GOVERNMENT OF KERALA
KERALA STATE PLANNING BOARD

THIRTEENTH FIVE-YEAR PLAN
(2017-2022)

WORKING GROUP ON

MEDICAL AND PUBLIC HEALTH

REPORT

SOCIAL SERVICES DIVISION

KERALA STATE PLANNING BOARD
THIRUVANANTHAPURAM

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PREFACE

In Kerala, the process of a Five-Year Plan is an exercise in people's participation. At the end of September 2016, the Kerala State Planning Board began an effort to conduct the widest possible consultations before formulating the Plan. The Planning Board formed 43 Working Groups, with a total of more than 700 members – scholars, administrators, social and political activists and other experts. Although the Reports do not represent the official position of the Government of Kerala, their content will help in the formulation of the Thirteenth Five-Year Plan document.

This document is the report of the Working Group on Medical and Public Health. The Chairpersons of the Working Group were Sri Rajeev Sadanandan IASand Dr KRThankappan. The Member of the Planning Board who coordinated the activities of the Working Group was Dr B Ekbal. The concerned Chief of Division was SmtShilaUnnithan.

Member Secretary

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CHAPTER 1
INTRODUCTION

1. Kerala has better health indicators than rest of India. For example, average life expectancy at birth in Kerala is 74.8 years (77.8 in women and 71.8 in men) as compared to the national average of 67.5 years (65.8 in men and 69.3 in women). An average Keralite lives 7.3 years more as compared to an average Indian. Infant mortality rate in Kerala is comparable to the developed countries and at 12/1000 births based on 2014 data (India average: 30 per 1000 births). Kerala's infant deaths comprise only 2.6% of all deaths.Similarly, the maternal mortality rate in Kerala is 66 per 100,000 live births (SRS-2010-2012) and it has decreased from 81/100000 live births in 2007-09.In Kerala, over one third of all treatment (31.3% men and 36% women) andinstitutional deliveries (31% in rural and 32% in urban areas) take place in Government institutions.

2. High life expectancy in Kerala is mostly due to the low IMR. The adult mortality rate in Kerala is higher than some of the other states. For example, the life expectancy at 60 years in Kerala is 20 years and it is much lower than that of several other states in India. It is estimated that diseases in the productive life years costs Kerala several thousand of healthy life years. The healthy life years lost in Kerala is largely attributable to non-communicable diseases or lifestyle diseases such as diabetes, cardiovascular diseases and cancers. Therefore, special emphasis should be given for prevention and control of NCDs in the 13thFive-Year Plan.

Achievements with Regard to the Plan Projects Launched in the Sector, both by the State Government and by the Central Government in the State duringthe Previous Plan Periods

Twelfth Plan

3. During 12th Five Year Plan, the major objective of the Government was to provide universal health security, the larger responsibility was on the public health system. During the Plan period, more thrust was given to equip and increase the number of Government medical Colleges with advanced medical equipments and implementation of specialty cadre in all health institutions with more than 100 beds. Similarly priority had been given to the State Board of Medical Research to encourage the research talents of specialist doctors.

4. National Health Mission (NHM)implementeditsactivitieseffectively to provide accessible, affordable and accountable quality health services to the poorest households in the remote rural regions as well as urban areas. Gender development also gained special attention through schemes such as Standardization facilities in maternal and child health units in Medical Colleges, Women and Children Hospitals etc. Medical University received special importance during the Twelfth Plan period. Implementation of 12th Plan programsresulted in significant all round improvement in the public health system and public health care.

Health Care Infrastructure in Government Sector

5. The Health infrastructure of the State consists of 2947 institutions with 56009 beds. Besides there are 5403 sub centres under the director of health services (DHS) .Out of the total institutions 44.35%are under Allopathy, 32.07% under Ayurveda and 23.58% under Homeopathy department. Medical services are also providedthrough the co-operative sectorandthe Private sector.

Table 1*Health Infrastructure in Government Sector during 2015-16*in numbers

Sl No.	System of Medicine	Institutions	Beds	Patients treated	
				IP	OP
1	Allopathy (DHS)	1281	38400	3249248	93679945
2	Alopathy (DME)	26	12035	478097	4544359
3	Ayurveda (ISM)	942	3044	251141	11690486
4	Ayurveda (DAME)	3	1355	10564	460756
5	Homeopathy	693	975	45667	15543791
6	Homeopathy Education	2	200	2652	238702
	Total	2947	56009	4037369	126158039

Twelfth Plan Outlay and Expenditure

6. The outlay earmarked for the implementation of schemes during Twelfth Five Year Plan was Rs.293899.00 lakh (BE). The total expenditure during the Plan period (up to 31.10.16) was Rs.214180 lakh (72.88 % of BE). For providing better medical treatment facilities to the public, an amount of Rs.159177 lakh was allotted to the Directorate of HealthService during the 12th Five Year Plan. Out of this, an amount of Rs.115612 lakh (72.63%) was utilized.For strengthening the Medical Education, the total amount allotted during the Plan period was Rs.134722 lakh and the amount incurred spent Rs.98568 lakh (73.16%).

Table 2 *Twelfth Plan Outlay and Expenditure*in rupees lakhs

	2012-13		2013-14		2014-15		2015-16		2016-17 (Oct 31)	
Sector	outlay	Exp. (%)	outlay	Exp. (%)	outlay	Exp. (%)	outlay	Exp. (%)	outlay	Exp. (%)
DHS	20564	20546 (99.91)	24530	22817 (93.02)	29693	28490 (95.95)	32216	21832 (67.77)	52174	21928 (42.03)
DME	20220	22884 (113.18)	22665	25124 (110.85)	25750	24427 (94.86)	26699	23947 (-89.69)	39388	2186 (5.55)
Total	40784	43430 (106.49)	47195	47941 (101.58)	55443	5291 (95.44)	58915	**45779** (77.7)	91562	24114 (26.34)

Health Services Department

7. During the plan period, there were 1281 health Institutions with 38400 beds under the Health Services department consisting of Primary Health Centers (PHC), Community Health Centers (CHC), Taluk Head Quarters (THQ) Hospitals, District Hospitals (DH), General Hospitals (GH) and Specialty Hospitals for Mental Illness, Leprosy and Tuberculosis.

8. During the 12thFive-Year Plan NCD Clinics were established in 230 CHCs, 835 PHCs, 5144 Sub centres, DHs,GHs,and THQHs. Free supply of medicines were ensured, mammogram facilities were set in three hospitals. Mobile NCD clinics were set in Alappuzha, Ernakulam, Palakkad, Wayanad, Idukki, Kollam andMalappuram districts.In difficult hilly areas mobile NCD clinics were conducted under the banner **"Care on Wheels"**. Tribal areas were also covered. In water logged areas like Alappuzha and coastal areas mobile NCD clinics were functioning in boats under the banner "**Care on Waves"**. People could easily access those clinics and were screened for hypertension, diabetes and obesity. Those who were confirmed with hypertension and diabetes were given medicines free of cost. Health educationwas also given. Around 129 lakh people were screened among whom 27 lakh were hypertensive, 25.6 lakh were diabetics. Around 13 lakhs diabetics were newly detected.Palliative care was functional in all panchayaths in the State in three levels. Primary – Home Care, Secondary- Hospital based care and Tertiary Care. Community based intervention were carried with the support of local self government institutions (LSGI), NHM and Health Services. Over 49500 patients were given home care every month.Over 5000 patients were seen in secondary care units per month.

9. The District Cancer Care Program functioned with an aim to reduce difficulty during transit for cancer patients and to reduce the out of pocket expenditure. Selected doctors and staff nurses from periphery were given training at Regional Cancer Centre, Thiruvananthapuram to give chemotherapy for patients referred from RCC and medical college hospitals (MCH). These centreswere functioning in 12 district hospitals. More than 15000 chemotherapies were given through these centres,over 1000 new cases were detected and there were over 3000 referrals.Supportive measures and palliative chemotherapy were given in these centres.

10. The New Born Screening Program was started in March 2013. The blood samples of Newborns from 44 delivery points are collected by Heel Prick Method and tested through State Public Health and Clinical Laboratory, Trivandrum and three Regional Laboratories in Ernakulum, Kozhikode and Kannur. The four public health laboratories in the State (state and regional PH labs) were well equipped and conducted the screening tests of all the samples received from the forty four selected Government hospitals including Medical colleges, across the fourteen districts in Kerala.Early detection of following selected inborn errors of metabolism and timely intervention to prevent serious consequences likeCongenital Hypothyroidism, Congenital Adrenal Hyperplasia, G6PD Deficiency and Phenyl Ketonuria play a role in early intervention to prevent Mental retardation and other preventable complications. Molecular Diagnosis Division including PCR of State PH and Clinical Lab was inaugurated in March 2014. Molecular Diagnosisis very useful for the Viral

typing for Dengue fever (DEV 1,2,3,4), Hepatitis B, C diagnosis and quantitation, neonatal Meningitis, TB PCR, diagnosis of cytomegalo virus, Herpes Simplex etc . This division is the first of its kind under the Health Department. Clinical Specimens from various hospitals including Medical Colleges are referred to this section. PCR test is very costly in the Private Sector. It was a purely State Plan supported initiative.

