



Galkacyo Heat-Health Action Preparedness and Management Plan (HHAPMP)

Federal Government of Somalia

Galmudug State, Ministry of Health and Human Services

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Executive Summary

Somalia faces an escalating threat from extreme heat events, driven by accelerating climate change and recurrent drought conditions. The health implications of rising temperatures—ranging from dehydration, heatstroke, and vector-borne disease outbreaks to increased mortality—pose an urgent challenge to fragile health systems, particularly in the country's semi-arid regions. In recognition of these risks, International Medical Corps (IMC), in collaboration with the Federal Ministry of Health and Human Services (MoH) and the Galmudug State Ministry of Health, initiated the development of Heat-Health District and Facility Preparedness and Management Plans for the districts of Dhure and Afbarwaqo in Galkacyo, Mudug Region.

Supported by the Novo Nordisk Foundation, this initiative forms part of the project titled *“Supporting the Somali Health System to Respond to Increased Heat and Extreme Heat Events.”* The plan seeks to strengthen district-level capacities to anticipate, prepare for, and respond to heat-related health emergencies through locally driven, evidence-based strategies.

A multi-stakeholder consultation workshop, held in August 2025 in Galkacyo, brought together representatives from government ministries, civil society, academia, and community structures. Participants collaboratively identified risks, vulnerable populations, and actionable measures to reduce the health and socioeconomic impacts of extreme heat.

The plan outlines a set of strategic interventions including: (I) Establishing district heat-health coordination mechanisms, (II) Operationalizing early warning and communication systems, (III) Strengthening health facility infrastructure and preparedness, (IV) Enhancing community awareness and adaptive behavior, and (V) Building sustainable resilience through climate-smart livelihoods and environmental management.

This Heat-Health Action Plan represents a pioneering step towards operationalizing Somalia's Health National Adaptation Plan (HNAP) and the country's Nationally Determined Contributions (NDCs) under the Paris Agreement. It is both a technical and participatory framework designed to protect health, safeguard livelihoods, and promote long-term climate resilience across Galkacyo's most heat-vulnerable populations.

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1. Background

In recent years, Somalia has witnessed a steady increase in temperature extremes, reflecting a broader regional trend driven by climate change and environmental degradation. The Mudug region, located in central Somalia, is among the country's most heat-vulnerable areas due to its semi-arid climate, recurrent drought cycles, and limited adaptive infrastructure. Populations residing in Dhure and Afbarwaqo districts, particularly internally displaced persons (IDPs) and agro-pastoral communities, face growing risks from heat-related illnesses, water scarcity, and food insecurity.

Health facilities in these districts are often under-resourced and ill-equipped to manage surges in heat-induced health conditions such as dehydration, cardiovascular strain, and infectious disease outbreaks. Moreover, inadequate water and sanitation systems, coupled with poor housing conditions and limited community awareness, further amplify vulnerability to extreme heat.

Recognizing these challenges, IMC's assessment, in partnership with the Federal Ministry of Health and Human Services and the Galmudug State Ministry of Health, initiated a structured process to strengthen local preparedness and adaptive capacity through the development of district and facility-level Heat-Health Preparedness and Management Plans. The process builds upon national and international frameworks, notably:

- Somalia's Health National Adaptation Plan (HNAP), which integrates health resilience into national climate strategies.
- The WHO Operational Framework for Building Climate Resilient Health Systems, emphasizing risk assessment, early warning, and adaptive governance.
- Somalia's Nationally Determined Contributions (NDCs) under the Paris Agreement, which commit to protecting communities from climate-induced health hazards.

The Galkacyo Heat-Health Action Plan thus seeks to bridge the gap between policy and practice, empowering district authorities and communities to anticipate, manage, and recover from the impacts of extreme heat through inclusive, evidence-driven interventions.

1.1 The Purpose of HHAPMP

The purpose of the Banadir HHAPMP is:

- To reduce the health impacts of extreme heat through a coordinated, preparedness, response, and adaptation strategies of multisectoral approach.
- To protect vulnerable populations, strengthen the capacity of health systems, and ensure timely and effective responses to heatwaves.
- to integrate heat risk management into routine health programming and disaster preparedness frameworks, ensuring that the health sector is better equipped to deal with both chronic and acute heat-related threats.
- To be a living document—one that evolves based on evidence, feedback, and changing climate realities.

1.2 Scope of the HHAPMP

The *Heat and Health Action Preparedness and Management Plan (HHAPMP)* for Galkacyo, focusing on the districts of Dhure and Afbarwaqo, establishes a clear and practical framework to safeguard communities from the growing threat of extreme heat. Designed as a localized and actionable guide, the plan brings together health authorities, local communities, and development partners to reduce the health impacts of rising temperatures. It emphasizes both district-level coordination and facility-based preparedness, ensuring a cohesive approach that links community resilience with the operational readiness of health services. Through this dual focus, the HHAPMP provides a comprehensive response to heat-related risks while promoting long-term adaptation and resilience across Galkacyo South in the Mudug Region.

1.3 Geographical Coverage

The plan primarily covers the districts of Dhure and Afbarwaqo in Galkacyo South, located within Somalia's Mudug Region. Together, these districts are home to an estimated 75,000 people, of whom approximately 21,500 are identified as highly vulnerable. This group includes children under five years, the elderly, pregnant women, people living with chronic illnesses, and internally displaced persons (IDPs). By centering its interventions on these populations, the HHAPMP ensures that preparedness and response measures are inclusive, equitable, and focused on those most at risk from extreme heat events.

1.4 Thematic Coverage

The HHAPMP encompasses several interconnected themes that collectively strengthen the capacity of districts and health facilities to anticipate, manage, and respond to heat-related health challenges.

It begins with risk identification and assessment, which involves analyzing local climate trends, heat hazards, and population vulnerabilities to guide evidence-based interventions. The plan then establishes clear mechanisms for institutional coordination, outlining the roles and communication channels among government entities, health facilities, humanitarian partners, and communities to enable a unified response during heat events.

Strengthening the health system lies at the core of the plan. This involves integrating heat preparedness into routine health operations, training health workers, and ensuring that emergency protocols address heat-related illnesses. Alongside this, early warning systems are developed to provide timely, community-driven alerts during periods of extreme temperature, allowing for swift protective action.

Community engagement forms another vital pillar of the HHAPMP. Through targeted awareness campaigns, behavioral change communication, and local participation, communities are empowered to understand risks and adopt adaptive practices. The plan also promotes water and infrastructure adaptation, encouraging investment in sustainable water supply, renewable energy, and cooling systems that can withstand climate pressures. Finally, a structured process for **monitoring, evaluation, and learning** ensures that data collection, plan testing, and periodic reviews inform continuous improvement and long-term resilience.

