Some lessons for the management of public enterprises

Pradip N. Khandwalla

Based on intensive case studies of four equipment manufacturing enterprises in the Indian public sector, the author has developed models of appropriate management for public enterprises, of their turnaround from sickness, the effective management of operating and regulatory environment by PEs, the management of diversification, the regulating ministry's management of the PE-ministry interface, and the assessment of the investment proposals of PEs. A number of implications of the study are also stated.

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Throughout the developing world, the public enterprise (PE) is a major instrument for industrial and commercial development. In India, the PEs attached to the central government and the various states account for half of India's industrial production (9). The 180 odd PEs attached to the various ministries of the central government employ nearly 2 million persons, produce goods and services worth nearly Rs. 250 billion, and market goods and services ranging from coal, steel, cement, textiles, watches, lamps, scooters, chemicals and Pharmaceuticals, to ships, machinery, machine tools, and heavy equipment. Even Pakistan, wedded for most of its history to private enterprise, boasts a relatively massive public sector, accounting for over half of its industrial production (12). Compulsions of import substitution, socialistic political ideologies, desire for rapid industrialization, and sickness in the private sector have combined to ensure the pre-eminence of the public sector in these and other developing societies. At the same time, the financial performance of the public sector in many of these countries has been poor (5). In India, for example, between 1959-60 and 1974-75, the profit before taxation as a percentage of employed capital averaged only 0.5 per cent for PEs as against about 9 per cent for large public limited companies in the private sector (11). Clearly, more effective management of PEs is a major challenge faced by the developing world.

To be sure, there are many factors that depress the financial performance and efficiency of PEs. Administered prices, such as of
Table 1 Salient characteristics of the selected PEs

<table>
<thead>
<tr>
<th>1. Major product lines</th>
<th>R &amp; C</th>
<th>BHPC</th>
<th>BPCL</th>
<th>HMT</th>
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<tr>
<td>Structural; chemical rubber, sugar and other</td>
<td>Heat exchangers and pressure vessels;</td>
<td>Pumps and compressors; gas cylinders.</td>
<td>Machine tools; tractors; lamps; reprints</td>
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<td>machineries and equipments; railway points</td>
<td>cryogenic equipment; equipment for the</td>
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<td>presses; horological equipment, etc.</td>
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<td>and crossing; hand-pumps, etc.</td>
<td>paper industry.</td>
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<tr>
<td>2. Brief history</td>
<td>Founded by Britishers in the 19th century.</td>
<td>Formed in 1966 by Govt. with Czech</td>
<td>Formed in 1970 by Govt. to produce</td>
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<td>Passed to Indian hands after independence.</td>
<td>collaboration to produce equipment for</td>
<td>collaboration to produce equipment for</td>
<td>equipment for the extractive industries,</td>
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<td>Mismanaged. Taken over by Court. Govt.</td>
<td>chemical and fertilizer units; later</td>
<td>chemical and fertilizer units; later</td>
<td>especially oil and gas. Later</td>
<td></td>
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<tr>
<td>ownership in 1972. Main product</td>
<td>diversified into cryogenic and paper</td>
<td>diversified into non-home gas cylinders.</td>
<td>diversified into &quot;base load&quot; industries.</td>
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<td>structural, but its share is rapidly</td>
<td>converting equipment; loss making unit</td>
<td>Has grown rapidly and become more</td>
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<tr>
<td>declining. Entered sophisticated technology</td>
<td>that has just turned the corner under a</td>
<td>profitable under a new management.</td>
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<td>area in mid-70s. A loss making unit in 1977</td>
<td>new management. Planning diversification</td>
<td>Planning diversification into industrial</td>
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<tr>
<td>- 78 - 78 it turned the corner in 1979-80</td>
<td>in sophisticated engineering products.</td>
<td>boilers.</td>
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<td>under a new management. Planning</td>
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<td>diversification in sophisticated engineering</td>
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<td>products.</td>
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<td>3. Size in 1980</td>
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<tr>
<td>(a) Annual sales (rupees in millions)</td>
<td>200</td>
<td>260</td>
<td>170</td>
<td></td>
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<tr>
<td>(b) No. of employees</td>
<td>4,000</td>
<td>3,800</td>
<td>1,400</td>
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<tr>
<td></td>
<td>100</td>
<td>14</td>
<td>10</td>
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<td>4. Age</td>
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<tr>
<td>Low to Medium</td>
<td>19,000</td>
<td>34,000</td>
<td>48,000</td>
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<td>5. Technology</td>
<td>High</td>
<td>Medium to high</td>
<td>35,000</td>
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<td>6. Value added per employee (in rupees)</td>
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<td>7. Net operating profit to sales during</td>
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<tr>
<td>past 5 years:</td>
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<td>(in per cent)</td>
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<td>(a) Lowest</td>
<td>-4</td>
<td>-7</td>
<td>2</td>
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<td>(b) Highest</td>
<td>8</td>
<td>12</td>
<td>%</td>
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<td>8. Net operating profit to capital</td>
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<td>employment during past 5 years:</td>
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<td>(in per cent)</td>
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<td>(a) Lowest</td>
<td>-5</td>
<td>-3</td>
<td>9</td>
<td></td>
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<tr>
<td>(b) Highest</td>
<td>9</td>
<td>5</td>
<td>%</td>
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<td>9. Annual growth rate in sales during</td>
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<td>past 5 years:</td>
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Believed to be one of the best managed of Indian PEs.
steel or fertilizer, often determine whether the concerned PEs will show a profit or not. Ceilings on pay scales of managers limit the access PEs have to the best management talent in a country. The senior bureaucrats of the ministry to which the PE is attached as well as the political masters and officials of such other regulatory bodies as the Planning Commission, the Bureau of Public Enterprises, the Public Investment Board, often make conflicting demands on the PE so that the PE managers often complain of multiple masters. Often PEs are headed by civil servants unschooled in industrial management. In India, the frequent changes of PE chief executives as well as of senior officials in the ministries is another complicating factor. Since many PEs are started as entrepreneurial ventures, unfamiliar technologies and markets also depress PE performance for many years, as do long gestation periods for large, capital intensive investments. Overly optimistic capacity planning is another bane (10).

