Institutions, Infrastructure and Investment

16.1 Effectiveness of regional planning and development depends upon the institutions, infrastructure, investments and information system that help planning and programming of development. Traditionally statutory regional plans have paid little attention to these aspects, as such plans were essentially seen as end state oriented land use plans. However for MMR which is experiencing major changes in its economy, employment patterns, population growth and distribution a development management orientation is warranted. In this context the institutions, infrastructure, investment and information become more important.

16.2 Institutions

16.2.1 The Gadgil Committee - 1966

The Regional Planning Committee set up under the Chairmanship of Dr. D.R. Gadgil emphasised the necessity of setting up an adequate authority for implementation of regional development proposals. The Committee observed;

"It is clear that the regional planning and development corporation cannot and is not intended to take over the developmental activity of the local authorities in the region. Its principal function would be to work out a frame of general policy related to the needs of the region as whole in which development plans of the local authorities are fitted in a coordinated manner. To give substance to its policy it will be necessary for the regional corporation to undertake a series of planned major works. In particular, it would have power to purchase lands and develop them in accordance with the regional plan and it would have special responsibility in the setting up of new townships. The purpose of the regional corporation is to support, not to supersede existing authorities and it would be mainly active in relation to major questions of land use and development and redevelopment. In addition to selective activity directly undertaken by the corporation it would employ for its purposes public and private agencies giving them encouragement and financial assistance. Ordinarily the regional corporation would execute works having an overall regional significance. It may however be vested with the power to take over execution, in particular instances, from existing agencies where this is found necessary for speedier implementation of proposals which do not, for example, fit in the current Programme of these agencies and are therefore likely to be delayed. The corporation should be empowered to take any such action only after obtaining the permission of Government in this behalf." (BMRPB, 1974)

However the Maharashtra Regional and Town Planning Act, 1966 that was enacted as follow-up of recommendations of the Gadgil Committee did not provide for such regional corporation. It provided for only an ad hoc Regional Planning Board for the purposes of preparing a Regional Plan and setting up of New Town Development Authorities for planning and development of New Towns proposed by the Regional Plan.

16.2.2 Regional Plan-1973

The Regional Plan-1973 observed that constituting a single development authority in the entire region to undertake all types of development activities including roads, railways, water supply drainage development of new towns etc. is neither practicable nor desirable; and therefore did not suggest such an authority. The Regional Plan-1973 however observed that while all existing agencies will continue to operate in the region at their respective levels and in their respective fields, a close coordination in the activities of all these would become necessary. Such coordinating machinery will have to take periodical review of the achievements of different authorities and to suggest and to take steps for modifying and altering some of their programmes so that implementation programmes of authorities conform to the overall framework and Programme of the regional plan. As there was no statutory provision for setting up such a coordinating authority the Regional Plan suggested a high powered non-statutory coordinating agency preferably headed by the Chief Minister.

The recommendations of the Regional Plan at the local level were essentially guided by the provisions of the MR&TP Act, 1966 regarding New Town Development Authorities (NTDA) and of Maharashtra Municipalities Act, 1965 regarding the New Township Municipal Councils (NTMC). The Regional Plan - 1973 recommended the NTDA where new towns were to be developed on green field sites and NTMC where sizable development had already occurred and where municipal services needed to be augmented. The Regional Plan - 1973 recommended the following;

1. The draft Regional Plan had suggested both NTDA and NTMC for the trans Thane creek area in Thane tehsil and NTDA for Trans Harbour area in Uran and Panvel tehsils. However after the publication of the draft plan but before its sanctioning CIDCO was designated as the NTDA for the entire area later called as Navi Mumbai. The proclamation to constitute NTMC for the trans Thane creek area also lapsed.
2. NTMC for Atale Shahad area if its inclusion in the Kalyan Municipal area is not possible.
3. HOC to act as the development authority in the Apte Turade area.
4. NTDA for new township in Vasai tehsil as a deferred action Programme after MIDC has acquired suitable area for industrial development.
5. No specific authority was recommended for new townships near railway stations.

It may be noted that though the Regional Plan was “sanctioned” in 1973, the institutional scene as obtained in 1994 is quite different from what was recommended by the Regional Plan. The institutional framework for regional planning and development is shown in Figure-16.1.

1. Though not envisaged by the Regional Plan, 1973, MMRDA has been established in 1975 as the planning and coordinating agency having perpetual exisstence.

