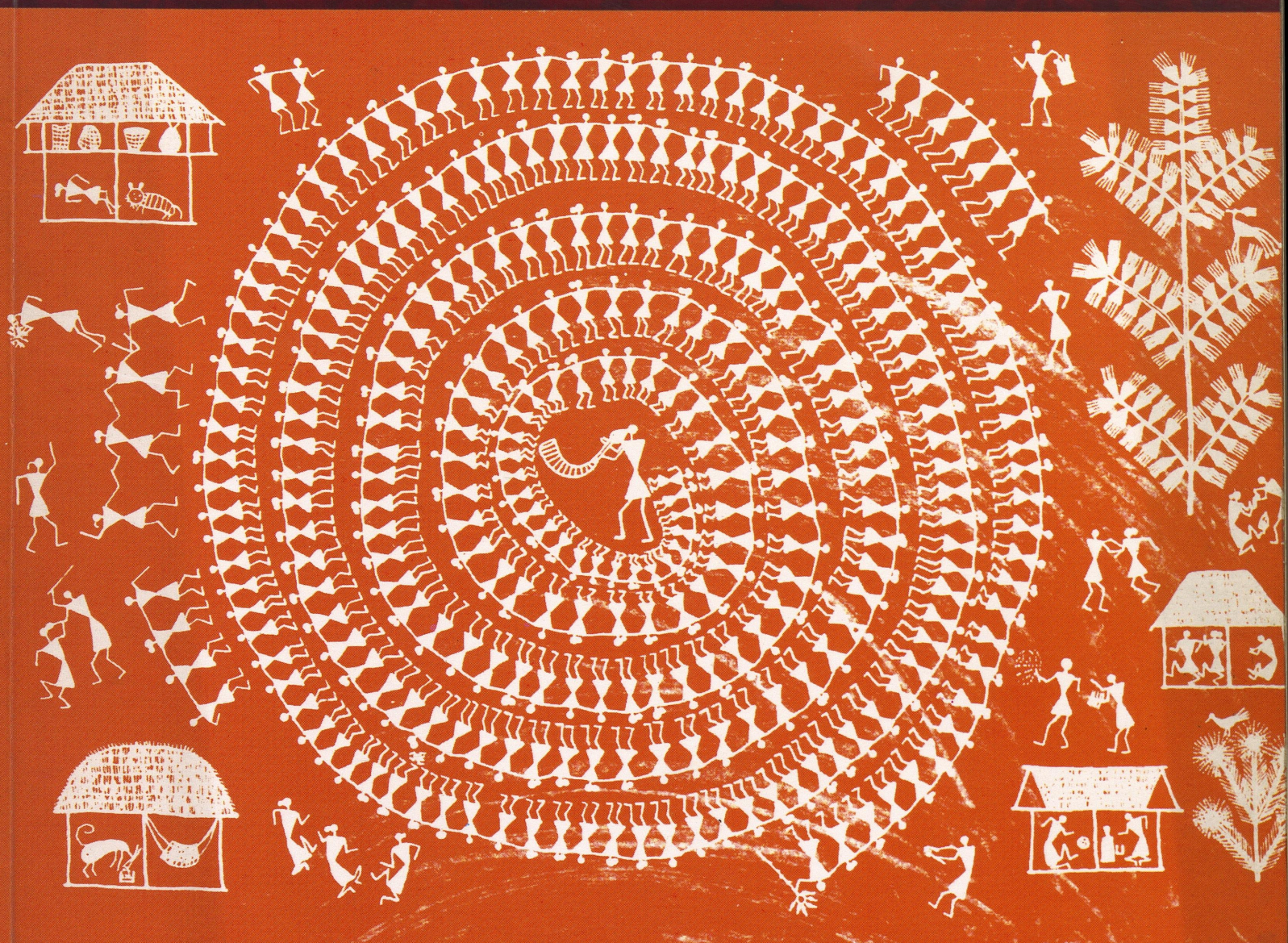
Health And Healthcare In Maharashtra

A Status Report

Ravi Duggal
T. R. Dilip
Prashant Raymus



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Centre for Enquiry into Health and Allied Themes

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Foreword

Maharashtra has been in the forefront of healthcare development in the country. It was among the first states to decentralize primary healthcare administration through Zilla Parishads as early as1961. Further, under the Minimum Needs Program Maharashtra was again one of the first states to achieve the norms mandated for primary health centres, subcentres and Rural Hospitals. The state also has the largest private health sector in India whose reach is quite extensive.

While Maharashtra is today also the most affluent state in the country with the highest per capita income, and contributes over 15% of the country's national income and 40% of the tax revenues, it continues to have high levels of poverty and inequalities which get reflected in health outcomes which are not the best in the country. Thus Maharashtra has to still struggle with malnutrition deaths, child mortality and maternal mortality levels not commensurate with its economic position in the country, declining child sex-ratios, low and declining levels of public health spending and investments, high levels of vacant positions of doctors at PHCs and CHCs, and low levels of access to various health services like antenatal care, complete child immunization, institutional deliveries etc.

Further given the fact that Maharashtra is also one of the largest states intra-state differences are very sharp. The Mumbai-Pune region is highly developed and skews favourably the averages of health outcomes for the state but there are large pockets of underdevelopment across the state which also skew averages to bring down Maharashtra's health status nationally. Thus it is becoming apparent that if Maharashtra wants to retain its position of lead, the government must address the needs of other parts of the State too.

Maharashtra does not have dearth of resources. It has the financial capital of India, leads in industrial development, has a history of progressive reforms, was doing very well until the era of Macroeconomic reforms began in the early nineties and has set progressive precedents like Employment Guarantee, Profession Tax, and decentralized governance. Post reforms Maharashtra's neighbours like Gujarat, Karnataka and Andhra Pradesh have blazed ahead in both economic development as well as social sector development. Thus Maharashtra needs to take stock of what went wrong in the last decade and a half which saw income growth to catapult Maharashtra at the top of the income ladder but in development terms it has lost its pre-eminent position it had in the eighties.

In this information era data, knowledge and information systems are very critical for development. Maharashtra again provides the lead in this where financial information systems are concerned but this same is not true for information on other sectors. Thus health information systems are very inadequate and this is perhaps the missing link in the state being unable to gain pre-eminence in the social sector. This effort by CEHAT in compiling analytically the healthcare development of Maharashtra and bringing together all available information and data on health and healthcare in one place is highly commendable and we hope that this will contribute in the future to strengthen health information systems and the database in Maharashtra.

Dr. Subhash Salunke
Director General
Directorate of Health Services
Maharashtra

31st August, 2005

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Prashant Raymus

Abbreviations

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Antenatal Care
ANM	Auxiliary nurse midwife
ARI	Acute Respiratory Infection
BCG	Balcillus Calmette Guerin
BMC	Brihanmumbai Municipal Corporation
BMI	Body Mass Index
CAG	Comptroller and Audit General
CBHI	Central Bureau of Health Intelligence
CBR	Crude Birth Rate
CDR	Crude Death Rate
CED	Chronic Energy Deficiency
CEHAT	Centre for Enquiry into Health and Allied Themes
CHS	Community Health Centre
CMIE	Centre for Monitoring Indian Economy
CPR	Couple Protection Rate
CSO	Central Statistical Organisation
CSSM	Child Survival and Safe Motherhood
CT	Computerized Tomography
DHO	District Health Officer
DOTS	Directly Observed Treatment, Short Course
DPT	Diphtheria-pertussis-tetanus
ECG	Electrocardiogram
EPI	Expanded Immunisation Programme
ESIS	Employee State Insurance Schemes
FDA	Food and Drugs Administration
FW	Family Welfare
FRU	First Stage Refferal Units
GOI	Government of India
GP	General Practitioner
GR	Government Resolution
HDR	Human Development Report
HIV	Human Immunodeficiency Virus
HP	Health Post
ICDS	Integrated Child Development Scheme
IFA	Iron And Folic Acid Tablet
IIPS	International Institute for Population Sciences
IMR	Infant Mortality Rate
ISM	Indian Systems of Medicines
IUD	Intra Uterine Devices
MDACAS	Mumbai District AIDS Control Society

MCH	Maternal and Child Health
MMR	Maternal Mortality Rate
MOHFW	Ministry of Health and Family Welfare
MPCE	Monthly Per Capita Expenditure
MPWF	Multipurpose Worker Female
MPWM	Multipurpose Worker Male
NACP	National Aids Control Programme
NCAER	National Council for Applied Economic Research
NDP	National Diseases Programme
NFHS	National Family Health Survey
NGO	Non- Governmental Organisation
NLEP	National Leprosy Eradication Programme
NSDP	Net State Domestic Product
NSSO	National Sample Survey Organisation
OPD	Outpatient Department
OPV	Oral poliovirus Vaccine
ORS	Oral rehydration Solution
ORT	Oral Rehydration Therapy
PHC	Primary Health Centre
PHU	Primary Health Unit
PRC	Population Research Centre
RBI	Reserve Bank of India
RCH	Reproductive and Child Health
RGI	Registrar General, India
RNTCP	Revised National Tuberculosis Control Programme
RTI	Reproductive Tract Infection
SAP	Structural Adjustment Programme
SC	Sub-Centre
SC	Scheduled Cast
SRS	Sample Registration System
ST	Scheduled Tribe
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
TB	Tuberculosis
TFR	Total Fertility Rate

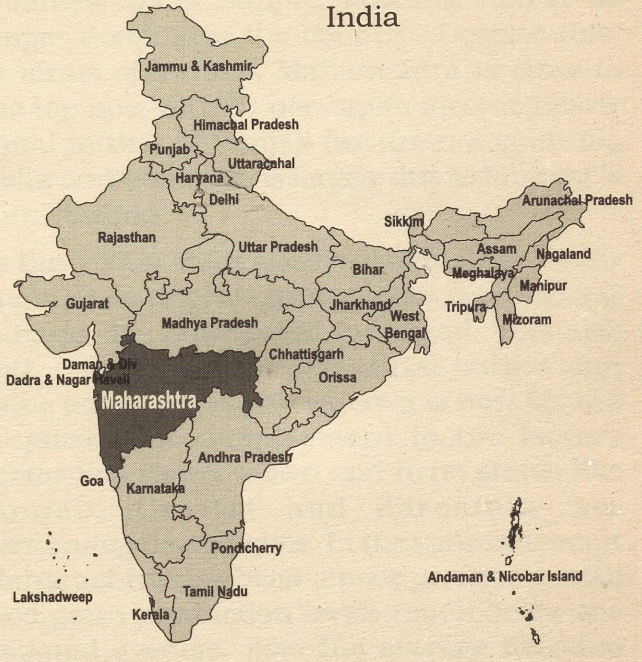
Maharashtra's Health and Health Care at a Glance

Variables and Reference	Units	
Population and Economy		
		Total- 96,878,627
		Rural- 55,777,647
		Urban- 41,100,980
		Female- 46,478,031
		Male- 50,400,596
Population (2001 Census)	Number	SC- 9,881,656
		Female- 4,818,594
		Male- 5,063,062
		ST- 8,577,276
		Female- 4,229,522
		Male- 4,347,754
Net State Domestic Product (2001-02)	In Rs. Crores	241877
Per capita income (2001-02) Current	In Rs. per year	24736
Per capita income (2001-02) Constant (1993- 94) price	In Rs. per year	15070
Total State Govt. Expenditure (Revenue + Capital) 2001-02	In Rs. Millions	549113.4 (382815.2 + 166298.2)
Health Expenditures		
Total Health Expenditure (Revenue + Capital) 2001-02	In Rs. Millions	19615.39 (18303.32 + 1301.63)
Per capita health Expenditure 2001-02		
Total		183.51
Rural	In Rs.	114.04
Urban		274.94
Health Expenditure as a per cent of NSDP 2001-02	Per cent	0.73
Expenditure on National Disease Programme 2001-02	In Rs. Millions	1526.59
Expenditure on Disease programme as per cent of Revenue expenditure on Health 2001-02	Per cent	8.86
Expenditure on Malaria Programme as Per cent of National Disease programme 2001-02	Per cent	42.09
Expenditure on TB Programme as Per cent of National Disease programme 2001-02	Per cent	8.11
Expenditure on Leprosy Programme as Per cent of National Disease programme 2001-02	Per cent	29.05
Expenditure on Family Welfare 2001-02	In Rs. Millions	2014.42
Average Out of pocket medical expenditure 1995-96		
Outpatient care - Urban ; Rural	In Rs.	140 ; 163
Inpatient care - Urban ; Rural		3089 ; 3997
Health Outcomes		
Total Fertility Rate 2001	per women	2.6
Crude Birth Rate 2001	per 1000 population	21.7
Infant Mortality Rate (2000), RGI	Per 1000 live birth	48
Institutional Delivery (RCH 1998-99)	Per cent	58.5
Birth Order 3 and above (RCH 1998-99)	Per cent	33.9
MCH/ RCH		
Girls Married below 18 years (RCH 1998-99)	Per cent	28.8
Children receiving complete Immunisations (RCH 1998-99)	Per cent	80.3

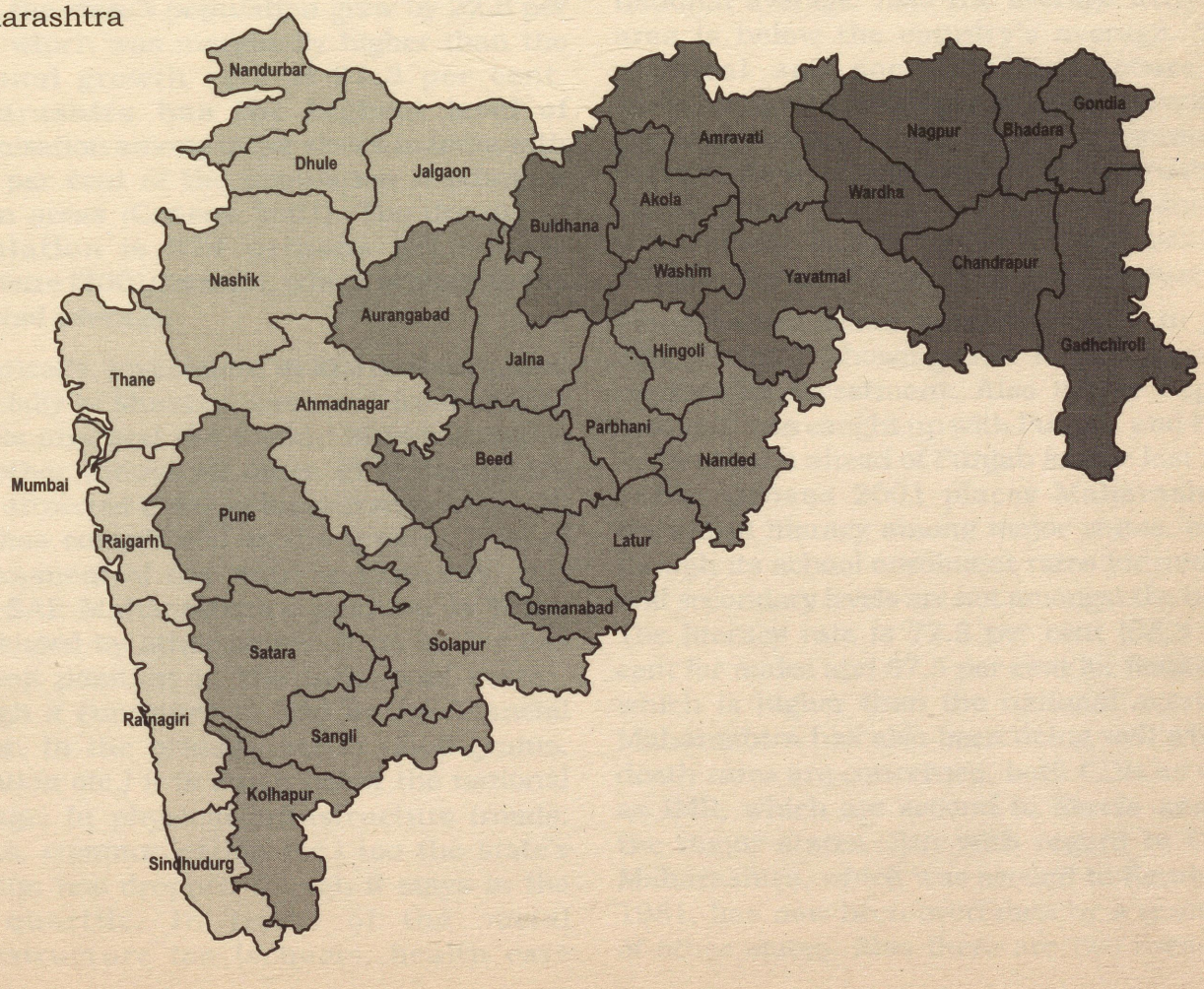
Variables and Reference	Units			
Pregnant women receiving Complete ANC (RCH 1998-99)	Per cent	54.5		
Disease Programs				
No. of AIDS cases (Aug. 1986- Oct. 2001)	Number	10160		
No. of AIDS deaths (Aug. 1986- Oct. 2001)	Number	966		
Malaria prevalence , NFHS-1998-99	Per 100,000 Popn.	4098		
Tuberculosis prevalence, NFHS-1998-99	Per 100,000 popn.	282		
Blindness prevalence (Partial and Complete) , NFHS-1998-99	Per 1000 Popn.	32.1 ; 3.2		
Health Facilities and Personnel				
No. of District Civil Hospitals and Beds	Number	25 ; 6,374		
No. of Women and Children Hospitals and Beds	Number	6 ; 1,016		
No. of Mental Hospitals and Beds	Number	4 ; 5,725		
No. of Cottage Hospitals and Beds	Number	25 ; 1,081		
No. of T.B. Hospitals and Beds	Number	6 ; 1,622		
No of Other Govt. Hospitals and Beds	Number	13 ; 795		
Number of Beds (2001)	Per 100,000 Popn.	107.1		
Number of RHs and Popn. served per RH	Number	322 ; 173222.5		
Number of PHCs and Popn. served per PHC	Number	1772 ; 31477.2		
Number of SCs and Popn. served per Sub centre	Number	9725 ; 5807		
Doctors and Nurses		Total	Rural	Urban
Doctors – Allopathic (2000)		72.5	23.7	139.8
Doctors – All system (2000)	Per 100,000 Popn.	167.6	77.5	290.3
Nurses (2000)		140.5	65.4	244.3
Nutrition				
Pregnant women benefiting from ICDS (March 2001)	Per cent	56.1		
Children benefiting from ICDS (March 2000)	Per cent	63.8		
Anaemia in women and Children – 1998-99 NFHS		Women	Children	
Any Anaemia		48.5	76.0	
Mild Anaemia	Per cent	31.5	24.1	
Moderate Anaemia		14.1	47.4	
Severe Anaemia		2.9	4.4	
Nutritional Status of Children ,1998-99 NFHS				
Weight-for-Age (under weight)		49.6		
Height-for-Age (stunted)	Per cent	39.9		
Weight-for-Height (wasted)		21.2		
Nutritional Status of Women ,1998-99 NFHS				
Height – below 145 cm	Per cent	11.9		
Weight for height – with BMI below 18.5kg/m^2		39.7		
Ailment and Hospitalisation				
Prevalence of ailment on two-week recall period,NSSO	Per thousand			
Any ailment - Rural ; Urban	persons	52 ; 48		
Prevalence of ailment on one year recall period,NSSO				
Hospitalisation- Rural ; Urban	Per thousand persons	19 ; 26		
Other Indicators				
Households having following facilities,1999 NFHS				
Drinking water from pump/pipe	Per cent	81.8		
Any toilet/latrine		45.9		

India and Maharashtra Map

India



Maharashtra



I. Contextualising Health Care

Socio-economic and Demographic Profile

Maharashtra is one of the largest states in the country and is also among the best economically developed states. It has one of the largest industrial economies in the country and is a primary financial centre. Its economic dominance is in large part due to the contributions of Mumbai, the country's financial and industrial capital that accounts for 35 per cent of the state's domestic product with only about 12 per cent of the state's population.

Maharashtra is the second most populous state in India with a population of 96.8 million (2001 Census), comprising 9.4 per cent of the country's total population. Between 1991-2001 the state's population grew by 22.6 per cent, which was marginally higher than the national growth rate of 21.3 per cent. Maharashtra has the highest level of urbanisation among major states in India with 42.4 per cent of the population residing in urban areas (Census 2001). The density of population is 314 persons per square kilometre (2001Census), which is close to the national average.

Historically, investment in Maharashtra, and especially in Mumbai, has come from all over the country and the world. Mumbai, and a few other industrial cities in Maharashtra have attracted the best human resources. All this has contributed to the present level of development of the state and the city. But post-SAP Maharashtra's position is being challenged by other states. It no longer has the top position in the industrial sector, though it continues to lead in the financial sector. In the primary sector (food grains, irrigation etc.) it is much below the national average. In physical infrastructure (roads, banks, communication etc.) too the state's position has dropped though it stays in the top quartile. In terms of the social infrastructure too (schools, health care facilities, water supply, housing etc.) it no longer dominates the country. Despite this, in terms of income, Maharashtra is close to the top now with its per capita income nearly equal to that of Punjab (we are not counting Delhi and Goa), this is largely due to Mumbai's contribution.

In the 1990s Maharashtra's industrial sector (manufacturing) stagnated at 28 per cent and Gujarat has now moved far ahead. This also gets reflected in the industrial output and value added per capita where it is now behind Gujarat. Also, employment in the factory sector has slowed down and here, states like Punjab, Gujarat and Karnataka are performing much better. In the agrarian sector Maharashtra has been a poor performer with food grain production levels much below the national average. Also the average irrigated area is below the country's average. The physical and social infrastructure in Maharashtra is under stress and its levels of development are a little above the country's average. As a consequence the Infrastructure Development Index score (CMIE) is not among the highest in the country, well behind Punjab, Kerala, Tamil Nadu and Haryana.

Maharashtra leads overwhelmingly in per capita credit, showing that it still attracts capital for investment. Also in per capita income it has caught up with Punjab, and has, in fact, been ahead of Punjab for the last five years. Census 2001 places Maharashtra second in literacy among major states, even though its school enrolment rates for middle and secondary levels are not amongst the best. The literacy rate is 77.3 per cent (86.3 per cent for males and 67.5 per cent for females), which is higher than the national average. Maharashtra has also been doing well where death rates are concerned, both CDR as well as IMR, which are second to Kerala among the major states. But with regard to CBR Maharashtra, which was second to Kerala in 1981, has now been overtaken by a number of other states. Also there are two areas of

concern which plague Maharashtra, one is food availability (rather access) which is the cause of unacceptable levels of malnourishment, and the other, the declining sex-ratio, especially in the 0-6 year age-group, which has clear linkages with sex-selective abortions linked to sex-determination. According to the 2001 Census, the sex ratio for general population and 0-6 population has touched an all time low of 922 and 917 females per thousand males respectively as against 934 and 945, respectively in 1991.

District-wise and regional profile showing intra state variations within Maharashtra and here we clearly see the overwhelming dominance of Mumbai, followed by some of the south-western districts. Mumbai of course dominates due to the industrial and financial sectors and being the seat of government, but the southwestern districts like Pune, Ahmednagar, Kolhapur, Sangli, Solapur and Satara are developed due to both the sugarcane economy as well as an expanding industrial economy. These districts rank high on the CMIE index of infrastructure development. These same districts are also the developed ones where the social indicators are concerned.

Maharashtra has a long history of social reform and has generally had stable governance right from the beginning. Social movements starting from the Satyashodak Samaj by Jyotiba Phule in 1873 to the political assertion of underprivileged caste groups through the Peasant and Workers Party started by Keshavrao Jedhe, and the Independent Labour Party and Republican Party of India of Babasaheb Ambedkar, have created an environment of progressive change and development in Maharashtra. It is not surprising that progressive policy initiatives like the Employment Guarantee Scheme, introduction of profession tax, free education for girls, decentralised governance (Zilla Parishad) with devolution of financial resources etc were initiated in Maharashtra.

II. Organisation of Public Health Services

The overall organisational structure and systems of public health care provision are not very different across the country. Even though health is a state subject most states follow a similar pattern of health care administration and management. This is largely because of a common planning framework, which is governed by the Planning Commission and the National Development Council, as also a legacy of a common history of British colonial rule that laid the foundations of the health care bureaucracy. Further, the fiscal devolution of resources is determined by the Central Government and this is done through Plan Schemes or Programme, which are usually uniform across states.

