
Climate Resilient Health and Well-Being for Rural Communities in southern Malawi (CHWBRC)

Annex 21: Operation and Maintenance Manual

Accredited Entity: Save the Children Australia

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Contents

1. Scope for Operation and Maintenance Activities	3
2. Management System for Undertaking O&M Activities.....	3
2.1 Main Stakeholders and Responsible Parties	4
2.2 Other project activities focused on establishing the long-term O&M framework	4
2.3 Technical Support During the Project for Setting up the O&M Framework.....	5
3. Maintenance of small-scale water infrastructure (rainwater harvesting), solarization equipment and Early warning response systems	5
3.1 Maintenance Tasks.....	5
4. Project Dedicated Vehicles – Mobile Health Units.....	6
4.1 Maintenance Tasks.....	7
5. Design Lifespan and Replacement Assumptions for equipment	7
6. Financial Summary	8

1. Scope for Operation and Maintenance Activities

This Operation and Maintenance (O&M) Plan for the proposed GCF funding for the project “Climate resilient health and well-being for rural communities in southern Malawi” (CHWBRC) GCF funding, whose goal focusses specifically on equipment that will be procured for activities under Outcome 2 of the project (Health facility physical infrastructure is climate resilient and improved school water supply supports health). The project seeks to facilitate the adaptation of the healthcare system physical infrastructure to climate risk through the development and application of standards and guidelines for climate-resilient health facilities and strengthened resilience of health facilities. The project will also develop a national standard for climate-resilient healthcare facilities, apply this standard to selected health care facilities in the project districts; and it will build capacity more broadly on the use of this standard elsewhere in the country, including in non-target districts. The project will further develop a guideline on climate-resilient WASH for use in public facilities, i.e., schools and public buildings beyond health facilities. Building on this guideline, the project will then implement climate-resilient WASH solutions at selected public schools in the project districts.

The project activities that include equipment purchased requiring maintenance are:

- **Outcome 1:** Reduced risk from climate-sensitive diseases and condition
 - **Activity 1.1.3.2,** Put in place arrangements and essential equipment for the selected health care facilities to function as sentinel sites
 - **Activity 1.1.3.3.** Provide essential technological equipment for health data collection at health centres.
- **Outcome 2.** *Healthcare infrastructure is able to deliver service and care in the context of changing climate risk*
 - **Activity 2.1.2:** Strengthen climate resilience of healthcare facilities.
 - **Activity 2.1.5:** Upgrade WASH facilities at schools to improve children’s health under climate change.
- **Outcome 4:** Community level health is more resilient in the context of changing climate risk
 - **Activity 4.1.2:** Embed understanding of early warnings and alert protocols within communities, including children.
 - **Activity 4.1.3:** Train communities to reduce their own vulnerability to climate-induced health risk, including via nutrition and WASH.

2. Management System for Undertaking O&M Activities

The O&M plan has been developed based on the project’s community-based approach, ensuring ownership and the mainstreaming of climate-resilient best practices within the local community. Accordingly, O&M for the project will be carried out through a predominantly community-centred system, with support from the Malawi Government.

During the procurement process, O&M will be addressed through exploring extended warranties and including O&M as part of the procurement specifications for individual project inputs. The ongoing

management of O&M will be tailored to each specific location in consultation with the health facility and communities and included in the adaptation plans (Outcome 1, Activity 1.2.1) and planning for the handover of project equipment to the project beneficiaries for long-term sustainability.

2.1 Main Stakeholders and Responsible Parties

The following stakeholders shall play a significant role in ensuring the effective implementation and sustainability of the climate resilient O&M practices. Stakeholder engagement is a key part of the project's activity development and implementation process, including effective operation and management.

The O&M plan for the project is centered around the following key stakeholders:

1. District Councils and the local governance structures: involved in the actualization of the District Development plans. Lead role in the actual delivery of the project with communities.
2. District Councils and the local governance structures offices that are responsible for disaster risk reduction, climate adaptation and other sectoral planning; and the area and village civil and protection committees whose development plans feed into the district one.
3. Community Local Governance structures: involved in the actualization of the Area and Village Development Plans. Lead role in the actual delivery of the project with communities.
4. Community beneficiaries: have been identified as extremely vulnerable to climate variability and extremes, which is impacting their food security and DRR effectiveness and demonstrating a deficit in adaptive capacity. Remote communities receive limited training and support.

