

## Appendix 1.1

## Category-wise number of healthcare institutions in the State

(Reference: Paragraph 1.7; Page: 5)

Category	Total Hospitals
<b>Modern Medicine</b>	
Medical Colleges and attached Hospitals	19
Dental Colleges	6
DH/ GH	36
TH/ THQH	87
Speciality/ DTBC	41
CHC	185
FHC/PHC	889
UPHC	96
Sub Centres	5414
<b>AYUSH - ISM</b>	
Medical Colleges	3
Hospitals	130
Dispensaries	818
Sub Centres	60
NHM dispensaries	257
<b>AYUSH - Homoeo</b>	
Medical Colleges	2
Hospitals	34
Dispensaries	669
NHM dispensaries	407
<b>Total</b>	<b>9153</b>

## Appendix 1.2

## List of institutions covered in audit

(Reference: Paragraph 1.7; Page: 6)

Sl. No.	Name of District	Name of Institutions covered in Audit
<b>MODERN MEDICINE</b>		
1.	Alappuzha (22 nos.)	FHC - Aryad, Cheruthana, Kadampoor, Puliyoore, Punnapra North, Thalavady, Nooranad, Perumpalam.
		UPHC - Mullathu Valappu
		CHC - Chunakkara, Muhamma
		TH/THQH - Thuravoor, Kayamkulam
		DH - Mavelikkara
		GH - Alappuzha
		TBC - Karuvatta
		MCH - Alappuzha
		Five sub-centres
2.	Malappuram (25 nos.)	PHC - Kannamangalam, Keezhattur, Pallickal, Kurumbalangode, Othukkungal, Thennala
		UPHC - Biyyam, Ponnani.
		FHC - Cherukavu, Chokkad, Thevarkadapuram, Thrikkannapuram, Parappanangadi
		CHC - Edappal, Tanur
		TH/THQH - Wandoor, Tirurangadi.
		DH - Tirur
		W and CH - Ponnani
		MCH - Manjeri
Five sub-centres		
3.	Thiruvananthapuram (26 nos.)	PHC - Perumpazhuthoor
		UPHC - Attukal, Kannammoola
		FHC - Amboori, Kuttichal, Mudakkal, Pallichal, Pullampara, Vettur, Pozhiyoore, Kattakkada
		CHC - Anchuthengu, Manamboor
		TH/THQH - Fort, Malayinkeezhu
		DH - Nedumangad
		GH - Neyyattinkara
		Mental HC - Peroorkada
		Dental CH - Thiruvananthapuram
		SAT - Thiruvananthapuram
		MCH - Thiruvananthapuram
Five sub-centres		
4.	Wayanad (14 nos.)	PHC - Varadoore
		UPHC - Kalpetta
		FHC - Thondernad, Vellamunda, Meppadi
		Tribal Hospital - Nalloornad (categorised under CHC by DHS)
		TH/THQH - Vythiri
		DH - Mananthavady
		GH - Kalpetta
		Five sub-centres
<b>TOTAL</b>		<b>87 Institutions</b>
<b>AYUSH</b>		
5.	Thiruvananthapuram (6 nos.)	Government Homoeo Dispensary, Beemapally
		Government Ayurveda Dispensary, Karakulam
		Government Yoga Naturopathy Hospital, Varkala
		Government Ayurveda Marma Hospital, Kanjiramkulam

Sl. No.	Name of District	Name of Institutions covered in Audit
		Government Homoeo Medical College, Thiruvananthapuram
		Government Ayurveda Medical College, Thiruvananthapuram
6.	Malappuram (4 nos.)	Government Homoeo Dispensary, Thrikkalagode
		Government Ayurveda Dispensary, Valluvambram
		Government Ayurveda Hospital, Perinthalmanna
		Government Ayurveda Institute for Mental Diseases, Kottakkal
7.	Alappuzha (4 nos.)	Government Ayurveda Dispensary, Bharanikkavu
		Government Siddha Dispensary, Mannancherry
		Government Homoeo Hospital, Cherthala
		Government Ayurveda Panchakarma Hospital, Alappuzha
8.	Wayanad (4 nos.)	Government Homoeo Dispensary, Meppadi
		Government Ayurveda Dispensary, Meenangadi
		Government Homoeo Hospital, Mananthavady
		District Ayurveda Hospital, Kalpetta
	<b>TOTAL</b>	<b>18 Institutions</b>

### Appendix 1.3

#### Audit Criteria

*(Reference: Paragraph 1.10; Page: 8)*

The Audit criteria adopted to achieve the audit objectives are:

1. National Health Policy, 2017
2. Sustainable Development Goals, National indicators, State specific programmes and activities
3. Indian Medical Council Act, 1956 replaced by National Medical Commission Act, 2019
4. Indian Public Health Standards, 2012
5. Indian Medical Degrees Act, 1916
6. Clinical Establishments Act, 2010 and The Kerala Clinical Establishments (Registration and Regulation) Act, 2018
7. Professional Conduct, Etiquette and Ethics Regulations, 2002
8. Drugs and Cosmetics Act 1940 and Rules, 1945
9. NHM Assessor's guidebook
10. Indian Nursing Council Act, 1947
11. Bio-Medical Waste Management Rules, 1998 and 2016
12. Atomic Energy (Radiation Protection) Rules, 2004
13. World Health Organisation norms
14. Establishment of Medical College Regulations, 1999
15. Minimum Standards Requirement Regulations, 1999, replaced by Minimum requirement for annual MBBS admissions Regulations, 2020
16. National Accreditation Board for Testing and Calibration Laboratories - Accreditation Programmes for Testing Laboratories as per ISO/ IEC 17025, Calibration Laboratories as per ISO/ IEC 17025, Medical Laboratories as per ISO 15189, etc.
17. National Accreditation Board for Hospitals and Healthcare Providers - Accreditation Programmes for various Healthcare providers such as Hospitals, Blood Banks, Allopathic Clinics, AYUSH Hospitals, etc.
18. Indian Medicine Central Council Regulations, 2016
19. Homoeopathy Central Council (Minimum Standards Requirement of Homoeopathic Colleges and attached Hospitals) Regulations, 2013.
20. Homoeopathy Medical Colleges Teaching Service Special Rule, 2019
21. The National Commission for Indian System of Medicine Act, 2020
22. The National Commission for Homoeopathy Act, 2020
23. KASH (Kerala Accreditation Standards for Healthcare) AYUSH
24. Government of India/ GoK policies, norms, orders, circulars, annual/ administration reports, etc. related to healthcare.
25. IT Act 2000 and IT (Amendment) Act, 2008
26. Information Technology (IT) Policy, 2012 of Government of Kerala
27. Circulars issued by KMSCL
28. Terms of e-tenders
29. Regulatory Mechanism for AYUSH

## Appendix 3.1

## Status of FHCs under Aardram Mission

(Reference: Paragraph 3.1.2.1; Page: 33)

Sl. No.	Name of Institution	No. of shifts	Whether service provided on Sundays	Whether laboratory service provided
1.	FHC Amboori	2	Yes	Yes
2.	FHC Aryad	2	Yes	Yes
3.	FHC Cherukavu	1	Yes	No
4.	FHC Cheruthana	2	Yes	Yes
5.	FHC Chokkad	2	Yes	Yes
6.	FHC Kadampoor	1	Yes	Yes
7.	FHC Kattakkada	2	Yes	Yes
8.	FHC Kuttichal	2	Yes	Yes
9.	FHC Meppadi	2	Yes	Yes
10.	FHC Mudakkal	2	Yes	Yes
11.	FHC Nooranad	1	No	Yes
12.	FHC Pallichal	2	Yes	Yes
13.	FHC Parappanangadi	2	No	Yes
14.	FHC Perumpalam	1	Yes	Yes
15.	FHC Pozhiyoor	2	Yes	Yes
16.	FHC Puliyoor	1	Yes	Yes
17.	FHC Punnapra North	2	No	Yes
18.	FHC Thalavadi	1	Yes	No
19.	FHC Thevarkadappuram	2	No	Yes
20.	FHC Thondernad	2	Yes	Yes
21.	FHC Thrikkannapuram	2	Yes	Yes
22.	PHC Varadoor	1	No	No
23.	FHC Vellamunda	2	No	Yes
24.	FHC Vettoor	2	Yes	Yes
25.	PHC Kannamangalam	2	No	No
26.	PHC Keezhattur	1	No	Yes
27.	PHC Kurumbalangode	2	No	No
28.	PHC Othukkungal	2	No	No
29.	PHC Pallikkal	2	No	Yes
30.	PHC Perumpazhuthoor	1	No	No
31.	PHC Pullampara	1	No	Yes
32.	PHC Thennala	2	Yes	No
<b>Total Services Available</b>			<b>19</b>	<b>24</b>

