INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

ENVIRONMENT AND SOCIAL SYSTEMS ASSESSMENT

FOR

PROPOSED LOAN IN THE AMOUNT OF US$ 280 MILLION EQUIVALENT TO INDIA

FOR THE

KERALA HEALTH SYSTEMS IMPROVEMENT PROGRAM

DRAFT

August 2024

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LIST OF ABBREVIATIONS

AMR	Antimicrobial Resistance
APL	Above Poverty Line
ASHA	Accredited Social Health Activist
BCC	Behaviour Change Communication
BIS	Bureau of Indian Standards
BMW	Bio Medical Waste
BMWM	Bio Medical Waste Management
BPL	Below Poverty Line
CBMWTF	Common Bio Medical Waste Treatment Facilities
CKCL	Clean Kerala Company Limited
DHS	Department of Health Services
DMO	District Medical Officer
DPM	District Program Manager
ESSA	Environmental and Social Systems Assessment
ETP	Effluent Treatment Plant
FHC	Family Health Centre
GBVMC	Gender Based Violence Management Centre
HCF	Health Care Facilty
HFWD	Health and Family Welfare Department
HWC	Health and Wellness Centers
ICC	Internal Complaints Committee
IEC	Information Education and Communication
IMAGE	Indian Medical Association Goes Environment Friendly
JPHN	Junior Public Health Nurse
KEIL	Kerala Enviro Infrastructure Limited
KSIHFW	Kerala State Institute of Health and Family Welfare
KSPCB	Kerala State Pollution Control Board
L&FS	Life and Fire Safety
MLSP	Mid-Level Service Provider
NABH	National Accreditation Board for Hospitals & Healthcare
NHM	National Health Mission
NQAS	National Quality Assurance Standards
P4R / PforR	Program For Results
PHC	Primary Health Center
POSH / POSH Act	Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
RTI / RTI Act	Right to Information Act, 2005
SBCC	Social and Behaviour Change Communication
SC	Scheduled Castes
SDMA	State Disaster Management Authority
SHSRC	State Health Systems Resource Centre
SMO	Senior Medical Officer

SOP	Standard Operating Procedures
SPCB	State Pollution Control Board
ST	Scheduled Tribes
STP	Sewerage Treatment Plant
STDD	Scheduled Tribes Development Department

EXECUTIVE SUMMARY

A. INTRODUCTION

1. An Environment and Social Systems Assessment (ESSA) was conducted by the World Bank environmental and social team for the proposed Kerala Health Systems Improvement Program supported by a Program-for-Results (PforR) financing instrument of the World Bank. The ESSA was carried out to assess the existing institutional, operational, and regulatory systems and capacities to manage Environmental and Social (E&S) risks, identify gaps if any, and recommend measures for strengthening them. The ESSA process involved a desk review of relevant documents, technical studies/reports, and information related to working of the Government of Kerala, Department of Health and Family Welfare policies, regulatory frameworks, and ongoing programs for the environmental and social aspects of the participating state health societies.

B. POTENTIAL ENVIRONMENTAL AND SOCIAL EFFECTS OF THE PROGRAM

2. Consistent with the requirements of the World Bank PforR Policy, the proposed PforR operation does not support activities that pose high social or environmental risks. There will be no large-scale infrastructure, only minor refurbishments, and upgrade-related works within the existing footprint of health facilities. Any major civil works and capital costs on health facility infrastructure is excluded from Program boundary. The refurbishments will be carried out within the existing footprint of the health facilities. While the Program does not have a significant environmental footprint, and no land acquisition implications, risks to cultural properties, and involuntary resettlement, the program provides an opportunity to improve systemic implementation of environmental and social practices related to the functioning and operations of HWCs. Additionally, grievance redressal systems will be strengthened under this Program.

3. **Key environmental risks associated with the Program** include increased quantum of biomedical waste (BMW) getting generated, energy efficiency and occupational health risks. With the objectives of providing quality care and better service delivery for non-communicable diseases, geriatric care services including home-based care, meeting NQAS & Kayakalp requirements for meeting water and sanitation standards, generation of BMW– solid as well wastewater - is projected to grow incrementally over the years, both at the healthcare facilities and in the homes of the patients undergoing palliative care. Therefore, the present waste management infrastructure will require investments to collect, transport, treat and dispose BMW of the health sector.

4. Expansion of the current network of laboratories, trauma centers, increase in ambulance services, also pose occupational health and safety risks to the workers during construction as well as laboratory workers during routine functioning. In addition, generation and management of biomedical wastes in such laboratories also pose occupational health and safety as well as community health risks. Increase in ambulance services will provide first response in trauma care, but it needs to be ensured that the ambulances meet industrial standards and OHS standards are maintained for ambulance staff and patients. Monitoring procedure for safety compliance of medical oxygen is crucial to avoid any

incidents. The ESSA has tried to assess the existing system's capacity in managing these potential program level risks.

5. Increased patient load and outreach would put pressure on the infrastructure. Therefore, it is important that the infrastructure is upgraded to be energy efficient. This will help in adapting and mitigating climate change concerns.

6. **Key social risks associated with the Program** include the absence of a well-functioning, responsive grievance redressal mechanism in the healthcare facilities; and the risk of exclusion from accessing healthcare facilities, particularly for vulnerable groups like Scheduled Tribes, disabled persons, and migrant workers. Currently there is no consistent comprehensive grievance redressal monitoring mechanism in the healthcare facilities under the DHS, incorporating multiple uptake channels, publicly available standardized procedures, consistent system for recording, responding and reporting on the grievances received. Some of the key vulnerable groups in Kerala today include migrant workers, disabled persons and Scheduled Tribes.

7. Given that no major civil works are planned under the program and any minor repair or refurbishments will be carried out within the current footprint of existing facilities, no land acquisition and/or involuntary resettlement is expected. However, a screening mechanism will be required to identify any potential adverse social impacts. DoHFW at the state level provides the institutional mechanism for equitable health program implementation along with detailed roles and responsibilities for district health officials and sub-district level officials. The Department also has a clear focus on social inclusion and the differentiated needs of SC, ST, disabled persons, migrant workers, and women for whom there are multiple schemes. The healthcare facilities attempt to provide all-round health care in an inclusive environment, free from discrimination.

8. **Exclusion List:** A list of excluded activities has also been prepared which would not be supported under the proposed PforR program. These include: (i) Establishment and operation of common BMW treatment facility; (ii) Construction of new buildings or any construction beyond the existing footprint of buildings; (iii) Activities involving asbestos containing materials (AC roofing sheets, AC pipes, and so on) such as construction, demolition, and dismantling; (iv) Any activity that may involve land acquisition or have potential involuntary resettlement will be excluded (screened out) from the Program boundary; (v) Use of child or bonded or forced labor or labor involved in any hazardous activities; and (vi) Destruction or damage to any physical and cultural resources.

9. A **limited exception for a high value contract** for hiring a service provider for aggregating and operating ambulances in the state has been proposed. The engagement has been proposed for 335 ambulances for 5 years is based on Public Private Partnership Model. Pre-hospital care is provided by the Kerala Ambulance Network which aims to reduce precious time being lost in transporting stroke and heart patients, road accident victims and all type of medical emergencies, including during disasters. Therefore, this contract will help in achievement of PDO and thereby success of the Program. The related environmental and social management risks include: (a) air pollution if the vehicles are not maintained properly and the new vehicles should be BS VI

compliant; (b) health and safety risks to ambulance staff and patients if the ambulances do not conform to existing automotive industry standards [Automotive Industry Standard 125 (AIS-125) Part 1, August 2014: Constructional and Functional requirements for Road ambulances; Automotive Industry Standard 125 (AIS-125) Part 2, August 2014 Medical Equipment for Road Ambulances]; (c) occupational health and safety of the staff deployed in operation of ambulances including duty hours, night hours, safe rest areas with adequate facilities of changing rooms, bathrooms & toilet areas. These are important especially in context of Kerala where females workforce is expected; (d) adequate and proper parking facilities of the ambulances; (e) management of biomedical waste in ambulances; (f) cleaning and operation & maintenance of vehicles which leads to generation of several waste streams including hazardous wastes, that is, batteries for which sound management of recyclable materials is critical; (g) worker health and safety in vehicle garages and industrial enterprises. All these risks were assessed as minor, localized, generic, and reversible and can be mitigated effectively.

C. KEY FINDINGS FROM ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEMS ASSESSMENT

ENVIRONMENT

10. The institutional roles and responsibilities, and implementation capacities were assessed with regards to identified environmental effects of the Program. Considering the scale and nature of Program activities and identified environmental effects, a standalone environmental impact assessment will not be required for any of the activities. The Program systems operate within a legal and regulatory framework that is adequate to guide environmental impact mitigation, management, and monitoring of the limited, site-specific impacts and issues associated with the refurbishment works, generation of biomedical and other wastes, infection control, OHS, and building safety.

11. Institutional Capacity: HFWD is well equipped to handle its current programs and has well laid-out guidelines and processes for implementation within the applicable legal and regulatory framework. All programs adopt the Indian Public Health Standards and implementation of the BMWM Rules and the IMEP. No significant gaps identified except a better coordination will help bring synergy between DME and DHS for establishment and expansion of health care. However, there are limited mechanisms for environmental risk management under the health department. An official of the rank of Assistant Director under Director-Public Health has been assigned for environmental management. In addition to his existing responsibilities, the official is responsible for managing programs such as Disaster management, Tribal health, and management of diseases such as Rabies and Viral Hepatitis. Environmental risk management is limited to ensuring compliance to Biomedical Waste Management Rules, 2016 and managing emergencies within the scope of disaster management related to the health services department through implementation of Quality Assurance System.

12. Management of biomedical waste from health care institutions is being managed through two operators of CBMWTFs – KEIL and IMAGE. As reported by Kerala State Pollution Control Board, about 62.2 tons/day of BMW was generated during the year 2022 by 17,975 Healthcare Facilities. At present, only 23

percent of the 213 larger health care facilities have provision of in-house treatment through sewerage treatment plants (STPs). The entire BMW is being treated by the two common treatment facilities and forty-four captive treatment and disposal facilities situated within the health facilities. The state's two Common Biomedical Waste Treatment Facilities are challenged with the task of transportation, treatment and disposal of biomedical waste generated by government and private health facilities across the State. With improved medical care through Program interventions, both at institutional as well as household levels, there will be increased quantum of BMW getting generated.

13. The department is piloting collection, transportation and disposal of BMW generated due to home-based care in Kalamassery Municipality and 74 wards Kochi Corporation since 2021 with help of KEIL. Other health-care waste streams including solid waste, cytotoxic waste and radioactive waste are being managed at individual health care institutional level with a scope of improving at state level through development of SOPs/protocols. Phasing out of mercury-based equipment is not complete due to concerns regarding accuracy of digital blood pressure monitors.

14. Infection prevention and control (IPC) is a priority area for improving quality of health services in the state. The guidelines on Infection Prevention and Control as well as Operational guidelines for Quality Assurance provide in detail the infrastructure, equipment and processes to be followed that adequately cover IPC and OHS aspects. The facilities have IPC nurses trained in IPC and OHS aspects. The equipment and PPE for protection from infections as well as environmental sanitation practices are in place in majority of health care facilities. Infection Management and Environment Protection manual of National Health Mission serves a key reference document in these areas. The institutions are maintaining Incident reports and registers as part of their BMW rule 2016 compliance requirement.

15. Funding for management of BMWM at health care facility level has stopped after COVID-19. The State Guidelines on Infection Prevention and Control have identified Hospital Management Committee (HMC) fund, Annual Maintenance Grant, Untied fund, RSBY Fund, plan fund and LSGI fund, as the sources of funding available to the health facilities for Infection Prevention and Control activities that include management of BMW from the facility. The billing is done by the respective CBMWTF agencies based on QR codes as per the rates fixed by the Government and MoUs signed.

SOCIAL

16. ***Institutional Mechanism:*** Currently, there is a division in the social sector under the National Health Mission. The Department of Health Services has appointed an officer as the Nodal Person for Gender and Social aspects under the KHSIP. There is strong representation of women among healthcare workers. Currently, 53% of mid and senior level staff in DHS and around 63% in DME comprises women[1].

17. ***Equity and inclusion:*** The DHS has numerous provisions and policies for ensuring equitable and inclusive access to all beneficiaries including vulnerable groups like women, children, adolescents, senior citizens, persons below the

1 As per responses shared by the DHS in questionnaires circulated

poverty line (BPL)[2], Scheduled Tribes, disabled persons, transgender persons, migrant workers and patients requiring mental health support.

a. *Scheduled Tribes*: Healthcare centres across the state provide services to STs. There are also Mobile Medical Units operated by the Health Department, Tribal Department and NHM to reach tribal areas in different districts. There are various schemes under operation providing financial assistance for specific tribal groups for particular health conditions and for maternal and child health. Tribal Promoters have also been deputed to various institutions where there is significant Scheduled Tribe patient footfall to assist ST patients. Specific genetic disorders like sickle cell disease and thalassemia which affect ST populations are also being given particular attention.

b. *Disabled Persons*: Disabled persons get free OP services as per a DHS Order of 2018. Multiple health facilities have disabled access in the OP areas, separate lines for disabled patients as well as disabled friendly toilets. Unique Disability ID (UDID) Cards are issued to all disabled persons Kerala also has the Swavalamban Scheme which provides health insurance to persons with disabilities having BPL status.

c. *Migrant Workers*: There is a large number of migrant workers in Kerala from multiple states across India, facing language, literacy, financial and cultural barriers. The Kerala Government has initiated a Migrant Workers Health Insurance Scheme (Aawaz) in 2017 The scheme provides death benefit, accidental death benefit, relief fund, treatment benefit for severe diseases, treatment benefit, terminal benefit, educational grant, maternity benefit and fund for the transportation of dead bodies to their native states. 12 Migrant Link Workers have been appointed in Ernakulam and Idukki districts, who are responsible for connecting migrants to healthcare services. There is also a helpline for addressing the needs of migrant workers. Screening camps are conducted for migrant workers where officials visit their camps and worksites.

d. *Transgenders**:*** The Government of Kerala approved and ordered the application of the State Policy for Transgender Persons in Kerala in 2015. DHS has appointed 12 Transgender Link Workers in four districts (Trivandrum, Ernakulam, Thrissur and Kozhikode districts) to provide support in accessing healthcare services to transgender persons. Many of the major hospitals also have a transgender clinic.

18. ***Grievance Redressal Management:*** The Kerala Government has the Chief Minister's Public Grievance Redress Mechanism, which receives complaints from people, forwards these to the concerned departments and follows them up. At the district level, the District Collector is designated as the District Public Grievance Officer who monitors disposal/closure of grievances. ***Complaints*** through the CM portal are handed over to the lowest level authorized officer for expeditious disposal. Nodal Officer is assigned for each department to address grievances received through the CMO Portal and a Link Nodal Officer is also assigned. Timelines for resolution of grievances are laid down. The Hospital

2 In 2012, the Kerala Government introduced the health insurance initiative KASP (Karunya Arogya Suraksha Padhathi). This health insurance program targets BPL individuals specifically for critical illnesses. It is inclusive with no restriction on number of children. Kerala Government has also implemented an Extreme Poverty Eradication Project (EPEP) which had a particular focus on healthcare for BPL households in select areas.

Management Committees which have been constituted for each healthcare institution, are responsible, among other things, for constituting an Internal Grievance Redressal Mechanism in the health institution including establishment of a Hospital Advisory Committee for redressal of grievances. There are provisions for publicity for the GRM as well as appeals process. However, the grievance related functions of the HMCs would require further strengthening. At most of the healthcare facilities visited during the field visits for this assessment, complaint boxes were found in the premises. In a few places there were Complaints Registers in the Medical Officer's room. In some places, the phone number of the Medical Officer was displayed for people to contact for grievances. Publicity for the available grievance redressal methods was observed to be weak. There are no consistent guidelines or practice for the frequency at which complaint boxes are opened. Additionally, there was no consistent format for recording grievances or any system of reporting and monitoring.

19. ***Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH):*** The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013 (POSH Act) mandates employers to take steps to protect female employees from sexual harassment in the ***workplace*** and to provide procedures for resolution, settlement, or prosecution. It protects all workers in any place visited by the employee during her employment, including transportation. The POSH Act requires employers to create an Internal Complaints Committees (ICCs) at each office with 10 or more employees. During the assessment, it was found that most (not all) healthcare facilities have established Internal Complaints Committees as per the requirements of the POSH Act. However, there is no consolidated reporting on their constitution or current functioning. From field visit observations, it was found that there are gaps in the functionality of the Committee and submission of reports. There is also a gap in the publicity and awareness about sexual exploitation and abuse risks, the ICCs and provisions of the POSH Act among healthcare workers in general and ASHA workers.

20. Additionally, the DHS has established a Gender-Based Violence Management Centre (GBVMC) called Bhoomika in 2009. This program focuses on the medical and psychological Care for victims of gender-based violence and social abuse. Bhoomika centres function in the District or General Hospitals and are managed by a female Coordinator/Counsellor. Bhoomika also aims to sensitize hospital staff on gender issues and train hospital staff to identify victims of violence. 21 Bhoomika Gender-Based Violence Management Centres have been established at select hospitals with Counsellors appointed for the same. Bhoomika services are available for the public as well as healthcare staff. Trainings are conducted at the district level for doctors, nurses, ***field*** staff, para medical staff and ASHA workers. In 2014-15, the Bhoomika centres were converted to a 24-hour service. The Kerala Medico-legal Protocol for Examination of Survivors of Sexual Offences 2015 has been implemented in Kerala. The protocol reflects a survivor centric approach for handling survivors of sexual offences and provides standardized forms and protocols for handling cases of victims of sexual offences. A safe kit for examination of victims has also been developed.

21. ***Stakeholder Engagement:*** Local Self Government in Kerala is active, engaged and powerful. As part of a decentralization process, primary and secondary healthcare institutions are transferred to the LSGIs along with a

budget allocation. There is also a strong outreach and stakeholder engagement component to many of the existing schemes and initiatives. Across Kerala, all healthcare centres have a Hospital Management Committees (HMCs). This Committee comprises not more than 15 members which include LGSI representatives, representatives from civil society, Medical Officer of the institution and representatives from the general public along with other stakeholders. These HMCs are responsible for the facilities, resource mobilization, ensuring proper design, supervision and execution of infrastructure and service facilities at the institution. HMCs support critical human resource gaps in certain non-medical roles like laboratory technicians and pharmacists. HMCs play a role in organizing awareness, health check camps and mobilizing communities. From the observations made during the field visits, the HMC is active in almost all the health facilities visited. They are playing an important role in improving the accountability and responsiveness of the institutions and mobilizing resources for better functioning.

22. Key issues related to the functioning of the Department are discussed in various monthly conferences such as at the level of PHC, Block conference, DMO conference and Senior Medical Officers conference (SMO). Various issues are also taken up by department / directorate concerned and are discussed at the level of the Principal Secretary as well. At the Directorate level, when a project is proposed, it is discussed at the level of DHS by involving all program officers which include Additional Directors, Deputy Directors, Assistant Directors and others. The opinions raised are discussed and a final shape is brought to the programme.

23. **Land Acquisition and Management**: In Kerala, all hospitals are transferred to the Local Self-Government Institutions and managed by them, including any land purchase, if required, although the land ownership remains with the Health Department. Sometimes land is obtained through voluntary donations or by taking revenue land belonging to the Health Department or other departments. No land acquisition is currently envisaged under the proposed program.

CAPACITY BUILDING

24. In Kerala, state-wide health related trainings are handled by the DHS, KSIHFW (Kerala State Institute of Health and Family Welfare), Training Institutes and Skill Labs and SHSRC (State Health Systems Resource Centre). District wise trainings are done under the supervision of DMO under DHS and DPMs (District Program Manager) under NHM (National Health Mission). In ROP, Rs. 2223.75/- (In Lakhs) were allocated for different programs for the year 2022 to 2024 in Statewide and District wise training.

25. The Training Division, NHM Kerala is mandated to provide quality training to healthcare professionals and others in the field. Under the Training Division, NHM, trainings are offered in three modes: online live training (zoom), online self-paced courses in Kerala Health Training (LMS), and physical trainings. The Training Division, in association with other agencies, has developed the Learning Management System (LMS), which is a platform dedicated to e-Learning activities in the field of health services. This LMS provides a variety of opportunities, resources, and new strategies in service education and training. There is currently one training institute in Thiruvananthapuram and one at

Kozhikode. There are training divisions under DHS and NHM as well, which co-ordinate the training under various schemes.

D. KEY ENVIRONMENTAL AND SOCIAL GAPS AND RECOMMENDATIONS

ENVIRONMENTAL GAPS:

26. *Institutional Capacity:* There are limited mechanisms for environmental risk management under the health department. An official of the rank of Assistant Director under Director-Public Health has been assigned for environmental management. In addition to his existing responsibilities, the official is responsible for managing programs such as Disaster management, Tribal health, and management of diseases such as Rabies and Viral Hepatitis. Environmental risk management is limited to ensuring compliance to Biomedical Waste Management Rules, 2016 and managing emergencies within the scope of disaster management related to the health services department through implementation of Quality Assurance System.

27. *Medical waste and other health-care related waste streams:* BMW (infectious, hazardous, non-hazardous) is being collected from across the State and treated & disposed through the two CBMWTFs. Pilot for collection of BMW generated due to home-based care in two districts is underway. However, generation of BMW and other waste is expected to increase. Planning of resources is critical to ease the collection, transportation, treatment, and disposal load off the two existing CBMWTFs.

28. Currently, the state does not have a system to manage radioactive waste and a strategy to phase out mercury-based equipment. Even though phasing out of mercury-based sphygmomanometers has been a declared policy of the Government, there is no timeline-based roadmap for *the same.* This has been partly attributed to the concerns about alternate digital systems regarding accuracy of the readings, life of the equipment and servicing. *Radioactive waste* generated as part of medical care are regulated by AERB guidelines. The procedures are followed by the respective departments. There is a Radiation Safety Board at each institution looks into the different aspects regularly. Directorate of Radiation Safety, located at GMCH Thrishur, is currently non-functional. It needs to be revived after complying with the AERB guidelines. State level policies and SOPs are desirable.

29. *Medical Wastewater:* All HCFs should be treating their liquid wastes by installing ETP in their premises itself or draining into municipal sewer connected to a terminal STP. Nearly 90 percent of the larger health care facilities do not have any provision to treat and dispose of their wastewater as per BMWM Rules 2016. These should be provided an interim solution till they are able to connect to a central STP or establish ETPs.

30. *Design and procurement:* At present, there is no formal mechanism adopted for screening and identifying any potential environmental and social issues before undertaking any civil works. Provision of energy efficiency measures are encouraged but not integrated in the procurement documents.

31. *Safety:* Safe oxygen usage and fire safety response are critical elements of the facility-based emergency response plan. The response planning is largely restricted to the availability of firefighting equipment and its periodic maintenance by external agencies.

32. *Monitoring and Reporting:* Currently, there is no mandate for the health care facilities and the State BMWM Committee to report on BMWM to the Department. There is no platform for the same. Annual reports are generated by the health care facilities for the purpose of reporting to State PCB. Similarly, there vaccination of staff and incident reporting is being monitored at individual health care facility level and there is no centralized platform for monitoring and evaluating this information for larger good of the IPC agenda.

ENVIRONMENTAL RECOMMENDATIONS:

33. *Institutional Capacity:* Designation of dedicated environmental expert under the Program to institutionalize best practices (BMWM, infection control, healthcare workers' safety, environmental management for civil works, OHS). BMW committees should look at both solid and liquid wastes and their management and future planning to handle and dispose wastes. Accordingly, recommendations should be made to the state government.

34. *Medical waste and other health-care related waste streams:* Planning of resources is critical to manage increased BMW load - collection, transportation, treatment, and disposal load. DHS needs to plan for investing in more CBMTFs across the state. With regards to radioactive waste management, it is desirable to (i) revive Directorate of Radiation Safety, located at GMCH Thrishur, complying with the AERB guidelines; and (ii) development and adoption of State level policies and SOPs.

35. *BMW generated at household level:* Department's pilot with KEIL needs to be expanded to larger geographical area. Based on the learnings of this pilot, DoHFW should develop and adopt a strategy for the state detailing the resources required and IEC & capacity building provisions.

36. *Medical Wastewater:* The Department should invest in developing and adopting of a short- medium term state level strategy for liquid waste management from health care facilities. The strategy may be started with larger facilities (bedded HCFs >30 beds) and laboratories. The strategy will provide the DoHFW and associated departments (water and sanitation, environment, rural development, state pollution control board) a common framework in which the state can plan to establish the needed infrastructure to treat wastewater from these facilities to the applicable standards before discharge. This will also include, where applicable, strategies for the segregation of liquid effluents in order to limit the volume of water requiring specialized treatment and Identify opportunities to prevent or reduce wastewater pollution through such measures as recycle/reuse within their facility.

37. *Updating of Procurement Documents:* DoHFW and PWD should consider updating procurement documents for inclusion of procuring energy efficient infrastructure and incorporating GRIHAS in civil works. To address minor and localized environmental concerns arising due to small civil works, measures can

be worked into the bill of quantities (such as fencing, screens, watering, low-noise equipment).

38. For the *high value contract for ambulance services*, the contract should include that (a) the new vehicles should be BS VI compliant to avoid air pollution; (b) ambulances should conform to existing automotive industry standards [Automotive Industry Standard 125 (AIS-125) Part 1, August 2014: Constructional and Functional requirements for Road ambulances; Automotive Industry Standard 125 (AIS-125) Part 2, August 2014 Medical Equipment for Road Ambulances] to avoid health and safety risks to ambulance staff and patients; (c) manage occupational health and safety concerns of the staff deployed in operation of ambulances including duty hours, night hours, safe rest areas with adequate facilities of changing rooms, bathrooms & toilet areas. These are important especially in context of Kerala where females workforce is expected; (d) adequate and proper parking facilities of the ambulances; (e) management of biomedical waste in ambulances; (f) cleaning and operation & maintenance of vehicles which leads to generation of several waste streams including hazardous wastes, that is, batteries for which sound management of recyclable materials is critical; (g) worker health and safety in vehicle garages and industrial enterprises.

39. *Monitoring and Reporting:* DoHFW is responsible agency for management of BMW and infection control & prevention across the state. Therefore, it should develop a centralized monitoring and reporting mechanism. It is recommended that the Department develops a digital platform where information from the health care facilities is reported directly including, various streams of BMW generated, collected by the service provider, vaccination of the staff, incident reporting. This platform may also be used for managing supply chain related to BMWM.

40. *Capacity Building:* Trainings need to be provided to all outsourced agency teams on infection control practices, L&FS, ERP and BMW handling to ensure health and safety of workers and patients. (Under NQAS certification).

41. *Safety:* The Department should consider developing a monitoring procedure to ensure Life & Fire Safety as well as safe medical oxygen practices to assess in time and avoid any untoward incident. Systemic measures such as suitable location of Oxygen cylinders and access control of such high-risk areas, hazards and risk communication through display at prominent locations and channels of communication, and periodic assessment of response preparation through regular mock drills need to be strengthened. This would entail coordination with vendors and other line departments.

42. *Budgetary provision for BMWM*: The Department might want to consider hiring an expert to assess and evaluate the financial implication of BMWM and infection control & prevention for the state as well as individual health care facility (both government and private), and available resources through various government programs.

SOCIAL GAPS:

43. The key social gaps are the following: (i) *Capacity*: There is a requirement for improved and consistent capacity and systems on social risk management

and reporting in the DHS; (ii) *Grievance Redressal Mechanism*: The Grievance Redressal Mechanism is currently fragmented and not functioning effectively at the ground level. It is important to make the GRM functional and establish robust systems for recording, reporting and monitoring of grievances; (iii) *Implementation of POSH Act and ICCs*: ICCs have been constituted at many of the healthcare facilities. However, there are gaps in the effective implementation of the provisions of the POSH Act, publicity and training; (iv) *Coordination with other Departments:* Many of the activities and policies promoting inclusive and equitable access to healthcare are implemented along with other Ministries like STDD and Labour Department. While there is strong participation and effort from all sides, lack of coordination leads to lower efficiency and poor planning; (v) *Plan for Stakeholder Engagement:* While there are a large number of outreach activities and platforms for engaging with stakeholders, these initiatives are currently ad hoc and fragmented. It is important to plan the stakeholder engagement to ensure strategic priorities are met efficiently.

SOCIAL RECOMMENDATIONS:

44. The key social recommendations are the following: (i) *Dedicated Social Specialist* in DHS; (ii) *Strengthen Grievance Redressal Mechanism:* GRM to be strengthened, publicized and streamlined for consolidated monitoring and reporting at district and state level; (iii) *Develop and Adopt Strategy for Effective Implementation of the POSH Act* including constitution and operation of ICCs and awareness generation, duties of ICC and monitoring mechanism; (iv) *Establish Coordination Platform / Portal for planning activities with other Departments;* and (v) *Develop and implement Stakeholder Engagement Plan.*

PROGRAM ACTION PLAN

45. Based on the Assessment, the following recommendations would be part of the Program Action Plan:

Action Description	**Source**	**Responsibility**	**Timing**	**Completion Measurement**
Designation of environmental expert and social expert under the Program to institutionalize best practices (BMWM, infection control, healthcare workers' safety, environmental management for civil works, OHS, community	Environmental and Social	DoHFW	Before project Effective Date (To be maintained throughout the duration of Program)	Designating qualified staff, scope of work including preparation of environmental and social guidance and monitoring the implementation of environmental and social actions and reporting protocols, and relevant templates

Action Description	Source	Responsibility	Timing	Completion Measurement
health & safety, GRM)				
Development and adoption of a short-medium term state level strategy for collection of BMW from households while learning from the ongoing pilots in Trivandrum and Kochi. Strategy to include relevant IEC material.	Environmental and Social	DoHFW	within 18 months of effectiveness	Strategy prepared and disclosed on DoHFW website
Development and adoption of a short-medium term state level strategy for liquid waste management from HCFs.[3]	Environmental and Social	DoHFW	Within 18 months of effectiveness	Strategy prepared and disclosed on DoHFW website
Grievance Redress Mechanism (GRM) system to be strengthened, publicized and streamlined for consolidated monitoring and reporting at district and state level	Environmental and Social	DoHFW	Within twelve months of Effective Date (to be monitored on a continuing basis)	State-wide directive to all healthcare institutions to operationalize and implement GRM systems, ensure their widespread publicity and provide consolidated report on grievances

3 *The strategy will apply to all bedded HCFs >30 beds and laboratories. The strategy will provide the DoHFW and associated departments (water and sanitation, environment, rural development, state pollution control board) a common framework in which the state can plan to establish the needed infrastructure to treat wastewater from these facilities to the applicable standards before discharge. This will also include, where applicable, strategies for the segregation of liquid effluentsin order to limit the volume of water requiring specialized treatment and Identify opportunities to prevent or reduce wastewater pollution through such measures as recycle/reuse within their facility.*

Action Description	Source	Responsibility	Timing	Completion Measurement
				received through all applicable channels and resolved at district and state level.
Development and adoption of strategy for effective implementation of POSH Act (including constitution and operation of ICCs and awareness generation)	Environmental and Social	DoHFW	Within twelve months of Effective Date	Strategy for effective implementation of POSH Act prepared and adopted addressing (a) Constitution of ICCs; (b) Duties of ICCs; (c) Awareness generation activities; and (d) monitoring mechanism
Establish Regional Hemophilia / Haemoglobinopathy Treating Centre (RHTC) as Centre of Excellence to provide services to test, confirm, treat, train, rehabilitate, counsel and educate patients and parents with Haemophilia A and B, Beta Thalassemia, Sickle Cell Disease and other Minor Bleeding disorders.	Environmental and Social	DoHFW	Within two years of Effective Date	One Centre of Excellence established with approved budgetary allocation, staffing and protocols.

E. STAKEHOLDER CONSULTATION AND DISCLOSURE

46. A multistakeholder consultation will be conducted based on the draft ESSA to share the findings and recommended actions for the Program Action Plan (PAP) and the draft ESSA report will be disclosed on the World Bank's external website and at the HFWD (GoK) website for further feedback and suggestions from public and a wide range of stakeholders. The Final ESSA report will be redisclosed on the World Bank's external website and HFWD website prior to negotiation.

I. INTRODUCTION

A. ENVIRONMENT AND SOCIAL SYSTEMS ASSESSMENT: PURPOSE AND OBJECTIVES

1. The World Bank policy and directive on PforR financing requires an assessment of environmental and social systems (ESSA) for operations financed under the PforR instrument. Accordingly, an ESSA of operations to be financed under the Program was carried out to assess the adequacy of environmental and social systems focusing on the state level in context of the Program boundary. The broad scope of the ESSA was to assess the extent to which the Program systems promote environmental and social sustainability; avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources; protect public and worker safety; manage land acquisition; consider issues related to indigenous peoples and vulnerable groups; and avoid social conflict. Further, it identified required actions for enhancing/strengthening the Program systems and mitigating potential environmental and social risks.