Public health services are governed by the Ministry of Health and Family Welfare (MoHFW), through various departments. In Maharashtra the Ministry is divided into two departments the Public Health Department, which includes Family Welfare, Medical Relief and ESIS, and the Department of Medical Education and Drugs. Both these departments have a separate Minister and Minister of State and their Secretariat, and also have technical wings called Directorate of Health and Directorate of Medical Education and Research, respectively. (Chart I and II)

The Public Health Department has a Secretary-Public Health, a Commissioner cum Secretary-Family Welfare, and Commissioner for ESIS, and these have technical support from the Director for Health Services, Director State AIDS Society and Director Health System Development project. The Directorate General of Health Services deals with "medical relief, control of contagious and communicable diseases, family welfare, maternal and child health, environmental sanitation and nutrition services and training of paramedical staff." (Performance Budget 1998-99, Public Health). Both the Secretariat and Directorate, as also the Commissioners of Family Welfare and ESIS have their own hierarchical structures from the State capital to the division level and down to the district.

Fig. I: Organisation Structure of Public Health and Family Welfare

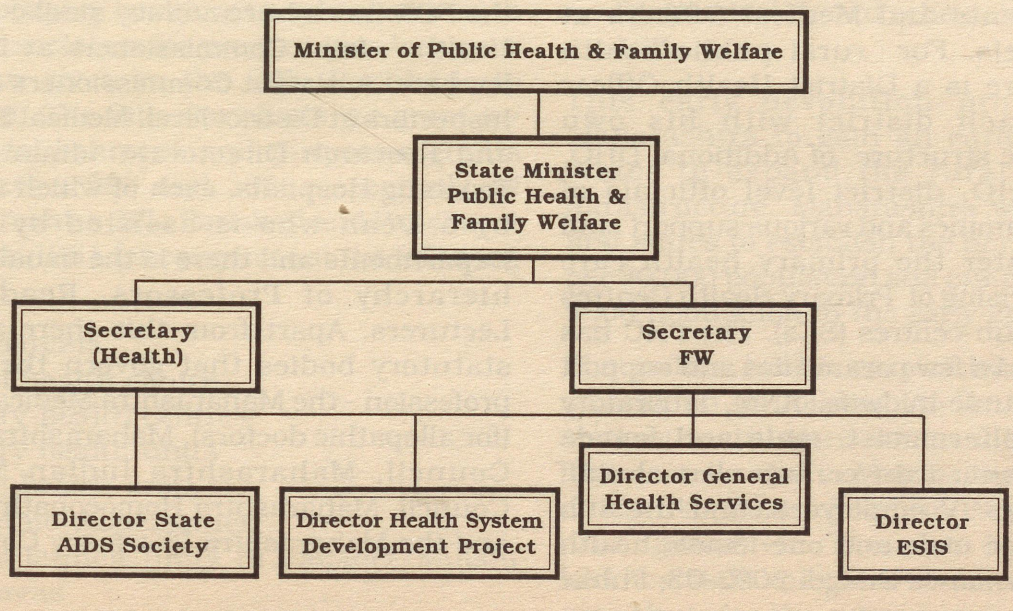
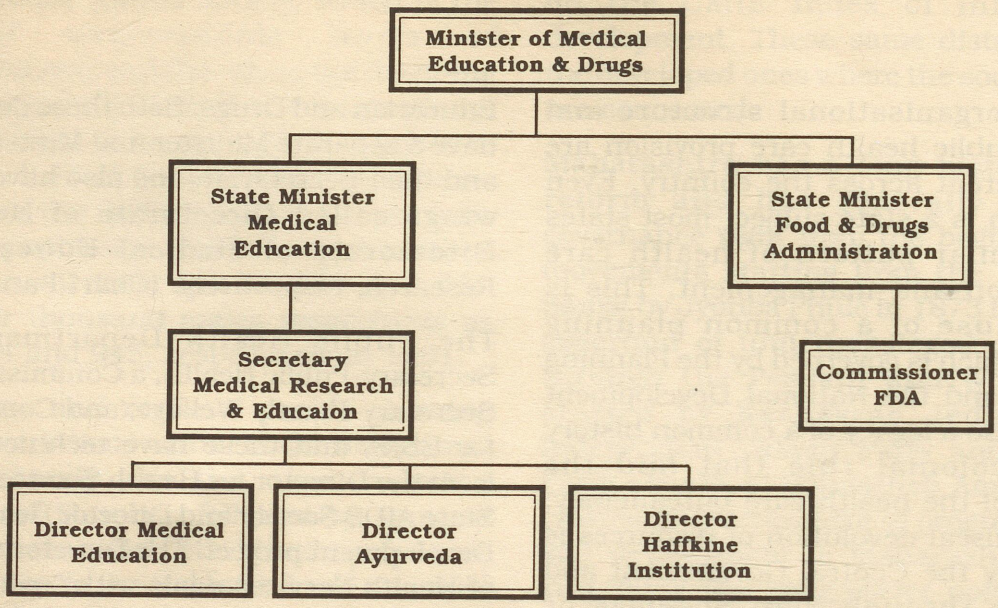


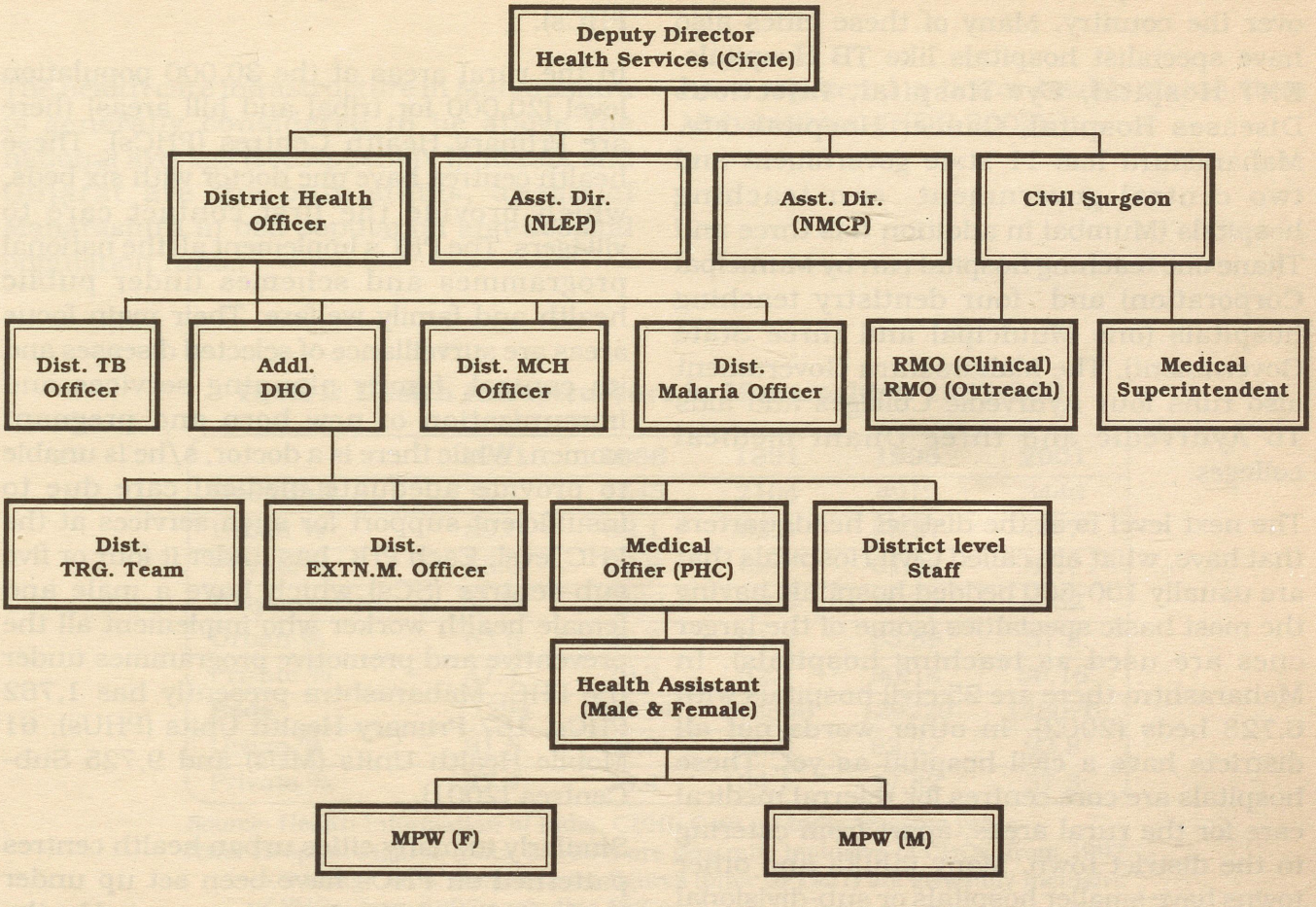
Fig. II: Organisation Structure of Medical Education and Drugs Department



For instance, for the National Malaria Eradication Programme there is a Joint Director (Malaria and Filaria) at the headquarters in Pune, who is in charge of the bureau, and s/he is assisted by a State Entomologist. At the zonal or circle level there is an Assistant Director (Malaria) and at the district level a District Malaria Officer. Similarly for ESIS there is a Commissioner at the State headquarters who is assisted by Directors - Medical and Administration. At the ESIS Hospital level there are Medical Superintendents and Medical Officers at different levels. For rural public health services there is a District Health Officer (DHO) in each district with his own administrative structure of Additional DHO, Assistant DHO, district level officials of various programmes and various support staff who administer the primary health care system comprising of Primary Health Centres (PHCs) and Sub-centres (SCs). The PHC has one doctor and a few paramedics and support staff like a nurse-midwife, ANM, laboratory technician, pharmacist, male and female health assistant, a driver, two clerical staff and four class IV employees, and the sub centre has one male and one female health worker (Performance Budget 2002-03, Public Health).

The Medical Education and Drugs Department, apart from the Ministers and Secretary, too has a Director incharge of Medical Education and Research, a Commissioner for Food and Drugs Administration (FDA), a Director for Indian Systems and Homoeopathy, Director Maharashtra Institute of Mental Health, and Director Haffkine Institute. Again each unit has Joint and Deputy Directors and the FDA has a Commissioner. While the Medical Education and Research units are centralised, the FDA has a bureaucracy similar to Public Health - Joint Commissioners at Divisional level and Assistant Commissioners and Drug Inspectors at District level. Medical Education and Research Directorate administers the Teaching Hospitals, each of which is headed by a Dean who is assisted by Head of Departments and there is the usual teaching hierarchy of Professors, Readers and Lecturers. Apart from this there are other statutory bodies that govern the medical profession - the Maharashtra Medical Council (for allopathic doctors), Maharashtra Nursing Council, Maharashtra Indian Medicine Council, Maharashtra Homoeopathy Council and the Maharashtra Pharmacy Council.

Fig. III: Organisation Structure of Public Health at District



A special feature of Maharashtra's health organisation system has been the early devolution of primary health care implementation to the Zilla Parishads. As early as 1961 primary health care, school education and other social sector programmes/schemes have been given to the Zilla Parishads to implement. The Zilla Parishads get grant-in-aid as establishment and purposive grants under section 183 and 182, respectively, of the Maharashtra Zilla Parishad and Panchayat Samiti Act, 1961 for carrying out the following activities:

- Vaccinations
- School health clinics
- Primary health centres
- Primary health units
- Mobile health units
- Allopathic dispensaries
- Mobile launch units in Panshet/Mulshi dam areas
- Construction and upgradation of PHCs and sub-centres (plan grants under section 187)
- Health checkup of ashram school children
- District local board schemes under section 183

This early devolution process helped Maharashtra to gain an early lead among states to expand the rural health care infrastructure. Maharashtra was one of the first states to establish the norm of one PHC per 30,000 population and one sub-centre per 5000 population in the early eighties itself.

The public health care delivery system is structured as follows. At the apex are the tertiary institutions or teaching hospitals. These are located in Mumbai and other larger cities like Pune, Solapur, Nagpur, Thane, Aurangabad, etc. These are large 500-2000 bed hospitals and cater to not only their local areas but also the entire region around them.

In fact public hospitals in Mumbai get patients from not only all over the state but from all over the country. Many of these cities also have specialist hospitals like TB Hospitals, ENT Hospital, Eye Hospital, Infectious Diseases Hospital, Cancer Hospital, etc. Maharashtra has 11 state government and two central government- run teaching hospitals (Mumbai in addition has three and Thane one teaching hospital run by Municipal Corporation) and four dentistry teaching hospitals (one Municipal and three State Government). The Maharashtra Government also runs four Ayurvedic Colleges and aids 16 Ayurvedic and three Unani medical colleges.

The next level is at the district headquarters that have, what are called Civil Hospitals that are usually 100-500 bedded hospitals having the most basic specialties (some of the larger ones are used as teaching hospitals). In Maharashtra there are 25 civil hospitals with 6,723 beds (2002). In other words not all districts have a civil hospital as yet. These hospitals are core centres for referral medical care for the rural areas, apart from catering to the district town. Many taluka and other towns have smaller hospitals or sub-divisional hospitals, which are often run by local government bodies (139 in 1995, excluding Mumbai). In Maharashtra these are called cottage hospitals, if run by the State Government (21 with 890 beds in 2002).

In the 1980s as part of expansion of the rural health infrastructure under the Minimum Needs Programme, Rural Hospitals (RH) or Community Health Centres (CHC) were set up by upgrading some of the older PHCs. This was with the idea of making first referral care available to the rural population closer to where they live. These are 30 bed hospitals with four basic specialties – Medicine, Surgery, Obstetrics and Gynaecology, and Paediatrics. Radiography and Pathology services are also available. Maharashtra has 322 (in 2001) Rural Hospitals, each reaching out to about 150,000 population (one per five PHCs).

In the rural areas at the 30,000 population level (20,000 for tribal and hill areas) there are Primary Health Centres (PHCs). These health centres have one doctor with six beds, which provide the first contact care to villagers. The PHCs implement all the national programmes and schemes under public health and family welfare. Their main focus areas are surveillance of selected diseases and its control, family planning services and immunization of new born and pregnant women. While there is a doctor, s/he is unable to provide adequate medical care due to insufficient support for such services at the PHC level. Each PHC has under it four or five sub-centres (SCs) which have a male and female health worker who implement all the preventive and promotive programmes under the PHC. Maharashtra presently has 1,762 PHCs, 167 Primary Health Units (PHUs), 61 Mobile Health Units (MUs) and 9,725 Sub-Centres (2001).

Similarly in many cities urban health centres patterned on PHCs have been set up under the India Population Project supported by the World Bank, and other similar projects. It would be useful to look at the profile of public health services available in Mumbai city as an illustration of urban concentration of public health investment. Mumbai has four teaching hospitals (three municipal) and 76 other hospitals (48 municipal) with a total of 20,700 beds (11,700 municipal). In addition there are 235 dispensaries (185 municipal) and 176 Health Posts (the urban equivalent of PHCs). This gives Mumbai an enviable ratio of one public bed per 500 persons and if we add private hospital beds which are conservatively estimated to be about the same number as public beds the ratio comes down to a figure of one bed per 250 persons, which is similar to any developed country.

III. Delivery of Health Care: Physical Infrastructure

The health care infrastructure in Maharashtra is generally considered to be above the national average (see Appendix I). Kerala and Gujarat are the only states, ahead of Maharashtra in bed population and hospital population ratio.

have registered a better health status than Maharashtra. (HDR 2002).

Table1: Health Infrastructure in Maharashtra 1981-2001

	1981	1986	1991	1995	2001
Hospitals	968	1545	2104	4912	3446
Urban %	89.0	89.1	83.6	88.27	89.7
Private %	68.0	72.6	62.7	61.23	87.7
Dispensaries	3139	7259	9202	8320	5852
Urban %	63.6	90.2	91.3	83.89	57.3
Private %	47.4	79.5	82.4	90.14	86.16
Beds	71294	93938	113838	129229	128076
Urban %	91.5	91.7	89.0	82.27	92.8
Private %	37.4	38.4	34.1	47.82	37.3

Source: Health Information of India, CBHI, Govt. of India, various years

Note: Hospital Figures (prior to 1997) are generally inclusive of CHCs, from 1997 excluding CHCs; Dispensaries figures (prior to 1997) are generally inclusive of PHCs, from 1997 excluding PHCs

There is a wide rural-urban gap in health infrastructure and facilities both quantitatively and qualitatively. Urban areas have a concentration of hospitals and nursing homes as well as of qualified doctors. This is equally true of the public and private sectors. As we have noted earlier, most public hospitals are in the cities, district and sub divisional towns. Similarly over 80 per cent of beds in public hospitals are in urban areas where 40 per cent of the population resides.

The situation is no different in the private sector with hospitals and beds being located mostly in cities and towns. This is in sharp contrast to Punjab and Kerala where hospital services are available in rural areas in reasonable numbers with no significant inequities between rural and urban areas. And this could be one reason why both these states

District wise differentials in access

There is wide variation across districts and regions within Maharashtra with Mumbai, Pune, Wardha and Nagpur having better population to facility ratios. (Table 3 and 4).

The bed population ratio shows (Table 3), access to inpatient care services to be relatively higher in Greater Mumbai, Pune, Amravati and Nagpur, while districts like Beed, Bhandara, Dhule, Ratnagiri, Buldhana, Latur and Kolhapur were lagging behind in access to inpatient care services. Sizeable presence of public sector was observed in Yavatmal, Thane, Satara Aurangabad and Parbhani, when compared to other districts. Since majority of health care institutions are in private sector (Table 1), it can be inferred that private sector is not that keen in participating in delivery of health care services

in these districts. The urban bias in the location of health care services was observed in all districts excluding, Beed, Bhandara, Gadhchiroli, Kolhapur and Solapur.

Maharashtra is facing a shortage of PHC's and sub-centre facilities. On an average one PHC in the state is serving 31,477 rural population (national standard is one PHC per 30,000 for non-tribal areas and 20,000 in tribal areas.) and on an average one sub-centre is serving 5,800 rural population (national standard is one sub centre per 5,000 population in non-tribal areas and per 3,000 population in tribal areas). All districts excluding Thane, Ratnagiri, Osmanabad, Chandarpur and Gadhchiroli were facing shortage of these primary health care units.

The rural hospitals are usually located at the taluka headquarters or larger villages and serve the population of the urban centres in which they are situated as well as the adjoining rural areas, unlike the PHCs, which serve only the rural areas. Further, there is no norm of mandated population to rural hospital ratio. The norm in practice in Maharashtra is that there should be one rural hospital per five PHCs. Therefore; we assume that one rural hospital serves a population of 1,25,000 and a tribal rural hospital serves a population of 1,00,000. On an average presently one rural hospital in the state serves 1,73,222 population (the calculation for the rural hospital is guided by the assumption that the RH provides services only to rural populations, though in actuality they serve the urban population as well) (Table 4).

Data on medi care insititutions is not easily available; but the limited data available clearly shows that Maharashtra's private health sector is not only one of the largest in the country but also the most developed (HDR 2002). Some of the largest and most well known private hospitals in the country are located in Maharashtra, especially in Mumbai.

Interestingly, these large private hospitals are all registered as trusts, that is not-for-profit institutions. This is not the case anywhere else in the country, at least not in such large numbers. However, these hospitals are no different from the large private hospitals found elsewhere in India. They are as expensive and as sophisticated as any private hospital – only the rich can afford to use their services. Legally, they are supposed to provide services to 20 to 30 per cent of their clients free of charge but due to lack of monitoring and regulation of these hospitals, the benefits for the public, in lieu of tax breaks such hospitals get, do not accrue to them. Thus the poor on one hand do not get access to these services, which by law should be available to them, and on the other hand the state loses out on revenues, which could have been used for strengthening public health services.

The few available studies on private health care institutions show that they have penetrated to the remotest of areas, though the providers may not necessarily be qualified or certified. Because of the poor penetration of the public health sector as well as inadequacies within it, the private health sector market has cut across classes and even the poor use these services in large numbers – this is clearly demonstrated by both micro studies and national surveys (Appendix II).

The availability of health services in Maharashtra is not in keeping with its economic position (Appendix I). As worrying as this inadequacy is, the intra-state differences are a cause for greater concern. The urban areas, especially in and around Mumbai and in south-western Maharashtra are well endowed but the rest of the state lags behind in health infrastructure. Maharashtra has an adequate rural infrastructure of PHCs and SCs as per the defined norms but they are not well-equipped and supported. Public investment and health expenditure are not only inadequate but have also been declining in the 1990s. Maharashtra's position relative to other states has also worsened (Appendix III).

Human Resources

Maharashtra is fairly well endowed in human resources in the health sector as compared to other States (Appendix I). It has also witnessed a steady growth with major acceleration during the 1990s (Table 5)

Table 2: District-wise number of medical institutions and beds per one lakh population, Maharashtra

	Medical Institutions					Beds				
	1961	1971	1981	1991	2000	1961	1971	1981	1991	2000
Raigad	1.1	1.7	2.1	4.1	3.5	55	36	80	61	53
Ratnagiri	0.9	1.6	1.3	5.2	4.8	19	42	50	90	139
Thane	0.7	1.1	1.5	2.2	1.7	29	113	155	89	77
Ahmednagar	0.7	1.0	1.4	3.5	3.0	7	15	74	75	63
Dhule	0.9	1.2	1.8	4.1	3.9	12	22	56	75	68
Nandurbar										
Jalgaon	0.6	1.2	1.4	3.5	3.1	12	33	53	57	57
Nashik	0.5	1.2	1.6	3.4	3.3	34	34	74	70	71
Pune	0.9	1.3	1.7	3.1	2.6	174	208	226	214	177
Satara	0.8	1.3	1.6	3.6	3.3	47	19	70	57	51
Solapur	0.8	1.4	1.5	3.3	2.9	39	52	111	87	75
Kolhapur	0.4	1.2	1.3	2.8	2.7	32	40	58	59	52
Sangli	0.7	1.0	1.3	3.5	3.1	81	44	104	90	79
Sindhudurg				5.6	5.7				86	49
Aurangabad	0.3	1.3	1.2	2.7	3.1	5	50	67	77	87
Beed	0.9	0.8	1.2	3.1	2.8	45	40	67	69	60
Jalna				3	2.7				50	27
Nanded	1.0	1.1	1.2	3.4	3.0	59	17	62	77	67
Latur				3.3	2.8				44	28
Osmanabad	0.3	1.1	0.5	4.2	3.6	13	17	20	65	250
Parbhani	0.6	1.1	1.0	3.0	2.8	18	15	37	45	50
Hingoli										
Akola	1.2	1.6	1.8	3.3	3.1	47	56	84	90	118
Washim										
Amravati	1.9	1.8	2.3	4.5	4.1	48	105	158	156	141
Buldhana	1.9	2.1	2.2	3.3	3.1	47	44	56	62	56
Yavatmal	2.0	1.9	2.0	3.8	3.5	52	42	69	79	71
Bhandara	1.3	1.5	1.4	3.8	3.8	38	33	61	66	64
Gondia										
Chandarpur	0.8	1.5	1.3	4.5	3.8	11	25	58	104	126
Gadhchiroli				6.4	6.2				71	46
Nagpur	1.8	1.9	2.0	2.7	2.3	106	177	211	177	147
Wardha	2.0	2.2	2.4	4.2	3.8	98	81	187	244	220
State Total *	**1.0**	**1.4**	**1.6**	**3.4**	**3.1**	**47**	**60**	**98**	**94**	**84**

Source: Supplied by Bureau of Economics and Statistics, Government of Maharashtra. *excludes Mumbai. The declining numbers in most cases are due to incomplete reporting from the private sector.