Although these problems do depress the financial performance of PEs, not all PEs perform equally badly. Indeed, there are striking differences in performance even among PEs in broadly the same industry. In India, for example, the Bhilai Steel Plant has consistently performed better than the Durgapur Steel Plant, and Bharat Heavy Electricals Limited has consistently performed better than Heavy Engineering Corporation (both are heavy engineering enterprises attached to the same ministry). In addition, the same PE may show rather large changes of performance from one period to another not explainable in terms of upward price revisions or cyclical industrial fluctuations. These inter-PE and interperiod variations in PE performance suggest that the management of PEs and the management of the interface between PE and the government may be crucial determinants of PE performance.

The study models

To understand better the performance determinants of PEs, four Indian engineering PEs attached to the Department of Heavy Industry in India's Ministry of Industry were studied: Richardson and Cruddas Ltd. (R & C), Bharat Pumps and Compressors Ltd. (BPCL), Bharat Heavy Plate and Vessels Ltd. (BHPV), and Hindustan Machine Tools Ltd. (HMT). Mainly equipment manufacturers, of the four, HMT is also a major producer of watches, tractors, and lamps. The salient characteristics of the four enterprises are given in Table 1.

The study, an exploratory one, was undertaken more to refine hypotheses and generate new models than to test them. Initiated in mid-1978, the field work was begun in early 1979 and completed a year later. The explanations for the performance of the PEs studied were sought primarily in the nature of the interface with their regulatory environments, the character of their business environments, their modes of management, and the strategic and structural responses of their managements to the problems, constraints, and opportunities confronting the PEs. Broadly speaking, it was expected that a supportive yet demanding regulatory environment, and a competitive market environment, would aid PE performance. More important, perhaps, it was expected that a dynamic and professional management response to the complexity of the operating environment of equipment manufacturing enterprises would positively aid performance, while a conservative, mechanistic, authoritarian, and non-professional response would inhibit performance.

A variety of methods were used to study the enterprises. Top and senior, as well as some middle and lower level managers of the enterprises were interviewed. Specially designed questionnaires were administered to managers at all three levels that sought information on management policies and practices, characteristics of their external environments, operating goals of their managements, aspects of their interface with the regulating ministry, job satisfaction of managers, motivational climate, characteristics of the personnel, control, manufacturing, and marketing systems.
and so forth. Officials in the Department of Heavy Industry, in the Bureau of Public Enterprises, in the Planning Commission, and in the Finance Ministry were interviewed to assess the regulatory environment of these enterprises. Publications of the BPE and the Ministry of Industry yielded useful information as also the annual financial reports and other documents of the enterprises. The private sector competitors of some of the enterprises were interviewed to get an idea of private sector practices in their industries. Attempt was also made to compare the performance of the four enterprises with that of private sector engineering companies.

This paper summarizes the major lessons of the study concerning the following issues:

1) What kind of management is appropriate for public enterprises, especially for equipment manufacturing or engineering enterprises?
2) How could sick PEs be turned around?
3) How may a PE manage its operating and regulatory environments?
4) How should PEs manage diversification?
5) How may the ministry manage the PEs attached to it?
6) How may the investment proposals of PEs be assessed?

Each of these issues is discussed in the light of the evidence from the study in the following sections.

**Appropriate management of PEs**

World-wide research on organizations has indicated that there is no one model of management that is the best for all situations. Different styles and systems of management may be appropriate depending on such factors as the size of the organization, the operating technology, and characteristics of the market environment of the organization (6a).

Most PEs are large (in comparison to private sector organizations). Research suggests that a bureaucratic structure marked by elaborately specialized functions, fairly lengthy hierarchy, much formalization, standardization of routine decisions, and so forth is more desirable for the large as compared to small organizations (4). If the business environment of the organization is complex, due to much technical or legal complexity and diversity, research suggests that a professional mode of management that emphasizes technocracy, use of sophisticated tools of management, use of professionals, and formal scientific procedures in the various functional areas of management are called for (6b). If the management is professionalized, there could be a good deal of internal differentiation due to extensive functional specialization. To offset this, a participatory mode of management is desirable, in which mechanisms of joint decision-making are developed and there is emphasis on information sharing and the evolving of consensus decisions (6b). If the operating environment of an organization is turbulent, a risk-taking and flexible (organic) management style is appropriate (6b). In a turbulent environment many poorly understood changes are taking place, some that threaten the organization and others that may be significant growth opportunities. A conservative wait-and-see approach may be common but those managements that take risk-laden but calculated steps ward off threats and grasp opportunities despite the murkiness of the environment tend to perform much better. At the same time, if decisions are taken under uncertainty, a good deal of pragmatism and operating flexibility are desirable in order to respond quickly and effectively to unexpected developments.