1.5 Alignment

The HHAPMP aligns closely with national and international climate and health strategies. It is consistent with the Somalia National Climate Change Policy, the Health National Adaptation Plan (HNAP), and the World Health Organization (WHO) Guidance on Heat-Health Action Planning (2021). This alignment guarantees that local actions in Dhure and Afbarwaqo contribute to broader national climate resilience goals and adhere to global best practices.

Ultimately, the scope of the HHAPMP is designed not only to protect lives in Galkacyo but also to serve as a scalable model for replication in other high-risk districts across Somalia. By clearly defining roles, responsibilities, and response mechanisms, the plan builds a foundation for coordinated, sustainable, and inclusive heat-health preparedness throughout the country.

1.6 Methodology

The development of the Heat-Health District and Facility Preparedness and Management Plan for Galkacyo followed a participatory, evidence-informed, and multi-sectoral approach. The process was designed to ensure scientific rigor, inclusivity, and local ownership.

Ministry of Health and stakeholders jointly established a technical working group (TWG) responsible for guiding the planning process. The TWG reviewed national and global heat-health frameworks, climate data from the Somali Meteorological Department, and health surveillance data on heat-related conditions.

A two-day Stakeholder Consultation Workshop was held from 20–21 August 2025 at Salaama Hotel in Galkacyo South. The workshop convened representatives from federal and state ministries, local health authorities, academia, humanitarian partners, and community leaders, including IDP representatives.

Workshop findings were consolidated into thematic categories—risk profiles, health system capacities, adaptation strategies, and resource needs. These were cross-checked against secondary data sources, including the Somalia Climate Outlook Reports and Health Information System (DHIS2) data, to ensure consistency and evidence alignment.

Using the validated inputs, MoH technical teams with technical support by IMC developed draft plans for each district, outlining key activities, coordination structures, and early warning protocols. District-specific targets, budgets, and monitoring indicators were defined to guide implementation.

The preliminary drafts were reviewed by stakeholders for technical accuracy, feasibility, and alignment with national policies. The next phase will involve formal validation through joint MoH–district sessions and integration into district emergency preparedness frameworks.

The process emphasizes iterative learning through annual testing, evaluation, and capacity-building exercises. Community feedback mechanisms and post-event reviews will inform ongoing improvement and ensure that the plan remains responsive to evolving climatic and social realities.

2. Country and Location (District / Region) of Heat Health Action Plan

Somalia, located in the Horn of Africa, is one of the countries most vulnerable to the adverse impacts of climate change, particularly extreme heat and prolonged droughts. The nation's predominantly arid and semi-arid climate, coupled with recurrent climatic shocks, has heightened the risk of heat-related illnesses and mortality, especially among vulnerable groups such as children, the elderly, pregnant women, and outdoor laborers. Within this national context, the Mudug Region—situated in the central part of Somalia under Galmudug State—faces unique challenges due to its high temperatures, limited water resources, and fragile health infrastructure.

This Heat Health Action Plan focuses specifically on **Galkacyo South**, targeting the **Dhure** and **Afbarwaqo** districts. These areas experience extreme temperature variations, with peak heat waves occurring between March and June, often exceeding 40°C. The districts are characterized by dense populations, informal settlements, and high rates of poverty, all of which exacerbate vulnerability to heat-related risks. Health facilities in these localities frequently operate under constrained resources, with limited access to cooling systems, water, and essential medical supplies.

The plan therefore seeks to enhance preparedness, strengthen institutional coordination, and improve community resilience to heat extremes in Dhure and Afbarwaqo. It aligns with national health and climate adaptation priorities under the Ministry of Health and Human Services and Galmudug State's resilience strategy, supporting localized, evidence-based interventions that safeguard health, livelihoods, and wellbeing amid increasing climate variability.