## Appendix 3.2

## Daily average patient load/ counter in test-checked hospitals

(Reference: Paragraph 3.1.5; Page: 35)

Sl. No.	Hospital	Patient strength (as of February 2020)	Daily average number of OP patients (column (2) ÷ 29 days)	No. of registration counters	Daily average number of patients/ counter (column (3)/column (4))
	1	2	3	4	5
1	DH Mananthavady	46626	1608	1	1608
2	THQH Kayamkulam	34442	1188	1	1188
3	GH Kalpetta	31082	1072	1	1072
4	TH Thuravoor	30017	1035	1	1035
5	GH Neyyattinkara	57546	1984	2	992
6	TH Wandoor	26080	899	1	899
7	DH Tirur	48603	1676	2	838
8	W and CH Ponnani	21894	755	1	755
9	MCH Thiruvananthapuram	98535	3398	5	680
10	CHC Tanur	18326	632	1	632
11	MCH Manjeri	66323	2287	4	572
12	THQH Tirurangadi	47239	1629	3	543
13	DH Mavelikkara	29465	1016	2	508
14	THQH Malayinkeezhu	13053	450	1	450
15	CHC Edappal	12816	442	1	442
16	MCH Alappuzha	62696	2162	5	432
17	TH Fort	22850	788	2	394
18	THQH Vythiri	11088	382	1	382
19	UPHC Mullathu valappu	10886	375	1	375
20	DH Nedumangad	32275	1113	3	371
21	FHC Meppadi	9781	337	1	337
22	FHC Kuttichal	7423	256	1	256
23	CHC Manamboor	7092	245	1	245
24	FHC Pozhiyoor	6488	224	1	224
25	FHC Vellamunda	6261	216	1	216
26	PHC Pallikkal	6023	208	1	208
27	CHC Chunakkara	11617	401	2	200
28	FHC Perumpalam	5765	199	1	199
29	CHC Muhamma	11335	391	2	195
30	CHC Anchuthengu	5584	193	1	193
31	FHC Pallichal	4787	165	1	165
32	PHC Othukkungal	4787	165	1	165
33	GMHC Thiruvananthapuram	4779	165	1	165
34	FHC Parappanangadi	4629	160	1	160
35	UPHC Kalpetta	4411	152	1	152
36	GH Alappuzha	42781	1475	10	148
37	PHC Kannamangalam	3701	128	1	128

Sl. No.	Hospital	Patient strength (as of February 2020)	Daily average number of OP patients (column (2) ÷ 29 days)	No. of registration counters	Daily average number of patients/ counter (column (3)/column (4))
38	FHC Punnapra North	3585	124	1	<b>124</b>
39	FHC Thondernad	3443	119	1	<b>119</b>
40	PHC Keezhattur	3243	112	1	<b>112</b>
41	GTH Nalloornd	3074	106	1	<b>106</b>
42	PHC Thennala	3038	105	1	<b>105</b>
43	FHC Nooranad	3034	105	1	<b>105</b>
44	FHC Cheruthana	2925	101	1	<b>101</b>
45	FHC Thrikkannapuram	2669	92	1	<b>92</b>
46	PHC Pullampara	2560	88	1	<b>88</b>
47	TBC Karuvatta	2064	71	1	<b>71</b>
48	PHC Varadoor	2030	70	1	<b>70</b>
49	PHC Kurumbalangode	1905	66	1	<b>66</b>
50	FHC Chokkad	3796	131	2	<b>65</b>
51	FHC Kattakkada	1856	64	1	<b>64</b>
52	UPHC Ponnani	1768	61	1	<b>61</b>
53	FHC Puliyoer	1714	59	1	<b>59</b>
54	FHC Thevarkadappuram	1656	57	1	<b>57</b>
55	UPHC Biyyam	1640	57	1	<b>57</b>
56	FHC Mudakkal	1627	56	1	<b>56</b>
57	FHC Cherukavu	1535	53	1	<b>53</b>
58	FHC Thalavadi	1519	52	1	<b>52</b>
59	FHC Vettoor	1473	51	1	<b>51</b>
60	UPHC Kannamoola	1394	48	1	<b>48</b>
61	UPHC Attukal	1247	43	1	<b>43</b>
62	PHC Perumpazhuthoor	1041	36	1	<b>36</b>
63	FHC Kadampoor	987	34	1	<b>34</b>
64	Dental College, Thiruvananthapuram	882	30	1	<b>30</b>
65	FHC Aryad	1209	42	2	<b>21</b>
66	FHC Amboori	577	20	1	<b>20</b>
67	SAT Thiruvananthapuram	MCH Thiruvananthapuram furnished combined OP data of MCH and SAT Thiruvananthapuram. Hence, no separate data available for SAT Thiruvananthapuram			

## Appendix 3.3

## Availability of IPD services

(Reference: Paragraph 3.2; Page: 38)

## I. District/ General hospitals

Test-checked GH/DHs	Availability of essential IPD services							
	General Medicine	General Surgery	O and G	Trauma care	Paediatrics	Orthopaedics	Psychiatry	Physiotherapy
GH Neyyattinkara	Yes	Yes	Yes	No	Yes	Yes	No	Yes
GH Alappuzha	Yes	Yes	No	No	Yes	Yes	No	Yes
DH Tirur	Yes	Yes	Yes	No	Yes	Yes	No	Yes
DH Nedumangad	Yes	Yes	Yes	No	Yes	Yes	No	Yes
DH Mananthavady	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GH Kalpetta	Yes	Yes	Yes	No	Yes	Yes	Yes	No
DH Mavelikkara	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
IP Services available (out of 7)	7	7	6	2	7	7	3	5

## II. Taluk/ Taluk HQ hospitals

Test-checked TH/ THQs	Availability of essential IPD services					
	General Medicine	General Surgery	O and G	Emergency care	Paediatrics	Orthopaedics
THQH Kayamkulam	Yes	Yes	Yes	Yes	Yes	Yes
TH Thuravoor	Yes	No	Yes	Yes	No	No
TH Wandoor	No	No	Yes	Yes	Yes	No
THQH Tirurangadi	Yes	Yes	Yes	Yes	Yes	Yes
TH Fort	Yes	Yes	Yes	Yes	Yes	No
THQH Malayinkeezhu	Yes	No	No	Yes	No	No
THQH Vythiri	Yes	Yes	Yes	Yes	No	Yes
IP Services available (out of 7)	6	4	6	7	4	3

## Appendix 3.4

## Availability of pathology services in test-checked hospitals

(Reference: Paragraph 3.9.2.1; Page: 54)