Most PEs, including the four studied, are quite large as organizations go (the smallest studied had 1,400 employees). Their operating environments are usually quite complex, on account of an intricate, constraint-rich regulatory environment, high technology, and/or diversification. The four PEs had quite turbulent environments since, as equipment manufacturers they had to face sharp cyclical fluctuations, global competitions (especially as equipment suppliers in World Bank funded
projects), and world-wide technological change affecting their products and processes. Thus, we should expect that PE performance would be higher if it has an elaborate structure (marked by specialization of functions, standardization of routine decisions, etc.), if it has a professionalized management (use of sophisticated management tools, employment of qualified staff, professional management of various functions like marketing, manufacturing, control, and personnel and industrial relations, etc.), if its decision-making is participative, dynamic, and risk taking, and if it is flexible and organic, that is, it stresses results achievement rather than procedures and precedents, adaptability, informality, cooperation, direct face-to-face resolution of conflicts, and intrinsic, task-based motivation.

By and large, the evidence from the four cases supported the above model of effective management for equipment manufacturing PEs. HMT had the best long run performance of the four. It was also the one with the most elaborate structure and most professional management. It had developed quite sophisticated planning, budgeting and performance control systems. For instance, it engaged in perspective planning involving long term forecasts not only of its markets but also of technology. It had successfully instituted a monthly performance reporting system for all its plants, divisions and groups. It had instituted a large in-house training programme for its staff and had evolved an effective participatory structure of industrial relations. It had instituted career planning for its managerial staff and an incentive system for its blue-collar staff. Partly as a result of instituting these and other systems in the late 60s and early 70s, HMT was able to anticipate and withstand cyclical fluctuations effectively in the 70s. There was also evidence that attempts at professionalization in the other PEs met with success. For instance, production costs were out of control at BHPV due to seat-of-the-pants production planning and scheduling in this high technology, customized production company. More systematic production planning, institution of budgetary control over individual orders, elimination of small, unprofitable orders through an ABC analysis, and the institution of an incentive system for the staff, all instituted after a new chief executive with a strong commitment to professional management had taken charge, quickly brought the situation under control and were partly responsible for the dramatic turnaround of this company.

Participative management There was fairly persuasive evidence of the usefulness of participative management. HMT, the most successful PE, had developed an elaborate structure of participative decision-making for corporate, group, and divisional setting of annual targets, performance review, and industrial relations. At R & C and BHPV the new chief executives instituted monthly performance review meetings of senior managers where the attempt was to take operating decisions on the basis of shared information. At BPCL, meetings of senior executives became an even more frequent affair under a new chief executive. At all three there was an improvement not only in coordination but also in financial performance after these participative decision-making meetings were instituted. Of importance was not merely the structure of participative decision-making but also the content of participation. There was a genuine attempt at having all the facts placed on the table, the encouragement of free and frank discussion, and an attempt at arriving at a consensus decision.

Dynamic management An opportunity seizing, problem confronting, calculated risk taking, dynamic type of management did seem to yield rich dividends. This was the kind of management that HMT had in the 60s and early 70s, and led to its acquiring a very wide spread of technologies, very high profitability at least in the early 60s, and a commendably high long term rate of growth and profitability. The other three enterprises had change of chief executives during 1978-79 with dramatic improvement in performance. At
R & C, the new chief executive broke a four-month strike of white-collar staff that had started within weeks of his arrival. He pursued a vigorous policy of getting new business, getting out of low margin into high margin products, disposing off scrap, developing exports, pursuing technical collaborations with foreign parties, following up on Indian aid to other countries to land orders, and so forth. The new chief executive at BPCL faced a situation of serious shortfall from the year's production target. He insisted that there would be no downward revision in the target and, in fact, exceeded it. He induced competition among suppliers of castings to his company's advantage. He negotiated with BHEL, another public sector enterprise, to undertake production of an item on its behalf. He sought to develop "base load" products to offset the violent fluctuations in the company's pumps and compressors business and tried to rationalize the production of these highly customized products. He initiated an image building campaign for BPCL, both in the region where its plants were located and in the ministry. At BHPV, the new chief executive went on an order hunt, diversified into paper making equipment, sought the production of "base load" products, augmented R and D, sought international quality certification, strengthened marketing, rationalized orders, introduced production incentives that led to higher productivity and cutting down of overtime, tightened up many systems, etc.

Organic management These four enterprises also exhibited many of the factors of flexible, organic (as opposed to rigid, mechanistic or bureaucratic) management (2). There is a fine distinction between flexibility in management and rigidity in organizational structure. Organizational structure developed to take care of routine activities, would be discharged ineffectively, and coordination and control would be poor. But the discretionary non-routine decision-making need not be bureaucratized, and indeed, given high operating turbulence, it may be necessary to overlay a bureaucratic structure with an organic management. Four features of organic management are particularly important: adaptability, reliance on decentralized, face-to-face conflict resolution, dependence on intrinsic rather than extrinsic tools of motivation, and emphasis on getting results rather than being bound to set ways of doing things.