2. This ESSA assesses or considers the extent to which the Program's environmental and social management systems are adequate for and consistent with six core environmental and social principles (hereafter, Core Principles), as may be applicable or relevant under PforR circumstances. The Core Principles are listed below and further defined through corresponding key planning elements in Chapter III.

- **Core Principle 1: Environmental and Social Management.** Environmental and social management procedures and processes are designed to (a) avoid, minimize, or mitigate against adverse impacts; (b) promote environmental and social sustainability in program design; and (c) promote informed decision-making related to a program's environmental and social effects.
- **Core Principle 2: Natural Habitats and Physical Cultural Resources.** Environmental and social management procedures and processes are designed to avoid, minimize, and mitigate any adverse effects on natural habitats and physical and cultural resources resulting from the program.
- **Core Principle 3: Public and Worker Safety.** Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.
- **Core Principle 4: Land Acquisition**. Land acquisition and loss of access to natural resources are managed in a way that avoids or minimizes displacement, and affected people are assisted in improving, or at least restoring, their livelihoods and living standards.
- **Core Principle 5: Indigenous Peoples and Vulnerable Groups**. Give due consideration to the cultural appropriateness of, and equitable access to, program benefits, giving special attention to the rights and interests of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and to the needs or concerns of vulnerable groups.

- **Core Principle 6: Social Conflict.** Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.

3. An additional purpose of this ESSA is to inform decision-making by the relevant authorities in the borrower country and to aid the World Bank's internal review and decision process associated with the Kerala Health Systems Improvement Program. The findings, conclusions, and opinions expressed in this document are those of the World Bank and the recommended actions that flow from this analysis will be discussed and agreed with counterparts and select recommendations will be legally binding under the conditions of the loan in question.

B. ESSA METHODOLOGY

4. The methodology for the ESSA comprised a combination of desk review of reports and information from the websites, online and in-person meetings with the health and other department officials, assessments of information provided by DHS through questionnaires, and field visits to a sample of health facilities at the state, district and local community levels, biomedical waste treatment facilities, meetings with health officials and other stakeholders.

5. The desk review focused on understanding the existing policy, operational procedures, institutional capacity and implementation effectiveness relevant to the activities proposed under the Program. The desk review also covered the legal and regulatory requirements including those on environmental conservation, pollution control, occupational health and public safety, building construction codes, social inclusion and transparency and accountability mechanism, grievance redressal mechanism, and social and cultural aspects related to the Program, etc. The desk review included available documents, reports, data, websites etc.

6. Online and offline meetings were carried out with diverse stakeholders to gather information and discuss environmental aspects. The key departments included Directorate of Health services, Medical Education, Scheduled Tribes Development Department, Labour and Skills Department and the Public Works Department. Other stakeholders with whom discussions were held included Common Biomedical waste treatment facilities managers and representatives from Clean Kerala Company Limited.

7. Field visits were carried out in January 2024 to identify the scope of environmental and social activities, key stakeholders and state departments involved. Consultations were carried out with the representatives from Directorate of Health services, Medical Education, Medical superintendent from medical college, Common Biomedical Waste Treatment Facilities service providers and state Department of Health. The purpose included identification of stakeholders and their role and responsibilities in environment management.

8. During field visits in January and June 2024, a sample of HWCs, PHCs, FHCs, CHCs, Taluk Hospitals and General / District Hospitals health facilities were visited across four districts –Palakkad, Kozhikode, Ernakulam and Thiruvananthapuram. Healthcare facilities situated in tribal areas in the Palakkad district were also covered. The team also visited both Common Biomedical Waste

Treatment Facilities. During the field visits, consultations were held with a variety of stakeholders, including DHS and DME officials, healthcare workers at all levels, representatives from Local Self Government Institutions, Hospital Management Committees, and beneficiaries.

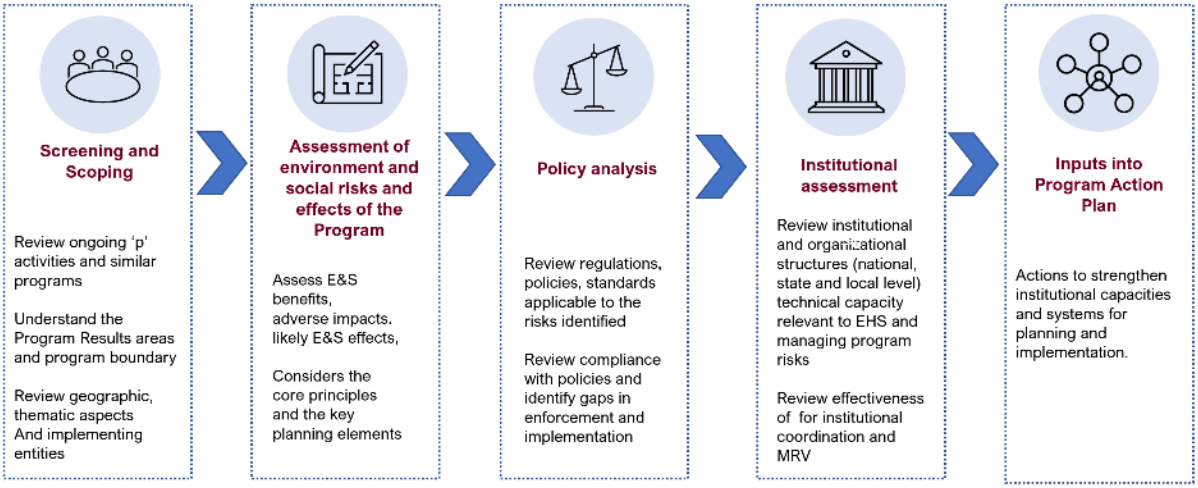
9. The Assessment included a review of the borrower's systems including policies, guidelines, regulations, standards, procedures, and systems and capacities for environmental and social management were compared against the Core Principles and Key Planning Elements to identify gaps that could affect Program performance. The World Bank team reviewed the capacity of existing systems at the state level, district, and block level to plan and implement effective measures for environmental and social management of the Program and determine if any measures will be required to strengthen it to manage risks and enhance benefits.

10. The ESSA refers both to the process for evaluating the acceptability of a borrower's system for managing the Program's environmental and social risks in the operational context and to the final report that is an output of that process. The ESSA process for the KSHI Program is a multistep methodology in which the World Bank team analyzes the environmental and social effects, including indirect and cumulative effects, of activities associated with the defined Program; analyzes the borrower's systems for managing the identified environmental and social effects, including reviewing practices and the performance track record; compares the borrower's systems—laws, regulations, standards, procedures—and implementation performance against the Core Principles and Key Planning Elements to identify any significant differences between them that could affect Program performance; and recommends measures to address capacity and performance on policy issues and specific operational aspects relevant to managing the Program risks such as staff training, implementing institutional capacity-building programs, and developing and adopting internal operational guidelines.

11. The World Bank ESSA team and the borrower worked closely to identify and consider the range of environmental and social effects that may be relevant to the Program both at the central and state levels. The PforR approach distinguishes specific roles and responsibilities regarding major steps and tasks at the various phases of the Program cycle.

12. The ESSA also includes a list of ineligible activities, excludes the same under the Program, and outlines the steps to be followed by the borrower to mitigate potential adverse risks and impacts.

Figure 1.Methodology adopted for ESSA



C. ORGANIZATION OF ESSA REPORT

13. **Chapter I: Introduction** provides insight into the purpose and objective of ESSA and methodology adopted.

14. **Chapter II: Program Description and Potential Environmental and Social Effects** presents the overall Program context and the details of the Government's program. It also describes what this World Bank-financed PforR Program would support, including scope and results areas, implementation arrangements, and identification of environmental and social effects of Program activities. Potential environmental and social effects discuss results area-wise environmental effects (benefits, risks, and opportunities to manage these).

15. **Chapter III: Assessment of Environmental and Social Management Systems and Implementation Capacity** discusses the assessment of Program's environmental and social management systems as per the guidance on environmental and social management in the PforR Policy of the World Bank. This includes the systems, regulatory aspects, gaps, and proposed actions to bridge the gaps through a systematic description of environmental and social effects to be considered for each of the ESSA's six Core Principles It presents an assessment of the adequacy and consistency of the Program's environmental and social management systems and related implementation capacity against the Core Principles and Key Planning Elements.

16. **Chapter IV**: **Consultation and Disclosure** describes the key formal and informal consultations undertaken as part of the ESSA process, important input and recommendations received, and how and when the ESSA was disclosed.

17. **Chapter V: Conclusions and Recommendations** lists environmental and social inputs for mitigating impacts risks and enhancing environmental and social benefits and management. This section also discusses the actions that the ESSA team recommends for addressing the system and capacity gaps and shortcomings identified, including specific Program Action Plans (PAPs).

II. PROGRAM DESCRIPTION AND POTENTIAL ENVIRONMENTAL AND SOCIAL EFFECTS

A. PROGRAM CONTEXT

1. Kerala, a southwestern state of 33.3 million people, has consistently been a strong performer with better health outcomes, especially in maternal and child health, compared to most states in India. Kerala has already achieved the SDG 2030 targets for neonatal (3.4 per 1000 live births), infant (4.4 per 1000 live births), and under-five mortality (5.2 per 1000 live births)[4] rates and for maternal mortality ratio (19 per 100,000 live births). Kerala's health gains can be attributed to several factors, including sustained emphasis by successive state governments to promote public health and primary health care (PHC). In addition, the improved status of women in Kerala[5], decentralized governance through the Local Self Government Institutions (LSGIs), high levels of literacy, especially girls' education, and effective community ownership and participation have contributed to positive health outcomes.

2. Despite these significant health improvements, the Kerala health system today faces unprecedented challenges. The epidemiological transition towards chronic diseases, a growing elderly population, increased vulnerability to disease outbreaks and climate change impacts, stagnation of public health funding, and the increasing role of private health care at much higher cost has placed Kerala's healthcare system in severe strain. To address these challenges, Government of Kerala (GoK) has initiated innovative programs to strengthen access to and quality of health services. The Aardram[6] mission aims to bring about a patient friendly transformation of out-patient services of government health institutions and primary healthcare. The Karunya Aarogya Suraksha Padhati (KASP)[7] a health insurance scheme, provides a health cover for secondary and tertiary care hospitalization to poor and vulnerable families that constitute the bottom 40 percent of Kerala's population. However, the rapidly evolving demographics, epidemiologic and environmental changes underway have far outpaced these initiatives. A redefined value-based approach of service delivery is needed to meet the complexity of healthcare needs.

3. Kerala faces dual challenges of a burgeoning burden of non-communicable diseases (NCDs) amidst profound epidemiological shifts and persistent gaps in emergency healthcare. NCDs constitute eight of the top ten contributors to Disability Adjusted Life Years (DALYs) lost in the state, impacting nearly three out of ten adults aged 60 years and older. Despite some progress in curbing tobacco and alcohol use, unhealthy diets and sedentary lifestyles escalate the crisis.

4 *Niti Aayog SDG Index*

5 *Kerala leads India on Gender specific development indicators, including female life expectancy, fertility reduction and education which are often quoted as evidence of the high status of Kerala's women, and this is widely held to be a symptom of and a reason for, the region's remarkable advances. Jeffrey R. (1992) Politics, Women and Wellbeing: How Kerala became a 'Model', London: Macmillan.*

6 *https://arogyakeralam.gov.in/2020/04/01/aardram.*

7 *https://sha.kerala.gov.in/karunya-arogya-suraksha-padathi/. Karunya Arogya Suraksha Padhathi (KASP) is a health care scheme of Kerala that aims to provide a health cover of INR 5 lakhs per family per year for secondary and tertiary care hospitalizations. It consolidates four different schemes including Pradhan Mantri Jan Arogya Yojana (PMJAY), Rashtriya Swasthya Bima Yojana (RSBY), Comprehensive Health Insurance Scheme (CHIS), and Senior Citizen Health Insurance Scheme (SCHIS).*

Hypertension and diabetes alone affect an estimated 5.8 million and 3.7 million individuals respectively, yet control rates remain low, heightening risks of ischemic heart disease, stroke, and diabetic complications. Concurrently, Kerala reports over 4000 road transport accident deaths annually, alongside substantial drowning, suicide, and unintentional injury rates. Despite efforts under the Kerala Trauma Policy 2017-2020 to enhance trauma services, persistent deficiencies in staffing, infrastructure distribution, and information management persist while the state's 108 ambulance services remain underutilized. These issues underscore the need for comprehensive reforms to enhance effectiveness and improve outcomes of both NCD management and emergency healthcare.

4. Kerala is also the fastest aging state in India which further compounds the NCD burden and poses significant challenges for healthcare and social services in the coming years. The state's share of the elderly[8] was 16.5 percent of the population in 2021 and is expected to be higher than that of children under five years by 2030. Additionally, due to higher life expectancy for females, women constitute a majority of the elderly in the state and many of them are widowed.[9] More than a half of elders in Kerala (57 percent) self-report diagnosis of one of other NCD's and many of them suffer from multiple morbidities and psychosocial challenges mainly caused due to loneliness. Kerala was a pioneer among the Indian States in developing a policy for the aged in 2006 which was updated in 2013. The policy acknowledges the unique problems faced by the aged and focusses on the most vulnerable including those who are bed bound or home bound, elder women, the elders residing in rural areas, and those aged 80 years and above. It highlights the importance of ensuring the needs of elderly when planning for services and infrastructure development with a strong role played by LSGIs and Non-Governmental Organizations (NGOs). However, care for the aged in Kerala has encountered a number of implementation challenges including a multiplicity of schemes; low budget utilization by LSGIs on elderly care; a lack of training in geriatric care for frontline staff; and no systematic monitoring system.

5. Despite achieving excellent performance on human development parameters, fiscal challenges impede further progress and economic growth. While Kerala has the lowest multidimensional poverty rate at 0.9 percent in 2023 and leads in education and health performance among Indian states, Kerala's economic growth has lagged, averaging 5.5 percent between FY12/13 and FY19/20, below the national average and other major states like Gujarat, Karnataka, and Haryana. High public debt, at about 35 percent of GSDP in FY23/24, and elevated spending commitments for pensions, interest payments, and salaries, consuming over half of total revenue, restrict the government's ability to invest in social services and economic development. Despite its importance, Kerala's capital expenditure is less than 2 percent of GSDP, significantly lower than the national average and other major states. Although the government health budget has increased from INR 71 billion in 2019/20 to INR 100 billion for 2024/25 in real terms, the rate has been way below the increase in overall government expenditure and GSDP. The share of health in the government budget has decreased from 6.6 percent in 2019/20 to 5.5 percent

8 *Aged above 60 years.*

9 *Report on Assessment of Government Schemes and Programs for Elderly in Kerala. April 2022. Prepared by Centre for Socio-economic & Environmental Studies (CSES). Submitted to the Directorate of Social Justice, Kerala.*

for 2024/25, and as share of GSDP stands at 0.8 percent; one of the lowest among all states. Coupled with the fiscal constraints, the increasing demand for NCD care with an aging population exerts further pressure on the government health budget.

6. Kerala exhibits stronger gender equality metrics than the national average, with notable gains in life expectancy and female workforce participation. Despite these advancements, disparities persist in the exposure and vulnerability of men and women to non-communicable disease (NCD) risk factors. More women tend to have a high-risk waist-to-hip ratio (70.7 percent) and are overweight or obese (38.1 percent) compared to men (56.8 percent and 36.4 percent, respectively). Such abdominal obesity is associated with an increased risk of metabolic complications including type 2 diabetes mellitus, myocardial infarction, stroke, and premature death. Globally, research bias towards male subjects is known to contribute to underdiagnosis and undertreatment of NCDs in women, who also tend to exhibit less obvious cardiovascular symptoms. In neighboring Tamil Nadu, health programs have often neglected behavior change communication interventions tailored to women's needs, including support mechanisms from men for screenings related to breast, cervical cancer, diabetes, heart disease, and hypertension.

7. Kerala confronts significant challenges in public health and climate resilience. Highly vulnerable to disease outbreaks and new emerging diseases, the state's large forest cover amplifies risks, particularly for zoonotic and vector-borne diseases like dengue fever and leptospirosis. Repeated Nipah outbreaks underscore these vulnerabilities, exacerbated by high population density, a sizable migrant and tourist population, and an aging demographic with co-morbidities. Antimicrobial resistance (AMR) poses another critical concern, with alarming resistance rates for pathogens like E. coli, due to uncontrolled antibiotic use among both human and livestock sectors, highlighting the need for a unified One Health approach. Kerala is addressing these challenges through initiatives like the Resilient Kerala Program, focused on four districts, aiming to bolster public health systems and resilience against health. As one of India's most climate-vulnerable states, Kerala grapples with escalating risks from extreme weather events and climate impacts, exacerbating health issues such as water and vector borne diseases and heat-related illnesses, disproportionately affecting vulnerable populations. Climate change also contributes to increasing incidence of non-communicable diseases. Climate change also contributes to increasing incidence of non-communicable diseases and has the potential to jeopardize the progress achieved by the state in providing accessible and affordable healthcare. Therefore, there is a need for adopting urgent mitigation and adaptation strategies to safeguard public health and enhance health system resilience.

8. To propel its healthcare system forward, Kerala needs to develop a workforce tailored to current demands and harness digital technology for effective healthcare management. Despite achieving significant milestones and boasting India's highest health worker-to-population ratio, the state faces critical human resource management challenges, including uneven personnel distribution and reliance on short-term contracts. While Kerala has been a pioneer in eHealth through the State Digital Health Mission, the system's limited coverage and fragmented information systems present obstacles. Although eHealth initiatives have reached around 40 percent of health facilities,

integration gaps with critical modules hinder seamless service delivery and continuity of care, underscoring the need for enhanced capacity building and comprehensive system integration efforts.

9. The unregulated growth of private healthcare services and the rising out of pocket expenditures are areas of concern: While people of Kerala depend on the public health sector more than in the rest of India, private healthcare services in Kerala are growing significantly. Survey by the National Sample Survey Organization (2017-18)[10] indicates higher preference of private hospitals for in-patient care in Kerala which increases from 57 percent to 77 percent between the income quintiles one and five. The common reasons for preference of private sector hospitals include preference for a trusted doctor/hospital (42 percent); required specific services not available in public sector (17 percent); and unsatisfactory quality of available services (14 percent). The average expenditure for inpatient care in private sector is over five-fold higher (INR 28,171.51 vs. INR 5,098.71). As a result, the per capita out-of-pocket expenditures for health care in Kerala are highest in India at INR 7,636 (US$101.8), often accounting for a significant proportion of total household expenditure causing financial strain.

10. Kerala had gained global acclaim for achieving remarkable health outcomes akin to high-income countries at a minimal cost. However, the state now stands at a critical juncture marked by a transition towards chronic diseases, an aging population, heightened vulnerability to disease outbreaks, and the impacts of climate change. Addressing these challenges necessitates an evolution of Kerala's healthcare system towards a value-based[11] model focused on enhancing accessibility, improving service quality, and optimizing available resources. The state healthcare system must address these evolving needs by harnessing its unique strengths of decentralized health infrastructure, active involvement of local self-governments, and a well-informed populace to promote resilience, foster innovation, facilitate collaboration, and ensure sustainability. Lessons emerging from Kerala can inform Indian states as well as other developing countries passing through demographic and epidemiological transition and experiencing impacts of climate change.

B. THE GOVERNMENT PROGRAM

11. The overall State government program is broadly defined by the Kerala State Planning Board’s Fourteenth Five Year Plan for Medical and Public Health, 2022-2027 [table 1]. The plan sets the Vision is for Kerala to move “Towards planetary health – moving with equity, efficiency, quality and cultural competency through partnerships and learning”. Over the plan period the state aims to move towards universal health coverage by strengthening the public sector, with a focus on reaching groups that have been historically unreached. The plan emphasizes the importance of empowering local governance to ensure fair and accessible healthcare and recognizes the need to consider a shift

10 National sample Survey Organisation Report, 2017-18

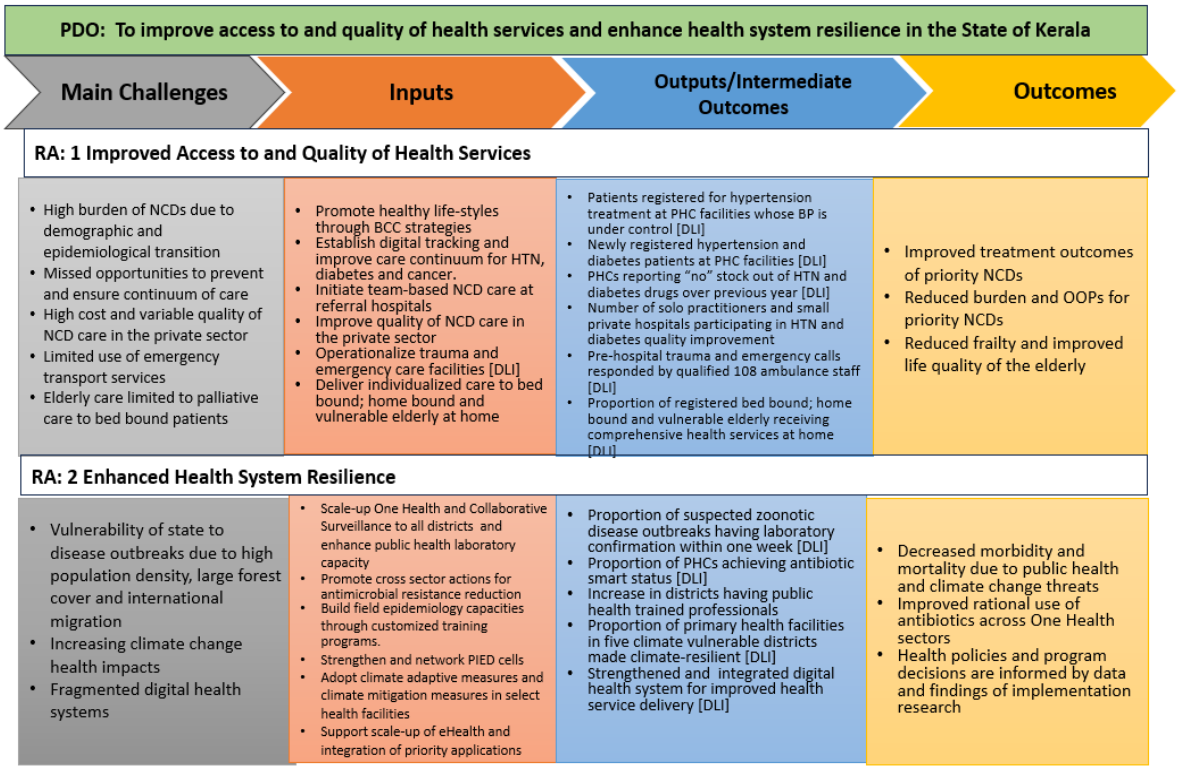
11 *Value-based care is a healthcare approach that focuses on delivering high quality, efficient and cost-effective care to patients. It prioritizes outcomes and patient satisfaction rather than the volume of services provided. This model encourages healthcare providers to coordinate and collaborate across different specialties and settings, aiming to optimize patient health outcomes while controlling healthcare costs. By aligning incentives with quality care, value-based care promotes preventive care, early intervention and patient engagement, ultimately improving the overall healthcare experience and population health.*

towards life-long illnesses and address the impact of social determinants of health. Additionally, the plan highlights the impact of climate change on public health and the need to develop healthcare infrastructure and human resources with an aim to reduce out-of-pocket expenditure and improve overall public health system transformation.

12. The State Plan is operationalized through the formulation of Annual Plans by the DoHFW which forms the overall State Health Expenditure. Every year, the state Finance Department provides a financial envelope to the Planning Board which in turn issues guidance to all Departments to submit the Plan proposals for the following financial year. Based on the proposals prepared by respective Departments, the Board members and division heads hold discussions and finalize Budget for each scheme while the state overall Annual Plan is approved by the Board.

13. The Government program boundary is derived based on ongoing institutional transformations and leveraging influence of the Program's results. The DoHFW is expected to spend around US$5 billion over the next five years on the health sector and a majority of this spend will leverage the interventions proposed under the Program. However, the DoHFW's overall budget covers several activities beyond the direct scope of the proposed operation. Therefore, the Government program boundary is limited to expenditure which directly or indirectly contribute to the Program results. Accordingly, for the purpose of defining the Government program (small p), the boundary is limited to the cost of ongoing activities and programs which are critical for achievement of the Program results across the participating implementing agencies. Following this approach, the small p comes to a total of US$1 billion during the Program period extending from FY 2024-25 to FY 2028-29. It includes specific activities and programs focusing on the improving access and quality of NCD care, services for the elderly, trauma and emergency systems modernization supported by necessary infrastructure, commodities and equipment, and augment health system resilience through promoting One Health approach, minimizing climate impacts on health including digitalization and capacity building under the budgets of Directorate of Health Services (DHS), Directorate of Medical Education (DME), Kerala Medical Services Corporation Ltd (KMSCL) the public procurement agency for the health sector and eHealth Kerala (Digital Health Mission).

C. THEORY OF CHANGE



D. BANK FINANCED PROGRAM SCOPE, OBJECTIVES, AND KEY RESULTS AREAS

14. The proposed Bank Program ("P") is a well-defined subset of the government program ("p") [Figure 2]. The Bank Program boundaries include specific expenditure categories under the two key directorates of the DoHFW, the DHS and the DME, eHealth Kerala and KMSCL, selected for their alignment with the two Program results areas while excluding those that have overlap with ongoing Bank and other donor supported operations in the Kerala health sector even though they are part of the overall Program scope. The excluded expenditure categories include: (i) communicable diseases; (ii) public health laboratories included under the Resilient Kerala Program (P174778) and the NHM which receives support through the Federally implemented Essential Health Services Delivery Program (P178146). In addition, the health insurance scheme, the Karunya Aarogya Suraksha Padhathi has not been considered under the Program, is undergoing streamlining to overcome the on-going management issues impacting the implementation. During the Program period, technical assistance will be provided to the scheme through complementary resources to provide options for improving its efficiency and impact. The scope of the Bank Program will include: (i) under the DHS, selected plan and non-plan (a share) expenditure categories covering: non-communicable diseases, hospitals and dispensaries, Kerala emergency medical service (108 ambulance), strengthening of the emergency medical care, upscaling of infrastructure through the Public Works Department (PWD) a Program sub-implementing agency, District medical offices and specific management costs of DHS; (ii) Under DME, a percentage of costs covering: strengthening comprehensive stroke centers and trauma care facilities in medical colleges, faculty improvement program, upscaling of infrastructure through services of PWD, supporting

sophisticated medical equipment and management costs of DME; (iii) under KMSCL, procurement of essential drugs and equipment including direct transfer of funds by DHS and DME for Program related initiatives; and (iv) Under eHealth, functions to strengthen state digital health mission including procurement of digital infrastructure by Kerala State Electronics Development Corporation Limited (KELTRON) a Program sub-implementing agency. The Bank Program (P) is estimated at US$500 million and the Bank's contribution to the (P) for five years will be US$280 million equivalent to 56 percent of Program financing (P) and 28 percent of the overall Government program (p).

Figure 2: Program Boundaries proposed under Kerala Health System Improvement Program

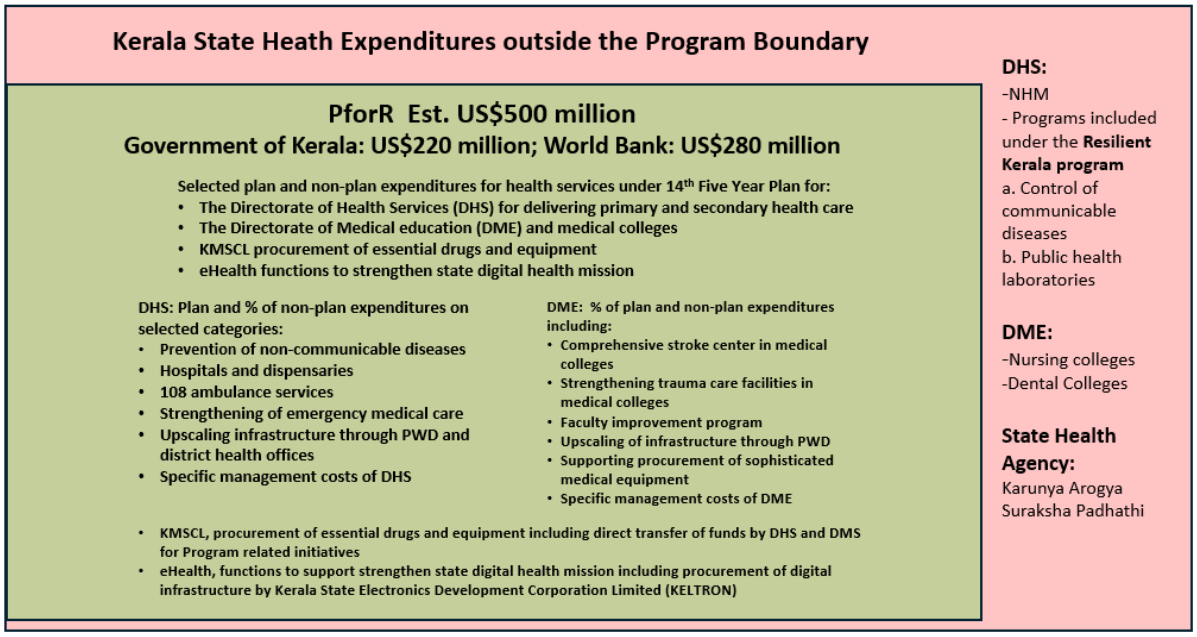


Table 1: Program Scope

	Government program	Program supported by the PforR Program)	Reasons for non-alignment
Objective	To achieve universal health coverage by strengthening the public sector, with a focus on reaching groups that have been historically unreached. [Vision is to towards planetary health, ensuring equity, efficiency, quality and cultural competency through partnerships and learning].	To improve access to and quality of health services and enhance health system resilience. Two key outcome areas will propel the program towards its goal: (i) improved access and quality of services s for NCDs and elderly care; and (ii) enhanced health system resilience through a One Health approach, addressing the impacts of climate change, and bolstering health system foundations.	The Program will support a subset of the government' objectives
Duration	2022-2027	2024-2029	
Geographic coverage	Entire state	Entire state – covering a subset of programs	The Program will support a subset of the government program
Results areas	(i) Health Services in the 14th Five Year Plan under the DHS; (ii) Medical education	The PforR will support specific expenditure categories aligned to RA1-2 excluding those that overlap	

	Government program	Program supported by the PforR Program)	Reasons for non-alignment
	and medical colleges under DME; (iii) KMSCL and (iv) eHealth under the Digital Health Mission	with other Bank operations and donor funded programs.	
Overall Financing	US$ 1 billion	US$ 500 million	PforR contribution US$280 million

E. PROGRAM DEVELOPMENT OBJECTIVE(S) AND PDO LEVEL RESULTS INDICATORS

15. The PDO of the program is to ***improve access to and quality of health services and enhance health system resilience[12] in the State of Kerala***.

16. The program aims to achieve the PDO through two interrelated result areas, considering their impact on the existing disease burden and their potential to strengthen health system readiness and capacities to respond to emerging threats: (i) improved access to and quality of health services; and (ii) enhanced health system resilience. To deliver on these results, the Program will deploy two complementary approaches: (a) value-based care to achieve the best possible health outcomes in terms of quality and client satisfaction while optimizing the resources and investments made by the state; and (b) system building to promote resilience, innovation, collaboration, and sustainability.