## District/ General Hospitals

Sl. No.	Department	Laboratory Services	GH Neyyattinkara	GH Alappuzha	DH Tirur	DH Nedumangad	DH Mananthavady	GH Kalpetta	DH Mavelikkara
			(Availability: 1 indicates Yes/ 0 indicates No)						
1.	<b>Clinical Pathology</b>	Haemoglobin estimation	1	1	1	1	1	1	1
2.	a. Haematology	Total Leukocytes count	1	1	1	1	1	1	1
3.		Differential Leukocytes count	1	1	1	1	1	1	1
4.		Absolute Eosinophil count	1	1	0	1	1	0	1
5.		Reticulocyte count	0	0	0	0	1	1	0
6.		Total RBC count	1	1	0	1	1	1	1
7.		E. S. R.	1	1	1	1	1	1	1
8.	Immunoglobulin Profile (IGM, IGG, IGE, IGA)	Bleeding time	1	1	0	1	1	1	1
9.	Fibrinogen Degradation Product	Clotting time	1	1	1	1	1	1	1
10.		Prothrombin time	0	0	1	0	0	0	1
11.		Peripheral Blood Smear	0	0	1	0	1	0	0
12.		Malaria/Filaria Parasite	1	1	1	1	1	1	1
13.		Platelet count	1	1	1	1	1	1	1
14.		Packed Cell volume	1	1	1	1	1	1	1
15.		Blood grouping	1	1	1	1	1	1	1
16.		Rh typing	1	1	1	1	1	1	1
17.		Blood Cross matching	0	0	1	1	1	0	0
18.		ELISA for HIV, HCV, HBs Ag	0	0	0	0	1	0	1
19.		ELISA for TB	1	0	0	1	0	0	0
20.		APtt	0	0	1	0	0	0	1
21.		ANA/ANF, Rheumatoid Factor	0	0	1	1	1	1	0
22.	b. Urine Analysis	Urine for Albumin, Sugar, Deposits, bile salts, bile pigments, acetone, specific gravity, Reaction (pH)	1	1	1	1	1	1	1
23.	c. Stool Analysis	Stool for Ovacyst (pH),	1	1	0	1	1	1	1
24.		Hanging drop for V. Cholera	1	0	0	1	1	1	0
25.		occult blood	1	0	0	0	1	0	0
26.		Bacterial culture and sensitivity	1	0	0	0	0	0	0
27.	d. Semen Analysis	Morphology, count	0	0	0	1	0	0	1
28.	e. CSF Analysis	Analysis, Cell count, etc.	0	0	0	0	1	0	0
29.	f. Aspirated fluids	Cell count cytology	0	0	0	0	1	0	0
30.	<b>Pathology</b> a. PAP smear	Cytology	0	1	0	0	0	0	0
31.	b. Sputum	Sputum cytology	0	1	0	0	0	0	0
32.	c. Haematology	Bone Marrow Aspiration	0	1	0	0	0	0	0
33.		Immuno haematology	0	0	0	0	0	0	0
34.		Coagulation disorders	0	0	0	0	0	0	1
35.		Sickle cell anaemia	0	0	0	0	1	1	0
36.		Thalassemia	0	0	0	0	1	0	0
37.	d. Histopathology	All types of specimens, Biopsies	0	0	0	0	0	0	0
38.	<b>Microbiology</b>	KOH study for fungus	0	0	0	0	0	0	0
39.		Smear for AFB, KLB (Diphtheria)	0	0	0	1	0	0	0
40.		Culture and sensitivity for blood, sputum, pus, urine, etc.	0	0	0	0	0	0	0

Sl. No.	Department	Laboratory Services	GH Neyyattinkara	GH Alappuzha	DH Tirur	DH Nedumangad	DH Mananthavady	GH Kalpetta	DH Mavelikkara
41.		Bacteriological analysis of water by H <sub>2</sub> S based test	0	0	0	0	0	0	0
42.		Stool culture for Vibrio Cholera and other bacterial enteropathogene	0	0	0	0	0	0	0
43.		Supply of different media for peripheral Laboratories	0	0	0	0	0	0	0
44.		Grams Stain for Throat swab, sputum, etc.	0	0	0	0	0	0	0
45.	<b>Serology</b>	RPR Card test for Syphilis	1	0	0	1	1	1	1
46.		Pregnancy test (Urine gravindex) ELISA for Beta HCG	1	0	1	1	1	0	1
47.		Leptospirosis, Brucellosis	1	1	1	1	1	1	1
48.		WIDAL test	1	1	0	1	1	1	1
49.		Elisa test for HIV, HBsAg, HCV	0	0	0	0	1	0	1
50.		DCT/ICT with Titre	0	0	0	0	1	0	0
51.		RA factor	1	0	1	1	1	1	1
52.	<b>Biochemistry</b>	Icteric index	1	0	0	0	0	0	0
53.		Liver function tests	1	1	1	1	1	1	1
54.		Kidney function tests	1	1	1	1	1	1	1
55.		Lipid Profile	1	1	1	1	1	1	1
56.		Blood uric acid	1	1	1	1	1	1	1
57.		Serum calcium	1	1	0	1	1	1	1
58.		Serum Phosphorous	1	1	0	1	1	1	1
59.		Serum Magnesium	0	0	0	0	1	0	0
60.		CSF for protein, sugar	0	0	0	0	1	0	0
61.		Blood gas analysis	0	0	0	0	1	0	1
62.		Estimation of residual chlorine in water	0	0	0	0	0	0	0
63.		Thyroid T3 T4 TSH	1	1	0	0	1	1	1
64.		CPK	0	0	0	0	1	0	0
65.		Chloride	0	1	0	0	1	0	0
66.		Salt and Urine for Iodine	0	0	0	0	0	0	0
67.		Iodometry Titration	0	0	0	0	0	0	0
<b>Total Lab Services available</b>			<b>32</b>	<b>28</b>	<b>23</b>	<b>32</b>	<b>45</b>	<b>29</b>	<b>34</b>

**Taluk Hospitals / THQHs**

Sl. No.	Department	Laboratory Services	THQH Tirurangadi	TH Thuravoor	TH Fort	THQH Kayamkulam	THQH Malayinkeezhu	THQH Vythiri	TH Wandoor
			<b>(Availability: 1 indicates Yes/ 0 indicates No)</b>						
1.	<b>Clinical Pathology</b>	Haemoglobin estimation	1	1	1	1	1	1	1
2.	a. Haematology	Total Leukocytes count	1	1	1	1	1	1	1
3.		Differential Leukocytes count	1	1	1	1	1	1	1
4.		Absolute Eosinophil count	1	0	0	1	1	0	1
5.		Reticulocyte count	0	0	0	0	0	0	0
6.		Total RBC count	1	1	1	1	1	1	1
7.		E. S. R.	1	1	1	1	1	1	1
8.		Bleeding time	1	1	1	1	1	1	1
9.		Clotting time	1	1	1	1	1	1	1
10.		Prothrombin time	0	0	0	0	0	0	0
11.		Peripheral Blood Smear	0	1	0	0	0	0	0

Sl. No.	Department	Laboratory Services	THQH Tirurangadi	TH Thiruvavoor	TH Fort	THQH Kayamkulam	THQH Malayinkeezhu	THQH Vythiri	TH Wandoor
12.		Malaria/ Filaria Parasite	1	1	1	1	1	1	1
13.		Platelet count	1	1	1	1	1	1	1
14.		Packed Cell volume	1	1	1	1	1	1	1
15.		Blood grouping	1	1	1	1	1	1	1
16.		Rh typing	1	1	1	1	1	1	1
17.		Blood Cross matching	0	0	0	0	0	0	0
18.	b. Urine Analysis	Urine for Albumin, Sugar, Deposits, bile salts, bile pigments, acetone, specific gravity, Reaction (pH)	1	1	1	1	1	1	1
19.	c. Stool Analysis	Stool for Ovacyst (pH)	1	0	0	1	1	1	0
20.		Hanging drop for V. Cholera	0	0	0	0	0	0	0
21.		Occult blood	0	0	0	0	0	1	0
22.	d. Semen Analysis	Morphology, Count, Motility etc.	0	0	0	0	0	0	0
23.	e. CSF Analysis	Analysis, Cell count etc.	0	0	0	0	0	0	0
24.	f. Aspirated fluids	Cell count cytology	0	0	0	0	0	0	0
25.	<b>Pathology</b>	Sputum cytology	0	0	0	0	0	0	0
26.	<b>Microbiology</b>	Smear for AFB, KLB (Diphtheria)	1	1	0	0	1	1	1
27.		Grams Stain for Meningococci	0	0	0	0	0	0	0
28.		KOH study for fungus	0	0	0	0	0	0	0
29.		Grams Stain for Throat swab, sputum etc.	0	0	0	0	0	0	0
30.	<b>Serology</b>	RPR Card test for Syphilis	1	1	0	1	1	1	1
31.		Pregnancy test (Urine gravindex)	1	1	0	0	1	1	1
32.		WIDAL test	1	0	0	1	1	1	1
33.		Rapid test for HIV, HBs Ag, HCV, stocking of rapid H <sub>2</sub> S based test for bacteriological examination of water	1	1	0	1	1	1	1
34.	<b>Biochemistry</b>	Blood Sugar	1	1	1	1	1	1	1
35.		Liver function tests	1	1	1	1	1	1	1
36.		Kidney function tests	1	1	1	1	1	1	1
37.		Lipid Profile	1	1	1	1	1	1	0
38.		Blood urea, blood cholesterol, Lipid Profile	1	1	1	1	1	1	1
39.		Stocking of OT test for residual chlorine in water	0	0	0	0	0	0	0
40.		CSF for protein, sugar	0	0	0	0	0	0	0
<b>Total Lab Services available</b>			<b>25</b>	<b>23</b>	<b>18</b>	<b>23</b>	<b>25</b>	<b>25</b>	<b>23</b>