Table 3: Availability of health care infrastructure facilities in Maharashtra by districts

	Population served per					% in Public sector		% in Urban areas		
	Hospitals@	Dispensaries@	ISM #	All Medical Inst.	Beds	Hospitals@	Dispensaries@	Hospitals@	Dispensaries@	Beds
Ahmednagar	25691	12892	31940	6766	838	7.8	7.8	87.7	99.6	60.7
Akola	22815	8619	47492	5528	833	11.7	2.4	92.2	92.2	76.8
Amravati	11064	7557	7812	2851	418	16.8	10.3	94.7	87.9	71.9
Aurangabad	21350	2502	179009	2212	757	27.7	100	72.5	26.5	73.1
Beed	26973	36134	23355	9297	1469	18.6	11.4	88.7	100	56.7
Bhandara	52755	79132	29154	15176	1458	22.5	5.5	61.9	47.2	51.4
Buldhana	27533	12957	17089	5813	1124	16.1	7.8	93.1	94.8	76.3
Chandrapur	20027	9701	16630	4692	856	7.6	4.2	81.7	67.2	64.7
Dhule	14809	12227	63466	6058	1385	15.9	2.9	95.0	100	69.0
Gadhchiroli	48659	22357	22357	9090	1020	11.3	23.1	47.1	56.8	14.8
Greater Mumbai	13764	5251	65617	3593	355	8.0	100	100	100	100
Jalgaon	6742	17453	63224	4516	665	7.9	6.3	71.7	95.3	76.8
Jalna	25152	477897	89606	18864	1086	19.7	13.8	82.5	66.7	75.3
Kolhapur	36544	14755	42470	8426	1155	24.4	3.8	84.9	3.8	39.7
Latur	28896	440670	62953	18954	1157	12.8	2.5	93.4	100	73.5
Nagpur	9624	41130	29279	6159	471	22.8	100	44.7	84.3	69.9
Nanded	27212	17876	44528	8685	1058	16.0	5.7	98.1	61.9	93.4
Nashik	21192	8144	44975	5203	837	18.3	13.2	87.8	100	69.3
Osmanabad	38320	47900	41912	14118	1316	17.8	12.4	92.1	99.4	76.8
Parbhani	23672	21192	42792	8865	1284	25.7	10.7	80.0	100	55.3
Pune	11163	17257	306089	6631	373	19.7	100	90.4	100	67.9
Raigad	20192	12296	213138	7378	1062	18.1	5.9	96.5	96.4	99.2
Ratnagiri	34529	324577	324577	28472	1234	15.7	10.7	88.4	95.5	66.0
Sangli	11438	12093	22542	4662	618	10.0	17.6	74.5	100	68.5
Satara	13703	184016	143124	11710	615	33.7	11.6	95.1	99.5	83.4
Sindhudurg	20337	7110	9016	3325	694	22.0	47.5	79.3	100	81.8
Solapur	19631	26124	169804	10514	575	8.6	100	14.0	3.3	35.8
Thane	21468	3720	73562	3040	662	42.9	47.2	97.1	50.8	90.9
Wardha	27354	19009	86270	9925	438	19.4	7.3	96.9	99.5	91.8
Yavatmal	26303	19492	41191	8803	1011	64.7	43.2	85.4	52.5	53.4
Maharashtra	**16891**	**9972**	**40811**	**5435**	**642**	**13.4**	**8.9**	**86.7**	**90.2**	**61.7**

Source: Computed on the basis of information in Statistical Abstract of Maharashtra State 1993-94 & 1994-95, Mumbai: Directorate of Economics and Statistics, Government of Maharashtra.

@ includes only allopathic medical institutions, excludes private GP Clinics.

includes Ayurvedic, Unani and Homeopathic institutions.

Table 4: Availability of Primary Health Centres(PHC's), Rural Hospital (RH's) and Subcentres in Maharashtra ,1991-2001

	No. of PHCs 1990-91	No. of RH PHCs 1990-91	Population served per RH 1990-91	Population served per PHC 1990-91	No. of sub centre 2000	No. of PHCs 2001-02	No. of RH 2001-02	Popn served per Sub centre 2000	Popn served per PHCs 2001-02	Popn served per RH 2001-02
Thane	73	13	25423.55	142763.0	470	77	12	3968	28952.9	185781.3
Raigad	53	11	28229.74	136016.0	277	55	10	6240	30419.8	167309.4
Ratnagiri	67	10	20985.09	140600.1	374	67	9	2382	22456.2	167174.2
Nasik	91	16	27277.66	155141.6	530	106	25	5512	28832.4	122249.6
Jalgaon	76	15	30433.75	154197.6	397	80	16	6765	32873.7	164368.5
Ahmednagar	88	13	32266.52	218419.5	485	89	13	6898	36370.1	248995.7
Dhule	81	12	24689.16	166651.8	431	41	3	5564	30782.0	420687.3
Nandurbar*						49	10		22633.3	110903.6
Satara	69	12	30949.74	177961.0	309	71	10	8142	33955.9	241087.3
Kolhapur	67	13	32873.21	169423.4	371	72	13	6845	34344.5	190216.0
Sindhudurg	38	7	20236.89	109857.4	246	38	9	6252	20697.5	87389.5
Aurangabad	43	7	34619.44	212662.2	248	47	7	4437	38507.7	258551.8
Jalna	33	6	34354.45	188949.5	171	38	7	13260	34345.1	186445.0
Parbhani	51	9	32165.41	182270.6	351	31	8	5154	33629.9	130316.1
Hingoli*						24	5		34713.7	166626.0
Beed	45	8	33224.53	186888.0	253	47	8	6903	37748.5	221772.5
Osmanabad	41	7	26401.15	154635.2	204	42	8	1453	29841.1	156666.2
Latur	44	8	30335.75	166846.6	234	46	9	11408	34565.7	176669.3
Akola	52	8	30383.46	197492.5	326	30	5	5525	33424.7	200548.4
Amravati	54	9	27461.63	164769.7	320	56	11	5194	30492.5	155234.6
Buldhana	47	7	31871.57	213994.8	265	52	7	6711	33828.7	251299.5
Bhandara	64	11	28620.86	166521.3	427	30	3	4877	32013.9	320139.3
Wardha	27	7	29031.11	111977.1	180	27	7	4886	33766.4	130242.1
Chandrapur	59	9	21613.07	141685.6	336	58	13	2305	24241.9	108156.4
Gadchiroli	45	8	15965.44	89805.6	372	45	12	3868	20067.4	75252.7
Gondiya*						42	9		25173.2	117475.1
Pune	82	16	33237.84	170343.9	501	86	15	6684	35252.5	202114.5
Solapur	66	11	34872.33	209234.0	329	68	9	8446	38592.0	291584.3
Sangli	57	9	29948.09	189671.2	270	59	9	7375	33056.0	216700.6
Nagpur	45	8	27916.11	157028.1	300	48	8	4680	30289.2	181735.7
Washim*						25	6		33670.8	140295.1
Yawatmal	59	13	29156.15	132324.0	374	62	12	5294	32275.1	166755.0
Nanded	58	11	31452.31	165839.4	374	64	14	5993	34174.9	156228.2
State Total**	1675	294	28883.31	164556.2	9725	1772	322	5807	31477.2	173222.5

Sources: Government of Maharashtra (1991-92 and 2001-02) *Performance budget, Public Health Department (Medical, Public Health & Employees Insurance Scheme) part I,* Mumbai

*Note:** are included in their parent district; ** Excluding Mumbai

Table 5: Number of Doctors and Nurses per 1,00, 000 Population

	1971		1981		1991		1996	
	Doctors	Nurses	Doctors	Nurses	Doctors	Nurses	Doctors	Nurses
Maharashtra	45	39	65.4	54.03	62.5	50.26	71.3	110.1
All India	28	15	39.2	21.9	46.51	40.2	34.6	60.16

Source: Health Information of India, CBHI, Govt. of India, various years

Table 6: Rural-Urban availability of Doctors and Nurses in Maharashtra, 2000

	Number per lakh population		
	Total	Rural	Urban
Doctors - Allopathic (2000)	72.5	23.7	139.8
All System Doctors (2000)	167.6	77.75	290.3
Nurses (2000)	140.5	65.4	244.3

Source: Supplied by Directorate of Economics and Statistics, Government of Maharashtra, Mumbai. the rural-urban distribution for doctors and nurses in 2000 provided by respective medical councils, are calculated on the basis of the 1991 census distribution ratios.

Table 6 gives rural-urban distribution of doctors and nurses in the state. The number of allopathic doctors per lakh population was 73 and of other systems of medicine, 168. That is, more than 2/3^{rds} of registered medical practitioners in the state were not allopaths. The number of nurses per lakh population was 65 in rural areas, 244 in urban areas and 141 in the state as a whole. Table 6 shows the huge rural-urban gap in availability of doctors and nurses.

IV. Health Care Facilities in Public Sector

Reviewing the facilities available in selected public health care institutions in the state gives us a brief idea about the functioning of the public health care system. The RCH Facility survey (1999-2000) undertaken by Ministry of Health and Family Welfare, which has listed out all public health care facilities available in selected districts in each state, forms a reliable data source for the study. A total of 13 districts were covered in Maharashtra state and facilities required for proper functioning of district hospitals, first stage referral units, community health centres and primary health centres has been listed out.

Physical infrastructure

The district hospitals and most of the Community Health Centres (CHC's) seem to be self sufficient in terms of water, electricity, vehicle and operation theatre facilities. Two of the district hospitals and majority of first stage referral units (FRU's) lacked separate aseptic room and any linkage with blood bank facility. Availability of these facilities declines further for community health centres and primary health centres.

Medical Equipment

Though the district hospitals had most of the essential medical equipment, there were severe shortages of these facilities in FRU's and CHC's. More than 50 per cent of FRU's and CHC's were not having even Boyle's apparatus, oxygen cylinder, high-pressure steriliser and ECG Machine.

Table 7: Availability of selected physical infrastructure facilities in District Hospitals, First Stage Referral Units (FRU's), Community Health Centres (CHC's) and Primary Health Centres (PHC's), Maharashtra, 1999-2000

Type of Infrastructure	No. of District Hospitals having	Per cent of FRU's having	Per cent of CHC's having	Per cent of PHC's having
Tap/well water facility	10	98	96	79
Tank and Pump facility	8	88	76	—
Electricity (in all parts of hospital)	9	96	100	98
Generator	9	98	96	
Telephone	10	100	90	52
Vehicles (functional)	10	96	80	60
Laboratory adequately equipped)	10	98	93	97
Operation Theatre (OT)	10	100	99	86
Separate OT for gynaecology	10	96	96	
Separate aseptic labour room	8	20	18	
Delivery facility	9	98	94	
Gynec. OPD facility	9	84	75	
RTI/STI OPD facility	7	0	0	
Linkage with Blood bank	8	24	10	
Total number of units listed	10	50	71	645

Source: Compiled from ORG-MARG RCH Facility Survey Reports (1999 & 2000)
Survey was conducted in 13 districts of Maharashtra state Akola, Aurangabad, Beed, Chandarpur, Nagpur, Washim, Gadhchiroli, Jalgaon, Kolhapur, Nanded, Parbhani, Raigad and Sangli

Table 8: Availability of selected equipment in District Hospitals, First Stage Referral Units (FRU's) and Community Health Centres (CHC's) Maharashtra, 1999-2000

Type of Infrastructure	No. of District Hospitals having	Per cent of FRU's having	Per cent of CHC's having
Boyles apparatus	10	26	7
Oxygen cylinder	10	36	10
Shadow less lamp	10	88	87
High pressure sterilizer	10	44	32
Cardiac monitor	6	2	0
Ventilator	7	16	17
OT care/fumigation	10	88	83
Hydraulic table	10	56	7
X-Ray machine	9	100	85
ECG machine	10	24	16
Ice lined freezer	9	98	27
Deep freezer	9	64	38
Refrigerator	9	68	47
Total number of units listed	10	50	71

Source: Compiled from ORG-MARG RCH Facility Survey Reports (1999 & 2000)
Survey was conducted in 13 districts of Maharashtra state Akola, Aurangabad, Beed, Chandarpur, Nagpur, Washim, Gadhchiroli, Jalgaon, Kolhapur, Nanded, Parbhani, Raigad and Sangli

Medical Personnel

Almost all the public health care units had a General duty doctor, a Staff nurse and lab technicians. But a majority of them did not have the services of specialist doctors like obstetrician and gynaecologist, paediatrician, RTI/STI specialist, pathologist and anaesthesiologist. A majority of the PHCs did not have laboratory technicians or female medical officers.

Table 9: Availability of manpower facilities in District Hospitals, First Stage Referral Units (FRU's) Community Health Centres (CHC's) and Primary Health Centres (PHC's) Maharashtra,1999-2000

Type of Personnel	No. of District Hospitals having	Per cent of FRU's having	Per cent of CHC's having	Per cent of PHC's having
Female medical officer	NA	NA	NA	26
Obstetrician/gynecologist	4	34	25	
Paediatrician	7	22	8	
RTI/STI Specialist	2	0	0	
Pathologist	4	2	0	
Anaesthesiologist	7	16	11	
General duty doctor	10	92	93	98
Staff nurse/ Mid wife	10	100	100	
Female Health Worker	8	12	3	100
Laboratory technician	10	100	96	24
Total number of units listed	10	50	71	645

Source: Compiled from ORG-MARG RCH Facility Survey Reports (1999 & 2000)
Survey was conducted in 13 districts of Maharashtra state Akola, Aurangabad, Beed, Chandarpur, Nagpur, Washim, Gadhchiroli, Jalgaon, Kolhapur, Nanded, Parbhani, Raigad and Sangli

Contraceptives and Vaccines

The PHCs and the district hospitals had adequate stocks of contraceptives and vaccines but the FRUs and CHCs were not as well stocked. Vitamin A was inadequately available in all the institutions.

The share of public health care units that had at least 60 per cent of the critical inputs is presented below. While most district hospitals had problems with supplies the FRUs, CHCs and PHCs suffered shortages of staff and the first two also of supplies and equipment.

Table 10: Availability of some stock of selected items in District Hospitals, First Stage referral Units (FRU's) Community Health Centres (CHC's) and Primary Health Centres (PHC's) Maharashtra, 1999-2000

Item	No. of District Hospitals having	Per cent of FRU's having	Per cent of CHC's having	Per cent of PHC's having
Nirodh	9	44	11	61
Oral pill	10	54	16	75
IUD	10	50	18	82
IFA	7	50	17	43
Vitamin A solution	6	42	30	24
ORS Packet	8	74	78	80
DPT	10	58	14	96
OPV	8	58	16	94
TT	9	62	17	89
BCG	8	56	13	85
Measles	10	60	14	97
DT	10	44	11	75
Total number of units listed	10	50	71	645

Source: Compiled from ORG-MARG RCH Facility Survey Reports (1999 & 2000)
Survey was conducted in 13 districts of Maharashtra state Akola, Aurangabad, Beed, Chandarpur, Nagpur, Washim, Gadhchiroli, Jalgaon, Kolhapur, Nanded, Parbhani, Raigad and Sangli

Table 11: Availability of at least 60 per cent of critical inputs in District Hospitals, First Stage Referral Units (FRU's) and Community Health Centres (CHC's) Maharashtra, 1999-2000

Item	No. of District Hospitals having	Per cent of FRU's having	Per cent of CHC's having	Per cent of PHC's having
Infrastructure	9	100	97	88
Staff	8	34	28	60
Supply	2	50	8	87
Equipment's	10	34	10	96
Total number of units listed	10	50	71	645

Source: Compiled from ORG-MARG RCH Facility Survey Reports (1999 & 2000)
Survey was conducted in 13 districts of Maharashtra state Akola, Aurangabad, Beed, Chandarpur, Nagpur, Washim, Gadhchiroli, Jalgaon, Kolhapur, Nanded, Parbhani, Raigad and Sangli

The **public health sector** in Maharashtra is not as large as it ought to be. Comparison across states shows that availability of public health services in Maharashtra is not in keeping with its economic position. While the overall public health infrastructure is far from what is desirable, the intra-state differences are a cause for concern. As mentioned earlier the urban areas, especially in and around Mumbai and in southwestern Maharashtra are well endowed, the rest of the state lags behind in health infrastructure. Maharashtra does have an adequate rural infrastructure of PHCs and SCs as per the defined norms but they are not adequately supported by inputs needed to run a proper health care system.

Public investment and health expenditures are not only inadequate but have also been declining in the1990s. Maharashtra's position relative to other states has also worsened.

With regard to the private health sector, there are also teaching hospitals (a number of them dependent on public hospitals for infrastructure support), large tertiary hospitals, most of which operate as Trusts and smaller private hospitals and nursing homes. Even though information on the private health sector is incomplete, still its share for hospitals is 87 per cent, for dispensaries 88 per cent and for beds 47 per cent. This large and increasing share of the private health sector is in itself evidence of the weakened public health services. The fact that an increasing number of private medical colleges are being set up not only reflects a greater commercialisation of the health sector but it is also at the cost of the public health sector because 9 district hospitals for about Rs. 10 lakh each have been leased in by such medical colleges, which in effect amounts to privatisation of public provision.

Medical Care

Household based national surveys by the National Sample Survey Organisation (NSSO) and the National Council for Applied Economic Research (NCAER) provide information on utilization for medical care (Table 13). These surveys show a declining trend in public facility use in Maharashtra over the years. The NSSO surveys reveal that

Table 12: Healthcare Facilities in Mumbai, Rural and Urban Maharashtra by Public and Private Sector

	Public Facilities (Govt. + Local Body)				Private Facilities			
	Mumbai	Other urban	Rural	Total Public	Mumbai	Other urban	Rural	Per cent private
Teaching Hospital	4	13	—	17	1	16	—	50
General Hospital	76	192	—	268	1416	2849		87
Rural Hospital	—	—	345	345	—			
PHC/PHU/HP	176	206	1990	2372	—	—	—	—
Sub-centre	—	—	9725	9725	—	—	—	—
Dispensary	235	507		742	1832	3914		88
Hospital beds	20700	29288	20862	70850	23202	38827		47

Source: The data in this table has been worked out from the Performance Budgets (2001-2002 Budget) for state government for the year 1999 and from the Statistical Abstract for Local bodies and private sector for 1995 (Government of Maharashtra, 1998). However Mumbai data has been compiled from the records of the BMC for 1999, and hence totals do not match with the Statistical Abstract since the latter does not record complete information. The private sector data is an under-estimate and also refers to 1995, except for Mumbai where it is based on a survey by CEHAT.

use of public hospitals for inpatient care has declined from 45 per cent of the cases in 1987 to 31 per cent in 1996 and for ambulatory care the use of public facilities has dropped from 26 per cent to 18 per cent during the same period. The urban areas have marginally higher utilization rates in the public sector as compared to rural areas. The declining use of public health facilities in the context of high levels of poverty is a symptom of the deterioration of the public health system. This is evident from the assessment of public health facilities done by the government and presented above (Tables 7-11), as well as from the declining trends in investment and expenditures on public healthcare as discussed in a later section.

Preventive and Promotive Care

Information on utilization of various services is also available from recent national level surveys (National Family Health Surveys and Reproductive and Child Health-Rapid Household Survey), which were largely confined to information on reproductive and child health services (Table 14). The latter also provides data at the district level (Appendix IX).

Table 13: Utilisation of Public and Private Facilities in Rural and Urban Maharashtra

	Inpatient Care				Outpatient care			
	Rural		Urban		Rural		Urban	
	Public	Others	Public	Others	Public	Others	Public	Others
NSSO 1986-87	43.6	56.4	46.2	53.8	26.3	73.7	25.0	75.0
NCAER 1993	30.5	69.5	58.8	41.2	43.8	56.2	32.5	67.5
NSSO 1995-96	31.2	68.8	31.8	68.2	18.0	82.0	18.1	81.9

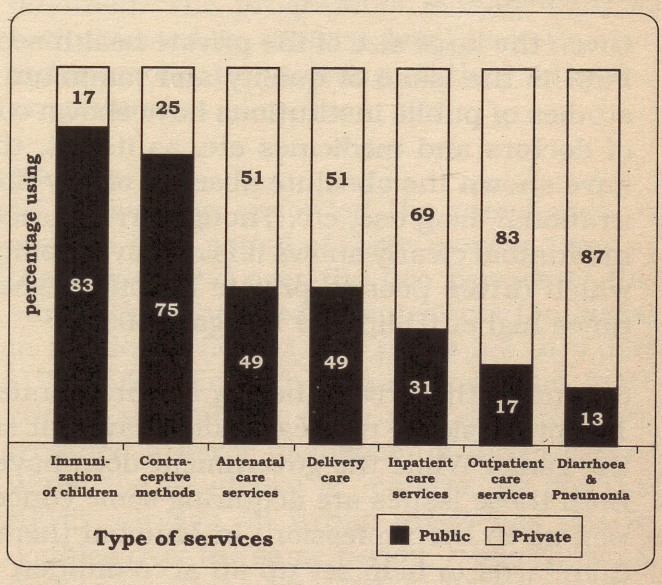
Source: NSSO 1992; Sundar 1995; NSSO 1998a

Table 14: Per cent Users of Public Health Facilities in Maharashtra #

Type of Services	Rural	Urban	All
Inpatient care services 3	31.2	31.8	
Outpatient care services [3]	16.0	17.0	
Ante natal care services [2]	53.0	39.6	48.8
Pregnancy complications [2]	50.0	29.8	40.0
Delivery care [2]	53.3	43.2	48.7
Post delivery complications [2]	36.3	36.7	36.5
Contraceptive methods [1]			
(a) Pill	28.6	10.6	18.1
(b) IUD	*	28.1	29.8
(c) Condom	27.3	14.4	19.9
(d) Female Sterilisation	89.9	69.4	82.3
(e) Male Sterilisation	96.4	77.0	93.1
(f) All Modern Methods	85.5	59.1	75.2
Immunization of children [2]	89.1	67.1	82.7
Diarrhoea & Pneumonia [2] (for children)	13.6	10.0	12.5

\# The figures are per cent using public facilities from amongst all users. The balance users used private facilities
[1] IIPS and ORC, Macro 2000; [2] IIPS 2000; [3] NSSO 1998a
* number using IUD in rural areas are very few

Fig. IV: Sources of Utilization of Health Care Services, Maharashtra



Box 1

Private Health Care – Evidence through Utilization Studies

Organised documentation about the private health sector is very scarce. Whatever little is available is due to some basic statutory requirements like registration of doctors with their Councils and of hospitals with local governments. The Central and State Governments in their statistical reports, which invariably are plagued by incomplete reporting, report these. The professional associations of doctors and hospitals have not shown any interest in documenting basic information about their profession and institutions and making this information public.

Data from government statistical reports show that two-thirds of the hospitals and over 40 per cent of hospital beds are in the private sector. The incompleteness of this data, especially on the private sector, makes it difficult to substantiate the growth that is taking place with regard to the private health sector. Hence the only evidence available on the working, size, character of the private health sector is household studies of health care seeking behaviour. At the national level we have the NSSO surveys from the 42nd and 52nd Rounds and the NCAER studies. Besides this there are smaller micro studies at the state or district levels. (Appendix II)

The two NSSO surveys clearly show that between 1987 and 1996 private health sector utilization in Maharashtra increased from 56 per cent to 68 per cent in rural areas and from 54 per cent to 68 per cent in urban areas for inpatient services. In case of outpatient care the private health sector was already accounting for three-fourths share in 1987 and this increased marginally to 77 per cent in 1996. This period coincides with the declining investments by the State in public health care. The NCAER studies also tell more or less the same story. The smaller studies done at different points of time in Maharashtra also indicate a very large and growing share of the private health sector.

Given the large size of the private health sector two major concerns need to be addressed. First is the issue of quality and minimum standards for the services it provides. While studies of public institutions have shown complacency, long waiting time, non-availability of doctors and medicines etc. as its ills, the study of private institutions and providers have shown the absolute absence of any minimum standards, both physical and clinical, irrational drug use, etc. Though private sector is being widely used by all classes, a study in Mumbai clearly shows it is non availability of public health care services in public sector which drives poor to private hospitals where cost of treatment was found to be several times higher (Dilip and Duggal 2003).

Secondly, the private health sector operates in an absolutely unregulated environment. The professional medical bodies have not shown any concern in setting up basic rules of the game. While the government does have some regulations they are not implemented. Both these issues are acquiring some concern today both at the level of policy makers as well as in the profession. In Mumbai there is an initiative called Forum for Health care Standards to help set up an accreditation system which would help set up basic norms and monitor its practice by accrediting institutions for providing quality care. Also the State Government has undertaken an initiative to bring in a drastically amended Medical and Clinical Establishment Act to regulate quality and minimum standards in health care provision.

These studies reveal that over 48 per cent of the women had availed antenatal care services from public sector (53 per cent rural and 40 per cent urban) and for pregnancy complications 40 per cent (50 per cent in rural areas and 30 per cent in urban areas). From those who had delivered babies in institutions 49 per cent had used public facilities (53 per cent rural and 43 per cent urban). Among the women who experienced post-delivery complications around 36 per cent had sought treatment from public sector.

Public sector is also a major provider of contraceptives in the state accounting for 75 per cent of all acceptors of modern methods. Level of utilization of contraceptives from public sector varied from 18 per cent for the oral pill to 93.1 per cent for male sterilisation. The level of utilization for female sterilisation from the public sector was also high (82 per cent), while 30 per cent and 20 per cent of users had availed IUD and condoms, respectively, from public sector.