11. Gender Based Violence Management (GBVM) Program was started in October 2009 as 'Bhoomika'.A centre for GBVM programme was started in all District/General Hospitals of all 14 District and seven selected THQHs. We have twenty one centres in 14 districts.All the GBVM Centres were upgraded and strengthened to function as **Bhoomika One Stop Crisis Cell (Bhoomika OSCC).** The service of the centre was available round the clock.They provide social and psychological support to women coming to the centre. The hospital staffs of the casualty and various outpatient departments was trained in identifying women facing domestic violence,and the hospital staffs were sensitized on gender issues. They provide medical aid to all women coming to the centre, Legal aid is provided through our collaboration with Kerala State Legal Service Authority (KELSA), and other lawyers. There is provision for temporary shelter for emergency situations. During the period 2012-2016, 25274 cases were identified, action was taken and follow up of old cases was also done.

12. Under the scheme Emergency Medical Care implemented during 2015-16 trainings were given on emergency medical care to 400 causality Medical Officers, 80 Staff Nurses and 80 Attenders.Facilities were provided at GH Kayamkulam,THQH Punalur, GH Attingal, GH Neyyanttinkara, DH Kollam and DH Kanjangadu to strengthen Emergency Care Department.

13. Physical Medicine and Rehabilitation (PMR) units provide services to locomotor disabled providing them investigations, medical care, rehabilitation, physiotherapy and appliances like elbow crutches, aluminium tripods etc. and therapy like ultra sound therapy, interferential therapy, short wave diathermy, laser therapy etc.There were 8 limb fitting centres facilitating rehabilitation therapy and supply of artificial limbs, prosthesis and appliances to patients coming to limb fitting centres. Patients were provided slings, braces, callipers, artificial limbs and MCR chapels from these centres.

14. The Society for Medical Assistance to the Poor receives grant from Govt through plan fund for providing financial assistance up to a maximum Rs 50,000/- for treatment of poor persons for the treatment of seventeen specified conditions from specified hospitals in Govt. sector (49 Modern medicine hospitals and17 Ayurveda hospitals). During the period 2012-2016, 5492 applicants benefited through this scheme.

15. The District Mental Health Program is functioning atThiruvananthapuram, Kollam,Thrissur and Alappuzha using plan funds.94 outreach clinics were conducted per month and 30-40 patients were attending the clinics per session. Training to medical officers, staff nurses, pharmacists and accredited social health activists (ASHA)were done. District Mental Health

Program (DMHP) was conducted in the other districts also with NHM and national mental health program (NMHP) funds.

16. The Comprehensive Mental Health Programwas an innovative program implemented during 2013-14 when 26 day care centres were started. There were separate centres for male and female. 506 cured mentally ill patients weregiven day care,free food, counselling, free medicine, recreationalactivities like caroms, chess, newspapers, magazines etc. and occupational therapy like umbrella making, candle making, paper cover making, stitching, soap and lotion making, door mat making, etc.

17. Mental Health Centre (MHC) Thiruvananthapuram is an apex centre for psychiatry care in Southern Kerala. The number of out- patients treated in the three mental health centres in Kerala during 2012 -2016 is given in the table below. While the total number in Trivandrum remained almost same through this period the number of outpatients in the other two centres showed an increase in OP cases.

Table 3*Out-Patients in three Mental Health Centres in Kerala during 2012-2016*in numbers

Year	TVM	Kozhikode	Thrissur	Total
2012-2013	45083	23971	42357	111411
2013-2014	43317	27307	51943	122567
2014-2015	46399	28424	56478	131301
2015-2016	45927	29170	58089	133186
Total	180726	108872	208867	498465

18. In-Patients (IP) in MHC Thiruvananthapuram were 4356, 3694, 4154 and 3799 respectively in four years (2012 to 2016) for which data were available. In Kozhikodu MHC the figures for new in-patients were 1886, 1991, 1949 and 2303 in the above mentioned years. In addition to the new IP cases there were 1155, 1081, 1159 and 1270 old IP cases in MHC Kozhikodu. In Thrissur MHC the average IP cases were 332, 292, 292 and 290 in the above mentioned years.

19. Eighteen de- addiction centreswere started during 2011-2016. 10 centres were fully functional including those at mental health centres.De-addiction Centre was a novel project which started functioning in full swing from March 2014.It is headed by a Psychiatrist and provides de-addiction facility to harmful users of alcohol, tobacco, cannabis etc. The psychological intervention for patients is coordinated by a team of psychologist, psychiatric social workers, trained nurses and staff.Group therapy session for patients and caregivers are given on Fridays. On Saturdays follow up de-addiction out patient service is provided from 11:00 AM to 1 PM.

20. Rehabilitation for mentally challenged patients namely '*Pakalveedu'* was a good initiative during this period. Day care centreswere providing work with wages for psychiatric patients. It included peeling unit, paper cover making unit,soap making unit - Provide soap for patients in MHC, Thiruvananthapuram, Weaving unit, Bread making unit, Tailoring unit –

male and female rehabilitation ward toprovide recreation to patients and Door mat making unit.

21. Kerala State Institute of Health and Family Welfare is the apex institute under the Kerala Health Services, conducting different types of trainings for various categories of health staff.The trainings conducted during this period weeOrientation training to newly recruited medical officers, Induction trainings, Clinical Update Trainings,Capacity Building Training, In service Trainings,Skill development, Administrative & Management, Supervisory and Management Training, Computer trainings, Training of Trainers, Training on concept of Family Medicine, Focused trainings in Emergency Medicine, Geriatric Care, Kerala State Rules, Public Health Act, Medico Legal Aspects etc. The number of trainings conducted is shown in the table.

Table 4 *The number of trainings conducted*

Year	2012-13		2013-14		2014-15		2015-16	
Scheme	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
Plan	-	2842	1990	1802	2010	1832	1960	1751
STP	-	385						
SDG	-	785	310	294				
NRHM	-	20	810	733			60	53
UNDP	-						30	25

22. Arogyakiranam was one of the flagship Health programs of the Government of Kerala. The program provides free treatment and related medical services to all patients from birth to 18 years, as an entitlement. Expenses covered by this entitlement include costs incurred for OP registration, investigations, drugs/ implants/ materials used in treatment and procedures. The funds for coverage of treatment expenditure wereallotted to districts, to be maintained as corpus fund, from which all said expenses were debited. During the period October 2013- April 2016, this scheme benefited 1, 04, 81,613 patients.

23. Considering the importance of oral diseases 38 new posts of dental assistants were created between 2013 and 2016. There were 112 dental units functioning in the state. During the period 2012-2016, 260 School dental camps were conducted.

24. Communicable diseases especially vector born diseases (VBDs) are on the rise in Kerala as anywhere else in the country/world. Common VBDs in Kerala during the period were Malaria, Dengue fever, Chikungunea, Lymphatic filariasis and Japanese Encephalitis. Other communicable diseases were water born diseases like Leptospirosis, Hepatitis A, Acute diarrhoeal diseases, Typhoid; air born diseases like H1N1, Chicken pox etc. were also rampant in the State.Other emerging/remerging VBDs like scrub typhus, Kyasanur Forest disease (KFD), Kala-azaretcwere also reported from some districts. Recently Zika virus

threat also was reported in the state due to abundance of Aedes mosquitos, the vector for that virus. Even though Kerala is a low endemic state for Leprosy, increasing number of child cases and increasing proportion of Grade II (visible) deformities among newly detected cases were reported.The scenario is compounded by the presence of migrant labourers from high endemic states. Vulnerable population such as tribal, coastal and urban slums including immigrant labourers needs to be addressed specifically.

25. Government Analyst lab was functioning under Food Safety Department for testing food samples. Number of food samples received and analyzed in the Government Analyst Laboratory during 2012-13 to 2015-16 was 26,603 and the number of water samples received and analyzed during 2012-13 to 2015-16 was 58,636. Total amount of fee collected during the period wasRs. 286.53 lakhs.

CHAPTER 2
CENTRALLY SPONSORED SCHEMES

27. *Family welfareprogrammes*. The components of the programwere Infrastructure strengthening, Conducting various trainings for staffs, expansion of Integrated Child Development Scheme (ICDS), maternity and child health, reproductive and child health (RCH), health transport, maintenance and supply of vehicles, mass education, other services and supplies, maintenance of beds and static sterilization units, grant-in-aid to NGOs and other expenditure were envisaged. The scheme was merged with NHM from 2015-16 financial year onwards.

28. *National AIDS control programme*. The spread of HIV/AIDS & STD from the high risk groups to general population and from initial hot spots to new areas underlines the need for a comprehensive AIDS & STD Control program to effectively control the epidemic. During 12th Plan, the outlay was earmarked and released through state budget. Now it is a central sector scheme with direct fund release through public sector banks.