### Community Health Centres

Sl. No.	Department	Laboratory Services	CHC Chunakkara	CHC Edappal	CHC Tanur	CHC Anchuthengu	CHC Muhamma	Tribal Hospital Nallooriad	CHC Manamboor
			<b>(Availability: 1 indicates Yes/ 0 indicates No)</b>						
1.	<b>Clinical Pathology</b>	Haemoglobin estimation	1	1	1	1	1	1	1
2.	a. Haematology	Total Leukocytes count	1	1	1	1	1	1	1
3.		Differential Leukocytes count	1	1	1	1	1	1	1
4.		Absolute Eosinophil count	0	1	0	1	0	1	1
5.		Reticulocyte count	0	0	0	0	0	0	0
6.		Total RBC count	0	1	0	1	1	1	1
7.		E. S. R.	1	1	1	1	1	1	1

Sl. No.	Department	Laboratory Services	CHC Chunakkara	CHC Edappal	CHC Tanur	CHC Anchuthengu	CHC Muhamma	Tribal Hospital Nalloornd	CHC Manamboor
8.		Peripheral Blood Smear	0	1	0	0	0	1	0
9.		Malaria/ Filaria Parasite	1	1	1	1	1	1	1
10.		Platelet count	1	1	1	1	1	1	1
11.		Packed Cell volume	1	1	0	1	1	1	1
12.		Blood grouping	1	1	0	1	0	1	0
13.		Rh typing	1	1	0	1	0	1	0
14.		Blood Cross matching	0	0	0	0	0	0	0
15.	b. Urine Analysis	Urine for Albumin, Sugar, Deposits, bile salts, bile pigments, acetone	1	1	1	1	1	1	1
16.	c. Stool Analysis	Stool for Ovacyst (Ph)	1	0	0	0	1	1	0
17.		Hanging drop for V. Cholera	0	0	0	0	1	1	0
18.		Occult blood	0	0	0	0	0	1	0
19.	<b>Pathology Sputum</b>	Sputum cytology	0	0	0	0	0	0	0
20.	<b>Microbiology</b>	Smear for AFB, KLB (Diphtheria)	1	1	1	1	1	0	0
21.		Grams Stain for Throat swab, sputum etc.	0	0	0	0	0	0	0
22.	<b>Serology</b>	VDRL	0	1	0	0	0	1	1
23.		Pregnancy test (Urine gravindex)	1	1	0	1	0	1	1
24.		WIDAl test	1	0	0	1	0	0	1
25.	<b>Biochemistry</b>	Blood Sugar	1	1	1	1	1	1	1
26.		Blood urea	1	1	0	1	1	1	1
27.		Liver function tests	1	1	0	1	0	1	1
28.		Kidney function tests	1	1	0	1	1	1	1
29.		Lipid Profile	1	1	0	1	1	0	1
<b>Total Lab Services available</b>			<b>19</b>	<b>21</b>	<b>9</b>	<b>20</b>	<b>16</b>	<b>22</b>	<b>18</b>

## Appendix 3.5

## Availability of pathology services in test-checked AYUSH hospitals

(Reference: Paragraph 3.9.2.2; Page: 54)

Sl. No.	Name of the hospital/ dispensary	Laboratory services including pathology and microbiology
1.	Government Siddha Dispensary, Mannanchery	No
2.	Government Ayurveda Dispensary, Bharanikkavu	No
3.	Government Ayurveda Panchakarma Hospital, Alappuzha	No
4.	Government Homoeo Hospital, Cherthala	Yes
5.	Government Ayurveda Research Institute for Mental Diseases, Kottakkal	Yes
6.	Government Ayurveda Hospital, Perinthalmanna	No
7.	Government Ayurveda Dispensary, Valluvambram	No
8.	Government Homoeo Dispensary, Thrikkalangude	No
9.	Government Homoeo Hospital, Mananthavady	Yes
10.	District Ayurveda Hospital, Kalpetta	Yes
11.	Government Ayurveda Dispensary, Meenangadi	No
12.	Government Homoeo Dispensary, Meppadi	No
13.	Government Homoeo Dispensary, Beemapally	No
14.	Government Ayurveda Dispensary, Karakulam	No
15.	Government Ayurveda Marma Hospital, Kanjiramkulam	Yes
16.	Government Yoga Naturopathy Hospital, Varkala	Yes
17.	Government Homoeopathic Medical College Hospital, Thiruvananthapuram	Yes
18.	Government Ayurveda Medical College Hospital, Thiruvananthapuram	Yes

## Appendix 4.1

## Deficiencies in IT management of DDMS

(Reference: Paragraph 4.6; Page: 75)

Sl. No.	Indicators	Audit Observations	Remarks of KMSCL
1	<b>IT Governance:</b> Information Technology Strategy represents the mutual alignment between IT strategy and business strategic objectives. The strategy should consider the existing IT infrastructure and architecture, investments, delivery model, resourcing including staffing, and lay out a strategy that integrates these into a common approach to support the business objectives	<b>Absence of IT Strategy and Planning</b> 1. Vision document comprising among other things the objectives of the system, problem statement, business needs/ requirements, product/ solution overview and process details was not prepared. 2. Without formally assessing and documenting the functional requirements, the management proceeded with adopting application system functioning elsewhere. 3. IT governing, steering, monitoring and operation committees were not constituted. 4. There was no Information Security Officer to look into the information security breaches and incidents. 5. DDMS is not integrated with e-Procurement system of Government of Kerala, depriving system automation and audit trail. 6. There were inadequate provisions of grants to KMSCL during all the years covered under audit, compelling them to delay payments to their vendors.	KMSCL stated (June 2022) that they have an Information Technology (IT) division with technically qualified officers who are looking after the IT related operations of the Corporation. The DDMS application is not integrated with the e-Procurement system as NIC <sup>115</sup> has not yielded to the proposal for integrating the systems through API. The reply is not acceptable as one of the mandates of NIC is to explore and advise on use of emerging technologies. Hence, the impediments in integration of the systems are the lack of decision making and direction at appropriate level. The reply further indicates that there is little involvement of Governing Body in the design, development and operation of the IT system.
2	<b>Documentation</b> User Requirement Specifications (URS) document obtained from users and System Requirement Specifications (SRS) document developed by the software development team ensure that the needs of the users of the system have been taken care of and the software developed will meet the business requirements.	<b>Documentation Deficiencies</b> URS document was not prepared. The absence of well documented URS deprived a benchmark both for the developer and KMSCL. This led to ad-hoc system development and design deficiencies. In the absence of URS, Audit could not assess precisely whether full functionality of the software and the intended benefits of computerisation were achieved. Though SRS document was prepared by the developer, the same was not formally accepted by the Governing Body. In addition, there was no signing-off of the project.	KMSCL stated (June 2022) that the SRS document prepared in consultation with the various divisions of KMSCL was accepted and put forward for developing the application. The reply is not acceptable as no evidences of acceptance of the Governing Body and signing-off of the project were produced to Audit.
3	<b>IT Security policy</b> The IT security policy should define organisational assets (data, equipment, business processes) that need protection and link to procedures, tools, and physical access control that protect such assets.	<b>Absence of specifically laid down IT Security policy</b> KMSCL did not have a specifically laid down IT security and password policy. During interaction with end-users, it was disclosed that though system accepts only strong passwords, it does not enforce periodical change of passwords.	
4	<b>System design</b> System design is concerned with how the functional requirements will actually be provided and provides the definition of how the	<b>System design deficiency</b> DDMS is not integrated with e-Procurement system. In its absence, when the tender quantity is finalised in DDMS, the details are required to be manually entered in the e-Procurement system. After opening the bids, the details need to be manually entered in DDMS for further processing. This process not only accounts for	GoK replied (November 2023) that since Kerala State IT Mission had not provided Application Programming Interface, DDMS could not be integrated with e-procurement.

<sup>115</sup> National Informatics Centre (NIC) under the Ministry of Electronics and Information Technology (MeitY) is the technology partner of the Government of India. NIC was established in the year 1976 with the objective to provide technology-driven solutions to Central and State Governments.

