Sindh

Standard Operating Procedures
SOPs

HEATWAVE MANAGEMENT
2025

PROVINCIAL DISASTER MANAGEMENT AUTHORITY
Rehabilitation Department
Government of Sindh

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INTRODUCTION

Heatwaves are silent and slow but devastating disasters that occur when excessively hot weather, high humidity, and changes in weather patterns converge, impairing the human body's ability to cool itself and leading to heat-related illnesses. Sindh province has become increasingly vulnerable to extreme heatwaves, driven by climate change, rapid urbanization, deforestation, low rainfall, and the Urban Heat Island (UHI) effect, which disproportionately affects urban populations, particularly the elderly, young children, and those with pre-existing medical conditions. With climate change-related hazards on the rise, heatwaves have become more frequent and longer over the past decade, and are expected to increase in the near future, posing a significant threat to human health, economic productivity, and overall well-being, emphasizing the need for proactive measures to mitigate their impacts and protect vulnerable populations.

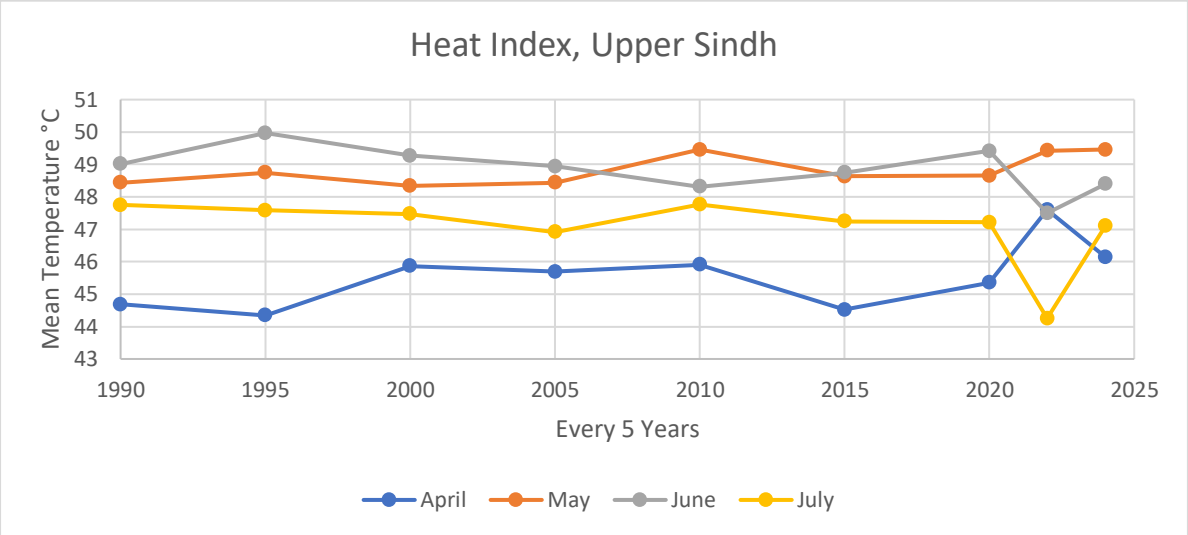
OVERVIEW OF TEMPERATURE TRENDS IN SINDH

Sindh has witnessed a substantial rise in temperatures over the past decade, with increasing frequency and severity of heatwaves. The effects of climate change, coupled with urbanization and deforestation, have exacerbated extreme temperature conditions across the region. According to the Pakistan Meteorological Department (PMD), 2024 saw significantly higher temperatures than previous years, particularly in April, May, June, and July, with anomalies of 1.6°C in April, 2.1°C in May, 1.8°C in June, and 3°C in July compared to 2023. This marks a worrying trend, indicating that future heatwaves may become even more intense due to continued climate shifts and anthropogenic factors.