Institutional Framework For Regional Planning and Development

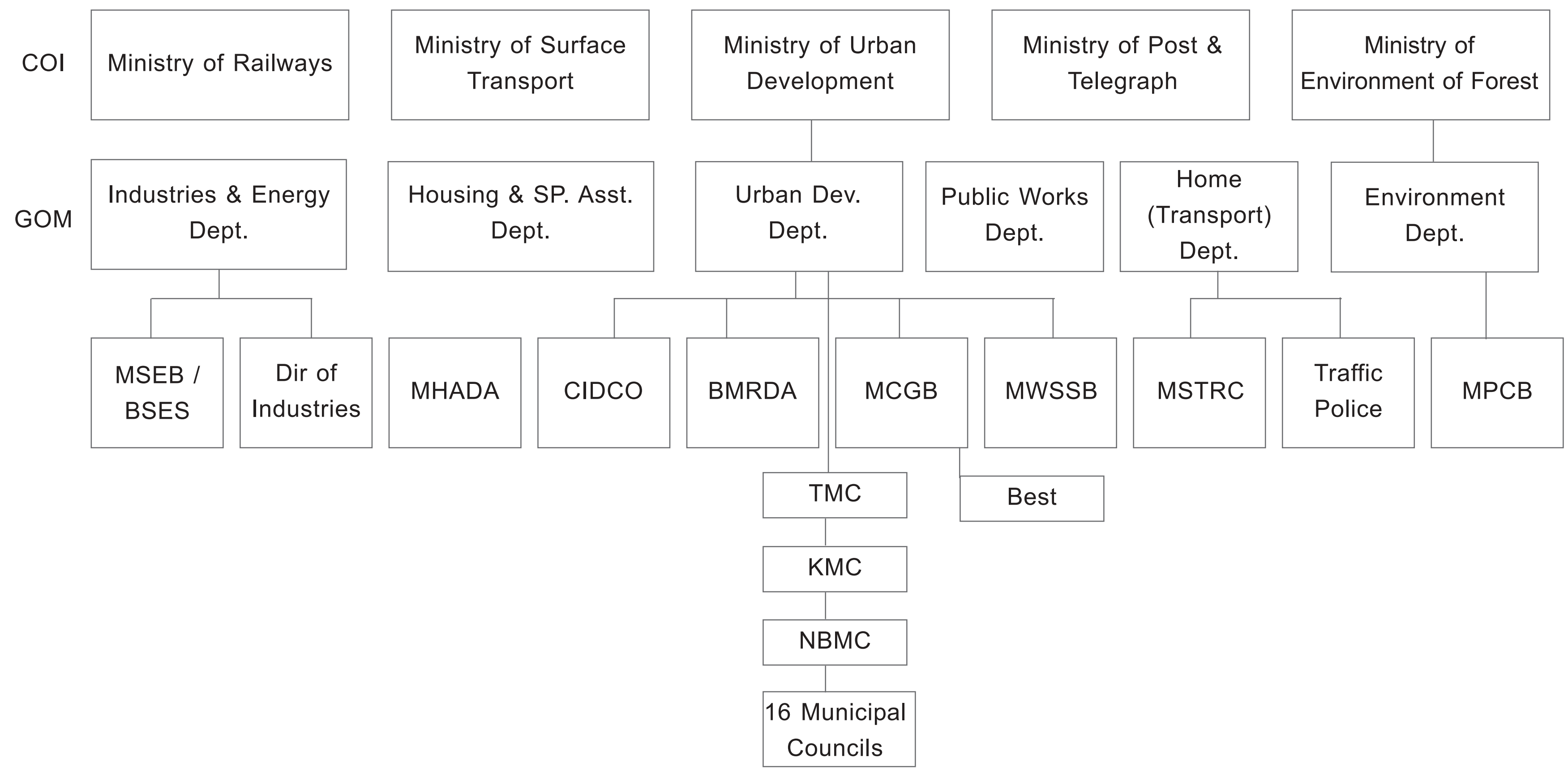

Figure-16.1

Part 3

16

2. Many state level functional statutory authorities have been created e.g. Maharashtra Water Supply and Sewerage Board (MWSSB) in 1976, Maharashtra Pollution Control Board (MPCB) in 1970, Maharashtra Housing and Area Development Authority (MHADA) in 1976, and City and Industrial Development Corporation of Maharashtra (CIDCO - a government owned company registered under Companies Act) in 1970.