Adaptability manifests itself in the organization's ability to adjust itself rapidly to shifts in task environment, objectives, technology, etc., and in an experimental, innovative attitude on the part of management. HMT has a long history of assimilating technologies, management systems, products, and marketing strategies. This adaptability was particularly high during the 60s and early 70s, and has not appreciably diminished since. For instance, in the late 70s and the early 80s HMT has become something of a multinational, and it was able to go successfully through such complicated manoeuvres as decentralizing watch assembling but centralizing its marketing, or diversifying from machine tools into unrelated products like watches, lamps, and tractors. Similar adaptability was evident in R & C during the mid 70s, when it diversified from structurals into rubber and chemical machineies, hand pumps, railway points and crossings, transmission lines, and so on. At BHPV, the company was orders-starved when the new chief executive arrived in 1978. But soon he not only got new orders but production management was also geared up to take on the production of sophisticated rubber processing equipment. At BHPV an incentive system was successfully introduced which to many made little sense given the customized nature of its production. BPCL, too, could successfully institute production of a standardized item like gas cylinders despite its main business being to produce sophisticated pumps and compressors to customer's specifications.

Direct face-to-face resolution of conflict at lower levels was particularly emphasized by the new chief executives of R & C, BHPV, and BPCL. This kind of conflict resolution is
in contrast to one where the bosses like to give rulings, or play the role of mediator or reconciler. This emphasis on direct resolution of conflict is particularly useful where coordination at lower levels is vital and because of environmental turbulence, constant mutual adjustments at lower levels have to be made.

The ability of Indian PEs to offer generous financial incentives to managers is quite restricted. This, however, does not mean that their managements have no motivational tools available to them. A remarkable feature of the new chief executives at R & C and BPCL was their ability to galvanize an apathetic managerial staff by the force of their personalities and by their ability to create challenging, meaningful tasks for the PE and for its staff. Both dared their staffs to go for what they thought was the impossible. They urged their managers to enlarge their conceptions of their jobs. Both articulated persuasively the goals and missions of their enterprises and set personal examples for fairness, integrity, sincerity, etc. Both encouraged experimentation, boldness and calculated risk taking. The chief executive of BPCL exuded a strong personal, even paternal concern for his staff (he personally greeted workers on their birthdays). The chief executive of R & C earned admiration for his boldness, resourcefulness, and ability to stand up to stress. Personal charisma, humane consideration coupled with emphasis on accountability, participative decision-making, decentralization, articulation of big, bold missions for the enterprise, daring managers to take on challenging assignments, etc., were the mechanisms these two used to mobilize their staff. These reportedly were also the mechanisms used at HMT in the 60s and the 70s by Dr. Patil, the then chief executive.

In the public sector, accountability for performance is often weak, adherence to traditions, precedents, and formally laid down procedures being the usual escape hatches. At R & C especially, as also at BPCL and BHPV, the new chief executive strongly emphasized the managers getting results and living up to their commitments. Recording defaults during meetings of managers, and equally, recognizing achievements, was the method by which accountability was emphasized. Another mechanism was quantification of targets of achievement, in place of the usual exhortation to do "better next time." Next was the periodic reporting by managers of performance against targets and the seeking of explanations for marked shortfalls followed by the use of the profit centre concept. At R & C, BHPV, and BPCL, the new chief executives attempted to divisionalize the corporation. At HMT there was already extensive use of the profit centre concept, the basic profit centre being the unit or plant. Although marketing was centralized at the product group level, transfer prices were used to enable the assessment of the profitability of the various units.

To sum up, high levels of professional management, management dynamism and calculated risk taking participative decision-making, and organic, results oriented management can be practised in the Indian public sector, as evidenced by the case studies of HMT, R & C, BHPV, and BPCL. These, in PEs with complex technologies, turbulent markets, and complex operating environments of the kinds these four enterprises have, can yield excellent results.

**Turnaround of sick PEs**

Three of the four PEs studied were turned around by new chief executives. Based in part on the mechanisms for turnaround observed at these PEs, a model of effectively turning around complexly structured enterprises has already been published (7).

Its salient features are:

1. A results oriented top level change agent, an individual or a team, committed to turning around the enterprise.
2. Credibility building actions by the change agent.
3. Mobilization of the organizational rank-and-file by the change agent by such devices as a sharp focus on the mission of the enter-
prise, concretizing of its problems and goals, and emphasis on taking on hand quick pay off projects that build confidence of the staff through a string of (even small) successes following on the heels of one another.

4. Negotiation of at least temporary reprieve from serious external pressures and simultaneous active tapping of external resources by seizing opportunities afforded by the environment.

5. Stress on the accountability of managers for results, accompanied by grant of sufficient autonomy and assistance to them to get results.

6. Motivation of managers by assigning them challenging tasks and providing them with a sense of participation in an exciting adventure. Motivation through the high personal example set by the change agent.

7. Coordination through periodic performance review meetings of all senior managers and strong encouragement to managers to settle as far as possible, their conflicts directly without involving top management.

8. Selective strengthening of the weakest management systems in the enterprise.

9. Institutionalization, through the symbolic acts of the change, a management culture of openness, achievement ethic, confrontation rather than avoiding of issues, innovation, adaptation, and calculated risk-taking, and consultative, collegial, professional, decision-taking.

The point that needs emphasis here is that even one competent change agent can galvanize a large organization with the use of appropriate mechanisms, and that too in the public sector, where too often, managers tend to perceive constraints and difficulties more often than opportunities. A second point is that enterprises like HMT or BHEL, with a wealth of general management talent, (due to their extensive use of the profit centre concept), could service the entire public sector by making available to sick PEs teams of professional change agents. HMT, for instance, was able to turnaround Indo-Nippon precision bearings, a state sector unit, with the help of a team of managers from HMT, and BHEL was able to turnaround two other "state sector units also with the help of a team from BHEL. The experience gained from these successful team-based turnarounds could be put to far wider use in the Indian public sector.

