

SHRI BENI PRASAD VARMA : Mr. Speaker, Sir, in our country there are two sorting machines, one is installed in Mumbai and other is in Chennai. In installing these machines, the problem is this that the mail-material should have a specific standard. This machine is very costly, which costs about 20 crore rupees per machine. It is not manufactured in our country. We have to import it. Two machines are installed and these are not getting job upto their full capacity. Today, bulk mail comes specially from commercial houses, before it they themselves sorted out their posts but now they assigned this job to the Postal Department. Now the post is being delivered in time and the Department is also being benefitted. But this sorting machine may cause one more problem that in our increasing population, the people, who are getting job now, may loose employment opportunity. We installed these machines after paying money to foreign countries. Even then during ninth plan installing of lowes barfooting machines is under consideration.

SHRI SHIVRAJ SINGH : Mr. Speaker, Sir, in our great and vast country there are more than 5 lacs cillages and according to the annual report of the Department of Post there is one post office per 23.12 sq.km. of rural development which covers so many villages, in such hard situation and even after the full willingness of a postman, he can't deliver the letters daily. Therefore, specially, in rural areas, remote areas where the mail is delivered that is not received for many days, and on several occasions the letter is received, when it's purpose is already lost. It may be sad news or a happy news about marriage etc., it may be a notice of district council or district Panchayat's meetings. I belong to a village which comes in a remote area. I also received my letters too late there and most of the times they loose their purpose. Therefore, I want to ask Hon'ble Minister that in remote areas the mail would reach in time and should be delivered daily and properly. At present letters are not reaching in rural areas properly. I want to ask hon'ble Minister what steps he would like to take in this matter?

Number two...(Interruptions)

MR. SPEAKER : No number two further, you had already completed you number one and this one is number two.

SHRI BENI PRASAD VARMA : The network of posts in our country is the biggest in the world. However, China is more populated than us, but we have three times more post offices in our country and I have an information according to which post is being delivered in each and every village.

SHRI SHIV RAJ SINGH : Hon'ble Speaker, Sir, No it's not so. This information is wrong.

SHRI BENI PRASAD VARMA : First let me complete. However, the doubt which has been shown by hon'ble member we are also concerned and we doing our best efforts. Recently we have made certain specific

arrangements for post in cosmopolitan cities for X'mas and New year's day. To deliver Pongal greeting cards in Tamil Nadu, separate arrangements has been made. And we will send senior officers of Headquarters, to find in the states that the letters are delivering in time or not, as hon'ble Members has doubt about it. The information according to which post is delivered daily in villages, is right or wrong I myself will ensure it.

SHRI SHIVRAJ SINGH : Hon'ble Speaker, Sir, post is not received for months together...(Interruptions)

SHRI THAWAR CHAND GEHLOT : Hon'ble Speaker, Sir, I want to ask a question from the hon'ble Minister whether the Govt. fixed any criteria to open post offices? Whether a post office should be open in a village whose population is more than 1000? If there is such criteria, whether the Govt. will open post offices in all those villages, whose population is more than 1000 up to December, 1997.

SHRI BENI PRASAD VARMA : Mr. Speaker, Sir, there are more than 6 lacs villages in our country and the number of post offices is about 1,53,000 and a post office is open at the population of 3000 and 1/3 revenue is recieved. Now during Ninth Plan, we will try to open post offices according to our criteria.

SHRI VIJAY ANNAJI MUDE : Hon'ble Speaker, Sir, I want to ask from the hon'ble Minister through you the reasons for delay in distribution of Dak. Whether it is due to less salary of workers working there. Whether the Govt. propose to enhance their salary so that the mismanagement of the post would get away?

SHRI BENI PRASAD VARMA : The concern of Hon'ble Member is justifiable. Justice Talwar committee has been constituted for E.D. employees. The limit of their gratuity has been increased to Rs. 16000 from Rs. 5000, two-three months back. We have also concern about E.D. employees and we are making arrangements for Talwar Committee...(Interruptions)

[English]

Investment on R and D Public and Private Steel Sector

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402. SHRI ANNASAHIB M.K. PATIL :
JUSTICE GUMAN MAL LODHA :

Will the Minister of STEEL be pleased to state :

(a) the investment/spending on Research and Development in public and private steel sector during the last three years and the results achieved therefrom;

(b) whether the Government have decided to encourage more investment in Research and Development in production of quality steel keeping in view the global trends in quality and cost effectiveness;

(c) if so, the details thereof alongwith the order of investment likely to be made in public and private sector of steel industry during the current year and next three years; and

(d) the present status of ongoing Research and Development projects in public/private sector and the projects under consideration?

THE MINISTER OF STEEL AND MINISTER OF MINES (SHRI BIRENDRA PRASAD BAISHYA) : (a) to (d). A Statement is laid on the Table of the House.