The role of the public sector in providing immunization services to children was even higher 83 per cent of children were immunized in public health care facilities. The proportion of children who were immunized in public institutions ranged from 89 per cent to 67 per cent in rural and urban areas, respectively. In the case of outpatient care services only a small proportion of children were taken to public health services for treatment if they were suffering from diarrhoea and pneumonia. The levels of utilization of public sector for treating these ailments was 13.6 per cent, 10 per cent and 13 per cent in rural areas, urban areas and combined, respectively. This is much lower than the NSSO data for treatment of general morbidity in the public sector.

The above analysis clearly shows that of all health care services the public sector dominates only in delivering contraceptive and immunization services. A sizeable proportion of the population was found to be depending on public sector for reproduction related services, and for inpatient care services. And there is clear evidence of declining trends in use of public facilities for medical care and other health services. Overall the utilization pattern seems to be closely mirror government policy with a greater emphasis on reproductive and child health issues.

Disease Control Programmes

Since communicable diseases still account for a major share of morbidity and mortality, efforts continue to be directed towards prevention and control of diseases. With the introduction of vaccines for a number of diseases crude death rates have declined faster. However, morbidity due to communicable diseases continues to be high and in fact has seen a resurgence in recent years, including increased mortality. Poor sanitation and solid waste management, and inadequate infrastructure and investment for controlling and treatment of these diseases are some of the reasons for rising prevalence. Since complete epidemiological profiles are not available one has to rely on occasional sample surveys for prevalence data.

With the exception of leprosy the prevalence of other diseases listed above is still very high and one does not see any declining trends. Learning from the experience of leprosy, the management of these programmes have been modified. The programme management is being vested in district level societies for autonomous functioning of these disease programmes.

Malaria

NFHS surveys recorded the prevalence of malaria for a period of three months prior to the survey and over the two periods of the survey there has been a substantial increase in incidence from 3,742 (1992-93) to 4,098 (1998-99) per lakh population. The RCH survey around the same period as NFHS-2 recorded a lower incidence, of 3,526 cases. While the incidence of malaria, as per the NFHS surveys, in urban areas has nearly doubled over the same period, it has shown a decline in rural areas. The RCH survey also records a higher rural morbidity. All this shows that the annual prevalence of malaria in Maharashtra is in the range of 13.5 to 15.7 million cases a year.

During 1998-99, 16 districts viz., Raigad, Ahmednagar, Thane, Dhule, Jalgaon, Nasik, Pune, Nanded, Yeotmal, Chandrapur, Amravati, Bhandara, Gadhchiroli, Nagpur, Wardha and Mumbai were classified as high risk districts for malaria. District Malaria Control Societies have been established and registered for each tribal district in the state (HDR 2002).

An audit report on the malaria programme by the Comptroller and Auditor General (CAG) lists some reasons why the National Malaria Eradication Programme failed to make a significant dent on the incidence of malaria. Delay in treatment, failure to provide treatment, sub-standard anti malarial drugs for treatment and use of sub-standard insecticides, shortage of staff as per prescribed norms and entomological surveys were not carried out during 1992-93 and 1995-97. But this is only for the government programme where the major emphasis is on prevention. Since an overwhelmingly large proportion of care is provided by the private health sector a large responsibility for the failure to tackle malaria lies on with the private providers. Malaria as a disease has a simple regimen of treatment at one level and at another needs a sanitary environment through prevention and promotive programmes. Neither aspect has been adequately covered.

Leprosy

Leprosy is one programme that is a success story. There are many facets to this but the most important fact is that leprosy as a disease is handled almost wholly by the public sector. It continues to be a vertical programme, has been allocated adequate resources over the years and has used innovative methods in management of the programme. To improve efficiency and effectiveness district leprosy societies had been set up and this strategy has helped improve the performance of the programme substantially.

Table 15: Prevalence of selected diseases in Maharashtra

Malaria (3 month prevalence) per 100,000 population

	Total	Male	Female	Rural	Urban
NFHS-1 1992-93	3742	3630	3850	5100	1800
NFHS-2 1998-99	4098	4141	4052	4509	3551
RCH-RHS 1998	3526	3356	3707	3800	2943

Leprosy (point prevalence) per 100,000 population

	NFHS-1 1992-93	NCAER 1994	RCH-RHS 1998)
Urban	30		28.24
Rural	100	65	81.56
Total	72		64.45

Tuberculosis (point prevalence) per 100,000 population

	NFHS-1 1992-93	NFHS-2 1998-99	NFHS-2 (Medically Treated TB.)	RCH-RHS 1998
Rural	330	236	191	255
Urban	250	342	282	169
Total	293	282	230	228

Blindness (point prevalence) per 1000 population

	Total	Male	Female	Rural	Urban
Partial Blindness	32.1	28.5	35.9	36.5	26.1
Complete blindness	3.2	2.7	3.7	4.1	3.2

Source: Sundar 1995; PRC and IIPS 1995; IIPS 2000; IIPS and ORC Macro 2000

Maharashtra has historically had one of the highest endemicity rates of leprosy in the country but over the last decade has been a leader in reducing endemicity, as well as providing successful treatment of cases. The multi-drug treatment has contributed significantly to the sharp decline in leprosy prevalence. Evidence supporting the comprehensive coverage of the NLEP is provided by the NFHS and RCH surveys (Table 15). The estimate of leprosy prevalence generated through these surveys is comparable to the performance figures under the government programme. This fact verifies our understanding that the success of this public programme has been due to the relative non-involvement of the for-profit private health sector; of course, a large number of NGOs have also been active and working in collaboration with the public health programme. These surveys also reveal that rural prevalence is nearly three times that of urban prevalence. So while the NLEP comes out with flying colours it has to tackle the slower progress in the rural areas.

Tuberculosis

There are nine tuberculosis hospitals, 29 District TB centres and 1995 peripheral health institutions, which include Rural Hospitals, Cottage Hospitals, Primary Health Centres, Nagar Parishad Dispensaries, etc. where the programme is implemented through Multipurpose Health Workers of the primary health care programme. To control TB more effectively, a Revised National Tuberculosis Control Programme (RNTCP) is being implemented since 1998-99. The operational objective of RNTCP is to cure 85 per cent newly detected sputum positive cases through Directly Observed Treatment Short Course Chemotherapy (DOTS). To facilitate this a State TB Society was formed and registered in 1998 to implement the programme effectively. District TB Societies have also been formed in each district.

TB is the biggest challenge among the spectrum of infectious diseases. Although prevalence rate appears to have declined (Table 15), greater efforts are required to reduce it further. The overall prevalence of TB across the two NFHS rounds has been nearly constant at 293 (NFHS-1) and 282 (NFHS-2) per one lakh population. This makes for a caseload of over 260,000 TB cases at any point of time. Again the rural-urban differences are wide but here it is expectedly the urban areas that bear the brunt. Between the two rounds the picture has reversed. Surprisingly the RCH survey, which shows near identical overall prevalence of TB, shows a reversed rural-urban picture with the rural areas having a higher prevalence.

The inadequate performance of the TB programme is late detection. Most of this happens because the private doctors treat TB patients in the earlier stages of the disease for cough and other respiratory infections and this leads to delayed diagnosis, and consequently the worst cases end up under public domain. Studies have shown not only the incapacity of the private health sector in handling TB but also their contribution to drug resistance due to misuse of drugs (Uplekar, M and S Rangan, 1996).

Blindness

Blindness is a major problem in Maharashtra with over 3.5 per cent of the population having either partial or complete blindness. Cataract is the main reason for blindness and 80 per cent of the blindness in the state is attributed to cataract as per the Performance Budget report of the Government of Maharashtra. Since 1994, to expedite cataract surgeries, World Bank assistance of Rs. 83 crore has been pumped into this programme. To effectively implement the project and to reduce the backlog of cataract blind people in the state, District Blindness Control Societies have been set up in each district.

The data on prevalence of blindness is surprisingly inadequate. The 1981 Census, which recorded physical disabilities, had netted only 0.6 cases per 1,000 population. In contrast NFHS-1, a decade later, revealed that the overall prevalence of partial blindness was 32 per 1,000 and that of complete blindness was 3 per 1,000 (Table 15). The

prevalence of both partial and complete blindness is higher among women and in rural areas.

National Aids Control Programme

National AIDS Control Programme (NACP) is a 100 per cent centrally sponsored scheme. In phase I the project was sanctioned for the period September 1992 to March 1999. Going by the success of the leprosy programme, which has managed the programme through autonomous societies, the phase II project is being implemented in the State (except Mumbai) through the Maharashtra State AIDS Control Society (MSACS) set up last year. It is responsible for planning, coordination, implementation and monitoring of AIDS prevention and control programmes at the state level. For implementation of NACP in the city of Mumbai, the Municipal Corporation of Mumbai has set up Mumbai District AIDS Control Society (MDACS).

The entire focus of the NACP is awareness campaigns and education, and surveillance of specific groups of population. For instance, surveillance is done through screening of blood sample from STD clinic patients and women seeking antenatal care. This surveillance is highly questionable because it is done without informing the persons whose blood samples are collected – this raises ethical concerns. Further those who test positive are not systematically followed up for treatment. In fact, the treatment of HIV positive and AIDS patients is missing from the programme. The surveillance data collected from various sites (STD clinics and ANC clinics) shows wide variations across sites but given the poor scientific basis of the data it is difficult to explain this.

As regards awareness and education a wide array of groups like high school and college students, truck drivers, sex-workers, eunuchs, street children, migrant workers etc. are targeted, as is the general public through the mass media. A lot of this is done through NGOs.

The burden of AIDS cases is beginning to be felt in Maharashtra. According to Maharashtra State AIDS Control Society, HIV positivity rate among general population (based on blood units screened) and high risk groups is 1.2 per cent and 13.5 per cent respectively (see table above). A total of 10160 AIDS cases were reported from Maharashtra till the end of October 2001 (India - 29007) and this is merely a tip of the iceberg as these figures

Table 16: HIV/AIDS Status in Maharashtra

Indicator	August 1986 to Dec. 2000	January to October 2001			Aug. 1986 to October, 2001	India since Aug. 1986
		Excl. Mumbai	Mumbai	Total		
No. of Blood Units Screened	4760622	423091	164607	587698	5348320	-
ELISA Reactive	66055	4814	1987	6801	72856	-
HIV Positivity Rate (general population)	1.4	1.1	1.2	1.2	1.4	-
No. of Persons Tested (High Risk Behaviour)	609404	15951	43047	58998	668402	3662969*
No. of HIV +ve Persons	84531	2910	5038	7948	92479	98451*
HIV Positivity Rate (high risk groups)	13.9	18.2	11.7	13.5	13.8	2.69*
No. of AIDS Cases	6745	1787	1628	3415	10160	29007
No. of AIDS Deaths	681	152	133	285	966	9815

* Upto June 2000

Source: Maharashtra State AIDS Control Society, Mumbai

were compiled from government hospitals only. So far 966 AIDS deaths were reported from Maharashtra. About 48 per cent of the AIDS cases were recorded in Mumbai and the other worst affected districts were Sangli, Kolhapur, Satara, Pune and Chandrapur (Appendix X).

Family Welfare Programme

The family welfare programme is a high profile and high priority programme of the Ministry of Health and Family Welfare. There is a strong passion for rapid reduction in population growth and for this various Government resolutions (GRs) have been introduced bringing back coercion elements in order to push for a small family norm. At another level the Reproductive and Child Health (RCH) programme has introduced the element of quality of care in the services under this programme for women and children.

Fertility Levels

The Crude Birth Rate has declined from 32.2 in 1971 to 20.9 in 2000. Infant Mortality Rate (IMR) which was as high as 105 per thousand live births in 1971 has dropped to 48 per thousand live births. The decline in birth rate has not kept pace with the rapid fall in death rates with the result that the population continues to grow. The Total Fertility Rate (TFR) declined from 4.6 in 1971 to 3.6 in 1981. This was due to the massive sterilisation drive in 1976 during the emergency period, after which it showed a slow decline. Maharashtra is yet to achieve replacement level of fertility to accomplish population stabilisation.

Indirect estimates based on 2001 census shows a TFR of 2.6 for Maharashtra State (Table 17). Although the Family Welfare Programme has been promoting the "two child" norm for long, still in 12 districts of Maharashtra TFR is 3 and above. The districts, Mumbai, Mumbai suburban, Sindhudurg and Ratnagiri were having low levels of fertility.

From 'Target-free Approach' to 'Self-determined strategy'

The Government of India abolished the method specific approach in 1996, where targets for all activities were fixed at national level. The State adopted a self determined strategy, where expected levels of contraceptive use for each district were estimated using criteria based on birth rates and death rates, and targets were drawn by the district level officers.

Under the old approach, the programme was geared to meet the set targets and in the bargain, quality of services and health care facilities were neglected. The emphasis of the current approach is on need for better quality of service. Training for PHC staff has been initiated and includes previously neglected topics like quality of care, informed choice and the assessment of community needs.

The outcome of the programme between 1993 and 1998 (Family Welfare Yearbook) suggests a slight decline in contraceptive use. A similar trend is observed in Performance Budgets. This may actually reflect a decline in overstated reporting of contraceptive use. However, NFHS surveys suggest an increase in CPR from 53.7 (1992-93) to 60.9 (1998-99). This could possibly be due to increased number of users not using public contraceptive services. Female sterilisation dominates the contraceptive use and spacing methods are not widely used by the women.

Table 17: District-wise Couples Effectively Protected (CEP) and Fertility Indicators: Maharashtra 2001

	CEP[1] (per cent)	Crude Birth rate[2] (CBR)	Total Fertility Rate[2] (TFR)
Ahmadnagar	60.5	21.8	2.7
Akola	63.8	22.3	2.7
Amravati	69.8	21.2	2.5
Aurangabad	50.8	24.1	3.1
Bhandara	53.8	20.7	2.4
Bid	54.1	23.5	3.2
Buldana	56.2	23.5	3.0
Chandrapur	57.9	20.9	2.4
Dhule	58.8	22.5	2.7
Gadchiroli	71.3	25.8	2.9
Gondiya	NA	21.8	2.5
Hingoli	NA	26.1	3.4
Jalgaon	60.0	21.7	2.7
Jalna	49.9	24.6	3.2
Kolhapur	66.5	19.3	2.3
Latur	49.3	24.1	3.1
Mumbai	76.0@	14.6	1.6
Mumbai (Suburban)		18.2	2.0
Nagpur	65.5	20.2	2.2
Nanded	44.6	25.5	3.3
Nandurbar	NA	27.0	3.3
Nashik	54.3	25.0	3.1
Osmanabad	55.4	23.2	3.0
Parbhani	50.1	25.2	3.3
Pune	63.8	20.6	2.3
Raigad	52.1	21.8	2.3
Ratnagiri	50.3	20.5	2.1
Sangli	63.6	19.4	2.3
Satara	61.6	19.2	2.3
Sindhudurg	51.7	17.4	1.8
Solapur	65.7	22.2	2.7
Thane	44.7	23.4	2.6
Wardha	65.2	19.2	2.3
Washim	NA	24.3	3.0
Yavatmal	63.4	23.7	2.9
Maharashtra	**56.6**	**21.7**	**2.6**

Source: [1] HDR 2002: [2]Guilimoto and Rajan (2002), @ Mumbai includes Mumbai Suburban district also

Child Survival and Safe Motherhood Programme (CSSM) to Reproductive and Child Health (RCH)

CSSM is an integrated package of interventions for improving the health status of women and children so as to reduce IMR and MMR, and it includes services:

a) To sustain and strengthen the ongoing programme of immunization, Oral Rehydration Therapy (ORT), Vitamin A prophylaxis and Iron Folic Acid supplementation.

b) To expand the coverage of antenatal care, professionally attended deliveries, and the Acute Respiratory Infections (ARI) Control Programme and care of the newborn.

This programme is now renamed as the Reproductive and Child Health (RCH) programme and includes the various components discussed below.

Immunizations

The Expanded Programme on Immunization (EPI) was initiated in India in 1978 to immunize children against preventable killer diseases such as tuberculosis, polio, diphtheria, pertusis (whooping cough), tetanus and measles. This was modified as the Universal Immunization Programme in 1985-86 in order to achieve 100 per cent immunization target.

The service statistics do not indicate level of coverage so we have to rely on NFHS surveys. It is clear that coverage of different vaccination is increasing but it has yet to reach the 100 per cent target. The proportion of children who have received no vaccines fell from 8 per cent to 2 per cent over the six-year period between the two NFHS rounds, and fully immunized increased from 64 per cent (NFHS-1) to 78 per cent (NFHS-2) (Appendix I). Across districts and regions Konkan, Nagpur and Pune divisions are the better performers. The best districts are Ratnagiri, Sindhudurg, Satara, Chandrapur, Mumbai and Wardha and the worst are Aurangabad, Beed, Parbhani, Nashik, Dhule, Nanded and Amravati (Table 19).

Antenatal Care

Proper antenatal care is crucial for the good health of both the mother and the child. There have been substantial improvements in the coverage of ANC services over the six-year period from NFHS-1 to NFHS-2. According to RCH-RHS the percentage of women who received full ANC services in Maharashtra (55 percentage) is much lower than the level in Kerala (86 percentage) and Tamil Nadu (75 percentage). This is true for percentage of safe deliveries also (59 percentage in Maharashtra, 94 percentage in Kerala and 84 percentage in Tamil Nadu). It is clear that Maharashtra is lagging behind Kerala and Tamil Nadu in the provision of Maternal Health Services. Despite 95 percentage of it's PHCs having 60 per cent or more of the critical inputs, which takes into account infrastructure facility, staff, supplies and equipment's (Table 11).

There is also an increase in institutional deliveries and deliveries supervised by trained health professionals. This facilitates in ensuring safe delivery and better health of the mother and child. The differentials across regions and districts are similar to that for immunizations. Konkan, Pune and Nagpur did better than the state average for ANC's and the former two for institutional deliveries. As expected, Mumbai topped for both ANC's and institutional deliveries, followed by Sindhudurg, and the worst districts were Nashik, Dhule and Parbhani for ANCs and Gadhchiroli, Bhandara and Jalna for institutional deliveries (Table 19).

Table 18: Percentage receiving selected antenatal care services in Maharashtra

Receiving	NFHS -1[1]			NFHS –2 [2]		
	Rural	Urban	Total	Rural	Urban	Total
2 or more doses of Tetanus Toxoid	65.4	79.8	71.0	72.0	79.4	74.9
Iron and folic acid tablets or syrup	69.6	72.2	70.6	82.3	88.6	84.8
ANC check –up outside home from:						
1.Doctor	45.3	85.7	61.0	55.3	89.6	68.7
2. Other Health Professional	11.8	2.8	8.3	24.7	4.4	16.8

Source: [1] PRC and IIPS 1995; [2] IIPS and ORC, Macro 2000.

Table 19: District level and regional variations in selected reproductive and child health Indicators, 1998-99

District	Per cent girls married below 18 years	Per cent of Births of order 3 and above	Per cent who received complete ANC	Per cent of institutional Delivery	Total unmet need for contraception (per cent)	Per cent current user of contraception (per cent)	Per cent using Spacing methods	Per cent of children receiving complete Immunisation
Mumbai	8.0	29.9	81.3	93.1	13.8	63.2	16.0	90.5
Thane	19.7	34.9	57.4	71.1	23.4	56.3	10.3	84.8
Raigadh	15.9	28.7	63.2	55.9	22.5	56.9	6.0	87.3
Ratnagiri	13.0	32.3	71.0	51.7	12.4	58.3	1.8	94.1
Sindhudurg	3.8	28.0	78.9	76.6	27.9	48.4	4.4	92.5
Pune	30.4	27.1	56.0	75.0	9.2	65.7	7.8	74.3
Satara	21.9	28.1	60.0	60.9	5.9	69.1	3.3	92.5
Solapur	41.8	38.8	48.6	57.0	8.6	63.1	3.1	84.1
Sangli	25.6	20.7	65.3	68.7	17.0	63.4	4.0	87.3
Kolhapur	18.4	18.8	59.8	73.7	18.5	65.3	4.0	76.2
Dhule	40.0	37.2	33.7	31.0	11.9	58.3	4.3	69.4
Jalgaon	46.0	35.7	40.9	44.1	21.1	62.4	7.6	78.5
Nashik	32.1	35.9	30.0	54.5	9.9	56.5	9.5	68.6
Ahmadnagar	40.8	33.9	52.0	60.0	10.9	64.6	6.8	89.7
Aurangabad	50.9	42.2	39.7	49.6	30.5	50.0	10.4	59.2
Jalna	55.6	44.0	40.2	27.9	13.2	51.7	6.0	78.3
Beed	59.4	41.6	40.3	42.7	26.4	55.8	6.1	63.0
Latur	58.1	39.5	43.9	40.7	10.3	60.0	4.9	89.3
Nanded	63.7	43.5	46.8	29.9	30.5	52.0	9.2	71.3
Parbhani	46.6	47.0	38.0	32.3	26.3	55.7	6.4	67.2
Osmanabad	46.5	35.6	47.5	36.4	10.0	58.2	4.1	79.3
Amravati	10.2	36.6	46.6	52.9	9.2	63.8	9.3	71.5
Akola	38.2	41.4	59.1	49.3	24.8	57.5	7.5	81.5
Buldhana	33.5	43.9	47.2	43.9	13.8	55.3	9.1	78.7
Yavatmal	27.1	37.9	53.1	37.1	19.9	59.3	5.5	74.3
Nagpur	11.3	29.8	52.0	67.2	14.2	63.8	4.6	76.0
Bhandara	9.3	38.0	43.7	24.6	8.5	59.6	1.9	78.9
Wardha	12.3	24.1	64.1	62.8	6.5	69.7	5.2	90.3
Gadhchiroli	26.8	35.9	67.7	16.4	23.5	58.2	2.8	85.7
Chandrapur	25.7	31.1	62.1	41.0	16.9	65.8	4.6	92.7
Maharashtra	28.8	33.9	54.5	58.5	16.0	60.4	7.7	80.3

Source: Based on CORT (1998 & 1999), RHS-RCH Survey reports, various district reports

Box 2
Health Sector Reforms?

Before SAP, the public health sector in Maharashtra was viewed with a great deal of pride by the bureaucracy and politicians. Pressures to privatise were strongly resisted from within. We think this was largely due to the history of social reforms and progressive public actions discussed elsewhere in this report. The first attempt came via GR No. HFR-1087/3653/8-9 dated 2-2-1988, which suggested user charges at the district hospitals. The rationale they used were the findings of the NSS 42nd Round, which revealed that even the poor used private health care services and therefore there was willingness to pay (Government of Maharashtra 1997). The immediate impact of this resolution was reflected in the Performance budget report of the subsequent years, which showed drastic declines in OPD and inpatient users at most district hospitals. After this "bad experience" most hospitals began to ignore the GR and it was never seriously implemented and this brought back the patients to the district hospitals. The user charges collected have varied from 0.1 per cent to 0.18 per cent of the total public health expenditure from 1989 to 1996. Post-SAP things began to change rapidly. In the name of public-private partnership public facilities were extended for use to private health providers. For instance CHCs were given to private ophthalmologists for surgical camps, public sector patients were referred to private institutions for sophisticated investigations like CT Scans and MRIs, often when the concerned public institutions would have their own such facility. Nine district hospitals have been leased out to private medical colleges in the state for as small a sum as Rs. 10.8 million a year. The government spends the same amount to train 10 graduate doctors! The point here is not as much about privatisation as the fact that the people, especially the poor, lose out when such actions are taken.

In Mumbai, the Maharashtra Government wanted to sell one of its hospital (The GT Hospital) to a multinational pharma major but local protests stalled this and instead now the government has decided to go in for a joint-stock company with 50-50 partnership. Again in Mumbai the Bombay Municipal Corporation has agreed on a policy initiative to privatise all peripheral hospitals and maternity homes, that is 42 institutions with nearly 6000 beds. However local protests have prevented any such action. The BMC has however successfully privatised non-clinical services and a study shows that while the unit costs went down the quality deteriorated (Bhatia and Mills, 1997).