**Management of operating and regulatory environments**

Besides contending with competition, fluctuations in demand, erratic supply of inputs, and other aspects of the business environment, an Indian PE has to deal with its regulatory environment. It is generally highly dependent on the ministry to which it is attached for investment funds, and quite often also for working capital. The support of the ministry is vital in getting its investment proposals accepted by the various assessing organs of the government such as the BPE, the Planning Commission, the Finance Ministry, the Public Investment Board, etc. The case studies provided interesting evidence that PE performance may depend partly on how well it is able to manage aspects of its business and regulatory environments. If its response is passive, its performance is likely to be significantly worse than if it actively and intelligently manipulates both environments.

One major problem area for PEs, particularly the ones established with import substitution in mind, is getting acceptable quality inputs from indigenous sources. BPCL had considerable difficulty in getting indigenously the castings it needed. HMT tractor unit had to suffer a disastrous loss of production because it had failed to develop an indigenous source for a component it had been importing from a foreign source which dried up. BHPV too has been struggling to find indigenous sources of inputs. But BPCL management demonstrated, as did HMT and BHPV managements, that it is possible not only to develop indigenous sources of supply, but by developing multiple sources of supply with the help of...
finance, know-how, etc., competition can be induced between the suppliers and this can lead to better quality and lower input prices for the PE.

The Indian public sector is vast and diversified. It affords enormous opportunities to a PE to find technical collaborators, joint venture partners, input suppliers, and so forth. Both BPCL and BHPV have teamed up with BHEL to take on the production of certain types of boilers that BHEL no longer finds it worth its while to produce. This has provided a "base load" to BPCL and BHPV and has made them less vulnerable to erratic fluctuations in the demand for their main products. A resourceful PE can get chronically scarce inputs like steel by shopping around among other PEs because, as the chief executive of R & C puts it, there would be fewer questions in the parliament if a PE got steel from another PE rather than from outside the regulated channels. It can tap, as BHPV is attempting to do, the financial control, personnel, and other management systems of professionally managed PEs like HMT, since these are likely to be more relevant to it than textbook management systems.

The government is very much a resource for a resourceful PE, rather than, as widely thought by PE managements, a source of frustrations and constraints. Good performance is relatively scarce in the public sector. PEs that do well acquire enough credibility to be able to get their proposals speeded through the labyrinths of the government. For instance, HMT was able to get an overseas joint venture approved in barely a week. But besides good performance, cultivation of the officials manning the regulatory structure seems to pay off well. This does not imply greasing their palms, but meeting them frequently, keeping them posted about the PE's needs and achievements, seeking their help and guidance in solving the PE's problems, being cordial to them, doing a favour or two to them once in a while, and so forth. BPCL demonstrates "the benefits to be reaped from this sort of cultivation of the officials of the regulatory structure. Besides establishing good communications with officials, PEs can exploit another advantage not easily available to private sector enterprises. As part of the public sector, and hence of the government, they can, if they so desire, have access to top level officials and, therefore, to crucial intelligence and political power. Through its ministry or otherwise, a PE can pressurize another ministry for setting outstandings from other PEs, getting orders from them, preventing competitive imports, etc., as BHPV was able to do. Its high level contacts can inform of impending developments, such as the tip HMT received about capacity expansion in the automobile industry, or the information about Indian aid to Nepal that R & C utilized to try for a transmission line tower contract there. A resourceful PE that establishes effective communications with officials in the regulatory structure, and knows how to use the levers of power, cannot get all it wants; but it can get many more of its needs met than a PE that suffers from resource myopia vis-a-vis the regulatory structure.

Thus, those PE managements tend to show better results that view their business and regulatory environments as sources of opportunities rather than of constraints, that aggressively scan their environments for resources and opportunities, that develop alternative suppliers in their input markets with know-how, finance and other facilities, that establish resource and information exchange linkages with other PEs, that cultivate officials of the regulatory structures, learn to accept and manipulate levers of power in the government, and refuse to view their business and regulatory environment as unalterable by them.

Management of diversification As a recent study indicates (3), enterprises in India, in the public and the private sectors, have been diversifying rapidly, although their patterns are somewhat different. Being attached to particular economic ministries, PEs tend to diversify within the group of related...
industries and products, unlike private enterprises that often engage in quite unrelated diversifications to escape controls or anti-monopoly legislation. In any case, the management of growth and diversification is emerging as a major area of concern even in the public sector.

The four PE cases exhibit several alternative models of growth and diversification. BPCL and BHPV exhibit the strategy of installing a large capacity well in excess of national demand, and thereafter a struggle to utilize capacity more fully, culminating in a diversification into otherwise unrelated "base load" and other products that can, however, be produced from the same plant. HMT exemplifies the strategy of gradual but successful expansion, and the use of surpluses from old ventures to diversify into other unrelated or related profitable products, repeating again the strategy of gradual expansion. R & C exhibits still another strategy of growth and diversification. In this, the enterprise attempts to escape from its primary industry not so much because it has been saddled with a large excess capacity but because the enterprise is highly competitive. Inability to compete effectively leads to losses or low profits, and to improve profitability the enterprise seeks diversification into other industries. But here, too, without an effective management it falters. Its profit expectations go awry and the enterprise once again seeks greener pastures. But until or unless the enterprise develops a much more effective management, the cycle of diversification into relatively unfamiliar industries on the basis of overly optimistic projections, failure to manage diversification successfully, poor financial return from diversification, and the search for greener pastures again continues. Over a period of time, the enterprise may find itself in a large number of product markets, straining further the enterprise's thin management resources.