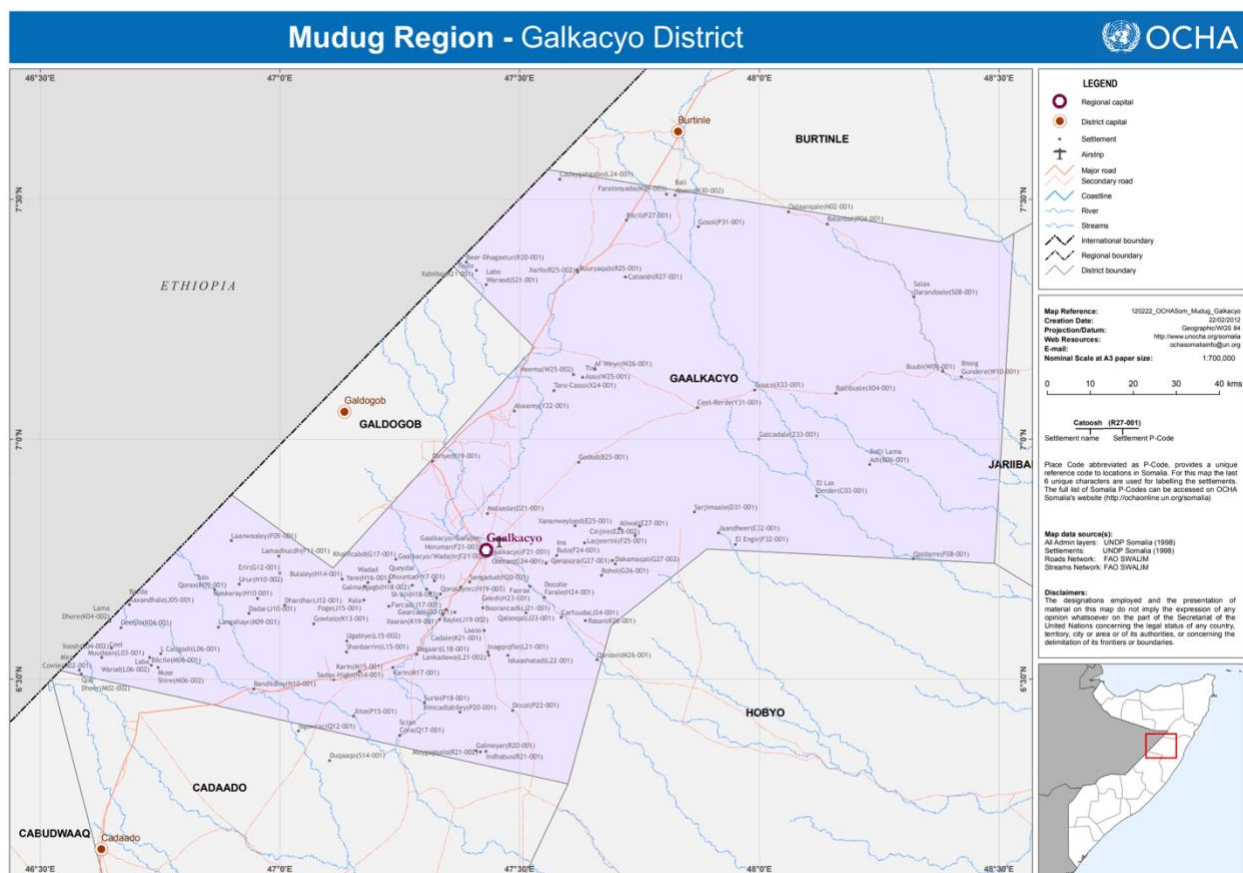


Figure 1. Map showing Galkacyo South, targeting the Dhure and Afbarwaqo districts.

3. Brief Assessment of Risks and Vulnerabilities Related to Heat – Galkacyo

This section presents a detailed synthesis of the *Vulnerability and Capacity Assessment (VCA)* conducted in Galkacyo, Mudug Region, between July and August 2025. The findings draw from household surveys, facility assessments, focus group discussions, and key informant interviews. Galkacyo's unique dual administrative structure and its mixture of host and displaced populations present complex exposure patterns and adaptive challenges to rising temperatures. The city's arid setting, fragmented infrastructure, and high population density—particularly in informal settlements—make it one of the most heat-vulnerable urban areas in central Somalia.

3.1 Long-Term Risk

Over the long term, Galkacyo faces the cumulative effects of gradual climate warming and recurrent drought. Somalia's mean annual temperature has been increasing by approximately 0.21°C per decade since the early 1990s, with inland and arid regions such as Mudug projected to warm at an even faster rate. For Galkacyo, this trend translates into longer and more intense

dry seasons, an increasing number of days exceeding 40°C, and worsening discomfort for those living in temporary shelters or poorly ventilated housing.

The prolonged exposure to high temperatures has direct and indirect health impacts. Vulnerable populations—particularly children under five, the elderly, pregnant women, and individuals with chronic illnesses—face heightened risks of dehydration, renal stress, and cardiovascular complications. Over time, chronic exposure erodes community resilience, increases healthcare demand, and undermines productivity.

Health facilities in Galkacyo, including Galkacyo South Hospital and Bullo Contino Health Center, report persistent infrastructure-related heat challenges such as poor ventilation, lack of shading for patients, and unreliable power supply. Frequent electricity outages—sometimes lasting up to ten hours daily—disrupt cooling systems, vaccine refrigeration, and medical service continuity.

Environmental degradation compounds these risks. Sparse vegetation, dust storms, and limited green cover exacerbate heat absorption and reduce natural cooling capacity. As temperatures rise, water scarcity intensifies due to high evaporation rates, affecting both consumption and sanitation in urban and displacement settings.

The major long-term risks identified include:

- Rising mean annual temperatures and prolonged hot seasons.
- Increased frequency and severity of heatwaves.
- Chronic health impacts, including cardiovascular, renal, and respiratory diseases.
- Escalating water scarcity and energy stress.
- Long-term strain on health and social infrastructure.

3.2 Medium-Term Risk

In the medium term, Galkacyo's heat-related vulnerabilities are expected to worsen as rising temperatures interact with socio-economic and environmental pressures. The city's rapid population growth—driven largely by internal displacement—places additional stress on limited resources and infrastructure.

Frequent droughts and declining agricultural productivity are expected to worsen food insecurity, leading to increased reliance on processed and imported foods. This dietary shift, combined with reduced access to fresh produce, could exacerbate non-communicable diseases (NCDs) such as hypertension, diabetes, and cardiovascular conditions. Heat exposure further compounds these health risks, particularly among low-income households unable to afford cooling or nutritious food.

Water scarcity will become more severe during peak dry seasons, reducing household access and driving up costs. As water availability declines, hygiene practices and cooling behaviors—such as bathing and using wet cloths—will become increasingly difficult. Additionally, power disruptions will continue to affect water pumping, refrigeration, and healthcare service delivery, particularly in IDP settlements and peripheral neighborhoods.

The combination of these stresses threatens to deepen urban poverty and widen inequalities between host and displaced populations, with IDPs disproportionately affected by inadequate shelter, high heat exposure, and limited access to healthcare.

The key medium-term risks include:

- Worsening of chronic illnesses due to prolonged heat exposure.
- Increased food insecurity and dependence on processed foods.
- Intensifying water scarcity affecting health, cooling, and hygiene.
- Growing strain on electricity supply and health service continuity.
- Expanding socio-economic inequality between host and displaced communities.

3.3 Short-Term Risk

Galkacyo faces acute, short-term heat emergencies during extreme heat periods, particularly when daytime temperatures exceed 40–42°C. These episodes often cause sharp spikes in cases of heat exhaustion, dehydration, and heatstroke, particularly among IDPs and outdoor laborers such as construction workers, street vendors, and transport operators.

During heat peaks, health facilities report significant surges in patient admissions, overwhelming limited capacity. Power cuts further compromise the use of fans, cooling systems, and refrigeration for medicines and vaccines. Many households—especially those living in plastic or iron-sheet shelters—experience severe discomfort, sleep disruption, and loss of productivity.

The short-term consequences of extreme heat include an increase in acute kidney injuries, exacerbation of chronic diseases, and even heat-related fatalities during prolonged hot spells. IDPs living in overcrowded camps are particularly vulnerable due to lack of ventilation, limited access to water, and absence of cooling systems.

The main short-term risks identified are:

- Heat exhaustion, dizziness, and dehydration among outdoor workers and IDPs.
- Heatstroke, circulatory shock, and worsening of chronic health conditions.
- Increased hospital admissions and overburdened health facilities.
- Power failures and disruptions to essential water and health services.

3.4 Vulnerable Population Groups

Heat impacts in Galkacyo are unevenly distributed across social and demographic groups. The most at-risk populations include children under five, pregnant and lactating women, the elderly, and individuals with chronic illnesses or disabilities. Their physiological sensitivity, combined with limited access to cooling or healthcare, amplifies the health burden of extreme heat.