3. Thane Municipal Corporation (TMC) incorporating urban areas like Kalwa, Mumbra, Diva and industrial areas at Kolshet, Balkum by expanding athe limits of Thane Municipal Council has been created (1982). Kalyan Municipal Corporation (KMC) was first exstablished (1983) by including Dombivali, Kalyan, Ambernath municipal areas along with surrounding villages but excluding Ulhasnagar. This has been again subdivided (1992) by separating Ambernath Municipal Council and Kulgaon-Badlapur Municipal Council with KMC being confined to Dombivali, Kalyan and Titwala area. Navi Mumbai Municipal Corporation has been established (1991) to cover the part of Navi Mumbai located in Thane Tehsil and 14 other villages.

4 The State Finance Commission has been created in accordance with the provisions of the 73rd Constitutional amendment which will advise on the devolution of funds from the State Government to the local authorities.

5. The principle of “democratic Decentralisation” has been enshrined in the 74th Constitutional amendment which has also defined the powers and functions of the local authorities. The Mumbai Municipal Corporation Act,1888, Mumbai Provincial Municipal Corporation Act 1949 and the Maharashtra Municipalities Act, 1965 have been amended in accordance with the 74th Constitutional amendment. The amended legislation inter alia requires preparation of annual environmental status reports by local authorities and an explicit statement of costs and subsidies on provision of various civic services.

6. Though the 74th Constitutional amendment provides for setting up of Metropolitan Planning Committees, no such MPC has been established for Mumbai so far.

7. The relationship between the local authorities under the new constitutional mandate and the statutory state level agencies is yet to be clearly defined.

While bringing about the legislation for regional planning in 1966 or setting up the MMRDA in 1975 the emphasis was on central planning and coordinating agency. However since 1980s the emphasis has shifted to Decentralisation and participation with state playing the role of enabler or facilitator and not as provider(NCU,1988, GOI, 1988, UNCHS, 1990). The future evolution of institutions will be guided by these principles. In this context capacity building of local authorities will have to be the focus of further institutional development. Currently the local authorities particularly the municipal councils are weak in terms of technical manpower and would not be in a position to discharge the new legal responsibilities like preparing environmental status report. MMRDA will have to therefore consciously help the local authorities in that direction.

16.2.3 MMRDA Act, 1974

Despite Regional Plan's recommendation to the contrary, the Mumbai Metropolitan Region Development Authority Act was enacted in 1974 and MMRDA was constituted in 1975. The main object of MMRDA is to secure the development of the Mumbai Metropolitan Region according to the Regional Plan; and toward that end the functions of MMRDA as laid down in the MMRDA Act 1974 are;

1. review any physical, financial and economical plan;
2. review any project or scheme for development which may be proposed or may be in the course of execution or may be completed in the Metropolitan Region;
3. formulate and sanction schemes for development of the Metropolitan Region or part thereof;
4. execute projects and schemes;
5. recommend to the state government any matter or proposal requiring action by the State Government or any other authority for the overall development of the Metropolitan Region;
6. participate with any other authority for inter- regional development;
7. finance any project or scheme for the development of the Metropolitan Region;
8. coordinate execution of the projects or schemes for the development of the Metropolitan Region;
9. supervise or otherwise ensure adequate supervision over the planning and execution of any project or scheme, the expenses of which in whole or in part are to be met from the Mumbai Metropolitan Region Development Fund;
10. prepare schemes and advise the concerned authorities in formulating and undertaking schemes for development of agriculture, horticulture, floriculture, forestry, dairy development, poultry farming, piggery, cattle breeding, fisheries and other similar activities;
11. prepare and implement schemes for providing alternative accommodation and for rehabilitation of persons displaced by projects and schemes which provide for such requirements;
12. do all such other acts and things as may be necessary for, or incidental or conducive to, to any matters which arise on account its activity and which are necessary for furtherance of the objects for which the Authority is established (GOM, 1974).

Despite such a wide ranging inter sectoral mandate, MMRDA has not evolved into a strong coordinating agency. It is largely seen as a line agency under the Urban Development Department and not as a truly regional planning Authority that can cut across the sectoral boundaries. There are many institutional reasons for this.

1. the Executive Committee under the chairmanship of the Chief Secretary has the potential to become the intersectoral coordinating agency. However the representation on this Committee is inadequate for this purpose. For example Industries Department and Environment Department are not represented on the Committee. Municipal Corporation other than Greater Mumbai viz. Thane, Kalyan and Navi Mumbai are also not represented.