17. The following indicators will be used to measure progress towards the PDO:

- Patients registered for hypertension treatment at primary health care facilities whose blood pressure is controlled. (Percentage) [RA#1]
- Pre-hospital trauma and emergency calls responded to by qualified 108 Ambulance staff (Number) [RA#1]
- Proportion of registered bed bound; home bound and vulnerable elderly living alone receiving comprehensive healthcare services at home (disaggregated by gender) [RA#1]
- Proportion of primary health care facilities achieving antibiotic smart status.[13] [RA#2]
- Proportion of primary health facilities in five climate vulnerable districts made climate resilient. [RA#2]

F. RESULTS AREAS

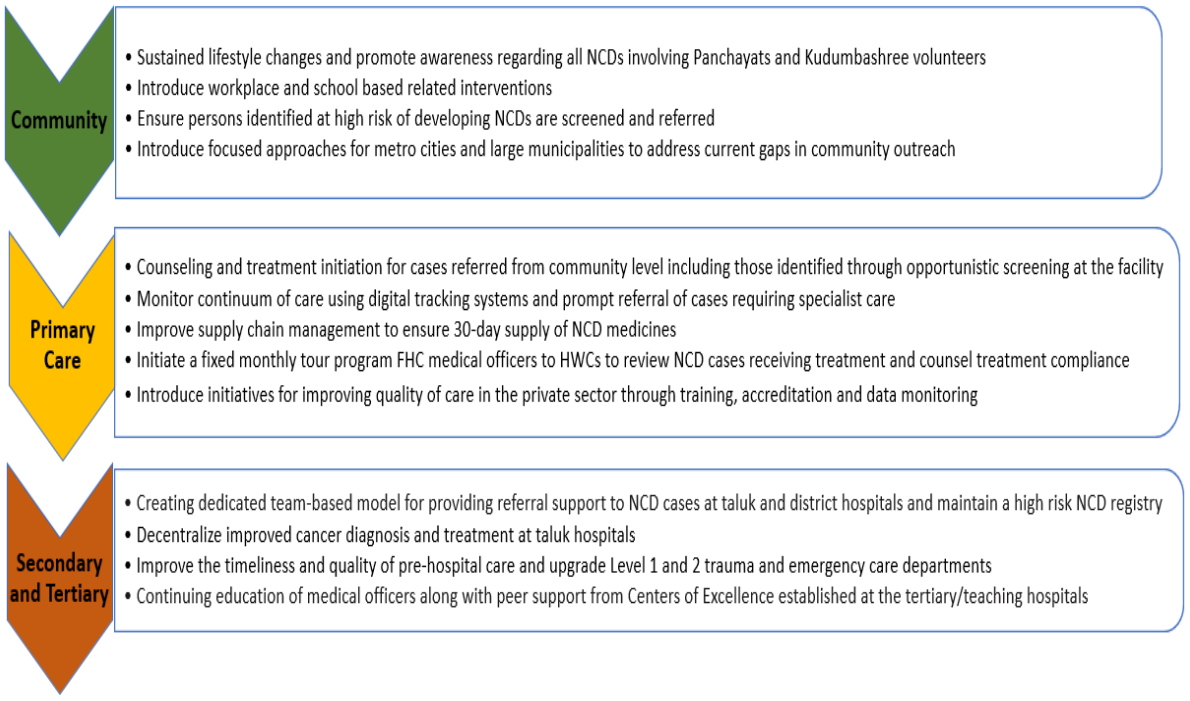
18. **Results Area 1. Improved access to and quality of health services:** This results area focuses on improving access to and quality of health services for priority health conditions resulting due to rapidly advancing epidemiological and demographic transition in the state. These priorities include Non-communicable Diseases (NCDs) and health challenges of ageing.

12 *WHO Definition: Developing resilient health systems ensures countries can effectively prevent, prepare for, detect, adapt to, respond to and recover from public health threats while ensuring the maintenance of quality essential and routine health services in all contexts, including in fragile, conflict and violence settings.*

13 Includes a set of 10 parameters aimed at strengthening antibiotic use by building awareness, strengthening quality of care, infection control and rational antibiotic practice.

(a) **Enhance NCD care continuum:** The NCD care will focus on all levels of healthcare covering early detection to treatment and efficient management of complications. The key outcome envisaged is to slow down the raising trend of NCDs in the state. Intervention areas (Figure 3) will include: (i) *at community level:* promotion of lifestyle improvements by the LSGIs and front line health workers, and detection of high risk groups through annual surveys followed by screening at Health and Wellness Centers (HWCs); (ii) *Primary Care level:* review, confirmation and treatment initiation including distribution of 30-day medicines for hypertension and diabetes and prompt referral of persons who require specialist care; and (iii) *Secondary and Tertiary level:* introduction of mandatory annual checkups, improved cancer screening and treatment, counselling for secondary prevention and treatment of complications through dedicated talak multi-disciplinary teams, immediate interventions to stabilize and treat medical and trauma emergencies, with a specific focus on emergencies related to NCDs (e.g., ischemic heart disease, stroke), optimizing the golden hour and providing 24x7 pre-hospital care and in-hospital care at Level 1 and Level 2 facilities; (iv) developing centers of excellence and innovations to improve quality of NCD treatment practices among selected private sector health providers in partnership with professional bodies.

Figure 3: Promoting Continuum of Care for NCD Outcomes



(b) **Promote healthy aging:** The Program will promote the concept of "aging in place" and "treating in place". The key outcome will be 'frailty prevention' which reduces the need for long term care and medical interventions. Frontline health workers such as the Mid-Level Service provider (MLSPs), Junior Public Health Nurse (JPHNs) and the Palliative Care Nurse supported by community volunteers including Kudumbashree volunteers will be the first points of contact to assess specific needs of elderly in their communities to support disease prevention and manage chronic conditions under the guidance of medical officers and specialists. There will be active involvement of LSGIs, civil society,

the private sector, and families and friends of the elderly in this effort. Specifically, the Program will support: (i) establishment of standard operating procedures, training modules and reporting systems and capacity building of frontline workers in geriatric care to enable them to function as a coordinated team delivering individualized care to elders at home and community levels; (ii) deliver comprehensive healthcare at home for bedbound, homebound and vulnerable elderly, especially elderly women living alone[14] including tailored messages on prevention of climate sensitive illnesses; (iii) strengthen long-term care and improved referral linkages for specialized care along with enhanced access to 108 ambulance services; (iv) introduce innovations to address loneliness through companionships and promote use of digital health applications in partnership with civil society organizations or academic institutions; and (vii) create an integrated digital information system for the elderly building on the household information being collected under the Resilient Kerala program.

19. **Results Area 2. Enhanced health system resilience:** This results area involves establishing robust health systems capable of preventing, preparing for, detecting, responding to, and recovering from public health threats. It includes implementing the One Health approach and enhancing capacity to provide consistent, high-quality health services. Specifically, the Program will have emphasis on promoting a cross-sector approach to prevent and manage public health threats, as well as preparing districts and healthcare facilities for the health impacts of climate change. Additionally, the program supports comprehensive system development to create an enabling environment through appropriate human resource development and digital health interventions.

(a) **Promote health system capacity to prevent and respond to emerging public health threats including climate change.** The key outcomes will include enhanced public health preparedness, improved cross-sector collaboration in surveillance, prevention, and response to disease outbreaks. The Program will also help to promote climate-health activities at the lowest decentralized level and enhance resilience of health facilities for climate emergencies. Specifically the Program scope will include: (i) state-wide scale-up up of One Health and collaborative surveillance (involving health and family welfare, animal husbandry, forestry, agriculture, environment, and LSGI) piloted in the four districts under the districts Resilient Kerala program; (ii) strengthen and scale-up the public health laboratory capacity to create an effective statewide network for timely etiological confirmation of disease outbreaks in partnership with the private sector; (iii) develop and institutionalize annual joint simulation exercises involving animal, human and environmental health teams; (iv) roll out cross sector antimicrobial resistance (AMR) surveillance including antibiograms targeting priority bacterial strains; (vi) undertaking vulnerability and preparedness assessments of primary healthcare facilities located in climate vulnerable areas including energy needs assessments and carbon auditing of select district and medical college hospitals; (vii) adoption of climate resilient measures for common climate shocks (flooding, landslides, high heat) and targeted climate mitigation measures including solarization; and (vi) build core capacities in public health including institutionalization of a state specific Field

14 *It is estimated from SHAILI databases that among the 60 and above population (about 4.6M): bed ridden are 1.7%; home bound 3.2%; and among elderly over 80 (13%) living alone are 5%. This totals to a targeted elderly population of 400,000.*

Epidemiology Training Program and strengthening and networking of Prevention of Epidemic and Infectious Disease Cells (PIED cells) in both public and private medical colleges to support implementation research.

(b) **Enhance resilience for sustainable health care:** Health system resilience hinges on the strength and integration of its foundational pillars. The program will assist in developing a proficient healthcare workforce capable of responding promptly and effectively to emergencies, while also delivering high-quality essential health services. The digital information system will be augmented to generate real-time data with improved analytics to guide informed decision-making and optimizing public resource allocation. Together, these pillars form a cohesive framework that enhances the health system's resilience safeguarding public health.

(i) *Improve management of Human Resources in Health (HRH)*: While the Enhanced Health Service Delivery Program (EHSDP-P178146) which includes Kerala as one of the 7 priority states will be supporting the development of a robust HRH strategy for the state, the Program will support: (i) the development and maintaining a fully operational Human Resources for Health Information System (HRHIS), for tracking health personnel and measuring their productivity; and (ii) targeted capacity building in core Program areas including field epidemiology training. To help effective implementation and coordination, the Program will also support dedicated HRH consultant to the proposed program technical support unit.

(ii) *Promote digital in Health:* It is proposed to accelerate the roll out and digital health integration process by: (i) scaling up eHealth program statewide balancing the number of modules to specific institutional needs; and (ii) support for integration of priority applications including an integrated NCD tracking system, trauma registry and HRHIS; (iii) strengthening of knowledge management and scale-up data analytic capacities by creating a health intelligence unit and dashboards for senior program managers, health practitioners and researchers in the state. Digitalization will also contribute to reducing the carbon footprint of the health systems through reduced use of paper and transportation. As part of support to digital health, the Program will invest in state’s ability to manage data privacy and cybersecurity threats.

G. DISBURSEMENT LINKED INDICATORS AND VERIFICATION PROTOCOLS

20. The Program focuses on two Results Areas and will incentivize the achievement of corresponding DLIs. Selected PDO and intermediate outcome indicators have been strategically included as Disbursement Linked Indicators (DLIs). Selected DLIs reflect the combined effect of specific technical interventions and institutional strengthening initiatives supported by the Program. Allocations for these DLI have been made on the basis of the priority to address and complexity of actions that need additional incentivization to achieve the key outcomes. Table 2 provides the DLIs with budget allocations and annex 1 lists the DLIs across the two Results Areas providing details on each DLI (definitions including whether they are timebound and scalable) and corresponding verification protocols.

Table 2: Disbursement Linked Indicators

Disbursement Linked Indicators				
	Serial	**Indicator**	**PDO/ IRI**	**Allocation (US$)**
Improved access to and quality of health services	1	Patients registered for hypertension treatment at primary health care facilities whose blood pressure is controlled.	PDO#1	30
	2	New registered hypertension and diabetes patients at primary care facilities (Percentage)	IRI	25
	3	Primary health care facilities reporting "no" stockouts of essential tracer medicines for “hypertension and diabetes” over previous year (Percentage)	IRI	30
	4	Pre-hospital trauma and emergency calls responded to by qualified 108 ambulance staff (Number)	PDO#2	25
	5	Number of trauma and emergency care facilities made operational (disaggregated by level)	IRI	30
	6	Proportion of registered bed bound; home bound and vulnerable elderly living alone receiving comprehensive healthcare services at home	PDO#3	30
Enhanced health system resilience	7	Proportion of suspected zoonotic disease outbreaks having laboratory confirmation within one week	IRI	25
	8	Proportion of primary health care facilities achieving antibiotic smart status	PDO#4	25
	9	Proportion of primary health facilities in five climate vulnerable districts made climate-resilient	PDO#5	30
	10	Strengthened, integrated digital health system for improved health service delivery	IRI	30
Total				**280**

H. PROGRAM IMPLEMENTATION ARRANGEMENTS

21. The key implementing agency for the Program is DoHFW, which will be responsible for delivering the agreed results. The DoHFW is responsible for core health service delivery through public facilities and community-level interventions**.** The DoHFW is led by the Health Minister while the Additional Chief/Principal Secretary is the administrative head. The two key departments/units managing the program: (a) Department of Health Services, headed by Director of Health Services; and (b) Department of Medical Education,

headed by Director of Medical Education will be reporting to the Additional Chief/Principal Secretary. The DHS leads health service delivery in the state in consultation with the Mission Director (MD), NHM. The eHealth Kerala headed by a Project Director functions as the Information Technology (IT) Department for the DoHFW.

22. The Program will be governed by a **Program Steering Committee and a Program Executive Committee** [Figure 4]. The Program Steering Committee will be chaired by the Chief Secretary with membership of Secretaries from departments of Health and Family Welfare, Finance, Planning, Social Justice, Local Self Government, Urban Affairs, Environment & Climate Change, Transport, Revenue, Animal Husbandry, Agriculture, and Information Technology. The committee will provide overall strategic direction for the program and approve annual work plans and budgets including facilitation of cross-sector collaboration. It will meet twice a year, first in December to review and approve annual work plan and budget for the program and second in June to review the implementation progress and provide strategic direction for cross-sectoral coordination. A Program Executive Committee chaired by the Additional Chief/Principal Secretary Health with membership from Directors/Heads of NHM, DHS, DME, KMSCL, eHealth Kerala and Kerala State Health Agency will provide overall stewardship and promote coordination within the health sector. The official in-charge of the program coordination unit will be the member secretary for this committee is expected to meet every quarter.

23. **A Technical Support Unit (TSU) will be responsible for Program implementation**. The TSU led by an officer at least at the rank of a Joint Secretary to the Government will coordinate day to day program implementation including tracking and timely reporting of results achievement, oversight for fiduciary and safeguard compliance, and preparing annual action plans in consultation with DHS and DME. The officer will be supported by a small team of technical, HRH, digital, fiduciary, safeguard, and monitoring and evaluation experts. **An Advisory Group** with experts in relevant technical issues will be constituted to provide strategic advice based on evolving local and global lessons and implementation experiences. The program will have three implementation agencies: the DHS; the DME; and eHealth. The DHS will be responsible for a significant share of RA#1 and RA#2, covering priority NCDs and elderly supported by primary and secondary levels care. The DHS will provide leadership for scaling up coordinated One Health program across the state including preparedness and resilience for climate change impacts on health (RA#2) and the public health capacity building. The DHS will also be coordinating the Level 2 trauma care facility (RA#1) implementation working closely with the DME. The DME will provide tertiary referral care including centers of excellence for specific NCDs which will offer peer support and capacity building under RA#1. The DME facilities and laboratories will also support the One Health and collaborative surveillance (RA#2) and be responsible for establishing and operating Level 1 trauma and emergency care facilities and apex institutions providing referral services for Level 2 facilities and building core competencies (RA#1). The eHealth will be responsible for scaling up e-health program statewide and support the integration of priority applications working in close collaboration with DHS and DME.

Figure 4:Program Institutional Arrangement

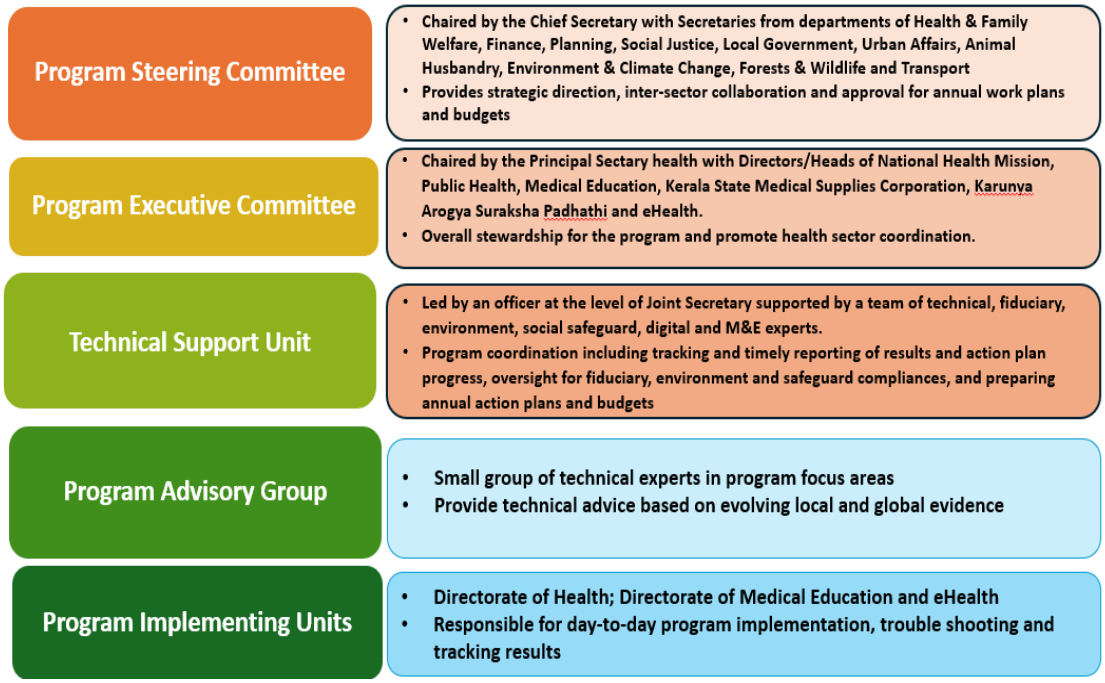


Table 3: Health Institutions under Department of Health Services

TYPE OF HEALTH FACILITY	NUMBER
24x7 Primary Health Centre (PHC)	3
24X7 PHC converted to Family Health Centre (FHC)	156
Community Health Centre (CHC)	185
CHC Converted to FHC	41
District Hospital (DH)	18
DTBC	14
General Dispensary	26
General Hospital (GH)	18
Health Clinic	3
Leprosy	2
Mental Health Centres	2
Mobile Unit	19
PHC	2
PHC converted to FHC	688
Specialty Leprosy	1
Specialty MHC	1
Specialty Others	7
Specialty Tuberculosis	1
TBC	3
TH	40
THQH	47
W&C	10

TYPE OF HEALTH FACILITY	NUMBER
PH Lab	10
W&C-Specialty	1
GRAND TOTAL	**1298**

I. IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL EFFECTS

24. This section describes the potential environmental and social effects that could arise from each activity. The sections below summarize the environment and social risks of the Program, followed by the environmental and social effects grouped under each results area.

25. **Key environmental risks associated with the Program** include increased quantum of biomedical waste (BMW) getting generated, energy efficiency and occupational health risks. With the objectives of providing quality care and better service delivery for non-communicable diseases, geriatric care services including home-based care, meeting NQAS & Kayakalp requirements for meeting water and sanitation standards, generation of BMW– solid as well wastewater - is projected to grow incrementally over the years, both at the healthcare facilities and in the homes of the patients undergoing palliative care. At present, only 23 percent of the 213 larger health care facilities have provision of in-house treatment through sewerage treatment plants (STPs). As reported by Kerala State Pollution Control Board, about 62.2 tons/day of BMW was generated during the year 2022 by 17,975 Healthcare Facilities. The entire BMW was treated by the two common treatment facilities and forty-four captive treatment and disposal facilities situated within the health facilities. The state's two Common Biomedical Waste Treatment Facilities are challenged with the task of transportation, treatment and disposal of biomedical waste generated by government and private health facilities across the State. Therefore, the present waste management infrastructure will require investments to collect, transport, treat and dispose BMW of the health sector.

26. Expansion of the current network of laboratories, trauma centers, increase in ambulance services, also poses occupational health and safety risks to the construction workers during construction as well as laboratory workers during routine functioning. In addition, generation and management of biomedical wastes in such laboratories also pose occupational health and safety as well as community health risks. Increase in ambulance services will provide first response in trauma care, but it needs to be ensured that the ambulances meet industrial standards and OHS standards are maintained for ambulance staff and patients. Monitoring procedure for safety compliance of medical oxygen is crucial to avoid any incidents. The ESSA has tried to assess the existing system's capacity in managing these potential program level risks.

27. Increased patient load and outreach would put pressure on the infrastructure. Therefore, it is important that the infrastructure is upgraded to be energy efficient. This will help in adapting and mitigating climate change concerns.

28. **Key social risks associated with the Program** include the absence of a well-functioning, responsive grievance redressal mechanism in the healthcare

facilities; and the risk of exclusion from accessing healthcare facilities, particularly for vulnerable groups like Scheduled Tribes, disabled persons, and migrant workers. Currently there is no consistent comprehensive grievance redressal monitoring mechanism in the healthcare facilities under the DHS, incorporating multiple uptake channels, publicly available standardized procedures, consistent system for recording, responding and reporting on the grievances received. Some of the key vulnerable groups in Kerala today include migrant workers, disabled persons and Scheduled Tribes. It is estimated that as of 2023, there are approximately 31 lakh migrant workers in Kerala[15], many of whom come from states like West Bengal, Jharkhand, Uttar Pradesh, Odisha and Bihar, which are culturally and linguistically distinct.

29. Given that no major civil works are planned under the program and any minor repair or refurbishments will be carried out within the current footprint of existing facilities, no land acquisition and/or involuntary resettlement is expected. However, a screening mechanism will be required to identify any potential adverse social impacts. DoHFW at the state level provides the institutional mechanism for equitable health program implementation along with detailed roles and responsibilities for district health officials and sub-district level officials. The Department also has a clear focus on social inclusion and the differentiated needs of SC, ST, disabled persons, migrant workers, and women for whom there are multiple schemes. The healthcare facilities attempt to provide all-round health care in an inclusive environment, free from discrimination.

30. **EXCLUSION LIST:** The following activities are excluded from support under the proposed PforR Program:

(i) Establishment and operation of common BMW treatment facility
(ii) Construction of new buildings or any construction beyond the existing footprint of buildings
(iii) Activities involving asbestos containing materials (AC roofing sheets, AC pipes, and so on) such as construction, demolition, and dismantling.
(iv) Any activity that may involve land acquisition or have potential involuntary resettlement will be excluded (screened out) from the Program boundary.
(v) Use of child or bonded or forced labor or labor involved in any hazardous activities.
(vi) Destruction or damage to any physical and cultural resources

31. A **limited exception for a high value contract** for hiring a service provider for aggregating and operating ambulances in the state has been proposed. The engagement has been proposed for 335 ambulances for 5 years is based on Public Private Partnership Model. Pre-hospital care is provided by the Kerala Ambulance Network which aims to reduce precious time being lost in transporting stroke and heart patients, road accident victims and all type of medical emergencies, including during disasters. Therefore, this contract will help in achievement of PDO and thereby success of the Program. The related environmental and social management risks include: (a) air pollution if the vehicles are not maintained properly and the new vehicles should be BS VI compliant; (b) health and safety risks to ambulance staff and patients if the ambulances do not conform to existing automotive industry standards

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[Automotive Industry Standard 125 (AIS-125) Part 1, August 2014: Constructional and Functional requirements for Road ambulances; Automotive Industry Standard 125 (AIS-125) Part 2, August 2014 Medical Equipment for Road Ambulances]; (c) occupational health and safety of the staff deployed in operation of ambulances including duty hours, night hours, safe rest areas with adequate facilities of changing rooms, bathrooms & toilet areas. These are important especially in context of Kerala where females workforce is expected; (d) adequate and proper parking facilities of the ambulances; (e) management of biomedical waste in ambulances; (f) cleaning and operation & maintenance of vehicles which leads to generation of several waste streams including hazardous wastes, that is, batteries for which sound management of recyclable materials is critical; (g) worker health and safety in vehicle garages and industrial enterprises. All these risks were assessed as minor, localized, generic, and reversible and can be mitigated effectively.

32. Environmental and social effects, including risks and benefits, for program activities under each Results Area are captured in Table 4.

18.

Table 4: Environmental and Social Risks and Benefits of Program activities by Results Area

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
Results Area 1: Results Area 1. Improved access to and quality of health services		
PROGRAM ACTIVITY: Enhanced NCD Care Continuum. At the community level • Sustained lifestyle changes and promote awareness regarding all NCDs involving Panchayats and Kudumbashree volunteers. • Introduce workplace and school based related interventions. • Ensure persons identified at high risk of developing NCDs are screened and referred. • Introduce focused approaches for metro cities and large municipalities to address current gaps in community outreach. At the primary care level • Counselling and treatment initiation for cases referred from community level including those identified through opportunistic screening at the facility. • Monitor continuum of care using digital tracking systems and prompt referral of cases requiring specialist care • Improve supply chain management to ensure 30-day supply of NCD medicines. • Initiate a fixed monthly tour program FHC medical officers to HWCs to review	• This will enhance social benefits in identifying non-communicable diseases (NCDs) early enough for treatment and establishing the care continuum. • Improvement in data quality and performance monitoring will have positive social effect in identifying diseases as well as timely flagging for any specific interventions towards improvement. • Improved awareness in society will have long term positive health outcomes.	Environmental: • Incremental increase in generation of BMW from health care facilities. • Increased quantum of BMW potentially implies increased risk of infection to health care staff from BMW. • Upgrading level 1 and 2 trauma and emergency care departments would result in small, local and reversible/manageable environmental concerns (dust, noise) but would require E&S screening. • Fire & life safety measures to be ensured with increase in infrastructure. • Need for infrastructure to be energy efficient to mitigate climate change. Social: • Upgrading level 1 and 2 trauma and emergency care departments carry key social risks related to labour management, and occupational health and safety issues emerging from minor civil works which may involve repair and refurbishment within the existing footprint of the health facility. These are expected to be small, localized and can easily be managed within the existing

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
NCD cases receiving treatment and counsel treatment compliance. • Introduce initiatives for improving quality of care in the private sector through training, accreditation and data monitoring. At the Secondary and Tertiary level • Creating a dedicated team-based model for providing referral support to NCD cases at taluk and district hospitals and maintain a high risk NCD registry. • Introducing mandatory annual follow-up visit to improve treatment outcomes including identification of emerging complications. • Improve the timeliness and quality of pre-hospital care and upgrade Level 1 and 2 trauma and emergency care departments. • Continuing education of medical officers along with peer support from Centres of Excellence established at the tertiary / teaching hospitals.		institutional mechanism, but require an E&S screening. • There is also a risk of exclusion of vulnerable groups like women-headed households, single women households, Scheduled Tribes, disabled persons and migrant workers.
PROGRAM ACTIVITY: Promote healthy aging. • Establishment of standard operating procedures, training modules and reporting systems and capacity building of frontline workers in geriatric care to enable them to function as a	• A healthy aging population has widespread social benefits. It reduces caregiving burden on society and improves social connection. • Capacity building of frontline workers would lead to safe management of BMW generated during care as well as reduced risk of environmental pollution,	Environmental: • Home based care of patients would lead to increased generation of domestic biomedical waste that would require implementation of standard protocols for collection, storage and transportation as per BMW

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
coordinated team delivering individualized care to elders at home and community levels. • Deliver comprehensive healthcare at home for bedbound, homebound and vulnerable elderly, especially elderly women living alone[16] including tailored messages on prevention of climate sensitive illnesses. • Strengthen long-term care and improved referral linkages for specialized care along with enhanced access to 108 ambulance services. • Introduce innovations to address loneliness through companionships and promote smartphone literacy in partnership with civil society organizations or academic institutions; and • Create an integrated digital information system for the elderly building on the household information being collected under the Resilient Kerala program.	as well as adoption of improved patient safety measures. • Improved awareness of elderly would reduce risk of climate sensitive illnesses e.g. heat stress, vector borne diseases etc. • Enhanced access to ambulance services is likely to improve access, reduce exposure to adverse climatic stress e.g. heat, rains, cold etc.	management rules 2016. • Generation of BMW generated at household level potentially implies risk of infection to patient and health care staff safety through infection risk, health worker safety and environmental pollution and risks to nearby communities, thereby requiring safe procedures for its collection, transport, and disposal. • OHS concerns for ambulance staff and patients regarding ambulances meeting industrial standards, inadequate and improper rest areas with changing rooms for female staff, long works hours, and proper partaking for increased number of ambulances. Social: • There are certain safety, security and health risks associated with home care. These include unsafe neighborhoods, violent or unstable patients and family members, threat of violence and abuse, potentially dangerous pets and unsanitary conditions. • There is also a risk of exclusion of vulnerable groups like women-headed households, single women households, Scheduled Tribes, disabled persons and

16 *It is estimated from SHAILI databases that among the 60 and above population (about 4.6M): bed ridden are 1.7%; home bound 3.2%; and among elderly over 80 (13%) living alone are 5%. This totals to a targeted elderly population of 400,000.*

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
		migrant workers.
Results Area 2: Enhanced health system resilience		
PROGRAM ACTIVITY: Promote health system capacity to prevent and respond to emerging public health threats including climate change. • Scale-up up of One Health and collaborative surveillance (involving health and family welfare, animal husbandry, forestry, agriculture, environment, and LSGI) piloted under the Resilient Kerala program. • Strengthen and scale-up the public health laboratory capacity to create an effective statewide network for timely etiological confirmation of disease outbreaks in partnership with the private sector. • Develop and institutionalize annual joint simulation exercises involving animal, human and environmental health teams. • Roll out cross sector antimicrobial resistance (AMR) surveillance including antibiograms targeting priority bacterial strains. • Develop evidence based, costed and adequately resourced climate-health action plans at state and district levels to protect the most vulnerable populations. • Undertake energy auditing of larger	• Scale-up of One Health will help address early detection and response to any zoonotic diseases and will positively benefit local population. • Energy audits implementation present opportunity to reduce environmental pollution risks and improve resource conservation and hence enhance environmental and financial sustainability.	Environmental: • Strengthening of laboratories requiring civil works would result in small, local and reversible/manageable environmental concerns (dust, noise) but would require E&S screening. • Increased BMW from laboratories would require to be accounted in overall collection and disposal system of BMWM. • Increased quantum of BMW potentially implies increased risk of infection to health care staff from BMW. Social: • No major social risks foreseen

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
health facilities (medical colleges, district hospitals) to guide energy conservation measures and create a menu of models for climate resilient health facilities including solarisation; and • Build core capacities in public health including a state specific Field Epidemiology Training Program and strengthening and networking of Prevention of Epidemic and Infectious Disease Cells (PIED cells) in medical colleges to support implementation research.		
PROGRAM ACTIVITY: Enhance resilience for sustainable health care. <u>Improve management of Human Resources in Health (HRH)</u> • The development and maintaining a fully operational HRHIS, for tracking health personnel and measuring their productivity. • Targeted capacity building in core Program areas including building planning and management skills of mid-level and senior medical professionals; and • Roll out the Public Health Cadre in the state in alignment with the National Government guidance. To help effective implementation and coordination, the Program will also support the	• Improved human resource management, training and capacityof safe patient care, improved occupational health and safety and environmental protection.	• There is a risk of inadequate stakeholder consultation when implementing these interventions. • Deficiencies in capacities in human resources can pose dual risk of reduced OHS capacities and hence increased risks of workplace injuries and infections as well as potential risk of reduced availability of health workforce during emergencies and outbreaks, when their need is highest.

Potential Activities	Potential Environmental and Social Benefits	Potential Environmental and Social Risks
establishment of health workforce cells in the two main implementation units.		
<u>Promote Digital in Health</u> • Scaling up eHealth program statewide. • Support for integration of priority applications including an integrated NCD tracking system, trauma registry and HRHIS. • Strengthening of knowledge management and scale-up data analytic capacities to create a health intelligence unit and dashboards for senior program managers, health practitioners and researchers in the state.	• Improved data management	No major social risks foreseen

III. ASSESSMENT OF ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEMS AND IMPLEMENTATION CAPACITY

A. INTRODUCTION

1. This section provides a summary assessment of whether the Program's environmental and social management systems are adequate for and consistent with the Core Principles and Key Planning Elements contained in the PforR Policy, as relevant to the Program. It also assesses whether the involved institutions have the requisite capacity to implement these systems' requirements. A list of applicable policies and guidelines are in ANNEX 4, and a complete list of the standards for primary health care facilities is in ANNEX 3.

2. As noted earlier, the PforR Policy requires the proposed Program to operate within an adequate environmental and social management system that can manage environmental and social effects (particularly adverse impacts and risks) identified during the ESSA process. This includes (a) an adequate legal and regulatory framework and institutional setting to guide environmental and social impact assessment and the management of environmental and social effects and (b) adequate institutional capacity to effectively implement the requirements of the system.

3. This section assesses whether the Program's environmental and social management systems are consistent with the Core Principles and Key Planning Elements contained in the PforR Policy and whether the involved institutions have the requisite capacity to implement these systems' requirements. Both elements (for example, Program systems and capacity) are necessary toward ensuring that the environmental and social effects identified in Chapter II are effectively managed. Through both analyses, the ESSA team has identified gaps in both areas, which are addressed in Inputs to the PAP and Recommendations.

4. Program systems constituted by the rules and "arrangements within a Program for managing environmental and social effects," including "institutional, organizational, and procedural considerations that are relevant to environmental and social management" and that provide "authority" to those institutions involved in the Program "to achieve environmental and social objectives against the range of environmental and social impacts that may be associated with the Program." This includes existing laws, policies, rules, regulations, procedures, and implementing guidelines, and so on that are applicable to the Program or the management of its environmental and social effects. It also includes interagency coordination arrangements if there are shared implementation responsibilities in practice.

5. Program capacity is the 'organizational capacity' of the institutions authorized to undertake environmental and social management actions to achieve effectively 'environmental and social objectives against the range of environmental and social impacts that may be associated with the Program'. This ESSA has examined the adequacy of such capacity by considering, among other things, the following factors:

- Adequacy of human resources (including in training and experience), budget, and other implementation resources allocated to the institutions.

- Adequacy of institutional organization and the division of labour among institutions.
- Effectiveness of interagency coordination arrangements where multiple agencies or jurisdictions are involved.
- The degree to which the institutions can demonstrate experience in effectively managing environmental and social effects in the context in projects or programs of similar type and magnitude.

6. This ESSA examines and discusses only those aspects of the proposed Program's environmental and social management systems and related capacity that the ESSA team found to be relevant considering its identified environmental and social effects. This section provides a summary assessment of the Program's systems and capacity as they relate to each of the Core Principles and Key Planning Elements.

7. Overall, the applicable environmental and social management systems are generally adequate to address underlying environmental and social risks, and noteworthy strengths are having national regulations and guidelines in place for biomedical and other waste management, general infection control, national building codes for life, and fire safety and building and construction worker safety. However, efforts are required to strengthen implementation and institutional coordination in certain areas of OHS, medical wastewater management and management of increased BMW that is anticipated to get generated due to Program interventions to achieve sustainable outcomes. While the provisions of the Biomedical Waste Management and Handling Rules, (as amended on March 2018) and IMEP are being implemented, provisions of other relevant environmental acts such as hazardous, solid, plastic, and e-waste rules applicable to the Program require additional institutional and capacity-building efforts.