STATEMENT

(a) The investment/spending on Research and Development in public and private steel sectors during the last three years is given below :

	(Rs. in crores)		
	1993-94	1994-95	1995-96
<i>Public Sector</i>			
Steel Authority of India Limited (SAIL)	40.18	45.13	50.12
Rashtriya Ispat Nigam Ltd. (RINL)	2.50	2.50	2.50
Sub-total	42.68	47.63	52.62
<i>Private Sector</i>			
Tata Iron and Steel Co. Ltd. (TISCO)	10.45	11.55	11.30
Mukand Limited	00.52	00.54	00.61
Bihar Alloys and Steel Ltd.	00.52	00.57	00.57
Usha Martin Industries Ltd.	00.20	00.19	-
Kalyani Steel Ltd.	00.10	00.08	00.05
Sunflag Iron and Steel Co., Ltd.	1.22	-	-
Mahindra Ugine Steel Co. Ltd.	-	00.27	00.50
Sub-total	13.01	13.20	13.03
Total	55.69	60.83	65.65

Results achieved

SAIL

R and D efforts during the above period have resulted in improvement or performance indices of the steel plants. Besides, a number of knowhow transfer and consultancy work have been executed by RDCTS, SAIL which has also led to external earning during 1994-95 and 1995-96.

RINL

R and D activities helped to develop suitable alternative raw material, improvement in productivity and efficiency in sinter machines, hammer crusher, iron and steel making plants. This enabled improvement in quality of iron and steel produced.

TISCO

In the past three years, a number of projects were handled and this brought about improvements in raw material, iron and steel making and down stream processing. Further, new products such as Corrosion Resistant Reinforcement Steel. Steel for automobile forged components were introduced for the first time in India.

Other Private Sector Steel Plants

The Research and Development projects undertaken by these plants covered mainly the following thrust areas :

- New product and process development through adaptation and as well as indigenous development for iron and steel technologies.
- Cost reduction.
- Energy conservation.
- Waste utilisation.

(b) and (c). The matter is under consideration.

(d) SAIL

There are 87 projects planned for completion in different units of SAIL by the end of March'97. The projects are running well. As on 30th November, 1996, number of projects completed is 26.

Some of the projects completed and those ongoing have led to various technological benefits which are enumerated in the Annexure.

RINL

All the R and D schemes taken up till 1995-96 have been completed. The following R and D projects which have been taken up during the current financial year are under various stages of completion :

- (i) Studies for improvement of lining life of Converter.
- (ii) Development of binding wires.
- (iii) Use of LD Slag in Sinter making in place of limestone.
- (iv) Initial studies for using Soft Coal in the coal blend.
- (v) Production of FE 500 grade of reinforcement bars in Wire Rod Mill.

TISCO

A number of projects (Total 42) in various areas are going on in raw material, iron and steel, products and characterisation. The projects are running satisfactorily.

ANNEXURE**A. Selected Ongoing Projects :*****Development of Structural of IRS:M-41 Grade Steel Through ASP IISCO Route: ASP***

A trial rolling of ingots was carried out at IISCO using the technological parameters jointly decided by RDCIS, ASP and IISCO. The product rolled was IS-250 channels against the requirements of Railways. The test results have shown that the long product meets the strength properties requirements of the above specification with YS:409 mpa and UTS:512 mPa against the minimum specified value (f 340 mPa and 480 mPa respectively along with bend formability of IT.

Measurement of Mould Heat Transfer Coefficient and Heat Extraction Capability of Spray Nozzes of Slab Caster; BSP

Continuous measurement of mould temperature in the slab caster has been made in three heat. The study involved simultaneous measurement of temperature at 64 different locations in the mould along with data logging of casting parameters. This kind of measurement, which has been made for the first time in the country, coupled with already developed mathematical model will be the input to wide ranging improvement in concast at BSP, viz, modification of secondary cooling for enhanced casting speed, minimisation of defects in cast slabs, and software for air mist cooling.

Improvement in Quality of Silicon Steel; RSP

The results of first campaign of 8 heats made in April, 96 were analysed and change in chemistry with higher Al (0.25-0.40%) and SL (2.40-2.60%) was recommended with modified reheating temperature of 1250°C. Using the above modified practice, 15 heats have been made since July, 1996. The results of 20 fully processed coils show that 17 have passed in M-36 grade and remaining 3 in M-27 grade. This is very encouraging from the view point of stabilisation of commercial production.

Incorporation or Precision Leveller in Slitting Line No. 3 of CRM: BSL

The shape of the cold rolled strip needed a correction to improve flatness. In order to overcome the defect, a precision leveller has been installed and commissioned in slitting Line # 3 on August 21, 1996. This facility has improved the flatness of the sheets considerably. It has been observed that the flatness has improved by 50-55% from the initial waviness is of the

order of 15-20 mm. The improvement is about 70% if the initial waviness of 10 mm.