2. MMRDA has not yet evolved any procedures to use its powers of "review of physical, financial and economical plans." Information flows have not yet been formally established that can permit MMRDA's review before it is too late. Furthermore Government too has not reposed any confidence in MMRDA to carry out review of even the physical plans. For review of Development Plans it has preferred separate ad hoc committees. Only in 1994, Government has asked MMRDA to guide preparation of Development Plans in MMR, appraise the Development Plans and monitor their implementation.

3. Investment programming could have been an effective technique of ensuring coordinated development. Planning Commission Task Force on Planning of Urban Development had suggested formulation "Metropolitan Sub-Plans" (Planning Commission, 1983). However this procedure has not been formally adopted. MMRDA's efforts to prepare a five year Regional Investment Plan turned out to be more of an academic exercise. MMRDA attempted a Regional Investment Plan for MMR coinciding with the Seventh Five Year Plan. The Regional Investment Plan (MMRDA, 1985) concluded that about 24% of the total investment required, has to come from State Plan outlays (including IDA assistance). If investment on this scale is not possible from the State resources, it is obvious that some other ways need be found for resource generation. These may be as mentioned below:

   a) **Promotion of Private Sector Investmen**

      It may be desirable to explore ways of promoting private sector investment, particularly in passenger road transport. Besides, strategies need to be found to promote increased private sector investment in housing sector, which will supply modest and low-priced shelter opportunities for larger number of house-holds.

   b) **Strengthening Agency Resources**

      It should be possible to strengthen the Local Government resources through appropriate rent control and property tax reforms so that larger amounts are available with local Govt. agencies, particularly for the various urban development activities.

   c) **Institutional Finances**

      Institutional finance for urban development sectors are available on a limited scale through HUDCO mainly for housing purposes. Some of the urban development projects are of a nature which can sustain institutional finances from agencies like LIC, GIC or the nationalised banks. However, due to their longer gestation period, they need extended terms of repayments, which under current regulations do not seem to be feasible. An appropriate institutional arrangement needs to be devised by which such financially viable urban development projects could be appropriately supported.

Not much progress has been achieved in this regard so far.

4. Most implementing agencies in MMR operate an annual budget cycle and do not have a practice of preparing a five year capital investment programme. These agencies do not also follow modern accounting practices which can help them use forecasts of financial statements (income and expenditure, sources and application of fund and balance sheets) as a planning and operations management tool. Under these circumstances a review of financial plans and effective coordination of investment programmes becomes difficult. Furthermore functional agencies with state-wide mandate like MHADA, MIDC do not have separate investment plans for MMR.

5. MMRDA has been able to play the coordinating role in project formulation and project implementation where external finances are involved. Mumbai Urban Transport Project I and II, Bombay Urban Development Project, Mumbai Urban Infrastructure Project and Mega City Programme are the notable examples. However this has remained confined to the particular projects.

6. MMRDA through the two funds established for financing infrastructure viz. MMRDA Reserve Fund and MUDP Revolving Fund has started playing the role of development financing more actively albeit at a modest scale since 1988. Apart from the usefulness of this activity in itself, strategically this also has the potential to strengthen the coordinating role.

The Planning Commission Task Force had recommended preparation of "metropolitan sub-plans" in 1983 basically within the framework of five year plans. However the economic reforms of the 90's this framework is likely to become inadequate at the local level. At the local level considerable investment takes place outside the framework of Five Year Plans; and this proportion is likely to increase in future. With increasing reliance on institutional finance and debt instruments the separation of so called plan and non plan expenditure would also become largely irrelevant. This would be due to the fact that the infrastructure investments, in the new framework, would become integrally linked with the debt servicing costs, pricing and cost recovery and the efficiency in delivery of services. The constitution of the State Finance Commission according to the 73rd and 74th amendment of the Constitution would enhance the certainty of the devolution of funds from the state government to the local authorities. But this will not cover the functional agencies like the MHADA, MIDC or MPCB. However their investments and operations are equally important in the MMR. A more formal integrating mechanism is therefore necessary. The outline of such a mechanism is given below;

1. all agencies should adopt commercial accounting and prepare standard financial statements viz. Income and Expenditure, Sources and Application of Funds and Balance Sheet. Agencies that have their jurisdiction larger than the MMR may be required to prepare such statements for their MMR operations. The agencies should also be required to publish the financial statements (even in unaudited form if necessary) to promote transparency and citizen participation.