8. Similarly, the management capacity is generally adequate to address the underlying social risks such as access, equity and inclusion related issues including for tribal and marginalized population, women, disabled persons, migrant workers, and issues related to social accountability and transparency through instituting mechanisms under the program. Gaps identified through the assessment are proposed to be addressed through a set of actions which are compiled as environmental and social inputs to the PAP.

B. PROGRAM SYSTEMS: LEGAL, REGULATORY SYSTEMS AND FRAMEWORKS

9. The Government of India and the State government have enacted a range of laws, regulations, and procedures relevant to managing the environmental and social effects of the proposed Program. The table below lists legal instruments that manage biomedical and other wastes, pollution prevention, labor, OHS, community/public health and safety, and building safety (life and fire safety) related aspects relevant to the Program results areas.

Table 5: Applicable Government of India Policies and Regulations

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
1.	Infection control	Infection Management and Environment Plan (IMEP) is a policy framework of National Health Mission (NHM) which lays out detailed guidelines for infection control in sub-enters, PHC, CHC.	Highly relevant and applicable in all health care facilities.
2.	Bio-medical Waste Management Rules, 2016	• Schedule 1: Categorization and Management • Schedule 2: Standards for treatment and disposal of BMW • Schedule 3: Prescribed Authority and duties • Schedule 4: Label of containers and bags and transportation of BMW • The provisions under the rules provide for both solid and liquid medical wastes. • Liquid waste should be treated with 1% hypochlorite solution before discharge into sewers. • Hospitals not connected to municipal waste-water treatment plants should install compact on-site sewage treatments (that is primary and secondary treatment, disinfection) to ensure that wastewater discharges meet applicable thresholds.	Highly relevant. • As per accreditation requirements, health care facilities need to develop Standard Operating Procedures (SOPs) in the handling of medical solid, liquid, and radioactive wastes. • On solid BMW, there is a good overall capacity and compliance. On liquid BMW, there are significant gaps in treatment and disposal of wastewater from hospitals. • The requirements in Ministry of Environment and Climate Change (MoEFCC) Notification - G.S.R.234 (E), dated March 28, 2016, are found to be equivalent to the World Bank Group EHS Guidelines for Healthcare Facilities as they cover good international industry practice such as labelling and symbols for hazardous materials and waste, waste reduction, segregation, storage, transportation (manifest), treatment and handling (with autoclave, incineration), health workers' OHS ,and public health and safety. The effluent standards are also equivalent or better than the World Bank Group EHS Guidelines for Health Care Facilities (performance monitoring); for example, 100 mg/L (India) and 250 mg/L (World Bank Group

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
			Guidelines) for COD.
3.	CPCB Revised Guidelines for Common Bio-medical Waste Treatment Facilities, 2016	The guidelines provide technical aspects for operations of the facilities covering transportation for collection, storage, processing, treatment, and final disposal of wastes.	Relevant for the Common Biomedical waste treatment facilities and for users of their services I.e. health facilities and State Pollution Control Boards for their supervision.
4.	CPCB Methodology to Conduct gap analysis with respect to generation and treatment of biomedical waste, 2023	The guideline covers the methodology to be applied by the State Pollution Control Boards to conduct gap analysis in BMW management	Relevant for the state Pollution Control Board as well as state department of health for determining need for newer treatment facilities based upon the trends of BMW generation.
5.	Construction and Demolition Waste Management Rules, 2016	Waste comprising building materials, debris, and rubble resulting from construction, remodelling, repair, and demolition of any civil structure	Relevant as there will be construction waste generated. CPCB guidelines on Environmental Management of Construction and Demolition Waste Management in India (2017) will be applicable.
6.	E-waste (Management and Handling) Rules 2011 as amendment up to 2018	• To address leakage of e-waste to informal sector at all the stages of channelization. • The 2016 Amendment brought health care facilities (with turnover over INR 20 crores or more than 20 employees).	Relevant as it is applicable for consumers or bulk consumers. The disposal of e-wastes to be done at the specified collection centres and reported annually.
7.	Plastic Waste Management Rules 2016	All institutional generators of plastic waste shall segregate and store the waste generated by them in accordance with the Solid Waste Management Rules and hand over segregated wastes to authorized waste processing or disposal facilities or deposition centres, either on its own or through the authorized waste collection agency.	Relevant as hospitals are generators of large quantity of plastics, including non-reusable types.
8.	E-waste (Management) Rules, 2016	Shall apply to every manufacturer producer, consumer, bulk consumer, collection centres, dealers, e-retailer, refurbishers,	• Relevant as it is applicable for consumers or bulk consumers. The disposal of E-wastes to be done at the specified collection centres

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
		dismantler, and recycler involved in manufacture, sale, transfer, purchase, collection, storage, and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts, and spares which make the product operational but shall not apply to (a) used lead acid batteries as covered under the Batteries (Management and Handling) Rules, 2001 made under the Act; (b) micro enterprises as defined in the Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006); and (c) radioactive wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made thereunder.	and reported annually. • All programs, where e-waste is generated including electrical/electronic equipment. • As per rules, the manufacturer has to collect back e-waste and channelize for collection/disposal; producer (seller of the assembled product under own brand) shall arrange end-of-life disposal under extended producer responsibility and create awareness on this; collection centres established by producer/dealer (lighting agencies/dealers) can also collect e-waste on behalf of dismantler, refurbishers, and recycler including those arising from orphaned products.
9.	Water (Prevention and Control of Pollution) Act 1974 Air (Prevention and Control of Pollution) Act 1981 Environment Protection Act (and Rules), 1986 and 1996	Provisions are largely to prevent air and water pollution by not releasing untreated effluents and harmful emissions. Most provisions are already discussed under the Bio-Medical Waste Rules.	Relevant and largely complied with; gaps exist in disposal of liquid wastes from health care facilities.
10.	Air PollutionNo.14 of 1981, (29/3/1981) The Air (Prevention and Control of Pollution) Act 1981, Amended	To provide for the prevention, control, and abatement of air pollution in India	• Relevant to transport of materials for upgrade, repairs, and other materials, through unpaved roads • Transport of wastes from construction, demolition, and other wastes • Use of fuels in diesel generator set.

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
	1987 and Rules thereof		• Use of paint/other material with hazardous contents
11.	Solid Waste Management Rules, 2016	Apply to every municipal authority responsible for the collection, segregation, storage, transportation, processing, and disposal of municipal solid wastes.	• Relevant. Majority of wastes generated from health care facilities, laboratories, and PoE health organizations is general solid waste, for example, paper, packaging, dry leaves, food wastes and needs to be collected, stored, handled, and treated separately from hazardous wastes. • Storage, transport, handling, recycling/reuse, disposal of solid wastes including packaging materials under all Program activities.
12.	Building and Construction Workers Act, 1996	An act to regulate the employment and conditions of service of building and other construction workers and to provide for their safety, health, and welfare measures and for other matters connected therewith or incidents.	Relevant to public health workers, contracted workers for any minor civil works
13.	Insecticides Act 1968	This act governs the use of registered insecticides and non-use of banned insecticides. It is relevant to all health facilities and hostels that undertake pest control operations	• Applicable to maintenance and cleaning of new toilet/water, sanitation, and hygiene (WASH) structures and also for vector control • Exclusion of banned insecticides • Safe storage of insecticides, spill management, and safe usage
14.	National Building Code 2016 and Relevant Standards of the Bureau of Indian Standards (BIS)	The code provides regulations for building construction by departments and public bodies. It lays down a set of minimum provisions to protect the safety of the public about structural sufficiency, fire hazards, and health aspects. The code mainly contains administrative regulations, development control rules, and general building requirements; fire safety	• Relevant for any building being constructed or upgraded, maintaining safe work, construction typology standards, and guidance, mitigation/management measures, training, monitoring. • Life and fire safety • Structural safety

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
		requirements; stipulations regarding materials, structural design, and construction (including safety); building and plumbing services; signs and outdoor display structures; guidelines for sustainability, asset and facility management, and so on.	
15.	The Constitution of India (especially, Articles 15,16 and 46)	The Indian Constitution (Article 15) prohibits any discrimination based on religion, race, caste, sex, and place of birth. Article 16 refers to the equality of opportunity in matters of public employment. Article 46 directs the state to promote with special care the educational and economic interests of the weaker sections of the people, particularly of the Scheduled Castes and the Scheduled Tribes and also directs the state to protect them from social injustice and all forms of exploitation.	Applicable to the overall Program
16.	Minimum Wages Act, 1948	This Act ensures minimum wages that must be paid to skilled and unskilled labors. The employer shall pay to every employee engaged in scheduled employment under him, wages at the rate not less than the minimum wages fixed by such notification for that class of employee without any deductions except authorized.	Applicable to the overall Program
17.	The Child and Adolescent Labour (Prohibition & Regulation) Act, 1986; and Notification of the Child Labour (Prohibition and	This act prohibits the engagement of children below 14 and 15 years in certain types of occupations and regulates the condition of work of children in other occupations. No child shall be employed or permitted to work in any of the occupations set forth in Part A of the schedule, processes set forth in Part B of the schedule	Applicable to hiring contract labour for minor civil works

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
	Regulation) Amendment Act, 2016 and Rules 2017	which includes building and construction industry. The 2016 amendment also prohibits the employment of adolescents in the age group of 14 to 18 years in hazardous occupations and processes and regulates their working conditions where they are not prohibited.	
18.	Prevention of Sexual Harassment at the Workplace Act, 2013	The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013. It defined sexual harassment, laid down the procedures for a complaint and inquiry and the action to be taken. It broadened the Vishaka guidelines, which were already in place.	Relevant to all healthcare workers and labour for civil works
19.	Right to Information Act, 2005	Provides a practical regime of right to information for citizens to secure access to information under the control of public authorities. The Act (a) sets out obligations of public authorities with respect to provision of information; (b) requires designating a Public Information Officer; (c) sets out process for any citizen to obtain information/disposal of request, and so on; (d) provides for institutions such as Central Information Commission/State Information Commission.	Applicable to the overall program. Provides framework for disclosing information to the public
20.	Construction Standards and Disaster Related	• Disaster Management Act, 2005 National Policy on Disaster Management 2009 • National Disaster Management Guidelines - Hospital Safety 2016	• Codes for construction in disaster-prone areas • National policy (2009) focuses on prevention, mitigation, preparedness, and response. • Universal access • Electrical safety • Structural safety • Fire safety. • Emergency response plans • It describes the institutional and financial arrangements, capacity

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
			development, knowledge management and so on
21.	The Hazardous and Other Waste Management Rules, 2016	The Hazardous and Other Waste Management Rules, 2016 provide for generation, collection, treatment, transport, import, storage, and disposal of hazardous wastes. Improper storage, handling, transportation, treatment, and disposal of hazardous waste result in adverse impact on ecosystems including the human environment.	Relevant to all health programs
22.	The Occupational Safety, Health and Working Conditions Code, 2020	This code on occupational safety, health, and working conditions applies to all establishments with 10 or more workers and includes building and construction workers. It is applicable to all infrastructure works supported under the Program. The Occupational Safety, Health, and Working Conditions Code ('Code') is enacted to consolidate and amend the laws regulating the occupational safety, health, and working conditions of the persons employed in an establishment and for the connected and incidental matters. The code also lists benefits to the interstate migrant workman such as the benefits of the insurance and provident fund benefits either in the native state or the state of employment, portability of benefits of the interstate migrant worker for building or other construction work out of the building and other construction cess fund in the destination state where such interstate migrant worker is employed. It also mandates free health checkups for workers aged 45 for prescribed industries such as factories, mines, plantations,	Relevant for all workers and minor civil works

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
		and those employed in hazardous process.	
23.	The Epidemic Diseases Act 1897 The Epidemic Diseases (Amendment) Ordinance, 2020	The Epidemic Diseases Act 1897 provides for better prevention of the spread of dangerous diseases. The Epidemic Diseases (Amendment) Ordinance, 2020 was promulgated on April 22, 2020. The Ordinance amends the Epidemic Diseases Act, 1897. The act provides for the prevention of the spread of dangerous epidemic diseases. The ordinance amends the act to include protections for health care personnel combating epidemic diseases and expands the powers of the Central Government to prevent the spread of such diseases.	To ensure safety of communities, workers, and project staff especially during this period of COVID-19 pandemic. The ordinance includes provisions for protection of health and safety of health workers from the acts of violence and aggression during management of COVID-19 response in the health facilities and communities.
24.	Employees Compensation Act, 1923 and Rules 1924	The Act provides for compensation in case of death or injury by accident arising out of and during employment.	Relevant to the Program and applicable for subprojects involving construction
25.	Persons with Disabilities Act, 2016	The Act provides for persons with disabilities to be treated with equality and non-discrimination and empowers governments to take necessary steps to ensure reasonable accommodation for persons with disabilities.	Relevant to the Program and applicable for ensuring inclusive access to medical and healthcare services for all persons including persons with disabilities.
26.	Atomic Energy Regulatory Board, Safety Guidelines on Atomic Energy Act 1962	These guidelines describe the facility considerations like siting and layout and covers industrial and radiological safety, radiation shielding, environmental impact and decommissioning aspects. These guidelines cover maintenance and quality assurance programme of the facility and emergency planning. It describes the responsibilities of the operator, user and AERB and specifies the procedures for getting authorisation	Relevant for the health facilities using Radioactive isotopes for treatment or diagnostic functions, leading to radioactive wastes as well as exposure of workers to radiation during such activities.
27.	Kerala	The act provides for the	Relevant for the new and

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
	Clinical Establishments (Registration and Regulation Act, 2018)	registration and regulation of clinical establishments, rendering services in recognised systems of medicine in the State, and for matters connected to them.	existing health facilities, both government and private for receiving approval from health and other governmental authorities to perform their functions including BMW and other waste management.
28.	Kerala Public Health Act, 2023	The act provides for strengthening the diagnosis, treatment and associated social systems under public health systems to prevent the new viruses, germs, communicable diseases and pandemics that may emerge as part of climate change, human-animal contact, etc., and prevent and control the increasing lifestyle diseases;	Relevant for the facilities for their detection and treatment systems including BMW and other waste management and health workers infection prevention and control and their occupational health and safety.
29.	Kerala Healthcare Service Persons and Healthcare Service Institutions (Prevention of Violence and Damage to Property) Act, 2012	The Act provides for prevention of violence against healthcare workers in Kerala	Relevant to the program as it is applicable to all healthcare workers in the state, including workers for homebased care.
30.	State Policy for Transgender Persons in Kerala, 2015	This Policy provides for equal rights to access development opportunities, resources and benefits for transgender persons, which includes access to healthcare services. Further, it provides that the Department of Health and Department of Social Justice should include transgender persons under healthcare and insurance schemes.	This is relevant for inclusive access to healthcare services in the state.
		Other Guidelines	
31.	Prime Minister – Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) Operational	PM-ABHIM operational guidelines cover the guiding principles, implementation mechanisms, planning, appraisal, and approval process of health care facilities under the Program.	Relevant. The guidelines provide information on eligible expenditure, guiding policies (such as BMWM Rules, 2016). and factors to be considered while planning.

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
	Guidelines		
32.	XV-FC Technical and Operational Guidelines	The technical and operational guidelines are intended for state and district Program managers, and the representatives of state and district rural and urban local bodies to plan new infrastructure under PM-ABHIM.	PM-ABHIM health centers follow the guidelines of the XV-FC. This provides the layout of the health care centers and the needed infrastructure for maintaining environment health, safety, and cleanliness.
33.	National Quality Assurance Scheme (NQAS) Operational Guidelines For Improving Quality In Public Health Facilities	To strengthen and improve quality of care and provide recognized/accepted standards, measurement system, and quality improvement interventions in congruence with universal quality and safety goals	Relevant - sets standards for infection control
34.	*Swachhata* Guidelines	These guidelines have been developed for states to use in maintaining cleanliness in their health facilities. Quality in public health facilities encompasses much more than hygiene and cleanliness.	Relevant to all health care facilities under PM-ABHIM
35.	*Kayakalp*Award Scheme	Aim of the initiative is to improve and promote the cleanliness, hygiene, waste management and infection control practices in public health care facilities and incentivize the exemplary performing facilities. The scheme is intended to encourage and incentivize public health facilities in the country to demonstrate their commitment for cleanliness, hygiene, and infection control practices. Initiated from district hospitals in 2015, the scheme expanded to the PHC level (2016) and then covered all urban health facilities by 2017.	• To inculcate a culture of ongoing assessment and peer review of performance related to hygiene, sanitation, and infection control. • To incentivize and recognize public health care facilities that show exemplary performance in adhering to standard protocols of cleanliness, infection control, and sanitation. • To create and share sustainable practices related to improving cleanliness in public health facilities which lead to positive health outcomes.
36.	Swachh Bharat Mission	Swachh Bharat Mission, Swachh Bharat Abhiyan, or Clean India Mission is a country-wide campaign	Relevant to the Program - preventing inappropriate SWM disposal and encouraging good sanitation and hygiene

S. No.	Applicable act/ regulation/ policy	Objective and provisions	Relevance to the Program and key findings
		initiated by the GoI in 2014 to eliminate open defecation and improve solid waste management	practices.
37.	National Disaster Management Authority Hospital Safety Guidelines	The guidelines on hospital safety have been developed to ensure health care centers are structurally and functionally safer from disasters, such that the risks to human life and infrastructure are minimized.	Relevant • To ensure structural safety of hospitals (especially of critical facilities) • To ensure that all professionals involved in the day-to-day operation of hospitals are prepared to respond to disasters. • To ensure that every hospital in the country has a fully functional and regularly tested Hospital Disaster Management Plan
38.	Indian Public Health Standards for Primary Health Care Facilities	Indian Public Health Standards for subcenters, PHCs, CHCs have been used as the reference point for public health care infrastructure planning and upgrade in the states and union territories.	Relevant - provides the standards and guidelines for critical EHS parameters such as firefighting, storage of insecticides, BMWM, and infection control at the primary health care facility level (refer ANNEX 3)

19. **Findings**: All states, including Kerala, follow the national policies and guidelines with different capacities to implement the same. Overall, the legal and regulatory provisions of the center and the state are adequate in covering the environmental effects of the Program including (i) various streams of BMW generated at health care facilities; (ii) OHS and infection control practices at health care centers; (iii) health care building safety aspects (life and fire safety), disaster preparedness, emergency response, and universal access; (iv) OHS at construction sites of health care centres; and (iv) pollution control and management from construction and operation of health care centres

C. PROGRAM CAPACITIES: INSTITUTIONAL AND ORGANIZATIONAL ASSESSMENT

ENVIRONMENT

10. The institutional roles and responsibilities, and implementation capacities were assessed with regards to identified environmental effects of the Program. Considering the scale and nature of Program activities and identified environmental effects, a standalone environmental impact assessment will not be required for any of the activities. The Program systems operate within a legal and regulatory framework that is adequate to guide environmental impact mitigation, management, and monitoring of the limited, site-specific impacts and issues associated with the refurbishment works, generation of biomedical and other wastes, infection control, OHS, and building safety. The detailed

assessment of environmental management systems of concerned institutions and their capacity is provided in ANNEX 2.

11. Management of biomedical waste from health care institutions is being managed through two operators of CBMWTFs – KEIL and IMAGE. As reported by Kerala State Pollution Control Board, about 62.2 tons/day of BMW was generated during the year 2022 by 17,975 Healthcare Facilities. At present, only 23 percent of the 213 larger health care facilities have provision of in-house treatment through sewerage treatment plants (STPs). The entire BMW is being treated by the two common treatment facilities and forty-four captive treatment and disposal facilities situated within the health facilities. The state's two Common Biomedical Waste Treatment Facilities are challenged with the task of transportation, treatment and disposal of biomedical waste generated by government and private health facilities across the State. With improved medical care through Program interventions, both at institutional as well as household levels, there will be increased quantum of BMW getting generated.

12. The department is piloting collection, transportation and disposal of BMW generated due to home-based care in Kalamassery Municipality and 74 wards Kochi Corporation since 2021 with help of KEIL. Other health-care waste streams including solid waste, cytotoxic waste and radioactive waste are being managed at individual health care institutional level with a scope of improving at state level through development of SOPs/protocols. Phasing out of mercury-based equipment is not complete due to concerns regarding accuracy of digital blood pressure monitors.

13. Infection prevention and control (IPC) is a priority area for improving quality of health services in the state. The guidelines on Infection Prevention and Control as well as Operational guidelines for Quality Assurance provide in detail the infrastructure, equipment and processes to be followed that adequately cover IPC and OHS aspects. The facilities have IPC nurses trained in IPC and OHS aspects. The equipment and PPE for protection from infections as well as environmental sanitation practices are in place in majority of health care facilities. Infection Management and Environment Protection manual of National Health Mission serves a key reference document in these areas. The institutions are maintaining Incident reports and registers as part of their BMW rule 2016 compliance requirement.

14. Funding for management of BMWM at health care facility level has stopped after COVID-19. The State Guidelines on Infection Prevention and Control have identified Hospital Management Committee (HMC) fund, Annual Maintenance Grant, Untied fund, RSBY Fund, plan fund and LSGI fund, as the sources of funding available to the health facilities for Infection Prevention and Control activities that include management of BMW from the facility. The billing is done by the respective CBMWTF agencies based on QR codes as per the rates fixed by the Government and MoUs signed.

15. Since BMWM is the focus area of concern, a detailed assessment of institutional responsibilities, implementation capacity, infection prevention & control, and performance of state is included in ANNEX 5.

Table 6: Institutional Gap Analysis on Environmental Management

Institution	Capacity gap analysis
Department of Health and Family Welfare	HFWD is well equipped to handle its current programs and has well laid-out guidelines and processes for implementation within the applicable legal and regulatory framework. All programs adopt the Indian Public Health Standards and implementation of the BMWM Rules and the IMEP. No significant gaps identified except a better coordination will help bring synergy between DME and DHS for establishment and expansion of health care. Currently, there are limited mechanisms for environmental risk management under the health department. An official of the rank of Assistant Director under Director-Public Health has been assigned for environmental management. In addition to his existing responsibilities, the official is responsible for managing programs such as Disaster management, Tribal health, and management of diseases such as Rabies and Viral Hepatitis. Environmental risk management is limited to ensuring compliance to Biomedical Waste Management Rules, 2016 and managing emergencies within the scope of disaster management related to the health services department through implementation of Quality Assurance System. Funding for management of BMWM at health care facility level has stopped after COVID-19. Also, there is need to improve monitoring of BMWM. During Covid-19 funds for Covid-19 Biomedical waste was given through Directorate of Health Services. However, the expenses related to BMW management is usually met at the institutional level (health care facility) and can be met from a variety of sources such as HMC/HDS funds, LSGI funds, NHM Untied funds, NHM funds released for Kayakalp/NQAS activities and KASP funds. The billing is done by the respective CBMWTF agencies based on QR codes as per the rates fixed by the Government and MoUs signed.
Kerala Pollution Control Board	Kerala PCB monitors the issues related to BMW including its Inventorization, Compilation of data, Renewal of Annual License, Compliance with the rules, collection secondary storage and transportation of BMW as well as Training and capacity Building Process. Kerala PCB has been active in BMW Management and has proactively provided approval for initiation of Domestic BMW management project by Kerala Enviro-Infrastructure Limited in Kochi and Trivandrum municipal areas.

Institution	Capacity gap analysis
State Public Works Department (PWD)	The PWD does not have any official assigned for environmental management. The Chief Engineer is responsible within the institution to oversee environmental management related to construction. Life & fire safety, universal access, and emergency response plans are streamlined in the design of civil works. GRIHAS are encouraged to be part of designs but are not included in procurement documents as a requirement.
State Disaster Management Authority	Institutional coordination mechanisms with MoHFW (national and state), BIS, and NHSRC need to be strengthened to make safety provisions mandatory in the design, construction. and functioning of hospitals.
State Biomedical Waste Committee	The State BMWM Committee was established in 2019 as per the guidelines and later reconstituted in August 2021 to include IMAGE and KEIL. The Committee meets regularly and has been discussing concerns regarding the need to monitor illegal dumping by private health and veterinary institutions and its status communication to District Collectors by SPCB; to monitor BMWM from health institutions specially homeopathy, veterinary and Ayush facilities. Such facilities need to receive authorization for BMW management from SPCB; private institutions not using the Common treatment services even after obtaining authorization to save costs have been discussed. For implementation of IPC and Quality Assurance in health facilities, including BMWM, the state, district and facility level quality assurance committees have been prescribed. Currently, there is no mandate for the health care facilities and the Committee to report on BMWM to the Department. There is no platform for the same. Annual reports are generated by the health care facilities for the purpose of reporting to State PCB. However, the agencies involved in collection and transportation of BMW maintain a log of the amount of BMW generated from each institution through an online tool even though the tool and the reports are not routinely available with the department. Similarly, there vaccination of staff and incident reporting is being monitored at individual health care facility level. However, documentation of the same on a formal platform through State BMWM Committee will help the Department in monitoring the agenda of IPC.

Institution	Capacity gap analysis
Committee on BMWM and Infection Control under the District Health Society	At the district level, BMW Management is monitored by a team of senior official from DMO with support of Biomedical Engineer from NHM , representative from Local Self Government Institution and representative of Common BMW Treatment Facility. The individual facilities, more than 30 beds, have constituted a committee i.e. Infection Control Committee that monitors the BMW Management at the facility. The facilities have assigned the responsibility for BMW management with Infection Control Nurse. The District Level Monitoring Committee constituted should look at all wastes generated as part of HCF operations – e-waste, plastics, hazardous wastes and liquid wastes and submit recommendations based on the site conditions (of the disposal facilities, CTFs, pits etc.) and prevailing issues (flooding, fires, COVID-19 peaks, natural disasters etc.) within the districts.
Urban and Rural Local Bodies	Coordination mechanisms with Urban and RLBs need to be improved for exploring mechanisms for safe collection, transportation, treatment and disposal of domestic Biomedical waste generated through home-based elderly care services.

SOCIAL

16. ***Institutional Mechanism:*** Currently, there is a division in the social sector under the National Health Mission. The Department of Health Services has appointed an officer as the Nodal Person for Gender and Social aspects under the KHSIP.

- The DHS and DMO offices have a social mass media division which provides support for IEC to PHCs. During the assessment, it was observed that good quality and comprehensive IEC materials are displayed at most healthcare facilities.
- There is strong representation of women among healthcare workers. Currently, 53% of mid and senior level staff in DHS and around 63% in DME comprises women[17].
- The Department has undertaken social audit in 7 FHCs in 2023-24 as a pilot exercise. This exercise is proposed to be expanded to 50 FHCs going forward.
- *Safety of Healthcare Service Persons*: Violence against doctors is an issue in many parts of India, including Kerala[18]. The Kerala Healthcare Service Persons and Healthcare Service Institutions (Prevention of Violence and Damage to Property) Act, 2012 prohibits violence against healthcare service persons and seeks to prevent damage and loss to property in healthcare service institutions for related matters. There are demands to make the punishments

17As per responses shared by the DHS in questionnaires circulated
18*https://www.thehindu.com/news/national/kerala/kerala-doctors-contemplate-relocating-abroad-in-face-of-increasing-attacks/article67547570.ece*

under this Act more stringent and an amendment to the law in 2023 has increased the quantum of punishment for the same. While the law also makes it the responsibility of the healthcare service institutions to give full information about the medical treatment to the patient or their relatives, a stronger grievance redressal mechanism would support the risk management for such situations. A code grey protocol has also been developed in the state defining violent events, provisions to be made within the department etc.

17. ***Equity and inclusion:*** The DHS has numerous provisions and policies for ensuring equitable and inclusive access to all beneficiaries including vulnerable groups like women, children, adolescents, senior citizens, persons below the poverty line (BPL)[19], Scheduled Tribes, disabled persons, transgender persons, migrant workers and patients requiring mental health support.

a. *Scheduled Tribes*: There are around 195 health institutions (PHC and above) in the state which provide different kinds of services to Tribal population. Around 50 institutions provide IP services while delivery facilities are available in 18 institutions. In addition there are 46 Mobile Medical Units operated by Health Department, Tribal Department and NHM in tribal areas of different districts. . Healthcare facilities in tribal areas face unique challenges including accessibility, difficulty in traveling andlack of sufficient private specialty hospitals. The Scheduled Tribes Development Department implements various healthcare schemes for which there is good coordination with the Department of Health Services[20]. Some of the major initiatives include:

- The Scheduled Tribes Development Department is running five Allopathic outpatient clinics in the remote Scheduled Tribe areas of Attappady (2 clinics), Chalakudy (1 clinic) and Idukki (2 clinics). More than 24,000 ST patients are being assisted annually through these institutions. Ambulance services and medical camps are also being conducted through these OP Clinics.

- Medical Assistance through Hospitals: Under the scheme treatment assistance is provided to tribal people affected by various diseases through approved hospitals in the state. The allotted amount is used for providing/ purchase of medicines, medical examinations including all types of scanning, provision for medical aids and equipment, ambulance transportation services in the absence of the same in Government Hospitals. Also, pocket money for bystanders, food expenses of patients will be provided in needy cases. The fund is distributed through the District Medical Officers concerned to all 14 District Hospitals, identified Government Hospitals in various districts of the state where there is substantial ST population, and to the Superintendents of all Government Medical College Hospitals.

19In 2012, the Kerala Government introduced the health insurance initiative KASP (Karunya Arogya Suraksha Padhathi). This health insurance program targets BPL individuals specifically for critical illnesses. It is inclusive with no restriction on number of children. Kerala Government has also implemented an Extreme Poverty Eradication Project (EPEP) which had a particular focus on healthcare for BPL households in select areas.

20Website of Scheduled Tribes Development Department. Accessed at *https://stdd.kerala.gov.in/healthcare-schemes#:~:text=The%20Scheduled%20Tribes%20Development%20Department%20is%20running%20five%20Allopathic%20outpatient,and%20Idukki%20(2%20clinics)*

- Tribal Relief Fund: Financial assistance is given to BPL STs who suffer from various diseases including major diseases like cancer, heart/kidney/brain ailments etc. Financial assistance is given to patients producing proper medical certificate obtained from concerned specialist medical practitioners. Also, it is envisaged to provide a relief to ST families in case of emergencies. Expenses incurred for/ financial assistance for organizing medical camps, transportation of patients to nearby hospitals, provision of nutritious food on the advice of the doctor, cost of purchase of drugs unavailable in hospitals, cost related to death/ postmortem, relief for managing disaster/untoward incidents/ accidents, providing immediate relief to the needy are main components of the scheme.

- Assistance for Sickle Cell Anemia Patients: Sickle Cell Anaemia is prevalent among STs in Wayanad, Palakkad, Kozhikode and Malappuram districts. Under this Scheme, monthly financial assistance of INR 2500 is provided to such patients.

- Janani Janma Raksha: One of the major concerns in the development of tribal health aspect is that pertains to the nutritional issues of mother and child. Inadequate pre and post maternal care ranks top among them and can be attributed to the lack of timely financial assistance. This was also observed during field visit to the Tribal Hospital in the Attappady district, where low maternal and child birth weight is a serious issue. Under this scheme, assistance of INR 2000 per month is provided for 18 months beginning from third month of pregnancy to the month up to when the child turns one year old.

- Mobile Medical Units are also provided by the STDD, DHS and NHM in select tribal areas in districts like Kasaragod, Malappuram, Thrissur, Idukki, Wayanad, Kozhikode, Thiruvananthapuram, Kollam, Pathanamthitta, Ernakulam, Kannur and Palakkad to manage the accessibility challenges...

- At the community level, there are exclusive Hamlet ASHA workers who are from the tribal hamlets and have received exclusive training since 2016.

- Tribal Promoters have also been deputed to various institutions where there is significant Scheduled Tribe patient footfall to provide assistance to ST patients in accessing the health services.

b. *Disabled Persons*: Disabled persons get free OP services as per a DHS Order of 2018. During the assessment, multiple health facilities were visited and found to have disabled access in the OP areas, separate lines for disabled patients as well as disabled friendly toilets. Unique Disability ID (UDID) Cards are issued to all disabled persons and the DoHS plays an important role in assessments for issuance of these IDs. Under the Persons with Disabilities Act, 2016, persons with disabilities are to be treated with equality and non-discrimination. The Act also and empowers governments to take necessary steps to ensure reasonable accommodation for persons with disabilities. In addition, Kerala also has the Swavalamban Scheme which provides health insurance to persons with disabilities having BPL status. One of the challenges in providing effective services to persons with disabilities is delays in issuance of the UDIDs due to various technical and administrative roadblocks.

c. *Migrant Workers*: There is a large number of migrant workers in Kerala from multiple states across India. There are certain unique challenges faced by migrant workers. Language, literacy and cultural barriers are strong. Also, many migrants are heavily reliant on daily wages and are reluctant to come to clinics during working hours. Some migrants also lack formal documentation and are, therefore, hesitant to approach public services.