29. *National health mission*.Framework for Implementation of National Health Mission (2012-2017) of Ministry of Health and Family Welfare, GOI have five financing components to states that were based on the approved Program Implementation Plans, namely (i) NRHM/RCH Flexi-pool, (ii) NUHM Flexi-pool (iii) Flexible pool for Communicable Disease, (iv) Flexible pool for Non Communicable Disease including injury and trauma and (v) Infrastructure Maintenance. The National Rural health Mission (NRHM) and National Urban Health Mission (NUHM) were made the subsystems of NHM. 25 % of the total central government fund was given to the NHM by the State Government as state share and the ratio changed to 40% from 2015-16 financial year onwards.

CHAPTER 3
MEDICAL EDUCATION DEPARTMENT

30. Medical education in the Government sector in the state was imparted through 9 Medical Colleges at Thiruvananthapuram, Alappuzha, Kozhikode, Kottayam, Manjeri, Idukki, Ernakulum, Kollam and Thrissur districts and Nursing Education through 6 Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam and Thrissur districts. Five Dental Colleges were functioning at Thiruvananthapuram, Kozhikode, Alappuzha, Thrissur and Kottayam districts. Besides, four colleges of Pharmacy and one Paramedical Institute were functioning under the Department.Details of annual intake of students in Medical and paramedical Colleges are given below.

Table 5 *Medical and Para-medical Courses Conducted in Govt. Medical Colleges with Annual Intake of Students 2015-16* in numbers

SI.No.	Name of course	Annual intake of students
1	Degree Courses	2033
2	Post Graduate Courses.	783
3	Post Graduate Diploma Courses	157
4	Super Speciality course	100
5	Diploma / Certificate Courses.	784
6	Post Graduate Diploma Courses (Paramedical)	36
	Total	3893

Source Directorate of Medical Education

31. The directorate of medical education (DME) conducted administrative improvement training for 230 faculties of Medical Education department through the training center of Finance department. Steps for implementing E-Governance in Medical Education Department through NIC were initiated. Retaining wall of Artificial Center of Medical College, Trivandrum was constructed and a generator worth Rs.223 lakhs for single point power supply in Pathology, Principal Office, COK Auditorium, Pharmaceutical Science of Medical College, and Trivandrum was getting completed. Another construction activity was the corridor connecting OP block.

32. New initiatives included establishment of Burns unit in Medical Colleges, Trivandrum and Thrissur, construction of Multi-disciplinary research lab in Trivandrum Medical College, initiation of the construction of Super Specialty building in Medical College, Alappuzha under the Pradhan MantriSwasthya Suraksha Yojana (PMSSY) through central assistance, initiation of the construction of Administrative Block in Medical College, Alappuzha,and construction of Clinical Skill Laboratory in Alappuzha Medical College hospital.

33. One of the great achievements during this period was the successful Heart Transplantation Surgery in Kottayam Medical College. Construction of ladies hostel in Kottayam Medical College was initiated, extension of the Central Workshop of Kottayam Medical College was initiated, and solar street light was provided in Kottayam medical college campus. Fourth and fifth floor of Surgical Ward of Medical College, Thrissur war refurbished and 3rd, 8th and 12th wards of Chest Hospital, Thrissur was refurbished.

CHAPTER 4
SOURCES OF DATA IN EACH SECTOR AND CRITICAL EVALUATION OF THESE DATA SOURCES, INCLUDING MEASURES FOR IMPROVEMENT

34. There are different data sources that can be used by the state for planning purposes. One of the national level data source is the national family health survey (NFHS). The completed NFHS 4 data will be released soon. Data on fertility, immunization status of children, nutritional status, tobacco use, alcohol use, body mass index, blood pressure, blood sugar HIV status etc are available. One of the limitations of this data is that most information isself reported.

35. Another major data sourced is the national sample survey organization. This provides morbidity status such as diabetes, hypertension, other chronic conditions, health care utilization and health expenditure. One of the advantages is the availability of information utilization of health services by both public and private sector. The trend in public sector utilisation can be ascertained from this data. Self report is again one of the limitations particularly for chronic conditions such as diabetes and hypertension which can vary depending on various factors such as educational status and health care utilization.

36. District level Household and Facility Survey (DLHS) is another source of data available at the district level. The major advantage is the availability of data at the district level unlike many other data sources which are available only at the state or the national level. For district level planning this will be useful particularly in our state where decentralized planning is given a lot of importance. One of the limitations of this data source is that information is limited to maternal and child health, family planning, reproductive health and adolescent health.

37. Sample Registration System is a major source of data on vital statistics such as mortality, fertility, marriage etc. This is available at the state level. Life expectancy estimates are also provided by the SRS.

38. Integrated Disease Surveillance Project data can also be used for various communicable diseases. One of the limitations of IDSP is the erratic reports from the private sector.

39. Periodic surveys conducted by various organizations such as the Ministry of Health and Family Welfare, Indian Council of Medical Research and other organizations can also are made use of planning purposes.

40. Population registries such as Cancer Registries, CVD registries etc are useful for particular disease specific information particularly incidence data will be available in those registries which are useful to find out the trend in these diseases.

41. Civil Registration data can also be used for various planning purposes. One of the limitations is that incomplete information available. Even in a State like Kerala the reporting of death and death are not complete and the cause of death is not properly recorded in

death registration. There is a possibility of improving these registries by training those involved in vital registration.

42. The data sources listed above can effectively be used for state planning if the data relating to the state and district can be analysed. An expert team in data analysis including institutions having expertise in secondary data analysis and medical colleges will be useful.

CHAPTER 5
OUTCOME INDICATORS FOR SELECTED SUSTAINABLE DEVELOPMENT GOALS INTHE HEALTH SECTOR INTHE STATE AND STRATEGIES TO ACHIEVE THOSE INDICATORS

Sustainable Development Goals

43. Choosing the right indicators of healthy development is important to measuring progress that is meaningful to human wellbeing. Measuring health gains as per the United Nations (UN) sustainable development framework indicators is an important exercise in quantifying the progress towards achievement of sustainable development goals (SD) of 2030. The SD goals of Kerala for the next five years and key strategies to achieve these goals are already identified by expert groups. The key targets, indicators and strategies to achieve them are given in the following section.

44. *Reduction of infant mortality rate.*ReduceInfant Mortality Rate (IMR) from the present level of 12 to 8, Neonatal Mortality Rate (NMR) from 7 to 5 and under five mortality rate from 14 to 9 by 2020. Key strategies to achieve these targets include focusing on special risk groups (remote locations with no access to health care facilities, tribal population etc), life course intervention approach from child birth to pregnancy, family centred service delivery with options for tracking all mothers and children, achieving near 100% immunization coverage, and ongoing surveillance of immunization, growth and development, and nutritional status. Other potential intervention includes strategies to prevent infant and child death by establishing management protocols and treatment facilities, targeted anomaly screening during antenatal period, diagnosis and management of emerging infections, improving access to emergency medical ambulance, periodic deworming and nutritional surveillance, strengthening ICDS, enforcing nutrition education as part of school health program, micronutrient supplementation, extend Indradhanush to all districts, involvement of private sector in vaccine preventable disease surveillance and surveillance of all notifiable diseases. Special strategies will be formulated for tribal populationincluding establishment of nutritional rehabilitation units, screening and treatment of anaemia, establishing support group with native members, special immunization coverage, etc.

45. *Reduction of maternal mortality rate.*Reduce Maternal Mortality Rate (MMR) from the present 66 per 100,000 live births to 30 per 100,000 live births by 2020. Key strategies include prevention of deaths due to post-partum haemorrhage (by providing organized transport in medical ambulances, early detection and referral of cases with post partum haemorrhage (PPH), implementing management protocols, anaemia screening and treatment, strengthening First Referral Units (FRU) with facilities for blood transfusion etc), prevention of maternal deaths due to pre ecclampsia (routine measurement of blood pressure in all pregnant women, calcium supplementation, implementation of management protocols), prevention of maternal deaths due to sepsis (asceptic delivery technique, ensuring 100% institutional delivery, establishing facilities for intravenous antibiotics for sepsis etc). Provide universal access to sexual and reproductive health-care services, including family planning, information and education, and the integration of reproductive health into national strategies and programs. Strategies include strengthening of sub-centres

and primary health care system to provide accessible family planning services, and school health programs in providing reproductive and sexual health education.

46. *Reduce Tuberculosis (TB) mortality and incidence.*Reduce Tuberculosis (TB) mortality by 35% and TB incidence by 20% by 2020.Strategies include early diagnosis and prompt treatment of TB including drug resistant TB, implementing management protocols for co-morbid conditions in TB patients (HIV, Type 2 diabetes, alcoholism, malnutrition etc), compulsory notification of TB including private sector, active TB surveillance in migrants, tribal population and targeted treatment of latent TB.

47. *Reduction of indigenous malaria.*Reduce incidence of indigenous malaria to zero in all 14 districts by 2020. Strategies include strengthening of surveillance system, improvement of detection rate, and rapid expansion of vector control measures, establishing climate resilient health care system and rapid detection and response to outbreaks.

