CHAPTER - V

PLANNING FOR GROWTH : THE NON-EXISTENCE OF A POLICY-FRAME

The gradual decline of the importance of planning - particularly, in the context of industrialisation in India - has drawn the notice of many prominent researchers.¹ This decline was evident not only from the delayed and casual manner in which the Fourth, Fifth and the Sixth five-year plans were put into implementation, but also from the progressively lesser weightage being assigned to Plan-priorities in the sphere of industrial decision making.

With regard to planning and implementation of Plans, broadly, the following three features were noticeable during the period 1966 - 1979:

(i) There was considerable decline of the importance of Planning. In fact, "the planning process during this period meant just the formulation of Annual Plans for a part of the public outlays". At the same time, significant part of the public outlays were being frittered away in various types of non-developmental expenditure.

(ii) Secondly, because of its failure to "husband the national resources for public investment", the Government failed to keep up the rate of public sector investments. As S.L. Shetty observed, "the public sector plan outlays were slashed initially and thereafter their growth was arrested".

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3 Ibid., p. 216.


Even adequate allocation of funds for maintenance of past plan projects were not made.  

(iii) Finally, the instruments of industrial control, designed originally to channelise investment and growth within the economy along the desired directions, were made largely ineffective through several rounds of far-reaching relaxations.

During the Second and Third Plans, there already had arisen several distortions in the process of development such as inappropriate production and investment patterns, pre-emption of industrial licences, public funds and other scarce resources by the large industrial houses and concentration of economic power. In the subsequent periods, with gradual loosening of government regulation of the private sector, these distortions were only accentuated further.

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7 To get an idea of the various exemptions and relaxations in the sphere of industrial controls, see Government of India, Ministry of Industry, Guidelines for Industries—Part I: Policy and Procedures (New Delhi: Indian Investment Centre—on behalf of Ministry of Industry, 1982). See, particularly, Sec.III and Sec. IV in the Guidelines.

The context outlined above had important implications from the view-point of growth of electronics industry. For one thing, given the strategic indecisiveness prevailing at the policy-making level, it was difficult for Government to ensure the mobilisation of needed resources for facilitating electronics industry's growth. Secondly, with substantial loosening of the Government's control over actual industrial operations, the channelisation of investment as per plan-priorities became almost impossible.

In the present chapter, we shall discuss the actual situation prevailing in and around the electronics industry and the deficiencies with regard to formulation and implementation of plans. Since direct and indirect intervention by the State were of crucial importance from the view-point of implementation of plans, attempts will be made particularly, to highlight the policies pursued (during the period under consideration) with regard to expansion of the public sector and also with regard to regulation of the private sector's investment and growth.

5.1 The Institutional Set-up to Plan and Direct Growth.

Prior to 1970, there was neither any Government policy nor the needed institutional set-up to plan and steer the growth of electronics industry in an integrated manner.
The situation prevailing in India in this regard was summed up by the Estimates Committee (1973-74) as follows:

Till fairly recently, however, not much had been done towards having an integrated development plan for the electronics industry in India. Piece-meal purchases were made by different user departments from wherever suitable equipments were available in foreign countries. This meant an increasing drain on the foreign exchange resources of India with no conscious, well thought out strategy to promote the growth of the industry indigenously on systematic lines. Import of equipments from different countries, problems of large inventories, and chronic shortage of foreign exchange often led to non-availability of components and spare parts, ultimately hampering the development of the industry. Whatever growth took place was brought about in a haphazard manner. A number of independent units mostly with foreign collaboration came into existence primarily to supply consumer items and systematic development did not start with a view to establish a modern sophisticated industry which should occupy a competitive position in the world.9

As is evident from the anarachism prevailing in the sixties, electronics industry was thought of by the Government as a mere collection of some independent units capable of producing equipments for civil or military purpose. That the industry has a very special character and technology (in both spheres of production and application), and that, to facilitate its growth, appropriate long-term plans are needed, were not recognised at all. Naturally, the whole of the Government-attention centered around the seeking

of ways and means for conservation of 'precious' foreign exchange and around the 'ad-hoc' experimentations of import substitution through launching of some production units in the public sector. Till 1970, there really was no government agency to deal with electronics industry's growth in an integrated manner. The Electronics Committee functioning in the late-sixties was only an advisory body; executive control over the industry was being exercised by the Department of Defence Supplies. The latter agency again had to work "through the cumbersome procedures of the Directorate General of Technical Development and the Licensing Committee on the one hand and the Chief Controller of Imports on the other."  

A turning point in the overall situation seemed to have appeared with the setting up of the Department of Electronics (in 1970) and Electronics Commission (in 1971). Throughout the seventies, these two agencies were in charge of planning, co-ordinating and monitoring of electronics industry's growth. However, a close review of their functioning reveals that both the Department of Electronics and Electronics Commission had important deficiencies linked to their organisational

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12 Ibid., p. 21.
structure, authority and accountability, and so, were unable to play any effective role with regard to planning and steering of the growth of the industry.

To begin with, the organisational structures within the Department of Electronics and the Electronics Commission were designed following the patterns of the Department of Atomic Energy and the Atomic Energy Commission. But the jurisdiction and nature of activities were strikingly different in case of the former two agencies. The Atomic Energy Commission and the Department of Atomic Energy jointly constituted a mission-oriented organisation with capability of planning and executing their programmes almost totally within their own resources; they also had limited interactions with other organisations of the public. The Electronics Commission and the Department of Electronics, on the other hand, had responsibilities much wider in scope,


15 For details of the responsibilities assigned to the Electronics Commission, See Perspective Report on Electronics in

The Department of Electronics is concerned with day to day decisions relating to the industry, with implementation of various regulatory and promotional measures, and with maintaining of links with Parliament and various government departments, agencies and institutions at the States.
but their control over the actual operation was significantly less.

