

SPEECH DELIVERED

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Hon'ble Chief Minister, Prof. Altekar, Distinguished Guests and Friends,

I do not feel very apologetic in joining the battery of non-technical speakers in the morning session, because everyone here will appreciate that the steel industry is so basic that it does not even allow non-technical people to remain innocent or non-technical for very long and that is why we are also participating in that International Symposia. My task this morning is on behalf of the steel industry of India, to extend a hearty welcome to our distinguished visitors and the steel technologists from abroad and from within the country as well as to thank the Organisers of the Symposium which promises to be probably the most significant Symposium of the year.

The Search for alternative routes is not probably new in the history of human progress. This is usually motivated by some economical and social compulsions in which a spirit of pioneering and adventurous confidence play a dominant role. For example, nearly 500 years ago, economic compulsions existed when Constantinople fell. It posed the problem of finding a new alternative route to the glorious East and it was in this quest that Columbus found America which proved to be probably richer than the East. Similarly direct reduction is a kind of alternative route to iron and steel making, which we are now witnessing, in the threshold of the seventies. Some of the economic compulsions for this quest are well known and mentioned by Prof. Altekar; like the imbalance between supply of iron ore and metallurgical coal. There are many such problems particularly with our neighbouring countries also. We in India are rich in iron ore, we have got poor coking coal reserves and good non-coking coal reserves, but we have no natural gas. Our close neighbours in some countries have no

iron ore but they have got very rich deposits of natural gas. These imbalances throw up enormous possibilities in the coming future to strive for a break-through in the context of such economic compulsions.

In a large country like ours, steel has to be distributed in far corners of the country and distribution cost is large. So the problem of dispersal of the steel industry is terribly important for us. For smaller countries, the developing countries—which are smaller in size and in their demand for steel, it is very difficult to conceive of modern large blast furnaces which automatically make the minimum unit for Steel plant as 2 to 3 million tonnes per year. This raises question of resources also. Resources can be limited in all the developing countries including ours. So, one does look for smaller viable units where small resources can achieve the same goals.

In this context, we are encouraged with the news that we hear about happenings in the world of sponge iron—an alternative route which is very encouraging indeed. One hears about the tremendous success of the recent direct reduction plant at Hamburg. One hears of low investment cost like 35 or 40 dollars per ton of annual iron capacity, or 130 dollar per ton for full saleable steel complex including rolling units. These are very encouraging. Along with that, one hears also now of a 5 million ton plant of sponge iron which the Soviet Union are thinking of. One also hears of the tremendous progress in the transportation of liquid natural gas. All these open up new vistas which can solve some of our economic handicaps. Therefore, I think this particular Symposium is of great significance to us.

But there is a word of caution which comes to my mind. So far as the response from develop-

ing countries is concerned, they can ill afford to indulge in costly experiments until and unless some of these explorations are well established as commercially viable processes. That is the stage when developing countries can really go forward and invest in some of these processes and equipment.

This does not mean that in a country like ours we shall be waiting at the wings, waiting for things to happen elsewhere. It is not true; because as you know probably the NML itself is going to have a pilot plant and there are other organisations in the country who have shown interest in sponge iron production. Therefore, we in the steel industry, are getting involved in this. There is an international research project being conducted by the Battelle Institute and I am glad to say that we are a sponsor of these studies

along with 40 other different organisations all over the world. We are very much involved in this quest and we hope that within the next 2-3 years and perhaps not more than 5 years, a definite commercially viable process will be evolved. There is therefore a particular significance to this activity in which the NML and all of us are joining in. So far as Indian steel industry is concerned, we have been utilising what may be termed as borrowed technology which have been established in other countries long ago based on the other raw materials and other characteristics. Sponge iron production will be the first one where right from the start of the technology, it would be based on Indian raw materials, Indian problem & Indian participation. Therefore, I conclude again by saying that we look upon the three days deliberations as possibly the most significant symposium of the year for us.

Thank you,



A view of the distinguished delegates at the technical session.