The Maharashtra Government, following the footsteps of AP, Punjab and West Bengal has taken up a health systems development project supported by the World Bank to improve secondary hospitals, that is CHCs, sub-divisional hospitals and district hospitals. The broad objectives of this are:

- To improve the systems performance and quality of health care services in secondary health care institutes
- To narrow current coverage gaps by increasing access to health care delivery and
- To improve the efficiency in the allocation and use of health resources

Since the project is very recent no impact assessment is possible but issues like user-charges, privatisation of non-clinical services, supporting private hospitals in blocks that do not have CHCs, extension of honorary system to district hospitals and CHCs etc. are

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being considered. Other features include strengthening a referral system so that secondary hospitals do not have to deal with first contact care, supporting hospitals with speciality facilities to becoming training centres for private and public doctors to facilitate CME since now re-registration is compulsorily linked to a definite number of hours of CME etc.. While the Health systems development project may have a number of positive features, it lacks the teeth to bring about structural reforms. The strategy is basically to make piecemeal changes and not structural changes. Serious reforms imply structural changes. When we look at budgetary allocations we do not find an encouraging picture. Despite the World Bank supported initiative budgetary support to the public health sector is declining. What is possibly happening is that the secondary institutions will have improved infrastructure and their capacities will be enhanced using external assistance but with states overall declining support to public health services there is all likelihood that these upgraded institutions will pass into private hands like some of the district hospitals have been given to private medical colleges for a paltry annual fee.

V. Public Expenditure on Health

The share of health expenditure in the government budget has decelerated sharply over the years, more so after 1991, when under structural adjustment policies government spending was curtailed to reduce fiscal deficit. (Table 20) This will have an adverse impact on long-term growth and may lead to further human deprivation, especially given the fact that user-charges are being introduced and/or increased in public health facilities.

Health expenditure, for the present analysis includes expenditure borne by ministries of Health and Family Welfare and therefore, excludes water supply and sanitation. It thus includes curative care i.e., hospitals and dispensaries, preventive and promotive programmes such as control of diseases, family planning, immunisation, medical education, Employee State Insurance Scheme (ESIS), Food and Drug Administration etc. Maharashtra, despite its achievement in overall economic development, has failed to give the required significance to health and health care, given the fact that health expenditure as a percentage of (Net State Domestic Product) NSDP at current prices has declined from the levels of 1.0 per cent in the 80s to 0.7 per cent in 2001-02, and as a proportion to total government spending from over 6 per cent in the 80's to 4.6 per cent in 2001-02 (Table 20). Revenue expenditure on health as a share of total government expenditure shows a declining trend reflecting the inadequate commitment of the state towards increasing health care demands of the population. This is despite the fact that health is a state subject. Excessive attention is given to curative care in urban areas at the cost of neglecting such health care needs of rural population. Expenditure on Hospitals and Dispensaries as well as Medical Education, Training and Research has shown a slight increase since 1985-86. Expenditure on Health Administration, which supports the large health bureaucracy, had been growing rapidly.

Table 20: Public Expenditure on Healthcare in Maharashtra (Ministry of Health and Family Welfare; revenue + capital)

	1985-86	1990-91	1995-96	1998-99	1999-00	2000-01	2001-02	2002-03 (RE)	2003-04 (BE)
Total Public Health Expenditure (Rs. in Million)	2767	4976	9061	11855	13432	15816	17755	18933	19615
Per capita (in Rs.)	63.73	63.04	105.95	131.07	142.33	163.89	183.51	191.37	202.74
Per cent to revenue expenditure (1)	5.97	5.68	5.18	4.51	4.54	4.22	4.63	4.52	4.57
Per cent of NSDP	1	0.8	0.7	0.6	0.6	0.74	0.73		

Source: Finance and Revenue Accounts, Govt. of Maharashtra, upto 2000-01; 2001-02 to 2003-04 from Civil Budget Estimates, Public Health Dept. and Medical Education Dept.

Note: Population and income data used from Statistical Abstract of India upto 2000-01 and extrapolated for 2002-03 and 2002-03.

(1) Only revenue expenditure included in this computation. If we add capital then the proportion would drop drastically, for instance in 2000-01 including capital would bring down health expenditure ratio to 3.9 per cent

RE = Revised Estimate; BE = Budget Estimate

Table 21: Maharashtra Government Expenditure on Health

Amount in Rupees Million	1980-81	1985-86	1988-89	1992-93	1995-96	1998-99	1999-00	2000-01	2001-02
Total Health Expenditure	1306.98	2766.47	4000.79	6356.23	9061.1	11854.9	13431.69	15815.61	17755.36
(Per cent of NSDP)	0.9	1.0	1.0	0.8	0.7	0.6	0.6	0.7	0.7
Capital Expenditure on Health	54.93	71.78	220.95	198.06	162.87	255.65	7.50	135.035	361.201
Revenue Expenditure on Health	1252.05	2694.69	3779.84	6158.17	8898.23	11599.25	13292.22	15528.69	17228.67
Per cent of Total Govt. Revenue Expenditure	6.53	5.97	5.78	5.33	5.18	4.5	4.54	4.22	4.63
Per Capita Expenditure on Health (In Rupees)	19.94	38.95	50.71	75.63	102.26	128.24	142.33	163.89	183.51
Expenditure on National Disease Programme (NDP)	192.0	431.95	582.27	726.98	1011.08	1435.68	1611.10	1642.27	1526.59
Per cent of Total Revenue Expenditure on Health	15.33	16.03	15.4	11.81	11.36	12.38	12.12	10.58	8.86
Per Capita Expenditure on NDP (In Rupees)	3.08	6.24	7.81	8.93	11.62	15.87	17.07	17.02	15.78
Expenditure on Hospitals and Dispensaries (H&D)	355.0	673.52	950.43	1638.31	2447.46	3390.11	4569.78	4505.9	4610.8
Per cent of Total Revenue Expenditure on Health	28.35	24.99	25.14	26.60	27.50	29.23	34.38	29.02	26.76
Per Capita Expenditure on H&D (In Rupees)	5.7	9.74	12.75	20.12	28.13	37.48	48.43	46.69	47.66
Expenditure on Medical Training Education and Research	105.0	169.15	244.46	477.77	635.72	1255.89	1251.89	1670.7	1366.3
Per cent of Total Revenue Expenditure on Health	8.39	6.28	6.47	7.76	7.14	10.83	9.42	10.76	7.93
Expenditure on Family Welfare	128.0	469.23	493.34	826.31	1315.34	948.16	1064.69	1771.14	2014.42
Per cent of Total Revenue Expenditure on Health	10.22	17.41	13.05	13.42	14.78	8.17	8.01	11.41	11.69
Expenditure on Maternal and Child Health	4.0	14.05	42.38	130.45	381.02	157.16	230.01	238.65	347.68
Per cent of Total Revenue Expenditure on Health	0.32	0.52	1.12	2.12	4.28	1.35	1.73	1.54	2.02
Expenditure on Health Administration	178.0	467.24	556.19	1154.55	1621.96	2566.37	2562.05	3717.50	4993.57
Per cent of Total Revenue Expenditure on Health	14.22	17.34	14.71	18.75	18.23	22.13	19.27	23.94	28.98

Sources: 1. Data for years 1980-81 & 1985-86- Comptroller & Auditor General of India, GOI, " Combined Finance and Revenue Accounts" respective years.
2. Data for years 1985-86 Onwards-Govt. of Maharashtra, Finance and Revenue Accounts, various years.

Expenditure by Programme and Line Items

Expenditure on National Disease Control programmes show a declining trend, (Appendix IV) partly due to the decision to cut down Central financial transfers to the states. Since then, there has been an increase in non-plan expenditure (mainly on account of salaries) and a decline in plan expenditure. Further desegregation of National Disease Programme shows that expenditure on Malaria, Leprosy, TB and Blindness control programmes accounts for nearly 90 per cent of the total expenditure.

introduced to reduce maternal and child mortality. However, since 1998-99 there is a sharp decline both in family welfare and maternal and child health expenditure (Table 21). The emphasis on family welfare is on rural welfare services, but here too the bulk of expenditure is on salaries (Appendix VIII).

The share of the spending on the health sector has thus gone down, and this is reflected in the declining share of health care in the total budget. Increasing proportion of health expenditure on salaries, leaving very little for

Table 22: Expenditure on selected diseases programme (as per cent to expenditure on Disease Programmes)

Year	Malaria %	T.B %	Leprosy %	Total (Rs. in Millions)
1986-87	54.65	9.20	18.03	520.67
1988-89	55.58	6.77	19.12	582.23
1990-91	59.84	10.00	20.91	622.47
1991-92	60.36	6.75	22.01	630.16
1992-93	57.14	7.43	24.63	727.40
1995-96	46.71	10.90	18.97	1164.76
1996-97	53.03	18.43	18.52	1230.69
1997-98	58.40	5.68	26.44	1154.41
1998-99	71.11	4.47	15.44	1435.68
2001-02	42.09	8.11	29.05	1526.59

Source: Performance Budgets, Govt. of Maharashtra, respective years

Among the three, the share of Malaria (50 per cent to 70 per cent) and Leprosy (15 per cent to 30 per cent) is very high. In 1998-99 the share of Malaria touched a whopping 71 per cent because of the flow of funds from World Bank Assisted Malaria Control project. It is also revealed that over the years there is a rapid increase in the share of salary component and a decline in the share of non-salary component (Appendix V, VI and VII).

Expenditure on family welfare programme has been increasing steadily and in 1995-96 stood at 14.8 per cent of the government expenditure. Maternal and child health (MCH) during the same period showed the same upward trend. This is when Child Survival and Safe Motherhood (CSSM) programme was

non-salary components such as materials and supplies, maintenance, diet, travel, etc. have created allocative inefficiencies that have drastically affected the performance of various programmes. This has implications for the utilization of public health services, and data from national surveys clearly reveals a declining share of public services in healthcare market (Appendix II). This also means an increased burden in out-of pocket expenditures for health care. Between the two NSSO rounds out-of pocket costs have increased three-fold for inpatient care and by about 50 per cent for outpatient care. The increases are even higher for those using private health care. Rural users are spending significantly larger amounts on both inpatient and outpatient services (Table 23).

Table 23: Average out of pocket medical expenditure on treatment of an ailment in outpatient care and inpatient care units, Maharashtra 1986-87 and 1995-96

(Figures in Rupees)

Source of Treatment	1986-87 [1]		1995-96 [2]		1986-87 [1]		1995-96 [2]	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
	Inpatient Care				Outpatient care			
Public	439	400	1529	1439	52	84	73	91
Others	901	1928	3836	5345	99	153	161	175
All	842	1498	3089	3997	87	132	140	163

Source: [1] NSSO 1992; [2] NSSO 1998.

Rural-urban desegregation of expenditures is not done completely in the budget accounts. While some expenditures are directly available as rural and urban like rural allopathy and urban allopathy, rural family planning and urban family planning , capital expenses, etc., others have to be estimated on basis of judgement and experience as to where the expenditure is incurred. Since this requires extensive knowledge of how the state's health care system operates. Hence we have done this exercise for Maharashtra state alone.

In 2001-02 Maharashtra Government spent Rs. 17,228.67 million on health care under the revenue account and Rs. 361.20 million on the capital account. Capital expenditure was only 2.03 per cent of total expenditure on health. This shows that new investments are not being made adequately to upgrade and expand the public health system. Further the total health expenditure (Rs. 17.75 billion) is 3.33 per cent of total government expenditure. The revenue expenditure on health is only Rs. 174 per capita, which is much less than the national average of Rs. 220 per capita for the same year. Further the rural-urban gap in per capita spending is more than twice. Urban areas get Rs. 274.94 per capita and rural areas get only Rs. 114.04 per capita. Rural areas get less than 40 per cent of the budget as against the 60 per cent population that lives in villages (Table 24). This is a clear indication of neglect of rural areas by the state in health care investment and expenditures. Also the curative – preventive dichotomy across urban and rural areas comes out very clearly in public spending patterns.

Table 24 : Maharashtra 2000-01 Public Health Expenditures (Rs. Million) Across Rural and Urban Areas

Type of Expenditure	Rural	Urban	Combined
Medical care*	266.70 (4.20)	5396.11 (47.85)	5662.81 (31.89)
Public Health	4942.20 (77.76)	2566.34 (22.75)	7508.54 (42.29)
Family Planning	557.32 (8.77)	70.49 (0.63)	627.81 (3.54)
MCH	208.61 (3.28)	139.07 (1.23)	347.68 (1.96)
Other FW	231.52 (3.64)	807.41 (7.16)	1038.94 (5.85)
Capital	0 (0)	361.20 (3.20)	361.20 (2.03)
Others**	149.62 (2.35)	1937.64 (17.18)	2208.39 (12.44)
TOTAL	6355.96 (100.00)	11278.27 (100.00)	17755.36 (100.00)
Percent to combined	35.80	63.52	100.00
Per Capita	114.04	274.94	183.51

Note *Includes teaching hospitals, medical education and ESIS; Figures in parentheses are column percentages
** Includes Direction and administration, Other systems of Medicines, General, Social Security and Welfare, Secretariat and Social Services and Census surveys and Statistics

Medical Care Services

As mentioned earlier the medical care infrastructure of the public health system is largely concentrated in cities and towns. We have put together data from the Performance Budgets on utilization of facilities like teaching hospitals, civil hospitals, rural hospitals and PHCs. Population based utilization data is available from surveys.

Medical care is provided through teaching hospitals, district and sub-divisional hospitals, other special hospitals, rural hospitals and PHCs. Data on this infrastructure and its utilization is available from the Performance Budget of the health department. As we will see in a later section utilization of public facilities for medical care is very limited both due to the inadequate number of facilities where demand exists and under-utilization of facilities where critical functional inputs are missing in the delivery of services.

The **district hospitals** form the core of medical care available from the State Government. These hospitals have beds ranging from 80 (Sindhudurg) to 561 (Nashik) totalling 6501 beds. However, the average bed strength is 295 beds per district hospital. The district hospitals are supposed to have 14 specialists and 25 to 50 general duty doctors depending on bed strength. An average of 678 patients was found to be visiting the OPD of the district hospitals every day. With an average of 25 doctors per hospital, including specialists, in position and assuming that 70 per cent of them attend OPD, each doctor on an average is seeing 40 patients daily. This is a reasonable load considering the fact that OPDs operate for 3 to 4 hours per day. The average cost of medicines dispensed is Rs. 15 per outpatient (Table 25).

Where inpatients are concerned district hospitals are handling about 7 lakh patients per year making for an average load of 313 patients per day per hospital (an overload of 6 per cent beyond the existing bed capacity of 295 beds) and an average length of stay of 3.65 days. For this the expenditure incurred was Rs. 91 per patient per day, excluding salaries. Of this the expenditure on medicines was Rs. 46 per patient per day (2001).

The total expenditure on district hospitals was Rs 946.46 million in 2000-2001, that is Rs. 43 million per district hospital or Rs. 1.46 lakh per bed annually. Of this the salary component was 70.29 per cent (Table 25).

In the case of women's hospitals and cottage/ other hospitals the average OPD patients per day was 292, and 234, respectively. These hospitals also managed over 1.68 lakh inpatients each, that is, an average of 243 and 39 patients daily, respectively. In the context of availability of beds in these centres, like the district hospitals, the women's hospitals were over loaded in terms of occupancy. While the bed occupancy rate in the district hospitals was 106 per cent, in the special women's hospitals it was a whopping 165 per cent, indicating the large demand on one hand for these services and an inadequate supply on the other hand by the public health services. The cottage and other hospitals also had a high bed occupancy of 88 per cent. As a contrast a study of hospitals in Maharashtra showed that occupancy rates in private hospitals averaged only 51 per cent. (Nandraj and Duggal, 1997). The expenditures incurred for outpatients in the women's and cottage/ other hospitals for medicines was only Rs. 11 and Rs. 8 and for inpatients Rs. 29 and Rs. 40, respectively. The total expenditure, excluding salaries, averaged Rs. 55 and Rs. 76 per inpatient per day for these two groups of hospitals. For the women's hospital the total expenditure was Rs. 144 million or Rs. 24 million per hospital, that is Rs. 1.63 lakh per bed annually and for the cottage/other hospitals the expenditure totalled Rs. 152 million or Rs. 6.6 million per such hospital, that is Rs. 1.49 lakh per bed annually. In both cases salaries constituted over 77 per cent of the total expenditure. Interestingly both these groups of hospitals received higher per bed costs as compared to district hospitals.

Table 25: Profile of Utilization and Expenditure in Public Hospitals in Maharashtra 2000-2001

	District hospital @	Women Hospitals	Cottage/ other hospitals	Rural Hospitals (CHC)	Primary Health Centres
No of units	23	6	23	345	1752
No of beds	6501	883	1019	10350	10512
Outpatient Care					
Total no. of OPD patients	4676639	524869	1615959		19026000
Avg. no. of OPD patients per day in a hospital	678	292	234		36
Total exp. on medicine (Rs. in Millions)	69.39	5.70	13.22		
Avg. expd. on medicines per patient (in Rs.)	15	11	8		
Inpatient care					
Total inpatients registered in an year	688710	168081	168253		
Total inpatient days in an year	2513390	531294	323134		
Avg. no. daily indoor patients per hospital	313	243	39		
Total exp. on medicines (Rs. in Millions)	115.68	15.22	1.33		
Avg. daily exp. on medicines per patient (in Rs.)	46	29	40		
Total expenditure on diet (Rs. in Millions)	15.68	3.77	1.72		
Avg. daily expenditure on diet per patient	15	21	15		
Total exp. on linen (Rs. in Millions)	11.42	1.39	1.98		
Avg. daily expenditure on linen (per patient) (in Rs.)	5	3	6		
Other expenditure on inpatients (Rs. in Millions)	85.85	9.06	7.76		
Avg. daily other expenditure (per patient) (in Rs.)	34	17	24		
Avg. exp. on inpatients excluding salaries (in Rs.)	91	55	76		
Combined					
Total exp. on salaries and allowances (Rs. in Millions)	665.29	111.50	118.32		
Total exp. on Hospital including establishment and hosp. Exp. (Rs. in Millions)	946.46	144.14	152.83		
Total patients treated during the year	6927041	2086393	1954072	10832000	
Avg. daily exp. per patient (in Rs.)	137	136	78		

Source: Government of Maharashtra, Performance Budget 2001-2002
Note: @Data for inpatient pertains to 22 district hospitals

A recent study on performance of the public healthcare facilities in Jalna, Yawatmal and Nandurbar districts of Maharashtra shows that the utilization of district level facilities, (District hospital and Women hospital) in the 15 year trend (1987-2002) for total patients treated per bed has been declining in spite of the increase in the number of beds. The performance of the Rural/Cottage hospitals in Jalna and Yawatmal has registered an absolute increase in the number of patients treated in the 15-year time period, however the total patients (both inpatients and outpatients) per bed shows a decline. The study states that in resource allocation, salaries seem to be assured within the health care system but other inputs are not given serious consideration. Thus, when salaries go up, the budget gets stressed raising with allocative inefficiencies because the funds under the present system of allocation for non-salary inputs are seen only as residuals which may or may not be available. As a consequence, the delivery system is rendered ineffective and resources are wasted because the objectives of the public health system cannot be met. (Mishra, Duggal, Raymus 2004).

Medical Education

A total of 1,350 students are being enrolled for MBBS courses in government medical colleges in the state every year. Another 779 students are being enrolled for postgraduate programmes every year. Therefore we can expect about 6,075 students to be undergoing four and half year MBBS course and 1,558 undergoing two year MD/MS course at a particular point of time. The teaching hospital

has 11000 beds and spends Rs. 1892.72 millions (Budget estimate) in year 2001-02.

In the case of medical education salaries occupy a large proportion of the expenditure on medical education 71.69 per cent followed by expenditure on other charges. Scholarship and stipends occupy another 12 per cent of the expenditure on medical education.

Table 26: Expenditure on medical education in Maharashtra in 1999-2000 (actuals)

(Rs. in Millions)

Items	Non Plan		Plan		Total	
Salary	686.49	(73.83)	5.81	(16.19)	692.30	(71.69)
Publications	0.12	(0.01)		(0.00)	0.12	(0.01)
Advertisement	0.69	(0.07)		(0.00)	0.69	(0.07)
Scholarship and stipend	121.38	(13.06)		(0.00)	121.38	(12.57)
Machinery and equipment	3.44	(0.37)	11.32	(31.54)	14.76	(1.53)
Materials and supplies	27.73	(2.98)	2.20	(6.13)	29.93	(3.10)
Other charges	89.92	(9.67)	16.56	(46.14)	106.48	(11.03)
Total	929.77	(100)	35.89	(100)	965.66	(100)

Source: Government of Maharashtra, Performance Budget 2001-2002

Table 27: Number of students selected in medical colleges in $4^{1/2}$ years MBBS course in 2001-02

Institutions	SC	ST	VJNT	Others	Open	Total
MBBS						
JJ group of Hospitals	22	11	19	33	116	200
BJMC /Sassoon Medical College Pune	22	11	19	33	115	200
VMMC Solapur	11	7	9	15	58	100
GMC Miraj	11	6	10	19	54	100
GMC Aurangabad	17	8	14	25	64	150
SRTR Medical College	12	6	10	16	54	100
GMC Nagpur	22	12	18	32	114	200
IGMC, Nagpur	11	6	10	15	58	100
GMC, Nanded	6	3	5	8	28	50
BHGMC Dhule	8	2	6	16	14	50
Dist Women's, Yavatmal	11	6	10	15	38	100
Total	153	78	130	227	729	1350
MD/MS						
JJ group of Hospitals	11	5	10	16	108	148
BJMC /Sassoon Medical College Pune	15	8	12	22	57	114
VMMC Solapur	20	2	5	15	65	123
GMC Miraj	7	1	-	11	58	106
GMC Aurangabad	9	5	7	12	28	56
SRTR Medical College	9	1	4	7	17	38
GMC Nagpur	13	6	9	16	60	104
IGMC, Nagpur	11	3	5	6	45	72
GMC, Nanded	1	2	2	3	7	18
BHGMC Dhule	-	-	-	-	-	-
District Women Hospital, Yavatmal	-	-	-	-	-	-
Total	96	33	51	108	445	779

Source: Government of Maharashtra, Performance Budget 2001-2002

VI. Some Indicators of Health Status

The levels and trends of health status in Maharashtra are reflected in infant mortality and life expectancy at birth, which has shown substantial improvements over the years. The Infant Mortality Rate (IMR) in the state has come down from 129 per thousand population in 1971 to 48 per thousand population presently. Though the sex differentials of IMR are marginal the rural - urban differentials are very marked and the gap has worsened over the years. (Table 28) Infant mortality rate is presently 55 and 27 in rural and urban areas respectively. Similarly there is wide variation across various districts with Mumbai, Pune, Thane, western Maharashtra having better IMRs as compared to districts of Marathwada and Vidharbha (Table 30).

Further, when we look at details of infant and child mortality data we find a declining trend but the large rural-urban gap is again worrisome, especially in case of neo-natal deaths for which easy access to medical care is critical (Table 29).

The State has also made considerable improvements in life expectancy at birth. Between the period 1970-75 and 1993-97, the life expectancy at birth has increased from 54.5 years to 64.1 years for males and from 53.3 years to 66.6 years for females. (Table 31) As in the case of regions having higher life expectancy, in Maharashtra also the life expectancy at birth has become more favourable for females than males overtime and this differential is expected to widen in future. The rural - urban differentials in mortality remain marked and this is reflected in life expectancy. Life expectancy at birth in urban and rural areas varied from 67.9 years for urban population to 62.0 years for rural population in case of males and from 71.4 years to 64.2 years, respectively, for females. While the widening male-female gap in favour of women is understandable, the large rural-urban gap is a cause for concern. The latter

Table 28: Trends in Infant Mortality Rate by residence and sex, Maharashtra

Year	Residence			Sex	
	Combined	Rural	Urban	Male	Female
1971	129	138	82	NA	NA
1981	79	90	49	82	75
1991	60	69	38	60	59
2001	45	55	27	44	46

Source: RGI 1999; RGI 2002.

