INFORMATION CENTRE'S ROLE IN TRANSFERRING SPECIAL STEELS TECHNOLOGY

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Describes how the Information Centre of the Special Steels Plant helps the engineers/ technologists/planners/R & D personnel, etc. of the plant. With the view that timely information can check wastage and improve production and quality, the Centre arranges to obtain when necessary, the relevant information in advance directly from the sources.

INTRODUCTION

There is a common belief that the art of iron making came to India from abroad, probably from West Asia. Once the Indians had acquired the knowledge of the process, iron technology in India received real impetus around 1000 BC and Indian irons came to be classed as the best in the world. The Iron Pillar of Delhi, the beams in the Sun Temple at Konarak and the Cannon at the Tanjore Fort are living monuments of the advanced iron technology that prevailed in India in olden days. The great pillar of Delhi is a glowing tribute to the technological advancement made in olden days in the field of iron extraction, fabrication and in developing the corrosion resistance property of iron.

In India alloy steels are being produced on a small scale for over three decades at the ordnance factories - at an integrated steel plant during the second World War and currently at some small electric furnace plants. Since the production of special steels in greater quantities was considered essential, Government of India proposed to enter into an agreement with a foreign producer of special steels. The production of variety of high quality and high cost items at the special steels plant requires a different concept and approach from that of an integrated plant producing plain carbon steels in million tonnes. Government of India after careful consideration accepted the offer of Atlas Steels Ltd., Canada for importing their technical know-how and co-operation for manufacturing special steels in India. The contracts for the supply of equipment for the proposed plant were, however, awarded to a Japanese Consortium.

TECHNICAL KNOW-HOW

Since India had to depend on foreign countries for technical knowledge regarding installation and operation of a special steel plant, transfer of technologies from those countries was, therefore, needed. The factors influencing the diffusion of technology from one country to another, from one person to another within a group of specialists are all dependent on the availability and access to information. Technology transfer, in most cases, means transfer of information for required production and technological improvements. The special steels plant, was originally planned to produce alloy and special grade steels of wide varieties through conventional electric arc furnace process. Subsequently to meet the stringent defence requirements degassing of certain grades were considered necessary. Hence Rheinstahl Huttenwerke (R H) vacuum degassing technique for the removal of dissolved hydrogen from steel was adopted.

Recent modifications have made it possible to carry out vacuum refinement by making provision for oxygen lancing and alloy additions in the vessel. An expert team visited Europe and after observing various plants decided to adopt the RH technique of M/S Standard Messo, Duisberg, Federal Republic of Germany. This technique of oxygen lancing under vacuum permits the utilization of low cost high carbon ferro-alloys instead of the high cost low-carbon or extra-low-carbon ferro-
alloys. On the basis of the existing product mix and the output of stainless steel alone the amount of Rs. 90 lacks could be saved. Advance assessment was done and the need of technical know-how in this field of technology was felt, accordingly planning was made. With the view that timely information can check wastages and improve production and quality the Centre contacted in advance the foreign consultants like,

1) M/S Standard Messo,
2) M/S ASEA SKF,
3) VAC Metal.

All their catalogues, specifications, drawings, flowcharts and other necessary paper particulars were obtained. In some cases advance foreign payments were to be arranged.

In addition, primary documents on vacuum degassing were obtained from Metals Society, London, American Society for Metals, USA and Canadian Institute of Metallurgy, Quebec. On receipt of the documents the Centre analysed those keeping in view the main requirements. These were then brought to the notice of "Planning & Engineering Department" who were the Chief Coordinator for introduction of any new technology. Technologists and engineers of the production department who were to adopt the technology were also kept informed. All the paper particulars and documents were thoroughly analysed, classified and catalogued. This advance information helped the organization in planning the foreign visit of the technologists/engineers.

The most remarkable achievement of Research & Development Wing is the development of a new type of stainless steel called "Deepon" for utensils industries. Nickel is one of the costliest and scarce metals in India. This steel contains much less nickel than the conventional grades having 18% chromium and 9% nickel. The new product will help us in conserving nickel as well as saving foreign exchange.

Before undertaking the project the Centre was requested to make literature survey. The Centre took the advantage of the "Seminar on Access to Bibliographic Data Bases" held at Bombay in September 1976 for searching out references through RECON on-line demonstration project linking the world sources of information. Immediately some references could be obtained. A few documents were already available at this end. For others the Metals Society London, British Library Lending Division, British Industrial & Scientific International Translation Service (BISITS), American Society for Metals, Iron & Steel Institute of Japan were contacted. In this way we could save considerable amount of time and money.

The Research & Development Wing is working with the project for the production of nickel free austenitic stainless steel i.e. substituting manganese for nickel. The Information Centre is constantly remaining associated with this project. This might lead to import substitution if the project can be completed successfully by large scale trial. Lot of foreign exchange can be saved by importing lesser quantity of nickel.

In these projects and developmental work the Information Centre was/is coordinated for necessary assistance. The Centre helps the plant technologists, engineers and the R & D personnel through literature search, by making abstracts, providing current awareness and SDI services, and by arranging quick procurement of required documents.

HOW TECHNOLOGIES WERE IMPORTED
i) Indian engineers were initially working hand in hand with the foreign technicians/engineers.
ii) Indian personnel were trained in different plants and works within and outside India
iii) Exhaustive drawings, layouts, charts, flow copies, standards & specifications, and literature were procured from various sources.
iv) In case of any problem opinion of the foreign experts were/are sought. The Director of the Atlas Steel Ltd. is visiting the plant very often to help solve problem.

INFORMATION CENTRE

Information centres and information analysis centres are vital for efficient transfer of complex technologies from the sources/producers to the users. With this view in mind establishment of a special library and information centre was considered essential. The Centre from the very beginning is catering to the needs of its clientele by procuring (importing when necessary) the relevant technical information, analysing and disseminating those to respective users. An aggressive acquisition policy is practiced to obtain almost all publications of interest, sometimes in anticipation, direct from the sources.
Naturally the Centre is constantly in touch with almost all foreign and Indian production and research units of special steels. Considering that effective and quick transfer of technological information is possible by becoming member of foreign and Indian associations, institutes, societies, standards organizations, etc., the Centre is trying to keep direct contact with most of such organizations as are making, shaping and treating steels. The author himself is a member of many such associations, institutes, etc.

**DISSEMINATION OF INFORMATION**

On receipt of specific technological information the Centre is analysing and disseminating those through SDI, current awareness, abstracting & title index services. Cataloguing and indexing are also done by the library wing for proper storage. Conferences, seminars, technical meetings and lectures through technical forum are also arranged periodically by the centre. Engineers and technicians are to exchange their views through discussions and by delivering lectures about their experience of visits in foreign firms and works. They are also to suggest means of improvement and implementation of their gathered knowledge in the respective fields of our interest.

**CONCLUSION**

Liberalization of import of technology and technical literature for developing and underdeveloped countries is essential. These countries should also side by side try to innovate their own technology. Research and Developmental work on product and process technologies should be given priority.

Direct contact with the sources is always the best means of getting technological information transferred quickly, effectively and at competitive costs. Keeping this in mind information centres should try to become member of as many learned societies as possible. Costs for getting information for members are much less than others. In some cases even 45% reduction in price is offered. As a member, relevant information can be obtained almost immediately. This eliminates long delay of getting information through agent.

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