- The Kerala Government has initiated multiple migrant workers welfare schemes including the Atithi Devo Bhava project. There is also a Migrant Workers Health Insurance Scheme (Aawaz). Aawaz scheme was started in the year 2017 to register the interstate migrant workers, working in Kerala. The aim of the scheme includes the data collection, registration, health insurance and issue of identity card. The beneficiaries of the scheme are interstate migrant workers who coming to Kerala and working in different labour sectors, within the age limit of 18 to 60. Aawaz insurance cards were issued from 2017 Nov 1 onwards. About 516320 interstate migrant workers have been registered under the scheme upto 31/08/2022.Kerala inter-state migrant workers welfare scheme was implemented through the Kerala Building and Other Construction Workers Welfare Board. The scheme provides death benefit, accidental death benefit, relief fund, treatment benefit for severe diseases, treatment benefit, terminal benefit, educational grant, maternity benefit and fund for the transportation of dead bodies to their native states. Under this ***Scheme*** registered members will get in-patient treatment facility up to Rs.25,000/- in the CHIS-PLUS empaneled Government hospitals in Kerala. This also covers maternity related treatments. Registered members also get accidental death insurance of Rs.2 lakh and disability insurance of Rs.1 lakh. Details of the benefits and beneficiaries under the Aawaz scheme are given in Annexure 8.

- 12 Migrant Link Workers have been appointed in Ernakulam and Idukki districts, who are responsible for connecting migrants to healthcare services. They are able to communicate with migrants in their language and provide support in coordinating with other frontline workers of the DHS as well as other departments such as Labour and Skills or the Legal Services Authority. The programme is linked with the Athithi Devo Bhava program of the District Administration. There is also a helpline for addressing the needs of migrant workers. Screening camps are conducted for migrant workers where officials visit their camps and worksites.

d. *Transgenders**:*** The Government of Kerala approved and ordered the application of the State Policy for Transgender Persons in Kerala in 2015. The policy aims to enforce the constitutional rights of transgender persons as mandated by the Supreme Court in NALSA v. Union of India. DHS has appointed 12 Transgender Link Workers in four districts (Trivandrum, Ernakulam, Thrissur and Kozhikode districts) to provide support in addressing healthcare access and related issues to transgender persons. Patient information is collected under categories of male, female and transgender. Some of the facilities visited during the assessment also had separate OP counters and toilets for transgender patients. Many of the major hospitals also have a transgender clinic. Medical camps are also conducted to facilitate their access to PHC facilities. Some activities are also conducted for supporting transgender access to medical facilities in collaboration with the National AIDS Control Program.

e. *Patients requiring Mental Health support:* The mental health support in the DHS is closely linked with the existing District Mental Health Programme (DMHP). Mental Health counseling is done by trained counsellors, particularly targeting elderly persons and senior citizens who are staying alone. The Scheduled Tribes Development Department and the Women and Child Development Department also have helpdesks and helplines which support mental health issues. Psychiatric social workers do social risk assessments, psycho education, family therapy, rehabilitation, social skill development for psychiatric patients in General Hospitals, District Hospitals, mental health centres and as part of District mental health programmes under the DHS.

18. ***Tribal Health Issues***: The key health issues of Scheduled Tribes in Kerala relate to their unique vulnerabilities, covering nutritional, environmental and genetic factors. The shift from conventional agricultural practices, and challenges related to availability of land have led to nutritional deficiencies among STs, which manifest in low birth weight, low maternal weight, high rates of infant and child mortality, maternal anemia, micronutrient deficiencies, deficiency of iron, fluorosis etc. Environmental factors also play a role in poorer health outcomes as many ST communities live in relatively remote areas, which affects their access to critical healthcare services._

19. Genetic disorders related to hemophilia and haemoglobinopathies are also prevalent among Scheduled Tribes. These are inherited disorders which can impact the quality of life among children in particular. The common hemoglobinopathies which are prevent in Kerala include Sickle Cell Disease and Thalassemia, which have a high carrier frequency. Kerela has been providing free medical care to Thalassemia, Sickle Cell Anemia and Hemophilia patients irrespective of APL/BPL status since 2013. There is now a plan to conduct community screening for Sickle Cell disease exclusively for tribal communities and Chetty community in Wayanad. It is also planned to establish Regional Hemophilia / Haemoglobinopathy Treating Centres (RHTC) as Centres of Excellence at Government Medical College Hospital, Kozhikode and Sree Avittom Thirunal Hospital, Trivandrum and District Hospital, Aluva. These Centres would provide essential range of services to test, confirm, treat, train, rehabilitate, counsel and educate patients and parents with any of the four diseases: Haemophilia A and B, Beta Thalassemia, Sickle Cell Disease and other Minor Bleeding disorders. These Centres shall have dedicated Out Patient Department Services, In Patient Services with exclusive beds, Specialist Services, Laboratory Services both for diagnosis and screening and transfusion services, physiotherapy and counselling.

20. ***Grievance Redressal Management:*** The Kerala Government has the Chief Ministers Public Grievance Redress Mechanism, which is implemented through a network connecting more than 10000 government officials. The Chief Minister’s Office has a public grievance cell which receives complaints from people, forwards these to the concerned departments and follows them up. At the district level, the District Collector is designated as the District Public Grievance Officer who monitors disposal/closure of grievances. A control room is set up at the civil station to function as the nodal office for all operations/ complaints pertaining to public utilities. Complaints through the CM portal are handed over to the lowest level authorized officer for expeditious disposal. Nodal Officer is assigned for each department to address grievances received through the CMO Portal and a Link Nodal Officer is also assigned. Every head of office

needs to ensure that complaints received in their office are promptly attended to and that reports are furnished on time. Action on complaints for which time limit is not specified, needs to be completed within two weeks or a maximum of one month and disposed by giving reply to the complainant/petitioner after uploading it in the CM portal. All complaints shall be disposed only after giving reply to the complainant/petitioners well as People's Representatives as per recent guidelines circulated in 2017[21]. As per the GRM Guidelines of the CM Portal, all grievances received are required to be attended to within a day of receipt and all petitions received should be disposed within two weeks' time. If a resolution takes longer, an interim reply should be submitted within two weeks.

21. The Hospital Management Committees which have been constituted for each healthcare institution, are responsible, among other things, for constituting an Internal Grievance Redressal Mechanism in the health institution including establishment of a Hospital Advisory Committee for redressal of grievances. There are provisions for publicity for the GRM as well as appeals process. However, from field level observations and stakeholder interviews it appears that while Grievance Redressal Committees have been formed in some places and look at staff related grievances, in many facilities, this aspect is not fully operational. The grievance related functions of the HMCs would require further strengthening.

22. A Manual was also issued mandating the establishment of a grievance redressal mechanism at all Gram Panchayat institutions including the establishment of a Grievance Redress Authority, preparation and publication of its grievance redressal policy, and Grievance Redressal Bye Law of the Gram Panchayat. There is a provision for establishment of Grievance Box, Grievance Register as well as other modes for registering grievances at institutions. However, from field level observations and stakeholder interviews it appears that this aspect is not functioning effectively and would require further strengthening.

23. Under the Right to Information Act, 2005, people are empowered to seek information from any public authority. The RTI Act also aims at eliminating/limiting corruption, promoting transparency and accountability in the working of Government.

24. The Kerala Right to Service Act, 2012 has provided for effective, time-bound redress of grievances of people, delivery of services to the public and making government servants liable in case of default in prompt delivery of services.

25. For most healthcare workers grievances are typically redressed through the standard processes of the administrative hierarchy and Rules. A circular was also issued in 2022 for the formation of a Portal to receive, consider and redress Complaints, grievances and submissions of Government Employees of all departments. The current status of the implementation of this Circular is unknown. For ASHA workers, Regional Grievance Redressal Committee as well as a District Level Appellate Committee and a State Level Appellate Committee has been constituted. The scope of these Committees covers decisions on termination of the services of Asha Workers temporarily or permanently.

21Circular No. CMCC/9/41/2021/CMCC

26. At most of the healthcare facilities visited during the field visits for this assessment, complaint boxes were found in the premises. In a few places there were Complaints Registers in the Medical Officer's room. In some places, the phone number of the Medical Officer was displayed for people to contact for grievances. Publicity for the available grievance redressal methods was observed to be weak. There are no consistent guidelines or practice for the frequency at which complaint boxes are opened. Additionally, there was no consistent format for recording grievances or any system of reporting and monitoring.

27. ***Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH):*** The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013 (POSH Act) mandates employers to take steps to protect female employees from sexual harassment in the workplace and to provide procedures for resolution, settlement, or prosecution. It protects all workers in any place visited by the employee during her employment, including transportation. The POSH Act requires employers to create an Internal Complaints Committees (ICCs) at each office with 10 or more employees. For other establishments with less than 10 employees and for women working in the informal sector, the state government's district officer or collector is required to form a local committee in each district. These Committees are required to handle complaints and recommend actions ranging from a written apology to termination of employment, providing an alternative to filing a criminal complaint with police. Under the POSH Act, the Government is also responsible for developing training and educational materials, organizing awareness programs, monitoring implementation of the Act, and maintaining data on the number of sexual harassment cases filed and resolved in the workplace.

28. During the assessment, it was found that most (not all) healthcare facilities have established Internal Complaints Committees as per the requirements of the POSH Act. However, there is no consolidated reporting on their constitution or current functioning. From field visit observations, it was found that there are gaps in the functionality of the Committee and submission of reports. There is also a gap in the publicity and awareness about sexual exploitation and abuse risks, the ICCs and provisions of the POSH Act among healthcare workers in general and ASHA workers.

29. Additionally, the DHS has established a Gender-Based Violence Management Centre (GBVMC) called Bhoomika in 2009. This program focuses on the medical and psychological Care for victims of gender-based violence and social abuse. Bhoomika centres function in the District or General Hospitals and are managed by a female Coordinator/Counsellor. Bhoomika also aims to sensitize hospital staff on gender issues and train hospital staff to identify victims of violence. 21 Bhoomika Gender-Based Violence Management Centres have been established at select hospitals with Counsellors appointed for the same. Bhoomika services are available for the public as well as healthcare staff.There is an inter sectoral Committee at the district level as well as an Institutional Committee.These bring together various stakeholders like the police, social justice, NGOs etc. once every 6 months to ensure the smooth functioning of the program. Trainings are conducted at the district level for doctors, nurses, field staff, para medical staff and ASHA workers. From 2009 to 2013, 2036 doctors, 2798 staff nurses and 7464 field staff (HS, LHS, HI, LHI, JPHN, and JHI) and 9273 ASHA workers were trained. In 2014-15, the Bhoomika centres were converted to a 24-hour service.

30. The Kerala Medico-legal Protocol for Examination of Survivors of Sexual Offences 2015 has been implemented in Kerala. The protocol reflects a survivor centric approach for handling survivors of sexual offences and provides standardized forms and protocols for handling cases of victims of sexual offences. A safe kit for examination of victims has also been developed.

31. ***Stakeholder Engagement:*** Local Self Government in Kerala is active, engaged and powerful. During the Ninth Five Year Plan, the Government of Kerala devolved 35 percent of the state development budget down from a centralized bureaucracy to local governments through the People's Plan Campaign (PPC) under the joint supervision of the Department of Local Self-Government and State Planning Board. As part of this decentralization process, primary and secondary healthcare institutions are transferred to the LSGIs and a budget allocation is also made to equip the LSGs for these responsibilities.

32. Across Kerala, all healthcare centres have a Hospital Management Committees (HMCs). This Committee comprises not more than 15 members which include LGSI representatives, representatives from civil society, Medical Officer of the institution and representatives from the general public along with other stakeholders. These HMCs are responsible for the facilities, resource mobilization, ensuring proper design, supervision and execution of infrastructure and service facilities at the institution. HMCs support critical human resource gaps in certain non-medical roles like laboratory technicians and pharmacists. HMCs play a role in organizing awareness, health check camps and mobilizing communities. HMCs in some places have supported palliative care with the establishment of Palliative Care Committees as well. HMCs also give the institutions a platform in Panchayat meetings for speedy and effective resolution of issues of common concern. The scope of HMCs extends to non-technical and non-medical services and functions of the institutions. From the observations made during the field visits, the HMC is active in almost all the health facilities visited. They have regular meetings, at least once every three months. Minutes of the meetings are recorded comprehensively and signed off by the Medical Officer and President of the Gram Panchayat (in rural areas). They are playing an important role in improving the accountability and responsiveness of the institutions and mobilizing resources for better functioning.

33. The Citizen Charter was found to be displayed at many healthcare facilities visited as part of the assessment.

34. There is currently no mandated system for collecting feedback from users. In a few facilities user feedback is collected for the purposes of accreditations.

35. Key issues related to the functioning of the Department are discussed in various monthly conferences such as at the level of PHC, Block conference, DMO conference and Senior Medical Officers conference (SMO). Various issues are also taken up by department / directorate concerned and are discussed at the level of the Principal Secretary as well.At the Directorate level, when a project is proposed, it is discussed at the level of DHS by involving all program officers which include Additional Directors, Deputy Directors, Assistant Directors and others. The opinions raised are discussed and a final shape is brought to the programme.

36. There is regular involvement of the community and support in certain specific activities like palliative care and mental health initiatives.

37. ***Land acquisition and management:*** In Kerala, all hospitals are transferred to the Local Self-Government Institutions and managed by them. Even though the management is vested with LSGIs, the ownership of the land and buildings remains with the Health Department. However, the LSGIs can make provision for additional purchase of land if required. . Sometimes land is obtained through voluntary donations or by transferring revenue land belonging to other departments[22].

38. No land acquisition is currently envisaged under the proposed program. All interventions shall be screened to ensure that no activities which involve land acquisition are undertaken under this P4R.

TRAINING AND CAPACITY BUILDING

39. In Kerala, state-wide health related trainings are handled by the DHS, KSIHFW (Kerala State Institute of Health and Family Welfare), Training Institutes and Skill Labs and SHSRC (State Health Systems Resource Centre). District wise trainings are done under the supervision of DMO under DHS and DPMs (District Program Manager) under NHM (National Health Mission). In ROP, Rs. 2223.75/- (In Lakhs) were allocated for different programs for the year 2022 to 2024 in Statewide and District wise training.

40. The Training Division, NHM Kerala is mandated to provide quality training to healthcare professionals and others in the field. Under the Training Division, NHM, trainings are offered in three modes: online live training (zoom), online self-paced courses in Kerala Health Training (LMS), and physical trainings. The Training Division, in association with other agencies, has developed the Learning Management System (LMS), which is a platform dedicated to e-Learning activities in the field of health services. This LMS provides a variety of opportunities, resources, and new strategies in service education and training. There is currently one training institute in Thiruvananthapuram and one at Kozhikode. There are training divisions under DHS and NHM as well, which co-ordinate the training under various schemes. A list of trainings conducted under the LMS in the last 3 years and the budgetary allocation for the same is provided in ANNEX 7.

COMMUNICATION

41. There are mass media divisions under DHS and IEC BCC divisions under NHM both at state and district levels to coordinate IEC/SBCC activities. They are linked to all NHM activities and other health programs. DHFW and NHM are planning and strategizing the IEC/SBCC activities being conducted towards healthcare promotion and awareness generation together. These activities focus on both the issue/disease and the target audience which indirectly is the people who are prone to the issue. They also focus on target-oriented media planning. The key strategies focus on health promotion by using various communication channels as tools. It facilitates access to authentic and un-ambiguous health messages in a need-based manner. New age social media, mass media,

22As per responses shared by the DHS in questionnaires circulated to them

interpersonal communication, small group discussions, or community level campaigns are the popular tools utilized for disseminating messages on disease prevention and control, healthy lifestyle, reproductive and child health programmes, special campaigns and existing services and programmes implemented by the Department.

42. At the community level PHCs and FHCs conduct frequent awareness sessions with the respective field staff. Sensitization programmes and intersectoral coordination activities are ongoing for community level health workers, ward health sanitation committee members, Anganawadi workers, SC/ST promoters etc. for awareness generation on importance of disease surveillance and reporting. Community level interventions utilize the service of frontline healthcare workers including ASHAs, link workers and JPHNs.It is ensured that there is active participation of the general public on regular intervals. Various 'days' are observed and wellness activities are carried out targeting specific people who are sensitized starting from the ground level with lively community involvement. Fairs and festivals are also utilized as venues for large scale information dissemination to community. Intermittent rains that lead to a rise in epidemic diseases, rising burden of lifestyle diseases are all issues that need attention and close monitoring, and surveillance has helped to a great extend in bringing a possible change in clinical patterns and health seeking behaviors. Besides prompt reporting from the field has always played a key role in early identification of the diseases and this was well evident in Kerala's fight against its front foot response to recent epidemic outbreaks including Nipah and Covid.

43. As part of AMR initiatives model IEC messages have been developed at the state and have been circulated to all districts. These are messages focusing on the benefits and ill effects of antimicrobial resistance. World AMR Week was observed in Directorate of Health Services with an awareness session on the use of antibiotics to the staff of DHS along with Go Blue Campaign. Various activities conducted in the districts for AMR awareness include seminars, exhibitions, awareness rallies, classes, production of short films, flash mobs, quiz competition, elocution, poster competition etc.

44. The budgetary allocations for IEC-related activities are linked to individual programs for plan-based activities. Asper information shared by the DHS, in the previous year, there was a gap between the required and actual budget made available for IEC/SBCC/Communication strategy, which affected the information dissemination flow primarily intended to prevent and curtail disease outbreaks. Owing to fund scarcity, IPC could only be focused with workers visiting houses and convening small scale meetings to address various health issues. The IEC materials created could be circulated through the official social media handles only which created an information disparity. This has been a challenge in using IEC for preventive health.

D. ASSESSMENT OF CORE PRINCIPLES

CORE PRINCIPLE 1 - ENVIRONMENTAL AND SOCIAL MANAGEMENT

Program environmental and social management systems are designed to (a) avoid, minimize, or mitigate adverse impacts; (b) promote environmental and

social sustainability in the program design; and (c) promote informed decision-making relating to a program's environmental and social effects.

Summary findings: Applicable

45. India (and its states) have an adequate legal framework for environment health and safety, backed by a set of comprehensive laws, regulations, technical guidelines, and standards, which apply nationwide and to all the environmental effects identified in the Program. Over the decades, it has gradually evolved into a comprehensive system that is generally consistent with the PforR principles.

46. The Program activities and the identified environmental effects do not require standalone environmental impact assessment. Since the Program does not propose and intends significant civil works or infrastructure creation, there is no exclusive process to screen and assess environment impacts before undertaking any Program-supported activities. The quantity of civil works associated with the HCW recurring expenses entails minor renovation and refurbishment works; the impacts and risks associated with this are small and temporary (increase in dust, noise, and debris). There is existing legislation that mandated management of these impacts with appropriate mitigation and monitoring. For health facility renovations and improvements, there are guidelines listed under the IMEP section 4.12.

47. While there is no exclusive process to screen and assess environment impacts before undertaking any Program-supported activities, the World Bank Program has built in a clear exclusion criteria/negative list that the expenditure framework will not support, and this includes any kind of major construction.

48. The key risk associated with the implementation of the Program is the incremental increase in BMW and other wastes (solid, hazardous, aplastic, e-waste, and liquid wastes), climate change and occupational health & safety. With the objectives of providing quality care and better service delivery for non-communicable diseases, geriatric care services including home-based care, meeting NQAS & Kayakalp requirements for meeting water and sanitation standards, generation of BMW– solid as well wastewater - is projected to grow incrementally over the years, both at the healthcare facilities and in through home-based care. Infrastructure will have to be made energy efficient through upgrades and improved services to manage increased patient load and outreach and adapt & mitigate climate change concerns.

49. Kerala has a robust system of active stakeholder engagement, a culture of responsive public institutions, empowered citizens and participative and effective local self-government institutions (LSGIs). Hospital Management Committees are an effective forum for ensuring public participation in the functioning of healthcare institutions. There are different Grievance Redressal Mechanisms provided for in Kerala including the Chief Minister's state-wide portal as well as provisions for grievance redressal under HMCs and LSGIs.

Key gaps:

- There is no dedicated capacity in DoHFW that can look at EHS, including OHS, of healthcare workers in a consolidated manner.
- All HCFs should be treating their liquid wastes by installing ETP in their premises itself. The Chemical / liquid waste from Laboratory, blood banks,

etc., should be pre- treated / disinfected. After pre-treatment, health care facilities must treat the wastewater either through their own ETP or they can discharge into public sewer connected to a terminal STP. Nearly 90 percent of the larger health care facilities do not have any of the two provisions. and should be provided an interim solution of sanitary septic tank and soak pit system till they are able to connect to a central STP or establish ETPs.

- BMW is being collected from across the State and treated & disposed through the two CBMWTFs. Pilot for collection of BMW generated due to home-based care in two districts is underway. However, generation of BMW and other waste is expected to increase. Planning of resources is critical to ease the collection, transportation, treatment and disposal load off the two existing CBMWTFs.
- At present, there is no formal mechanism adopted for screening and identifying any potential environmental and social issues before undertaking any civil works. However, given the nature of the works the impacts are predictable (dust, noise, debris) and temporary, and measures can be worked into the contract bill of quantities (such as fencing, screens, watering, low-noise equipment).
- Provision of energy efficiency measures are encouraged but not integrated in the procurement documents. GRIHAS guidelines may be incorporated in building construction works, procurement of equipment meeting certain energy efficient requirements should be made part of the procurement process.
- BMW committees look only at BMW generated; they need to look at both solid and liquid wastes and their management and future planning to handle and dispose wastes. Accordingly, recommendations should be made to the state government.
- The Grievance Redressal Mechanisms are fragmented and there are gaps in their effective functioning at the ground level of healthcare institutions. The grievance redressal functions at each healthcare facility require strengthening in terms of functioning, publicity, awareness, consistency, reporting and monitoring.

CORE PRINCIPLE 2 - NATURAL HABITATS AND PHYSICAL CULTURAL RESOURCES

Program environmental and social management systems are designed to avoid, minimize, and mitigate adverse impacts on natural habitats and physical cultural resources resulting from the program. Program activities that involve the significant conversion or degradation of critical natural habitats or critical physical cultural heritage are not eligible for PforR financing.

Summary findings: Applicable.

50. The Program will support upgrade and refurbishment of infrastructure. Any civil works involving renovation of existing health care facilities will be carried out within the existing footprint of the existing facilities. Therefore, it is assessed that the Program-supported expenditures do not pose any risk to natural habitats and physical and cultural resources from the perspective of renovation works. However, there will be an increase in liquid waste, both infectious and non-infectious from health care facilities (disinfectants, reagents, wastewater). Nearly 90 percent of the larger health care facilities still do not have ETPs installed, and

effluents that are being disposed without any formal connection to STP or ETP system. This poses an indirect risk of contamination of natural drainage systems and groundwater if not disinfected adequately and disposed in a sanitary manner.

Key gaps

- The liquid waste is being pre- treated / disinfected before disposal, but many HCFs are not connected to sewerage network/ STP or have standalone ETPS.
- Many HCFs at the level of sub-centres and PHCs are yet to be provided the infrastructure to be connected to a public sewer/terminal STP and should be provided an interim solution.
- Testing of wastewater is necessary to understand the efficiency of pre-treatment and nature of wastewater.

CORE PRINCIPLE 3 - PUBLIC AND WORKER SAFETY

Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) the construction and/or operation of facilities or other operational practices under the program; (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials under the program; and (c) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.

Summary findings: Applicable.

51. The renovation and rehabilitation work for health care facilities will be taken under the Program. Given that there will be several packages of such works in the states, there is an opportunity to strengthen the OHS practices, uses of PPE, and environmental mitigation controls (dust, noise, and waste management) through trainings which can be standardized at the state level.

52. Incremental increase in BMW is expected due to improved outreach of health care. IT is expected that BMW generation at health care facilities, including laboratories, blood banks, etc., will increase. Medical waste will also get generated at household level due to expansion of health care to home-based care. Health care workers and the public would be exposed to risks associated with exposure to BMW and associated infections. In addition, wastewater, liquid wastes (blood and so on), and uncollected BMW pose threats to communities in exposing them to pathogens and vector-borne diseases.

53. Occupation practices for maintaining infection control, sanitation, cleanliness in the health care facilities and addressing accidental spills and reporting accidents are well documented through the IMEP, Swachhata guidelines, and BMWM rules and integrated into SOPs and operational procedures of PM-AMBHIM. The Program will involve increase in human resources of several types of workers, core health care staff, contract labor, contracted housekeeping, and sanitation and BMW collectors. It is critical that all human resources are trained adequately in infection control practices, use of PPE, fire safety procedures, OHS, and BMWM. Existing guidance and national building codes for life and fire safety and emergency response planning are in place. Health care facilities have been mandated to follow such guidance. All primary

care facilities, according to national guidelines/standards, have to have Disaster Management Plan in line with the District Disaster Management Plan.

54. Program will support service contract for operation of ambulances.

Key gaps

- Occupation safety to update knowledge on occupational risk management and good environmental mitigation practices for dust and noise control.
- Contracted workers (sanitation, housekeeping, and cleanliness) need trainings on safe handling of BMW, operation of equipment, use of PPE (depending on the type of cleaning reagents used and type of room), ERP and L&FS.
- Trainings need to be provided to all outsourced agency teams on infection control practices, L&FS, ERP and BMW handling to ensure health and safety of workers and patients. (under NQAS certification)
- BMW supervisors to keep daily record of wastes generated according to format maintained in the Annex 2 of the Guidelines for Management of Healthcare Waste Management Rules, 2016 by health care facilities to keep track of the incremental increase of wastes. Data from these sheets will be collected to inform the state on future planning on central treatment facilities.
- The Department should have a platform for collecting information on generation of BMW, and incident reporting and vaccination of staff under IPC, for purpose of monitoring.
- Multi-sector coordination with BIS, NABH, and SDMA on hospital safety standards.

CORE PRINCIPLE 4 - LAND ACQUISITION

Avoid or minimize land acquisition and related adverse impacts: Avoid or minimize displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards.

Summary findings: Not applicable.

55. The planned investments under the Program will be restricted to existing land available for health facilities. The ESSA does not foresee risks related to land acquisition, loss of livelihoods, and/or involuntary resettlement at the preparatory stage. The environmental and social screening checklist will include a screening criterion on land availability and ownership to rule out any isolated instances of forced acquisition and involuntary resettlement.

56. Consistent with the requirements of the World Bank PforR Policy, the proposed PforR operation does not support activities that pose high social or environmental risks. There will be no major construction, only minor repair and refurbishments and upgrade-related works within the health facilities. Therefore, risks of land acquisition and involuntary resettlement are not applicable under the Program**.**

CORE PRINCIPLE 5 – INDIGENOUS PEOPLES AND VULNERABLE GROUPS

Give due consideration to the cultural appropriateness of, and equitable access to, program benefits, giving special attention to the rights and interests of

Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and to the needs or concerns of vulnerable groups.

Summary findings: Applicable.

57. *Scheduled Tribes*: The Scheduled Tribe population of Kerala is 484,839 persons, constituting 1.45 per cent of the total population of the State as per the 2011 census. There are around 195 health institutions in the state with representation in high priority hilly/tribal areas. Healthcare facilities in tribal areas face unique challenges including accessibility, difficulty in traveling andlack of sufficient private specialty hospitals. The Scheduled Tribes Development Department implements various healthcare schemes for which there is good coordination with the Department of Health Services[23]. Some of the major initiatives include:

a. The Scheduled Tribes Development Department is running five Allopathic outpatient clinics in the remote Scheduled Tribe areas of Attappady (2 clinics), Chalakudy (1 clinic) and Idukki (2 clinics). More than 24,000 ST patients are being assisted annually through these institutions. Ambulance services and medical camps are also being conducted through these OP Clinics.
b. Medical Assistance through Hospitals: Under the scheme treatment assistance is provided to tribal people affected by various diseases through approved hospitals in the state. The allotted amount is used for providing/ purchase of medicines, medical examinations including all types of scanning, provision for medical aids and equipment, ambulance transportation services in the absence of the same in Government Hospitals. Also, pocket money for bystanders, food expenses of patients will be provided in needy cases. The fund is distributed through the District Medical Officers concerned to all 14 District Hospitals, identified Government Hospitals in various districts of the state where there is substantial ST population, and to the Superintendents of all Government Medical College Hospitals.
c. Tribal Relief Fund: Financial assistance is given to BPL STs who suffer from various diseases including major diseases like cancer, heart/kidney/brain ailments etc. Financial assistance is given to patients producing proper medical certificate obtained from concerned specialist medical practitioners. Also, it is envisaged to provide a relief to ST families in case of emergencies. Expenses incurred for/ financial assistance for organizing medical camps, transportation of patients to nearby hospitals, provision of nutritious food on the advice of the doctor, cost of purchase of drugs unavailable in hospitals, cost related to death/ postmortem, relief for managing disaster/untoward incidents/ accidents, providing immediate relief to the needy are main components of the scheme.
d. Assistance for Sickle Cell Anemia Patients: Sickle Cell Anaemia is prevalent among STs in Wayanad, Palakkad, Kozhikode and Malappurarm districts. Under this Scheme, monthly financial assistance of INR 2500 is provided to such patients.
e. Janani Janma Raksha: One of the major concerns in the development of tribal health aspect is that pertains to the nutritional issues of mother and child.

23Website of Scheduled Tribes Development Department. Accessed at *https://stdd.kerala.gov.in/healthcare-schemes#:~:text=The%20Scheduled%20Tribes%20Development%20Department%20is%20running%20five%20Allopathic%20outpatient,and%20Idukki%20(2%20clinics)*

Inadequate pre and post maternal care ranks top among them and can be attributed to the lack of timely financial assistance. This was also observed during field visit to the Tribal Hospital in the Attappady district, where low maternal and child birth weight is a serious issue. Under this scheme, assistance of INR 2000 per month is provided for 18 months beginning from third month of pregnancy to the month up to when the child turns one year old.

f. Mobile Medical Units are also provided by the STDD and the DHS in select tribal areas in districts like Kasaragod, Malappuram, Thrissur, Idukki, Wayanad, Kozhikode, Thiruvananthapuram, Kollam, Pathanamthitta, Ernakulam, Kannur and Palakkad to manage the accessibility challenges. The Tribal Department also has PHCs across the state including in Tribal areas. DHS mobile medical units include NHM mobile units. Ernakulam and Alappuzha districts also have a provision for floating dispensaries[24].
g. At the community level, there are exclusive Hamlet ASHA workers who are from the tribal hamlets and have received exclusive training since 2016.
h. Tribal Promoters have also been deputed to various institutions where there is significant Scheduled Tribe patient footfall to provide assistance to ST patients in accessing the health services.
i. Specific inherited genetic disorders related to hemophilia and haemoglobinopathies like Sickle Cell disease and thalassemia are found among Scheduled Tribes. Kerela has been providing free medical care to Thalassemia, Sickle Cell Anemia and Hemophilia patients irrespective of APL/BPL status since 2013. There is now a plan to conduct community screening for Sickle Cell disease exclusively for tribal communities and Chetty community in Wayanad. It is also planned to establish Regional Hemophilia / Haemoglobinopathy Treating Centres (RHTC) as Centres of Excellence at Government Medical College Hospital, Kozhikode and Sree Avittom Thirunal Hospital, Trivandrum and District Hospital, Aluva. These Centres would provide essential range of services to test, confirm, treat, train, rehabilitate, counsel and educate patients and parents with any of the four diseases: Haemophilia A and B, Beta Thalassemia, Sickle Cell Disease and other Minor Bleeding disorders.

Key gaps

- ***Coordination between DHS and other Departments***: Many of the schemes for the benefit of STs fall under other departments like the Scheduled Tribes Development Department (STDD), Social Justice, Education etc. and are operationalized within DHS facilities. However, there are gaps in smooth coordination between the Departments and DHS.
- ***Lack of Data*** – ST data is usually maintained by the SC ST Department and this is not always available to the DHS for planning their activities.
- ***Coordination of Mobile Medical Units*** – Mobile Medical Units for tribal areas are provided through various sources including the STDD, NHM and DHS. There is no common platform to review their operations and plan their routes and schedules in a coordinated manner.

CORE PRINCIPLE 6 - SOCIAL CONFLICT

24As per information shared by the DHS in response to questionnaires

System and capacity assessment: Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.

Summary findings: Not applicable.

IV. CONSULTATION AND DISCLOSURE

A. SUMMARY OF DISCUSSIONS AND CONSULTATIONS

1. Consultations were conducted with Government of Kerala officials as part of the ESSA preparation process between January and June 2024.Due to the restrictions in place with the imposition of the Model Code of Conduct and the subsequent General elections between March and June, some of the consultations were conducted in the virtual mode. During these consultations, each of the ESSA core principles, their relevance and applicability for the KHSI program was discussed, as well as current status of service delivery and key environmental and social systems including existing mechanisms for addressing environmental and social risks and impacts. In addition, a detailed checklist was prepared and shared with the DHS and DME for their written feedback along with state specific information and documentation.