Other participants involved in O&M:

- Private sector Different companies and service providers including in health sector (e.g. GlaxoSmithKline, Foundation S - Sanofi) who have interest in promoting the development of skills and businesses in Malawi and possess a Corporate Social Responsibility to support communities in line with the project's interests.
- Suppliers will be accountable for O&M as per the contracts (including extended warranties) on the goods that were purchased from them.

2.2 Other project activities focused on establishing the long-term O&M framework

During the five-year implementation period, the activities undertaken will aim to establish a long term, 'beyond life of project' O&M framework, including the development of Standard Operating Procedures (SOPs) for O&M on all durable goods, setting-up of systems, and building the capacity of stakeholders as well as communities for ensuring the sustainability of climate-resilient O&M practices.

The approach chosen and used will be discussed and agreed with District and Community Local Authorities, Ministry of Natural Resources and Climate Change, Environmental Affairs Department (EAD) and relevant technical line ministries to ensure the approach is consultative and participatory, as well as technically robust and reflects the needs and desires of the end users – the health facilities, schools and communities. Specifically, the project will support the capacity building of health care facility staff in screening for climate risk, and the establishment of a maintenance committee at facility level to ensure transfer of responsibility for management and sustained operations. To complement the health system strengthening activities, the project will improve and strengthen resilience of WASH facilities in schools, through building the capacity of Primary Education Advisors as key leads in implementation, monitoring WASH interventions in schools.

A maintenance committee, responsible for the upkeep of the WASH facilities across each village included in the project, will be established and/or strengthened in each community, and will consist of school staff and community authorities and members. This is broader than the DRM clubs mentioned above, which will focus solely on the school equipment, whereas maintenance committees will be responsible for WASH facilities across the community. There will also be coordination at district level with the Ministry of Education (responsible for WASH at schools).

2.3 Technical Support During the Project for Setting up the O&M Framework

During the project period, the Project Management Unit (PMU) and technical specialists supported by suppliers providing equipment will assist communities in establishing and operationalizing O&M management plans. They will establish the basic roles and responsibilities of those managing project equipment, as well as formulate specific SOPs, where appropriate, to ensure effective implementation of O&M plans.

The shared resources include:

- Assignment of solar infrastructure and maintenance responsibilities for District Council offices monitored by maintenance committees at facility level.
- Assignment of WASH infrastructure and maintenance responsibilities for beneficiary households/communities, Maintenance committees in facilities and Primary Education Advisors in schools
- Policy/SOP for usage and disposal of tablets

3. Maintenance of small-scale water infrastructure (rainwater harvesting), solarization equipment and Early warning response systems

The Climate- resilient health and wellbeing for rural communities in southern Malawi project will work with highly vulnerable communities to engage in safety assessments and participatory, locally led adaptation planning processes, and to develop climate resilience-adaptation plans. For communities with key activities identified in District Health Adaptation Plans (DHAPs), a range of low-tech equipment and/or tools will be provided to support climate-resilient health initiatives. Inputs will include:

- Small scale water infrastructure
- Solar infrastructure
- Early warning response systems.

Accordingly, during the project period,

- i) The project will deliver training on equipment upkeep and establish links to nearby service providers and suppliers.
- ii) Establish maintenance committees at facility level with responsibility for protecting and maintenance.
- iii) Demonstration training on O&M will also be done by the equipment providers during installation and the subsequent warranty period.