Quality Improvement of Galbo Coils to Meet Requirements of Coil Coating Industry, BSL

Developmental efforts were made at BSL for the optimisation of process technology to control the surface morphology of Hot Dip galvanized (HDG) sheets. Spangles on HDG sheets were controlled from a mean value of 5000 microns to <200 microns through bath control (Pb<0.10%, Al 0.20-0.22% and Fe-0.06%), together with accelerated air-water mist cooling and temper rolling of coated strip. M/s. J.C. Coach Builders, Chandigarh have accepted the entire lot of 55 tonnes of Galbo coils for use in bus body construction. About 200 tonnes of Galbo coils have been accepted by such diverse market segments as colour coaters, manufacturers of security equipment and home appliances.

PROJECTS COMPLETED***Optimisation of Deoxidation Practice for Semi-killed Steels Through Twin Hearth Furnace at SMS-1; BSP; June 1996***

Deoxidation of IS 2062 grade of steel (semi killed) through Twin Hearth furnaces at SMS-1 of BSP has been optimised by modified deoxidation practice with SiMn and HCFeMn. This has resulted in smooth teeming practice with flat top ingots without any Al addition in mould and improvement in Si and Mn recoveries from 18.8 to 41.4% and 69.8 to 75.5% respectively, thereby reducing FeSi and HCFeMn consumption by 0.50 Kg/ton and 0.60 Kg/ton respectively.

Identification of Reasons for Molten Core and Pipe in Blooms and Billets and Remedial Measures thereof; BSP; September 1996

To reduce the occurrence of molten core at SMS-1, 25 trial heats were carried out during April-Sept 1996 using; deoxidation with FeMn and SiMn; reduced soaking temperature to 1340°C; nitrogen lancing of ladle to reduce heterogeneity; and control of carry over slag. As a result of improved deoxidation and reduced soaking pit temperature, the molten core at 1000T shear in blooming mill reduced from 1.2% to about 0.7%. Based on this, the shop has worked out the implementation plan.

Improvement in Design of Burner, Skid insulation and Solid Refractories of the Reheating Furnace, Plate Mill; BSP; October 96

6 modified oil fired burners have been designed, fabricated and tested in reheating furnace # 3. Skids with LCC incorporation ceramic fibre have been cast in situ in Furnace #1 whereas pre-cast to pre fired blocks made from LCC have been used on the skids for Furnace # 3. The steam thus generated through skid

pipe coaling has reduced by 28% (from 8.07t/hr to 5.77t/hr). The skid life has also increased to 10 months against 6-7 months before innovation.

Utilisation of Acid Sludge Generated in Acid Washing of Crude Benzol; BSP; October 1996

An environment-friendly technology has been successfully developed by BSP and RDCIS for recovering acid from sludge generated during acid washing of crude benzol through detailed laboratory and pilot scale investigations. A 10 tpd commercial plant based on the above technology has been designed, installed and commissioned. So far about 250 tonnes of acid has been produced in this plant. This waste-utilisation technology can be horizontally transferred to other steel plants.

Improvement in Productivity for Machining difficult to Machine Materials; DSP; April 1996

Plasma aided hot machining has been introduced in CEM Shop at DSP for machining difficult materials with hardness above 350 BHN. This system has been indigenously developed. The material removal rate has increased by more than five folds with high degree of dimensional accuracy in comparison to conventional machining processes while machining S.G. Iron rolls. The test results show that there was no adverse effect on material due to hot machining. The surface temperature of the rolls remained below 125°C and there was no drop in hardness of the roll.

Development of Micro-alloyed Steel for Coach and Wagon Wheel and inclined Hole Drilling Technology for Loco Wheels at W and AP; DSP October 1996

Two micro-alloyed steel heats with addition of 0.16%V, 0.019% Nb and 0.07-0.13% Mo were made on experimental basis in electric arc furnace and subsequently processed for coach and wagon wheels as per IRS-R-19-93 specification. Mechanical and metallurgical properties in normalised condition achieved without the use of existing procedure of rim spray quenching and tempering treatment, are : UTS; 876mPa, % Elong: 17%, BHN; 248-255, CVN Energy: 18.7J and Fracture Toughness (Kk): 57 mPa√m. The steel has potential of increasing productivity with significant cost saving.

Process Optimisation for New Sinter Plant; DSP; October, 1996:

Productivity was improved from 0.87 (average of Feb. 1995 Jan. 1996) to 1.17t/m²/hr. (average of Feb. 1996-Sept. 1996) despite some key parameters like fuel, crushing index, blend mix and gas pressure not being as per DPR norms. This was achieved by optimising balling regime leading to increased vertical sintering speed. Mean size of sinter was also increased from 13.9mm to 20mm by compaction of the sinter-mix bed.