Quite obviously, a basic weakness of the Department of Electronics arose from the fact that substantial part of the industrial activities in electronics was in the private sector over which the Department had no direct control. At the same time, the units in the public sector were spread under different ministries or departments with the Department of Electronics playing only an advisory role in guiding of their activities; the latter agency had no power to direct the public undertakings to take up production of certain items even where it was in the larger national interest to do so. 16 Above all, the involvement of a number of other government agencies in the decision making process often made the functioning of the Department of Electronics/Electronics Commission delatory, complex and, even, frustrating. A glance over the following statement by the representative of the Department of Electronics before the Estimates Committee (1973-74) may provide some idea about the deficiencies within the overall organisational set-up:

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In fact, the frustrations that we have are not so much in the planning process. They arise far more about the manner in which the industry should grow. There is a total inter-locking today involving many Ministries, the Ministry of Industrial Development, the Ministry of Commerce, the DGTD, the Department of Economic Affairs and all that. The things just do not move. They should lay down only certain broad guidelines. The Economic Department could say that royalty payment will be between 2 - 5 per cent. But after that they should leave it to us to decide what should be an acceptable royalty for a particular item.

They do not come in the picture. Similarly, in the case of foreign collaboration, they could say that this much must be the outflow and inflow of foreign exchange. After that they do not come in the picture.

It is there that the frustration takes place. The Planning Commission deals with overall planning. They can say that this is the priority and this is the allocation. Within that, it is for us to do. Within the allocation given to the Department of Electronics, whether we want to spend a little more on R & D or on some other item, that should be left to us.17

What followed from the situation narrated through the above extract, was that the Department of Electronics gradually came to be regarded as "mostly a licence recommending body with a limited responsibility for research funding."18 From the viewpoints of planning and steering of electronics industry's growth, the actual effectiveness of these organisations, if any, were minimal.

17 Ibid., pp. 63-64.

5.2 Nature of Formulation and Implementation of Sectorsal Plans.

The situation prevailing with regard to formulation and implementation of plans was disappointing.\(^\text{19}\)

While till the early-seventies, no detailed plans existed to guide government actions and investment in the field of electronics, attempts by the Electronics Commission to formulate and implement - within the Fifth Five Year Plan framework - a detailed blue-print for electronics industry's growth also could be of very little practical significance. First, there was sharp difference of opinion as regards the emphasis to be given on exports. The original blue-print prepared by the Electronics Commission was biased in favour of export-led growth; but the Planning Commission (which was the ultimate authority for making of final allocations) held the view that "one cannot base one's strategy on the possibility of very heavily export-oriented drive";\(^\text{20}\)

19. Part of the reason for this lies within the context described earlier in Sec. 5.1. But more important was the fact that the apparent thrust in India in the field of electronics came only at a stage when in the sphere of industrialisation, the importance of Planning itself was gradually on the decline, and was increasingly being overshadowed by the indecisiveness prevailing at the policy making level.

therefore, the Electronics Commission was asked "to produce a plan for electronics which would relate more significantly to Indian requirements." 21 Also, there was the pressure of severe resource constraints. As is evident from Table 5.A, even the revised investment proposals put up by the Electronics Commission had to face significant cuts, obviously, on the ground of inadequacy of investible resources. 22 The implication of the failure (to make available to the Commission the needed volume of resources) was that, a number of important investment proposals had to be either dropped or deferred to subsequent Plan periods. 23

21 Ibid., p. 61.
22 Ibid., p. 61.
23 Ibid., pp. 60 - 68
## Table 5.A: INVESTMENT IN ELECTRONICS INDUSTRY DURING THE FIFTH FIVE YEAR PLAN: THE ELECTRONICS COMMISSION PROPOSALS AND FINAL ALLOCATIONS BY THE PLANNING COMMISSION.

(All figures in Rs. Crores)

<table>
<thead>
<tr>
<th></th>
<th>Total Capital Investment</th>
<th></th>
<th>Final Allocations by the Planning Commission.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July, 1973 proposal</td>
<td>September, 1973 proposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. Consumer Electronics</td>
<td>13.5</td>
<td>6.6</td>
<td>6.6</td>
</tr>
<tr>
<td>2. Medical Electronics</td>
<td>14.7</td>
<td>8.3</td>
<td>8.3</td>
</tr>
<tr>
<td>3. Instruments</td>
<td>23.2</td>
<td>13.6</td>
<td>13.6</td>
</tr>
<tr>
<td>4. Computers and Calculators</td>
<td>59.3</td>
<td>26.6</td>
<td>26.6</td>
</tr>
<tr>
<td>5. Control and Industrial</td>
<td>26.0</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Electronics.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Components</td>
<td>55.0</td>
<td>42.3</td>
<td>42.3</td>
</tr>
<tr>
<td>7. Materials</td>
<td>30.0</td>
<td>17.3</td>
<td>17.3</td>
</tr>
<tr>
<td>8. Telemetry &amp; Two-way</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication.</td>
<td>131.5</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>10. Telecommunication.</td>
<td></td>
<td>83.1</td>
<td>51.0</td>
</tr>
<tr>
<td>11. Mass Communication</td>
<td>2.1</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>12. General Facilities</td>
<td>-</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>13. Defence Electronics</td>
<td>78.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>-</td>
<td>432.0</td>
<td>233.7</td>
</tr>
</tbody>
</table>

Note: The September, 1973 proposal and final allocations by the Planning Commission relate only to civilian electronics and communication.

As regards implementation of the sectoral plan, some idea may be obtained by observing the broad trends at the macro level.

The manner of implementation of India's Fifth Five Year Plan is widely known. Not only the actual implementation of the Plan had a somewhat delayed start, but it had to be abandoned mid-way because of political changes at the Centre.24 The situation in late-seventies was even more discouraging; there were uncertainties at the political level,25 and the Indian economy virtually experienced a second plan holiday spanning the years 1977-78 to 1979-80.