3.1 Maintenance Tasks

Technical specialists supported by the government ministries will assist District and community authority officials in establishing basic O&M management plans. These plans will establish the basic roles and responsibilities of those managing project equipment, as well as formulate SOPs, where appropriate, to

ensure effective implementation of O&M plans. The expected tasks towards the maintenance of the equipment include:

- Regular maintenance and monitoring of equipment
- Preventive maintenance for all equipment to manage wear and tear.
- Replacement parts for damaged or faulty equipment/tools
- Refresher training and upskilling for O&M of equipment

Table 1 – O&M schedule detailing tasks and frequency for activities to be undertaken

Task	Responsible Party	Description/Details	Frequency	Post Project
Repair or replacement parts for solar and WASH equipment	Save the Children	For any damaged or faulty equipment/tools.	As required	Education and WatSan
Regular maintenance and monitoring of water tanks	Save the Children	WASH systems and rainwater storage – operation and maintenance as specified by the manufacturer/supplier. Monitoring of correct usage.	Quarterly or as specified	Government of Malawi - Ministry of Health
Preventive maintenance of all equipment	Save the Children	Inspection of equipment for potential corrosion, damage, accumulation of unwanted materials.	Monthly	Government of Malawi - Ministry of Health
Refresher training and upskilling	Save the Children	For equipment O&M and correct usage	As required	Government of Malawi - Ministry of Health

4. Project Dedicated Vehicles – Mobile Health Units

Sub-activity 4.1.3.6 consists of Designing, equipping and enabling two mobile climate and health promotion unit for a continuous campaign that inclusively builds capacity to manage individual and collective health risk from climate change.

To support the field activities related to Output 4.1.3 - Train communities to reduce their own vulnerability to climate-induced health risk, including via nutrition and WASH, the project will deploy two Toyota Land Cruisers 4.2 Diesel (10-seater) to the fields. These two vehicles will be converted into mobile health units and will operate until the end of the project.

Table 2: Detailed Operating and Maintenance Costs for Field Vehicles

Activity No	Item Description	Funding Source	Project Period (5 years)					Project Period Total
			2024	2025	2026	2027	2028	(2024-2028)
4.1.3	Two Toyota Land Cruisers - Mobile Health Units	Capital Expenditure	137,114	-	-	-	-	137,114
		Operating Expenditure	3,918	4,309	4,740	5,214	5,736	23,917
Total			141,031	4,309	4,740	5,214	5,736	161,031

4.1 Maintenance Tasks

Save the Children will be responsible for procuring and maintaining the vehicles for mobile health units that will be operated by our partners. These O&M plan will establish the basic roles and responsibilities of those managing and operating the vehicles in the field. The expected tasks towards the maintenance of the vehicles include:

- Monthly routine vehicle servicing and evaluation of vehicle conditions.
- Regular maintenance of vehicles as advised by seller.
- Replacement parts for damaged vehicle components as required.

Table 3 – O&M schedule for Mobile Health Unit Vehicles

Task	Responsible Party	Description/Details	Frequency
Routine vehicle servicing	Save the Children	Monthly preventive maintenance and evaluation of vehicle condition	Once a month
Vehicle insurance	Save the Children	Payment of insurance premium cover for the vehicles	Once a year
Vehicle maintenance	Save the Children	Replacement of damaged vehicle components	As required
Vehicle security tracker	Save the Children	Installation of GPS tracking system in the vehicles	Once off payment, and monthly subscription

5. Design Lifespan and Replacement Assumptions for equipment

The following table provides details on expected equipment lifespan for the project and estimated major replacement expenses expected to be incurred post-project implementation up to 2034. During the final year of the project, we will aim to develop an 'Asset Distribution, Operations, and Maintenance Plan' to determine what will become of the fixed assets.

Table 4 – Expected equipment lifespan

Equipment Type	Expected Useful Life (Years)
Solar infrastructure	10
Solar radios	5
WASH infrastructure	10

The table below shows the replacement plan over the life of the project and beyond.

Table 5 – Replacement plan over the life of the project

Item to be Replaced	Expected time to include in new budgets (Years)	Financing Assumption
Solar infrastructure	9	Replacement cost to be included in district budget for subsequent year
Solar radios	4	Government working together with the community to incorporate this in new ways of adaptation
WASH infrastructure	9	Replacement cost to be included in district budget for subsequent year

6. Financial Summary

The estimated O&M plan costs considered a time span of 15 years, which includes the 5-year project implementation period (2024-2028) and a 10-year period after project completion (2029-2038) for practical considerations. O&M activities are expected to be undertaken both during project implementation and post project completion.

