

# High technology to maximize resources

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The industrial policies adopted by India through successive Five Year Plans have relayed rich dividends, leading to substantial all-around industrial growth in the country, which today has the world's tenth-largest industrial base and third-largest skilled manpower reservoir. Though our achievements are a matter of some pride, one cannot help noticing that nowhere in the past policy formulations has there been an emphasis or direction toward productivity. The industrial licensing policies have stressed production and not productivity, investment but not efficiency. Hopefully the policy direction of the Seventh Plan will review the situation with a view to charting out a path of improving productivity.

Important constraints in achieving productivity include, among other things, sub-optimal capacities, time-worn technologies, low capacity utilization, and restrictions in technical know-how. The poor capacity utilization and plant availability in the case of power generation units not only raises the cost per unit of energy, but also affects and undermines the capacity utilization factors in the manufacturing sector in general. It may be mentioned that the overall capacity utilization in the manufacturing sector came down from about 85% in 1970-71 to about 75% in 1981-82.

Operational inefficiencies leading to low productivity and high cost indicate scope for reducing the cost and improving the productivity. This would, however, require, apart from concerted effort on the part of management, access to better technologies.

In the case of generation, transmission, and distribution of electricity, the problems confronted are enormous and the improvement on this side is extremely profitable. Introduction of microprocessor-based systems, fiber optics, etc., would go a long way toward the improvement of productivity and reliability in this sector. We in the Andhra Pradesh State Electricity Board propose to procure, install, and commission computer-based data-acquisition systems, with provision for sequential starting and stopping of the boilers and turbines, and recording of events and tripping of units for the

existing as well as the new units—and particularly for the proposed extension of the Vijaywada Thermal Station, which has established records which can be emulated not only inside the country but even elsewhere. By using one of the lowest grades of coal available in the country, with 45% ash, we have last year achieved 82-83% utilization with 100% indigenous equipment.

The new additions that we are going to make at that place will improve it further. I am trying to borrow some new technologies so that we can use an even poorer grade of coal, eliminate the use of oil altogether—either for starting or during the low-load period—and also use distributed controls, probably for the first time in the country (and in fact you can count on your fingers the power stations in the world that have such controls). It is also a purely computer-run power station, so that human errors can be eliminated to the maximum possible extent.

## Energy requirements

With reference to the energy sector in particular, unless we adopt the modern technologies we will not be in a position to handle the power needs of the country. Today, as most of you are aware, we hardly have 40,000 megawatts of installed capacity, given a per-capita consumption of hardly 150 units, compared to about 2,500 units of consumption even in a least-developed country. If we have to achieve even 500 kilowatt hours (kwh) of per-capita consumption, which is a very, very modest figure, we need about 120,000 megawatts of installed capacity, as against the 40,000 megawatts that we have today.

As I have said in other forums, our priorities are misplaced. We should have given the highest possible priority to develop the "hydel" energy, the renewable source of energy of which today we have developed hardly 15% of the available potential in this country. That is a disgrace! And, instead, we are using coal to generate the required energy to meet the demands of agricultural and industrial sectors.

Next, I have been telling, is nuclear energy. We ought to have developed nuclear energy much better than we have, because Bhabha [Dr. Homi Bhabha was in charge of India's Atomic Energy Commission in the 1950s—ed.] set the real trend. We thought—and we in the power sector were hoping—that we will be one of the few countries in the world with a high percentage of nuclear energy generation in our country. Unfortunately, we slipped up. We lost tremendous and precious time, and the net result is that we have hardly 1-2% of that, and we are hoping to achieve 10% at the turn of the century. But I doubt very much whether we will achieve it at the pace we are going. That, too, is a real disgrace.

For us, the *last* priority should be to use oil, gas coal, and such reserves created by nature over millions and millions of years of effort. We are trying to use it up in a matter of a century. Even in our own country, I don't think that at the rate at which we are using it, coal will be available after another 100 years.