The non-existence of an overall plan framework during the period under consideration had its reflection within the pattern of operation and expansion of the public sector units and within the set of policies that were pursued to channelise the investment and growth along the desired lines.

5.3 Role of Public Sector.

Planned expansion of the public sector was of crucial importance from the viewpoint of electronics industry's growth.

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This was because of the following reasons:

(i) Through the Industrial Policy Resolution of the Government of India, certain major areas within the electronics industry had been demarcated for exclusive operation by the public sector units. These areas were: equipment for Aerospace and Defence; the telecommunication and the mass communication sectors.26

(ii) There were also some other areas within the electronics industry (e.g. the components sector and computers) which were known for their technology-intensive character and scale-dependence in production, but for which the domestic market was small by international standards. In all these areas, the planned expansion of the public sector was called for, on the one hand, to prevent the monopolistic cornering of the domestic market by foreign-controlled firms and, on the other hand, for avoiding excessive fragmentation of the

domestic demand-base among a number of manufacturers. Further, given the unwillingness of the private sector firms to enter many of these areas (primarily on the ground of small market-size), the setting up of production facilities through the public sector was the only way to ensure integrated growth of the electronics industry in India.

Against the above backdrop, the pattern and pace of actual expansion of the public sector units in electronics industry was far from being satisfactory.

With the help of available evidences, the pattern of expansion of the public sector in electronics industry

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27 For instance, as regards the need to prevent fragmentation of market in the electronic components sector, the Bhabha Committee observed as follows: "The economy of large scale production is a most important consideration in the manufacture of components, which mean that it is in the public interest to produce components cheaply by concentrating the production of each type in a couple of large plants". See Government of India, Electronics Committee, Electronics in India (Bhabha Committee Report), p. 16.

28 Estimates Committee (1973-74), Fifth Lok Sabha, Sixty-sixth Report, op. cit., p. 18.
may be summed up as follows:  

(i) The major public sector units in the electronics industry were set up (at various times) in an 'adhoc' manner to serve specific user needs. As the control of these units were spread across a number of government departments or ministries, there was inevitably the problem of co-ordinating their activities and giving them a unified direction. The Electronics Commission was not sufficiently equipped to bring the needed integration.  

(ii) Though the public sector continued to account for a major portion of the output in electronics industry, growth rate of value of output in the public sector was less than the industry's overall growth rate. Theoretically,  

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29 The findings here relate mainly to the public sector undertakings owned by the Central Governments. Though, apart from these units, there were a number of State-owned public sector undertakings (PSU) operating in the field of electronics, the total contribution from these latter group of PSUs to aggregate electronics output in India was relatively insignificant. For instance, in the year 1979, the State-level PSUs produced electronic equipments and components worth Rs. 15 crores; this was only 2% per cent of the value of aggregate electronics output in the country in that year. See Estimates Committee (1973-74), Fifth Lok Sabha, Sixty-sixth Report, op. cit., p. 21.


31 cf. Table 3.8 (p. 54) in Chapter III.
the slow growth of public sector's output could be out of the following two reasons: (a) the slow pace of expansion of production capacities reflecting the failure to invest the requisite funds; and/or (b) inadequate capacity utilisation reflecting management deficiencies.

As is evident from the figures presented in Table 5.B, capacity utilisation in the major public sector units in electronics industry was not unsatisfactory; in fact, the utilisation of capacity in most cases was better than the average for all DGTD units. 32

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32 In 1978, production to Installed capacity ratios in the organised sector (for some selected electronic items) were as follows: Radio Receivers - 62%; Television Receivers - 67%; Amplifiers etc. - 60%; Record Players - 6%; Tape Recorders - 48%; Calculators - 33%, and Computers - 16%. See, DGTD Annual Report, 1978-79, op. cit., p. 45.
Table 5.B: AVERAGE CAPACITY UTILISATION (IN REGARD TO MAJOR PRODUCTS) IN THE MAJOR PUBLIC SECTOR ENTERPRISES IN ELECTRONICS INDUSTRY IN 1978-79.

<table>
<thead>
<tr>
<th>Name of Enterprise</th>
<th>Capacity Utilisation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bharat Electronics Ltd (BEL), Equipments Division (a)</td>
<td>90</td>
</tr>
<tr>
<td>2. Indian Telephones Industries (ITI): *</td>
<td></td>
</tr>
<tr>
<td>Telephones</td>
<td>109</td>
</tr>
<tr>
<td>Switchgear Exchange Lines.</td>
<td>89</td>
</tr>
<tr>
<td>Transmission Equipments.</td>
<td>110</td>
</tr>
<tr>
<td>Cross Bar Exchange Lines.</td>
<td>101</td>
</tr>
<tr>
<td>3. Hindustan Teleprinters Ltd., Madras (HTL) Teleprinters</td>
<td>90</td>
</tr>
<tr>
<td>4. Instrumentation Ltd, Kota (IL) (a)</td>
<td>84</td>
</tr>
<tr>
<td>5. Instrumentation Ltd., Palghat (IL) (a)</td>
<td>88</td>
</tr>
<tr>
<td>6. Electronics Corporation of India Ltd., Hyderabad (ECIL):</td>
<td></td>
</tr>
<tr>
<td>in case of 8 major product-groups</td>
<td>more than 100</td>
</tr>
<tr>
<td>in case of 2 major product-groups</td>
<td>75 to 100</td>
</tr>
<tr>
<td>in case of 8 major product-groups</td>
<td>50 to 75</td>
</tr>
<tr>
<td>in case of 12 major product-groups</td>
<td>below 50</td>
</tr>
</tbody>
</table>

Notes:  
(a) - In case of BEL, IL (Kota) and IL (Palghat) capacity utilisation ratios are based on value of production.  
(b) - In case of ECIL, capacity utilisation was reported for a total of thirty major product-groups.