Sl. No.	Indicators	Audit Observations	Remarks of KMSCL
	programmers will go on to build the system.	wastage of time, but also leads to non-capture of essential technical bid documents for audit trail.	
5	<b>Operation control</b>	<p><b>Inefficiencies in maintenance of master table designed for hospitals</b></p> <p>Analysis of data revealed that the master table designed for storing data relating to drugs and other objects procured by hospitals locally did not follow any of the principles required for a master table as narrated below.</p> <p>Instead of adopting the control of single-point data entry, all the users are permitted to enter data. Table is devoid of deduplication and unique keys. Multiple codes are assigned to same items/ drugs. There are 17,493 duplicate values in item codes. Even 296 codes are assigned to a single item. This lapse would deprive the management of an efficient system control for ensuring the genuineness and economy of expenditure regarding local purchase.</p>	Accepting the observation, KMSCL stated (June 2022) that unique centralised table for maintaining the items procured by the institutions would be customised.
6	<b>Validation controls</b>	<p><b>Mistakes in data capture caused by lack of validation controls</b></p> <p>Analysis of data in respect of local purchases revealed that the unit rate of same drug purchased by the same facility varied extremely, which brought out possibility of mistakes in the data capture caused by lack of both systemic and supervisory validation controls</p>	
7	<b>Contract management</b>	<p><b>Insufficient clauses in service level agreements (SLA) with developer and annual maintenance contractor (AMC)</b></p> <p>SLA is the most critical element of outsourcing and is a legally binding agreement, which enables effective management of vendors. Typical areas of even a simple SLA would include among other things, types of services, allocation of responsibilities between the organisation and the vendor, the services that will be measured, measurement period, duration, location, and reporting timelines, penalty clauses, termination/ 'material breach' clauses, etc. Audit observed that SLA with developer and AMC did not include any clauses on penalty and termination. There was no SLA for data backup.</p>	KMSCL accepted (June 2022) the observation.
8	<b>Business continuity planning</b>	<p><b>Lapses in business continuity planning and disaster recovery planning</b></p> <p>Business continuity planning is the process an organisation uses to plan and test the recovery of its business processes after a disruption and how an organisation will continue to function under adverse conditions like natural or other disasters. Disaster recovery planning is a subset of business continuity planning. It is the process of planning and testing for recovery of information technology infrastructure after a natural or other disaster.</p> <p>Audit noticed with appreciation that adequate measures were adopted for backup of data as the backup is done at the State Data Centre. However, there was no prescribed procedure for regular disaster recovery testing. Evidence of data recovery testing was not available on record.</p>	KMSCL accepted (June 2022) the observation.

Sl. No.	Indicators	Audit Observations	Remarks of KMSCL
9	Information security	<p><b>Information security issues: Flaws in web security</b> DDMS has not undergone STQC<sup>116</sup> audit. But, a certification completed in January 2017 by CERT-K<sup>117</sup> was produced to Audit. As per the report (February 2017), there were three vulnerabilities with low severity under the OWASP<sup>118</sup> Top 10 vulnerabilities<sup>119</sup> 2013, which needed fixing. As per the report, the vulnerabilities had the following impacts:</p> <ol style="list-style-type: none"> <li>1.Error message on page: The error messages may disclose sensitive information. This information can be used to launch further attacks.</li> <li>2.User credentials are sent in clear text: A third party can read the user credentials by intercepting an unencrypted HTTP connection.</li> <li>3.Login page password-guessing attack: An attacker can attempt to discover a weak password by systematically trying every possible combination of letters, numbers, and symbols until it discovers the one correct combination that works.</li> </ol> <p>Audit noticed that DDMS was not hosted in a secure website,<sup>120</sup> causing transmission of information in plain text, with the high risk of sniffing attack<sup>121</sup>. Thus, it is evident that the vulnerabilities pointed out in the report of CERT-K certification were not fixed.</p> <p>The risk of interception of passwords sent over the Internet can be reduced by using cryptographic protection.</p>	KMSCL accepted the observation (June 2022) and further stated that actions were since initiated to audit the system and host the system in secure website.

<sup>116</sup> Standardisation Testing and Quality Certification (STQC) Directorate is an attached office of the Ministry of Electronics and Information Technology, Government of India, which provides quality assurance services in the area of Electronics and IT through countrywide network of laboratories and centres.

<sup>117</sup> Government of Kerala set up Computer Emergency Response Team for Kerala (CERT-K) in line with the Indian CERT (CERT-In), the national nodal agency, to develop expertise in Government and Government Agencies in Kerala for handling cyber attacks and for preparing adequate sectoral contingency plans for handling crisis that may happen due to cyber attack or cyber terrorism. CERT-K operates on behalf and in conjunction with CERT-In.

<sup>118</sup> The Open Web Application Security Project (OWASP) is an online community that produces freely available articles, methodologies, documentation, tools and technologies in the field of web application security.

<sup>119</sup> OWASP Top Ten: first published in 2003, is regularly updated. It aims to raise awareness about application security by identifying some of the most critical risks facing organizations.

<sup>120</sup> Hypertext Transfer Protocol Secure (HTTPS) is used for secure communication on the Internet. In HTTPS, the communication protocol is encrypted using Transport Layer Security (TLS) or, formerly, Secure Sockets Layer (SSL).

<sup>121</sup> Sniffing attack corresponds to theft or interception of data by capturing the network traffic using a packet sniffer (an application aimed at capturing network packets).

## Appendix 4.2

## Details of equipment found idling in test-checked institutions

(Reference: Paragraph 4.7.5; Page: 83)

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
1.	GH Neyyattinkara	Pure tone Audiometer	2019	61425	November 2019	Lack of staff	January 2022	26
2.		Blood Gas Analyser	2014	384511	March 2016	High cost of Reagents	January 2022	70
3.		-do-	2015	380627	August 2016		January 2022	65
4.	FHC Kadampoor	Water Bath serological-1	2020-21	7599	July 2020	Not specified	February 2022	19
5.		Oxygen Concentrator	2021-22	NA	July 2021	Not needed	February 2022	7
6.		-do-		37581	July 2021	Not needed	February 2022	7
7.	CHC Edappal	Horizontal Rectangular Autoclave	2018	859040	October 2018	Lack of staff in Gynaecology wing	November 2021	37
8.		Multifunctional Labour Cot (type-2)	2018	38078	November 2018		November 2021	36
9.		Multifunctional Labour Cot (type-2)	2018	76157	April 2018		November 2021	43
10.		Multiparameter Monitor	2018	199920	November 2018		November 2021	36
11.		Suction Apparatus	2018	37296	December 2018		November 2021	35
12.		Laryngoscope (1 Adult and 1 Paediatric)	2019	16464	March 2019		November 2021	32
13.		Oxygen Cylinder with FM and stand	2019	9489	February 2021		November 2021	9
14.		OT Light Shadow	2019	192640	January 2019		November 2021	34
15.		Pulse Oxymeter	2019	75936	August 2019		November 2021	27
16.		Needle Burner cum Syringe Cutter	2018	17248	August 2018		November 2021	39
17.		Weighing Machine (Adult)	2018	3069	November 2018		November 2021	36
18.		Suction Low pressure	2019	6216	February 2019		November 2021	35
19.		Oxygen Concentrator	2021	26700	January 2019		November 2021	34
20.		X-Ray film Lobby	2021	25424	October 2021		November 2021	1
21.	Digital BP apparatus	2018	12998	August 2018	November 2021	39		
22.	OT Table Manual Hydraulic	2019	164020	February 2019	November 2021	33		

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
23.		Fumigation Dispenser	2018	46666	March 2018		November 2021	44
24.		Foetal Doppler	2018	16800	February 2018		November 2021	45
25.		Defibrillator with cardiac monitor	2018	167423	June 2018		November 2021	41
26.		Foetal Monitor Model- A CTG machine	2018	80528	September 2018		November 2021	38
27.		Baby Weighing Machine	2019	17664	April 2019		November 2021	31
28.		Anaesthesia Machine	2018	716184	May 2018		November 2021	42
29.		Ambu Bag (2 Adult and 2 Paediatric)	2018	8960	January 2018		November 2021	46
30.		Ultrasound Machine		781000	Bill not received		November 2021	
31.		Suction Apparatus	2019	11088	February 2019		November 2021	33
32.		Nebulizer	2018	8647	May 2018		November 2021	42
33.		Crash Cart	2019	19800	August 2019		November 2021	27
34.		Ventilator CPAP	2019	66640	February 2019		November 2021	33
35.		Infusion Pump with IV set	2019	22950	February 2019		November 2021	33
36.		Micropipette 1000 microlitres (fixed)	2019	663	November 2019		November 2021	24
37.		Micropipette 10 ml microlitres (fixed-ss-us)	2019	663	November 2019		November 2021	24
38.		Micropipette 10-100 microlitres	2019	1511	November 2019		November 2021	24
39.		Micropipette 100-1000 microlitres	2019	1511	November 2019		November 2021	24
40.	PHC Thennala	ESR Stand ss (6-tube-H-LIFECARE) with Tube (6 Nos.)	2019	464	November 2019	No Lab in the PHC	November 2021	24
41.		Haemometer Round Tube	2019	1339	November 2019		November 2021	24
42.		Mini Spirometer	2021	9309	May 2021		November 2021	6
43.		Mouth Piece for Spirometry	2021	1637	May 2021		November 2021	6
44.		Oxygen Concentrator-Single Chamber	2021	31250	May 2021		November 2021	6
45.		Haemometer Test Strips	2021	17100	May 2021		November 2021	6
46.	PHC Perumpazhuthoor	Lab Equipment	2019	51269	March 2019	No staff	January 2022	34