IDP households, who constitute nearly 60% of the city's population, face particularly high risks. Most live in makeshift shelters made of plastic or thatch, which trap heat during the day and offer little nighttime relief. Overcrowding and lack of ventilation further heighten indoor temperatures.

Outdoor laborers—including construction workers, transport operators, and market vendors—experience direct exposure to sunlight for extended hours, with minimal access to rest or

hydration. Women, especially those managing household chores and caregiving in confined spaces, endure prolonged indoor heat exposure, often reporting dizziness, fatigue, and sleep disturbance.

Mental health challenges, including anxiety, irritability, and exhaustion, are also emerging among both residents and health workers, reflecting the psychosocial toll of persistent heat stress.

The key vulnerable groups in Galkacyo include:

- Children under five years of age.
- Pregnant and lactating women.
- Elderly persons and those with chronic illnesses or disabilities.
- Outdoor laborers and informal sector workers.
- IDP and low-income households in poorly ventilated shelters.
- Individuals with limited access to water, electricity, or health services.

4. Participating Organizations

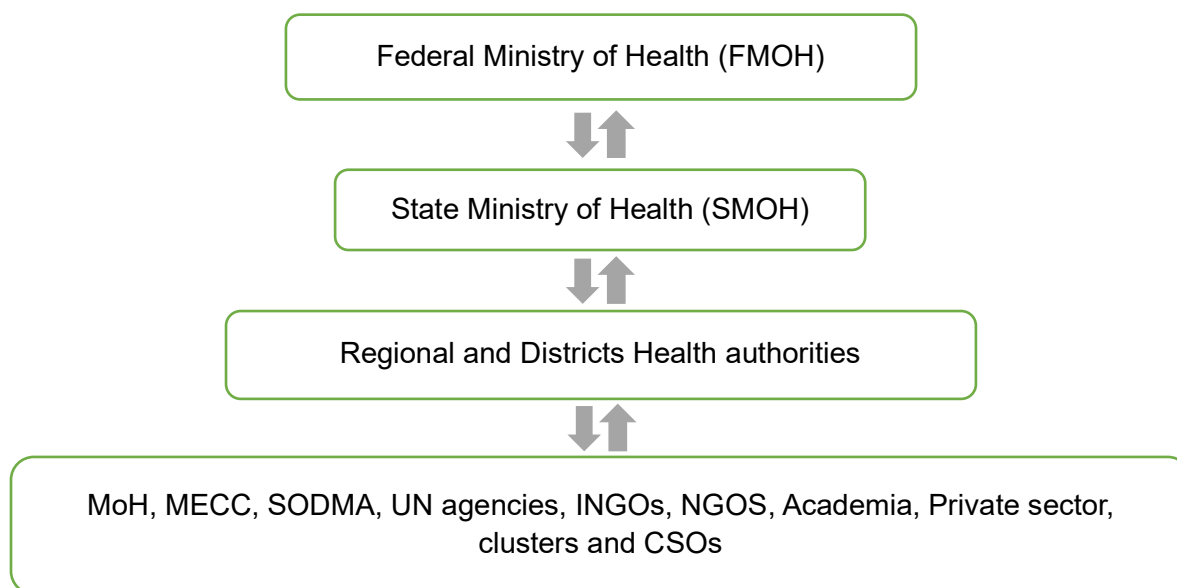


Figure 2. Coordination Structure

The above flowchart illustrates the hierarchical coordination mechanism in Galkacyo, with the Federal Ministry of Health and Human Services (FMoH) and the Galmudug State Ministry of Health (SMoH) providing overall leadership and strategic direction. The coordination structure is supported by a District-level Technical Working Group (TWG) that brings together key actors, including the Ministry of Environment and Climate Change (MoECC), Somalia Disaster Management Agency (SoDMA), UN agencies, international and national NGOs (INGOs and NGOs), clusters, academia, and the private sector. This multi-sectoral platform ensures effective alignment of policies, operational coordination, and joint planning. The coordination cascades

further down to community health committees and health facilities, promoting localized implementation, timely response, and community engagement in Galkacyo and surrounding areas.

The implementation of the Galkacyo Heat-Health Preparedness and Management Plan (HHAPMP) brings together a broad coalition of governmental, humanitarian, academic, and community actors working collaboratively to reduce heat-related health risks. The Ministry of Health and Human Services (Federal Government of Somalia) provides national leadership and policy guidance, while the State Ministry of Health, Galmudug State oversees coordination and technical support at the state level.

At the district level, the District Health Offices of Dhurre and Afbarwaqo lead local implementation, supported by key partners including the International and local, all contributing through health system support, community outreach, and climate resilience activities.

Galkacyo University and the Regional Hospital Authority provide technical expertise, research input, and institutional strengthening, ensuring evidence-based interventions and quality health services. At the community level, local committees, community leaders, and IDP representatives play a vital role in mobilization, awareness-raising, and early warning dissemination.

Together, these organizations form a coordinated and inclusive partnership committed to protecting vulnerable populations and strengthening Galkacyo's resilience against the growing impacts of extreme heat.

5. Arrangements for Coordinating Participating Organizations

Effective coordination among participating organizations is critical to the successful implementation of the Heat Health Action Plan in Galkacyo South—particularly across the districts of Dhure and Afbarwaqo. The coordination structure is designed to promote collaboration, ensure timely information sharing, and facilitate a unified response to heat-related health risks.

The District Heat-Health Coordination Committee serves as the lead coordination body, providing strategic oversight and guidance for all preparedness and response activities. The committee brings together key representatives from the Ministry of Health (MoH), Partners (International and local) and local community structures. This body ensures that planning, implementation, and monitoring of interventions are harmonized across sectors, avoiding duplication and optimizing resource use.

The District Disaster Management Committee (DDMC) acts as the facilitator of coordination activities. It convenes and chairs regular meetings—particularly on a weekly basis during the peak heat season—to review updates, assess emerging risks, and coordinate emergency response measures. The DDMC also ensures linkages between the district-level response and regional or national authorities.

For effective and rapid communication, the coordination framework utilizes digital platforms such as WhatsApp, Telegram, SMS, and email, complemented by local radio broadcasts for public information dissemination. All participating organizations are required to submit joint reports using standardized heat-health templates, shared with both the Ministry of Health and partner for central data consolidation and analysis. Furthermore, coordination is integrated with national climate and health institutions through the MoH Climate Unit, ensuring alignment with Somalia's broader climate resilience and public health strategies.

