai
34. Kumbhirgram
35. Lucknow (Amausi)
36. Madurai
37. Mangalore (Bajpe)
38. Mohanbari
39. North Lakhimpur (Lilabari)
40. Passighat
41. Patna
42. Phoolbagh
43. Porbandar
44. Port Blair
45. Rajkot
46. Ranchi

Remarks
Jointly used by I.A.F.
and D.G.C.A.

S. No.

47

Name of Aerodrome

Remarks

47. Rupsi
48. Trivandrum
49. Tulihal
50. Udaipur
51. Varanasi
52. Visakhapatnam

IV—Minor Aerodromes

53. Akola
54. Behala
55. Bilaspur
56. Chakulia
57. Cuddappah
58. Donakonda
59. Jhansi
60. Jharsuguda
61. Jabalpur
62. Kanpur (Civil)
63. Khandwa
64. Kolhapur
65. Kotah
66. Lalitpur
67. Malda
68. Muzaffarpur (Kewaghat)
69. Mysore
70. Palampur (Deesa)
71. Panagarh
72. Panna
73. Raipur
74. Rajahmundry
75. Ramnagar
76. Satna
77. Shella
78. Sholapur
79. Tanjore
80. Vellore
81. Vijayawada
82. Warangal



APPENDIX II

LIST OF AERONAUTICAL COMMUNICATION STATIONS MAINTAINED
BY THE CIVIL AVIATION DEPARTMENT AS ON
1ST JANUARY 1963

1. Agartala
2. Ahmedabad
3. Akola
4. Allahabad
5. Amritsar
6. Aurangabad
7. Baghdogra
8. Balurghat
9. Bangalore
10. Banihal
11. Baroda
12. Baruaipur
13. Belgaum
14. Bellary
15. Berhampore
16. Bhatinda
17. Bhavnagar
18. Bhopal
19. Bhubaneswar
20. Bhuji
21. Bhuntar (seasonal station)
22. Bombay
23. Calcutta
24. Chakulia
25. Chandernagore
26. Cochin
27. Coimbatore
28. Cooch-Behar
29. Cuddappah
30. Delhi
31. Gaya
32. Gauhati
33. Ghaziabad
34. Gwalior
35. Hyderabad (Begumpet)
36. Imphal
37. Indore
38. Jabalpur
39. Jaipur
40. Jammu
41. Jamnagar
42. Jamshedpur

43. Jharsuguda
44. Jodhpur
45. Kailashahar
46. Kamalpur
47. Kandla
48. Kanpur
49. Kathmandu
50. Keshod
51. Khowal
52. Kotah
53. Kumbhirgram
54. Lalitpur
55. Lilabari
56. Lucknow
57. Madras
58. Madurai
59. Mandasor
60. Mangalore
61. Mohanbari
62. Nagpur
63. Panagarh
64. Passighat
65. Pataudi
66. Pathankot
67. Patna
68. Phoolbagh (seasonal station)
69. Porbandar
70. Port Blair
71. Qazi Gunj
72. Raipur
73. Rajkot
74. Ranchi
75. Rupsi
76. Saharanpur (Sarsawa)
77. Tiruchirapalli
78. Trivandrum
79. Udaipur
80. Varanasi
81. Vijayawada
82. Visakhapatnam
83. Warangal