Table 29: Trends in child mortality indicators by place of residence Maharashtra (per 1000 live births)

Indicators	1981			1991			1998		
	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined
Infant mortality rate	90.1	49.3	78.9	69	38	60	58	32	49
Neonatal mortality rate	62.8	30.6	53.9	44.8	23.1	38.2	33	22	29
Post-natal mortality rate	27.3	18.7	25.0	24.5	14.9	21.6	25	10	20
Peri-natal mortality rate	52.4	26.0	45.2	44.8	29.2	40.1	39	27	35
Still birth rate	9.8	4.4	8.3	11.2	11.8	11.4	12	9	11
Child (1-4) mortality rates	30.3	16.3	26.2	18.3	11.5	16.3	14.9	8.5	12.7

Source: RGI 1999; RGI 2000

Table 30: District-wise variations in Infant and Under 5 Mortality Indicators, Maharashtra 1991

	IMR (rate per 1000 live births)			U-5 Mortality (rate per 1000 live births)		
	Persons	Males	Female	Persons	Males	Female
Greater Bombay	37	39	35	50	51	49
Thane	46	44	41	54	56	51
Raigad	63	74	56	87	101	75
Ratnagiri	75	81	62	90	94	81
Sindhudurg	70	74	61	87	89	82
Nashik	61	66	55	88	87	90
Dhule	73	56	78	95	96	94
Jalgaon	71	72	42	84	81	88
Ahmednagar	47	52	42	60	60	60
Pune	52	59	44	70	74	56
Satara	51	52	49	61	64	62
Sangli	41	44	31	53	55	50
Solapur	68	74	60	83	85	77
Kolhapur	55	61	47	74	76	64
Aurangabad	56	51	58	81	79	83
Jalna	76	77	76	94	92	95
Parbhani	50	52	48	95	97	93
Beed	52	52	52	80	75	85
Nanded	68	76	66	87	87	87
Osmanabad	70	61	83	96	95	97
Latur	57	59	50	71	67	76
Buldhana	82	84	68	97	97	96
Akola	101	103	96	115	117	112
Amravati	94	101	88	114	116	107
Yavatmal	124	112	116	143	144	143
Wardha	88	91	86	104	99	110
Nagpur	75	72	78	101	100	101
Bhandara	81	85	76	115	118	112
Chandrapur	96	89	101	137	136	138
Gadhchiroli	106	95	117	144	144	143
Maharashtra	**74**	**72**	**76**	**91**	**89**	**93**

Source: RGI 1997.

Table 31: Trends in Life Expectancy at birth by residence and sex, Maharashtra (years)

	Total			Rural			Urban		
Year	Total	Male	Female	Total	Male	Female	Total	Male	Female
1970-75	53.8	54.5	53.3	51.9	51.1	52.8	58.8	58.8	58.8
1976-80	56.3	55.6	57.1	54.0	53.4	54.7	62.2	60.9	63.7
1981-85	60.7	59.6	62.1	59.0	58.5	59.7	64.0	62.0	66.4
1986-90	62.6	61.2	63.5	60.7	59.7	61.7	66.6	64.3	68.5
1991-95	64.8	63.5	65.8	62.5	61.5	63.7	69.1	67.4	70.9
1993-97	65.5	64.1	66.6	63.2	62.0	64.2	69.6	67.9	71.4

Source: RGI 1999

Table 32: Prevalence of ailments and hospitalisation per thousand persons in Maharashtra, 1995-96

Prevalence of	Rural			Urban		
	Total	Male	Female	Total	Male	Female
(a) Ailments during last 15 days prior to the survey						
Acute ailment	37	37	38	35	33	38
Chronic ailment	15	14	15	13	13	13
Any ailment	52	51	52	48	45	51
(b) Hospitalisation during last one year prior to the survey	19	20	18	26	27	25

Source: NSSO 1998a.

is closely associated with better availability and access of public health services in urban areas, especially medical care, in contrast to rural areas.

The reported morbidity profile is also useful in understanding health status. It is a subjective phenomenon whose reporting is not only influenced by actual burden of illness but also by education, exposure to health care services, health expectations and even by recall period used in the survey. Table 32 below shows a morbidity rate for a two-week recall period of 52 per thousand population in rural areas and 48 in urban areas. The rate of hospitalisation in the state for a recall of one year was 26 per thousand in urban areas and only 19 per thousand population in rural areas. The large difference in the latter is a function of access to hospitals that as we have seen in Table 32 and 33 is vastly different for rural and urban areas. As regards gender differentials the rural population does not show any difference but in urban areas the male-female differences are significant with females reporting a higher morbidity for acute ailments.

The table 33 gives class and caste differentials in morbidity and hospitalisation rates in Maharashtra. Prevalence of any acute, chronic and any ailment was found to be higher in high MPCE category as well as 'others', which is the non Scheduled Caste/Scheduled Tribes (SC/ST) categories. Overall the reported health status shows health of vulnerable section to be better than the privileged ones. This is common scenario in areas lacking health care facilities.

When we desegregate the data across consumption classes and social groups (Table 33) the importance of access factors in defining morbidity gets further support. Thus, the poorer classes and the tribals, whose access to healthcare services is restricted due to lack of purchasing power, report lower morbidity rates, especially for hospitalisations and chronic ailments. Further, across these groups one sees lower differentials in reported morbidity in urban areas in contrast to rural areas because the former have better access to public health services.

While data on overall mortality is available, the cause of death is not very well documented. Registration of deaths is incomplete netting about 70 per cent, and of the latter, only one-third are medically certified. Hence using such data can give a distorted picture - for example the 1993 medical certification data shows that of all such deaths in Maharashtra 10.05 per cent were due to Tuberculosis. (RGI 1998) This happens because deaths due to serious ailments are more likely to be reported. To fill this gap the SRS carries out regularly the Survey of Causes of Death but this is for rural areas alone.

Table 33: Number of persons reporting ailment during a period of 15 days per 1000 persons and number of persons hospitalised per 1000 population by fractile-group of M P C E and social group

Type of Ailment	sex	mpce fractile group								Social group		
		0-10	10-20	20-40	40-60	60-80	80-90	90-100	All	ST	SC	Others
						Rural						
Acute ailment	M	36	12	33	29	29	55	69	37	34	23	41
	F	32	25	27	37	47	46	49	38	30	44	38
	T	34	19	30	33	38	50	60	37	32	33	39
Chronic ailment	M	4	31	5	7	18	15	28	14	7	21	14
	F	4	6	10	11	22	25	21	15	8	12	17
	T	4	17	7	9	20	20	25	15	7	16	16
Any ailment	M	39	42	38	36	47	70	97	51	41	43	55
	F	35	31	36	47	68	71	69	52	38	55	55
	T	37	36	37	41	57	70	84	52	40	49	55
Annual hosp. Rate	M	9	11	10	15	20	37	39	20	14	20	21
	F	10	8	13	13	19	30	41	18	17	20	18
	T	10	9	11	14	19	34	40	19	15	20	20
						Urban						
Acute ailment	M	34	21	34	37	30	28	39	33	28	35	33
	F	28	34	34	39	41	44	41	38	25	44	38
	T	31	27	34	38	35	35	40	35	26	40	35
Chronic ailment	M	8	6	14	13	11	21	11	13	5	13	13
	F	11	7	11	8	13	20	16	13	8	8	14
	T	10	6	12	11	12	21	14	13	7	10	13
Any ailment	M	42	27	48	49	41	49	50	45	33	48	46
	F	39	40	45	47	53	64	57	51	33	51	52
	T	41	34	46	48	47	56	53	48	33	49	48
Annual hosp rate	M	15	22	23	23	21	33	43	27	28	27	27
	F	18	18	21	25	24	33	34	25	29	29	25
	T	17	20	22	24	22	33	39	26	29	28	26

Source: NSSO 1988

Table 34: Percentage distribution of Deaths by Major cause groups in Rural Maharashtra (excluding senility) 1981-1994

Causes of Death	1981	1991	1994
Coughs	31.3	25.7	25.4
Causes peculiar to infancy	21.1	19.4	16.7
Disorders of circulatory system	8.2	12.8	13.7
Fevers	3.7	3.8	2.3
Other clear symptoms	9.2	12.8	16.4
Digestive disorders	10.4	4.8	4.6
Accidents and injuries	8.3	13.4	13.5
Diseases of central nervous system	4.7	5.7	6.5
Child birth and pregnancy	1.1	1.6	1.0
Others	2.0	—	
Total	100	100	100

Source: RGI, respective years

One sees a changing pattern in the mortality profile, the main highlights being declining trends in deaths due to digestive disorders and causes peculiar to infancy and increasing proportion of the share of circulatory disorders, accidents and injuries. (Table 34)

When we look at specific symptoms we find that Bronchitis and Asthma has seen a major surge reflecting the deteriorating environment conditions for human health. Also heart attacks are on the increase.

Table 35: Percentage distribution of deaths (excluding senility) due to Ten major causes in rural Maharashtra, 1997

Selected cause of death	1994	1997
Bronchitis and Asthma	14.2	24.5
Heart Attacks	8.8	10.8
Tuberculosis of Lungs	5.3	4.4
Paralysis	4.2	4.9
Cancer	6.0	4.9
Pneumonia	5.4	3.1
Anaemia	3.8	3.0
Suicides	2.2	1.6
Vehicular Accidents	4.1	3.0
Prematurity	11.5	@
Other Causes	34.5	39.8
Total	100.0	100.0

@not given separately - is included in other causes
Source: RGI, respective years

Nutrition Status

Evidence from national level sample surveys indicate that Maharashtra's nutritional status does not correspond with its economic development position in the country. Nutritional status of Maharashtra's population is well below the national average, which is true for both rural and urban areas (Appendix I). The available data shows that more than 50 per cent of households in Maharashtra fall below standard nutritional norms and there has even been a decline in nutritional status of the population in the state in the nineties (Table 36). It is seen that 52 per cent of households in rural areas and 53 per cent in urban areas receive an intake of less than 90 per cent of the required level of 2700 calorie per consumer unit per diem. And only about 29 per cent of households in both rural and urban areas, belong to the average calorie intake level of 90-110 per cent (2700 Calories ± 10 per cent). Between the two rounds of NSSO (1983 and 2000) the situation in urban areas has improved somewhat but has worsened for the rural population (Table 35). Data on per capita production of food grains also reflects this decline from 172 kg's per capita in 1986 to 140 kg's per capita in 1999. (Government of Maharashtra, 2001).

Table 36: Per thousand distribution of persons by calorie intake level for Maharashtra 1983-2000

	Rural			Urban		
	38th Rd 1983	50th Rd 1993-94	55th Rd 1999-00	38th Rd 1983	50th Rd 1993-94	55th Rd 1999-00
Less than adequate	444	574	524	571	548	527
Adequate	267	253	292	244	280	288
More than adequate	289	172	184	185	171	186
All	1000	1000	1000	1000	1000	1000

Note: Intake levels: Adequate means 10 per cent + or - of 2700 Kcal, less than adequate is more than -10 per cent and more than adequate is more than +10 per cent
Source: NSSO 2002.

The table below gives the per capita per day intake of calorie, protein and fats for Maharashtra state. Average per capita calorie intake was 2012 Kcal in rural areas and 2039 Kcal in urban areas in the year 1999-2000. Per capita per diem intake of protein was almost same (56 grams) in both rural and urban areas, but fat intake was higher in urban areas (53 grams) than in rural areas (40 grams). Table clearly shows that there has not been any considerable improvement in food consumption pattern in the state.

The impact of this low level of food intake is reflected in the nutritional status of women and children in the state. Around 49 per cent of the ever-married women aged 15-49 years in the state were suffering from anaemia (Table 38). Prevalence of anaemia was higher in rural areas (51 per cent) than in urban areas (45 per cent). The proportion of women who were suffering from mild anaemia, moderate anaemia and severe anaemia were 32 per cent, 14 per cent and 3 per cent respectively.

In the case of children less than three years old in the state, 71 per cent were suffering from anaemia. Anaemia levels were comparatively higher in rural areas than in urban areas. The proportion of children who were having mild anaemia, moderate anaemia and severe anaemia were 25 per cent, 43 per cent and 4 per cent respectively.

Although NFHS-2 (1998-99) did not examine the reasons for anaemia, it gives additional information on nutritional status based on age, height and weight of women and children

Table 37: Average per capita intake of calorie, protein, and fat per diem for Maharashtra 1972-2000

	Rural			Urban		
	Calorie (in Kcal)	Protein (in gram)	Fat (in gram)	Calorie (in Kcal)	Protein (in gram)	Fat (in gram)
27th Round (1972- 1973)	1895	54.0	24.0	1971	55.0	41.0
38th Round (1983)	2144	62.0	30.0	2028	56.0	45.0
50th round (1993-1994)	1939	54.8	33.5	1989	55.5	47.9
55th round (1999-2000)	2012	56.5	39.7	2039	55.9	52.6

Source: NSSO 2002

Table 38: Anaemia among women aged 15-49 years and children under three years (6-35 months) in Maharashtra, 1998-99

	Percentage having anaemia					
	Ever married women			Children under 3 years		
	Urban	Rural	Total	Urban	Rural	Total
No anaemia	55.2	48.8	51.4	30.1	26.4	27.8
Mild anaemia	29.2	33.2	31.6	25.8	24.4	24.9
Moderate anaemia	14.0	14.2	14.1	39.7	45.6	43.4
Severe anaemia	1.6	3.8	2.9	4.4	3.6	3.9
Total anaemic	44.8	51.2	48.6	69.9	73.6	71.2

Source: IIPS and ORC, Macro 2001.

in the state (Tables 39 and 40). For women, weight and height measurements had been used to assess health risk. A widely used indicator of nutritional status is the Body Mass Index (BMI), which is defined as the weight in kilograms divided by the height in metres, squared (Kg/M^2). It is helpful in detecting the risk of health or nutritional disorders. Average height of an ever-married woman in 15-49 age group in Maharashtra was 151 centimetres, which was similar to the average height of an Indian woman. Chronic Energy Deficiency (CED) is usually indicated by BMI of below 18.5 Kg/m^2. Among the states the level of CED is highest in Orissa (48 per cent) and West. Bengal (44 per cent) followed by Maharashtra. About 40 per cent of the women in Maharashtra have a BMI of below 18.5 Kg/ m^2. This chronic energy deficiency was found to be much higher in rural areas (49 per cent) than in urban areas (26 per cent).

The risk of malnutrition is high among children whose mothers suffer from chronic energy deficiency. Mother's present nutrititional status in turn depends on her childhood nutritional status. As in the case of women a large proportion of the children in state were also under-nourished. It can be seen that the percentage of children under 3 years who were found to be under nourished in terms of nutritional status indices weight for age, height for age and weight for height in the state were 50 per cent, 40 per cent and 21 per cent respectively. Rural urban differentials are alarming, which requires attention.

Table 39: Nutritional status of ever married women aged 15-49 years, 1998-99

	Maharashtra			All India
	Urban	Rural	Total	
Height				
Mean height (cm)	151.6	151.2	151.4	151.2
per cent below 145 cm	11.5	12.1	11.9	13.2
Weight for height				
Mean Body Mass Index (BMI)	21.9	19.0	20.2	20.3
per cent with BMI below 18.5 Kg/m^2	26.2	49.3	39.7	35.8

Source: IIPS and ORC, Macro 2001.
Body Mass Index (BMI) is ratio of weight in kilograms to square of height in metres.

Table 40: Nutritional status of children under 3 years Maharashtra, 1998-99

	Maharashtra			India
	Urban	Rural	Total	
Weight for Age (percentage under weight)				
Percentage below -3 SD	10.9	22.0	17.6	18.0
Percentage below –2 SD	44.1	53.2	49.6	47.0
Height for Age (percentage stunted)				
Percentage below -3 SD	11.1	16.1	14.1	23.0
Percentage below –2 SD	33.3	44.2	39.9	45.5
Weight for Height (percentage wasted)				
Percentage below -3 SD	1.6	3.2	2.5	2.8
Percentage below –2 SD	15.7	24.8	21.2	15.5

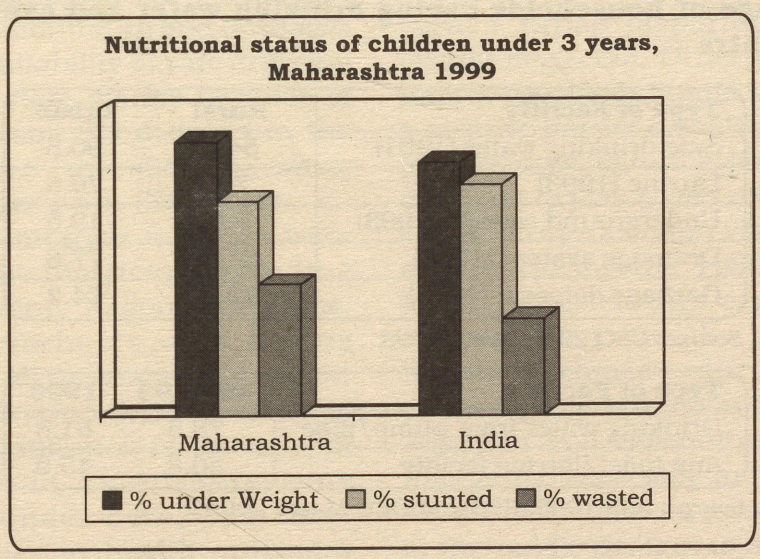
Source: IIPS and ORC, Macro 2001.

Each index is expressed in standard deviation units (SD) from median of the international reference population. Children who are more than two SD's below reference median are considered to be under nourished and those who fall more than 3 SD from reference median are considered to be severely under nourished.

The Government of Maharashtra's efforts to improve nutritional status of women and children in the state through the Integrated Child Development Services Schemes (ICDS) have met with some success. Under the ICDS schemes the State Government has made provisions for supplementary nutrition to children less than six years of age, pregnant women and nursing mothers belonging to poor families enrolled at anganwadis. Service statistics (Table 41) show that about 2.4 lakh pregnant women, 2.5 lakh of nursing women and 31.3 lakh of children benefited from these schemes in the month of March 2001. But the proportion of eligible women/children who got enrolled and benefited from ICDS schemes varied between 55-68 per cent. Perhaps the overall nutritional status of the state would have been better than the one observed above if there had been a wider coverage of the ICDS schemes.

Overall, in spite of its superior economic status, Maharashtra is one of the nutritionally backward states in India. One important thing to be noted is that though the situation in rural areas is worse than in urban areas, under nutrition is rampant in urban areas. This could be due the high concentrations of wealth as well as of the poor within urban areas.

Fig. V: Percentage Nutritional status of Children



Source: NFHS 2

Table 41: Number of beneficiaries under supplementary Nutrition Programme (ICDS) in the month of March 2001, Maharashtra

Beneficiaries	Eligible	Enrolled	Benefited
Pregnant Women	424444	301708 (71.1)	238158 (56.1)
Nursing Women	451078	319811 (70.9)	250823 (55.6)
Children (6 months- 1year)	583561	434143 (74.4)	381421 (65.4)
Children (1 - 3years)	1789458	1232126 (68.9)	1033356 (57.7)
Children (3 - 6years)	2519275	2085307 (82.8)	1710555 (67.9)
Total children	4892294	3751576 (76.7)	3125332 (63.8)

Figure in brackets denotes percentage enrolled/benefited.
Source: Provided by Bureau of Economics and Statistics, Government of Maharashtra

Water Supply and Sanitation

Access to safe drinking water and sanitation facility is one of the significant determinants of health status in the population. Available data shows that 54 per cent rural and 91 per cent urban households in 1991 had safe drinking water facilities. NFHS data shows that the drinking water situation between 1992 and 1999 has shown little improvement (see table below).

Sanitation too has a major public health impact and here both urban and rural areas are both inadequately provided. When 69 per cent of households in urban areas have drinking water piped into residency/yard/ household, only 23 per cent of households were having this facility in rural areas. Public tap constituted the other major source for drinking water in the state.

Though around 75 per cent of households in urban areas are having latrine, drainage system and garbage disposal (Table 42), the public health consequences of inadequate sanitation facilities are more in densely populated urban areas where 32 per cent of the population is residing in slums (RGI, 2001).

Households in Maharashtra lack sanitation facilities, as only 30 per cent of the households have a flush toilet. Public toilets are common in urban areas (39 per cent) of Maharashtra. About 85 per cent of households in rural areas and 14 per cent in urban areas in the state did not have any access to sanitation facilities.

Table 42: Percentage of households having drinking water and sanitation facilities in Maharashtra

Type of Facility	Rural	Urban
Safe drinking water (1991)	54.0	90.5
Latrine (1993)	7.7	76.5
Underground sewage (1993)	0.0	19.5
Drainage system (1993)	31.0	77.6
Garbage disposal (1993)	32.0	74.2

Source: CSO 2000; NSSO 1998

Type of Facility	1992-93	1999
Drinking water from pump/pipe	78.5	81.8
Any toilet/latrine facility	40.8	45.9

Source: IIPS 1995; IIPS and ORC Macro 2000.

Table 43: Source of drinking water, Maharashtra 1999

Source	Urban	Rural	Total
Piped into residency/yard/plot	68.9	22.5	42.6
Public tap	26.2	24.8	25.4
Hand pump	1.9	23	13.8
Well water	2.3	26.1	15.8
Surface water	0	2.9	1.7
Other	0.7	0.8	0.7
Total	100	100	100

Source: IIPS and ORC Macro 2001

Table 44: Type of sanitation facility, Maharashtra 1999

Sanitation Facility	Urban	Rural	Total
Own flush toilet	35.5	8.1	20
Shared flush toilet	7.7	0.9	3.9
Public flush toilet	38.9	1.9	17.9
Pit toilet/latrine	4.3	4	4.1
Other	0	0.2	0.1
No facility	13.6	85.0	54.0
Total	100	100	100

Source: IIPS and ORC Macro 2001

District-wise data on availability of water supply and sanitation facilities are available from 1991 Census (See Table 45). It can be seen that, the districts Greater Mumbai, Osmanabad, Latur, Jalgaon, Kolhapur, Aurangabad, Solapur, Sangli, Dhule, Thane, Pune and Satara are ahead of backward districts like Sindhudurg, Bhandara, Gadhchiroli and Chandrapur. The two socially developed districts, Sindhudurg and Ratnagiri rank lowest in the availability of safe drinking water facility in the state mainly because of its mountainous terrain. Six districts in the state still do not have safe drinking water availability over 50 per cent. (Nagarajan, R., Mulay, S, 2004). Sanitation facilities were unavailable in most districts, excluding Greater Mumbai, Thane, Nagpur and Pune, where sizeable households were having sanitation facilities. All these show the extent of inter district variations in availability of drinking water and sanitation facilities, with developed districts in an advantageous position than the under developed ones, leading to inequalities in health outcomes across districts.

To conclude Maharashtra is one of the advanced states in the country in terms of income, industry, urbanization, and female literacy, infant survival. But these advantages have not helped the state to achieve the desired health outcomes. Table 46 pools together critical health indicators to present an overview across rural and urban areas over time. Some trends are very clear, like the universal rural – urban disparities with the former clearly neglected. Other trends indicate that improvements in inputs have definitely made a positive impact overall in outcomes. In case of preventive care the public health services continue to play a lead role and this has been critical to overall improvements in health outcomes. During the 1980s when the public health infrastructure expanded in rural areas one even saw the rural-urban gap in health outcomes reduce substantially but presently the reduction in public health investment and expenditures has slowed further gains, especially in rural areas. There is a clear need for more resources for healthcare in the public domain to achieve better equity in health outcomes.

Table 45: Percentage of households having safe drinking water and toilet facilities, Maharashtra 1991

	Drinking water			Toilet		
	Total	Rural	Urban	Total	Rural	Urban
Greater Bombay	96.4	NA	96.4	78.2	NA	78.2
Thane	72.4	34.7	90.6	46.6	11.9	63.4
Raigad	47.4	39.3	83.9	18.9	11.1	53.3
Ratnagiri	26.1	22.1	70.2	14.8	10.5	63.0
Sindhudurg	14.6	13.0	34.3	16.1	11.9	66.8
Nashik	63.5	48.8	88.9	23.3	4.2	56.1
Dhule	74.0	71.4	84.9	10.9	4.0	40.2
Jalgaon	80.6	77.1	90.2	16.6	7.2	43.3
Ahmadnagar	52.6	46.2	84.4	13.5	6.5	49.5
Pune	71.8	46.6	94.1	40.9	7.7	70.4
Satara	71.0	68.4	86.4	11.4	5.8	45.1
Sangli	73.8	68.5	90.9	16.3	7.5	45.3
Solapur	73.3	64.5	95.2	17.0	3.4	50.9
Kolhapur	77.3	72.3	91.5	20.4	12.0	44.4
Aurangabad	75.3	67.9	90.9	23.4	3.1	66.3
Jalna	71.1	68.2	87.0	10.7	4.1	47.3
Parbhani	62.9	55.3	92.6	11.7	2.2	48.3
Beed	71.3	67.3	90.0	9.9	2.5	48.0
Nanded	73.5	68.9	92.4	13.7	3.9	54.2
Osmanabad	81.7	81.4	83.4	5.7	1.5	31.7
Latur	80.2	78.0	89.5	10.9	2.5	45.6
Buldhana	51.3	43.7	83.2	12.2	4.8	43.0
Akola	55.3	44.8	84.7	20.4	7.8	55.6
Amravati	68.1	66.2	72.5	26.9	14.9	55.0
Yavatmal	46.1	37.5	91.7	11.6	5.1	46.7
Wardha	49.6	40.8	76.6	17.8	6.9	51.0
Nagpur	65.3	50.3	75.4	42.8	7.7	66.2
Bhandara	36.5	3.14	73.4	13.8	8.3	54.0
Chandrapur	45.4	30.1	79.3	15.5	6.9	39.0
Gadhchiroli	38.7	35.8	66.2	7.1	3.7	39.2
Maharashtra	68.5	54.0	90.5	29.6	6.6	65.4

Source: RGI 1999.