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
47.	CHC Thrikkannapuram	ECG machine	2020	3780	July 2020	Not needed	January 2022	18
48.		Ear Care Kit	2020	15500	August 2020		January 2022	17
49.		HBA1C Analyser	2019	48262	April 2019		January 2022	33
50.		Oxygen Concentrator (5 L)	2021	Donation	June 2021		January 2022	7
51.	GH Kalpetta	Ultra Sound Scanner	2018	1350000	November 2019	No Staff posted	January 2022	26
52.	TBC Karuvatta	X-Ray Machine	almost 30 years	NA	August 2017	Lack of radiation safety in the X-ray room	February 2022	54
53.	TH Thuravoor	Incinerator 10 kg		97000	April 2021	Under repair	February 2022	10
54.	FHC Amboori	Pulse Oxymeter with NELLCOR SSPO2 and NELLCOR Oximax Reusable Oxymetry Sensor	2020	68906	June 2020	Non-installation	December 2021	18
55.	DH Nedumangad	Dialysis beds -2	NA	NA	March 2021	False ceiling of mini unit needs repairs	November 2021	8
56.		Portable ventilators -(2 nos X 610400)	2020	1220800	October 2020	No space to place on bedside	November 2021	13
57.		Two body mortuary units	2021	295000	October 2021	Awaiting installation	November 2021	1
58.		Polishing lathe 2800 RPM	2021	12880	June 2021	NA	November 2021	5
59.		Surgical laser clean cut	2021	313600	April 2021	NA	November 2021	7
60.	PHC Mudakkal	Ophthalmoscope	2021	26490	December 2021	Substitute available	January 2022	1
61.		Oxygen concentrator	2020	46010	December 2021	Lack of space	January 2022	1
62.	TH Fort	Horizontal Rectangular Autoclave 300L	2019	706000	January 2019	Space shortage	November 2021	34
63.		X Ray Machine and CRS	2020	1106400	June 2020	Infrastructure deficiency	November 2021	17
64.		Instrument for Hemiarthroplasts	2019	331504	August 2019	No Ortho Surgeon available	November 2021	27
65.	THQH Malayinkeezhu	Autoclave Vertical	2020	117300	December 2020	Lack of space	January 2022	13
66.		Oxygen Concentrator	2021	Donation	September 2021	Lack of Space	January 2022	4
67.		Dental X ray	2019	36766	August 2019	Site not ready	January 2022	29

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
68.	DH Tirur	Thermo Heraeus Centrifuge	2018	3510972	October 2018	Blood bank site not ready	November 2021	37
69.		Vertical Plasma Freezer	2018	204800	March 2018		November 2021	44
70.		Platelet Agitator Incubator	2018	201600	March 2018		November 2021	44
71.		Plasma Expressor	2019	17470	March 2019		November 2021	32
72.		Blood bank refrigerator	2018	318600	March 2018		November 2021	44
73.		Air Conditioner	2019	145080	April 2019		November 2021	31
74.		Vertical Plasma Freezer	2018	729600	March 2018		November 2021	44
75.		Plasma Thawing Bath	2018	82880	March 2018		November 2021	44
76.		Electronic Weighing Scale	2018	22980	March 2018		November 2021	44
77.		DG set	2019	236550	February 2019		November 2021	33
78.	THQH, Tirurangadi	Centrifuge	NA	11242	June 2021	Lack of trained Blood Bank Technician	December 2021	6
79.		Electronic Weighing Scale	NA	NA	June 2021		December 2021	6
80.		Binocular microscope	NA	NA	June 2021		December 2021	6
81.		Ice Box	NA	NA	June 2021		December 2021	6
82.		Freezer	NA	NA	June 2021		December 2021	6
83.		Water Bath	NA	NA	June 2021		December 2021	6
84.		Refrigerator	NA	NA	June 2021		December 2021	6
85.		Blood bank refrigerator	NA	NA	June 2021		December 2021	6
86.		Air Conditioner	NA	NA	June 2021		December 2021	6
87.	GH Alappuzha	Refrigerated Centrifuge	2018	3510972	December 2018	Site not ready for blood bank	February 2022	38
88.		Water Bath	2019	12036	January 2019		February 2022	37
89.		Multifunctional couch and accessory	2018	283920	December 2018	Site not ready	February 2022	38
90.		Imark Elisa Reader & Microplate washer	2018	474360	September 2018		February 2022	41
91.		Hot air oven	2018	19942	September 2018		February 2022	41
92.		Vertical Plasma freezer (40 degree)	2018	188800	August 2018		February 2022	42
93.		Blood Bank Refrigerator	2018	637200	August 2018		February 2022	42

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
94.		Plasma thawing Bath	2018	82880	August 2018		February 2022	42
95.		Vertical Plasma Freezer (80 degree)	2018	729600	July 2018		February 2022	43
96.		Platelet Agitator Incubator	2018	201600	August 2018		February 2022	42
97.		Electronic Weighing Scale	2018	22981	September 2018		February 2022	41
98.		Crash Cart	2018	18526	July 2018		February 2022	43
99.		Digital BP Apparatus	2018	5199	August 2018		February 2022	42
100.		Binocular microscope	2018	19712	August 2018		February 2022	42
101.		Terumo tube sealer	2018	170836	July 2018		February 2022	43
102.		Incubator	2018	19352	July 2018		February 2022	43
103.		Vertical Plasma freezer with charter recorder	2018	672600	August 2018		February 2022	42
104.		VDRL Rotator	2019	6903	May 2019		February 2022	33
105.		AC (Split) accessories	2019	208550	April 2019		February 2022	34
106.		Dental X ray	2012	92268	2020	Lack of space	November 2021	11
107.		VDRL Rotator	2013	NA	July 2013	Site not ready for blood bank	November 2021	100
108.		Hot air oven	2013	NA	November 2013		November 2021	96
109.		Incubator	2013	NA	October 2013		November 2021	97
110.		Water Bath	2013	NA	October 2013		November 2021	97
111.		Hicare Donor Couch	2013	NA	June 2013		November 2021	101
112.		Blood collection Monitor	2013	NA	July 2013		November 2021	100
113.		Blood Bank Refrigerator	2014	NA	March 2014		November 2021	92
114.	MCH Thiruvananthapuram	Mammography machine	2011	3550000	January 2020	Cost of replacement of spare parts was around ₹28 lakh which was forwarded to Government as TC decision.	April 2022	27

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
115.		Ventilator 2 nos	2021-22	Not mentioned	March 2021	System not starting. Compressor not working. Already reported to the company through Principal on 08 March 2021.	April 2022	13
116.		Multi parameter Monitor	2010	USD 7150	August 2019	Due to non-repair of the machine by the Company, the 11-year-old machine is requested for condemnation.	April 2022	32
117.		Ventilator 2 nos	2011	687276	March 2022	Not working due to need of spares	April 2022	1
118.		Sleep Machine	2016	712425	November 2018	Cost of repair is ₹70,000	April 2022	41
119.		Immune analyser	2019	299274	February 2020	Working, but cartridge is not available	April 2022	26
120.		Ventilator-mek 2 nos	2017	1788000	November 2021	Not functioning	April 2022	5
121.		Oxygen concentrator-8 nos	2021	Donated	February 2022	Not working	April 2022	2
122.		Ventilator macquet-2	2013	1882400	January 2022	Air compressor not working	April 2022	3
123.		CPET (Cardio Pulmonary Exercise Test) Machine	2013	1450000	2018	Oxygen sensor needs replacement	April 2022	40
124.		Esaote Mylab Class-C	2012	3500000	January 2018	Not properly functioning	April 2022	51
125.		Pulse Oxymeter	2019	92050	2021	Warranty over, CMC applied, not sanctioned	April 2022	4
126.		Bronchoscope-Pentax EB 1970 K	2010	1400000	2016	Damaged	April 2022	64
127.		Body plethysmography with DLCO machine (1)	2013	2440000	May 2019	Needs maintenance worth ₹2.70 lakh for functioning	April 2022	35
128.	Dental College, Thiruvananthapuram	Dental Chair 3	1997	74250	July 2021	Continuous use and non-	March 2022	8