Condition Monitoring of Equipment Through Wear Analysis by Direct Reading Ferrography; RSP; June, 1996

Five major production units viz. Captive Power Plant I and II, Oxygen Plant, Blooming and Slabbing Mill and Sintering Plant were identified for condition monitoring. Altogether 29 critical equipments were monitored through contaminant analysis at RDCIS using Duplex Ferrograph Analyser and inductively Coupled Plasma technique. The shape, size, colour and texture of the worn out particles were determined. Based on these analysis, failures of Coal Mill Gear Boxes in CPP II and fluid film bearings of Hydraulic Slab Shear in Blooming and Slabbing Mill were averted which could be catastrophic in nature.

Integrated data acquisition system for CPP-II; RSP; June 1996

A comprehensive feasibility study has been conducted and a report has been prepared for retrofitting an Integrated Data Acquisition System in Captive Power Plant-II of RSVP, Rourkela. The report discusses in detail various objectives, functions of modern Integrated Data Acquisition System in power plants like Maintenance, Operator, Trending and Alarm, Data Logging and Sequence of Event Recording, Control, Report Generation, etc. The report also presents two different system configuration schemes giving details of system architecture, on line Turbine and Boiler efficiency calculations and Machine Running hour calculation. It gives complete details of Field signals along with cables, project cost estimation and mandays required.

Improvement in the Quality of TIG Welding of Silicon Steel Coils; RSP, September, 1996.

Two Hot Rolled Silicon Steel Coils are welded to increase the productivity of annealing-pickling line and cold rolling mill. The failure of coils at the welded joints was very high and rollable welds were only to the extent of 45%. By optimising the welding parameters and changing the geometry near weld joint using the stress analysis techniques, the acceptance level was increased to 79%.

Development of On-Line Transaction Processing Software for Front End Financial Accounting, RSP; November 1996.

Two large and complex areas of financial accounting namely Raw Materials Bills and Accounts and Operations Bills and Accounts have been computerised through a developed in-house software. The software program consists of 1,30,000 lines of program code in Oracle, C and Unix. The computerised system handles the accounting per year for 6 million tonnes of raw materials; Rs. 1100 crores in turnover, 50,000 bills and documents; and the workload of 47 persons. The on-line system is working successfully since April 1996.

Process Intensification in BF #5; BSL; June 1996

The performance of this rather sick furnace was improved through; scaffold removal; modification of throat diameter; opening blanked tuyeres; increased humidification of the blast; optimisation of RAFT and corrective action in burden distribution. As a result, the productivity of the furnace has improved from a level of 1.06 11t/m³/day (July-Dec.'95) to 1.25/m³/day (June'96).

Introduction of Advanced Oil Coating System in HDGL and DCRL for better Customer Satisfaction; BSL; August 1996.

An improved oil coating system with high precision flat jet nozzles has been introduced in DCRL for on-line coating of sheet gauge products. Another oil coating system with atomising spray gun is also introduced in HDGL for on-line oil coating of Galbo Coils. Both the systems provide a very fine and uniform oil coating with thickness of 1.0-1.5mm. whereby the specific all consumption has produced from 1.0 litre/tonne to 0.5 litre/tonne in HDGL and from 0.8 litre/tonne to 0.35 litre/tonne in DCRL.

Integrated Alignment System for Coke Pushing Operation at Coke Oven Battery #4; BSL; August 1996

An Integrated Alignment System has been designed, developed and installed in Coke Oven battery #4. The system is based on Gamma Ray Interlock to ensure alignment between pusher and guide cars. A VHF Communication Network has also been set up to establish voice and digital communication between quench car and pusher car operators. The system is now of its kind and utilises single radio frequency carrier for transmitting both voice and digital data signals simultaneously. Introduction of this systems eliminates wrong pushing due to misalignment pusher and guide cars.

Production of Improved Quality E-38/E-34 Automotive Steel Plates; BSL, September, 1996

E-38/E-34 grade of steel is used for making long chassis member in 5-7 thickness. This was being supplied through ASP (EAF-CC)-BSL route to the automobile manufacturers. Production of E-38/E-34 steel was taken up at Bokaro Steel Plant using LD-ingot route due to techno-economic consideration. Both the grades of steel have been successfully produced with the required formability property (close bend achieved against specified requirement of 0.5t for E-38 grade and close bend for E-38). The other mechanical properties achieved (E-38: : YS: 372-450mPa, TS:441-503mPa, Elong:28% and E-34: : YS: 342-412mPa, TS: 440-466mPa, Elong: 29% min.) conform to the specifications. Press forming trials have been carried out at TELCO., Pune satisfactorily.