48. *Non Communicable Diseases (NCD) targets.*Halt increase in prevalence of Raised Blood Pressure (hypertension) among adults aged 30 years of age. Halt the rise in prevalence of Diabetes (DM) among adults aged 30 years and above. Maintain the present prevalence of obesity and diabetes in the adults population aged 20 years and above. Current tobacco use will be reduced by 30% from the current level. Proportion of adults consuming five servings of fruits and vegetable will be increased by 20% from the current level. Mean intake of salt will be reduced by 10%. Drug therapy to prevent heart attacks and stroke will be increased by 50%.Alcohol use will be reduced by 5% from the current level. 60% of adults having a high risk (absolute risk) for getting a heart attack will be detected early and they will be provided drug therapy to prevent heart attacks. Insufficient physical activity will be reduced by 10% from the current level. Essential NCD medicines and basic technologies to treat NCDs will be provided in 80% of health facilities.Household solid fuel use will be reduced by 50% from the current level to combat chronic lung diseases. In order to achieve the above targets the following strategies will be adopted

49. *Strategy 1.* One of the key strategies will be task-shifting and task sharing interventions. Life style interventions such as blood pressure measurement and regular monitoring, tobacco cessation counselling, alcohol cessation counselling and counselling for improving heath diet will be provided by the health workers. Accredited social health activists (ASHAs) will also be trained to provide such services wherever applicable.Drugs will be provided to treat patients with hypertension, diabetes and hypercholesterolemia through the primary health centres and other health care institutions.

50. *Strategy 2.*A mobile platform will be developed for use by health workers. This will be used for decision support system (DSS) aided management of chronic NCD risk factors. Universal screening for risk factors using DSS (Hypertension, diabetes, dyslipidemia, and depression) will be done by the health workers. Risk stratification will be done to initiate drug therapy. Drug therapy decision will be guided by the doctors in the PHCs.

51. *Strategy 3*.A quality improvement initiative will be developed to improve the quality of service in the entire State. Quality improvement initiatives will initially focus on the management of Acute Coronary Syndrome (ACS) cases, Kidney diseases and chronic lung diseases.

52. The following indicators will be used for evaluating the NCD program. Proportion of adults aged 30 years and above screened for diabetes, hypertension, hypercholesterolemia and absolute risk for getting acute myocardial infarction. Proportion of people detected for the above diseases/risk factors getting treatment will be another indicator. Those who are under control, for example diabetes, hypertension and lipid abnormality, will also be used as an evaluation indicator. Risk factor levels will also be used as evaluation indicators. Institutions with NCD drugs, lab facilities etc will also be used as evaluation indicators. Percentage of households with LPG connection and smokeless chulas will also be considered as evaluation indicators for indoor air pollution.

53. *Mental health targets.*Reduce the emotional and behavioural problems in school children from 30% to less than 10%. Reduce suicide rate from 24.9/- per lakhpopulation in the year 2014 to less than 16 per lakh population. Reduce morbidity due to depresson among men from 5.8% to less than 3% and among women from 9.5% to less than 5%. Achieve 50% rehabilitation for mental patients in remission.

54. Following Strategies will be adopted to achieve the above targets. Parenting skill development program, teachers training program for early detection of the problem and life skill training for students can be achieved by extending and strengthening the existing school mental health program.Counselling centres can be started in schools by training the school health JPHN in mental health. Evaluation indicator will be rate of substance abuse, suicides, and behavioural problems among school children.

55. For reducing suicide rates following activities can be undertaken. Promotion of positive mental health, depression screening at sub centre level, and providing weekly counselling services at block PHC level are some options.

56. Reducing morbidity due to depression can be achieved by the following strategies. Screening through health workers at sub centre level and providing them couseling services, awareness creation focussing on reducing stigma, and promotion of positive mental health are some of the possible activities that can be undertaken.

57. In order to achieve rehabilitation for 50% mental patients in remission following activities can be undertaken. Enrolment up to 50% mental patients in remission in Mahatma Gandhi Rural Employment Guarantee Scheme (MNREGS), establishment of two rehabilitation centres (one for women and another for men) at district panchayat level, providing day care centres (mixed) at panchayath level can be undertaken.

58. The importance of having appropriate mental health at various stages of life is poorly recognized. The burden of suffering due to mental illness is high. Around 2% of the

population suffers from severe mental morbidity at any point of time. An additional 10% suffer from neurotic conditions, alcohol and drug addictions and personality problems. Significant proportion of outpatients (20-25%) has somatoform disorders and come with multiple vague symptoms. Alcoholism, other substance abuse, domestic violence is increasing in our society both among adults and school population. The suicide rate in Kerala is very high compared to other states. Family suicide pack is our unique social phenomena.Community prevalence of child mental health disorder is 12.8%. But identification and expert intervention of mental and behavioral disorders among children and adolescents are very less. Unsupported and untreated mental illness has an impact on productive life as well as families of the patient. But there is wide stigma and rituals in accessing mental health service and cause of mental illness. So still in the community a significant section goes for magico-religious management for mental illness. Mental ill health is thus an issue of public health importance, requiring public education, proactive early identification and sensitive interventions. More effective and better management for mental illness is available in medical science.

59. Currently there are three mental health centers across state apart from the Psychiatric departments of various medical colleges and nominal facilities in district hospitals. District mental health program is going on effectively in certain districts. However there continues to be shortages of trained personnel in Kerala, compounded by misdistribution of facilities and staff with a greater urban concentration, especially in cities.

60. The state will make systematic and sustained efforts to enhance mental health services by improving training in psychiatry and psychology in the undergraduate medical and general nursing courses, increasing the postgraduate seats in mental health, strengthening psychiatric teams and services at district hospital level, strengthening the child mental health service in Psychiatry and Paediatricsdepartments of medical colleges. Mental health service will be made available through primary health care level by training primary health centre medical officers and staff. Basic standards will be improved in the care of mentally ill patients in the institutions.

61. Mental health can be developed among children from the beginning itself through appropriate parenting, which will act as behavioural vaccine against mental illness. Parental education on parenting may be done and the idea will be disseminated in to the society. Mental health component will be introduced in to the school health program. Societal strategies will be broadened which address violence (particularly against women), alcoholism and other substance abuse etc.

62. *Dental health.* Reduce prevalence of dental caries among school children (6-12 years) from 55% to 45% and to retain the mean DMFT at less than or equal to 3. Reduce prevalence of periodontal diseases among 35-45 year old adults from 50% to 40%. This can be achieved by annual screening of school children by teachers/ JPHN. Health education on the importance of oral health and prevention of dental caries can be imparted by teachers, Anganwadi workers and ASHAs. Those children with caries can be detected early and treated with the help of the above staff in schools and health centres. Periodontal diseases

can be prevented by educating the people on the importance of oral hygiene and the correct technique of brushing tooth by grass root level health workers. Those identified with early periodontal diseases can be provided treatment by dentists.

63. *Road traffic accidents.*The major target is to reduce mortality and morbidity due to Road Traffic Accidents and other injuries by 50%. Following strategies can be adopted to achieve the above target. Engineering, education, enforcement, and emergency care (strengthening of trauma care system) are some of the important preventive measures.Reducing the severity of injuries can be achieved by various preventive measures. Hospital based care, rehabilitation, development and improvement of information systems and administrative systems will also help in achieving the target.

64. *Alcohol and drug abuse.*The major target will be to reduce the per capita consumption of alcohol by 5%, reduce percentage of people with harmful alcohol use by 10% and reduce alcohol consumption to less than in young adults aged less than 25 years.

65. Number of alcohol users enrolling to oral substitution therapy should be doubled, and the number of such centres should also be doubled. Measures need to be undertaken to double the number of cases registered against illicit trafficking and use of narcotic drugs. Increasing tax on alcohol, reducing the number of outlets, server liability, sobriety check points, random breath testing, graduated licensing, providing educative material along with packaging of alcohol and providing mandatory treatment for drunken drivers some of the activities that will enable to achieve the target.

66. Another strategy is to provide brief intervention for harmful alcohol users. Training of medical officers (Family doctor- private and public sector) in brief intervention will be useful to provide such brief intervention. Providing treatment to mild and moderate alcohol use disorder cases by trained medical officers will be another option. Increasing the number and quality of de-addiction centres will be required. Social marketing at community level using community radios, films etc will be useful.

67. *Cancer.*The Malabar Cancer Centre will be strengthened so that the patients from northern Kerala will be able to avail the services from this centre. Currently most patients are travelling to the regional cancer centre in Trivandrum.

68. The Cancer centre in Kochi will also be developed in order to provide cancer care for patients in central Kerala.

69. In all the Government medical colleges and district hospitals cancer care services will be started. In order to accomplish this more positions for cancer specialists and staff nurses will be created in medial colleges.

70. Tobacco control of both smoking and smokeless tobacco are already covered in the NCD section. Therefore this section focuses on cancer management.

71. The important targets will be (1) to diagnose 50% of oral, breast and cervical cancers in localized stages (stages I and II for oral cancer; stages I and IIA for breast and cervix cancers), (2) To increase the compliance to prescribed course of treatment from 76% to 90% for firstyear following the date of diagnosis and (3) to reduce catastrophic health expenditure on cancer treatmentto less than 15 %.