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
						availability of spare parts		
129.		Dental Chair 1	2009	48059	July 2021	Continuous use	March 2022	8
130.		Dental Chair with compressor and Suction 1	2010	107000	Aug 2021	Continuous use	March 2022	7
131.		LCD Projector	2012	32580	September 2021	Price for repair more than actual cost of equipment	March 2022	6
132.		Joy YAG LASER	2008	1500000	2015	Spare parts not available	December 2021	72
133.		ECG Machine	2011	176000		Not repairable	December 2021	
134.		Blood gas Analyser	2012	296163		Unreasonable repair cost	December 2021	
135.		-do-	2011	278739		Not repairable	December 2021	
136.		Portable X-ray Machine	2011	475779		Not repairable as board not available	December 2021	
137.		Patient warming system	2011	460000		Not repairable	December 2021	
138.		Low temperature sterilizer	2011	3000000		Unreasonable repair cost	December 2021	
139.		Adult Warmer (2 Nos)	2015	213150		AMC not available	December 2021	
140.		Dual Chamber pacemaker (2 Nos)	2011	202807		AMC not available	December 2021	
141.	MCH Alappuzha	Rigid Uretero renoscope 8FR 6 1 step	2008	150000	November 2018	Irrepairable	December 2021	37
142.		Telescope0, 33cm,4mm	2009	94785	November 2018	Irrepairable	December 2021	37
143.		Resectoscope Sheath with working element	2011	141937	January 2019	Irrepairable	December 2021	35
144.		Flexible Uretero renoscope 67cm 7.5Fr Karl Storz	2013	818806	November 2018	Irrepairable	December 2021	37
145.		Stone punch with visual obturator	2013	175201	December 2018	Irrepairable	December 2021	36
146.		Rigid Uretero renoscope 7.5 Fr,42.5 cm	2013	271800	December 2018	Irrepairable	December 2021	36
147.		Rigid compact Uretero renoscope 6/7.5	2013	251385	December 2018	Irrepairable	December 2021	36
148.		Telescope 30 33 cm	2017	199178	June 2019	Irrepairable	December 2021	30

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
149.		Paediatric Telescope 0	2011	187000	March 2021	Irrepairable	December 2021	9
150.		Pneumatic Lithoclast with accessories	2013	149172	March 2021	Irrepairable	December 2021	9
151.		Nephroscope with accessories	2016	397152	April 2021	Irrepairable	December 2021	8
152.		EMG/ NCV/ EP machine I	2012	990000	February 2019	Beyond repair as the software is outdated.	December 2021	34
153.		Ventilator (PRICOL)	2012	575000	April 2018	Irrepairable	December 2021	44
154.		Ventilator (DRAGGER)	2011	489426	February 2020	Irrepairable	December 2021	22
155.		Cold light LED unit with fibre optic cable	2013	150000	August 2018	Irrepairable	December 2021	40
156.		KARLKAPS Microscope attachments	2009	930000	2020	Circuit board damage	December 2021	12
157.		2 channel intra operative nerve monitoring system	2009	967000	2020		December 2021	12
158.		Anaesthesia work station WATO EX 20	2014	1500000	2019	Upper cover leak	December 2021	24
159.		Anaesthesia work station WATO EX 20	2015	1500000	2019	Upper cover leak	December 2021	24
160.		Anaesthesia work station WATO EX 20	2016	1500000	2020	Lower cover leak	December 2021	12
161.		Anaesthesia work station Drager Fabius Plus	2011	1500000	2020	Internal air leak	December 2021	12
162.		Multipara Monitor Mindray IMEC 10	2015	300000	2020	Power supply unit failure	December 2021	12
163.		Centrifuges (2 Nos)	2016	47784	April and June 2019	Bush not working	December 2021	30
164.		Centrifuges Rotek (6 Nos)	2017	85380	March 2019, April 2019, May 2019, February 2020, August 2020 and September 2020	Bush not working	December 2021	15
165.		Defibrillator (BPL) (2 Nos)	2014	252000	June and July 2021	Uneconomic for repair	December 2021	5
166.		Defibrillator (Mindray) (2 Nos)	2015	274500	December 2020	Uneconomic for repair	December 2021	11

Sl. No.	Hospital Name	Name of equipment	Year of receipt	Amount (in ₹)	Month from which idling	Reasons for idling	Date on which found idling (Month of audit visit)	Number of months for which equipment was idling
					January 2021			
167.		CPET	2013	2440000	June 2016	Irreparable. Submitted for condemnation.	December 2021	66
168.		Mammography unit	2012	2961420	January 2020	AMC pending	December 2021	23
169.		800mA X-ray machine	2010	1800000	January 2013	Medtronic stopped functioning. Philips took over, but not able to repair	December 2021	107
170.		Computerised radiography	2012	1500000	August 2021	AMC pending	December 2021	4
171.		Computerised radiography	2013	1140298	October 2019	Service pending	December 2021	26
172.		Computerised radiography	2016	1037190	September 2021	AMC pending	December 2021	3
<b>Total</b>				<b>72812079</b>				

## Appendix 5.1

## Details of Civil works

(Reference: Paragraph 5.6; Page: 93, 95)

Sl. No.	Name of work	Status of work
<b>I Works pending commencement from the date of sanction</b>		
1.	Construction of a building in Taluk hospital, Fort, Thiruvananthapuram	Administrative Sanction (AS) (₹5.86 crore) was provided in August 2015 and March 2017. PWD had prepared final estimate and plans 23 months after issue of AS (June 2017). Defective plan submission resulted in revision of plan (February 2018) and there was delay of 16 months in issuing statutory approvals by the LSGI. The work is yet to commence. Due to non-construction of new building, the hospital is functioning in an old building which lacks adequate space and facilities.
2.	Construction of a new administrative block at GH Alappuzha	General Hospital, Alappuzha was accorded (March 2017) AS for ₹1.17 crore for construction of a new administrative block. The non-commencement of the work was on account of delay in identification of project site (March 2018), delay in preparation of plan and estimate by PWD (February 2020). As the estimate prepared by PWD was for ₹ five crore, a revised proposal was sent to Government in February 2020. There has been no further progress (February 2022).
3.	Construction of a building at THQH, Malayinkeezhu	AS for construction of a building at an estimated cost of ₹19.81 crore was accorded in December 2019. Audit observed that the work had not commenced (January 2022) even after two years due to the failure of hospital authorities to demolish the existing building and hand over hindrance free site for construction. Superintendent, THQH Malayinkeezhu stated (April 2022) that site was handed over for demolishing the building.
4.	Land acquisition for development of MCH, Manjeri	Sanction was accorded (February 2019 and December 2021) for acquiring 2.81 hectares of land (₹13.81 crore) for the construction of well-equipped casualty block, super specialty block, modern centre for cancer care, new surgical block, effluent treatment plant, approach roads etc. Audit observed that the works were pending due to non-remittance of mandatory contingent charges for land acquisition. The matter was pending with Government for 20 months (February 2022). GoK stated (October 2022) that ₹50 lakh was sanctioned (March 2022) as a preliminary step for land acquisition.
5.	Multi storey building for Dental College, Thiruvananthapuram	Construction of a multi-storied (Ground+seven floors) building for Dental college, Thiruvananthapuram was to be completed in four phases. The first phase (AS for ₹7.00 crore, February 2012) was completed in 2019, which included structural work of first three floors. The remaining works for which AS was issued in 2014, 2015 and 2019 (₹3.50 crore) are yet to commence (March 2022). No reason for non-commencement of work was available on record. GoK replied (October 2022) that a proposal to accord comprehensive AS for an amount of ₹9.20 crore was pending with the Government.
<b>II Tardy progress in commencement and completion of works</b>		
6.	Construction of Psychiatric Ward at Government Mental Health Centre, Thiruvananthapuram	AS was accorded (August 2014) for construction of psychiatric ward at an estimated cost of ₹ four crore. Even after seven years, only the structure of the building was completed. The hospital authorities intimated (June 2022) that the works could not be completed as the allotted funds had been exhausted. The hospital which commenced functioning in 1870 has cell rooms/wards in scattered locations across an area of 36 acres. The institution caters to 600 to 700 patients with sanctioned bed strength of 531.
7.	Implementation of Master Plan, MCH, Thiruvananthapuram	AS was accorded (April 2018) for implementation of a master plan for Medical College, Thiruvananthapuram. The fund for the project was to be provided by KIIFB which approved an amount of ₹58.37 crore. The project was to be completed in three phases. The first phase works included improvement of external infrastructure (roads, corridors, parking facility, etc.). The works were to be completed in August 2020. Audit noticed that out of eight road works sanctioned in this phase, only five works were completed (December 2021).
8.	MCH Alappuzha Setting up of trauma care unit	AS was provided (December 2013) to MCH, Alappuzha for construction of a building for setting up of a trauma centre <sup>122</sup> at an estimated cost of ₹10 crore. The construction work was to be completed by December 2015. Joint site verification by Audit along with departmental officials revealed (December 2021) that even after six years, the civil works were yet to be completed. The original plan was to construct basement plus two floors. In a meeting in June 2016, GoK directed to revise the plan from three to five storey building and sanction for the same was accorded in March 2017. Even though eight years have elapsed since the sanction, project for establishing a trauma care in MCH, Alappuzha is yet to materialise. GoK stated (October 2022) that the structural work of ground and first floor was nearing completion. The reasons for the delay were stated to be change of design, repeated revision of estimate and delay in obtaining design.