Table 1. Adpatation and Optimization to Existing Services to Address Risks of Increased Average Temperatures (Galkacyo – Dhure and Afbarwaqo Districts)

Activity	Description	Target Population / Facilities	Monitoring Indicators	Lead/ Responsible Institutions	Supporting Organizations /Contributors
Community Risk Education	Conduct public awareness campaigns and community dialogues focusing on heat protection, hydration, and safe working hours. Use radio broadcasts, mosque announcements, and community meetings to reach households and outdoor workers. Materials will be provided in Somali to ensure inclusivity.	20,000 community members, including women, children, IDPs, and outdoor laborers	# awareness sessions conducted before and during heat season; # people reached, disaggregated by sex/age/displacement status; % increase in heat-health knowledge and protective practices in pre/post survey; # local leaders actively disseminating agreed messages.	State MoH (Galmudug), District Health Offices (Dhure & Afbarwaqo), Partners	MoH, partners
Health Facility Capacity Strengthening	Train healthcare workers on diagnosis and management of heatstroke, dehydration, and heat exhaustion. Provide ORS, IV fluids, cooling equipment, and improve facility ventilation. Integrate heat-health preparedness into emergency protocols.	Health workers and approx. 25,000 service users in district facilities	# and % of target facilities with heat-health emergency protocols before heat season; # staff trained and passing post-test on heat illness management; % target facilities with functional cooling and essential heat-illness supplies during heat alerts.	MoH, District Health Offices, partners, Regional Hospital Authority, Galkacyo University	MoH, Regional Hospital Authority, Galkacyo University, and Partners
Water Supply Improvement	Improve water access through boreholes, water	1,500 households in	# water points/tanks installed or rehabilitated before	MoH, WASH Cluster, partners,	MoH, partners

	storage tanks, and household filtration systems to reduce dehydration and heat-related illnesses. Prioritize vulnerable settlements and health facilities.	Afbarwaqo and Dhure; health facilities	heat season; % targeted vulnerable households with safe water access during heat alerts; # water quality tests meeting standards; # dehydration cases reported through facility/community monitoring.	District Water Departments	
Solar Energy and Cooling Infrastructure	Install solar energy systems in five health facilities to power cooling systems and vaccine refrigerators. Establish shaded public shelters in high-risk areas to provide relief for vulnerable populations.	Five health facilities; 3,000 community members (elderly, IDPs, outdoor workers)	# solar units installed and functional in target facilities; # shaded shelters established and operational; % uptime of cooling systems during heat alerts; average indoor/shelter temperature reduction compared with baseline.	MoH, Partners, Regional Hospital Authority, District Health Offices, Local Committees	partners, Regional Hospital Authority, District Health Offices, local committees
Surveillance and Data Integration	Integrate heat-related illness reporting into DHIS2/HMIS and train health staff on data entry and analysis. Conduct regular review meetings during the heat season.	All health facilities in Dhure and Afbarwaqo	# and % facilities reporting heat-related illness in DHIS2/HMIS each month; data completeness and timeliness score during heat season; # district review meetings completed with action points tracked.	MoH, partners, District Health Offices, Galkacyo University	MoH, partners, facility data clerks, Galkacyo University
Community Health Volunteer Support	Train Community Health Workers (CHWs) to deliver household-level messages, identify vulnerable groups, and share early warnings during heatwaves. Provide visibility materials and mobile airtime for coordination.	CHWs and community focal points in Dhure and Afbarwaqo	# CHWs trained by sex and district before heat season; # high-risk households visited by CHWs; % active CHWs submitting heat-alert reports; # feedback reports reviewed and acted upon.	MoH, partners, Local Committees, SRCS, World Vision	MoH, partners, local committees,
Cooling and Rest Centers Setup	Establish temporary cooling and rest centers in public buildings, schools, and mosques for vulnerable individuals during	IDPs, elderly, pregnant women, outdoor workers	# cooling/rest centers operational during heat alerts; daily visitor count disaggregated by sex/age/vulnerability group; % surveyed users	District Health Offices, MoH, partners, Local Committees, Community Leaders	District Health Offices, MoH, partners, local committees, community leaders

	heat alerts. Equip centers with fans, water, and medical support.		satisfied with water, shade, waiting time, and safety; # referrals from cooling centers to facilities.		
Health Facility Staffing and Readiness	Develop heat-season staffing rosters, identify surge staff, assign facility heat focal persons, and complete annual pre-season refresher training.	All target health facilities in Dhure and Afbarwaqo	# and % facilities with updated heat-season staffing roster before peak season; # facility heat focal persons assigned; # staff refreshed annually; % facilities meeting minimum staffing standard during alerts.	MOH, DHO HR/Clinical Services Lead, Partners	Facility managers, MoH, partners, Galkacyo University
Policy, Budget Advocacy, and Institutionalization	Recognize extreme heat as a district health hazard; integrate heat-health activities into district/state annual plans; establish a heat-health budget line and advocacy follow-up log.	State MoH, District Health Offices, DDMC, local government	Heat-health budget line established (Y/N);	MOH, partners	DDMC, MoH, MoECC, donors, partners

Summary:

Galkacyo will use an early warning and early action sequence in which the MoH Climate Desk, DDMC, FSNAU/meteorological partners, and District Health Offices review heat signals and issue alerts through radio, SMS, mosque announcements, CHWs, and facility channels. Facility and community anticipatory actions should begin within 24-48 hours of a heat trigger, including stock checks, staff surge activation, cooling-center readiness, outreach to registered high-risk households, and facility operations adjustment. Each preparedness activity identifies one lead responsible office or position. Supporting organizations contribute resources and technical support, but the lead office is accountable for follow-up and reporting.