Table 46: Overall Inputs and Outcomes of Health Sector in Maharashtra in Rural and Urban Areas

Indicators	1981			1986			1991 / 1992			Latest Year (1994 - 1998)		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Input Indicator												
1. Beds /lakh population	13.52	306.69	116.22	17.51	328.45	132.78	26.05	332.51	144.64	44.70	324.70	153.90
2. Doctors / lakh popn.			65.43						62.72	72.5	139.8	23.7
3. Per cent Beds Private			37.40			38.38			34.13			47.82
4. Health Exp. per cent NSDP			0.90			1.0			0.8			0.7
5. Health Exp. per cent T. Revenue Exp.			6.53			5.97			5.33			5.18
6. Health Exp. Percapita			19.94			38.95			75.63			102.26
Outcome Indicator												
7. Crude Death Rate	10.6	7.4	9.6	9.7	6.1	8.4	9.3	6.2	8.2	8.6	5.4	7.3
8. Total Fertility Rate	4.0	3.0	3.6	4.0	3.0	3.6	3.3	2.3	2.9	3.3	2.5	2.9
9. Infant Mortality Rate	90.10	49.30	78.90	73	44	63	69	38	60	58	31	48
10. Life Expectancy	54.0	62.2	56.3	59.0	64.0	60.7	60.7	66.6	62.6	62.8	69.4	65.2
11. per cent Using Public OPD				26.32	25.02	26.00				17.98	18.09	18.00
12. per cent Using Public IPD				43.57	46.23	44.00				31.20	31.80	31.40
13. per cent no ANC							21.8	9.8	17.2			9.6
14. per cent Fully Immunized							65.6		52.8	76.8	80.4	78.2
15. per cent Institution Deliveries	10.9	69.5	26.5	20.2	72.0	33.7	20.9	75.9	34.3	34.3	80.9	52.8
16. per cent Inadequate Calorie Intake				44.4	57.1					57.4	54.8	

Source: RGI 1999; PRC and IIPS 1995; IIPS and ORC Macro 2000; CBHI 1998; NSSO 1992; NSSO 1998a; NSSO 1998b; Government of Maharashtra (Finance and Accounts various years); CSO 2000.

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Annexure I: Health care indicators across selected States in India

Type of health facility/indicator	Reference Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Kerala	**Maharashtra**	Punjab	Tamil Nadu	West Bengal	All India
Health Facilities											
Population per hospital	1995	23675	17722	234848	168410	14806	**25921**	101668	133903	186910	61881
Population per bed	"	1526	706	2584	1283	391	**1023**	1509	1120	1351	1498
Registered doctors per lakh population	1997	36.4	61.2	4.9	94.5	81.5	**75.3**	127.9	95.0	61.2	51.8
Registered nurses per lakh population	"	58.1	146.6	22.8	100.2	79.2	**112.9**	138.6	132.5	45.6	63.6
Fertility and Mortality Indicators											
Crude Birth Rate	2001	20.8	24.9	26.7	22.2	17.2	**20.6**	21.2	19.0	20.5	25.4
Crude Death Rate	2001	8.1	8.8	7.6	8.2	6.8	**8.5**	7.2	8.4	7.0	8.4
Total Fertility Rate	1998-99	2.25	2.72	2.88	2.13	1.96	**2.52**	2.21	2.19	2.29	2.85
Crude Death Rate	"	10.7	8	8.1	7.9	6.0	**9**	8.4	10.8	8.3	9.7
Neonatal Mortality Rate	"	43.8	39.6	34.9	37.1	13.8	**32**	34.3	34.8	31.9	43.4
Post Neonatal Mortality Rate	"	22.1	23	21.9	14.4	2.5	**11.7**	22.8	13.3	16.8	24.2
Infant Mortality Rate	"	65.8	62.6	56.8	51.5	16.3	**43.7**	57.1	48.2	48.7	67.6
Under five mortality	"	85.5	85.1	76.8	69.8	18.8	**58.1**	72.1	63.3	67.6	94.9
Life expectancy at birth	1993-97										
Males		61.2	60.9	63.7	61.6	70.4	**64.1**	66.7	63.2	62.2	60.4
Females		63.5	62.9	64.6	64.9	75.9	**66.6**	68.8	65.1	63.6	61.8
Reproductive and child health indicators											
Percentage of women aged 20-24 years married before 18 years		64.3	40.7	415	46.3	17.0	**47.7**	11.6	24.9	45.9	50.0
Percentage who received at least 3 ANC check ups		80.1	60.2	37.4	71.4	98.3	**65.4**	57.0	91.4	57.0	43.8
Percentage of Institutional deliveries	1998-99	49.8	36.3	22.4	51.1	93.0	**52.6**	37.5	79.3	40.1	33.6
Percentage currently using FP Methods	1998-99	59.6	59.0	62.4	58.3	63.7	**60.9**	66.7	52.1	66.6	48.2
Any Modern Method	"	58.9	53.3	53.2	56.5	56.1	**59.9**	53.8	50.3	47.3	42.8
Spacing methods (pill, IUD and Condom)	"	1.8	8.1	12.5	4.4	5.1	**7.6**	23.0	4.3	13.5	6.8
Full Immunization of children (12-23 months)	"	53.0	62.7	60.0	73.7	78.4	**72.1**	88.8	43.8	42.0	58.7

Cont...

Cont...

Type of health facility/indicator	Reference Year	Andhra Pradesh	Gujarat	Haryana	Karnataka	Kerala	**Maharashtra**	Punjab	Tamil Nadu	West Bengal	All India
Morbidity Rate (per 1 lakh popn)											
Leprosy	1994	63	30	-	NA	-	**65**	-	83	22	57
Diarrhoea (in 30 days)(per 1000 popn)	"	36	9	29	NA	6	**14**	16	19	45	31
Asthma	1998-99	4292	1979	1922	1733	4806	**2524**	1308	1546	2593	2468
Tuberculosis	"	592	438	358	269	526	**282**	207	479	492	544
Jaundice	"	1571	1109	993	373	528	**1534**	976	1142	2381	1361
Malaria	"	4851	4449	2093	600	56	**4098**	1082	380	1482	3697
Prevalence of ailments in last 15 days (per thousand population)	1995-96										
Rural		64	46	61	45	118	**52**	76	52	65	55
Urban		61	36	63	40	88	**48**	85	58	65	54
Prevalence of hospitalisation in last 1 year(per thousand population)	1995-96										
Rural		14	14	25	14	70	**19**	14	18	11	13
Urban		17	21	25	18	65	**26**	17	23	22	20
Nutritional Status											
Percentage of children of age 6-36 months with anemia	1998-99	72.3	74.5	83.9	70.6	43.9	**76.0**	80.0	69.0	78.3	74.3
Percentage of ever-married women of 15-49 years with anemia	1998-99	49.8	46.3	47.0	42.4	22.7	**48.5**	41.4	56.5	62.7	51.8
Percentage of household with per capita calorie intake level of below 2700 Kcal.	1999-2000										
Rural		43.5	47.0	28.6	48.4	44.3	**45.9**	27.3	56.8	42.3	31.7
Urban		43.2	41.8	40.4	43.3	42.4	**43.9**	37.2	47.4	42.3	30.0
Average exp on outpatient care (in Rs)	1995-96										
Rural		165	157	189	122	136	**165**	175	102	131	176
Urban		172	218	414	172	120	**185**	162	129	137	194
Average exp on inpatient care (in Rs)	"										
Rural		6428	2663	3224	2997	2293	**3089**	4988	2840	1957	3202
Urban		4886	3327	6537	3593	1927	**3997**	5712	3934	3217	3921

Rural		6428	2663	3224	2997	2293	**3089**	4988	2840	1957	3202
Urban		4886	3327	6537	3593	1927	**3997**	5712	3934	3217	3921

Annexure II: Summary of information on studies covering morbidity and utilization of heaith care services from private sector and on medical expenditure in Maharashtra

	Morbidity Rates (per 1000 population.)			Utilisation of services from public/private health care sector *						Average medical expenditure per ailment/episode					
				Rural			Urban			Rural			Urban		
	Recall Period	Rural	Urban	Public	Private	Total	Public	Private	Total	Public	private	Total	Public	Private	Total
FRCH 1984															
(Jesani (*et al* 1996)				33.1	58.4	91.5	—	—	—	28.	87	57	—	—	—
NSSO 1986-87 (1992)															
Inpatient care	—			26.3	73.7	100.0	25.0	74..3	99.3	439	901	842	400	1929	1499
Outpatient care	—									52	99	87	84	153	132
Duggal and Amin (1989)	1 month	154.	145	10.4	79.8	90.4	16.0	74.0	90.0			104			100.
NCAER (1992)	2 weeks	71	55	38.7	61.3	100.0	45.5	54.5	100.0	98	227	173	130	202	175
NCAER (1993)															
Non-hospitalized ailments	30 days	67	79							30	241	171	74.	170	137
Males		65	78	46.1	51.3	97.4	30.0	68.0	98.0						
Females		68	80	41.6	55.0	96.6	35.1	62.4	97.5						
Hospitalisation	1 year	6	14	30.5	69.5	100.0	58.8	51.2	100.0	665	113	981	462	1976	1086
NSSO -1995-96 (1998)	1 year														
	15 days														
Hospitalised ailments		19	26	31.2	68.8	100.0	31.8	68.2	100.0	1529	3836	3089	1439	5345	3997
Non hospitalised ailments		52	48	16.0	73.0	89.0	17.0	77.0	94.0	129	158	147	125	195	185.
Nandraj (*et al* 2001)	30 days	—	363	—	—	—	10.0	84.0		—	—	—	180	135	134.
Madhiwala (*et al*) 2000	30 days			22.6	63.5	86.1	10.3	71.7	82.0						
Male		346	793												
Female		285	866												
Inpatient care										16	118	97.	12	128.	98.
Outpatient care										332	2188		1938	2188	—
Dilip and Duggal (2003)															
Hospitalised ailments	1 year	-	86	-	-	-	35.8	64.2	100.0	-	-	-	600	5000	4000
Non hospitalised ailments	30 days	-	29	-	-	-	18.6	81.4	100.0	-	-	-	150	300	280

* percentage may not add up to hundred in some cases since some have not sought treatment or might have gone for self treatment

Annexure III: Total Public Expenditure on Health (Rs. in Millions) and Health Expenditure as a percentage of NSDP

STATE	1981	1987	1991	1996	2001	2003	2005
Andhra Pradesh	1146.00(1.48)	2928.96(2.06)	3297.94(1.06)	6061.22(0.86)	13340.31(1.07)	13770.00	16990.00
Arunachal Pradesh	60.00(6.32)	223.12(8.36)	187.22(4.07)	369.43(3.46)	598.80(3.76)	638.00	721.20
Assam	397.00(1.68)	1386.04(2.53)	1282.39(1.35)	2265.61(1.32)	3555.09(1.32)	3300.00	6820.00
Bihar	745.00(1.07)	2628.83(1.85)	2777.22(1.22)	4971.97(1.29)	6801.75(1.63)	3040.00	7090.00
Chhattisgarh					791.70(0.97)	2720.00	3780.00
Goa,Daman & Diu	77.00(2.31)	309.41(5.09)	325.95(3.18)	495.77(1.80)	863.49(1.43)	966.40	1152.60
Gujarat	745.00(1.05)	2675.47(1.91)	2524.02(1.04)	4708.85(0.76)	9189.19(0.98)	8640.00	9140.00
Haryana	396.00(1.31)	939.76(1.55)	871.06(0.71)	1666.96(0.65)	2982.71(0.63)	3510.00	4070.00
Himachal Pradesh	259.00(3.23)	754.62(5.54)	723.44(2.87)	1364.08(2.39)	2997.00(2.60)	2974.40	3503.00
Jammu & Kashmir	308.00(2.35)	1213.18(5.69)	889.37(3.22)	1950.36(2.80)	3826.09(3.08)	4628.80	4996.50
Jharkhand						4100.00	4010.00
Karnataka	714.00(1.17)	2087.77(1.76)	2495.80(1.21)	5133.76(1.03)	10053.19(1.06)	10050.00	11080.00
Kerala	668.00(1.44)	1837.30(2.50)	2219.89(1.82)	4172.09(1.18)	6906.82(1.09)	8040.00	10170.00
Madhya Pradesh	1190.00(1.42)	3089.25(2.47)	2816.03(1.06)	4805.65(0.85)	8615.90(1.34)	7800.00	9660.00
Maharashtra	1670.00(1.08)	5314.02(1.87)	4983.46(0.89)	9061.09(0.64)	16342.86(0.72)	17510.00	19180.00
Manipur	67.00(3.40)	347.97(8.17)	202.78(2.80)	383.40(2.72)	666.20(2.26)	623.70	944.40
Meghalaya	77.00(3.72)	273.68(7.09)	241.30(3.15)	442.11(2.62)	804.30(2.49)	937.60	1057.30
Mizoram	66.00(9.71)	251.06(12.94)	155.08(5.07)	291.35(3.39)	639.40(4.96)	704.40	582.10
Nagaland	114.00(9.05)	357.02(13.27)	302.29(4.56)	557.18(3.36)	893.71(3.84)	891.70	1176.60
Orissa	565.00(1.60)	1334.40(1.98)	1405.82(1.45)	2652.79(1.14)	4589.37(1.49)	4980.00	7100.00
Pondicherry	NA	121.43(3.46)	183.44(3.16)	375.93(3.50)	815.16(2.69)	NA	NA
Punjab	523.00(1.20)	1268.65(1.38)	1696.77(1.01)	2604.30(0.76)	6401.36(1.05)	6100.00	8000.00
Rajasthan	819.00(1.69)	3126.25(3.75)	2578.75(1.41)	5752.35(1.38)	9029.87(1.35)	9130.00	11480.00
Sikkim	25.00(5.10)	72.88(5.40)	101.07(4.98)	274.77(6.45)	347.20(4.20)	432.40	567.20
Tamil Nadu	1106.00(1.37)	2955.97(1.93)	3895.14(5.09)	7182.95(1.02)	11875.43(0.96)	12360.00	14730.00
Tripura	44.00(1.28)	212.54(4.06)	303.18(3.31)	424.94(2.05)	862.84(1.88)	961.00	1205.10
Union Government	1690.00	1973.10	5734.21	9081.08	25117.36	30280.00	39500.00
Uttar Pradesh	1563.00(1.00)	4042.03(1.48)	6759.85(1.37)	10593.13(1.04)	14590.70(1.08)	15790.00	23850.00
Uttaranchal					342.20	1830.00	3200.00
West Bengal	1409.00(1.35)	2825.90(1.61)	4600.04(1.46)	6298.94(0.94)	15059.95(1.17)	13710.00	3620.00
All India*	16420.00(1.26)	44550.61(1.60)	53553.51(1.04)	93942.06(0.87)	186532.40(0.98)	197140.00(0.87)	249020.00

Figures in parenthesis denote percentage

Sources : Upto 1987 is combined Finance and Revenue Accounts Comptroller and Auditor General of India GOI,respective year; For year 2001 is State Finance A Study of Budget of 2002-03, RBI; For year 2003 and 2005 is Public Finance November 2004 ,CMIE and State finance A study of budget of 2004-05, RBI; : Economic Survey, respective year, GOI, Ministry of Finance and Company Affairs Economic Division

Note: 2005 Budget Estimates, NA - Not Available; Data for Chattisgarh, Jharkhand, Uttaranchal are included in their parent state, * For India the ratio is calculated for GDP

Annexure IV: Expenditure on National Disease Programme and Public health

Year	Expenditure on Disease Programme (Rs. in Millions)	Expenditure on Public Health (Rs. in Millions)	per cent of Disease Programme to P.H.
1988-89	582.27	1498.08	38.87
1989-90	547.86	1704.83	32.14
1990-91	622.48	1888.85	32.96
1991-92	630.14	2161.38	29.15
1992-93	572.60	2489.81	22.91
1993-94	787.59	2649.94	29.72
1994-95	1056.07	3175.20	33.26
1995-96	1011.08	3600.15	28.08
1996-97	1218.85	4169.46	29.23
1997-98	1154.26	4583.52	25.18
1998-99	1435.68	4806.33	29.87
1999-00	1611.10	4659.40	34.58
2000-01	1642.27	5972.13	27.50
2001-02	1526.59	7508.54	20.33

Source: Finance Accounts, Govt. of Maharashtra, respective years

Annexure V: Expenditure on Malaria Control Programme by Line Items (in percentage)

Year	Salaries	Travel	Drugs	Others	Total (Rs. in Millions)
1988-89	61.08	3.58	2.14	33.2	323.65
1992-93	84.09	.00	15.91	.00	415.62
1995-96	80.89	2.11	7.51	9.49	544.01
1998-99	87.28	1.16	7.72	3.84	1005.21
2001-02	87.18	2.06	7.22	3.54	770.87

Source: Performance Budgets, Govt. of Maharashtra, respective years

Annexure VI: Expenditure on Leprosy Control Programme by Line Items (in percentages), Maharashtra

Year	Salaries	Travel	Drugs	Diet	Others	Total (Rs. in Millions)
1988-89	72.29	9.21	4.83	0.31	13.36	111.32
1992-93	NA	NA	NA	NA	NA	179.20
1995-96	53.80	3.49	3.76	.06	38.89	220.96
1998-99	76.52	7.03	3.63	0.59	12.23	221.68
2001-02	88.05	1.77	0	0.13	10.02	443.49

Source: Performance Budgets, Govt. of Maharashtra , respective years

Note: Budget of 2004-05, RBI; ; Economic Survey, respective year, GOI, Ministry of Finance and Company Affairs Economic Division 2005 Budget Estimates, NA - Not Available; Data for Chattisgarh, Jharkhand, Uttaranchal are included in their parent state, * For India the ratio is calculated for GDP

Annexure VII: Expenditure on National Tuberculosis Control Programme by Line Items (in percentages), Maharashtra

Year	Salaries	Travel	Drugs	Diet	Others	Total (Rs. in Millions)
1988-89	51.43	2.71	34.24	3.29	8.33	90.55
1992-93	NA	NA	NA	NA	NA	128.79
1998-99	40.23	5.61	53.00	0.004	1.14	64.20
2001-02	24.64	0.89	74.07	0.00	0.40	123.84

Source: Performance Budgets, Govt. of Maharashtra , respective years; Note: N.A: Break-up not available

Annexure VIII: Per cent Expenditures across Line Items under Family Welfare Programme (Rural Family Welfare Services)

Year	Salaries	Travel expenses	Material & Supplies	Others	Total (Rs. In Millions)
1988-89	66.08	4.38	-	29.54	149.13
1998-99	91.16	0.59	-	8.25	290.41
1999-00	47.87	47.15	2.62	2.34	150.68
2001-02				93.25*	557.31

Source: Performance Budgets, Family Welfare Department, Government of Maharashtra, various years

Note : *Computer expenditure.

Annexure IX: Per cent utilizing health care services from private sector for selected RCH services by districts, Maharashtra, 1998-99

District	Ante natal care	For delivery#	Pregn-ancy compli-cations	Post delivery compli-cation	Side effects of steril-sation	Treat-ment of RTI/ STI	Immuni zation	Diarr-hoea	Pneu-monia
Ahmadnagar	44.4	69.7	82.2	67.2	81.7	83.7	11.1	68.8	80.8
Akola	32.7	47.3	61.4	61.6	63.0	70.8	14.7	71.0	71.0
Amaravati	28.2	43.4	50.0	64.6	53.0	66.3	23.3	71.0	61.1
Aurangabad	30.1	49.7	68.5	73.4	98.8	74.5	13.9	59.3	65.0
Beed	23.5	45.5	51.5	59.6	42.4	38.9	12.2	58.8	58.6
Bhandara	21.7	21.1	66.1	69.4	63.7	68.6	24.2	40.0	50.3
Buldhana	30.9	45.2	66.1	69.4	57.8	84.9		51.9	67.1
Chandrapur	31.8	43.9	60.3	58.0	100	59.0	11.6	51.4	63.7
Dhule	22.6	44.8	60.4	69.0	—	67.7	13.3	47.7	55.5
Gadhchiroli	8.9	19.5	30.7	32.2	32.0	36.5	23.4	31.7	35.3
Gr. Mumbai	53.6	51.7	62.5	60.7	50.0	83.9	33.2	79.6	90.9
Jalgaon	32.6	59.3	73.4	74.5	72.0	75.6	12.4	74.1	67.9
Jalna	24.8	59.6	61.6	75.1	58.1	74.1	25.9	62.3	61.0
Kolhapur	58.2	63.6	74.7	75.7	50.0	75.2	9.5	69.8	78.9
Latur	35.0	57.1	77.7	68.5	65.8	85.7	29.8	52.0	58.2
Nagpur	32.1	31.8	50.2	39.3	56.3	68.9	17.6	69.6	69.7
Nanded	26.3	53.8	58.6	61.2	66.0	61.1	15.8	60.7	70.1
Nashik	33.2	54.5	69.3	71.4	65.7	78.8	14.8	66.6	73.6
Osmanabad	30.9	39.2	69.2	67.5	65.4	73.6	17.0	52.1	64.1
Parbhani	27.2	46.0	62.7	62.2	55.4	72.9	12.4	68.0	62.9
Pune	50.0	57.6	61.5	64.3	65.1	76.3	25.1	68.6	79.3
Raigarh	37.8	56.4	60.9	64.0	58.3	60.8	22.7	67.0	72.5
Ratnagiri	41.4	55.8	64.7	65.1	57.1	77.1	8.1	61.4	54.7
Sangli	46.9	60.3	73.3	63.9	68.5	73.2	3.4	76.3	75.0
Satara	53.4	62.1	68.5	64.4	72.2	81.2	8.5	62.9	66.6
Sindhudurgh	26.3	32.2	37.1	43.7	41.6	69.6	4.1	55.5	65.4
Solapur	44.3	65.3	76.2	73.9	63.6	83.3	26.0	63.8	76.5
Thane	47.8	61.0	63.3	60.5	69.3	67.4	30.5	68.1	48.8
Wardha	38.5	31.7	62.1	51.9	68.1	78.1	20.9	37.2	54.4
Yavtmal	23.8	34.0	62.1	63.8	67.1	82.6	10.5	64.1	76.6
Maharashtra*	38.3	51.3	63.8	63.8	59.6	67.4	17.4	65.3	68.5

Source: Based on CORT (1998 & 1999), RCH-RHS Survey reports, various district reports

*figures based on phase one survey

Only institutional deliveries were considered

Annexure X: District-wise number of AIDS cases reported and Deaths reported in Maharashtra, August 1986- February 2001

Surveillance Centre	AIDS Cases			AIDS Deaths		
	Male	Female	Total	Male	Female	Total
Raigad	57	10	67	4	1	5
Ratnagiri	14	5	19	0	0	0
Thane	79	16	95	5	2	7
Ahmednagar	9	12	21	1	1	2
Nashik	4	1	5	1	1	2
Dhule	1	1	2	0	1	1
Jalgaon	12	9	21	1	1	2
Pune	216	159	375	14	29	53
Satara	280	100	380	24	2	26
Solapur	8	5	13	1	1	2
Kolhapur	231	83	314	81	32	113
Sangli	1461	616	2077	198	69	267
Sindhudurg	5	2	7	3	1	4
Aurangabad	30	10	40	0	0	0
Beed	9	0	9	0	0	0
Jalna	7	1	8	0	0	0
Nanded	1	0	1	0	0	0
Osmanabad	0	0	0	0	0	0
Latur	4	2	6	1	1	2
Parbhani	6	0	6	0	0	0
Akola	78	14	92	0	0	0
Amravati	2	0	2	0	0	0
Buldhana	3	0	3	1	0	1
Yavatmal	1	1	2	0	1	1
Bhandara	0	0	0	0	0	0
Chandrapur	95	21	116	0	0	0
Gadhchiroli	1	0	1	0	0	0
Nagpur	7	3	10	5	3	8
Wardha	0	0	0	0	0	0
Mumbai	2432	520	2952	164	36	200
Total	5053	1591	6644	504	192	696
Other State	248	57	305	17	9	26
Foreigner	4	3	7	2	2	4
Grant Total	**5305**	**1651**	**6956**	**523**	**203**	**726**

Source: Supplied by Bureau of Economics and Statistics, Government of Maharashtra.