* In most of the cases, Rated/Installed capacity has been used for deriving capacity utilisation ratios.

Thus, it appears that the phenomenon of slow growth of public sector output in electronics industry was largely the reflection of the inability of the Government to allocate the requisite volume of resources for investment purpose, and of its failure to pursue a definite policy with regard to planned expansion of public sector in electronics industry. The events relating to the setting up of the Semiconductor Complex Ltd. in the public sector, which are presented below, would provide testimony to our point:

The idea of setting up the Semiconductor Complex Ltd. was conceived in early-seventies. In the context of the growing import bill for various kinds of semiconductor devices, the Department of Electronics set up in January, 1972 a Committee on Semiconductor Devices. Shri C.R. Subramanian (who was the Chairman of the Public Sector Corporation BEL and a leading figure in India in the field of semiconductors) was appointed as the Chairman of this nine-member expert Committee. The Committee conducted detailed survey of the

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33 For evidences in this regard, See Estimates Committee (1973-74), Fifth Lok Sabha, Sixty-sixth Report, op. cit., pp. 60 - 68.

status of production and of the growing requirements of semiconductor devices within the country; it finally recom­
meded that actions be taken immediately for the setting up of two corporations (viz. the Semiconductor Research Corporation and the Semiconductor Production Corporation) which would be "located contiguously" and would coordinate, steer and undertake research and production activities in the field of sophisticated semiconductor devices. 35

However, the Electronics Commission obviously did not favour the idea of setting up two separate corpor­
ations for production and research. Instead, a study carried out (almost simultaneously) by members of the IPAG staff suggested for the setting up of a single organisation with facilities of production and research within it. 36 This latter idea appeared more acceptable to the Commission.

Accordingly, in 1973, while finalising the Fifth Five Year proposals for the electronics industry, the Depart­
ment of Electronics sought an allocation of Rs. 12 crores for the proposed Semiconductor Complex; this included Rs. 3 crores for in-house research and development. 37 The Planning


Commission, in its turn, confined the final allocation for the project to only Rs. 7 crores.  

The pace of finalising of the details suddenly slowed down in the mid-seventies. Throughout the continuation-phase of the Fifth Five Year Plan, no progress could be noticed with regard to the semiconductor project.

The process, seemingly, was resumed in late-seventies. In January, 1978, Semiconductor Complex Limited, Chandigarh (SCL) was incorporated. In the same year, the company received an industrial licence for production of Bipolar/MOS/LSI integrated circuits and some other items. However delays continued to occur allegedly because of "idiosyncracies of the Public Enterprises Selection Board (PSEB) which was disinclined to accept that such key projects need a right technologist at the top."  

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38 Estimates Committee (1973-74), Fifth Lok Sabha, Sixty-sixth Report, op. cit, pp. 67 - 68.


During all the years that had passed since 1972, the Electronics Commission had done little to build up, within the R & D institutions in India, at least some of the needed technological capabilities for undertaking of manufacture in SCL. Naturally, there was the need to find out a suitable foreign collaborator who would be willing to supply the relevant manufacturing technology. Delegations were sent abroad to U.S.A., Western Europe, and Japan to negotiate a deal. Nevertheless, the task was an formidable one. For, while the international technology market in semiconductors had been an oligopolistic one—dominated by a few giant transnational corporations, the technology—buyers from developing countries were generally too weak (both organisationally and from the viewpoint of information at their command) to carry out an effective bargain. The case of SCL was in no way an exception. Regarding the collaboration agreement, which was finally entered into by SCL, an observer noted as follows:


SCL has just entered into collaboration agreement with American Microsystems Inc. (AMI), a leading U.S. firm in LSI business. In the official handout, SCL is described as 'the exclusive distributor in India for AMI products. AMI is also considering SCL for its off-shore assembly/testing operations'. As regards R & D the document says 'SCL and AMI are also forming a joint development team (JDT)' which will assist SCL in establishing its 'own custom design capability and designing new LSI circuits using Computer Aided Design (CAD)'. Computer Aided Design of LSI circuit is already being done in BEL (Bangalore) and HAL (Hyderabad). It smacks of extreme naive to regard this agreement as a step towards self-reliant development in microelectronics.\(^4\)

It is worthwhile to mention, in this connection, the role assigned to SCL under the Government's electronics watch policy. The link between SCL and the watch policy arose essentially from the commercial calculation that in the field of LSI devices, the immediate domestic bulk demand was for electronic watch chips; therefore, it would be justified to emphasize this area at the initial stages of SCL's operation. The Industrial and Technology Policy for Electronic Watch Industry (approved by the Government in April 1980)

stated that, since none of the basic components needed to assemble electronic watches were available within the country, SCL would be the canalysing agency to undertake the initial import of complete electronic module consisting of these basic components. Gradually, the components would be procured as 'discrete elements' and 'SCL would undertake assembly and the supply of the complete electronic module' to all digital electronic watch manufacturers. This approach, according to the Policy, would ensure standardisation and 'progressive indigenisation' through SCL.

To attain the above-mentioned purposes, SCL subsequently entered into an agreement with the Hitachi of Japan. Under the eight-and-a-half year agreement, steps were initiated in 1982 for arranging canalysed import of complete electronic watch-modules in a 'semi-knocked down condition'.

Thus, as a result of anarchism and indecision at different levels within the Government, not only a complete decade was lost, but also, the original objectives remained largely unfulfilled.