During this period, O&M expenses will be incurred for equipment procured for sub-activities 1.1.3.2, 1.1.3.3, 2.1.2.2, 2.1.5.2, 4.1.2.2, 4.1.3.2. Post project activities, which include regular O&M and major repairs/replacement, are expected to be carried out by the respective stakeholders on a regular basis or as per the planned schedule. Post-project replacement costs are expected to be incurred based on the lifespan of the equipment. The project will increasingly engage the government to assume full responsibility of the O&M beyond the project life. Recent developments in the country shows demonstrated interest by the government to put together mechanisms for sustenance of O&M costs on solar for health. The project will leverage on this commitment to engage local government in including O&M costs in their respective plans and budgets (education and health). The O&M action plans and budgets will be part of the local government's demonstration of adhering to the climate resilient infrastructure principles.

Financing for the O&M plan during project implementation will be determined through the procurement process, exploring extended warranties, service agreements and including O&M as part of the procurement for individual project inputs. GCF financing will be employed for the effective implementation of the climate resilient O&M practices. The ongoing cost of O&M will be included in the local adaptation plans, to be tailored to each specific location.

The table below shows the year-wise forecasts for the annual O&M costs associated with the CHWBRC activities.

Table 6 - Forecast for O&M costs

Activity No	Item Description	Expense Type	Funding Source	Project Period (5 years)					Project Period (10 years)										Project Period Total	Post Project Total	Project Duration Total	
				2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	(2024-2028)	(2029-2038)	(2024-2038)	
1.13	Computers for sentinel sites	Capital Expense	GCF	12,607	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,607	0	12,607	
			Community	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
		Operating Expense	GCF	-	126	126	126	126	-	-	-	-	-	-	-	-	-	-	-	504	0	504
			Community	-	-	-	-	-	126	126	126	126	126	126	126	126	126	126	126	0	1,261	1,261
2.12	WASH infrastructure improvements	Capital Expense	GCF	-	-	865,150	1,720,318	-	-	-	-	-	-	-	-	-	-	-	2,585,468	0	2,585,468	
			Community	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
		Operating Expense	GCF	-	-	-	4,806	14,364	-	-	-	-	-	-	-	-	-	-	-	19,170	0	19,170
			Community	-	-	-	-	-	14,364	28,674	28,674	28,674	28,674	28,674	28,674	28,674	28,674	28,674	0	272,431	272,431	
2.12	Solar infrastructure improvements	Capital Expense	GCF	-	-	1,591,876	3,569,476	-	-	-	-	-	-	-	-	-	-	-	5,161,352	0	5,161,352	
			Community	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
		Operating Expense	GCF	-	-	-	8,844	28,674	-	-	-	-	-	-	-	-	-	-	-	37,518	0	37,518
			Community	-	-	-	-	-	28,674	28,674	28,674	28,674	28,674	28,674	28,674	28,674	28,674	28,674	0	286,742	286,742	
2.15	Rainwater Harvest Equipment	Capital Expense	GCF	-	392,845	1,521,098	741,535	-	-	-	-	-	-	-	-	-	-	-	2,655,478	0	2,655,478	
			Community	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
		Operating Expense	GCF	-	-	2,182	10,633	14,753	-	-	-	-	-	-	-	-	-	-	-	27,568	0	27,568
			Community	-	-	-	-	-	14,753	14,753	14,753	14,753	14,753	14,753	14,753	14,753	14,753	14,753	0	147,527	147,527	
4.12	Solar Radios	Capital Expense	GCF	-	74,694	-	-	-	-	-	-	-	-	-	-	-	-	-	74,694	0	74,694	
			Community	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
		Operating Expense	GCF	-	-	934	934	934	-	-	-	-	-	-	-	-	-	-	-	2,801	0	2,801
			Community	-	-	-	-	-	934	934	934	934	934	934	934	934	934	934	0	9,337	9,337	
Total				12,607	467,666	3,981,366	6,056,671	58,850	58,850	73,161	10,577,160	717,297	11,294,458									