Annexure XI: Selected district-wise child health indicators, Maharashtra 1998-99

	Percentage of Children			
	Anaemic	Given Colostrum	Having Diarrhea	Breathing Problem
Ahmadnagar	16.2	28.2	44.6	24.9
Akola	—	43	25.1	54.2
Amaravati	9.6	37.5	15.9	56.5
Aurangabad	—	31.3	19.6	48.5
Bhandara	4.8	32.7	20.4	50.9
Beed	—	42.7	22.5	44.7
Buldhana	8.2	23.6	25.5	44.6
Chandrapur	—	47.3	28.3	58.9
Dhule	7.2	32.4	27.1	24.4
Gadhchiroli	—	46.3	25.6	48.2
Gr. Mumbai	16.9	68.4	29.2	5
Jalgaon	—	29.2	26	52.9
Jalna	2.8	17.5	34.3	34
Kolhapur	—	47	30.1	60.8
Latur	2.5	29	24	36.8
Nagpur	—	61.9	26.6	61.3
Nanded	—	40.5	29.9	46.1
Nasik	10.6	31	31.9	32.5
Osmanabad	6.2	22.8	37.5	38.5
Parbhani	—	43.8	17.9	36.9
Pune	18.7	37.1	37.9	22.2
Raigad	—	50.6	23.8	44.7
Ratnagiri	9.6	34.5	34.4	19
Sangli	—	36.2	21	43.8
Satara	9.8	29.3	26.6	18
Sindhudurg	—	44	18.7	49
Solapur	8.5	29.1	32	33.4
Thane	—	63.6	36.6	48.1
Wardha	5.3	37.9	22.8	55.1
Yavtmal	—	33.8	32.5	58.7

Source: Reproductive and child health- Rapid Household Survey 1998-99
— information on anemia not collected in districts which were covered in Phase-I

Annexure XII: Percentage of males and females having at least one of RTI/STI symptoms, Maharashtra

District	Female	Male
Maharashtra		
Akola	43.40	11.70
Aurangabad	29.50	8.50
Beed	23.60	7.30
Chandrapur	34.80	13.70
Gadhchiroli	34.10	13.90
Jalgaon	27.60	8.40
Kolhapur	16.70	10.60
Nagpur	27.90	8.80
Nanded	37.60	13.20
Parbani	24.80	11.90
Raigad	17.70	9.00
Sangli	19.00	4.90
Sindhudurg	19.70	5.80
Thane	25.10	9.60
Yavatmal	28.40	14.60
Ahmadnagar	21.1	6.4
Amravati	32.1	14.7
Bhandara	28.1	16.8
Buldhana	28.1	11.7
Dhule	24.5	9.2
Greater Bombay	22.0	4.2
Jalna	36.5	9.2
Latur	23.9	7.0
Nashik	25.5	7.6
Osmanabad	26.0	7.4
Pune	21.8	8.9
Ratnagiri	23.0	3.6
Satara	18.9	4.9
Solapur	20.3	5.9
Wardha	31.8	14.8
Maharashtra	**27.1**	**10.2**

Refers to three months prior to the survey
Source: CORT (2000)

Annexure XIII: Number of beneficiaries under supplementary nutrition programme (ICDS) in the month of March 1996-2000

Year	Number of beneficiaries			Percentage of beneficiaries	
	Eligible	Enrolled	Benefited	Enrolled	Benefited
	Pregnant women				
1996	292332	234425	182625	80.2	62.5
1997	357950	283364	223832	79.2	62.5
1998	409269	312573	239448	76.4	58.5
1999	433343	321995	258022	74.3	59.5
2000	465368	338655	282532	72.8	60.7
2001	424444	301708	238158	71.1	56.1
	Nursing Women				
1996	325707	261204	201024	80.2	61.7
1997	385951	302371	236183	78.3	61.2
1998	454510	347406	264084	76.4	58.1
1999	436798	323208	254115	74.0	58.2
2000	492184	355195	295168	72.2	60.0
2001	451078	319811	250823	70.9	55.6
	Children (6 months- 1year)				
1996	435731	281167	211209	64.5	48.5
1997	531196	351567	276980	66.2	52.1
1998	568997	376650	308440	66.2	54.2
1999	603032	401398	322055	66.6	53.4
2000	569641	397739	335829	69.8	59.0
2001	583561	434143	381421	74.4	65.4
	Children (1 - 3years)				
1996	1238555	836250	659417	67.5	53.2
1997	1503453	1037233	833694	69.0	55.5
1998	1642818	1133602	922946	69.0	56.2
1999	1755536	1182010	979304	67.3	55.8
2000	1824368	1226887	1067161	67.2	58.5
2001	1789458	1232126	1033356	68.9	57.7
	Children (3 - 6years)				
1996	1736405	1499180	1205198	86.3	69.4
1997	2136310	1837695	1512311	86.0	70.8
1998	2351404	1993105	1572807	84.8	66.9
1999	2509380	2114106	1733811	84.2	69.1
2000	2562906	2140523	1795951	83.5	70.1
2001	2519275	2085307	1710555	82.8	67.9
	Total Children				
1996	3410691	2616597	2075824	76.7	60.9
1997	4170959	3226495	2622985	77.4	62.9
1998	4563219	3503357	2804193	76.8	61.5
1999	4867948	3697514	3035170	76.0	62.4
2000	4956915	3765149	3198941	76.0	64.5
2001	4892294	3751576	3125332	76.7	63.9

Annexure XIV: Goals and Achievements for Health and Family Welfare Programme, Maharashtra

Sr No.	Indicators	Reference year	India	Maharashtra	Goals for the year 2000	Goals for the year 2010
1	Infant Mortality Rate	2000	68	48	below 60	below 30
2	Peri-natal Mortality rate	1997	43.2		30-35	
3	Crude Death Rate	2000	8.5	7.5	9	
4	Child Mortality Rate	1998-99	29.3	15	10	
5	Maternal Mortality rate (per lakh)	1997			below 200	below 100
6	Life Expectancy at Birth	1996-2001	Male 62.4 Female 63.4	Male 65.31 Female 68.19	64	
7	Babies with birth weight below 2500 (gms.) #	1999	15.9	17	10	
8	Crude Birth Rate	2000	25.8	21.2	21	
9	Effective Couple Protection Rate (per centage)	Mar-98	45.4	50.7	60	
10	Total Fertility Rate	1998-99	2.85	2.52		2.1
11	Net Reproductive Rate				1	
12	Annual growth rate (per centage)	1999	1.74	1.36	1.2	
13	Family Size				2.3	
14	Pregnant mother receiving antenatal coverage (per cent)	1998-99	66	90.4	100	100
15	Deliveries by trained birth attendants/ health professional (per cent)	1998-99	77.6 (22.4)	79.8 (20.2)	100	100
16	Institutional delivery (per cent)	1998-99	33.6	52.8	-	80
17	Immunization status					
	TT (for pregnant women)	1998-99	66.8	74.9	100	
	TT (for school children)					
	10 yrs					
	16 yrs				100	100
	DPT	1998-99	55.1	89.4	100	100
	Polio	1998-99	62.8	90.8	100	100
	BCG	1998-99	71.6	93.7	100	100
	DT (new school entrants)				100	100

Notes: Goals for the year 2000 are from National Health Policy (1983), Govt of India and for the year 2010 is from National Population Policy (2000), Govt. of India.
Figures in bracket denote deliveries that did not receive an attention from a health professional.
Only for babies that have been weighed at the time of birth.

Annexure XV: Per Capita District Domestic Product At constant (1993-94) prices

District	1993-94	1995-96	1997-98	1999-00	2001-02
Mumbai	24382	26832	30126	30459	30600
Thane	17521	19930	21948	18074	17928
Raigad	20245	22519	20780	21410	17180
Ratnagiri	8888	9936	10627	11247	11148
Sindhudurg	13480	14930	16138	12300	12349
Konkan Div.	**20424**	**22693**	**24870**	**23698**	**23271**
Nashik	11050	10964	12347	12898	13459
Nandurbar				8950	9075
Dhule	6796	7048	6823	7777	7989
Jalgaon	8805	9151	9123	11729	11805
Ahmadnagar	7868	8320	9030	11554	10714
Nashik Div.	**8787**	**9609**	**10318**	**11419**	**11436**
Pune	15058	17721	17996	19815	19680
Satara	8632	9735	10091	12504	13036
Sangli	10381	12042	12609	14293	14534
Solapur	8628	9264	10193	11129	11445
Kolhapur	11567	13078	13559	15937	16169
Pune Div.	**11572**	**13260**	**13752**	**15696**	**15886**
Aurangabad	10789	12379	11802	12459	11903
Jalna	7077	6662	6659	8043	9100
Parbhani	8110	8318	7898	9167	9243
Hingoli				8591	9474
Beed	7526	8386	7993	8855	9159
Nanded	7304	7554	7867	8225	8091
Osmanabad	7063	7153	7192	8503	8537
Latur	7376	7985	7700	8064	8544
Aurangabad Div.	**8035**	**8557**	**8355**	**9197**	**9360**
Buldana	7485	7375	7467	8795	8709
Akola	8992	9151	9152	9498	9682
Washim				11178	10435
Amravati	9610	9253	10137	10868	10867
Yavatmal	7957	7767	7796	9901	9671
Amravati Div.	**8558**	**8434**	**8694**	**9971**	**9846**
Wardha	8642	10527	10698	11798	11850
Nagpur	13504	15564	18076	16535	16880
Bhandara	7858	9191	9501	9897	10234
Gondiya				9883	9279
Chandrapur	10912	11907	12301	12323	12507
Gadchiroli	11784	12445	10639	7312	6829
Nagpur Div.	**10955**	**11183**	**13423**	**12862**	**12976**
Maharashtra	**12326**	**13616**	**14470**	**15082**	**15070**

Source: Economic survey of Maharashtra

Annexure XVI: Monthly Per Capita Expenditure (MPCE) by group of Items of Consumption

(In Rs.)

Group of items of consumption	July 1993 to June 1994			July 1999 to June 2000		
	Rural MPCE	Urban MPCE	State MPCE	Rural MPCE	Urban MPCE	State MPCE
Cereals	55.95	63.16	58.49	81.65	97.91	88.01
Pulses	16.41	19.32	17.43	21.73	26.68	23.66
Milk & Milk products	21.75	45.4	30.07	33.16	66.62	46.24
Other food items	102.2	169.41	125.85	139.48	234.65	176.69
Total food items	**196.31**	**297.29**	**231.84**	**276.02**	**425.86**	**334.6**
Clothing	22.56	25.23	23.5	36.37	55.9	44.01
Fuel & Light	26.35	36.63	29.97	39.79	67.01	50.43
Other non food items	87.71	183.61	121.46	136.75	336.61	214.89
Total non food items	**136.62**	**245.47**	**174.93**	**212.91**	**459.52**	**309.32**
Total	**332.93**	**542.76**	**406.77**	**488.93**	**885.38**	**643.92**

Source: Economic survey of Maharashtra

Annexure XVII: State Income i.e. Net State Domestic Product (At constant prices)

(Rs. In Crores)

Sector	1993-94	1995-96	1997-98	1999-00	2001-02
1. Agriculture	19613	19660	18226	22863	22018
2. Forest & logging	1293	1363	1334	1263	1276
3. Fishing	444	577	642	586	600
4. Mining	293	628	874	948	1036
Total Primary	**21643**	**22228**	**21076**	**25660**	**24930**
5. Manufacturing					
a. Registered	16576	19831	21767	21029	18520
b. Unregistered	8229	9117	11240	12092	10332
6. Construction	5286	5337	6377	6475	7809
7. Electricity,gas & water supply	2061	2631	2986	2790	2704
Total Secondary	**32152**	**36916**	**42370**	**42386**	**39365**
8. Transport, storage & communication, Trade, Hotels & restaurants	20695	23826	29412	29328	33220
9. Banking & insurance, Real estate & ownership of dwellings, business services, public administration and other services	30707	32218	32109	44811	49884
Total Tertiary	**51402**	**56044**	**61521**	**74139**	**83064**
Total NSDP	**105197**	**115188**	**124967**	**142185**	**147359**

Source: Economic survey of Maharashtra
Note: 2001-02 are preliminary estimates

Glossary

Crude Birth Rate (CBR)

$$= \frac{\text{No. of live births in a given year}}{\text{Mid year population}} \times 1000$$

Crude Death Rate (CBR)

$$= \frac{\text{No. of deaths in a given year}}{\text{Mid year population}} \times 1000$$

Infant Mortality Rate (IMR) per 1000 live births – probability of dying between birth and before completing one year

$$\text{IMR} = \frac{\text{No. of infant deaths during the year}}{\text{No. of live births during the year}} \times 1000$$

Life Expectancy at Birth (LEB) is the average number of years expected to be lived at the time of birth if current mortality trends were to continue.

Maternal Mortality Rate (MMR); Reported annual number of deaths of women from pregnancy related causes per lakh live births

Neonatal Mortality Rate (NMR) per 1000 live births- probability of dying within one month after birth

$$\text{NMR} = \frac{\text{No. of infant deaths of less than29 days during the year}}{\text{No. of live births during the year}} \times 1000$$

Post Neonatal Mortality Rate (PNMR) per 1000 live births- probability of dying after one month after birth but before completing one year

$$\text{PNMR} = \frac{\text{No. of deaths of 29 days to < than one year during the year}}{\text{No. of live births during the year}} \times 1000$$

Sex Ratio is number of females per thousand males.

Total Fertility Rate (TFR) per women in a given year is average number of children born to a women during the reproductive span (age 15-49 year) provided she experience the current age-specific fertility rate.

Explanation of variables of Expenditure

Central Government Health Scheme (CGHS)/ Employees State Insurance Schemes (ESIS): Expenditure on provision of care for the organized sector employees covered under these scheme.

Family Planning Expenditure includes expenditure on **a)** direction and administration of family welfare, mainly the FW department, bureaucracy at the state and divisional level **b)** Compensation paid to motivators and acceptors of Vasectomy, tubectomy and IUCD's **c)** provision of family Planning services to rural and urban areas

Health Expenditure includes three account heads ' **Medical** ', ' **Public Health'** and '**Family Welfare**' the sum of Revenue and Capital account of these head is **Total Health Expenditure**

Hospital and Dispensary Expenditure incurred on provision of Curative care through hospitals and dispensaries

Maternal and Child Health expenditure includes immunizations, ante-natal and post-natal programs

Medical Education Training and Research expenditure incurred on **a)** education of doctors and nurses in the various medical colleges and nursing institutions. This does not include expenditure on the teaching hospital, which is accounted under Hospital and Dispensaries **b)** Training of most of the health workers under the various disease control programes like MPWs, Health Assistants, Supervisors etc.**c)** Training of Auxiliary Nurse Midwifes (ANM), Health Visitors, Dai's and other staff connected with family planning programmes **c)** Traning of health personnel of other systems' of medicine namely Ayurveda, Homepathy, Unnani, Siddha etc .

National Diseases Control Programmes includes expenditure Incurred on various disease control programmes run by the government. These include Malaria, Tuberculosis, Leprosy, Blindness, Filaria, Guinea worm, mental health, Goitre, sexually transmitted diseases and Diarrohea.

Total Expenditure this includes expenditure by all Government departments under the consolidated fund. As per budgetary classification of expenditure it includes Revenue and Capital account. Capital account consists entirely of expenditure on creation of assets or discharge of liabilities and thus correspond to the economic definition of Capital Expenditure. The expenditure on State administration, debt servicing, interest payments, grants-in-aid to various institutions, and expenditure on current consumption of goods and services of the department of government on activities of non-capital character are booked as revenue expenditure.

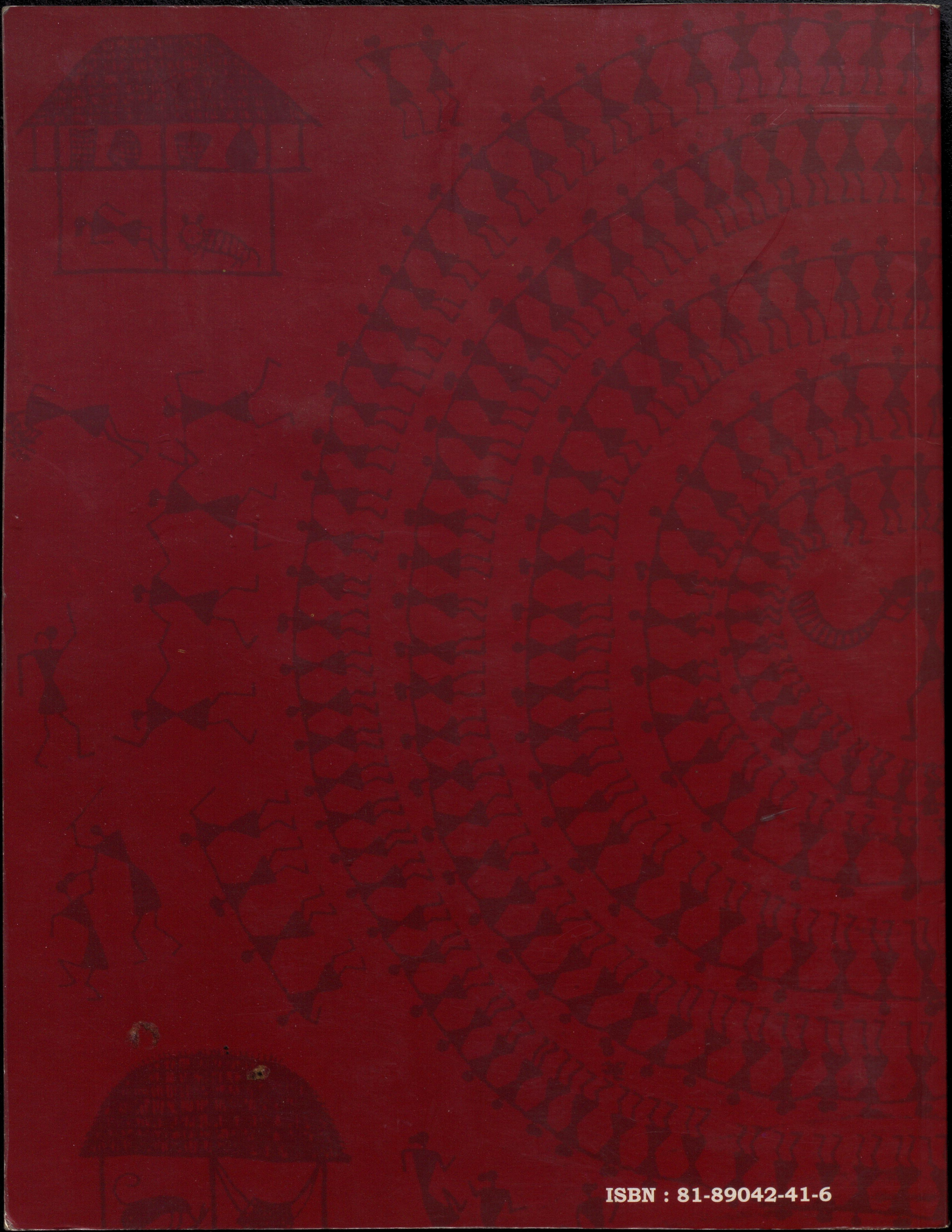


Centre For Enquiry Into Health And Allied Themes
Research Centre Of Anusandhan Trust

CEHAT, in Hindi means "Health". CEHAT, the research centre of Anusandhan Trust, stands for research, action, service and advocacy in health and allied themes. Socially relevant and rigorous academic health research and action at CEHAT is for the well being of the disadvantaged masses, for strengthening people's health movements and for realising right to health care. Its institutional structure acts as an interface between progressive people's movements and academia.

CEHAT's objectives are to undertake socially relevant research and advocacy projects on various socio-political aspects of health; establish direct services and programmes to demonstrate how health services can be made accessible equitably and ethically; disseminate information through databases and relevant publications, supported by a well-stocked and specialised library and a documentation centre.

We are a multi disciplinary team with training and experience in Medicine, Life Sciences, Economics, Social Sciences, Social Work, Journalism and Law. CEHAT's projects are based on its ideological commitments and priorities, and are focused on four broad themes, (1) Health Services and Financing (2) Health Legislation, Ethics and Patients' Rights, (3) Women's Health, (4) Investigation and Treatment of Psycho-Social Trauma. An increasing part of this work is being done collaboratively and in partnership with other organisations and institutions.



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CEHAT

Research Centre of Anusandhan Trust

Survey No.2804 and 2805 , Sai Ashray, Aram Society Road, Vakola, Santacruz (East), Mumbai 400 055.

26th December 2005

Dear Sir/ Madam,

Sub: CEHAT's latest publication 'Health and Healthcare in Maharashtra – A Status Report'.

CEHAT has compiled detailed analytical information on the critical aspects of healthcare issues in Maharashtra in its latest publication "Health and Healthcare in Maharashtra – A Status Report". We are happy to present you a copy of this report.

In the present era of Information Explosion where knowledge and information systems are crucial for development, the information available in Maharashtra on health and healthcare issues was found to be inadequate. Though Maharashtra is one of the affluent states in India with the highest per capita income, and contributes over 15% of the country's national income and 40% of the tax revenues, having one of the largest industrial economies, it is still grappling with high levels of poverty and inequalities which are reflected in the poor health outcomes such as malnutrition deaths, child mortality and maternal mortality levels not commensurate with its economic position in the country, declining child sex-ratios, low and declining levels of public health spending and investments, high levels of vacant positions of doctors at PHCs and CHCs, and low levels of access to various health services like antenatal care, complete child immunization, institutional deliveries etc. To overcome this lacuna of paucity of information, CEHAT has compiled information on health and healthcare developments in Maharashtra.

Facts

- The declining sex-ratio, especially in the 0-6 year age-group, has clear linkages with sex-selective abortions linked to sex-determination.
- There is a decline in public expenditure on health care from 1 per cent of NSDP in the eighties to 0.7 percent in 2001-02, and as a proportion to total government spending from over 6 per cent in eighties to a low of 4.6 per cent in 2001-02 and this declining expenditure has contributed to the adversities faced by the public health sector and consequently the health status of the citizens of the state.
- The rural-urban disparities in public health expenditure – per capita urban Rs.275 and rural is Rs.114. Availability of doctors (allopathic) in rural areas is 23.7 and in contrast to 139.8 doctors in urban areas serving per lakh population.

Tel: 91-22-26673571, 26673154 Fax:26673156 *E-Mail:* **cehat@vsnl.com**, *Website: www.cehat.org*

***Anusandhan Trust* is registered under the Bombay Public Trusts Act, 1950, Regd.No: E-13480**

- The infant mortality rate is for 2001 in rural areas is 55 and in urban areas is 27 per thousand live births.
- Prevalence of Anaemia among the ever-married women aged 15-49 years is 49 per cent. In the rural areas it is 51 per cent and in urban areas it is 45 per cent (2001).

Health and Healthcare in Maharashtra – A Status Report is a comprehensive and analytical compilation of healthcare development of Maharashtra bringing together all available information and data on health and healthcare.

The book has six chapters which focus on socio-economic and demographic profile of Maharashtra, the organisational structure and systems of public health care services at various levels in urban as well as rural areas, the physical infrastructure for delivery of health care services and the wide rural-urban disparity in access to these services, review of healthcare facilities available in public sector in the state, analysis of declining public expenditure on health care services including curative care as well as preventive and promotive programmes and some indicators of health status such as infant mortality, child mortality, life expectancy, morbidity and hospitalisation, nutritional status, water supply and sanitation in Maharashtra. The discussion in all chapters is analytic and backed by strong evidence in 46 tables with time-series data on a wide range of health and related issues. Foreword to the book is written by Dr. Subhash Salunke – Ex Director General of Health Service, which reiterates the importance of this publication, which has brought together all available information on health and healthcare in one place.

Copies of the book are available for sale in English as well as in Marathi and are available at CEHAT.

We look forward to your feedback on our latest publication. Kindly acknowledge its receipt.

Thanking you,

Yours truly,

Chandana Shetye

Chandana Shetye
Research Officer

Encl : a/a