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46 Ibid., pp. 288.

a mere canalslying. Though SCL began its operation in a small way in 1981-82, in fact, till the end of 1982-83, its role was that of a mere agency for cananalysed import of chips and, if anything more, of an unit carrying out assem­bly of some kinds of semiconductor devices. Let alone the critical operations like chip or device designing, even as regards local fabrication of wafers, the most optimistic expectation was that, "efforts will commence by October, 1983." 48

The unsatisfactory state of affairs prevailing throughout the period under consideration with regard to planning, expansion, co ordination and direction of public sector's activities had a number of important and far-reaching implications. First, as a large part of the electronics industry was reserved specifically for the public sector, the pace of overall growth of the industry was slewed down because of the relatively slow growth of the output in the public sector. Secondly, the failure to carry out expansion programmes of the public sector's production capacities on the basis of long-term plans, in turn, meant that many of the critical and strategic areas within the electronics industry had to be made open to the giant transnational enterprises from the developed countries.

48 Government of India, Department of Electronics, Note For the Consultative Committee Meeting on February 12, 1982 : Item No. 6, (New Delhi : n.d.), p. 4.
The entry of International Business Machines (IBM) and International Computers Ltd. (ICL) into the area of computer manufacture in India, and the subsequent entry of Siemens in industrial electronics sector were pointers to this. But the growing dependence of this sort on transnational corporations was bound to bear serious inhibiting effects in the long run on growth of electronics industry.

Finally, as we have pointed out earlier in chapter IV, actualisation of potential inter-sectoral linkages within the electronics industry was vital for ensuring its optimum and balanced growth. The strengthening of inter-sectoral linkages called for, among others, the setting up of production facilities in the electronic components sector on a

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49 Both IBM and ICL were issued industrial licences in the year 1967. ICL was originally allowed to "assemble" 56 computers of their ICL 1900 series over 1967 - 71; IBM was allowed to "recondition" 68 computers of their 1401 series over the said four years. See S. Swaran, Guide to Electronics Industry in India, op. cit., p. 69.


51 The implications of the dependence on transnational corporations are highlighted in Chapter VI.
priority and planned basis. The failure to exploit the potentialities of the public sector in this regard through appropriate long-term plans meant that the essential precondition for generation of "multiplier-effects" in the process of growth remained largely unfulfilled.

5.4 Regulation of the Private Sector.

It has been argued from several quarters that the phenomenon of slow growth of electronics industry has resulted largely from the Government's emphasis "more on regulatory rather than on developmental and promotional aspects". The arguments have then called for dismantling of the structure of screening and industrial controls, and for making of the industry wide open to large industrial houses and transnational corporations.

The above line of arguments obviously has ignored two important points:

52 Generally, the higher the degree of dependence on imported parts and components, the more it indicates the weakness of inter-sectoral linkages within the electronics industry. See in this connection, Dieter Ernst, "Automation Employment and Third World: Case of Electronics Industry", op. cit., p. 1215; or, UNCTAD, *Electronics in Developing Countries: Issues in Transfer and Development of Technology*, United Nations; 1978, (TD/B/C.6/34) pp VIII-IX.


54 For instance, see Ibid., pp. 87 - 94; and, "Report of the Committee on Electronics Exports", op.cit., pp. 245 - 246.
(i) First, within the framework of planning in a mixed economy, the instruments of industrial control, in fact, are mechanisms in the hands of government to ensure growth as per planned priorities. Further, given the inability of the private sector to generate enough finance, or usable capital goods and import-saving technology to sustain its own expansion, these instruments (more importantly, the industrial licensing, import-control, foreign collaboration approvals, capital issues control and the MRTP regulations) also are weapons for "rationing of the scarce resources" and for channelising the same along the desired lines.

(ii) Secondly, while the same structure of industrial controls was operative for the whole of the electronics industry, the growth rates in some sectors of the industry were definitely more impressive than the same in case of others. On the other hand, there is no evidence that the successive rounds of relaxation in industrial controls carried out during the late-sixties and seventies could have any positive influence on the pattern and pace of growth of aggregate output.

56 cf. Table 3.F (p.67) in Chapter III.
It thus becomes difficult to trace out a positive relation between the existence of industrial controls and the phenomenon of slow growth in electronics industry. In fact, as we shall see, it was not the structure of industrial controls in itself, but the manner of their application in practice that had been at the root of the problem.

Area and Effectiveness of Application of the Instruments of Control.

The first point to note is that, as a result of the various liberalisation schemes carried out since the mid-sixties, both the area and the effectiveness of application of industrial controls have considerably diminished.

To consider the case of industrial licensing policy, a number of studies so far have pointed out how the practical application of this instrument suffered from a number of defects and how, instead of correcting these defects, the instrument has been systematically blunted over the years. As an observer wrote in 1975:

What is left now of the licensing system? In the middle and small scale sectors, there is no licensing. The monopoly and large industrial houses and foreign companies have to take out industrial licences but once they acquire a licence they can build any capacity - to the extent of 100 per cent in excess of the formal licensed limit in the name of diversification, 25 per cent by normal expansion, another 25 per cent in five years by automatic expansion and, lastly, to virtually any extent by unauthorisedly installing capacity which will be regularised promptly by the administrative
ministries. Would it not have been more straight-forward to have abolished licensing altogether? 57

In a more recent study, S.K.Goyal has shown that, in 1979, out of the 2948 product licences considered by him at least in 357 cases the companies in question were producing more than their authorised capacities.59 There were also enough evidences of deliberate under-utilisation of capacities along with pre-emption59 and of encroachment by big business houses and foreign-controlled firms in areas reserved for the small scale sector. 60

The case of industrial licensing, however, was not atypical. Even as regards the application of other instruments of industrial control, the overall situation was almost the same. Throughout the period under consideration, these instruments had been applied in such a permissive manner that seemed to have defeated the very objectives

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59 See Ibid., pp. 7 - 14.