72. Training of community volunteers and health workers at primary health centre level will be undertaken to diagnose oral, cervical and breast cancers in the early stages. Professional training for doctors and nurses in the public sector and GP's on early diagnosis of common cancers (breast,oral,and cervix) and appropriate referral for treatment.Availability of Cytotechnologists, Cytopathologists will be ensured at least at the district level. Mandatory screening of public sector employees for common cancers will be done. Development of protocols for diagnosis & treatment of cancers will be undertaken to in order to improve the efficiency of cancer treatment. Appointment of Medical and Surgical oncologists in various medical colleges will be done in order to improve the management of cancers at least in government medical colleges.

73. In order to reduce catastrophic health expenditure to less than 15%, universal insurance for BPL families supported by government will be continued and for APL families insurance will be encouraged.

74. *Eye health.*Major target will be to reduce the prevalence of blindness due to uncorrected refractive errors by 25 %, reduce incidence of blindness due to injuries by 25% and to reduce incidence of blindness due to diabetic retinopathy by 25%.

75. In order to achieve the targets,all persons with uncorrected refractive error in each PHC area will be identified through screening at PHC level and suitable spectacles will be prescribed for correcting the refractive errors. Those who need cataract surgery will also be identified at the PHC level and surgical treatment for cataract will be provided to all those who need them

76. For reducing the eyes from injuries legislation to make use of protective eye goggles by workers prone to eye injury will be made. Efforts will also be made to provide early and adequate treatment of eye injuries. In order to prevent diabetic retinopathy eye test will be made available in NCD clinic

77. *Rehabilitation.*Since the Persons with Disabilities Act is passed in Parliament a week ago, the Health Departmentshould decide that all future constructions will be as per PWD Act norms, and that every building is disability friendly.

78. Measures to be taken to make sure that the wards, OPDs, toilets, Casualty, Labs and canteens are disable friendly.

79. All Medical Colleges and all District hospitals must have Artificial Limb centres (ALCs). The existing ALCs, or a selected few should be upgraded to modern computer assisted design

(CAD) and computer assisted manufacturing (CAM) level.Every hospital must have separate access for persons with disabilities and senior citizens to Registrations, OPDs, Clinics and Information centres in accordance with the spirit of the new PWD Act.

80. *Health of migrant workers.*Internal migration of laborers is a complex and daunting issue. The numbers of migrant workers in Kerala having crossed 29 lakhs, sustainable policies and creative practices have to be implemented to protect their rights. As health doesn't stand separated from the general living conditions, the action points where interventions can be made are:
    1. *Creating a data base*. Registration of the migrant labourers on arrival with the help of LSG's and the department of health to be made mandatory. Akshaya centres can be made as registration centres and a card with an unique identification numbers linked to the various welfare schemes can be given. It can be also linked to a Migrant Workers Welfare Board.
    2. *Improving housing and living conditions*. Ensure safe and hygienic accommodation with the help of local bodies and the department of health (through ward level Health and Sanitation Committees). Creation of sufficient number of toilets and baths can be done through JNNURM and Suchitwa Mission Schemes.
    3. *Access to health services and disease control*. Ready access to State Health Services has to be ensured. RSBY benefits to be extended in co-ordination with the department of Health of the Source states. Evening OPDs to be set up at peripheral health institutions located in areas where there are a considerable number of migrant workers. Implementation of relevant national Programmes like RNTCP and NLEP among the workers should be ensured. Outreach programmes of KSACS should be strengthened in areas with a high migrant population.
    4. *Service of counsellors and setting up of a multilingual help-line*. Service of counsellors proficient in regional languages at hospitals in the areas with larger concentration of migrants can be done in association with government of the source states. A multilingual toll-free help line can also be set up to assist migrants.
    5. *Outreach medical camps and screening kiosks*. A special team for outreach medical camps can be set up at district level with the help of the peripheral health institutions of the area. The department of health can initiate setting up of screening kiosks with referral linkage to nearby PHIs.
    6. *Preparation of IEC materials and short films in regional languages*. With the support of the respective departments in source states, publicity for schemes may be given in TV channels in source states as well as in long distance trains coming to Kerala and railway platforms. IEC materials in regional languages may be prepared and short films can be made in association with the governments of source states.
    7. *Care, nutrition and education of children*. These can be ensured through schemes of ICDS, SSA, Education department and local bodies. Anganwadis and schools to be made more migrant friendly. Literacy programmes in association with the National Literacy Mission.

81. In short, the policy is to ensure safe migration through community health interventions and convergence of central and state sponsored schemes in association with the source states.

CHAPTER 6
REFERRAL SYSTEM

82. Three tier referral systems will be developed

First Referral Units

83. The community health centres and Taluk hospitals and will be the first referral units. These will have all the basic specialities including Dermatology, Ophthalmology, Orthopedics and Otolaryngiology. They will only admit patients referred to by the FHP or the PHC.

Tertiary Care Centres

84. All district hospitals and selected general hospitals will be upgraded to be tertiary care centres. In addition to the routine specialties, superspecialty departments like cardiology, nephrology and surgical specialties will function there. They will have full fledged emergency departments which will also be training centres for emergency medicine. Likewise, they will be training centres for family medicine. Laboratory and imaging centres as befitting a tertiary care hospital will be available in these centres. Other than emergencies, they will take in patients only by referral from the primary health centres or the first referral centres.

Government Medical Colleges

85. Government medical collages will be the other tertiary care centres. They also will be strictly referral centres and will have all the specialties and superspecialties. A protocol for referring cases to Medical Colleges should be formulated.

86. There should be more organic linkages and communication between the medical colleges and the Health Services hospitals.To foster better clinical and academic relationship the medical college faculty can organize training for the health services doctors and paramedical staff, help them to develop their plan projects and also develop a system of referral both ways.

87. The Community Medicine Departments of the medical colleges can be the nodal agencies for the interaction with the health service hospitals and local self-government institutions. Committees can be set up with the Principals of medical colleges, District Panchayath Presidents, DMOs and peoples' representatives and officials as members for better communication and linkages between the medical colleges and health service department.Medical colleges and districts catered by them can be taken as a unit to form such committees.

88. The existing infrastructure needs to be scaled up to meet current and future needs. The wards, sanitation facilities, drainage system etc needs to be improved and standardized. Labs have to modernize in tune with the development of medical science and newer technologies

in the field of clinical investigation, to ensure all the investigation facility and to meet the increased demand.

89. The staff pattern of medical, nursing and all other paramedical categories has to be revised according to the current increased service need of the service seekers in the hospital. MCI guideline is only for basic requirement of teaching faculty. With this as the guideline the service needs of the attending population cannot be met. All faculty and staff have to be periodically trained in soft skills and humanistic approach so that their approach in dealing with service seekers is improved.

90. The casualties has to be modernized with all infra structural and lab facilities and should be managed by a full fledged Emergency medicine department. The patients observed in casualties should be monitored closely and intervened as and when required. This is very important in case of head injury and other medical emergencies. Availability of all emergency medicines should be ensured in the casualty itself. Emergency procedures should be done without any time lag to ensure the saving of the patient in golden hours itself. Ensure that all managements in the casualty be made protocol based and documented. The condition and progress of the patient should be explained to the relatives mandatorily and should be documented.

CHAPTER 7

A SET OF PROJECTS WHICH CAN BE UNDERTAKEN DURING THE THIRTEENTH FIVE-YEAR PLAN PERIOD

A project on Implementation of Universal Health Care in Selected Primary Health Centres in Kerala

91. Within the next five years, everyone within the jurisdiction of the selected public health centres (PHCs) should be able to avail the following services. This means roughly 30000 people (including the poor and the rich, local and migrant, men and women) per the selected institutes (PHCs) should be able to get these services.The infrastructure and personnel at the PHCs shall be strengthened by way of expansion of services/staff or by reorientation and re-training them or by task shifting modalities. The services planned are comprehensive including preventive, promotive, curative, rehabilitative and palliative care services. For more than two decades good proportion of investment went to tertiary sector. Here is an opportunity to strengthen social determinants in health so that preventive and promotive care is addressed effectively. The services listed are basic essential clinical care, emergency medical care, reproductive and maternal care that includes basic obstetric care, basic geriatric care, care against common childhood illnesses that includes immunization services, early detection of disease outbreaks, health promotion services for better health, e.t.c..The modalities adopted include clinical protocols and guidelines, standard operating procedures (SOPs) for case diagnosis, notification and various interventions, definite referral pathways and reimbursement mechanisms, making available medicines in the essential medicine list and having preventive and health promotion packages for different age-sex groups like children, adolescents, young women, young men, middle aged men, middle aged women, older men and older women.The initiative shall be taken in a phased manner.A pre-pilot was already undertaken in three institutions in Thiruvananthapuram. In the next phase, one institute from each block across the state shall be covered (140 institutions) before expanding to all of the 852 PHCs in the state.

92. The project on prevention and control of non-communicable diseases being undertaken jointly by SreeChitraTirunal Institute for Medical Sciences and Technology, Trivandrum and Kerala Govt. Health department will have to be continued for another four years.

93. A project on development of family health centres (details need to be worked out). Other projects to be identified by the members can be included after discussion in the group.