2. State officials responsible for BMWM, IPC, civil works, tribal health, other inclusion initiatives, public works, and community strengthening initiatives were consulted to collect information regarding the existing due diligence mechanisms for management of environmental and social aspects at the state level. Virtual consultations with state nodal officials for environmental and social systems found that the Program safeguard systems are largely robust, with a clear regulatory framework, implementation arrangements, budget, and Program activities to mitigate negative impacts on environment and people.

3. Details of various consultations undertaken by the ESSA team in preparation of the ESSA report is as below.

Table 7: List of Consultations Undertaken

Date	Type	Participants	Key Discussion Points
January 11, 2024	Field Visit and consultation	CHC, Ramamangalam	HR: The CHC has 62 staff some of whom are also appointed through panchayat funds. They conduct camps for children, adolescents. HMC meeting every 3 months and support with management of funds. They have received Kayakalpa Quality accreditation. Strong IEC observed in premises. Community outreach activities like camps, competitions for children, tree plantations etc. There was a Complaints Box and a complaints committee which meets once in a week on Fridays to address complaints. Anyone can write to CMO. The facility has arrangements with

Date	Type	Participants	Key Discussion Points
			CBMWTF for transportation and treatment of BMW. The facility is an Eco-friendly hospital with rainwater harvesting arrangements, solar lights and solar plant installed. The facility is implementing Mercury phase out actions. Checklists in place for monitoring emergency Oxygen, Fire extinguishers.
January 11, 2024	Field Visit and consultation	General Hospital, Ernakulam	This is a Super speciality hospital with a sanctioned bed strength of 783, functioning at 644. Beneficiary population includes Ernakulam and neighbouring districts - Alappuzha, Kottayam. They have received the Kayakalp state award. The receive patients having KASP insurance coverage. E-health challenges were discussed especially for data entry and workload. Average OPD attendance is 3000 / day, average new admissions 85-90 per day and average 240 deliveries per month. The facility has Radiation oncology, chemotherapy and dialysis units where radiation hazards pose potential OHS risks. The facility manages such risks through following Atomic Energy Regulation Board'(AERB) s safety and waste management guidelines. .
January 11, 2024	Consultation	DMO Ernakulam	A state-wide tele medicine initiative Disha was also discussed. Challenges of migrant populations were discussed. Initiatives are there like link workers, buses going to migrant camps, translation of critical IEC material etc. who can translate. Buses going to their area. Hospitals give contact for link workers to companies as part of their outreach. Atithi Devo Bhava is the one stop shop. These are inter-departmental initiatives and require cooperation of

Date	Type	Participants	Key Discussion Points
			other departments also. Challenges in eHealth, issuance of UHIDs, UDIDs (for persons with disabilities), HR staffing and data entry were also discussed. The BMW Management arrangements and associated challenges such as home-based care and associated BMW generation and its management, provisions for management of plastic and paper wastes from HCFs and the role of the KEIL Domestic BMW management project were discussed.
January 12, 2024	Field Visit and consultation	FHC Ozhalapathy	Strong community level outreach for palliative care. Grievance Redressal mechanism Ambulance systems
January 12, 2024	Field Visit and consultation	HWC Vadakarapathy	
January 12, 2024	Field visit and consultation	FHC Kalamopazipam	Facility promoted to FHC in 2022 Average OPD attendance of 300-400 per day Has active public health services e.g. sanitation and chlorination drive in community. Celebration of environment day and IEC on environmental conservation Mercury phase out in progress.
January 12, 2024	Field visit and consultation	District hospital Palakkad	Established in 1860, has now underwent major reconstruction. Average OPD attendance 1400-1500 per day Bed strength 544 beds Dialysis and Chemotherapy units present. Liquid Medical Oxygen (LMO) plant functional. STP is under process for construction. Regular IPC and BMW management training provided to workforce.

Date	Type	Participants	Key Discussion Points
			Regular visits by CBMWTF for collection and transportation of BMW, BMW register maintained at site.
January 15, 2024	Meeting	Shikha Surendran, IAS, Deputy Secretary, Health and Family Welfare Department	Importance of the NCD agenda; focus on adolescents and school children; gender disaggregated data on NCDs from ASHAs, utilization of Kudumbashree workers. Lack of coordination between different departments on implementation of schemes for welfare of tribals. Measures taken for inclusion of transgender in line with Kerala state policy, migrant workers, persons with disabilities, and senior citizens.
January 17, 2024	Meeting	Meeting with environmental stakeholder organizations representatives, held in DHFW secretariat. Attended by Add Director DoH, Dept Medical Education, Kerala PCB, IMAGE and KEIL rep., NHM, Med Supt-Medical College Kannur	Key areas of concerns voiced: KSPCB: Segregation practices in HCFs and use of in-house BMW treatment facilities by 44 state-run HCFs are among the key concerns. Segregation practices have improved yet more needs to be done through training. The board has observed in its report for 2022 that 8 incinerators did not comply to the air pollution norms and hence, facility-based management needs to be shifted to the use of Common Treatment Facilities services. Liquid wastes management from HCFs and its potential role in AMR development. The DHS has worked towards construction of STPs in larger HCFs and 23 such facilities do have STPs, but this needs activity needs to be expanded to other large HCFs too. KEIL: Informed about Domestic BMW collection and treatment project in Kochi municipal areas. Explained scope of their services including hazardous wastes management in the state. Need for more CBMWTFs, specially in south Kerala. IMAGE: raised high transportation cost issue and low rates of collection and transportation with Government

Date	Type	Participants	Key Discussion Points
			facilities Medical Superintendent-Kannur Medical College stressed the need for STP and importance of liquid wastes management. Described solid waste management practices. IMA: Informed about solid waste management practices through Harith Karni Sena and Clean Kerala Company Limited. Informed the group about existence of 23 STPs in state HCFs, Biogas plant in 83 institutions and aerobic composting in 275 facilities.
January 18, 2024	Field visit and consultation	Trivandrum Medical College Hospital	Visited units engaged with plastic, paper and food wastes collection, handling and storage. Average 200 kg per day of food waste collected and treated through Biogas plant. Plastic and paper wastes managed through Clean Kerala Company Limited. Visited Chemo preparation room and reviewed use of Biosafety cabinet for chemo drug preparation and its associated safety provisions. Including safe cytotoxic drugs disposal practices. Visited Sewage Treatment Plant 5MLD capacity, operationalized in 2021.
June 10, 2024	Field Visit and consultation	FHC, Kakkodi	The premises were observed to have disabled friendly access as well as children friendly waiting spaces, breastfeeding room and yoga room. There is also a homeopathy and ayurveda centre in the same premises. A toilet is reserved for transgender persons. Screening camps and outreach clinics are also held for migrant workers. There are two complaint boxes at the premises.

Date	Type	Participants	Key Discussion Points
			The HMC is active with 15-16 members meeting every 3 months. Platform is supportive for resource mobilization especially for Panchayat funds and meeting HR gaps. There is an MoU with LSGI for plastic and paper waste. The Citizen charter is exhibited. This is the first Antibiotic Smart hospital in India. There is free OPD care for children, ante natal care and BPL patients. Internal complaints committee has been established and a training session was also done. There is a standard form for examination of female victim of sexual assault. Standard form from department.
June 10, 2024	Field Visit and consultation	Taluka Hospital, Thamarassery	HMC is operational and effective, meeting every 3 months. They play a good role in fund mobilization and resolution of grievances. There are 13 Grievance boxes in the premises which are opened once every month. A grievance register maintained with the DMO. There is disabled access in some places. There are two tribal promoters deputed by the STDD to assist tribal populations. The ICC is in the process of being constituted. No meetings or advertisement has been done yet.
June 11, 2024	Field visit and consultation	Women and Child Health Hospital, Palakkad	250-bedded facility, recipient of Kayakalp award in 2018. Has arrangements for BMW transport and treatment with IMAGE. Conducts regular training on BMW Management, reviewed one such training being conducted by IMAGE facility trainer. Old building with no rainwater harvesting arrangement. Sewage Treatment Plant of 200KL/D capacity
June 11, 2024	Field visit and consultation	District Hospital, Palakkad	New building under construction where STP is planned. Rainwater harvesting and solar power generation present.

Date	Type	Participants	Key Discussion Points
			BMW Management arrangements with IMAGE and other wastes e.g. plastic and paper with Clean Kerala Company Limited. The facility keeps record quantum of BMW generated as well as other wastes, both.
June 11, 2024	Field visit and consultation	IMAGE Common BMW treatment Plant, Palakkad	Visited the plant, conducted site visit of operations and other work areas, held discussions with plant officials and workers on EHS aspects. The facility has been managing BMW from all the 14 districts since 2004. Key concerns raised by the facility included high transportation costs in covering all the 14 districts of the state for BMW collection. Low current rate of fee with state health facilities.
June 11, 2024	Field Visit and consultation	Tribal Specialty Hospital, Kottathara (Attapady)	The hospital caters to tribal communities including Irula, Muduga and Kurumba (which is a PVTG as well). Common issues are low literacy rates, low maternal and child weight, substance abuse, teenage pregnancies, accessibility areas and shortage of vehicles for field visits and medical camps and connectivity. The HMC is active and there is a good experience of working together with them. The GRM has 3 complaint boxes with one box for the staff as well. A Board with the Superintendent's number is also displayed publicly. Vimukthi deaddiction services are also active in the hospital. There are 6 Mobile Medical Units active which have monthly plans laid out for field visits. They are assigned to specific hamlets with each unit having one doctor, one nurse and one laboratory technician. This system requires strengthening for better coordination. There are also 5 ST promotors in the premises. The CHC and PHC in the area also do a lot of outreach activities.
June 11,	Field Visit and	FHC Sholayur	They cater to tribals as well as migrant workers who work in plantations

Date	Type	Participants	Key Discussion Points
2024	consultation		nearly. Disabled patients are given priority access. Record keeping for ICCs and HMCs is done. There has been a good experience of working with the HMCs.
June 11, 2024	Field Visit and consultation	HWC Vayaloor	There is a Jan Aarogya Samiti (which is like HMCs) which meet at least 10 times each year. The HWC has active ASHA workers who do planned field visits. The HWC also makes plans for the upcoming year and tracks data on all populations within its scope.
June 12, 2024	Field visit and consultation	Kerala Enviro-Infrastructure Limited (KEIL)	Visited the plant, conducted site visit of operations and other work areas, held discussions with plant officials and workers on EHS aspects. Visited the hazardous landfill and associated Leachate Treatment Plant. Key concerns raised by the facility included the need to improve coverage of government and private health facilities for BMW from the current seven districts and low rates for the service from healthcare facilities.
June 12, 2024	Field Visit and consultation	Govt Maharaja Taluka Hospital, Karuvelippady Kochi	The hospital received approximately 1000 OP patients per day with daily admission of around 20-30. Some non-technical posts like pharmacist and lab technician are supported by LSGI funds. The HMC is active and meets once every three months. There is a complaints box in the casualty ward and a Complaints register. The box is opened once a week by the Casualty officer. If there is a complaint against a member of staff, an enquiry is done. Some additional structures within the premises are being funded by the Kerala Infrastructure Investment Fund Board (KIIFB).
June 12, 2024	Field Visit and consultation	Family Health Centre, Chellanam	This is located in an economically backward, coastal area which is prone to flooding, due to which the FHC structure is currently unsafe and the subcentre premises are being used instead. They provide services for

Date	Type	Participants	Key Discussion Points
			adolescent healthcare, antenatal care (not deliveries), immunisation, NCDs and mental health. The HMC is active and during the visit the Panchayat President also joined the discussion. Panchayat funds are used for medicines, palliative care nurse etc. There is also a Palliative Care Committee. There is a Complaints Register. The ICC has been formed.
June 12, 2024	Field Visit and consultation	Block Family Health Centre, Kumbalanghi	They have grievance redressal committee which has 5 members and meets once every six months to evaluate complaints from staff. The ICC has been established. HMC meets every 3 months and is active.
June 12, 2024	Meeting	Dr Sakeena, Add Director-Health Services and DMO Ernakulam	Debriefed about the visit to the KEIL facility and its status of functioning. Discussed about BMW and other environmental concerns.
June 13, 2024	Meeting	Meeting with Dr. Hari Kumar, Asst Director-Public Health and Environment Nodal officer KHSIP	Discussed on the environmental aspects e.g. organizational arrangements, collaboration with and outside health department, challenges of BMW and other wastes generated in HCFs, OHS and training and capacity building arrangements and challenges. etc.
April 29 and 30	Virtual Meetings	DHS Officials, Representative from Labour Department and Scheduled Tribes Department and PWD	Discussions on the institutional structure for social risk management within the DHS, stakeholder engagement and community consultation activities, existing framework for GRM, constitution of Internal Complaints Committees, Bhoomika scheme, role of HMCs, method for obtaining land for healthcare facilities and civil works. Discussions were also held with officials from Labour Department to understand provisions for migrant workers and with the STDD for ST issues in healthcare.

4. The draft ESSA incorporates the summary of desk review, discussions and consultations with each of implementing agencies, and written information received from implementing agencies as per the ESSA checklist.

B. SUMMARY OF MULTI-STAKEHOLDER CONSULTATION

5. To be finalized after Stakeholder Workshop

C. DISCLOSURE

6. A state-level multi-stakeholder consultation was undertaken on _____to disseminate the draft ESSA findings. <Departments/institutions/NGOs> that participated. The draft ESSA was further revised based on feedback and comments received during the multi-stakeholder workshop. The draft ESSA report was disclosed at the World Bank external website and at DoHFW, Government of Kerala website on _____ (<weblink>) for receiving further feedback and comments. The Final ESSA report will be redisclosed on the World Bank's external website and DoHFW website prior to negotiation.

V. CONCLUSIONS AND RECOMMENDATIONS

The ESSA concludes that the Program has a moderate environmental risk and moderate social risk. The systems are in line with the Core Principles and Key Planning Elements as defined in the World Bank Policy for PforR. The Program will require increased intra-departmental coordination as well as among various departments and agencies on environmental and social aspects to further support implementation, such as environment, water and sanitation, disaster management authorities, urban and rural local bodies. The process and criteria for monitoring, enforcement, and reporting on environmental and social measures will be part of overall Program reporting. The above requirements, processes, and systems will be included in the Program Operations Manual. Monitoring and supervision of the ESSA implementation will be a part of World Bank supervision.

A. KEY GAPS IDENTIFIED

1. Overall, the applicable environmental management systems are generally adequate to address underlying environmental and social risks, and noteworthy strengths are strong regulations and guidelines on BMWM, general waste management, infection control, OHS, building and worksite safety. The Program environment systems have a relatively clear regulatory framework, implementation arrangements, budget, to mitigate negative impacts on environment and people, especially from BMW and infection risks. Gaps identified through the assessment are proposed to be addressed through a set of actions which are compiled as environmental and social inputs to the PAP.

Environmental Management

2. *Biomedical waste and other health-care related waste streams:* BMW (infectious, hazardous, non-hazardous) is being collected from across the State and treated & disposed through the two CBMWTFs. Pilot for collection of BMW generated due to home-based care in two districts is underway. However, generation of BMW and other waste is expected to increase. Planning of resources is critical to ease the collection, transportation, treatment, and disposal load off the two existing CBMWTFs.

3. Currently, the state does not have a system to manage radioactive waste and a strategy to phase out mercury-based equipment. Even though phasing out of mercury-based sphygmomanometers has been a declared policy of the Government, there is no timeline-based roadmap for *the same.* This has been partly attributed to the concerns about alternate digital systems regarding accuracy of the readings, life of the equipment and servicing.

4. *Radioactive waste* generated as part of medical care are regulated by AERB guidelines. The procedures are followed by the respective departments. There is a Radiation Safety Board at each institution looks into the different aspects regularly. Directorate of Radiation Safety, located at GMCH Thrishur, is currently non-functional. It needs to be revived after complying with the AERB guidelines. State level policies and SOPs are desirable.

5. *Medical Wastewater:* All HCFs should be treating their liquid wastes by installing ETP in their premises itself or draining into municipal sewer connected to a terminal STP. Nearly 90 percent of the larger health care facilities do not have any provision to treat and dispose of their wastewater as per BMWM Rules 2016. These should be provided an interim solution till they are able to connect to a central STP or establish ETPs

6. *Design and procurement:* At present, there is no formal mechanism adopted for screening and identifying any potential environmental and social issues before undertaking any civil works. However, given the nature of the works the impacts are predictable (dust, noise, debris) and temporary, and measures can be worked into the contract bill of quantities (such as fencing, screens, watering, low-noise equipment). Provision of energy efficiency measures are encouraged but not integrated in the procurement documents. GRIHAS guidelines should be incorporated in building construction works, procurement of equipment meeting certain energy efficient requirements should be made part of the procurement process. Ambulance services should conform to automobile industrial standards.

7. *Institutional Capacity:* Currently, there are limited mechanisms for environmental risk management under the health department. An official of the rank of Assistant Director under Director-Public Health has been assigned for environmental management. In addition to his existing responsibilities, the official is managing programs such as Disaster management, Tribal health, and management of diseases such as Rabies and Viral Hepatitis. Environmental risk management is limited to ensuring compliance to Biomedical Waste Management Rules, 2016 and managing emergencies within the scope of disaster management related to the health services department through implementation of Quality Assurance System.

8. BMW committees look only at BMW generated; they need to look at both solid and liquid wastes and their management and future planning to handle and dispose wastes. Accordingly, recommendations should be made to the state government.

9. *Safety:* Safe oxygen usage and fire safety response are critical elements of the facility-based emergency response plan. The response planning is largely restricted to the availability of firefighting equipment and its periodic maintenance by external agencies. Systemic measures such as suitable location of Oxygen cylinders and access control of such high-risk areas, hazards and risk communication through display at prominent locations and channels of communication, and periodic assessment of response preparation through regular mock drills need to be strengthened.

10. *Monitoring and Reporting:* Currently, there is no mandate for the health care facilities and the State BMWM Committee to report on BMWM to the Department. There is no platform for the same. Annual reports are generated by the health care facilities for the purpose of reporting to State PCB. Similarly, there vaccination of staff and incident reporting is being monitored at individual health care facility level and there is no centralized platform for monitoring and evaluating this information for larger good of the IPC agenda.

11. *Capacity Building:* Trainings need to be provided to all outsourced agency teams on infection control practices, L&FS, ERP and BMW handling to ensure health and safety of workers and patients. (under NQAS certification.)

12. *Budgetary provision* During Covid-19 funds for Covid-19 Biomedical waste was given through Directorate of Health Services. However, the expenses related to BMW management is usually met at the institutional level and can be met from a variety of sources such as HMC/HDS funds, LSGI funds, NHM Untied funds, NHM funds released for Kayakalp/NQAS activities and KASP funds. The billing is done by the respective agencies based on QR codes as per the rates fixed by the Government and MoUs signed.

13. *Intra-Departmental and Inter-Departmental Coordination* with BIS, NABH, SPCB and SDMA on hospital safety standards is required.

Social Management

14. **Capacity**: There is a requirement for improved and consistent capacity and systems on social risk management and reporting in the DHS. As of now, social aspects of the DHS are looked at by the NHM social sectors division. However, there are multiple activities related to coordination, reporting and monitoring on social risks and issues which slip through the cracks due to lack of dedicated capacity.

15. **Grievance Redressal Mechanism**: The Grievance Redressal Mechanism is currently fragmented. There are state-wide portals like the CM portals as well as provisions for grievance redressal within the purview of Panchayats and Hospital Management Committees. However, many of these systems are not functioning effectively at the ground level. Many Grievance Redressal Committees are not constituted, GRMs are not publicized prominently, there is no consistent format or protocol for receiving and recording grievances, and there is an absence of a reporting and monitoring mechanism. Due to these gaps existing provisions are not effective at the institution level. It is important to make the GRM functional and establish robust systems for recording, reporting and monitoring of grievances.

16. **Implementation of POSH Act and ICCs:** Internal Complaints Committees have been constituted at many of the healthcare facilities. However, there are gaps in the effective implementation of the provisions of the POSH Act. The ICCs are not fully functional and there is a big gap in terms of awareness activities related to the POSH Act. Support is required to operationalize the effective implementation of the statute and functioning at the institution level.

17. **Coordination with other Departments:** Many of the activities and policies promoting inclusive and equitable access to healthcare are implemented along with other Ministries like STDD and Labor Department. While there is strong participation and effort from all sides, lack of coordination leads to lower efficiency and poor planning. It is important to have platforms and/or portals for improved coordination between these Departments.

18. **Plan for Stakeholder Engagement**: While there are many outreach activities and platforms for engaging with stakeholders, these initiatives are

currently ad hoc and fragmented. It is important to plan the stakeholder engagement to ensure strategic priorities are met efficiently.

B. RECOMMENDATIONS FOR PROGRAM EXCLUSIONS

19. The following high-risk activities will be excluded from support under the proposed PforR Program expenditure based on environmental and social risks:

- Establishment and operation of CBMWTF
- Construction of new buildings or any construction beyond the existing footprint of buildings
- Activities involving asbestos containing materials (AC roofing sheets, AC pipes, and so on) such as construction, demolition, dismantling.
- Any activity that may involve land acquisition or have potential involuntary resettlement will be excluded (screened out) from the Program boundary.
- Use of child or bonded or forced labor or labor involved in any hazardous activities.
- Destruction or damage to any physical and cultural resources

C. KEY RECOMMENDATIONS

20. The ESSA recommendations focus on strengthening the implementation arrangements, program procedures, risk mitigation practices/protocols and monitoring and reporting systems on E&S aspects, as well as core training programs to build the technical and operational capacity, and includes: While most of the recommendations to be incorporated in the program operations manual (POM) and some are mainstreamed as part of result framework, a higher-level action is recommended as part of the program action plan (PAP).

21. The provisions of the existing environmental legal and regulatory framework are adequate but require enabling institutional and technical capacity to comply with. While the provisions of the Biomedical Waste (Management and Handling) Rules, 2016, as amended up to March 2018, are being implemented, provisions of other relevant environmental acts, such as hazardous, solid, plastic, and e-waste rules, require additional capacity-building efforts. Efforts are required to improve the monitoring of the management of different kinds of wastes, including liquid wastes.

Environmental Management

22. *Biomedical waste:* Planning of resources is critical to manage increased BMW load - collection, transportation, treatment, and disposal load. DHS needs to plan for investing in more CBMTFs across the state.

23. *Hazardous health-care waste:* It is desirable to (i) revive Directorate of Radiation Safety, located at GMCH Thrishur, complying with the AERB guidelines; and (ii) development and adoption of State level policies and SOPs with regards to radioactive waste.

24. *BMW generated at household level:* Department’s pilot with KEIL needs to be expanded to larger geographical area. Based on the learnings of this pilot,

DoHFW should develop and adopt a strategy for the state detailing the resources required and IEC & capacity building provisions.

25. *Medical Wastewater:* The Department should invest in developing and adopting of a short- medium term state level strategy for liquid waste management from health care facilities. The strategy may be started with larger facilities (bedded HCFs >30 beds) and laboratories. The strategy will provide the DoHFW and associated departments (water and sanitation, environment, rural development, state pollution control board) a common framework in which the state can plan to establish the needed infrastructure to treat wastewater from these facilities to the applicable standards before discharge. This will also include, where applicable, strategies for the segregation of liquid effluents in order to limit the volume of water requiring specialized treatment and Identify opportunities to prevent or reduce wastewater pollution through such measures as recycle/reuse within their facility.

26. *Updating of Procurement Documents:* DoHFW and PWD should consider updating procurement documents for inclusion of procuring energy efficient infrastructure and incorporating GRIHAS in civil works. To address minor and localized environmental concerns arising due to small civil works, measures can be worked into the bill of quantities (such as fencing, screens, watering, low-noise equipment).

27. For the *high value contract for ambulance services*, the contract should include that (a) the new vehicles should be BS VI compliant to avoid air pollution; (b) ambulances should conform to existing automotive industry standards [Automotive Industry Standard 125 (AIS-125) Part 1, August 2014: Constructional and Functional requirements for Road ambulances; Automotive Industry Standard 125 (AIS-125) Part 2, August 2014 Medical Equipment for Road Ambulances] to avoid health and safety risks to ambulance staff and patients; (c) manage occupational health and safety concerns of the staff deployed in operation of ambulances including duty hours, night hours, safe rest areas with adequate facilities of changing rooms, bathrooms & toilet areas. These are important especially in context of Kerala where females workforce is expected; (d) adequate and proper parking facilities of the ambulances; (e) management of biomedical waste in ambulances; (f) cleaning and operation & maintenance of vehicles which leads to generation of several waste streams including hazardous wastes, that is, batteries for which sound management of recyclable materials is critical; (g) worker health and safety in vehicle garages and industrial enterprises.

28. *Institutional Capacity:* Designation of dedicated environmental expert under the Program to institutionalize best practices (BMWM, infection control, healthcare workers' safety, environmental management for civil works, OHS).

29. BMW committees should look at both solid and liquid wastes and their management and future planning to handle and dispose wastes. Accordingly, recommendations should be made to the state government.

30. *Monitoring and Reporting:* DoHFW is responsible agency for management of BMW and infection control & prevention across the state. Therefore, it should develop a centralized monitoring and reporting mechanism. It is recommended that the Department develops a digital platform where information from the

health care facilities is reported directly including, various streams of BMW generated, collected by the service provider, vaccination of the staff, incident reporting. This platform may also be used for managing supply chain related to BMWM.

31. *Capacity Building:* Trainings need to be provided to all outsourced agency teams on infection control practices, L&FS, ERP and BMW handling to ensure health and safety of workers and patients. (Under NQAS certification).

32. *Safety:* The Department should consider developing a monitoring procedure to ensure Life & Fire Safety as well as safe medical oxygen practices to assess in time and avoid any untoward incident. Systemic measures such as suitable location of Oxygen cylinders and access control of such high-risk areas, hazards and risk communication through display at prominent locations and channels of communication, and periodic assessment of response preparation through regular mock drills need to be strengthened. This would entail coordination with vendors and other line departments.

33. *Budgetary provision for BMWM*: The Department might want to consider hiring an expert to assess and evaluate the financial implication of BMWM and infection control & prevention for the state as well as individual health care facility (both government and private), and available resources through various government programs.

Social Management

34. **Dedicated Social Specialist** in DHS: Ensure that a dedicated specialist for looking at social issues is appointed in the DHS to look at social aspects, initiatives, and ensure robust reporting and monitoring.

35. **Strengthen Grievance Redressal Mechanism: Grievance Redress Mechanism (GRM) system to be** strengthened, publicized and streamlined for consolidated monitoring and reporting at district and state level. State-wide directive should be issues to all healthcare institutions to operationalize and implement GRM systems, ensure their widespread publicity and provide consolidated report on grievances received through all applicable channels and resolved at district and state level.

36. **Strategy for Effective Implementation of the POSH Ac**t: Development and adoption of strategy for effective implementation of POSH Act (including constitution and operation of ICCs and awareness generation). The strategy for effective implementation of POSH Act should be prepared addressing (a) Constitution of ICCs; (b) Duties of ICCs; (c) Awareness generation activities; and (d) monitoring mechanism.

37. **Establish Coordination Platform / Portal for planning activities with other Departments**: Develop a platform under which activities with other Departments can be coordinated between both Departments to ensure lack of duplication and smoother coordination.

38. **Stakeholder Engagement Plan**: Stakeholder engagement activities can be better planned to ensure that all critical priorities are addressed efficiently in institutions across the state.

D. ENVIRONMENTAL AND SOCIAL PROGRAM ACTION PLAN

39. The assessment identified certain areas for improvement of the implementation of the environmental and social systems, which can be addressed through the following recommendations:

Table 8: Environmental and Social Program Action Plan

Action Description	Source	Responsibility	Timing	Completion Measurement
Designation of environmental expert and social expert under the Program to institutionalize best practices (BMWM, infection control, healthcare workers' safety, environmental management for civil works, OHS, community health & safety, GRM)	Environmental and Social	DoHFW	Before project Effective Date (To be maintained throughout the duration of Program)	Designating qualified staff, scope of work including preparation of environmental and social guidance and monitoring the implementation of environmental and social actions and reporting protocols, and relevant templates
Development and adoption of a short-medium term state level strategy for collection of BMW from households while learning from the ongoing pilots in Trivandrum and Kochi. Strategy to include relevant IEC material.	Environmental and Social	DoHFW	within 18 months of effectiveness	Strategy prepared and disclosed on DoHFW website
Development and adoption	Environmental and Social	DoHFW	Within 18	Strategy prepared and disclosed on DoHFW

Action Description	Source	Responsibility	Timing	Completion Measurement
of a short-medium term state level strategy for liquid waste management from HCFs.[25]			months of effectiveness	website
Grievance Redress Mechanism (GRM) system to be strengthened, publicized and streamlined for consolidated monitoring and reporting at district and state level	Environmental and Social	DoHFW	Within twelve months of Effective Date (to be monitored on a continuing basis)	State-wide directive to all healthcare institutions to operationalize and implement GRM systems, ensure their widespread publicity and provide consolidated report on grievances received through all applicable channels and resolved at district and state level.
Development and adoption of strategy for effective implementation of POSH Act (including constitution and operation of ICCs and awareness generation)	Environmental and Social	DoHFW	Within twelve months of Effective Date	Strategy for effective implementation of POSH Act prepared and adopted addressing (a) Constitution of ICCs; (b) Duties of ICCs; (c) Awareness generation activities; and (d) monitoring mechanism
Establish Regional Hemophilia / Haemoglobinopathy Treating Centre (RHTC)	Environmental and Social	DoHFW	Within two years of Effective Date	One Centre of Excellence established with approved budgetary allocation, staffing and protocols.

25 *The strategy will apply to all bedded HCFs >30 beds and laboratories. The strategy will provide the DoHFW and associated departments (water and sanitation, environment, rural development, state pollution control board) a common framework in which the state can plan to establish the needed infrastructure to treat wastewater from these facilities to the applicable standards before discharge. This will also include, where applicable, strategies for the segregation of liquid effluentsin order to limit the volume of water requiring specialized treatment and Identify opportunities to prevent or reduce wastewater pollution through such measures as recycle/reuse within their facility.*

Action Description	Source	Responsibility	Timing	Completion Measurement
as Centre of Excellence to provide services to test, confirm, treat, train, rehabilitate, counsel and educate patients and parents with Haemophilia A and B, Beta Thalassemia, Sickle Cell Disease and other Minor Bleeding disorders.				

ANNEXURES

ANNEX 1: LIST OF DOCUMENTS REVIEWED

1. Bank Guidance on 'Program for Results Financing Environmental and Social Systems Assessment', September 18, 2020.

2. Ministry of Environment, Forest & Climate Change (MoEFCC) notified amendment to the EIA Notification 2006 published vide MoEFCC Notification of S.O. 1142 (E) dated April 17.

3. Kerala State Pollution Control Board: Annual report on Biomedical waste management for the year 2017, 2018, 2019, 2020, 2021 and 2022.

4. Overview of Comprehensive Primary Health Care and HWCs. (Presentation); Induction Training Module for Community Health Officers. NHM. Viewed at http://nhsrcindia.org/sites/default/files/Induction%20Training%20Module%20for%20CHOs.pdf.

5. Indian Public Health Standards (IPHS). Guidelines for Primary Health Centers. 2012.

6. Guidelines for Village Health and Sanitation Committees, Sub-centers, PHCs and CHCs. Viewed at https://nhm.gov.in/images/pdf/guidelines/nrhm guidelines/guidelines_of_untied_funds_nrhm.pdf on 16 April 2021.

7. Environmental and Social Management Framework for Systems Reform Endeavors for Transformed Health Achievements in Gujarat (SRESTHA-G) (P178252). Viewed at https://documents1.worldbank.org/curated/en/099300008302219514/pdf/P17825208031180b091060b8430524eefd.pdf.

8. CPCB. Environmental Training Unit. Viewed at https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS9fMTYxMDk3MjY3OV9tZWRpYXBob3RvMTk4NTcucGRm on 12 April 2021.

9. Annual Report on BWM as per SMWM Rules 2016 for the year 2019. CPCB.

10. Annual Report on Biomedical Waste Management as per Biomedical Waste Management Rules 2016 for the year 2019. CPCB. Viewed at https://cpcb.nic.in/openpdffile.php?id=UmVwb3J0RmlsZXMvNDYwXzE1MDIxNzAwNzJfbWVkaWFwaG90bzEwMDg0LnBkZg== on 11 April 2021.

11. Guidelines to Reduce Environmental Pollution due to Mercury and E-Waste in Central Government Hospitals and Health Centers. Viewed at http://toxicslink.org/docs/rulesansregulation/Mercury-phase-out-order.pdf on 11 April 2021.