60 Ibid.
Discreteness in Application of Controls. Another important part of the problem, of course, was related to the fact that the practical application of the various instruments of industrial control, particularly in electronics industry, was often based on discrete and short-term considerations. In other words, within the manner of application of these instruments, a long-term perspective was clearly missing. This would become clear if specific cases relating to the issuance of industrial licence and M.R.T.P. clearances were considered in detail. In the following paragraphs a few selected cases in this regard are presented.

Case I: In this case, the Central Government by an order (dated, the 17th August, 1971) under the MRTP Act, 1969, had approved a proposal of the Gramophone Company of India Ltd, Calcutta (hereafter referred to as GCI) for effecting substantial expansion in the manufacture of record playing equipment from 36000 numbers to 96000 numbers per annum subject, inter alia, to the following condition: "The import content shall not exceed Re 1 only per unit."

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62 The details regarding this case have been collected from: Company News and Notes, Vol.VI, No.5, (May 1978), pp.49-50; and Company News and Notes, Vol.XVII, No.7 & 8, (July-August, 1979), p. 28.
The above condition was also incorporated in the industrial licences issued to the applicant company under I (D & R) Act.

On 28.12.1977, GCI made a representation to the Department of Electronics stating that since the conventional type of record players which the applicant company had been so long manufacturing were fast going out of the market, they would like to take up superior grade record players for the domestic as well as for export market and for this purpose, a higher import content than Re 1/- should be permitted.

GCI was an old and established company in the Indian record players market. Further, it was the subsidiary of a giant transnational corporation. Thus, from the viewpoints of volume of sales or its linkage with the parent firm, GCI had the capability to carry out enough in-house R & D. All these, in fact, suggest that, subject to the pursuance of proper policies GCI could have been forced to take up production of superior grade record players without resorting to higher import contents.

Nevertheless, the Government in this case took a liberal stand with regard to GCI proposal and through an order dated 8.4.1978 the permissible import content for the company was raised to the
level of Rs. 10/- per unit. Clearly, it was the urge to promote electronics exports from the country that weighed more to the Government than the need for 'progressive indigenisation' of parts and components.

Interestingly, within few months thereafter, GCI again made a representation to the Department of Electronics stating that in terms of the Import Policy for 1978-79, there was no pack-value restrictions on other manufacturers, but, owing to pack-value restrictions imposed on it, GCI was unable to avail of the facilities offered by the liberalised import policy. The Company requested that the condition with regard to import content should be deleted altogether.

Apart from the characteristics noted earlier, GCI was also a Dominant Undertaking controlling major portion of the Indian Record Players market. Thus, any permission to GCI to have progressively larger import contents in production was bound to affect adversely the domestic electronic components industry. Notwithstanding this, the Government took a favourable stand on GCI proposal. Order was passed accordingly on 29.5.1979 deleting the condition with regard to import content.
Earlier, while allowing GCI to expand its production capacity of record players from 36000 units to 96000 units, an important condition had been imposed on it. This was that GCI would guarantee export "to the extent of 50 per cent of the production of the expanded capacity (i.e. 30000 numbers per year)."

Subsequently, it also came to light that the company had not even fulfilled the above condition.

Case II

The details in this case\textsuperscript{63} were as follows:

Messrs. Tata Sons Ltd (a firm belonging to the house of the Tatas) made an application on 17.7.76 for forming a new undertaking (viz. Tata Burroughs Ltd.) which would take up the manufacture of items like computer components, peripherals etc.

The above proposal was objected to by the public sector corporation - EGIL - on the ground that some of the items sought to be manufactured by the applicant company had already been developed by ECIL with indigenous knowhow and by some other public sector undertakings (like the BEL, ITI and HTL). Though the proposal by Tata Sons Ltd. was primarily export-oriented, yet "from the tentative conditions, it was noticed that the company could be allowed by the Government to sell 5 per cent of its production in the Indian market." ECIL contended that domestic

\textsuperscript{63}The details regarding this case have been collected from -\textit{Company News and Notes}, Vol.XV, No.6, (June 1977), pp.45-48.
sale of even 5 per cent of the company's production would be enough to meet the entire internal demand for these items in the country and, thus, would wipe out all the efforts made so far by the public sector undertakings to develop indigenous technology in this field.

Notwithstanding the objections raised by ECIL, the Government approved the proposal of Tata Sona Ltd. Though there was a condition that, in the initial years, production should be for 100 per cent export, how far this condition would be fulfilled in practice was not known. It was also clarified: "the Government in the Department of Industrial Development may allow the company to sale up to five per cent of its annual production within the country if such domestic sale is required in public interest."

Clearly, in this case promotion of exports was considered more important by the Government than the need to provide adequate protection to the indigenously developed know how.
Case III: The company in this case was the Peico Electronics and Electricals Ltd. (erstwhile Philips India Ltd.)

In 1964, Peico had a licensed capacity for production of 140,000 radio receiver sets per annum. Through the various substantial expansion licences issued to the company till 1979, the capacity was raised to 7,60,000 sets.

Surprisingly, Peico had installed capacity far in excess of its licensed limit; in late seventies, the 'installed capacity' of production was not less than one million receivers per annum.

The above-mentioned violation of the licensing regulations was of a serious nature. Peico was not only a large undertaking coming under the purview of the M.R.T.P. regulations, but, also, was the subsidiary of a giant transnational corporation. On the other hand, the production

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64 The various data and information presented here to narrate the case have been earlier cited by—
(1) Government of India, Electronics Committee, Electronics in India (Bhabha Committee Report), op. cit., p.33;
(2) Electronics Commission, IPAG, Data Bank and Information Division, List of Industrial Licences and Letters of Intent Issued, for various years, (New Delhi: n.d.);
of radio receiver sets is primarily assembly-oriented and is based on relatively simple technology. Obviously, it would have been only justified for the Government to force Peico to divert its resources to the production of more technology-intensive items. But instead of dealing with this case of violation seriously, Government decided to regularise the entire excess capacity installed by Peico. Order was passed accordingly.