It seems reasonably clear that the HMT-type growth strategy is the desirable one for PEs. It offers several advantages. Since expansion is gradual it provides time for mastering the production and marketing technologies relevant to the product, thus expansions tend to be more realistic and well managed. The enterprise generates its own surpluses, is less dependent on the parent ministry, and acquires higher credibility in its regulatory environment, all of which facilitate diversification. The enterprise tends to go from success to success and strength to strength. Its management also undergoes changes as in the case of HMT. From a dynamic, risk taking, organic and intuitive management, it tends to move towards professionalization and participative management, as expansion and diversification make decision-making at the top more complex. Diversification also creates the needs for organization-wide financial control, planning, and personnel systems. Unlike the R & C type of growth and diversification, where management development fails to materialize (unless the PE gets a highly competent chief executive accidently), in the HMT-type of growth and diversification management, development does take place, and indeed is as much a stimulus to further growth and developments as a response to it).

A second factor in the successful management of growth appears to be management continuity and an institutionalized concern for growth, efficiency, and the well-being of the enterprise. Here too, the contrast between the management continuity at HMT and the management discontinuity at BHPV and BPCL seems to be a factor explaining the poorer performance of BHPV and BPCL. There was comparable management continuity at R & C, but not an institutionalization of management concern for growth, efficiency, and the well-being of the enterprise comparable to the one at HMT. Thus, management continuity may give good results if there is an institutionalized concern for growth, efficiency, and the well-being of the enterprise in the management personnel. If such a concern is not there, it may be desirable to discontinue the old management and being in, as at BHPV, a new manage-
ment that has such a commitment. The ministry can play a vital role in institutionalizing the concern for growth, efficiency, and PE well-being, first by ensuring for the PE top executives with such a concern, and second by prodding the PE at the periodic review meetings to grow and simultaneously be efficient. Thus, PE is likely to perform better if it follows a strategy of gradual expansion, further diversification and expansion out of the surpluses it generates, and of concomitant management development, than were it to start with a technically optimal but greatly excessive capacity for its intended market followed by distress diversification into base load products, or were it to seek escape from a competitive industry through diversification without professionalizing its decision-making processes and its financial control, planning, marketing, manufacturing, and personnel management systems. Its performance is likely to be better if there is also management continuity and succession planning, and the management’s concern for growth, efficiency and the well-being of the enterprise is institutionalized through results oriented enterprise monitoring by the ministry and appropriate management training at the PE.

Ministry’s management of ministry - PE interface

How should the ministry behave in order to maximize the likelihood of high PE performance on the strategic goals of the ministry for the PE? The improved performance of all four PEs, in part due to the character of their interface with their ministry, suggests the following model of desirable ministry behaviour:

1. A crucial service that the ministry can render a PE is in the selection of the PE’s top managers, especially the chief executive. The single greatest factor in the remarkable turnarounds at BHPV, BPCL, and R & C appears to be types of new chief executives they got - a dynamic systems oriented man at BHPV, a dynamic "people" and human relations oriented man at BPCL, and a dynamic confrontatioistn at R & C. It is essential that the ministry help the PE get a dynamic professional manager, of one of these three types depending upon what the particular PE urgently needs. In helping the PE get the right top management, the ministry should also strive to make sure that the top management fully understands and accepts the strategic aims of the ministry for the PE.

2. There should be fairly frequent and detailed performance review of the PE by the ministry. Periodically reporting the performance to the ministry in quantitative terms, explaining variations from targets and describing the concrete remedial action is a good discipline for the PE. It institutionalizes fairly sophisticated budgetary control and performance monitoring systems at the PE itself. Besides formal reviews, there should be other early warning mechanisms, such as ministry officials on the PE’s board of directors.

3. The ministry should exert pressure on the PE for performance on goals agreed upon by both as priority goals for the PE. What goals have priority would depend upon the PE’s situation—whether it is in a phase of growth, turnaround, or maturity. In the first, priority may be accorded to capacity creation according to plan, and to sales growth and market development, and somewhat lower priority will be given to efficiency and profit ability. If it is in a turnaround situation, improvement in liquidity and profitability may be emphasized, rather than social objectives like the development of ancillaries. In the third, diversification plans, productivity, social obligations, and long term profitability need to be emphasized. The pressure for performance should be tempered by a nurturant, supportive, collaborative attitude on the part of the ministry. It is this combination of a strong performance orientation combined with a willingness to help out the PE that is likely to institutionalize in the PE a healthy performance orientation.

4. The ministry should grant to the PE a good deal of operating autonomy, holding it accountable not for its procedures and prac-
tices, but for its results vis-a-vis critically important goals. This autonomy should be particularly extensive if points 1, 2, and 3 above have been taken care of.

5. The monitoring official(s) at the ministry should have industrial experience. Without a reasonably detailed understanding of the complexities of industrial management, it is doubtful how a monitor at the ministry would be able to evaluate the reasonableness or appropriateness of the PE’s explanations for its performance shortfalls, or its plans for improving its performance. It might not be a bad idea if top executives of PEs are promoted into the ministry in monitoring roles (an example being that of Mr. Krishnamurthy’s, formerly chief executive of BHEL, appointment as Secretary of the Department of Heavy Industry).