Public Health Cadre will be Developed

94. The Tamil Nadu health system in India is reported to be the best health system primarily because of the presence of a public health cadre.There is a director of public health at the state level and district health officers at the district level to look after the public health system. In order to become a district health officer it is mandatory to have a public health degree. Most of the expert committees have recommended creation of public health cadre in all the states. However the implementation of this recommendation is only partly done in several states. The existing administrative cadre in the state will be revised to set up the

public health cadre in the state. Hospital services and public health services will be separated as in Tamil Nadu.

E-health

95. The e-Health project envisages an effective information technology (IT) enabled integrated framework to ensure efficient service delivery to the common people and provide a centralized database of healthcare information allowing close monitoring and control measures. This will be a robust and sustainable IT solution supporting nearly 30,000 healthcare service personnel consisting of doctors, paramedical and other non clinical staff at the primary, secondary and tertiary care centres maintained by the State Government. The ultimate vision is about building an integrated healthcare cloud which will hold the complete healthcare data about all the citizens in the state.

95. The Main Components of the Framework
    1. A Central Repository of Demographic, Public Health and Healthcare data pertaining to the State which will get dynamically updated. Each citizen record in the demographic data repository will be uniquely identified which will be used by all the services provided by e-Health Kerala.
    2. Centralized Healthcare Information System with the functionalities of an Integrated Hospital Management System, Disease Surveillance, Management Information System and Healthcare Planning.
    3. A high Bandwidth reliable Network connecting all public sector hospitals in Kerala and also linking them to Central Healthcare Data Repository and the Central Demographic Data Repository

96. The most important and visible outcome of this digital framework is the creation of a patient friendly interface for the public healthcare institutions all over the state. The systemic outcome is the availability of a universal data base, dynamically updated, by which government can plan for and monitor the provision of health care services. Scientific Supply Chain Management made possible through the framework will optimise inventory management and ensure timely availability of medicines, equipments and other stores.

97. Availability of digital healthcare data centrally will provide a huge impetus for the disease surveillance in the state. Real-time data from OP clinics will enable timely alerts on outbreaks and Communicable diseases. Statistical reports from the Electronic Medical Records (EMR) will provide valuable data on Non Communicable diseases and enable the State to proactively intervene to reduce the disease burden.

98. *Medical research*. Kerala has achieved remarkable progress in public healthcare as is evident from the numerous healthcare indices. This achievement, hailed as unique by many researchers, is the outcome of dedicated service by a large group of highly motivated health care professionals in the state over the past few decades. If this achievement is to be sustained, a much higher level of involvement by the health professionals is required. What is needed is a scientific analysis of the healthcare data to monitor, identify and suggest

corrective measures to maintain the health of a society which is fast degenerating due to diseases often related to life style and demographic peculiarities.

99. *Process re-engineering.* The changes brought about by this system are going to be fundamental. There is going to be a great deal of Process Re-engineering as well. The public healthcare system will undergo unprecedented transformation and will no more have the old and archaic ambience. This can probably be compared to transformation that the railways have undergone following large scale IT enabling. This will become possible only if the Doctors, Para Medical Staff, other employees, and all other stake holders are ready to accept the change and adopt the new vibrant environment. This could possibly be the single largest challenge in implementing the project.

100. *Employee involvement.* The single largest component which will decide the success of this project is the Software Application. Application Development will adopt the Agile Programming methods where in the Developer and the User will both be involved fully throughout the development life cycle.

101. There will be two distinct groups handpicked form the Health Department who will oversee the Application Development process. These groups will function in close co-ordination with Application Developers.

102. *Technology group.* This will be a small group of employees who have sufficient IT background drawn from within the Health Department. This group shall be part of the Development team right from beginning and shall take over the system when completed. The group will be provided sufficient training in various aspects of Software technology viz. Software Programming, Database Administration, System Administration etc. There will be many right candidates in the Department capable of taking up the responsibility. They are to be located and brought together.

103. *Functional support group*: This is a group of Doctors, Paramedical staff and other support staff from various wings of the Health Department who will be part of the Application Development process from the early stage. This larger group will consist of small sub groups (core groups) handpicked from every specialty. These core groups will meet very frequently and evaluate the system under development. This group will also discuss and finalise the re-engineering required at each step. Each incremental stages of the Application will be demonstrated before the core groups and these future users will become familiar with the system as it gets developed. There will be occasional meetings of the entire Functional Support Group where the integration aspects among specialties will be discussed and finalized.

104. *Quality of human resource in the health sector.*In the case of professional medical education the challenge is to improve quality of training, in tune with the rapid advances of medical knowledge in the '*Post-genomic*' era. Instead, what is currently attempted is totally unplanned and unregulated increase in the quantity of medical and paramedical professionals, via the self-financing mechanism. This is bound to result in all round deterioration of standards for two major reasons. One, there is a lack of qualified teachers and resources necessary for this load. Two, high-fee based systems will lead to decline in the quality of student intake.

105. Shortage of doctors, nurses and Paramedical staff in the Government sector is a problem of growing concern. For doctors the main reason seems to be the unattractive salaries and service conditions vis a vis the private sector). For all categories, the delay in recruitment via the Public Service Commission is a problem.

106. *Primary health care will be strengthened.First consultation.*In many developed countries, the first contact point in the health system is variously known as a general practitioner, family physician or a primary care physician. A family physician should posses the core content of knowledge, skills and attitude which would enable him/her to address effectively all the problems at the point of first contact. They also serve a gate-keeping role limiting the load on hospitals and specialists, besides directing to the appropriate specialist or level of care when necessary. This would also discourage the practice of the patients themselves deciding a specialist or super-specialist to consult as a first contact.

107. Family medicine is now a postgraduate specialty in most countries requiring 3-5 years of training.

108. If the public health system is to provide uniform and easy access, medical consultation has to be available at the nearest point. Primary health centres as the first physician contact point is frequently far away for a lot of people. There is no out-patient consultation at the sub-centre level. This is one of the reasons why many people opt out of the public health system.

109. A Family / Primary care physician in each ward or locality similar to the General practitioner (GP) system in the National Health Service (NHS) of UK may be an attractive solution for us. Right now it may not be feasible on economic terms to have fully paid family physicians at the ward level, nor at the sub-centre level. Two options may be thought of for now.

110. Family physicians that are entrusted to provide free consultation for a fixed number of families. They can be paid an honorarium by the State or Local Government, depending upon the number of households under their care. Their prescriptions would be honored by the pharmacy at the primary health centres and laboratory tests ordered by them would similarly be done there. They would be required to keep records of the families under their care and feed information as required into the state health information system. It can be

insisted that those enrolled as Family health practitioners should have undergone training in Family medicine conducted by an appropriate institution. They can be given periodic training and updating in new programs as well as in protocols and guidelines.

111. Have consultations by family care physicians at the sub-centres in the evenings.

112. It is suggested that both these options be tried out in selected areas and the one deemed more successful be adopted for covering the whole state in a phased manner. Meanwhile, the number of trained family physicians has to be increased exponentially by instituting postgraduate courses and short term diplomas in the medical colleges and district hospitals.

113. *The family health sub centre.*The Sub-centre is the most peripheral and first contact point between the primary health care system and the community. As per the population norms, one Sub-centre is established for every 5000 population in plain areas and for every 3000 population in hilly/tribal areas.

114. Kerala has 5094 Sub-centres which works out to around 1 for 6000 population. If urban areas are excluded, the ratio is more favorable and is adequate. As far as possible there should be one Sub-centre for 1-2 wards and there should be close co-ordination with the ward members and the LSG. Additional Sub-centres should be established in the neediest areas after careful scrutiny of the existing pattern at the district level.

115. The needs of Kerala are different from the rest of India. Consequently, there has to be re-designation of the role of Sub-centres and their field staff that is appropriate to our context. The IPHS guidelines for Sub-centres may not be wholly appropriate for our situation. For example a labor room in the Sub-centre would be unnecessary in a state where 98% of the deliveries are already institutional. The large amount of time consumed by the field staff and the lab technician for activities like blood smear collection and their processing would be better spent on more useful activities.

116. At least in the field of health, Kerala is the forerunner of what India will be tomorrow. It is thus the ideal place to start building models for future India.

117. *Sub-centres as Health Promotion Centres.*Health promotion is the process of enabling people to increase control over, and to improve, their health. It has to work through concrete and effective community action in setting priorities, making decisions, planning strategies and implementing them.This can be best achieved through the sub-centres and field staff.

118. The sub-centre would have a specially trained staff nurse, – designated *Family Health Nurse (FHN)* who would oversee the activities. The services of Junior Health Inspector (JHI) and the Junior Public Health Nurse (JPHN) – are currently underutilized. This is a workforce that is well educated when compared to the other states and they can be re-trained to fulfil many services much sought after by the community. Instead of having male and female health workers with overlapping functions, we can have two gender neutral categories looking after Reproductive & Child health and Public health (including infectious diseases

and lifestyle diseases). They may be designated Family Health Assistant and Public Health Assistant.

Aardram Mission

119. As part of the Nava Kerala Mission of govt of Kerala, Aardram mission has been launched in the health sector. Through this mission it is indented to have a patient friendly transformation of the health sector. Many of the critical issues raised above as part of the situation analysis andthe programmatic suggestions put forward by the Sustainable Development Goals (SDG) expert groups have been already incorporated as a mission document.