Case - IV: Another interesting example (of discreteness within Government's dealing with the electronics industry) is provided by the formulation and actual implementation of the Scheme relating to the promotion of computer software export. The said scheme was launched by the Department of Electronics in 1970 with a view to promote the export of computer software from the country. Under the scheme, computers could be imported by individuals or groups wishing to export software, provided that foreign exchange equal to twice (200 per cent) of the CIF price of the computer was guaranteed to be earned by the

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Obviously, in its eagerness to promote software exports from the country the Government did not feel it necessary to consider the inhibiting effects of liberal import of computers on the growth of domestic computer industry. Nor was there any effective mechanism to assess the actual capabilities of the parties who were allowed to import costly computers from outside.

Finally, in May 1980 it was reported that "the scheme was abused by a large number of units which imported all types of computers without fulfilling the export obligation". Hence, there was need to reconsider the scheme.68

66 Ibid., p. 630.


68 The Department of Electronics set up an Export Committee in April 1980 to review the said Scheme of promotion of computer software export and to suggest measures to make it more effective. Following the recommendations by the Export Committee, the Central Government finally announced (on January 2, 1981) the New Policy and Procedures for Projects of Computer Software Export.
The various cases cited in the preceding paragraphs point to the following important facts:

(i) Decisions in the sphere of industrial licensing, M.R.T.P. clearances or import control were often based on such short-term considerations as promotion of exports or the immediate need to raise domestic production in a particular industrial sector. In arriving at these decisions, many of the declared objectives of industrialisation (e.g., progressive indigenisation of parts and components, or providing of protection to the indigenously developed technology from the onslaught of imported ones) were clearly overlooked. But the adopting of such an approach in electronics industry was antithetical to the process of long-term growth of the industry.

(ii) Cases of non-fulfilment of stipulated conditions by parties were not uncommon. As a matter of fact, in an atmosphere of permissiveness where the Government was either unwilling or unable to firmly deal with the cases of violation or non-implementation, the existence of the various instruments of control - in their ultimate distorted form - meant very little, if anything at all.
Implications of Inadequacy/Loosening of State's control over industrial operations. As noted earlier, given the import substitution orientation of the production structure and small size of the home market and given the special character of electronics technology, the channelisation of growth and investment according to plan-priorities was as important as the formulation of long-term plans for growth of electronics industry. However, due to the gradual loosening of State's control over actual industrial operation and also due to discreteness and increasing permissiveness in the application of instruments of control, it became increasingly difficult to ensure growth of electronics industry along the desired lines. In what follows, we shall discuss particularly the case of industrial licensing policy.

The number of industrial licences issued (per year) in electronics industry rose from 10 in 1970 to 12 in 1972, to 26 in 1974, 39 in 1976 and 42 in 1978. If every five years were bunched, the number of licences issued would appear as follows: 72 during 1965 - 69; 102 during 1970 - 74; and 166 during 1975 - 79.

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69 Electronics Commission, IPAG : Data Bank And Information Division, *List of Industrial Licences And Letters of Intent Issued*, for various years, (New Delhi : n.d.) (Mimeoographed.)

70 Ibid.
The progressively larger number of licences issued over the years reflects, at least partly, the liberal policies pursued by the Department of Electronics (and also by the Ministry of Industrial Development) in the matter of issuance of industrial licences. In fact, a glance over the various Annual Reports of the Department of Electronics is sufficient to have an idea about the extent to which the Department — being the administrative Ministry in the procedure of granting of licences — was concerned with streamlining of procedures of minimising of delays. However, a number of consequences followed from the liberal policies pursued by the Department:

First, as no effective mechanism was present for judging the technological capabilities of the parties, a large number of licences taken out were subsequently not implemented in practice. 71 On the issue of non-implementation of licences, the Department itself admitted:

......Mortality in the case of newly approved projects arises due to various factors such as basic inadequacy on the part of the entrepreneurs to adapt themselves to the changing trends of technology and uncertainties in the matter of getting the right type of knowhow (indigenous or imported) in time. 72

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71 Some idea about the extent of non-implementation may be obtained, if one considers the numbers of Industrial Licences and Letters of Intent that were either revoked (by the Government) or allowed to lapse. See, in this connection, the following Annual Reports of the Department of Electronics: Annual Report, 1973-74, (p.26); Annual Report, 1975-76, (p.24); Annual Report, 1976-77, (p.58); Annual Report, 1978-79, (p.28).

72 Government of India, Department of Electronics, Annual Report, 1976-77, p. 58
Secondly, at the time of issuance of licences, the scale factor was rarely being given due weightage.\textsuperscript{73} Thus, on the one hand, the amount of resources diverted to particular sectors within electronics industry was larger than what was actually necessary. On the other hand, the domestic market became fragmented (in the process) among a number of manufacturers which led, in turn, to underutilisation of capacity.\textsuperscript{74} The latter had a direct bearing on costs of production.\textsuperscript{75}

Finally, the permissive manner, in which licences were issued, led to the deepening of technological dependence over time. In many cases, a number of parties were allowed, almost in the same time, to undertake the production of the same electronic item.\textsuperscript{76} They were allowed, thereafter, to bring the needed technology from diverse foreign sources. Generally,


\textsuperscript{75}For evidences and detailed discussion regarding the effect of scale of production on costs, see — "Report of the Departmental Working Group on Electronic Components", op. cit., pp. 643 - 645.

\textsuperscript{76}Multiple licensing was the case particularly in the radio-receiver sector (in the fifties and Sixties), in the semiconductor and components sector (in the sixties and seventies), and in the industrial electronics and computers sector in the seventies.