Table 2. Preparedness and Response Activities for Heatwaves

Activity	Description	Target Population / Facilities	Monitoring Indicators	Lead Responsible Institutions	Supporting Organizations /Contributors
Emergency Community Education	Disseminate timely, culturally appropriate information on heatwave preparedness through local radio, posters, community meetings, mosque announcements, and SMS alerts. Key messages will focus on hydration, shade-seeking, adjusting work hours, and recognizing heat illness symptoms.	25,000 residents, including IDPs, women, children, and outdoor workers	# of broadcasts and community sessions conducted within 24 hours of alert; # of people reached (disaggregated by gender and age, displacement status); % change in awareness and preventive practices; # of feedback responses from community leaders	State MoH (Galmudug), District Health Offices (Dhure & Afbarwaqo), Partners, Community Leaders	MoH, partners, community leaders
Establishment of Cooling Centers	Set up temporary public cooling shelters in schools, mosques, and community halls to provide shaded areas, drinking water, and basic medical support during extreme heat events. Centers will operate under district supervision with community volunteers.	1,500 vulnerable individuals, including children, elderly, pregnant women, and IDPs	# of centers established and operationalized during alert; Daily visitor count and usage rate; Demographic data of users (gender, age, displacement status); # of heat-related illness cases managed on-site or referred from the centers	District Health Offices, State MoH, Partners, Local Committees, Community Leaders	DHO, MoH, partners, local committees, community leaders
Emergency Medical Preparedness	Pre-position critical medical supplies (ORS, IV fluids, portable cooling units) in all district health facilities. Conduct refresher training for health workers on managing heatstroke, dehydration, and heat-related emergencies. Implement inventory monitoring and supervision visits during the heat season.	Health facilities serving approximately 75,000 people across Dhure and Afbarwaqo	# of facilities stocked with supplies e.g ORS/IV fluids/ cooling before heat season; # of staff trained on heat illness management; Stock replenishment frequency; # of heat-related cases treated/triaged; Functionality rate of cooling equipment during alerts	FMoH, State MoH, District Health Offices, Regional Hospital Authority,	MoH, partners, Hospital Authority, Galkacyo University,
Heat Early Warning	Define heat-alert thresholds and	All residents,	# heat alerts issued within 24 hours of	MoH Climate Dep/ MoECC/	DHO, Partners,

Alerts and Trigger Activation	disseminate alerts through SMS, radio, mosque announcements, CHWs, community leaders, and health facility focal points; trigger facility and community anticipatory actions.	with priority to IDPs, elderly people, pregnant/lactating women, people with chronic disease/disability, outdoor workers, and facilities	trigger; % target facilities and CHWs receiving alerts; # of facility/community anticipatory actions started within 48 hours; # alert feedback reports reviewed.	SODMA DDMC	radio/SMS providers, community/religious leaders
Health Facility Staffing and Medical Surge Capacity	Maintain pre-season surge rosters, assign heat focal persons, activate surge/shadow rotations, and redeploy trained staff to triage, hydration, cooling, and referral points during alerts.	Health facilities serving Galkacyo, Dhure and Afbarwaqo	# and % target facilities with updated surge roster; # staff trained or refreshed before heat season; % facilities meeting minimum heat-season staffing standard during alerts; # surge shifts activated during heat events.	MOH, DHO HR/Clinical Services Lead	Facility managers, MoH, Partners, Galkacyo University
Outreach to Vulnerable Individuals	Register and prioritize high-risk households for targeted alerts, CHW visits, hydration/cooling counseling, and referral support during heat alerts.	Elderly people, pregnant/lactating women, children under five, people with chronic disease/disability, IDP households, and outdoor workers	# high-risk households registered before heat season; % registered households receiving at least one preparedness visit or alert; # referrals completed for heat risk or illness; # follow-up visits completed for high-risk cases.	MOH, DHO Health Promotion / CHW Supervisor	CHWs, local committees, IDP camp leaders, NGOs/partners, community/religious leaders
Facility Operations Adjustment During Heat Alerts	Activate heat protocols, shaded triage, hydration points, adjusted clinic hours, fast-track chronic disease review, and referral routes during heat alerts.	Hospitals, health centers, PHUs, and mobile/outreach teams	% facilities activating heat protocol within 24 hours of alert; # facilities adjusting service hours or triage flow; average waiting time in shaded/cooled triage areas; # referrals completed through heat-alert pathway.	MOH, Facility Manager / DHO Clinical Services Lead	MoH, facility departments, partners,
Cooling Equipment Maintenance	Service and document functionality of fans, ventilation, portable	All target health facilities	% facilities/cooling centers with completed	MOH, Facility Maintenance / DHO	Facility managers, MoH, local

	cooling units, cold-chain equipment, water points, and backup power before and during heat season.	and cooling/rest centers	maintenance log each quarter; % priority cooling/cold-chain equipment functional during alerts; # corrective maintenance actions closed; # equipment downtime incidents reported.	Logistics Focal Point	government, energy providers, partners
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6. Arrangements for Testing Preparedness and Response Activities

Regular testing of preparedness and response mechanisms is an essential component of ensuring that the Heat Health Action Plan for Galkacyo South remains functional, responsive, and adaptive to evolving risks. Annual simulation exercises will be conducted between April and May, ahead of the peak heat season, to evaluate the operational readiness of institutions, the efficiency of coordination structures, and the responsiveness of communities.

The testing process will be implemented across three complementary levels. At the district level, tabletop exercises will bring together key stakeholders including the Ministry of Health, district authorities, humanitarian partners, and community representatives—to assess decision-making, coordination, and communication processes during simulated heatwave scenarios. These exercises will provide a platform to test information flow, early warning activation, and inter-agency response coordination.

At the health facility level, live simulation drills will be organized in selected hospitals and clinics to test the practical application of emergency protocols. These exercises will cover the triage and treatment of heat-related illnesses, management of medical supplies, and activation of facility contingency measures such as cooling systems and shaded waiting areas. The aim is to strengthen frontline staff capacity and identify logistical or procedural gaps that may hinder timely response.

At the community level, mock early warning alerts will be disseminated through local communication channels—including radio, mosque announcements, and community health workers—to test public awareness, behavioral response, and the utilization of cooling centers. These simulations will measure how effectively messages reach vulnerable populations and how communities respond to heat alerts in real time.

All testing activities will be coordinated and supervised by the District Heat-Health Coordination Committee, ensuring consistency with local disaster management procedures. Following each exercise, an After-Action Review (AAR) will be conducted to identify lessons learned, operational weaknesses, and opportunities for improvement. The findings will inform updates to the Heat Health Action Plan, guide capacity-building initiatives, and enhance institutional readiness for future heatwave events.

7. Arrangements for Evaluation of the Heat Health Plan

The evaluation of the Galkacyo Heat Health Action Plan will take place annually in October, following the conclusion of the heat season. The evaluation aims to determine the overall effectiveness of the interventions, the efficiency of coordination and communication mechanisms, and the measurable impact on community health and resilience.

The evaluation process will combine process, impact, and community-based assessments. The process evaluation will focus on reviewing the completion of planned activities, timeliness of implementation, and resource utilization. It will also assess how effectively partners coordinated their efforts, especially during emergency periods.

The impact evaluation will analyze changes in heat-related morbidity and mortality using data collected through the national health information system (DHIS2). Health facility readiness and the effectiveness of early warning dissemination will also be assessed using standardized tools such as the WHO Heatwave Preparedness Checklist and the Epidemic Simulation Exercise Toolkit.