Improvement in the Productivity of Cold Rolled Stainless Steel Strip; SSP; July 1996

Commercial production of thinner gauge (<1.0mm) ferritic stainless steel through batch annealing process of hot rolled bands is most time and energy consuming. About 100 tonnes of ferritic stainless steel were processed through continuous annealing line in place of batch annealing resulting in increase in production rate from 3t/hr to 30t/hr. The final annealing cycle of cold rolled steel was also modified and the strips were annealed at 880^oC in place of 860^oC. This has resulted in final processing of the strip in the Skin Pass Mill with only 3 no. of passes in place of 5 passes required earlier to overcome stretcher strains and impart desired surface quality. This has increased the productivity by 40% in the Skin Pass Mill.

Evaluation of Texture Profiles in Extra Deep Drawing (EDD) Aluminium and Killed Sheet Steel by Orientation Distribution Function (ODF) technique and Mathematical Modelling of Forming Limit Diagrams (FLD) from ODF data; RDCIS; June 1996

The commercially produced EDD Steel Sheets of 0.8, 1.0, 1.25, 1.60 and 2.0 mm thickness were used to determine the texture profiles and also the forming limit diagrams (FLD). The investigation reveals that 1.25 and 1.60 mm thick sheets possess the (111) type texture, which is desired for deep drawing applications. In 0.8, 1.0 and 2.0 mm thick sheets random textures are the main attributes. Accordingly, the forming behaviour of 1.25 and 1.60 mm sheets are superior to that of the remaining sheets. Furthermore, the theoretically calculated and the experimentally determined FLD and plastic anisotropy (r) values are in very close agreement i.e. within <10% and <5% respectively with each other. FORTRAN softwares for determining FLD and plastic anisotropy have been also developed.

Development of Super Ferritic Stainless Steel; RDCIS; June 1996

Super ferritic stainless steel of 29Cr 4Mo type have been melted and hot rolled at RDCIS. Characterisation study has been carried out with respect to Ductile-Brittle Transition Temperature (DBTT), micro structure. Steel with 2% Ni has exhibited DBTT to near 0oC as well as excellent corrosion resistance properties no failure even after 100 hr of SCC test (ASTM G-123) standard and pitting potential (SCE)>900 mv in a 0.1 N NaCl solution at ambient temperature; and >500mv at 60^oC. Being totally immune to chloride attack, super ferritic stainless steel is suited for application in sea water/brine.

Preparation of Compendium of Welding of Steel; RDCIS; June 1996

A 'Compendium on Welding of Steel' has been prepared in line with the Memorandum of Understanding signed by Director, RDCIS and Director, Commercial on Application Engineering Work. The compendium

comprises two parts, part I contains an overview on welding, designed specially for the field CMO executives who interact with various customers and are often required to advice on certain basic aspects of welding. Part II comprises comprehensive evaluation of weldability properties of 5 grades of steel (Tor, Cu-TMT, Cu-Cr TMT, SAILMA-450HI, ASTM-537C1.1). The study has helped in optimising the welding condition and formulate safe welding practice which will ensure high integrity of the fabricated products.

Influence of Low Reheating Temperature and Low Finishing Temperature on the Cold Rollability of the Hot Band; RDCIS; July, 1996

Investigation was undertaken to collate the effect of rolling low carbon steel in three distinct regions (γ , $4 + \gamma$ and regions) on roll load and torque. The maximum in-flow stress (-180 Mpa) is reacted at around A_{c3} (-890°C). In the mixed ($d + \gamma$) region, the flow stress decreases to -155 MPa with decrease in rolling temperature down to -800°C and starts rising thereafter. Thus current mill practice of finishing at 870°C can be brought down to -750°C without overloading the mill. A sharp increase in mean flow stress in ferritic region forbids rolling below this temperature.

Study on Multilayered-Multiphased Reinforced Castable Composites; RDCIS, September 1996

Studies on different combinations of Clay Based Castables (CBC) with LCC, ULCC and NCC were conducted. CBC was varied in the range of 10 to 60%. The composites were evaluated based on HMOR, binary strength diagram, spalling resistance and mechanical strength. The optimisation study revealed that a maximum of 10% clay based castables could be used with new generation castables without in any way affecting the key parameters (hot strength, spalling resistance). This would result in cost reduction during commercial application.

Integrated Financial Accounting System; RDCIS; November 1996

An on-line computerised system has been developed to take care of the financial accounting of all SAIL units at Ranchi. The software package caters to a turnover of Rs. 55 crores through 40,000 vouchers annually. The scope of work includes on-line voucher preparation to final closure of accounts and on-line queries, MIS, DSS, generation of receipts, vouchers and cheque printing.

This can be made adeptable to other SAIL units with some customisation to handle their accounting needs.

ADDITIONAL INFORMATION

New Technology/Process/Product Developed

- Integrated alignment system for coke pushing operation at coke oven battery #4 has helped in

eliminating wrong pushing due to misalignment of pusher and guide cars.