120. Following are the major objectives of the mission.
    1. Patient friendly transformation of the outpatient (OP) wings of Medical College hospitals and other major Govt hospitals.
    2. Standardisation of the district level and Taluk level hospitals.
    3. Developing the Primary Health Centres into Family Health Centres in a phased manner.
    4. Ensuring protocol / treatment guideline in case management in hospitals.

Out Patient Transformation

121. In recent years, there is a substantial increase in the number of outpatients in Govt hospitals: 4000-8000 patients are coming every day for the outpatient care in various govt medical colleges and 1500-2000 patients are undergoing outpatient treatment in most of the district level hospitals. Hence systematic organisation of the various components of outpatient care is very critical in ensuring quality OP care. A model developed and established in AIIMS for around two years is proposed to be implemented in our hospitals. Ensuring adequate number of computerised outpatient registration counters and developing the facility for advanced booking for a specified percentage of cases is planned. Similarly by establishing exit counters, it is proposed to provide the date and time for the next visit and other essential instructions to the patients. Providing adequate seating facility bytemporary construction of secondary waiting areas, ensuring patient amenities like drinking water,clean and hygienic toilet facilities, signages and display boards for health education etc. would be organised as part of the OP transformation.

Standardisation of the District and Taluk Level hospitals

122. Currently the facilities of various district and taluk level hospitals vary very much. Also it is noticed that the up gradation of the hospitals were done in a haphazard manner. In many districts there are more than one district hospitals and in one taluk more than one taluk hospitals. Here after, it is proposed to develop one hospital as the district level hospital with facilities in a standardised manner. Also it is proposed to start super speciality department like cardiology with Cath lab facility in a phased manner along with other super speciality departments such as nephrology, neurology, gastroenterology etc. Similarity it is proposed to

develop speciality services in one selected taluk level hospital in each taluk. As part of this, developing dialysis facility at these hospitals also would be considered.

123. For standardisation of the hospitals additional infrastructure development, post creation of the doctors and other staff would be required. As part of the standardisation of the health care institution, one CHC each in the entire development block would be developed as block level CHC.Due to the financial constraints this component is not included in the first phase of the Aardram mission, and it will be considered in coming years.

Developing Primary Health Centres intoFamily Health Centres

124. The epidemiological scenario of Kerala has changed much with high prevalence of non communicable diseases and hence there is a need for developing a systematic primary health care management system for these diseases. It is proposed to develop the Primary Health centres into Family Health Physician model of the United Kingdom. For this, posting of additional doctors and staff nurses would be required.As most of the PHCs are currently not having the laboratory facility, establishing the laboratories at these Centres are also very critical. Developing the knowledge, skill and competency of the doctors for developing these centres into Comprehensive Primary Health care management Centres is planned. As part of this exercise it is proposed to give more proactive role for the nursing staff including the initial assessment of the patient and post consultation counselling where ever required.Enhancing the role of sub centres into health and wellness centres by facilitating the systems for health promotion activities would also be very important in this regard. For ensuring optimum utilisation of various categories of staff, defining and redefining the job responsibilities of field workers, supervisors, ASHA and other community level health volunteers are envisaged.Effective community level public health interventions under the leadership of ward level health and sanitation committee at ward level and local self government institutions' intervention through plan schemes and own funds are expected. Decentralised health planning of the 13th Plan is very much incorporated with the implementation of Aardram mission.

EnsuringTreatment Guideline/ Protocol Based Case Managements inGovt Hospitals

125. As part of the Aardram mission it is proposed to develop treatment guidelines for comprehensive primary care and for other common disease conditions.Ensuring the effective utilisation of available protocols / guidelines of various National Programmes and state public health programmes also would be done.

126. It is proposed to add three more specific components namely a proposal for **improving the health status of vulnerable Tribal Community**, for developing**Urban primary health care system for the vulnerable section** of the urban population and an **AYUSH component** to the Aardram Mission.

127. Health care has mainly three dimensions, viz., quality, coverage (extent) and cost. It is often said that goals on all three cannot be simultaneously met. However, the attempt to extend coverage to every citizen and assure good quality is an essential part of the recognition of health as a right; and cost containment assures that this is met with efficient use of resources.

128. Any approach to the financing of health care should look at three aspects: what is the extent of resource we need for meeting our health care needs, how resources are mobilised (the source), and how they are utilised. A recent project - 'Strengthening Ecosystem for Sustainable and Inclusive Health Financing in India(SESSIHFI) (Public Health Foundation of India: Kerala Health Accounts 2013-14, PHFI Gurgaon 2015) estimates that in the fiscal year 2013-14, the total current expenditure on health in the state of Kerala was Rs 24699 crores, which is 6.2% of the state's domestic product (GSDP). This works out to Rs 7300 per capita, ahead of most other Indian states. If we consider the capital expenditure also, these numbers increase to Rs 25834 crores, or 6.5% of GSDP, with the per capita expenditure increasing to Rs 7636. Of this amount, only 19.65% comes from the government, financed by taxes; 76% is from households (out of pocket expenditure- OOP), and 3.4% from enterprises and NGOs. Social health insurance pools a mere 1.1% of the resources, and voluntary insurance 1.34% (these overlap with out of pocket spending). Thus the government expenditure on health is less than 1.5% of the GSDP; the proportion of total expenditure on health being around 7.5% of state GSDP.

129. If we look at what these amounts were spent on, more than a third of the spending overall was on pharmaceutical products (36.7%); inpatient care accounted for 26.6% and outpatient care for less than a tenth (9.5%). Since most of the expenditure on drugs is part of outpatient expenditure, the share of outpatient expenditure works out to be around 37% of the total.

130. Most developed economies spend 6- 8% of their GDP on health; viewed in this light, the state's expenditure of around 7.5% seems adequate. However, the problem is that only less than 20% of this is financed from taxes and insurance, accounting for pre-payment and risk pooling. It is well known that these two mechanisms- pre-payment and risk pooling- are the hall marks of a well balanced health financing system. Thus the challenge before the state is how to increase the public spending on health, so that the private spending, which is deemed inequitable by all experts, will be a much smaller proportion of the total, perhaps less than 20%. We have to recognise that this cannot be accomplished overnight; however, unless we accept and address this issue, the financing of the health sector will continue to be skewed against the poorer sections of society. This entails an increase in public spending to the tune of 4 times what it is now, or, an increase of about 15000 crore in today's money. While this can't be done in a jiffy, the attempt should be to reach this target in the course of the next 5 years. This would mean increasing the current level of total spending from around 20% to around 80%, or an increase of 60% of the total, roughly 15% per year. In current rupees this works out to under 4000 crores of rupees per year. This is the amount

that should be added to available public funds for health, if we are to achieve a desirable shift in the health expenditure pattern.

131. Where will this money come from? If we can increase tax revenues, a portion of this would accrue to health, and there will be an increase in the funds available for health. Since overall government expenditure will be expanding, there will be a proportionate demand on the funds from all quarters. So unless health is seen as a priority and government decides to divert funds from other sectors to health, it is not possible to achieve this target merely by increasing tax revenues.

132. The other option is to create designated- earmarked- funds for health. There have been several suggestions in this regard, some of which are:

133. *'Sin taxes'*.Increasing the tax on consumption which reduces health- such as smoking and consumption of alcohol, and diverting the increased revenues to a designated health fund;

134. *'Health cess'*.An amount which every household (except BPL) has to pay, proportionate to their income, which will go into a fund earmarked for health. One workable suggestion is to tie this to the rate of utility consumption, as indicated by the electricity bill- so that those households who are high level consumers will pay more towards the health fund;

135. *'Health levy' from the private sector*.Since Kerala has a thriving private sector in health, it seems tempting to collect money from this sector to subsidise the public sector. From an equity perspective, it is justifiable as some of the aspects of health care in the private sector definitely have the attributes of a 'luxury good', and the government is already collecting luxury taxes from the hotels. However, the collection of such tax entails tremendous political will on the part of the government and it may not be considered worthwhile.

136. Other interesting ideas include creating a fund for management of traffic accidents with a tax on vehicles. Since the number of vehicles on the road is increasing, this is a proposition worth considering.

137. *Channelizing government funds.* Already, several separate government departments are funding health care through schemes such as Karunya. Instead of creating an administrative nightmare by increasing the multitude of funding sources, all such funds may be pooled into a single 'health care fund'. This may even be augmented by contributions from private philanthropy and corporate contributions.

138. *Use of funds.* The proper channelling of these funds will depend on the principles of autonomy and self governance of public institutions. This means that we have to move away from the current budget based approach to institutional financing to a model based on funds for performance. Depending on the number of procedures, outpatients, inpatients, operations etc done in each institution, they should be able to get re-imbursed from the common health care fund. This means that the managerial and administrative capabilities in the health services have to be raised to a higher level.

139. We see from the estimates of the PHFI that the greatest chunk of expenditure is earmarked for pharmaceutical supplies; therefore, making drugs available free or at subsidised rates to the public without break will itself provide a shift towards more public funding of health care. However, most of the experiments in this regard have not been a success. Perhaps the cost savings which are promised by central purchase, storage and distribution are more than overshadowed by the inefficiencies of administering a hugely centralised system.