12. IPHS Guidelines for PHCs. Revised 2012. http://clinicalestablishments.gov.in/WriteReadData/360.pdf

13. Biomedical waste management rules, 2016 https://dhr.gov.in/sites/default/files/Bio-medical_Waste_Management_Rules_2016.pdf

14. Biomedical waste management guidelines 2016 https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/Guidelines_healthcare_June_2018.pdf

15. Training manual on BMWM https://www.biomedicalwastemanagementinindia.in/Resurces/5_Waste_handlers_manual_FLIP_CHART.pdf

16. Infection Management and Environment Plan: National Health Mission-Guidelines for Community Health Centers (2007) CHC new (nhm.gov.in)

17. Biomedical waste annual report format https://www.wbpcb.gov.in/writereaddata/files/BMW-Annual%20Report-2016-website.pdf

18. National Building Code of India 2016 Part – IV “Fire & Life Safety”

19. Pages No.51-55 of Operational and Technical Guidelines of Implementation of FC-XV Health Grantsthrough Local Governments (https://nhsrcindia.org/sites/default/files/2021-09/FCXV%20Technical%20and%20Operational%20GLs%20to%20States%20dated%2031082021.pdfdetailed Guidance on Infrastructure planning and design requirements

20. Swachhata Guidelines for Public Health Facilities http://qi.nhsrcindia.org/sites/default/files/Swachhta%20Guidelines%20for%20Public%20Health%20Facilities.pdf

21. Hospital Disaster Management Guidelines: Directorate of Health Services, Kerala https://dhs.kerala.gov.in/wp-content/uploads/2020/08/hdmg_18082018.pdf

22. Automotive Industry Standard (AIS Part-1) 2014: Constructional and functional requirements for road ambulances in India https://hmr.araiindia.com/Control/AIS/352018104443AMAIS_125.pdf

23. Automotive Industry Standard (AIS Part-2) 2014: Medical equipment for road ambulances https://hmr.araiindia.com/Control/AIS/227201553254PMAIS-125_Part_2_F.pdf

24. Guidelines for management of sanitary waste as per Solid waste management rules, 2016: Central Pollution Control Board (2018) https://cpcb.nic.in/uploads/MSW/Final_Sanitary_Waste_Guidelines_15.05.2018.pdf

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30. Shreya Garg, Dhvani Mehta, Grievance Redressal Mechanisms in Public Healthcare Establishments, Overview of the Legal Framework and Recommendations for Reform, Vidhi Centre for Legal Policy, April 2017

31. Proposal under No. HEALTH-M2/796/2019-HEALTH to State Mission Director, National Health Mission dated 20/11/2019 regarding Proposal on Management of Haemophilia and Haemoglobinopathies.

ANNEX 2: DESCRIPTION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM AND CAPACITY AND PERFORMANCE ASSESSMENT

Institution	Roles and Responsibilities	Capacity Analysis
State Level Institutions		
State Health Society National Health Mission (NHM)	• Works to pool all resources available in implementation of the programmes. • All National Health Programmes at the State and District level are brought under one umbrella of NHM. • Provides funding allocation for support for BMWM and IC activities. • According to the directions of the MoHFW, the states have to implement PM-ABHIM through existing structures of the NHM and its administrative and FM structures would be utilized. The Mission Director, NHM of the state along with State Program Management Unit (SPMU) would monitor and track implementation of the interventions under the Program. The SPMU would be supported by the District Program Management Units (DPMUs) at the district level and Block Program Management Units (BPMUs) at the block level for implementation and monitoring of interventions at districts, blocks, and facility levels. It is understood that the PM-ABHIM would be implemented through the existing structures of the NHM in each of the priority states that is, the SPMU, DPMU, and BPMU. • Additional Chief Secretary/Secretary/Principal Secretary/Secretary (Health) in the States/UTs as the chairperson of EC of the State Health Society, will be responsible for monitoring the progress and implementation status of various components of PM Ayushman Bharat Health Infrastructure Mission	• No significant gaps identified except a better coordination will help bring synergy between DME and DHS for establishment and expansion of health care. • Funding for management of BMWM at health care facility level has stopped after COVID-19. Also, there is need to improve monitoring of BMWM. • NHM health society have experience in managing health centres in urban and rural areas. There are no significant capacity gaps in allocation of funds for NHM. PM- ABHIM HCWs are clear guidelines on health care facility design which accounts for BMWM, Infection Control, worker safety, cleanliness and good sanitation. Use of energy efficient equipment, and renewable energy resources is also encouraged.

Institution	Roles and Responsibilities	Capacity Analysis
	under the scheme. • Similarly, at the district level, the District Health Society, headed by the District Collector, will play a crucial role in not only planning as per the guidelines and also, for effective implementation and robust monitoring of the units of various components under PM Ayushman Bharat Health Infrastructure Mission, under the overall supervision of the District Collector. • States have the responsibility to do quality check of the new AB-HWCs as per the norms set by the State in accordance with the other construction works undertaken. The State should ensure third party monitoring and quality checks (as pertinent to the GLs under FC-XV Health Grants) to ensure that the works undertaken meet the required quality parameters and are constructed as per the terms and conditions decided by the State.	
State Public Works Department (PWD)	• Constructs and maintains buildings of various Government Departments, in line with Bureau of Indian Standards (BIS) and National Building Code of India which covers the detailed guidelines for construction, maintenance and fire safety of the structures. • Will construct or rehabilitate and repair healthcare facilities and laboratories including for TB unit	• The Department of Public Works does not have designated Environmental Safeguards personnel. The Chief Engineer is responsible within the institution to oversee environmental management related to construction. • The organization follows central and state regulations on safe work practices that cover large areas of OHS, Community safety and waste management. SOPs/Protocols have been developed and adopted at health care institution level. • Life & Fire safety and Universal access aspects are integrated as part of designs for new buildings and in new estimates for any renovation works in existing buildings. • Emergency Plans are incorporated as part of Quality Assurance process. • GRIHAS are encouraged to be part of designs but are

Institution	Roles and Responsibilities	Capacity Analysis
		not included in procurement documents as a requirement. • Need to enhance capacity in ensuring compliances and overall contract management for contracted labour. • Improve capacity to manage issues related to health and safety of workers at construction sites
State Disaster Management Authority	• Both Health and Disaster Management along with the state public works department, will play a crucial role in implementing these building safety guidelines on the ground.	• Institutional coordination mechanisms with MoH&FW (national and state), BIS, and NHSRC need to be strengthened to making safety provisions mandatory in the design, construction and functioning of hospitals. • Wherever necessary, the National Disaster Management Authority, the Bureau of Indian Standards, technical institutions like IITs and other relevant agencies extend their support to further the agenda of Hospital Safety in our country.
State Pollution Control Board	• The 'prescribed authority' for enforcement of the provisions of BMW rules in respect of all the health care facilities is the respective State Pollution Control Board (SPCB)/ Pollution Control Committee (PCC). • State pollution Control Board is entrusted with monitoring and ensuring compliance to environmental regulations including Biomedical Waste Management Rules, 2016 • Grant of authorization to Common Biomedical Waste Treatment Facilities. • Action against health care facilities or common bio-medical waste treatment facilities for violation of these rules. • Monitoring CBWTFs and Healthcare Facilities to ensure compliance to BMW Rules, 2016, and issue of notices, orders and penalties etc. for non-conformance as per Environment Protection Act,	• Bank Task Team unable to get a meeting with SPCB. • SPCB has been active in BMW Management and has proactively provided approval for initiation of Domestic BMW management project by Kerala Enviro-Infrastructure Limited in Kochi and Trivandrum municipal areas.

Institution	Roles and Responsibilities	Capacity Analysis
	1986. • Organize training programmes for staff of health care facilities and common bio-medical treatment facilities and State Pollution Control Boards or Pollution Control Committees Staff on segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes. • Inventorization of Occupiers and data on bio-medical waste generation, treatment & disposal. • Grant consent to and publish the list of registered or authorized Recyclers. (E -Waste) • Undertake and support third party audits of the common bio-medical waste treatment facilities in their State	
State Bio Medical Waste Committee	• Each state needs to constitute a committee to advise the state government and the SPCBs about implementation of the BMW rules. under the chairmanship of the respective health secretary include representatives from the Departments of Health, Environment, Urban Development, State Pollution Control Board or Pollution Control Committee, urban local bodies or local bodies or Municipal Corporation, representatives from Indian Medical Association, common bio-medical waste treatment facility and non-governmental organization. • The Advisory meets at least once in six months and review all matters related to implementation of the provisions of these rules in the State.	• There is a State level BMW advisory Committee with Principal Secretary Health and Family Welfare as Chair and Principal Secretary-Department of Environment as Co-chair. The members of committee include Principle Secretary-Department of Animal Husbandry, Special Secretary-Local Self Government Department, Director of Health Services, Director of Medical Education, Chairman, Kerala State Pollution Control Board, Chief Executive Officer-Kerala Enviro Infrastructure Kochi, Chairman-Chamber of Mayors Council, Kerala, Chairman of Chamber of Municipal Chairmen, Kerala, Chairman of Chambers of Presidents of Gram Panchayat Presidents, Kerala and President of Kerala Chapter of Indian Medical Association. • The Committee was reconstituted by Health Department vide G.O. dated 09.08.2021 with both IMAGE and KEIL as members. • The Committee meets regularly. Concerns regarding private health institutions private institutions not using the Common treatment services even after

Institution	Roles and Responsibilities	Capacity Analysis
		obtaining authorization to save costs have been discussed. • The state has an ongoing State Level Accreditation Program to improve the quality of services, since 2015 with issuance of guidelines on Infection Prevention and Control as well as Guidelines for Quality Assurance in health facilities covering diverse quality related aspects including biomedical waste management, occupational health and safety, • For implementation, the state, district and facility level quality assurance committees have been prescribed by the government and functioning.
State Quality Assurance Committee	The committee oversees the quality assurance activities across the state in accordance with the national and state guidelines and ensures regular and accurate reporting of the various key indicators. The key functions shall include: • Developing the Quality Assurance Policy and Guidelines for the State • Ensuring attainment of the Standards for Quality of Care by Public Health Facilities • Mentoring the state/district level units: • Periodic Review of the progress of QA activities: • Review and adjudicate compensation claims: under the National Family Planning • Supporting quality improvement process: • Reviewing Key performance indicators of quality	• Based on the guidelines of the State G.0. (MS)No.23/2015/H&FWD,Dated, 03.02.2015, State Quality Assurance Committee has been constituted., as part of the overall National Quality Assurance System (NQAS). • The Principal Secretary / Secretary, Department of Health and Family Welfare is the Chairperson, State Mission Director - NHM,Vice Chairperson and Director Health Services, Convener of the committee. • The members of the committee include wide range of medical and public health professionals from different divisions of the state health Directorate, Medical education, Public Health Laboratory etc. • Quality improvement initiatives as planned in the program, such as Strengthening ambulance services, construction and structural improvements for universal access and emergency preparedness, collaboration with and representation from non-health departments such as transport, Civil works / PWD, and State Disaster Management Authority is

Institution	Roles and Responsibilities	Capacity Analysis
		lacking and hence required.
District and Sub-District Level Institutions		
Committee on Biomedical Waste Management and Infection Control (SC-BMW/IC) under the District Health Society	• A District Level Monitoring Committee is set up in each district under the chairmanship of District Collector or District Magistrate or Deputy Commissioner or Additional District Magistrate to monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio-medical waste treatment and disposal facilities. The committee submits its report once in six months to the State Advisory Committee and State Pollution Control Board or Pollution Control Committee concerned for taking further necessary action. • The District Level Monitoring Committee comprises of District Medical Officer or District Health Officer, representatives from State Pollution Control Board or Pollution Control Committee, Public Health Engineering Department, local bodies or municipal corporation, Indian Medical Association, common bio-medical waste treatment facility and registered nongovernmental organizations working in the field of bio-medical waste management and if necessary and the District Medical Officer shall be the Member Secretary of this Committee.	• The District Level Monitoring Committee constituted should look at all wastes generated as part of HCF operations – e-waste, plastics, hazardous wastes and liquid wastes and submit recommendations based on the site conditions (of the disposal facilities, CTFs, pits etc.) and prevailing issues (flooding, fires, COVID-19 peaks, natural disasters etc.) within the districts in the half- yearly report to the State Advisory Committee. • At the district level, BMW Management is monitored by a team of senior official from DHS with support of a team of junior official, generally Assistant Director, representative from Local Self Government Institution and representative of Common BMW Treatment Facility. • All individual facilities have constituted a committee i.e. Infection Control Committee that monitors the BMW Management at the facility. The facilities have assigned the responsibility for BMW management with Infection Control Nurse.
District Quality Assurance Committee	• The district QAC is responsible for disseminating the QA guidelines/ Standards to all the stakeholders. • The committee ensures that QA standards have been achieved at designated health facilities. (NABH/ KASH / IPHS/ National Standards, Operational Guidelines for Quality Assurance in Public Health Facilities published by Ministry of Health and Family Welfare Government of India) • Capacity building of DQAU and District Quality Team	• District Collector is the Chairperson and the District Medical Officer (Health) is the Vice Chair Person. The District RCH Officer (Member secretary) and District Programme Manager, NHM is the convener of the committee. • The members include representatives from a wide range of institutions within health and external sectors. These include District hospitals, W& C hospitals, general hospitals and medical college

Institution	Roles and Responsibilities	Capacity Analysis
	(DQT): Ensuring that district level orientation and trainings are accomplished in time for DQAU and also DQT. • Monitoring QA efforts in the district: The committee needs to ensure that facility assessments and subsequent quality improvement efforts are executed as per plan. • Periodic Review of the progress of QA activities:	principals. In addition, Mass Media officer, TB, Malaria and District Surveillance officers Consultants NHM, Biomedical engineer and representatives from Medical and Public Health Association, etc. are also included.
Urban and Rural Local Bodies	• Provide or allocate suitable land for development of common bio-medical waste treatment facilities in their respective jurisdictions as per the guidelines of CPCB. • Collect other solid waste (other than the biomedical waste) from the health care facilities as per the Municipal Solid Waste (Management and handling) Rules, 2000 or as amended time to time.	• Coordination mechanisms with Urban and RLBs need to be improved for exploring mechanisms for safe collection, transportation, treatment and disposal of domestic Biomedical waste generated through home-based elderly care services. • Suitable land for development of additional Common BMW treatment Facility in the state through cooperation and coordination with stakeholders e.g. Department of Health, State Pollution Control Board, Indian Medical Association and the existing two Common BMW Treatment Facilities officials is needed. • Efficient monitoring in the SWM dumpsites for BMW needs to be reported (through citizen monitoring committees and ULB officials)
District and Village Health and Sanitation Committee (under NHM)	• One of the key elements of the National Rural Health Mission is the Village Health, Sanitation and Nutrition committee (VHSNC). The committee has been formed to take collective actions on issues related to health and its social determinants at the village level. They are particularly envisaged as being central to 'local level community action' under NRHM, which would develop to support the process of Decentralized Health Planning. Thus, the committee is envisaged to take leadership in providing a platform for improving health awareness	• DHSC and VHSC can also work with RLBs to institute community Monitoring and Supervision of biomedical waste disposal, and general waste management from HCWs

Institution	Roles and Responsibilities	Capacity Analysis
	and access of community for health services, address specific local needs and serve as a mechanism for community-based planning and monitoring	
There are a few other ministries important for elements of the health programs, e.g., Water and Sanitation with respect to water supply and sanitation and water borne disease management, Power for supply of electricity to run boilers; Industries with respect to supply and recycling of electrical and electronic equipment; and Bureau of Indian Standards (BIS) which is the National Standard Body of India for the development of standardization, marking and quality certification of goods (relevant for certifying energy efficiency and safety of equipment)		

ANNEX 3: GOI PUBLIC HEALTH, ENVIRONMENTAL, HEALTH AND SAFETY STANDARDS FOR PHC

1. The PHC should have a building of its own.

2. The surroundings should be clean.

3. It should be centrally located in an easily accessible area.

4. The area chosen should have facilities for electricity, all weather road communication, adequate water supply and telephone.

5. PHC should be away from garbage collection, cattle shed, water logging area, etc.

6. PHC shall have proper boundary wall and gate.

7. It should be well planned with the entire necessary infrastructure. It should be well lit and ventilated with as much use of natural light and ventilation as possible.

8. For all new upcoming facilities in seismic 5 zone or other disaster-prone areas: Building and the internal structure should be made disaster proof especially earthquake proof, flood proof and equipped with fire protection measures.

9. Earthquake proof measures - structural and non-structural should be built in to withstand quake as per geographical/state govt. guidelines. Non-structural features like fastening the shelves, almirahs, equipment, etc. are even more essential than structural changes in the buildings.

10. PHC should not be located in low lying area to prevent flooding as far as possible.

11. Firefighting equipment – fire extinguishers, sand buckets etc. should be available and maintained to be readily available when needed. Staff should be trained in using firefighting equipment.

12. All PHCs should have Disaster Management Plan in line with the District Disaster management Plan. All health staff should be trained and well conversant with disaster prevention and management aspects. Surprise mock drills should be conducted at regular intervals.

13. Waiting area: Should have adequate space; Toilets with adequate water supply separate for males and females should be available; Safe drinking water should be available; Surroundings should be kept clean with no waterlogging and vector breeding places in and around the centre.

14. Outpatient Department: Rooms shall have provision for ample natural light and air; Windows shall open directly to the external air or into an open verandah; Adequate measures should be taken for crowd management.

15. Wards: There should be facilities for drinking water and separate clean toilets for men and women; There should be utility room for dirty linen and used items; Cooking should not be allowed inside the wards for admitted patients; Cleaning should be carried out at regular intervals.

16. Labor room: Provision of hand washing and containment of infection control; Room should be well-lit and ventilated with an attached toilet and drinking water facilities; Separate areas for dirty linen, baby wash, toilet, sterilization; Regular washing and mopping with disinfectants to maintain cleanliness; Fumigation at regular intervals.

17. General store: Area should be well-lit and ventilated and rodent/pest free; Inflammable and hazardous material shall be secured and stored separately.

18. Waste management: 'Guidelines for HCWs for Waste Management and Infection Control in PHCs' are to be followed.

19. Waste disposal pit: As per CPCB guidelines.

20. Environment-friendly features: The PHC should, as far as possible, be environment-friendly and energy efficient; Rainwater harvesting and solar energy use and use of energy efficient equipment should be encouraged.

21. Adequate water supply and water storage facility (over head tank) with pipe water should be made available.

22. Statutory and Regulatory Compliance: PHC should fulfill all the statutory and regulatory requirements and comply with all the regulations issued by the local bodies, state and union of India. PHC shall have a copy of these regulations/Acts. The statutory and regulatory compliances include, inter alia:

    - No objection certificate from the competent Fire Authority.
    - Authorization under Bio-medical Waste Management Rules 2016.
    - Hazardous Waste Management Rules 2016.
    - Authorization from Atomic Energy Regulation Board (if x-ray facility is available).
    - Excise permit to store spirit.
    - Insecticides Act 1968.

NQAS INFECTION CONROL STANDARDS FOR HWCS

Area of Concern - F: Infection Control	
Standard F1	**The facility has established program for infection prevention and control**
ME F1.1	Facility ensures that staff is working as team and monitor the infection control practices
Standard F2	**The facility has defined and Implemented procedures for ensuring hand hygiene practices**
ME F2.1	Hand Hygiene facilities are provided at point of use & ensures adherence to standard practices
Standard F3	**The facility ensures standard practices and equipment for Personal protection**
ME F3.1	The facility ensures availability of personal protection equipment and ensures adherence to standard practices
Standard F4	**The facility has standard procedures for disinfection and sterilization of equipment and instruments**
ME F4.1	The facility ensures availability of material and adherence to Standard Practices for decontamination and cleaning of instruments and followed by procedure/patient care areas
ME F4.2	The facility ensures standard practices and materials for disinfection and sterilization of instruments and equipment
Standard F5	**The facility has defined and established procedures for segregation, collection, treatment and disposal of Bio-Medical and Hazardous Waste**
ME F5.1	The facility ensures segregation and storage of Bio-Medical Waste as per guidelines
ME F5.2	The facility ensures management of sharps as per guidelines
ME F5.3	The facility ensures management of hazardous & general waste
ME F5.4	The facility ensures transportation & disposal of waste as per guidelines

GUIDING PRINCIPLES FOR BUILDING NEW HEALTH INFRASTRUCTURE

Per the FC XV to be followed for PM-ABHIM HCWs and BPHUs. The infrastructure for SC-HWCs, PHC-HWCs and CHCs should follow the rules and regulations as laid down in the state by-laws and the associated National Building Code and are friendly for differently abled, patient friendly with appropriate culture and gender sensitive amenities.

There should be availability of drinking water, hand-washing area, separate female and male toilets, parking area, waiting area, laundry facilities and waste disposal as per BMWM Rules, 2018.

- All new infrastructure should be environment friendly with scope for enough natural light, water harvesting, solar energy, etc.
- Availability of an open area for management of any disasters or emergency cases.
- The facilities should be in line with the national and state disaster management plan / National Disaster Management Plan for hospital safety, 2016 issued by NDMA, GoI.
- Regular piped water supply and reliable electricity for service delivery should be made available at the site of new construction. This should be ensured in collaboration with the concerned departments and if required, facilitation should be done at the district level. The water storage along with the required equipment also needs to be provided.
- New electrical appliances should have a minimum 3-star rating from Bureau of Energy Efficiency or equivalent recognized organization to minimize the energy input. When choosing the technology, guidelines and standards issued by the Ministry of New and Renewable Energy must be adhered to (Gazette of India April 16, 2018, No 1456).
- To ensure compliance with safety norms, all new hospital buildings should comply with provisions prescribed for seismic zone IV and V and mitigation

measures to be undertaken as per National Building Code if such buildings are situated in these zones.

3.3. Layout Plan: The flow of services should be in alignment with the IPHS 2012 guidelines or the most recent ones released by GoI and as given in the Appendix 3).

The essential areas to be planned for all health care facilities:

i. Waiting area - For patient registered at registration counter, there should be seating arrangement for them while they wait for their consultation. Adequate seating arrangement/ chair should be available.

ii. Consultation room – Room of Community Health Officer / Medical Officer and Specialists, should have enough space to accommodate desks and chairs, where interaction with patients can be undertaken with confidentiality and dignity. It should be well lit and ventilated.

iii. Examination room (This can be combined with the Consultation room if there is a space constraint). It should be co-located with consultation room or Can be clubbed with the consultation room with due privacy features for the patient. It should have adequate space for accommodating an examination table (wheeled, wall mounted, single piece), space for free movement around examination table, curtains for privacy and wall mounted cupboard where essential equipment, etc. can be kept.

iv. Record keeping: Every HWC must plan to ensure safe upkeep of the necessary records preferably utilizing IT systems.

v. Day care beds: The facility may sometimes require the patient to be under medical supervision for a period of a few hours at Sub-Centre and PHC-HWCs.

vi. Store: Adequate and spacious stores located away from patient traffic with facility for storing drugs, consumables, records, linen, furniture, equipment and sundry articles. GoI Guidelines for safe disposal of expired drugs and vaccines should be adhered to.

vii. Support services – Drinking water / Handwashing facilities: Washroom facility, laundry facilities and waste disposal as per BMWM Rules, 2018 should be part of planning.

Table 8: Suggestive area for facility:

S.No.	Type	Suggestive Area in sq. ft
1.	Primary Health Centre	
	PHCs / PHC level HWCs	**8,369.8**
2.	SHC – HWC with residential facilities	**3,766.0**
	SHC - HWC building without Residence	**2,098.0**
3.	Community Health Centre (30 bedded)	**22,596.0**

ANNEX 4:LIST OF APPLICABLE REGULATIONS AND GUIDELINES TO THE PROGRAM

Waste Management

1. Bio Medical Waste Management Rules, 2016,
2. Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients
3. Guidelines for Bar Code System for Effective Management of Bio-Medical Waste
4. Guidelines for Common Bio-medical Waste Treatment and Disposal Facilities
5. Guidelines for Environmentally Sound Management of Mercury Waste Generated from Health Care Facilities.
6. Plastic Waste Management Rules, 2016
7. Water (Prevention and Control of Pollution) Act, 1974
8. e-Waste (Management and Handling) Rules, 2016
9. NQAS standards
10. Construction and Demolition Waste Management Rules, 2016
11. Solid Waste Management Rules, 2016
12. The Hazardous and Other Waste Management Rules, 2016
13. Management of Solid Health Care Waste at Primary Health Center: A Decision-Making Guide: WHO
14. World Health Organization (WHO) in “PQS Performance Specifications: Safety Box for disposal of waste sharps” Document number: WHO/PQS/E10/SB01.

Worker Safety

1. The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
2. National Disaster Management guidelines, 2016
3. IMEP section 4.12 Construction of Management Guidelines
4. Noise Pollution (Regulation and Control) Rules, 2000
5. National Building Code of India 2016 Part – IV “Fire & Life Safety”
6. Workmen’s Compensation Act, 1923 & Rules 1924
7. The Occupational Safety, Health and Working Conditions Code, 2020
8. The Epidemic Diseases Act 1897
9. The Epidemic Diseases (Amendment) Ordinance, 2020
10. Insecticides Act 1968

Infection Control

1. MoH&FW Swachhata Guidelines
2. IMEP Policy Framework: MoH&FW India
3. NQAS standards for infection Control

ANNEX 5: ASSESSMENT OF BIO-MEDICAL WASTE MANAGEMENT AND OTHER HEALTH-CARE WASTE MANAGEMENT IN KERALA

CURRENT STATUS - GENERATION, TREATMENT AND DISPOSAL

1. The total amount of BMW generated in health facilities, as per Annual Report 2022 of Kerala SPCB, per day was 62,122.78 kgs per day; out of which 84.2 percent was contributed by bedded facilities and 15.4 percent by non-bedded facilities. Of the total waste generated, nearly 43 percent is treated by the two CBMWTs of the State. Another 4 percent is treated in situ by 44 health facilities having captive BMW treatment and disposal arrangements. Treated BMW disposed through authorized recyclers accounts for 51.1% of total BMW generated daily. ***The state does not have a recycling facility and all the material to be recycled is transported outside the state boundaries to recycling facilities outside the state.***

Table 9: Biomedical waste generation, treatment, and disposal in 2022 (Kg/day)

Biomedical waste generation (Kg/day)		
Total amount of BMW generated daily	62,122.78	100%
Total amount of BMW contributed by bedded facilities	52,282	84.16 %
Total amount of BMW contributed by non-bedded facilities	9,581.2	15.42 %
Total amount of BMW contributed by any other facility	260	0.42 %
BMW Treatment and disposal		
Total amount of BMW treated daily by two CBWTFs	26,803	43.15%
Total amount of BMW treated daily by 44 captive BMW treatment facilities	23,72.15	3.82%
Total amount of treated BMW disposed daily by authorized recyclers	31,746.28	51.1%

(Source: Kerala SPCB BMW Management Annual Report for 2022)

2. ***Management of non-infectious non-hazardous healthcare waste:*** Therapeutic and diagnostic activities in health care facilities generate many other types of waste apart from infectious waste, that require careful handling and disposal to safeguard health and environment, as well as provide opportunity to conserve resources. Such wastes include plastic waste material used in medical equipment as well as packaging, glass ware used in medicine containers, medical equipment etc.

3. The collection of other healthcare wastes such as e-wastes, tube- lights, CFLs, batteries, etc., from healthcare institutions is carried out by a team of personnel called Haritha Karma Sena (HKS). The HKS is a professional team consisting of Green Technicians and Green Supervisors, who are assigned with the responsibility of collection, transportation, processing, recycling/disposal, and management of waste materials in association with respective Local Self Governments (LSGs) and Clean Kerala Company Limited (CKCL). Under CKCL,

there are district level sorting and segregation facilities, 667 rural and 47 urban facilities in all the 14 districts of the state. These facilities separate, process, and prepare recyclable materials for the market using various techniques like shredding, sorting, and screening to separate different types of recyclables. KEIL is also dismantling collected e-waste and transporting it to authorized e-waste recyclers.

4. **Expired drugs** are collected from health care facilities and incinerated by the two service providers. Expired drugs from homes are collected as part of pilot intervention by KEIL and incinerated at their facility. DoHFW successfully piloted Programme on Removal of Unused Drugs (PROUD) in 2019 while fostering patient and public engagement (PPE) to counter antimicrobial resistance (AMR). The Department has been since continuing with the Programme.

5. ***Other hazardous health-care waste*** including cytotoxic, radioactive, mercury waste, etc., are managed at different levels by the state.

a. ***Cytotoxic waste*** is associated with cancer treatment. It is waste containing substances with genotoxic properties and are either toxic, carcinogenic, mutagenic or toxic for reproduction. The waste includes medicines in tablet, liquid, cream or aerosol form. Cytotoxic waste needs safe handling and disposal through incineration. Currently, cytotoxic waste is being collected and incinerated by KEIL and IMAGE at their respective facilities.

b. ***Mercury phase-out:*** Mercury is a highly toxic metal that is naturally present in soil, water, and air. It is highly toxic to the central and peripheral nervous system, immune system, kidneys, brain and skin. Its main usage in health sector is in thermometers, blood pressure apparatus and dental filings. India is signatory to the Minamata Convention under which use of Mercury in health sector in India must be stopped. In this context, CPCB guidelines, IMEP guidelines of NHM and state guidelines for improving quality of health services cover phasing out of mercury-based equipment, and awareness about the toxicity and procedures for managing its spills in healthcare facilities.

   Based on the above guidelines, DoHFW issued notification on 05 October 2029 regarding phasing out of mercury added products including non-electronic measuring devices. However, implementation of the notification has been withheld due to concerns regarding results of digital, mercury-free sphygmomanometer (blood pressure monitor). Mercury-based thermometers have been replaced by digital thermometers in majority of health care centers. The Directorate is awaiting further directions from ICMR regarding accuracy of digitals blood pressure monitors to complete compliance of the notification. Management of mercury waste is being done by the state through incineration, but quantity generated is not known.

c. ***Radioactive waste*** is generated during use of radioisotopes for diagnostic and therapeutic applications. Most of the radioactive waste is liquid, with lesser amounts of solid and minimal gaseous. The solid waste containing traces of radioactivity is in the form of syringes, needles, cotton swabs, vials, contaminated gloves and absorbent materials. Clothing and utensils of

patients administered high doses of radioisotopes like I-131 constitute the solid radioactive waste material. Safe disposal of the radioactive waste is a vital component of the overall management of the hospital waste. An important objective in radioactive waste management is to ensure that the radiation exposure to an individual (Public, Radiation worker, Patient) and the environment does not exceed the prescribed safe limits. Disposal of Radioactive waste in public domain is undertaken in accordance with the Atomic Energy (Safe disposal of radioactive waste) rules of 1987 promulgated by the Indian Central Government Atomic Energy Act 1962[26].

Within the State, radioactive waste generated as part of medical care are regulated by AERB guidelines.

- The procedures are followed by the respective departments. The radioisotopes are disposed-off along with general waste after a minimum period of 10 Half-lives have elapsed. The excreta of patients consuming radioactive medicines are also done in a similar way from the respective institutions.

- There is a Radiation Safety Board at each institution which looks into the different aspects regularly. Previously, there was a Directorate of Radiation Safety, located at GMCH Thrishur. It is currently non-functional and needs to be revived after complying with the AERB guidelines.

- Equipment having possible radioactive isotopes are handled by the vendor or manufacturer themselves at the end of shelf-life. Such clauses are usually incorporated when such equipment is procured.

- Currently, the State does not have a system for management and recording amount of radioactive waste generate. State level policies and SOPs are desirable.

MANAGEMENT OF BIOMEDICAL WASTE FROM HEALTH CARE FACILITIES

6. There are two common biomedical waste treatment facilities (CBMWTFs) in the state, in Palakkad and Ernakulam districts.

a. The IMAGE facility in Palakkad has a capacity of 60 Ton/day and has been in operation since 2003 serving all fourteen districts of the state. The facility has six incinerators with total capacity of 45 TPD, equipped with scrubbing systems and online continuous Stack Emission Monitoring System (O-CEMS). There are four shredders and two hydraulic bundling machines also in the facility for waste compression. The facility also has six autoclaves with total capacity of up to 25 TPD. The effluent treatment plant has capacity of 450KLD and sewage treatment plant of 25 KLD capacity. The facility has a fleet of 75 vehicles and a dedicated vehicle washing area. There is presence of rainwater harvesting and greenbelt surrounding the plant. The facility is run by approx. 764 staff working in all three shifts. There are 120 women workers working in a shift.

26 *Radioactive waste management in a Khan, Syed, Ahmad, Rather, Ajaz, Jan https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3068798/*

b. The second CBWTF, Kerala Enviro Infrastructure Limited (KEIL), is located at Ambalamedu, Kochi with a capacity of 16 ton/day. This facility has 27.5 ton/day hazardous waste treatment, storage and disposal facility (TSDF) in operation since 2008. It started operations for BMW treatment in July 2021 only. This CBMWTF serves seven districts of the state. The facility has two incinerators with capacity of 250 kg/hr each and two autoclaves of 100l/batch capacity, along with shredder and ETP of 100kl/day capacity.The facility has a leachate treatment plant using reverse osmosis for leachate treatment. The treated wastewater is used for gardening and vehicle washing purposes. There are 15 vehicles for BMW waste transportation and a dedicated vehicle washing area. The facility has a NABL accredited laboratory. KEIL is also dismantling collected e-waste and transporting it to authorized e-waste recyclers.

7. The two facilities are managing BMW as per the requirements of BMW Management Rules, 2016 and possess consents for establish and operate from the State PCB. The State is planning to setup a third plant of 10-15 ton/day capacity to keep up the pace with increased amount of BMW generation. This will not only ease pressure on the existing CBMWTFs but also take away some of the operational burden on the efficient transportation and financial challenges in transporting BMW from across the state to central region.