- Production of improved quality E-38/E-34 automotive steel plates has been standardized at BSI through LAD-Ingot route. Press forming trials, have been carried out at TALC Pun satisfactorily for making long chassis member.
- Multilayered-Multiphased reinforced castables composites have been developed at RDCIS without effecting the properties. This will result in cost reduction during commercial application.
- Development of rule base for effective thermal control of BF process at RDCIS will help in prediction of Si in hot metal.
- Methodology for estimation of CRI-CSR indices of BF coke has been standardised.
- Development of Super Ferritic Steel at RDCIS will help in using the steel in sea water/brine media.

Productivity improvement

- Identification of reasons for molten core and pipe in blocks and billets in SMS-I of BSF has helped in reducing the molten core at 1000 T shear in Blooming Mill from 1.2% to 0.7%.
- Productivity of cold rolled stainless steel strip at skin pass mill of SSP has been increased by 40%.
- Process intensification in BF #5 at BSL has improved the productivity of the furnace from a level of 1.06t/m³/day to 1.25t/m³/day.
- Process intensification and modification of operating regimes have led to increased average BF productivity and decreased coke rate at BF #5 of BSL and BF #4 and IISCO.
- Development of liquid resin bonded mudgun clay of BF #7 at BSP has increased the cast house availability and productivity.
- An on-line system for remote viewing of slabs has been introduced in reheating furnaces #1 and 2 of HSM, RSP. As a result reduction in charging delays, improvement in productivity and reduction in manpower is expected to be achieved.
- Modified deoxidation practice for the production of stainless steel through EAF-VOD route at ASP has increased the chromium recovery as well as the productivity.

Yield Improvement

- Edge condition of HR coils at BSL has been improved as a result of thorough investigation and subsequent implementation of the recommendations made. The incidence of coils with defect free edges increased from 18% to 58%.
- Developed process technology for production of wheel steel through BOF-Ingot route at DSP. This

has been associated with an improvement of overall yield from ingot steel to finished wheel.

Modification in roll pass design and other process parameters at ASP have reduced the total rejection in mill defects in rolled bars for ball bearing steel.

Reduction in Energy Conservation

- Introduction of a coke injector in the EAF of ASP for generation of foamy slags resulted in a reduction in overall electrical energy consumption.
- Modification of the reheating furnaces in Forge shop at ASP with low thermal mass ceramic fibre lining has enabled to achieve an annual saving of 7000 GCal.
- Development and introduction of dual fuel burners at the Heat Treatment and Reheating furnaces has enabled VISL to utilise the available BF gas. This has resulted in a reduction of oil consumption by 90%.

Quality improvement

- Improvement in quality of TIG welding of silicon steel coils at RSP has helped in increasing the acceptance level of rollable welds from 45% to 79%.
- Introduction of advanced oil coatings system in HDGL and DCRL at BSL has helped in providing a uniform oil coating in sheet gauge products for better customer satisfaction.
- Uniform heating of sinter charge under ignition hood along-with monolithic casting of Ignition hood roof in sinter plant II of BSP have improved the sinter strength and reduced the gas consumption as well.
- Strip quality of hot rolled coils at RSP has been improved with the achievement of the desired strip crown (< 80 micron) by optimising the initial roll crown, roll barrel temperature and re-scheduling of hot reduction regimes.
- Edge cracking of HR coils at RSP has been reduced from 8% to 5% through modification of chemistry and controlling other process parameters like mould preparation, leeming practice finish rolling temperature etc.
- Surface conditions of hot rolled coils at BSL have been improved through modification in hydraulic descaling system and the mill practice.

SHRI ANNASAHIB M.K. PATIL : Mr. Speaker, Sir, in reply to my question, the hon. Minister has stated that the public and private sectors have spent only Rs. 100 crore on an average, on research and development. But according to the information that I have collected from various places, the amount that was spent by various companies in the public and private sectors is like this. In a turnover of Rs. 12,000 crore to Rs. 15,000 crore by SAIL, the money spent on research and

development is hardly Rs. 50 crore which comes to about 0.3 to 0.4 per cent. Similar is the case with TISCO where in a turnover of Rs. 4,000 crore to Rs. 5,000 crore, the money spent on research and development is hardly Rs. 8 crore to Rs. 10 crore and that comes to about 0.14 or 0.15 per cent.

MR. SPEAKER : Please ask the question.

SHRI ANNASAHIB M.K. PATIL : Sir, this is the position now. If we want to stand in the international market, we must strengthen our research and development to have a cost effective production. Fortunately, we have an abundance of iron ore and cheap manpower. So, we must have good quality and also marketability.

SHRI BIRENDRA PRASAD BAISHYA : Mr. Speaker, Sir, I do agree with the hon. Member.