The community feedback component will engage residents of Dhure and Afbarwaqo through focus group discussions, household surveys, and community dialogues. These sessions will gather public perceptions of awareness campaigns, accessibility of cooling centers, and the quality of health services provided during heat events.

The evaluation will be jointly led by the Ministry of Health (Federal and State), partners, and Galkacyo University, which will serve as the research and evaluation partner, the protocol should define an ethical comparison approach, such as phased implementation, difference-in-differences, time series analysis, or another design in which comparison areas receive the intervention after the initial learning period. The output will be a comprehensive Annual Heat Health Plan Evaluation Report, summarizing key findings, performance indicators, and recommendations. This process will ensure continuous learning and adaptation, maintaining the plan's alignment with national climate change and health adaptation policies.

8. Financing and Resource Mobilization Arrangements

Effective implementation of the Heat Health Action Plan for Galkacyo requires sustained financial support and coordinated resource mobilization among government, development partners, and the private sector. The plan promotes a multi-source financing approach to ensure long-term sustainability and operational readiness.

The State Ministry of Health (Galmudug) and District Health Offices will integrate heat-health preparedness activities into their annual budgets, ensuring local ownership and accountability.

National support will be sought through the Federal Ministry of Health, aligning the plan with Somalia's national climate and health financing priorities.

Partnerships with international donors and humanitarian organizations, including WHO, IMC, SRCS, World Vision, and other implementing partners, will be leveraged to access financial and technical assistance. These collaborations will support activities such as the establishment of cooling centers, procurement of medical supplies, community awareness programs, and health facility improvements.

Public-private partnerships will also be pursued to expand water supply systems, solar-powered cooling infrastructure, and communication networks that facilitate early warning dissemination. Local businesses and community-based organizations will be encouraged to contribute to community resilience initiatives, particularly those supporting vulnerable populations.

To strengthen transparency and planning, a costed implementation plan will be developed, detailing budget requirements for each intervention. The Ministry of Health and implementing partners will proactively seek climate-health adaptation funds from global mechanisms such as the Green Climate Fund, Adaptation Fund, and other bilateral donors.

Through this comprehensive financing framework, the Galkacyo Heat Health Action Plan ensures that resources are effectively mobilized, efficiently managed, and strategically allocated to safeguard lives and build long-term resilience to extreme heat.

The process monitoring will be the District Heat-Health Coordination Committee should maintain a monthly implementation tracker covering resource mobilization, policy and advocacy actions, procurement and activity completion. Minimum process indicators should include: percentage of required HHAPMP, committed,; #funding proposals submitted; number of advocacy meeting and action points completed, and if a dedicated heat-health budget line has been included in the state/district annual budget plan.

Annex 1: Preparedness Stocks of Medication and Equipment for Heatwaves

Item	Dhure Quantity	Afbarwaqo Quantity	Total
ORS sachets	90,000	40,000	130,000
IV fluids	15,000	10,000	25,000
Electrolyte tablets	98,000	–	98,000
Paracetamol/Ibuprofen	–	20,000	20,000
Cooling equipment	50 units	50 units	100 units
PPE for health workers	100 units	–	100 units
Cooling tents	–	50 units	50 units
Water tanks	–	20 units	20 units
Solar power units (for facilities)	5	–	5
Tree planting tools / equipment	–	Available	TBD

Annex 2: Estimated Budget for Heat and Health Action Plan for Galkacyo (Dhure and Afbarwaqo)

No.	Activity / Component	Description	Implementing Partners	Estimated Cost (USD)	Funding Source / Notes
1	Community Awareness and Risk Communication	Design and dissemination of IEC materials, radio campaigns, community sensitization, and outreach on heat-related illness prevention.	MoH, District Health Offices, Local Committees, and Partners	54,000	TBD
2	Health Facility Strengthening	Procurement of cooling fans, ORS, IV fluids, and medical supplies; staff training on heat illness management.	MoH, Regional Hospital Authority, and Partners	70,000	TBD
3	Improvement of Water Access	Installation and maintenance of boreholes, provision of tanks and filters for vulnerable households.	District Health Office, and partners	12,000	TBD
4	Solar Energy and Cooling Infrastructure	Solar system installation in 5 health facilities and 3 shaded community cooling centers.	MoH, District Authorities, and Partners	30,000	TBD
5	Early Warning and Heat Monitoring System	Establishment of local heat alert and communication system linked with the meteorological office and FSNAU.	MoH Climate Dept, DDMC, SODMA, MoECC, and Partners	15,000	TBD
6	Emergency Response and Stockpiling	Pre-positioning of ORS, IV fluids, tents, and emergency kits in both districts.	MoH, and PARTners	40,000	TBD
7	Establishment of Cooling Centers	Temporary community cooling shelters using schools, mosques, and public halls during heatwaves.	District Health Office, MOH, and Partners	45,000	TBD
8	Capacity Building and Simulation Drills	Annual simulation exercises, coordination meetings, and training of response teams.	MoH, , DDMC, Partners	20,000	TBD
9	Monitoring, Evaluation, and Reporting	Data collection, field supervision, and final evaluation of implementation effectiveness.	MoH, Galkacyo University, Partners	18,000	TBD

10	Administrative and Coordination Costs	Communication, transport, allowances, and logistical support for coordination and reporting.	DDMC, MoH, and Partners	16,000	TBD
11	Health Facility Staffing and Medical Surge Readiness	Surge rosters, heat focal persons, refresher training, shadow/surge rotations, and staff redeployment during alerts.	DHO, State MoH, facility managers, partners, Galkacyo University	25,000	TBD
12	Vulnerable Household Outreach and Registration	Registration and follow-up visits for high-risk households, targeted alerts, and referral support.	DHO, CHWs, local committees, NGOs and partners	18,000	TBD
13	Facility Operations Adjustment During Heat Alerts	Activation of heat protocols, adjusted service hours, shaded triage, hydration points, and fast-track referral pathways.	Facility managers, DHO, ambulance/transport partners	12,000	TBD
14	Cooling Equipment Maintenance	Quarterly servicing and maintenance of fans, ventilation, portable cooling units, cold chain, water points, and backup power.	DHO logistics, facility maintenance focal points, energy providers	15,000	TBD
15	Policy, Budget Advocacy, and Implementation Process Monitoring	Resource tracker, advocacy log, budget-line follow-up, policy recognition, procurement tracking, and monthly implementation review.	State MoH, DHO, DDMC, partners	8,000	TBD
16	Community Feedback Mechanisms and Analysis	Community surveys, FGDs, suggestion boxes, hotline/SMS feedback, CHW feedback reports, and post-season stakeholder review.	DHO Health Promotion/M&E, CHWs, NGOs, Galkacyo University	7,000	TBD
17	Impact Evaluation Scoping and Research Partnership	Concept note/protocol, baseline/comparison approach, ethics review, and research partnership setup.	MoH, Galkacyo University/research partner, partner	20,000	TBD
Total USD				425,000	