2. the agencies should be encouraged to prepare computerised finance and operations (FOP) models. Outputs from these models in the form five year forecasts of financial statements should be submitted to the Executive Committee of the MMRDA for review sometime by December every year. The comments of the Executive Committee of MMRDA be taken into account

by the respective agencies in formulating their statutory budget proposals. MMRDA could also consider providing financial assistance to various agencies in the context of these FOP forecasts. The secrecy associated with budget proposals even at local level needs reconsideration from the point of view of effective citizen participation.

Despite the importance of the public investment, its role is only catalytic. The real objectives can be attained only when private sector investments also respond in the desired fashion. The question is how to direct the disposition of public and publicly controlled changes in the capital stock so that competitive responses of the private sector will produce a total allocation that is more efficient (and equitable) than would be obtained under any other public sector investment decision private sector response combination. (Leven, 1970).

Thus apart from monitoring public investment it is also necessary to keep track of private responses. Land use changes and building construction, sectoral changes in employment, composition of regional income are the main indicators of private sector capital stock and income. It is therefore important to keep track of such changes in a systematic manner. This is separately considered in Chapter-17.

16.3 Infrastructure

16.3.1 The Regional Plan - 1973, perceived a strong relation between economy in infrastructure provision and land use pattern. Decongestion of Island City of Mumbai and developing Navi Mumbai was believed to minimise the total cost of infrastructure. This was further articulated by MMRDA in its paper on “Optimal Regional Structure” that recommended the poly-nucleated pattern of development. (MMRDA, 1977). The underlying assumptions in these arguments was land use pattern can be guided by development control and modicum of local infrastructure without the regional infrastructure; and furthermore providing such infrastructure could follow by securing the desired level of investment. The total requirement of infrastructure investment is so large that the economy that may accrue on account of decentralised pattern of development is not very significant. Moreover to use infrastructure to lead development implies that the return on investment would take some time to realise. This means higher financial cost. Decentralisation therefore cannot be the only focal point of infrastructure planning. A more coordinated and comprehensive approach is necessary. Infrastructure provision and delivery of services can be decomposed into following components;

1. financing capital investment,
2. carrying out capital works,
3. operating, maintaining and delivering services, and
4. setting standards for delivery of services and monitor them.

16.3.2 The general trend has been toward ‘bundling’ of these functions in one single agency. Such bundling gives rise to many problems related to efficiency and equity of delivery of services. Provision of infrastructure services has been characterised by the functional specialisation and vertical integration e.g.

- Power supply : generation, transmission and distribution with MSEB
- Water Supply and Sewerage : Source development, treatment, transmission and distribution with MCGM or MWSSB
- Solid Waste : collection, conveyance and disposal with individual local authority

16.3.3 The underlying reasons for such functional specialisation have been lack of expertise in local authorities and economies of scale. This has led to many statutory corporations and authorities. Such corporations were expected to be run on commercial principles with adequate autonomy in their operations. However the experience has not been very satisfactory. Some of the reasons are;

1. The infrastructure has been developed and managed by the public sector largely by its own work force. Private sector has been used for operations and maintenance of services by contracting out the functions in very few cases such as solid waste collection in Greater Mumbai to a limited scale, operating sewage pumping stations in Navi Mumbai and operations and maintenance of Temghar Water Works by MWSSB. Other forms of private sector investment such as BOO or BOT have not been used on any significant scale.

2. A combined responsibility for investment, operations and maintenance and performance monitoring in one single agency has prevented effective participation. The public agencies instead of being responsive tend to become defensive. Influx of population is an oft repeated alibi for failure to provide services.

3. Vertical and horizontal 'unbundling' of services which is in keeping with the principle of democratic decentralisation and the two tier local authorities effected through the 74th constitutional amendment should help in resolving some of the problems of effective delivery of services. Examples of such unbundling could be;

   a. Water Supply : Source development, treatment and bulk supply could be with one agency including the freedom to raise resources in the capital market and determining appropriate bulk supply rate. Transmission and allocation to various wards could be the function of the Municipal Corporation including monitoring of quality of water supply. Distribution, maintenance, metre reading and tariff collection could be the responsibility of ward committees.

   b. Solid Waste : Solid waste collection and transport to transfer stations or designated disposal sites could be the responsibility of ward committees. Bulk carriage from transfer stations, designating and maintaining disposal sites could be the responsibility of the municipal corporations. The municipal corporations should ensure segregation of toxic waste from domestic waste and develop appropriate methods of disposal.

   c. Bus Transport : A central agency may establish depots, bus termini and lease these facilities to private operators under closely monitored regulations regarding routes, fares, passenger services, time schedules etc.