6. The tendency to change chief executives, or allow them to leave after just two or three years at a PE, must be resisted. It takes at least a year or two for an outsider chief executive to get familiarized with the PE’s myriad operations and operating culture. If chief executives remain only for short durations, there is a grave danger of their window-dressing their performance, and of their avoiding taking the hard decisions necessary for long term growth that may, however, depress current performance. Equally essential is the quick filling of top management vacancies. Even a short absence of a chief executive, as at BHPV, can have disastrous consequence. Only in exceptional circumstances should a chief executive be allowed to go before completing five years at a PE, or let a top management post remain vacant for more than a month. The ministry must push hard for succession planning. The new R & C chief executive’s strategy may be usefully employed: no top or senior level executive of a PE should be allowed to leave or be promoted until he has identified and groomed at least two potential successors.

In short, the performance of PEs attached to a ministry may be improved: i) if the ministry appoints dynamic, highly competent top level executives to the PE who share the ministry’s strategic goals for the PE; 2) if it conducts fairly frequent and detailed performance reviews of the PE with the participation of PE management; 3) vouches continuous liaison with the PE through ministry officials being on the PE board; 4) exerts strong pressure on the PE for performance on mutually agreed upon goals and targets that, however, are coupled with a supportive, nurturant attitude; 5) provides considerable operating autonomy to the PE with it being held accountable for results rather than for practices; 6) ascertains that the monitoring officials at the ministry have industrial experience; and 7) ensures top management continuity at the PE.

**Government appraisal of PE investment proposals**

PE investment proposals are subjected to a prolonged multi-agency scrutiny. A sizeable investment proposal must not only be approved by the PE’s board of directors, it must be approved by the ministry and the finance cell in the ministry, get past the Bureau of Public Enterprises, the Project Appraisal Division in the Planning Commission, the Public Investment Board and the Union Cabinet. Not only is the process time consuming, but each appraising agency has its own axe to grind. The PE board may be motivated by enterprise-level considerations (profitability, rapid growth of PE), the ministry by its strategic considerations (e.g., import substitution, growth of exports), the finance cell by economic and financial viability considerations, the BPE by jurisdictional and technical considerations, the PAD by considerations of economic costs and benefits to the nation and relevance to national priorities, the PIB by national strategic and administrative considerations, and the Union Cabinet by, among others, regional political considerations. Subjected to so many diverse pulls, the proposal is likely to be appropriately window-dressed to get it past the hosts of appraisers. Besides, the proposal
is likely to get bogged down somewhere or the other in this process, with consequent cost escalations and so forth. The scrutiny by the various appraising agencies (with the exception of PAD) is reportedly superficial given the large volume of investment proposals and the shortage of appraising competence. Finally, the basic data, such as the financial viability of the project, seem to be appraised by practically every agency. In other words, there is usually a lot of redundancy in the different appraisals.

Clearly, investment proposals of PEs, using as they do public funds in a planned economy in which national priorities are determined by a democratic political process, must be appraised by the government. But the present appraisal process appears to be elaborate and time consuming without being thorough. The following appraisal model may improve the situation:

1. All projects below Rs. 100 million should be appraised only by the PE's board, the ministry, and the finance cell in the ministry (in lieu of the present Rs. 10 million). This would substantially relieve the appraisal machinery in the BPE, Planning Commission, PIB, the Cabinet, etc., from having to attend to a large number of relatively small projects, and thus enable them to concentrate attention on the large ones. Further, this Rs. 100 million figure should be suitably indexed so that it moves up with inflation. Concomitantly, an effort should be made to strengthen the appraisal process at the PEs and the ministries, with the criteria used by the finance cells in these ministries being internalized by the PEs and the ministries. The BPE should conduct a suitable training programme for the finance officers of the PEs and the monitoring officials in the ministries.

2. For large projects above (real) Rs. 100 million, initial clearance should be sought not from PIB but from the Union Cabinet. It makes little sense to go through an elaborate and time consuming appraisal process and then have a project stuck at the cabinet level because of political or other reasons. A sub-committee of the Cabinet, assisted by a suitable official from the Ministry of Finance, and one from the sponsoring ministry, should scrutinize each proposal and accord it suitable administrative priority.

3. Once a large proposal is cleared by the Cabinet, a team of appraisers consisting of a representative each from the PE, the sponsoring ministry, Finance Ministry, BPE, and PAD, and chaired by the PAD representatives, should be formed to appraise the project. This team should examine the feasibility report and the DPR, get whatever technical and other assistance it needs from within or outside the government, and finalize the project. No further approvals should be necessary to begin the implementation.

4. The PIB should be turned into a monitoring agency from its current status as an appraisal and clearance agency. A quarterly report on the progress of implementation of each large project should be forwarded to it for high level administrative monitoring and follow up. The PIB, in turn, should brief a Cabinet sub-committee on the progress of the really large projects (say, real Rs. 500 million and over).

Implications of the study
Even the limited effort of studying these four engineering PEs has thrown up significant models of effective 1) organizational design for equipment manufacturing PEs; 2) turnaround strategy for sick PEs; 3) management of PE growth and diversification; 4) environment management by PE; 5) monitoring of PE by the ministry; 6) appraisal of PE investment proposals. Some implications of the study are outlined below:

1. Clearly a lot more research needs to be done to refine these models and extend their applicability to a wider range of PEs, especially those that produce standardized products and sell them under government administered prices, such as steel, fertilizer, and coal producing PEs. These differ very substantially
from equipment manufacturing PEs. It would, therefore, be erroneous to apply these models to such PEs without a good deal of careful research. It should also be useful to study enterprises whose ministry interfaces differ sharply from those of the enterprises studied for this report, in order to highlight more sharply the role of PE-ministry interface as a determinant of PE performance. Equally interesting would be to study the forces that shape the culture of a ministry, the forces that make one ministry strongly committed to growth and efficiency and another much less so.