\textsuperscript{77}Specific instances in this regard are cited in Chapter VI in the present study.
each foreign supplier of technology had his own product/process designs, prescribed set of capital equipments and, also, components of a given specification. Thus, for the same electronic item, there was a multiplicity of product/process designs within the country; this made the absorption and assimilation of imported technology increasingly difficult. Also, there was bound to be the need for recurring imports of capital equipments and components of widely different specifications. Effecting of necessary changes in the production technology (so that locally produced capital equipments or components could be used in place of the ones prescribed by the foreign collaborator) was not possible because of explicit or implicit terms laid down in the collaboration agreements; nor, were the local firms capable of making any such changes. The absence of any effective policy instrument - which could have forced the manufacturers to undertake adequate in-house R & D activities - only accentuated the problem further.

In the resultant overall situation, the growth of production in one particular sector often failed to generate the natural demand-stimulus for growth of all inter-connected sectors. 78

78 The various points raised in this paragraph will be taken up for detailed discussion in Chapter VI in the present study.
The above-mentioned distortions within the process of electronics industry's growth became particularly prominent in late-seventies following the increasing acceptance of the idea of export-led growth at the policy-making level and the adoption of series of liberalisation schemes in the spheres of industrial control.

The following extract from the Report of the Semiconductor Committee shows how the emphasis on exports can lead to distortions in the process of growth and how the concern of the planners over export-promotion can be exploited by several private-sector firms to blunt the instruments of industrial control:

"Some firms have obtained or are seeking industrial licences for manufacture of semiconductor devices, giving a guarantee for export of a large percentage of their production. Licensing Authorities appear to have accepted such guarantees at face value. Once the plant and machinery are imported and installed, and exports do not materialise, pressure will be mounted for clearance to enter the already overlicensed domestic market. Great care should be exercised in granting industrial licences on the export-guarantee basis. Government should not later find themselves forced to acquiesce entry of such firms into the domestic market - the licensees' primary aim being achieved in an indirect manner."

See "Report of the Semiconductor Committee", op. cit., p. 188.

The gradual shift in policy-premises from import-substitution orientation to export-led growth and its implications from the viewpoint of electronics industry's growth are discussed in detail in Chapter VII in the present study.
5.5 Summary

Within the framework of an import substitution oriented strategy, the formulation and implementation of long term plans were of crucial importance for ensuring the optimum growth of the electronics industry. These, in turn, called for -

(i) direct as well as indirect intervention by the State in the process of growth; and

(ii) the networking of policies (concerning public sector's expansion, issuance of industrial licences, M.R.T.P. clearances, import-control, foreign collaboration approvals and the like) in an effective manner to serve the purpose of long-term growth.

From the analyses in the present chapter it becomes clear that, till 1979, the above-mentioned conditions for growth of electronics industry had remained largely unfulfilled. The major findings are summarised below:

(i) Electronics industry in India, since its inception, had grown in a haphazard and uncoordinated manner. Prior to 1970, there was neither any government policy nor an appropriate apex body for planning and steering of growth in the industry. The launching of the Department of Electronics (in 1970) and the subsequent setting up of the Electronics Commission (in 1971) were important milestones;
nevertheless, they failed to bring any significant improve-
ment in the overall situation. In the absence of the requi-
site authority or the needed organisation, the Electronica
Commission was unable to provide an unified direction to
activities in the field of electronics.
(ii) Equally disappointing was the role played by the State
with regard to long-term planning. Till early-seventies, no
separate Plan existed for the electronics industry. Although
an attempt was made, in the wake of the formulation of India's
Fifth Five Year Plan, to draw up a detailed blue-print for
electronics industry's growth, in fact, the same had been of
very little practical significance. For one thing, there was
the persistent resource-constraint forcing the cancellation
or postponement of many of the important investment progra-
mnes. Secondly, in a situation where the primacy of planning
itself was on the decline, the Fifth Plan (even in its distort-
ed and reduced shape) did not find proper implementation. The
situation with regard to planning was no better even in late-
seventies. As is known, there were uncertainties at the
political level, and Indian economy virtually experienced a
second plan-holiday spanning the period 1977-78 to 1979-80.
(iii) Direct participation by the State in the production
process was important in electronics industry for a variety
of reasons. Adoption of an appropriate policy with regard to
the expansion of public sector was, in fact, the only way
open to planners to ensure the setting up of production capacities in those sectors where the private sector was either unable or unwilling to come forward on techno-economic grounds. Such a policy was also needed in order to avoid uneconomic fragmentation of the domestic market among a number of private sector firms, to prevent monopolistic concentration and to ensure growth on technologically sound lines. Actual pattern of expansion of the public sector in electronics industry, however, did not reflect the existence of any such policy frame. The resulting adhocism prevailing at policy-making level, failure to bring coordination among the activities of the different public sector units, and the inability on the part of the Government to make available the requisite volume of resources for public sector's expansion - were, inter-alia, the major factors that constrained the growth of public sector output and investment within electronics industry.

(iv) Finally, given the special character of the technology (on the both fronts of production and application of electronic equipments), and given the nature of resource endowments (technological, human and economic) in a less-developed country, the formulation and, more importantly, the implementation of appropriate long-term plans were of crucial importance to the growth of electronics industry. The various instruments of industrial control had a particular role to play in this regard. In a mixed economy, these
on the one hand, could have economised the use of scarce
resources, and on the other hand, could have ensured the
investment of resources as per plan priorities. However,
in practice, the manner of dealing with the various instru-
ments of industrial control was disappointing. While, as a
result of the series of relaxations and liberalisation-
schemes carried out since the mid-sixties, the effective-
ess of these instruments substantially declined over time,
the manner of their application in electronics industry
only reflected the non-existence of an overall strategy-
framework. All these, in fact, had serious implications
from the view-point of constraining of the growth of the
industry in the long run.