4. Subsidies are introduced to help attain the equity objectives. However experience has shown that the result in most cases has been counter productive.

   a. subsidised water supply has prevented adequate investment for coping with additional demand. This in turn has forced poorer households to buy water at higher rates.

   b. subsidies also tend to cover inefficiencies in delivery of services.

5. Withdrawal of subsidies and full cost recovery is therefore not only a problem of setting the prices right but also a problem of keeping the cost low through increased productivity. One of the ways to improve inefficiency is to introduce competition. This can be achieved along with the unbundling. (World Bank, 1994)

16.4 Investments

16.4.1 The Regional Investment Plan 1985-90 prepared by the MMRDA had identified the investment requirement of Rs. 6441.12 crores. Sectoral requirements are given in Table-16.1. Assessing investment requirements in various sectors of infrastructure in a common logically consistent framework is fraught with many methodological problems. However a broad magnitude of investment requirement can be ascertained from various analyses and project formulation exercises recently carried out. This is summarised in Table-16.2. As may be seen from this table, the total investment requirement for the next about 15 years is of the order of Rs. 35,000 crores. The present level of public sector investment is summarised in Table-16.3. As may be seen from this table the average yearly investment is less than Rs. 600 crores which is nearly a sixth of the projected requirement. Concerted efforts are called for to attain the desired level of infrastructure investments.

16.4.2 The existing sources of finance like local taxes and user fees will have to be strengthened. Operational efficiencies will have to be improved to provide additional debt servicing capacity. Devolution of funds from state government to local authorities on rationalised and sustained basis through the State Finance Commission should also help in increased level of investment. However this would not be sufficient, commercial borrowing, raising of municipal bonds and involving private sector BOOT operations through concessions may have to be resorted to.

16.4.3 Individual municipal agencies may not however be able to adopt these measures in the immediate future. This provides an opportunity for MMRDA to have new significant role. MMRDA can play the role of a Municipal Urban Development Bank. Not by channeling government funds but by using its own surpluses and acting as an intermediary between the local authorities and the capital market. However this cannot be a purely banking operation MMRDA would have to help local authorities in preparing their Finance and Operations Plans, Capital Investment programmes including project formulation, adopting new and efficient methods of tax and user fee collection etc. This role should strengthen the decentralised pattern of local government instead of supplanting it.

Sectoral Investment Requirement during VIIth Plan. (1985-90)	
Sectors	**Rs. in Crores**
I. Shelter & Urban Development	1377.98
1. Housing	945.43
2. Slum Upgradation	151.60
3. Off-site Infrastructure & Social Facilties.	155.95
4. Urban Renewal	125.00
II. Transport	1473.23
1. Roads & Bridges	417.23
2. Passenger Road Transport	57.49
3. Mass Rail Transport	281.41
4. Goods Transport (Rail)	13.72
5. Inland Water Transport	50.00
6. Port Development (including new port at Nhava-Sheva).	563.12
7. Air Transport	90.00
III. Telecommunications	1471.72
IV. Water Supply & Environment Sanitation.	1257.50
1. Water Source Development..	146.83
2. Water Supply & Waste Water Collection & Disposal	1037.93
3. Solid Waste Management.	51.34
4. Air Quality Monitoring Stations	21.40
V. Fisheries	11.36
VI. Growth Centres	849.32
TOTAL	**6441.12**

Source : Regional Investment Plan, 1985-90, MMRDA, 1985.

Table -16.1.

16.5 The above are not recommended as definitive action Programme but as issues that need serious consideration on continuing basis for effective regional development management.

Assessment of Future Sectoral Investment Requirements

(Rs. in Crores)