TRENDS IN BMW GENERATION AND TREATMENT IN THE STATE

8. Based upon the review of the Annual Reports of Kerala State Pollution Control Board (KSPCB) for the years 2017 to 2022, an analysis of the trends in BMW generation and treatment was made. It can be observed that in all districts, there is an increase in BMW generation from 2017 onwards, except for a marginal reduction in Idukki district. This is consistent with an increase in the number of Health facilities and addition of bed capacity in the state.

Table 10: BMW generation by facility types

Calendar year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
BMW Generated (Kg/day)						
Total BMW	40,990	41,286.5	42,932	40,408	61,136	62,122.8
Bedded facilities	12,744.2 (31.09%)	34,890.0 (84.51%)	36,318 (84.6%)	35,849 (88.7%)	53,340 (87.3%)	52,281.6 (84.2%)
Non-bedded facilities	27,826.3 (67.89%)	62,71.8 (15.19%)	5,815 (13.54%)	4,058 (10.04%)	7,533 (12.32%)	9,581.2 (15.42%)
Others	0	124.72 (0.30%)	299 (0.7%)	501 (1.24%)	263 (0.43%)	260 (0.42%)

Table 11: District wise status of BMW generation in Kg / day

Year	**2017**	**2020**	**2021**	**2022**
Southern region				
Thiruvananthapuram	4,278	6,294	7,359	7,419
Kollam	3,448	3,003	5,546	5,635
Alappuzha	2,060	3,069	2,156	2,226
Pathanamthitta	2,245	2,331	4,184	4,254
Total	**12,031**	**14,697**	**19,245**	**19,534**

Year	2017	2020	2021	2022
Central Region				
Kottayam	3,418	2,960	3,990	4,060
Idukki	1,469	1,420	1,470	1,407
DO1, Ernakulum	6,341	3,783	7,490	7,560
DO2, Ernakulum	1,183	1,104	2,334	2,404
ESC, Eloor, EKM	2,73	221	916	916
Thrissur	3,646	4,871	2,217	4,709
Palakkad	1,185	1,470	1,180	5,060
Total	**17,575**	**15,829**	**19,597**	**26,116**
Northern Region				
Malappuram	2,678	2,732	5,609	5,679
Kozhikode	3,190	3,655	6,091	6,161
Wayanad	728	368	956	1,026
Kannur	1,441	2,536	2,676	2,746
Kasargod	568.11	663	791	861
Total	**8,605.11**	**9,954**	**16,123**	**16,473**
Total BMW Generated in the state	**38,211.11**	**40,480**	**54,965**	**62,122.78**

(Source: Kerala SPCB BMW Management Annual Reports for 2017, 2020, 2021 and 2022)

9. ***Region wise distribution of BMW generation:*** The state of Kerala can be divided into three parts- the Northern Kerala districts of Kasaragod, Kannur, Wayanad, Kozhikode, Malappuram, the Central Kerala districts of Palakkad, Thrissur, Ernakulum, Idukki and Kottayam and the Southern Kerala districts of Alappuzha, Pathanamthitta, Kollam, and Thiruvananthapuram.

Table 12: Region Wise distribution of BMW generation for 2022

Region	BMWM Generated (kg/day)	Percentage BMW Generate
Northern Kerala (Kasaragod, Kannur, Wayanad, Kozhikode, Malappuram)	16,473	26.52
Central Kerala (Palakkad, Thrissur, Ernakulum, Idukki, Kottayam)	26,116	42.04
Southern Kerala (Alappuzha, Pathanamthitta, Kollam, and Thiruvananthapuram)	19,534	31.44
Total BMW generated in the state in 2022	62,122.78	100

(Source: Kerala SPCB BMW Management Annual Reports for 2022)

10. The central region generated the maximum amount of biomedical waste which constitutes nearly 42 percent of the total is generated in the State. Both the CBWTFs - IMAGE facility in Palakkad and KEIL in Ernakulum – are in this region. The Central and northern regions together contribute 66 percent of the total BMW generated in the state.

MEDICAL WASTEWATER

11. As a protocol, infectious wastewater from health care facilities is treated with 1 percent sodium hypochlorite solution before being discharged into

drainage system connected with terminal STP either within the health care facility or municipal STP, or into open drains. Out of 213 larger health facilities, such as District, Taluk and Women and Child Hospitals, across 14 districts of the state, 23 (11.8 percent) in 11 districts have STP. These STPs have been largely developed as an improvement plan for solid waste and wastewater from 2018 to 2021with the help of PWD. In addition to STPs, biogas and composting plants have also been developed in some of the facilities for solid waste treatment. The health facilities in the districts of Idukki, Kozhikode and Kasargod lack STPs for treatment of wastewater from their facilities. Infectious liquid waste from laboratories is largely subjected to disinfection before its discharge to external water channels.

DOMESTIC BIOMEDICAL WASTE MANAGEMENT

12. BMW from households includes bandages, cotton swabs, sanitary napkins, diapers, used glass bottles, syringes and discarded medicines, etc. Domestic BMW quantum is expected to increase due to program interventions due to improved coverage of health care under the program including geriatric care. Due to its potential infectious nature, medical waste generated at household level needs to be not mixed with regular solid waste generated at household level. Therefore, KEIL initiated a pilot in Ernakulum district and Corporation of Trivandrum to collect and dispose domestic biomedical waste. The domestic Biomedical Waste is collected by empaneled agencies of KEIL and authorized by LSGD. At Present KEIL is receiving 4 ton/day of domestic biomedical waste at its CBWTF.

13. The project was approved by the Kerala Government in 2021 when KSPCB issued Consent to Operate CBMWTF to KEIL. The pilot started in Kalamassery Municipality in September 2022, followed by all 74 wards of Kochi Corporation in February 2023. Thereafter, Kochi Corporation has signed a Memorandum of Understanding (MoU) with KEIL in April 2023 for giving subsidy to KEIL for disposal of domestic bio-medical waste.

14. KEIL has also started receiving domestic bio-medical waste from a few panchayaths outskirts of Trivandrum district. Thereafter, Trivandrum corporation has given permission to KEIL’s collection Agent to collect domestic Biomedical waste from all wards of Trivandrum corporation.

15. In addition to this initiative, the palliative care workers, under the Palliative Care services of the Department of Health, are provided color coded bags to collect the BMW generated in the patients’ home and bring it back to the healthcare facility, from where the such BMW is transported to the CBMWTF for treatment and final disposal.

INFECTION CONTROL ANDOCCUPATIONAL HEALTH & SAFETY (OHS)

16. Infection prevention and control (IPC) is a priority area for improving quality of health services in the state. The guidelines on Infection Prevention and Control as well as Operational guidelines for Quality Assurance provide in detail the infrastructure, equipment and processes to be followed that adequately cover IPC and OHS aspects. The facilities have IPC nurses trained in IPC and OHS aspects. The equipment and PPE for protection from infections as well as

environmental sanitation practices are in place in majority of health care facilities. Infection Management and Environment Protection manual of National Health Mission serves a key reference document in these areas. The institutions are maintaining Incident reports and registers as part of their BMW rule 2016 compliance requirement. However, utilization of this information for monitoring and reporting of incidents / accidents and workplace improvement is lacking and needs further improvement.

17. Immunizations against Hepatitis B is administered on joining the duty, admission in the nursing and medical courses and as part of specific camps and drives held time to time. However, documentation of the immunizations is scattered and not easily retrievable. Development of a registry of health workforce immunization would help in this area. In the same manner, health examinations are conducted at the joining only. The system of periodic health examinations, specially of high-risk area workers like laboratory, sanitation, blood bank, OT, Labor rooms and laundry areas, etc., is lacking and needs to be developed and documented.

BUDGETARY PROVISION

18. The State Guidelines on Infection Prevention and Control have identified Hospital Management Committee (HMC) fund, Annual Maintenance Grant, Untied fund, RSBY Fund, plan fund and LSGI fund, as the sources of funding available to the health facilities for Infection Prevention and Control activities that include management of BMW from the facility.

MONITORING AND REPORTING

19. All health care facilities are mandated by the Department to manage their respective BMW. The same is being monitored by the State and District level BMWM Committees. The State level committee has been discussing concerns regarding private institutions not using the Common treatment services even after obtaining authorization to save costs.

20. On the aspect of reporting, there is no mandate for the health care facilities and the Committees to report on BMWM to the Department. There is no platform for the same. Annual reports are generated by the health care facilities for the purpose of reporting to State PCB.

20. Similarly, vaccination of staff and incident reporting is being monitored at individual health care facility level. However, documentation of the same on a formal platform will help the Department in monitoring the agenda of IPC.

ANNEX 6:ESSA CONSULTATION AND DISCLOSURE WORKSHOP AUGUST 2024

To be finalized after the workshop

ANNEX 7: LIST OF TRAININGS UNDER LMS 2021-24

	List of Training (2021-2024 March)	No. Of people trained
1	**Janakeeya arogya kendram** (AB HWC)	**260**
2	**Administrative corner**	**1296**
	1. Kerala Service Rules Part - I 2. Kerala Service Rules Part - II 3. Kerala Service Rules Part - III 4. TRAINING ON COURT PROCEEDINGS AND RELATED OFFICE MATTERS 5. TRAINING ON PROCEDURES AND PROCEEDINGS IN RTI RELATED OFFICE AFFAIRS 6. BASICS OF PUBLIC HEALTH LAW FOR HEALTH CARE WORKERS 7. Basic training on COTP Act for health care workers 8. COMMON MEDICO-LEGAL ISSUES IN PRIMARY HEALTH CENTRES/FAMILY HEALTH CENTRES AND COMMUNITY HEALTH CENTRES 9. Soft skill development course - KSIHFW 10. Organizational structure of health services - KSIHFW	
3	**Specialty Corner**	**717**
	1. CKD in primary health care settings 2. Diet in CKD 3. Cancers	
4	**Essential Training for MLSP's**	**4136**
	1. Unit I - Aardram and Family Health Center Concept 2. Unit II - Introduction to the Community/Public/Primary health 3. UNIT III Comprehensive primary health care, Community health nursing and introduction to public health in Kerala 4. UNIT IV Family Health Center Skill Set for Staff Nurses 5. UNIT- V Introduction to Community Mental Health 6. UNIT VI - Infection Prevention and Control - Covid 19 Context	

7. UNIT VII - Introduction to E-Health and Role of Nursing officers in E-health

8. UNIT VIII – NCD Part I – SWAAS Program – Kerala COPD Control Program

9. UNIT IX - Communicable Disease, Prevention and Management:Public Health Aspect

10. Unit X Non Communicable Diseases

11. Unit XI – Women Health

12. Unit - XII - National and state health programs Part A

13. Unit XIII - National and State Health Programs Part B

14. Unit XIV - Elderly Care and National Health Program for Elderly Care

15. Unit XV - Child health

16. Unit XVI - National and state health programs, Part C

17. Unit - XVII - Maternal care (preconception care and high-risk pregnancy)

18. UNIT XVIII – Nursing management of common medical and surgical conditions in primary health care

19. Unit XIX - Palliative service, Palliative care program and Rehabilitation services

20. Unit XX - Care of the child with surgical conditions

21. Unit XXI - Care of child with Medical Conditions

22. Unit XXII Basic Investigations in Primary Health Care

23. Unit XXIII - Disaster management & Emergency Medical Services

24. Unit XXIV - Health education, records and reports in hospital

25. Unit XXV - Leadership and Communication

26. Unit XXVI - Public Health law & Ethical/Legal Issues in Nursing

	27. Unit XXVII Occupational Diseases, Oral Health 28. Unit XXVIII - Miscellaneous Topics	
5	**Communicable diseases**	**3069**
	1. Short course on Nipah virus outbreak 2. Training on Rabies, Prevention and Management 3. COVID 19 TREATMENT GUIDELINE KERALA STATE VERSION 4 – SPECIALTY PERSPECTIVE 4. Covid 19 Management in Children 5. Infection Prevention and Control – COVID 19 Context 6. Training on Kala Azar (Leishmaniasis) for Lab Technicians 7. Vector Control Activities and Prevention of Mosquito Borne Diseases 8. Health care associated infection (HAI) - KSIHFW 9. Acute Diarrhoeal Disease and Oral Rehydration - KSIHFW 10. Integrated Disease Surveillance Programme (IDSP) - KSIHFW 11. Major disease causing Mosquito identification 12. Communicable Disease, Prevention and Management : Public Health Aspect	
6	**Non communicable diseases**	**721**
	1. Non Communicable Diseases 2. SWAAS Program – Kerala COPD Control Program 3. Training on Management of Diabetes Mellitus and Hypertension	
7	**National health programs**	**18847**
	1. Training on Palliative care programs and Palliative care services 2. Mental Health Programs in Kerala 3. National Programme for Health Care of Elderly 4. National Program for Control of Blindness and Visual Impairment 5. National Family Planning Program and RTI/STI Control Program 6. School Health Program in Kerala 7. National Leprosy Eradication Program	

	8. Integrated Disease Surveillance Program 9. National Vector Borne Disease Control Program 10. National Tuberculosis Elimination Program 11. National AIDS Control Program 12. National Tobacco Control Program 13. National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS) 14. National Health Programs (Overview) - KSIHFW	
8	**CPHC Treatment guidelines**	**619**
	1. Management of Hansen's disease - Comprehensive primary health care clinical guidelines 2. Common Dermatological conditions - CPHC Treatment Guidelines 3. Obstetrics & Gynaecology - CPHC Treatment guidelines 4. Joint pain - Comprehensive primary health care clinical guidelines 5. Palliative Care - Comprehensive Primary Health Care Clinical Guidelines 6. Ear, Nose, Throat - Comprehensive primary health care clinical guidelines 7. Emergency care, comprehensive primary health care clinical guidelines	
9	**Emergency Management**	**2399**
	1. Training on Snakebite management 2. Basic Life Support 3. Pediatric Advanced Life Support (PALS) 4. Basic newborn resuscitation program 5. Basic interpretations of ECG 6. Advanced Cardiac Life Support 7. Acute coronary syndrome 8. Stroke	
10	**Pharmacy related training**	**468**
	1. Training on DDMS Software Operation Procedures 2. Training on Good dispensing practice and Patient counselling 3. Basic training on important laws on pharmacy practice for health care workers 4. Latest trends in pharmacy - KSIHFW 5. Storage and Maintenance of drugs - KSIHFW	

11	**Child Health**	**774**
	1. Child health 2. Care of child with Medical Conditions 3. Care of the child with surgical conditions 4. Training Program on Clubfoot Management 5. Training on Home Based Care for Young Children (HBYC) 6. MBFHI ASSESSOR TRAINING PROGRAM 7. Facility Based Integrated Management Of Neonatal And Childhood Illness (F-IMNCI)	
12	**e Health**	**322**
	1. Training to Hand Holding Support Staff on eHealth 2. Training for Institution Liaison Officer in eHealth 3. Training for Medical officer Incharge and Superintendents 4. Training on eHealth module for Medical officers 5. Training on Nursing Module in eHealth 6. Training on Billing module in eHealth 7. Training on Annual Health Screening & Shaili Application 8. Training on Pharmacist Module in eHealth 9. Training on Lab Technician Module in eHealth 10. Training on Reception Module in eHealth 11. Training on Call Center Module in eHealth 12. Training on Public Health Modules for State and District Nodal Officers, eHealth 13. Training for District Project Engineers, eHealth 14. Training for JHI and JPHN in Public Health Sector, eHealth 15. Training on Public Health Modules for Public Health Admins, eHealth 16. Training on Public Health Modules for Public Health Supervisors, eHealth 17. Training for District Admins, eHealth	
13	**General Topics**	**1182**
	1. Health Statistics 2. Occupational Diseases, Oral Health 3. Basic investigations in primary health care 4. Nursing management of common medical and surgical conditions in primary health care 5. Aardram and family health center concept 6. Training on Antimicrobial Resistance Prevention and Awareness 7. Basic Training for Nursing Assistants	

	8. Disaster preparedness and management - KSIHFW 9. Training on Overview of Health and Nutrition - KSIHFW 10. Proper Maintenance of lab equipments - KSIHFW 11. Training on procedures related to condemnation in health care institution 12. ASHADHARA TRAINING: Management of patients with hemophilia in peripheral setting as per the state treatment plan	

A total of 34810 healthcare staff have been trained in the above topics under the Kerala Health Training LMS Platform (Learning Management System) in the last 3 years.

Budgetary Allocation and Utilization for Training (2021-24)

SI.NO	Scheme/Activity	Amount Allocated (Rs. In Lakhs)		Amount Utilized (Rs. In Lakhs)	
		FY 2022-23	FY 2023-24	FY 2022-23	FY 2023-24
1	State specific Programme Interventions and Innovations	830.41	321.75	202.63	442.31
2	DNB for Medical doctors	108.78	340.29	86.29	11.87
3	Training Institutes and Skill Labs	394.75	227.77	351.94	119.43

ANNEX 8: KERALA INTER-STATE MIGRANT WORKERS WELFARE SCHEME 2010

b. **KERALA INTER-STATE MIGRANT WORKERS WELFARE SCHEME 2010**

KERALA BUILDING AND OTHER CONSTRUCTION WORKERS WELFARE BOARD		
Sl.No	**Name of the Scheme**	**Amount & Eligibility for the scheme**
1	Death Benefit	Rs.25,000/- compensation for family upon death of the worker
2	Accidental Death Benefit	Upto Rs.2,00,000/- compensation for family upon death of the worker
3	Financial assistance for Body repatriation	Upto Rs.50,000/- to the family for body repatriation
4	Special relief fund	Rs.25,000/- compensation for temporary disability of not less than 6 months
5	Medical Benefit	Rs.20,000/- for treatment (500 for first 5 days and Rs.100 for subsequent days in case of inpatient/plastered out patients. (The amount will be limited to 20,000/-)
6	Treatment Benefit (Fatal)	Rs.25,000/- for treatment of fatal diseases
7	Terminal Benefit	Rs.25,000/- to 50,000/- for those who are unable to engage in routine work after a minimum of 3 years enrollment under the scheme
8	Educational Benefit	Rs.1000/- to 3000/- for education of children of Migrant Worker's pertaining to the courses above matriculation
9	Maternity Benefit	Rs.15,000/- for Maternity related expenses

AAWAZ SCHEME

Total number of registration : 5,16,320

Total number of beneficiaries & amount disbursed

Sl.No	Year	No.of insured person to whom insurance coverage/compensation paid		Total amount paid
1	2018-2019	Aawaz death benefit	8	16,00,000/-
		Aawaz Treatment benefit	11	79,615/-
2	2019-2020	Aawaz death benefit	5	10,00,000/-
		Aawaz Treatment benefit	118	6,20,523/-
3	2020-2021	Aawaz death benefit	9	18,00,000/-
		Aawaz Treatment benefit	170	10,23,125/-
4	2021-2022	Aawaz death benefit	6	12,00,000/-
		Aawaz disability benefit	1	50,000/-
		Aawaz Treatment benefit	27	2,79,075/-
5	2022-2023	Aawaz death benefit	1	2,00,000/-
		Aawaz Treatment benefit	48	4,16,245/-
6	2023-2024	Aawaz death benefit	3	6,00,000/-
		Aawaz Treatment benefit	87	7,31,470/-
				95,99,603/-

ANNEX 9: ENVIRONMENTAL AND SOCIAL BASELINE DATA QUESTIONNAIRE

1.	General Information
1.1.	Name of Department:
1.2.	Name of Officer:
1.3.	Designation of Officer:
1.4.	Date:
2.	**Institutional**
1.1.	What is the institutional structure within DHFW for implementation of the proposed Program? An Organogram may be provided
1.2.	What is current institutional mechanism for environmental risk management? Is there any designated staff who are responsible for environmental risk management? If yes, what is their mandate?
1.3.	What is current institutional mechanism for social risk management? Is there any designated staff who are responsible for social risk management? If yes, what is their mandate?
1.4.	Is there any budget allocation for environmental risk management? If yes, please provide details of its allocation / utilization in the last 3 years.
1.5.	Is there any budget allocation for social risk management? If yes, please provide details of its allocation / utilization in the last 3 years.
1.6.	Does the DHFW have a policy on environmental risk management? If yes, please share a copy.
1.7.	Does the DHFW have a policy on social risk management? If yes, please share a copy.
1.8.	Does the DHFW have a policy/strategy/action plan on biomedical waste management (BMWM)? If yes, please share a copy.
1.9.	Are there any Standard Operating Procedure (SOP)/Framework for Universal access and Life & Fires Safety (L&FS) in medical facilities[27]? If yes, please share a copy.
1.10.	Does the State follows any medical laboratory safety standards and management? Please provide details.
1.11.	What is the composition of Health Care Facilities (HCFs)?

Type of health facility	Government	Private	Total
PHC Level			
CHC Level			
District Level			
State Level			
Clinics and dispensaries			
Veterinary Institutions			
Animal houses			
Pathological Laboratories			
Blood banks			
Clinical establishments			

27 *This includes, but is not limited to, (a) enhanced measures for trauma centers with high oxygen demand; (b) those serving people with mobility issues/elderly/vulnerable, ICU and neo-natal units, that may need special procedures/additional infrastructure to evacuate (or shelter in place) during emergency situations; and (c) coordination with relevant stakeholders including fire department and other first responders.*

Research Institutions				
AYUSH				
Total				

3. Laboratories

3.1. What is the status of existing laboratories at HCFs, PHC, CHC, District and State level for disease surveillance and testing?

HCF Level	Public Laboratories	Private Laboratories	Total
PHC Level			
CHC Level			
District Level			
State Level			
Total			

3.2. Is there a practice of laboratory safety and performance audits in the state/district? If so whether these audit reports are publicly available?

3.3. Requirement of expanding existing laboratories at HCFs, PHC, CHC, District and State level to meet the requirement for disease surveillance and testing?

HCF Level	Public Laboratories	Private Laboratories	Total
PHC Level			
CHC Level			
District Level			
State Level			
Total			

3.4. Please provide your best estimates for physical expansion of existing laboratories (could include biomedical waste management requirements, liquid waste treatment, new rooms for establishing test-benches etc.)

3.5. Has a gap analysis undertaken on the requirement of establishing new laboratories at HCWs, PHC, CHC, District and State level? If so, please provide estimates below.

3.6. Please provide the number of accredited laboratories at different levels?

3.7. Please list what are the checklists/ criteria for accreditation of laboratories and does this include environment, health and safety criteria

4. Medical Waste Management (including biomedical, e-waste, hazardous waste)

4.1. How many Common Bio-medical Waste Treatment Facility (CBWTF) established in the state? What is the installed capacity of each facility and actual volume of waste getting treated?

4.2. How many facilities have captive treatment units?

4.3. Does the state has a TSDF catering to CBWTF?

4.4. What is the total volume of biomedical waste generated and treated per day?

Type of facility	**Amount Kg/day**	**Percentage**
BMW Generation		
Total amount of BMW generated daily		
Total amount of BMW contributed by bedded facilities		
Total amount of BMW contributed by non-bedded facilities		

BMW Treatment and disposal		
Total amount of BMW treated daily by two CBWTFs		
Total amount of BMW treated daily by captive BMW treatment facilities		
Total amount of BMW disposed daily by authorized recyclers		
Total treatment and disposal		

4.5.	Are district level and tertiary healthcare facilities treating liquid waste (including laboratory and sewerage) before final disposal? How many healthcare facilities have functional ETPs/STPs or connected with one?
4.6.	Please describe briefly describe method of disposal of a. hazardous waste b. e-waste c. plastic waste d. chemical waste (expired medications, radioactive, cytotoxics, cytostatics)
4.7.	Please describe system for procurement and distribution of color coded bags to all HCFs (Government and Private).
4.8.	Is the State following bar-code method for collection of waste? Please provide details.
4.9.	What is the status of authorization of HCF under BMWM Rules 2016?

Type of facility	**Number**	**Percentage**
Facilities identified as Occupier		
Number of Occupiers applied for authorization		
Number of Occupiers granted authorization		
Number of applications under consideration		
Number of applications rejected		
Number of Occupiers in operation without applying for authorization		

4.10. How many HCFs have functional BMWM Committees as per BMWM Rules 2016?

District	Government	Private	Total
Total			

4.11.	Are regular audits undertaken by DoHFW as per BMWM Rules 2016? Provide details of identified gaps in last 3 years
4.12.	Are regular audits conducted by SPCB and annual reports published? Please provide details of identified gaps in last 3 years.
5.	**Grievance Redressal**
5.1.	Please describe the grievance redress mechanism (GRM) for DHFW. • Is there an SOP or policy on handling of grievances? • Through what channels can an aggrieved person register their grievance? • Is the GRM open to all members of the public or only certain categories? • What is the process for addressing grievances once received? Please describe the process at all levels. • Is / are there personnel who are in-charge of handling grievances? Please give details • Is there a mechanism for escalating / appealing? • Is there a prescribed timeframe within which grievances are responded

	to? • Is the complainant informed about the action taken on their grievance? • Is a records or data of grievances maintained? Who maintains this? Is it publicly available? Is it reported anywhere? What is the frequency of reporting? • How are public complaints channeled and what is the process for handling & resolving complaints?
5.2.	Is there any mechanism through which healthcare workers including staff, doctors, nurses, ASHA workers and others share their grievances?
6.	**GBV, SEA/SH**
6.1.	Is the GRM equipped to handle complaints related to gender-based violence (GBV), sexual exploitation and abuse (SEA) and sexual harassment (SH)?
6.2.	Does the Department have policy or guidelines for the monitoring, prevention and management of potential risks related to gender-based violence (GBV), sexual exploitation and abuse (SEA) and sexual harassment (SH)? If yes, please share or provide link to location. If no, how are such issues currently handled?
6.3.	Is the unit/department adequately staffed with qualified and experienced personnel to deal with GBV, SEA and SH risks and incidents?
6.4.	Does the DHFW have an Internal Complaints Committee (ICC) as pe the requirements of the POSH Act? How often does the Committee meet? Are the names and contact details of the members declared; if so, what are the various platforms? Does the Committee submit an annual report?
7.	**Stakeholder Engagement**
7.1.	Does the DHFW engage in Stakeholder Engagement and Communication activities? If yes, which stakeholders are covered and at what frequency are such activities conducted? Stakeholders would include but not be limited to patients, health insurance agents, equipment manufacturers, healthcare workers and staff.
7.2.	Please describe the process of collecting feedback from healthcare facility users. Who reviews this feedback and how is it acted up on?
7.3.	Are there any existing bodies or platforms like Committees, Working Groups or forums having representation of stakeholders where issues relevant to the DHFW are raised or discussed? Are there any informal arrangements for such discussions?
7.4.	Please describe any existing community-based healthcare activities and interventions by which healthcare services have partnered with local support groups. Also describe outcomes, if possible.
7.5.	What mechanisms are currently / proposed to be used to ensure that all relevant stakeholders are identified and that their views, concerns, and suggestions are systematically considered in the planning and design process of the Program?
7.6.	Have any consultations taken place so far with regard to activities under the proposed Program? If yes, please share the documentation (minutes, reports etc.)
8.	**Healthcare Workers**
8.1.	In the health sector in Kerala, what is the share of women in mid and senior level management/leadership positions? (*data from government hospitals in the state can be shared*)
8.2.	What is the share of male and female workers in the emergency and trauma care units of government hospitals in the state?
8.3.	What measures exist to ensure that no child labor or forced labor is engaged in any civil/ construction work in the health sector, where required?
8.4.	Is there any mechanism to ensure that labor laws are being adhered to in any of the civil works, where required? If yes, please describe. Is compliance with labor laws monitored? If yes, please describe.
8.5.	Is there a strategy for immunization of healthcare workers?

8.6.	Is there a strategy or policy for managing occupational health and safety in healthcare facilities?
8.7.	Is there a record of occupational accidents (especially accidents that could result in lost work time, disability, fatalities), diseases and dangerous occurrences maintained for healthcare facilities?
8.8.	Is there any provision to compensate for lost work time, especially due to medical waste management?
9.	**Community Health & Safety**
9.1.	What measures are used in avoiding, minimizing, and/or mitigating community, individual, and worker risks while the construction work is in progress?
9.2.	Do HCF buildings incorporation siting and safety engineering criteria/ international, national building codes to prevent failures due to natural risks posed by earthquakes, flooding, landslides and fire? (please state which are the guidelines followed)
9.3.	Do buildings meet life and safety objectives? And are Life and fire safety systems and equipment installed in HCFs?
9.4.	Are buildings meet universal access objectives? Are they adapted to serve people with mobility issues/elderly/vulnerable, etc?
9.5.	Transportation of high-risk materials (infectious waste, laboratory samples etc.) a. Are containers properly labeled with the quantity of the contents, and its associated hazards in addition b. Are workers involved in the transportation of high risk trained regarding emergency procedures
9.6.	Are wastewater outflows from hospitals adequately connected to city sewerage system? are there any gaps?
9.7.	What control strategies are adopted for vector borne diseases
9.8.	Are there occurrences where BMW service providers have not picked up waste within 48 hours?
10.	**Land Requirement**
10.1.	Is there a requirement of additional land beyond existing premises of the health facility for establishing new laboratories or facilities at HCWs, PHC, CHC, District and State level (Mention numbers at each level). If so, is there any estimate on the quantum of land required at each level?
10.2.	Will there be a requirement of additional land for expansion of existing laboratories?
10.3.	In case of additional land requirement, what process is followed for taking additional land for a health facility?
10.4.	Do you see a need for displacement or removal of squatters/ venders/ hawkers etc. in the course of establishing new laboratories or expansion of laboratories at HCWs, PHC, CHC, District and State level (Mention numbers at each level)
10.5.	What is the process followed to ensure that any of the proposed activities do not impact any religious/ cultural property or environmentally sensitive area or natural habitat?
11.	**Equity and Access to Health Services**
11.1.	Please describe the existing status of healthcare services in the state and how do they differ between districts/ regions.
11.2.	What are the key health service delivery related challenges in tribal districts of Kerala like Idduki? And what measures are adopted (or should be adopted) to overcome them?
11.3.	What specific measures are planned/ being planned to address equitable service delivery among backward and tribal districts?
11.4.	What is the coordination mechanism with WCD and Tribal Welfare department in addressing the specific needs of adolescent girls and tribal population?

11.5.	In what ways is the healthcare system catering to migrant workers who are coming in from different states? How is the language barrier and concerns around informality addressed? What are the unique challenges of migrant workers?
11.6.	How many migrant workers are covered under the Awaz Health Insurance Scheme for migrant workers? How many have availed the insurance benefits? Is there a nodal officer within the DHFW managing concerns related to Awaz Insurance and/or migrant workers and liaising with the Labour Department?
11.7.	What is the process by which high-risk individuals for NCDs are currently identified?
11.8.	Please describe how mental health support is currently provided, especially to vulnerable groups like the elderly, Scheduled Tribes, women etc.
12.	**Data on Vulnerable Beneficiaries**
12.1.	Please share data on the number / percentage of men and women accessing PHCs and HFCs belonging to vulnerable groups: • Scheduled Castes • Scheduled Tribes • Differently Abled • Women-headed households • Widows Migrant workers
12.2.	Please share data on share of men and women enrolled under the state's health insurance coverage. Please also share district-wise data, if available.
12.3.	What is the percentage/number of women accessing emergency services vs. percentage/number of men accessing services at emergency and trauma units of government hospitals in the state?
12.4.	What is the percentage of population in Kerala accessing services related to home-based care for the elderly? Please also share any data available on access to home-based elderly care for the following groups: • Widows • Female-headed households v. male-headed households • Scheduled Tribes Scheduled Castes
13.	**Training and Capacity Building**
13.1.	Is there a training and capacity building plan available for the health sector staff/workers at different levels?
13.2.	Please provide an indicative list of trainings provided in the last 1-3 years and number of people trained.
13.3.	What are the institutional arrangements for providing training/capacity building?
13.4.	Are there any budgetary gaps in terms of required and actual budget made available for Training and Capacity Building? Please provide the details regarding allocated and utilized budget for training and capacity building in the last 3 years.
13.5.	Have healthcare staff been provided training in e-health? Please provide details. Also describe challenges.
13.6.	What are the provisions for providing training and building capacity on medical waste management, both for government sector and private sector?
13.7.	What are the provisions for enhanced driver/road safety training for emergency response fleet?
14.	**Communication**
14.1.	Please describe the existing IEC (Information Education Communication) / SBCC (Social Behaviour Change Communication) / Communication strategy for the DHFW activities in the state? How are they linked to NHM activities and other programs?

14.2.	Are there any community level actions by the state for awareness generation about diseases surveillance and reporting?
14.3.	Please describe communication activities related to AMR initiatives in the state.
14.4.	Please describe existing IEC for medical waste management at institutional level?
14.5.	Please describe existing IEC for medical waste management at household level?
14.6.	Please describe existing IEC for enhanced driver/road safety training for emergency response fleet
14.7.	Are there any budgetary gaps in terms of required and actual budget made available for IEC/SBCC/Communication strategy? Please provide details for last 1-3 years of allocation and expenditure