SHRI ANNASAHIB M.K. PATIL : Sir, I have not put the question.

I would like to know from the hon. Minister, as to what has been the allocation and actual expenditure on utilisation of these funds.

Then, there is a Steel Development Fund also which is collected to the tune of Rs. 600 crore per annum and the amount spent is hardly Rs. 100 crore. So, I would also like to know from the hon. Minister what was the amount that had been allocated and spent in the field of research and development during the last three years.

MR. SPEAKER : You are making a speech while asking the question. I am going to disallow you now.

SHRI BIRENDRA PRASAD BAISHYA : Sir, I would agree with the hon. Member that the investment on research and development in the steel sector of our country is quite inadequate. I would also agree that the investment on research and development in SAIL is only 0.3 per cent of sales turnover. Now, the Government have taken several measures to improve and increase the investment on research and development.

Recently, the Government took a decision to invest Rs. 150 crore annually on research and development. This matter is in process for placing before the Cabinet now. As soon as we get the approval of the Cabinet, we are going to invest Rs. 150 crores annually on research and development and we are going to take this money from the Steel Development Fund.

SHRI ANNASAHIB M.K. PATIL : Sir, in reply to parts (b) and (c) of my question, the hon. Minister has stated that the matter was under consideration. But the then Secretary Shri Bagchi has stated that Rs. 150 crore had been set aside for research and development in the steel sector as demands exist. These are the words of the then Secretary. These are the words of the then Secretary. There was a Committee of experts under the Chairmanship of Dr. M.K. Sengupta to formulate a strategy for export and domestic consumption. I would like to know whether this expert group has submitted its

report; if so, the details, particularly with regard to various recommendations and measures to be taken in the field of R and D.

SHRI BIRENDRA PRASAD BAISHYA : Sir, for this I need a separate notice as this is not related to research and development. But I would like to inform the House that the rate of steel consumption in our country is very low as compared to the developed countries. Our consumption rate is only 22 Kg.

As far as the Report of the Sengupta Committee is concerned, I need a separate question.

JUSTICE GUMAN MAL LODHA : I would like to know from the hon. Minister, whether it is a fact that the Indian iron ore price is four to five times lower than the world price and the labour cost is also five per cent to 20 per cent less than the cost in the developed countries of the world. It is 32 per cent in the United States. In spite of that the steel industry in India is lagging behind and the world competitors are purchasing iron ore from India and then sending the finished goods to India at a much cheaper price with the result the Indian steel industry is ruined. Is it a fact that under the Steel Development Fund on March, 1995, Rs. 4521 crore was collected by way of cess but only Rs. five lakh was disbursed for study, survey and research work? It appears that as of today this Research and Development Fund has been closed; if it is so, I would like to know the reasons for it.

SHRI BIRENDRA PRASAD BAISHYA : Sir, I do agree with the hon. Member Lodha Ji that the cost of labour in our country is quite low and also that the iron ore is very cheap. I do not agree with the hon. Member when he said that the Indian steel industry is in ruins. Steel industry in India is doing well. At the time of independence our country produced only 1.4 million tonnes of steel and today we are producing about 21.4 million tonnes of steel. Our country will be self-sufficient in steel production after the completion of the Ninth Five Year Plan. I have already informed the House that the utilisation of the funds towards research and development is quite inadequate in our country. It is also true that there is a huge fund in the form of Steel Development Fund. Now, the Government has decided to invest Rs. 150 crore annually for research and development and we are processing the proposal for the approval of the Cabinet.

SHRI PRADIP BHATTACHARYA : There are so many mini-steel plants in our country. I would like to know from the hon. Minister whether the Government is thinking in terms of developing these mini-steel plants in our country.

SHRI BIRENDRA PRASAD BAISHYA : Our main problem is, most of the mini steel plants in our country small size furnace technology, which is no longer in existence in developed countries of the world.

So, we have to develop the technology to develop our steel plants. Due to lack of investment in technology, the cost of production is very high in our country. Now, the Government is seriously thinking of taking certain measures for the mini steel plants of our country.

SHRI NIRMAL KANTI CHATTERJEE : I would like to know whether the information on the following matters is available with the hon. Minister. Even after spending Rs. 150 crore, what would be the percentage in our total expenditure which we are incurring on research and development in the steel sector and what is the international standard? I would also like to know whether CSIR and DRDO institutions - they do deal with the metal sector - have been involved in this research and development of steel products. We do not produce many items and research is also necessary there. Lastly, what kind of incentives are being given? Are you satisfied with the kind of incentives that are being given? In fact, there is an incentive for research and development, but that is only one hundred per cent. Earlier, it was more than one hundred per cent. Are you considering to give more incentives and have you approached the Finance Ministry for that?