	Sectors	Revised RP 1991-2001	Assessment 2001-2011	Mega City 1994-95 to 1998-99	BUIP 1996-97 to 2006-2007 (1992 prices) 1993-2005	BMC SWD & SD Project	Municipal Council Servicesand MWSSP-II 1991-2001	Mumbai Urban Transport Project II				Total
								On-going	1995-2000	2001-2006 1992-93	Long Term prices	
I.	**Housing (1991 prices)**	**6771.75**	**7778.53**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**14550.28**
	1. New Housing	5056.10	6044.37	–	–	–	–	–	–	–	–	11100.47
	2. Slum Upgradation	617.11	635.62	–	–	–	–	–	–	–	–	1252.73
	3. Reconstruction of Old Buildings	1098.54	1098.54	–	–	–	–	–	–	–	–	2197.08
II.	**Urban Development**	**–**	**–**	**187.20**	**791.00**	**–**	**–**	**–**	**–**	**–**	**–**	**978.20**
	1. Urban Renewal	–	–	23.91	–	–	–	–	–	–	–	23.91
	2. Land Development	–	–	73.72	–	–	–	–	–	–	–	73.72
	3. Commercial Complexes	–	–	15.15	–	–	–	–	–	–	–	15.15
	4. Technology Parks	–	–	37.34	–	–	–	–	–	–	–	37.34
	5. Town Centre	–	–	20.00	–	–	–	–	–	–	–	20.00
	6. Flood Control	–	–	–	280.00	–	–	–	–	–	–	280.00
	7. Environmental Protection	–	–	–	50.00	–	–	–	–	–	–	50.00
	8. Institutional Development	–	–	–	461.00	–	–	–	–	–	–	461.00
	9. Information System	–	–	1.50	–	–	–	–	–	–	–	1.50
	10. Innovative Schemes	–	–	15.58	–	–	–	–	–	–	–	15.58
III.	**Urban Infrastructure**	**1315.31**	**2856.13**	**355.27**	**1817.00**	**1171.30**	**542.75**	**–**	**–**	**–**	**–**	**8057.76**
	1. Water Source Devel -opment (94-95 prices)	1315.31	2856.13	–	–	–	–	–	–	–	–	4171.44
	2. Water Supply	–	–	227.55	288.00		415.21	–	–	–	–	930.76
	3. Sewerage	–	–	2.97	100.00	555.00	64.01	–	–	–	–	721.98
	4. Storm Water Drainage	–	–	–	300.00	616.30	27.77	–	–	–	–	944.07

Table-16.2 (Contd.)

Assessment of Future Sectoral Investment Requirements

(Rs. in Crores)

Sectors	Revised RP 1991-2001	Assessment 2001-2011	Mega City 1994-95 to s1998-99	BUIP 1996-97 to 2006-2007	BMC SWD & SD Project (1992 prices) 1993-2005	Municipal Council Servicesand MWSSP-II 1991-2001	Mumbai Urban Transport Project II				Total
							On-going	1995-2000	2001-2006 1992-93	Long Term prices	
5. Solid Waste management	–	–	26.25	–	–	6.85	–	–	–	–	33.10
6. Power Distribution	–	–	–	686.00	–	–	–	–	–	–	686.00
7. Fire Fighting	–	–	7.50	–	–	7.6	–	–	–	–	15.10
8. Street Lighting	–	–	60.00	–	–	2.22	–	–	–	–	62.22
9. Health Care	–	–	14.00	–	–	5.35	–	–	–	–	19.35
10. Primary Education	–	–	–	–	–	13.74	–	–	–	–	13.74
11. Recreation	–	–	17.00	–	–	–	–	–	–	–	17.00
12. Infrastructure in Vasai-Virar	–	–	–	443.00	–	–	–	–	–	–	–
IV. Transport	**–**	**–**	**257.53**	**–**	**–**	**27.34**	**508.00**	**3342.20**	**3719.80**	**3925.40**	**11780.27**
1. Road Improvements	–	–	215.13	–	–	27.34	–	868.70	610.30	2219.40	3940.87
2. Traffic Management	–	–	–	–	–	–	–	137.50	86.50	–	224.00
3. Bus Transport	–	–	9.00	–	–	–	–	289.50	93.50	–	392.00
4. Suburban Railway Transport	–	–	–	–	–	–	508.00	1982.50	2809.50	1706.00	7006.00
5. Passenger Water Transport	–	–	33.40	–	–	–	–	64.00	120.00	–	217.40
Total	**8087.06**	**10634.66**	**800.00**	**2608.00**	**1171.30**	**570.09**	**508.00**	**3342.20**	**3719.80**	**3925.40**	**35366.51**

Table-16.2 (Concld.)

Sources: *Project profile for Mega City Programme for Mumbai, MMRDA, 1994.*
Project profile for Mumbai Urban Infrastructure Project, MMRDA, 1993.
Master Planning for Greater Mumbais, Storm Water Drainage & Sewer Rehabilitation, Watson Hawksley International & Associated Industrial Consultants, 1993.
Study on Municipal Service Requirements, MMRDA & Tata Consultancy Services, 1990.
Comprehensive Transport Plan for MMR, WS Atkins International, 1994.