2. The study does indicate that competition, fairly tight (but nurturant) monitoring of performance by the ministry, and professional PE management, will each contribute to high performance, but not in isolation. Competition may whet the need for more effective PE management, in order to maintain or improve performance, but unless the regulatory system ensures that the PE gets the resourceful, professional management it needs, competition may not lead to better management and greater efficiency.

Thus, a policy of exposing PEs to greater competition should be balanced by a policy of facilitating the flow to the PEs of the best management talent available in the country. This is equally true of a policy of exerting strong pressure for performance on the PEs. Such a pressure should be balanced by giving the PEs access to the best management talent in the country. This has large implications for modifying the present modes of recruiting top and senior level executives for PEs. The salary ceilings for the public sector are lower than those for the private sector, thus constraining the flow of management talent to the public sector. In addition, the recruitment to top and senior level PE posts is through the Public Enterprises Selection Board. Reportedly, the PESB staffed mostly by senior officials is open to political influence, and its scrutiny is amateurish and superficial. One possibility is to leave the initial search and shortlisting of candidates to a professional personnel agency. The PESB would then make its choice only out of the candidates shortlisted by the agency. Another possibility is of letting the PE board and the ministry, rather than the PESB, select top and senior executives from amongst those shortlisted by the professional agency, for those PEs that are relatively small and less strategic like the sick units taken over by the government; and also for the well established, professionally managed PEs like HMT and BHEL.

Besides the measures listed above, succession planning may ensure that vacancies are filled quickly. One of the banes of the public sector is the failure to fill top level vacancies quickly, resulting in great damage to the PE, as in the case of BHPV in 1978-79. An attempt should be made to survey all the senior managers in the public sector, measure their abilities and personality traits through reliable aptitude and psychological tests, and identify good general management talent that can be quickly drawn upon to fill up vacancies anywhere in the public sector. Much greater formal management training may also substantially increase the supply of competent generalist managers.

3. In selecting top level executives for the PEs, especially chief executives, it is crucial to bear in mind the requirement of the situation. In growth and turnaround situations, as also in turbulent business environments, entrepreneurial types of chief executives are needed and systems and professional management oriented executives in the maturity phase and in a complex industry environment. Equally, the role of the chief executive for the enterprise—whether it is of the strategic planner, controller, or supervisor (8) —needs to be borne in mind in choosing the chief executive.

4. Management strategy for a PE, as well as the interface between the ministry and the PE, may need to differ sharply depending upon the phase the PE is in. What is good management practice in a turnaround situation (emphasis on mobilization, on the short term, on quick results projects, etc.) may not be adequate in
a maturity phase, in which long term considerations and systems development may need to have far higher priority. Similarly, the ministry-PE interface may also need to differ considerably, ministry behaviour becoming much more supportive and nurturant during a turnaround; exerting hard-nosed pressure for performance on key goals once the organization has stabilized.

5. PEs should be assessed on performance criteria that make sense given the phase the PEs are in. If a PE is assessed on too many criteria (1) there would be much confused fire fighting in the PE to meet the variegated ministry demands. A young PE may be reasonably assessed with regard to its progress in incurring capital expenditure and capacity creation according to plan. Similarly, a PE in a turnaround situation needs to be assessed on its improvement in profitability. It would be pointless to assess young or sick PEs on a multitude of criteria ranging from profitability, growth, and productivity to export performance, employment of persons from disadvantaged communities, development of ancillaries, etc. This does not mean that information vis-a-vis these criteria should not be gathered from PEs, but that the management of a PE should be evaluated only in terms of criteria that make sense for the kind of situation the PE is in, and are previously agreed upon as relevant by the management of the PE.

6. Diversification without a concomitant strengthening of management needs to be avoided. Excessive focus on techno-economic feasibility of projects without enough attention to the quality of management needed to implement the diversification successfully, is an invitation to disaster. Hard-nosed planning for management requirements, in terms of the numbers of managers and style of decision-making, must be a part of every investment proposal.

7. The attempt by the government to impose uniform policies and practices on PEs, through "guidelines" issued through the BPE, should be tightly curtailed. Such uniform guidelines to all PEs make little sense given the enormous diversity of Indian PEs. Besides, they reduce the BPE's credibility with the PEs. Instead, it might be a better idea if the BPE is turned into a consultancy, training, and research centre for the public sector.

8. Those monitoring the PEs must themselves have industrial management experience and a good deal of familiarity with professional management concepts and tools. Otherwise, what credible advice can they give to a beleagured PE management and how may they be able to evaluate the explanations for poor performance advanced by a PE management? A four to six month crash course in industrial management for the IAS officers monitoring PEs, along the lines of similar duration management executive programmes at business schools, but with a public sector focus, may be highly desirable.

9. It is essential that a results oriented, pragmatic, innovation and professional management oriented industrial culture, rather than a procedurally oriented bureaucratic culture, pervade the so-called economic ministries (industry, steel, petroleum, energy, etc.) that account for the bulk of Indian PEs. Besides training IAS officers in industrial management, it may be useful to select some of the top officers (secretaries and joint secretaries) from the ranks of the more successful top executives of the PEs attached to these ministries.
Reference

   b) Ibid., Chapter 11.