Total Estimated Budget: USD 425,000 (this budget requires validation)

Annex 3: Heat and Occupational Health

This annex outlines key measures to protect health workers and support staff from the risks of extreme heat during heatwaves and hot seasons. These actions aim to ensure staff safety, maintain service continuity, and reduce heat-related illness among frontline personnel. The following is a more detailed set of activities to ensure the health of staff during heatwaves:

1. In preparation for heat events, host a heat stress awareness session for staff.
 - a. Encourage staff to “stay healthy”, hydrate, and maintain a basic level of aerobic fitness.
 - b. Encourage heat acclimatization planning and use progressive exposure to improve thermal tolerance.
2. Ensure awareness of hot weather conditions amongst staff.
 - a. Provide information on local weather conditions and forecasts as well as associated risk, particularly when conditions change.
 - b. Monitor workers for signs and symptoms of heat-related illness
 - c. Create a ‘buddy’ system for informal peer-to-peer monitoring of heat stress, following a protocol that is appropriate to your context.
 - d. In conditions conducive to heat stress, avoid situations where staff work alone.
 - e. Supervisors are also responsible for monitoring staff for the signs and symptoms of heat stress.
3. Limit staff exposure to heat and/or exertion.
 - a. Consider needed staffing levels to enable surge/shadow rotations to facilitate break and rest periods.
 - b. Schedule work that may result in the rapid storage of body heat and/or increase body core temperature as manageable periods of time. Follow this with exposure to cooler areas to dissipate body heat and reduce the risk of heat stress. This could involve directing staff to tasks and wards requiring different levels of PPE.
 - c. Work/rest cycles are an established approach but may not always be practicable. Mechanical aids (e.g. trolleys) can also help to reduce physical workloads and, as a result, the body’s metabolic heat production.
4. Establish a cool rest area for staff.
 - a. Provide a cool area for staff and schedule adequate time for cooling during rest breaks.
 - b. Ensure air conditioning and ventilation systems are regularly inspected and maintained, and operate at the correct settings.
 - c. In many places, electric fans may be more accessible; but may help transmit the virus indoors, and in very hot and dry environments these can increase heat stress.
 - d. Consider supplementing with ice slurry consumption where cooling facilities are not available or are insufficient, particularly in hot and humid conditions.
 - e. Consider the use of cooling devices under protective garments such as a vest with phase change materials, ice or equivalent.
5. Ensure sufficient hydration and nutrition for staff.
 - a. Provide cool water and access to food within clean (and ideally cool) areas.
 - b. Encourage staff to self-monitor their hydration. Practical options include: displaying simple urine-colour charts in toilet facilities; and providing weighing scales in

- changing rooms so that staff can weigh themselves before and after each shift to calculate fluctuations in their body mass (and therefore hydration level).
6. Consider how to ensure cooled toilet facilities.
 - a. Providing toilet facilities within hot areas encourages staff to continue hydrating rather than reducing their fluid intake to avoid urinating until they can reach a more convenient toilet in a cooler area. This reduces their risk of dehydration due to the combined effects of heat and a lack of fluids.
 7. Establish a formal monitoring system for staff heat experiences.
 - a. Encourage workers to report heat stress symptoms.
 - b. Consider issuing a brief anonymous staff survey to monitor heat stress symptoms and the adequacy of control strategies.
 - c. Create a critical incident log to record heat illness and “near misses”. This can inform future policies as well as the training of new staff.
 8. Ensure access to treatment area for heat-related illness of staff, including heat stroke.
 - a. Provide access to cooling facilities for staff to rapidly reverse excessively high body core temperature.

Where immersion in cool water is not practicable, apply cold towels and/or ice packs to the body.

Annex 4: Community Feedback Tools

This annex outlines tools and mechanisms to collect, review, and act on community feedback on heat-risk communication, cooling centers, facility services, and outreach to vulnerable groups in Dhure and Afbarwaqo.

Tool / Method	Purpose	Target Group	Frequency	Lead Responsible Office/Title	Monitoring Indicator
Community Surveys	Assess awareness, behaviors, access, and satisfaction with heat-health services.	General public, IDPs, women, elderly people, outdoor workers, people with chronic disease/disability	Bi-annual	DHO M&E / Health Promotion Lead	# surveys completed; response rate; % respondents reporting improved knowledge or service access
Focus Group Discussions	Gather qualitative insights on heat impacts, barriers, and service needs.	Women, elderly people, IDPs, youth, outdoor workers	Annual pre-heat season	Galkacyo University / DHO M&E Lead	# FGDs held; themes documented; action points assigned
Suggestion Boxes at Facilities and Cooling Centers	Collect anonymous feedback on facility preparedness and cooling-center services.	Facility users and cooling-center users	Continuous during heat season	Facility Manager / Cooling Center Supervisor	# suggestions received; % reviewed within two weeks; # corrective actions closed
CHW Feedback Reports	Relay household-level concerns, high-risk cases, and outreach gaps.	CHWs and community focal points	Monthly; weekly during alerts	CHW Supervisor	# reports submitted; # high-risk issues escalated; # referrals completed
Hotline / SMS Feedback System	Enable real-time reporting of heat-related issues and service gaps.	General public	During heat alerts	DDMC Early Warning Focal Point	# messages received; response time; # issues resolved
Stakeholder Review Meetings	Validate feedback and adjust the plan after heat season and drills.	TWG/District Heat-Health Coordination Committee and community representatives	Post-heat season and after drills	District Heat-Health Coordination Committee Chair	# meetings held; # feedback actions incorporated into plan updates

Annex 5: Health Facility List for Galkacyo

This annex records the facilities that were assessed.

S/No	Region	District	Health Facility Name	HF Type
1	Mudug	Galkacyo	Galkacyo South Hospital	Hospital
2	Mudug	Galkacyo	Galkacyo Health Centre	Health Centre
3	Mudug	Galkacyo	Harhaar Primary Health Care Unit	Primary Health Care Unit
4	Mudug	Galkacyo	Bulo Contino Health Center is a target facility	Health centre
5	Mudug	Galkacyo		Health centre