Past Sectoral Investments

(Rs. in Crores)

Sectors	1989-90		1990-91		1991-92		1992-93		Total (1989-90 to 1992-93)	
	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating	Capital	Operating
I. Housing	**106.03**	**37.28**	**133.99**	**45.35**	**187.59**	**54.88**	**212.66**	**45.58**	**640.27**	**183.08**
1. New Housing	34.29	17.00	72.45	23.46	129.80	27.70	128.81	19.02	365.35	87.17
2. Slum Upgradation	40.13	8.32	32.16	8.94	26.57	11.51	43.33	11.62	142.19	40.39
3. Reconstruction of Old Buildings	31.61	11.96	29.38	12.95	31.22	15.68	40.52	14.93	132.73	55.52
II. Urban Development	**26.46**	**34.16**	**29.80**	**38.65**	**41.38**	**48.96**	**14.62**	**49.67**	**112.26**	**171.44**
1. Improvement Schemes	0.49	13.90	0.70	15.21	2.28	23.26	3.35	22.89	6.82	75.26
2. Land Development	15.95	2.35	20.14	2.58	31.43	3.78	7.82	1.25	75.34	9.96
3. Commercial Complexes & Markets	7.93	14.60	5.38	17.14	4.95	17.65	2.88	21.01	21.14	70.40
4. Environmental Protection	0.16	2.64	1.57	2.91	0.31	3.38	0.42	4.04	2.46	12.97
5. Miscellaneous	1.93	0.67	2.01	0.81	2.41	0.89	0.15	0.48	6.50	2.85
III. Urban Infrastructure	**189.01**	**605.64**	**220.51**	**715.53**	**269.43**	**872.02**	**249.02**	**1011.61**	**927.96**	**3204.80**
1. Water Supply	49.18	106.41	53.27	130.77	92.95	163.23	101.12	172.61	296.52	573.01
2. Sewerage	59.82	17.92	60.61	24.08	100.12	70.03	82.29	80.88	302.84	192.90
3. Storm Water Drainage	14.07	17.23	21.84	20.33	20.96	9.34	12.43	7.62	69.30	54.52
4. Solid Waste management	1.81	70.70	2.08	83.85	7.05	101.22	13.72	131.44	24.66	387.21
5. Power Distribution	48.01	271.15	52.60	308.21	0.48	329.12	0.00	386.96	101.09	1295.44
6. Services in M. Councils									0.00	0.00
7. Health Care	4.72	20.56	6.31	24.36	12.33	36.54	16.12	40.30	39.48	121.76
8. Education	0.32	95.73	0.75	116.16	0.95	154.01		181.55	2.02	547.45
9. Recreation	1.96	5.45	3.23	6.66	3.49	7.84		10.26	8.68	30.21
10. Miscellaneous	9.12	0.49	19.81	1.12	31.10	0.69	23.35		83.38	2.30
IV. Transport	**136.01**	**204.22**	**182.62**	**264.05**	**255.76**	**349.28**	**245.80**	**732.62**	**820.19**	**1550.17**
1. Road Improvements & Traffic Management	75.21	22.36	118.65	31.66	165.96	66.52	171.00	387.30	530.82	507.84
2. Bus Transport	21.33	181.36	23.91	232.02	22.25	282.51	9.69	345.32	77.18	1041.21
3. Suburban Railway Transport	39.47	0.50	40.06	0.37	67.55	0.25	65.11	0.00	212.19	1.12
Total	**457.51**	**881.30**	**566.92**	**1063.58**	**754.16**	**1325.14**	**722.10**	**1839.48**	**2500.68**	**5109.49**

Sources : MHADA Budget Estimates 1991-92 & 1992-93.
Study on Environmental Management Strategy & Action Plan for BMR, Coopers & Lybrand and Associated Industrial Consultants, 1994.
Comprehensive Transport Plan for MMR, WS Atkins International, 1994.

Table-16.3

Notes : Information on expenditure by Navi Mumbai Municipal Corporation, Konkan Housing and Area Development Board, and Municipal Councils and private parties in BMR is not available and therefore not included. Where revenue expenditure is not separately available for various capital works the total expenditure is proportionately distributed based on their share in the total capital expenditure. In some cases where expenditure on two sectors is not separately available it is equally distributed between these sectors. The 1992-93 figures do not include CIDCO's expenditure in Navi Mumbai in sectors other than Transport. The BSES and BEST capital expenditure on power distribution for 1991-92 and 1992-93 is not available.