140. *The use of insurance.* The current provisions under RSBY do not represent a proper social insurance program. Hence while this can be utilised as a central scheme, the dependence on RSBY and CHIS for funding health care for the poor should slowly be discontinued. Health care at high quality should be provided in government institutions which are free of cost to everyone; in reality it may mean that they are used more by the poorer people. This would then represent an equitable health financing mechanism and do away with problems of moral hazard which seem to plague the insurance schemes. People who can afford, can, of course, be left to purchase their own private health insurance.

ANNEXURE 1

PROCEEDINGS OF THE MEMBER SECRETARY
STATE PLANNING BOARD
(Present: Sri. V. S.Senthil IAS)

Sub:Formulation of Thirteenth Five Year Plan (2017-2022) – Constitution of Working Group on **Medical and Public Health** -Orders issued.

Ref: Note 260/2016/PCD/SPB dated 6/09/2016 of the Chief, PCD

No. 298/2016/SS (W5)/SPBDated: 19/09/2016

As part of the formulation of Thirteenth Five Year Plan it is decided to constitute 14 Working Groups under Social Services Division. Accordingly Working Group on **Medical and Public Health** is hereby constituted with the following Co-Chairpersons and Members.

Co-Chairpersons

1. Sri. Rajeev Sadanandan IAS,Additional Chief Secretary to Government, Health & Family Welfare Department, Govt. Secretariat, Tvm. - PH:9868829495
2. Dr.K.R. Thankappan,Professor and Head, Achutha Menon Centre for Health Sciences Studies, SreeChitraTirunal Institute for Medical Sciences and Technology, Thiruvananthapuram - PH: 9447072171 - kr.thankappan@gmail.com

Members

1. Dr. Ramesh R., Director, Directorate of Health Services, General Hospital Junction, Thiruvananthapuram- PH: 9447139266
2. Dr. RamlaBeevi,Director, Directorate of Medical Education, Medical College P.O, Thiruvananthapuram - Ph:9447042126
3. Dr. Jagadeesan T. K., Deputy Director (Planning), Directorate of Health Services, General Hospital Jn., Thiruvananthapuram - PH: 9447124413
4. Dr. Suma T. K., Professor of Medicine, Medical College, Alappuzha - PH: 9847041205
5. Dr. P.K. Balakrishnan,Professor of Neurosurgery, Govt. Medical College, Kottayam 686008 - Mobile: 9447055918
6. Dr. S. S. Santhosh Kumar, Department of Orthopedics, Govt. Medical College, Thiruvananthapuram - 695 008 - Mobile: 94470166512
7. Dr. P. K. Jameela,DHS (Rtd),Palghat - Mobile: 9847614754
8. Dr. K. P. Aravindan,Emeritus Professor, Multi-Disciplinary Research Unit, Medical College, Kozhikode 673 008 - Mobile: 9349113880
9. Dr. U. Nandakumar,Manna, B N R A 186A, Golf Links Road, Kowdiar, Trivandrum 695003 - Mobile: 9447224849
10. Dr. Vijayakumar, Professor of Community Medicine (Rtd.), Pratheeksha, CPRA 21, Palkulamgara, Pettah P.O., Tvm. - Ph:9447563000

Convener

Smt. ShilaUnnithan,Chief, Social Services Division, State Planning Board, Tvm.

Co-convener

Sri. Saji V., Research Officer, State Planning Board, Tvm.

Terms of Reference

1. To review the development of the sector with emphasis as to progress, achievements, present status and problems under its jurisdiction during the 11th and 12th Five Year Plan periods.
2. To evaluate achievements with regard to the plan projects launched in the sector, both by the State Government and by the Central Government in the State during these plan periods.
3. To list the different sources of data in each sector and provide a critical evaluation of these data sources, including measures for improvement.
4. To identify and formulate a set of output and outcome indicators (preferably measurable) for each sector and base the analysis of the previous plans on these indicators.
5. To outline special problems pertaining to the health sector.
6. To suggest, in particular, a set of projects which can be undertaken during the Thirteenth Five Year Plan period.
7. To suggest various measures to improve the functioning of the Government health institutions.
8. To get suggestions on universalization of health insurance programme by merging various health insurance schemes owned by various Departments into one umbrella scheme under a mission. How to improve the basic amenities of the Government hospitals by utilizing the share from the insurance scheme
9. To get suggestions on systematic and scientific human resource planning in health sector both in specialty and administrative cadre.
10. To suggest a sustainable infrastructure development plan in the health sector with a long term vision.
11. To examine the pros and cons of adopting Clinical Establishments (Registration & Regulation) Act approved by the Central Government and to suggest amendments if any.
12. To make recommendations on prevention, early detection and management of lifestyle diseases with the co-operation of LSGs, Health Department, Public Health Protection Agency, Kudumbashree, etc.
13. To suggest a methodology to meet the health needs of the people of scheduled castes and tribes, women, fish workers, elderly, and physically and mentally challenged persons.
14. To suggest measures for the universalisation of Palliative Care
15. To suggest measures to monitor the incidence of communicable diseases and how to achieve universal immunization programmes.
16. To examine how public health topics can be introduced in school and college curriculum.
17. To examine how Kerala Public Health Act, Paramedical Council Act and Pharmacy Act can be suitably implemented.

18. To examine how appointment to government hospitals and medical colleges can be done without delay and with more efficiency.
19. To examine how the drug production by KSDP can be further improved and also examine whether more drug production units can be established in the state.
20. To examine the prospects for establishing a modern drug research centre in Kerala
21. To examine the chances introducing low cost medical care and allied facilities in association with Co-operative sector and philanthropic organizations.
22. Suggestions for improvement of 'e-health programme' as a comprehensive scheme for quality health services using electronic health record, evidence based medicine, treatment protocols and guidelinesand fostering medical research in future.
23. The Co-Chairpersons are authorised to modify terms of reference with approval of State Planning Board and are also authorised to invite, on behalf of the Working Group, experts to advise the Group on its subject matter. These invitees are eligible for T. A. and D. A. as appropriate.
24. The Co-Chairpersonsare authorized to co-opt additional members, if necessary.
25. Report Drafting Committee may be constituted by the Co-Chairperson for the timely submission of the report.
26. The working group will submit its draft report by 1st December 2016 to the State Planning Board.

The non-official members of the Working Group will be entitled to Travelling Allowances and Daily Allowances as applicable to Class I Officers of the Government of Kerala.The Class I Officers of Government of India will be entitled to travelling allowances and Daily Allowances as per rules if reimbursement is not allowed from departments.

Sd/-
V.S. Senthil IAS
Member Secretary

To

The person concerned
The Sub Treasury Officer, Vellayambalam

Copy to:

The Accountant General, Kerala (A&E) with C/L
All Divisions, State Planning Board
P.S. to Vice Chairman, State Planning Board
C.A. to Members
P.A. to Member Secretary
C.A. to Sr. Administrative Officer
Finance Officer,P.P.O, Publication Officer,
Computer Section, Accounts Sections, Stock File

Forwarded/By Order
Sd/-
Chief, Social Services Division
State Planning Board

PROCEEDINGS OF THE MEMBER SECRETARY
STATE PLANNING BOARD
(Present: Sri. V.S. Senthil IAS)

Sub:Formulation of Thirteenth Five Year Plan (2017-2022) – Constitution of Working Group on **Medical and Public Health** -Orders issued.

Ref: -. 1. Note 260/2016/PCD/SPB dated 6/09/2016 of the Chief, PCD

2. No. 298/2016/ SS (W5)/SPB Dated: 19/09/2016

No. 298/2016/SS (W5)/SPBDated: 04/10/2016

The following Member is also included in the Working Group of Medical & Public Health constituted vide referenced 2nd cited.

Member

Dr. AnulekhBabu,Assist Professor, Department of Conservative Dentistry, Government Dental College, Thiruvananthapuram – 011, PH: 9995435070

Sd/-
V.S. Senthil IAS
Member Secretary

To
1. The person concerned
2. The Sub Treasury Officer, Vellayambalam

Copy to:
The Accountant General, Kerala (A&E) with C/L
All Divisions, State Planning Board
P.S. to Vice Chairman, State Planning Board
C.A. to Members
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C.A. to Sr. Administrative Officer
Finance Officer,P.P.O, Publication Officer,
Computer Section, Accounts Sections
Stock File

Forwarded/By Order
Sd/-
Chief, Social Services Division
State Planning Board

ANNEXURE 2

The Working Group on **'Medical and Public Health'** has received support from the following members of staff of State Planning Board at its different stages.

1. SmtShilaUnnithan, Chief, SS Division, State Planning Board
2. Sri. Saji V., Research Officer, State Planning Board, Tvm.
3. Sri Kunjikrishnan V, Research Assistant, Plan Co – ordination Division, State Planning Board
4. Sri. Deepak Johnson, Technical Assistant, VC's Office, State Planning Board
5. Sri Vijayasuryan CK, Technical Assistant, VC's Office, State Planning Board
6. Sri Harshan TEE PEE, Special Private Secretary, VC's Office, State Planning Board