SHRI BIRENDRA PRASAD BAISHYA : At present, the expenditure against research and development in our country is 0.3 per cent only. Even after utilising Rs. 150 crore, the expenditure against research and development would be less than one per cent. In most of the developed countries like the U.S.A. and Japan, they investment is about two to three per cent in research and development.

SHRI NIRMAL KANTI CHATTERJEE : The other part of the question has not been answered. I wanted to know whether they are collaborating with CSIR and DRDO laboratories for doing research on steel.

SHRI BIRENDRA PRASAD BAISHYA : Sir, the hon. Member wanted to know about the incentives being given for research and development of the steel industry in our country. At present, the Research and Development Unit of SAIL is located at Ranchi and they are looking after it. In addition, the Rashtriya Ispat Nigam, the Defence Laboratories and the Metallurgical Department at Jamshedpur are also looking after it.

[Translation]

PROF. RITA VERMA : Mr. Speaker, Sir, through you, I would like to know from the hon'ble Minister as to how much expenditure has been incurred on Research and Development work during the last three years. He should also apprise the House of the non-productive expenditure and the money spent on P.R., advertisement, foreign trips, and guest houses etc. The hon'ble Minister should compare, the expenditure and till the ratio of R and D and non-productive expenditure. What is the outcome of the expenditure incurred on R and D? The Government has made very tall claims. I

am telling about Bokaro Steel Plant. This incident had taken place in July. A bearing in the Plant had been installed by Russians there and they had assured that it would function smoothly upto 100 years. This bearing kept on functioning well till 20-25 years but later on, the engineers felt that all these bearings should be replaced.

[English]

MR. SPEAKER : How do you expect a Minister to answer this specific thing? It is a policy matter.

[Translation]

PROF. RITA VERMA : It is very important. Later on, that bearing was removed but your scientist could not replace it with another bearing.

[English]

MR. SPEAKER : You cannot expect a Minister to know about the bearings.

[Translation]

PROF. RITA VERMA : Please listen to my questions. You might have heard about a poem:

[English]

"For want of a shoe, a horse was lost;
For want of a horse, a chariot was lost, and
For want of a chariot, a battle was lost".

[Translation]

In the absence of a bearing, production remain suspended for three months which has resulted in loss of million of rupees. Whether the hon'ble Minister will conduct an inquiry into the expenditure incurred on R and D work and the achievements made in this regard? A bearing was removed unnecessarily and its replacement could not be made available. Whether he would also conduct an inquiry in this regard?

[English]

SHRI BIRENDRA PRASAD BAISHYA : I need a separate notice of this...*(Interruptions)*

MR. SPEAKER : I fully agree with the hon. Minister. You cannot expect the hon. Minister to answer this.

Tele-Serials

*403. SHRI MURALIDHAR JENA : Will the Minister of INFORMATION AND BROADCASTING be pleased to state :

(a) the criteria fixed for screening and completion of the commissioned serials on Doordarshan Network;

(b) the number of tele-serials sanctioned on commission basis on Doordarshan during each of the last three years;

(c) the amount sanctioned by the Government for these serials.

(d) the number of serials completed and pending with Doordarshan during the above period, and

(e) the reasons for delay in clearing the remaining serials?

THE MINISTER OF CIVIL AVIATION AND MINISTER OF INFORMATION AND BROADCASTING (SHRI C.M. IBRAHIM) : (a) to (e). A statement is laid on the Table of the House.

STATEMENT

(a) Producer of the commissioned serial is required to complete the serial as per written agreement entered into by him with Doordarshan. The serial is telecast only after it is found complete and telecast worthy by the Preview Committee. The scheduling of the serial for telecast is done as per the programme requirements of Doordarshan and availability of time slot.

(b) The details are as under :

1993-94	158
1994-95	491
1995-96	281

(c) Rs. 133 crores, Sir.

(d) 702 serials have been completed. 228 serials are yet to be completed and these are at various stages of production.

(e) Due to certain exigencies such as non-availability of technical crew and professionals, problems in location-shooting, changes in cast etc. the serials are not completed by the producers as per schedule. Budgetary constraints have also contributed to delay.

SHRI MURALIDHAR JENA (Bhadrak) : What is the present policy of the Government for making tele serials? How many individuals and companies had defaulted to produce tele serials?

SHRI C.M. IBRAHIM : There is a policy regarding making the tele serial...*(Interruptions)*

SHRI MURALIDHAR JENA : I am asking about the policy.

SHRI P.R. DASMUNSI : The hon. Minister should explain it...*(Interruptions)*

SHRI C.M. IBRAHIM : There is a detailed policy and there are three different programmes. One is commissioned Programmes. The second are Sponsored Programmes. For this, there are guidelines for consideration of the proposals. The guidelines are laid down in great detail. But the Information and Broadcasting Ministry has nothing to do as far as this Ministry and these programmes are concerned because in day to day matters, we will never interface. For