<sup>122</sup> Presently, there is an emergency care unit

Sl. No.	Name of work	Status of work
<b>III Abandoned works</b>		
9	Construction of Male Forensic Ward at Government Mental Health Centre, Thiruvananthapuram	The work of construction of the building ( <b>Figure 5.2</b> ) received AS in November 2013. The estimated cost of the work was ₹1.26 crore and on Joint inspection conducted by the Audit team (February 2022) along with the officials of the institution, it was noticed that the building was in an abandoned stage with only the structure constructed even after eight years from the date of sanction. Hospital authorities informed (June 2022) Audit that the available fund was utilised for construction of the structure of the building and proposal for completion of work was pending with PWD.
10	Construction of new building for DH Nedumangad.	The work of construction of a new building for DH, Nedumangad was awarded to WAPCOS Limited <sup>123</sup> in July 2019 at an estimated cost of ₹3.45 crore. However, the site was handed over to the implementing agency only in January 2020. Scrutiny of records revealed that the entrusted agency did not commence the work and the work was abandoned. Audit observed lack of infrastructure for OPD registration in this hospital as detailed in Chapter III of this Report. Construction of the building would have improved the facilities provided to the patients.
<b>IV Deficiencies in AYUSH department works</b>		
11	Idling of building constructed for Government Siddha Dispensary, Mannancherry, Alappuzha	Based on an AS (August 2009) for ₹30 lakh, a new building was constructed for Government Siddha Dispensary using MLA fund and was handed over to the hospital authorities in 2012. The Mannancherry Panchayat supplied required furniture for a 20 bedded hospital. Though a proposal was forwarded (November 2012) by the DMO (ISM), Alappuzha for the upgradation of the dispensary into a 20 bedded hospital, the proposal was rejected by GoK (November 2017). Due to lack of approval from the GoK for upgradation, the building remained unutilised for the last 10 years. GoK replied (October 2023) that the entire infrastructure would be utilised for Siddha varma therapy unit and care unit which was approved in the annual plan 2023-24.
12	Non-functioning of Roof Top Solar Plant at Government Homoeopathic Medical College Hospital, Thiruvananthapuram	A Solar power plant was installed (January 2021) in Government Homoeopathic Medical College, Thiruvananthapuram at a cost of ₹34.10 lakh. Audit noticed that the solar power plant was not functional as of March 2022. The non-functioning of the solar plant was attributed to non-completion of load segregation process and Main Service Panel alteration works. GoK stated (October 2023) that the work was completed and formal sanction from Electrical Inspectorate and Kerala State Electricity Board was awaited.

<sup>123</sup> A Central Public Sector enterprise wholly owned by GoI under the administrative control of the Ministry of Jal Shakti, GoI.

## Appendix 7.1

## Budget provision and expenditure incurred under three important Centrally Sponsored schemes during 2016-17 to 2021-22

(Reference: Paragraph 7.9; Page: 121)

## 1. National Programme for Health Care of the Elderly (NPHCE)

(₹ in lakh)

Year	Budget Provision	Expenditure	Expenditure (per cent)
2016-17	223.54	128.57	57.52
2017-18	278.00	436.99	157.19
2018-19	196.00	106.35	54.26
2019-20	421.00	35.62	8.46
2020-21	128.50	163.97	127.60
2021-22	363.50	188.09	51.74
<b>Total</b>	<b>1610.54</b>	<b>1059.59</b>	<b>65.79</b>

(Source: Data obtained from NHM)

## 2. National Tobacco Control Programme (NTCP)

(₹ in lakh)

Year	Budget Provision in ROP	Expenditure incurred	Expenditure (per cent)
2016-17	37.31	9.98	26.75
2017-18	95.02	42.99	45.25
2018-19	143.61	117.94	82.13
2019-20	240.15	56.56	23.55
2020-21	217.70	65.78	30.22
2021-22	336.43	90.35	26.86
<b>Total</b>	<b>1070.22</b>	<b>383.60</b>	<b>35.84</b>

(Source: Data obtained from NHM)

## 3. National Programme for Control of Blindness (NPCB)

(₹ in lakh)

Year	Budget Provision in ROP	Expenditure incurred	Expenditure (per cent)
2016-17	554.07	419.21	75.66
2017-18	668.61	670.51	100.28
2018-19	1382.19	720.48	52.13
2019-20	2200.10	722.63	32.85
2020-21	1155.55	858.46	74.29
2021-22	1303.38	518.31	39.77
<b>Total</b>	<b>7263.90</b>	<b>3909.60</b>	<b>53.82</b>

(Source: Data obtained from NHM)

**Appendix 9.1**  
**Comparison of achievement of Kerala with India under Goal - 3 in SDG India Index during 2018 to 2021**

(Reference: Paragraph 9.4.1; Page: 132)

Target	Indicator	Target 2030	2018		2019-20		2020-21	
			India	Kerala	India	Kerala	India	Kerala
3.1	MMR (per one lakh live birth)	70	130	46	122	42	113	43
	Proportion of institutional deliveries	100	NA	NA	54.70	74	NA	NA
3.2	U5MR/ 1,000 live birth	11	50	7	NA	NA	NA	NA
		25	NA	NA	50	7	36	10
	Percentage of children in age group 12-23 months fully immunised	100	62	82.10	NA	NA	NA	NA
	Percentage of children in age group 0-5 years fully immunised	100	NA	NA	59.20	72.80	NA	NA
	Percentage of children in age group 9-11 months fully immunised	100	NA	NA	NA	NA	91	92
3.3	Total case notification of TB per one lakh population	0	138.33	67	160	71	NA	NA
		242	NA	NA	NA	NA	177	75
	HIV incidence per 1,000 uninfected population	0	NA	NA	0.07	0.03	0.05	0.02
3.4	Suicide rate per one lakh population	3.5	NA	NA	NA	NA	10.40	24.30
3.6	Death rate due to road traffic accident per lakh population	5.81	NA	NA	NA	NA	11.56	12.42
3.7	Percentage of currently married women aged 15-49 years who use any modern method of family planning	100	NA	NA	47.80	50.30	NA	NA
	Percentage of institutional deliveries out of the total deliveries reported	100	NA	NA	NA	NA	94.40	99.90
3.8	Monthly per capita out-of-pocket expenditure on health as a share of monthly per capita consumption (MPCE)	7.83	NA	NA	NA	NA	13	17
3c	Total physicians, nurses, midwives per one lakh population	549.96	220.96	762.13	NA	NA	NA	NA
	Total physicians, nurses, midwives per 10,000 population	45	NA	NA	38	112	37	115

NA - Not applicable

(Source: SDG India Index Reports for the years from 2018 to 2020-21)