In contrast, 2022 experienced lower temperatures across Sindh due to heavy and persistent rainfall, which helped mitigate extreme heat conditions. However, 2024 has seen an alarming temperature surge, particularly in coastal and northern districts, where high humidity further exacerbated the heat index.

Following is analysis of the temperature variability in Sindh, focusing on the heat index and historical temperature trends from April to July over the period 1992–2024. The analysis is divided into Upper, Central, and Lower Sindh, with a detailed explanation of each graph representing past trends and a projection of future temperature variations.

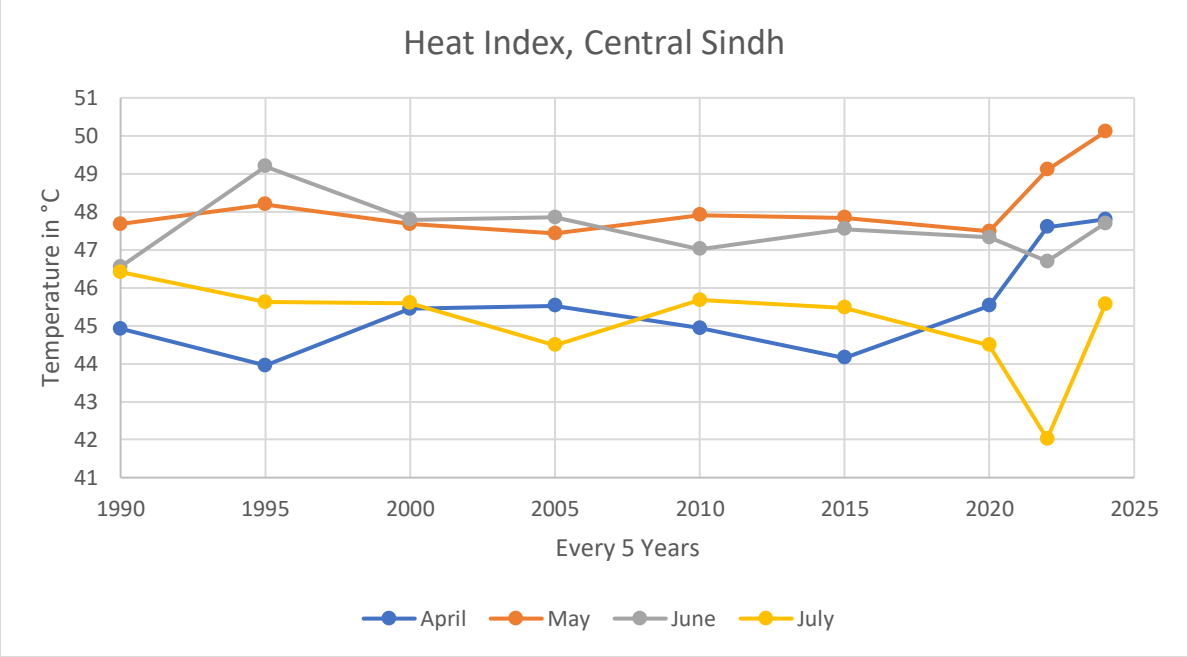
Heat Index in Upper Sindh



Source: Pakistan Met Department

The graph for Upper Sindh demonstrates a significant increase in temperature over the years, particularly during April and May. The historical trends from 1992 to 2024 indicate that April and May have experienced a steady increase in the average maximum temperature from 35°C in the early 1990s to above 42°C in recent years. June and July have fluctuating trends due to monsoon influences, but overall, a rise in temperature is evident. More frequent and intense heatwaves, particularly in Sukkur, Larkana, Khairpur, Dadu and Jacobabad have consistently recorded some of the highest temperatures, exceeding 50°C in May and June 2024. These cities, already known for their variable climates, have become more vulnerable to extreme heatwaves, with rising average temperatures and increased heat index values. Given the current trajectory, upper Sindh is likely to experience more frequent and prolonged heatwaves in future.

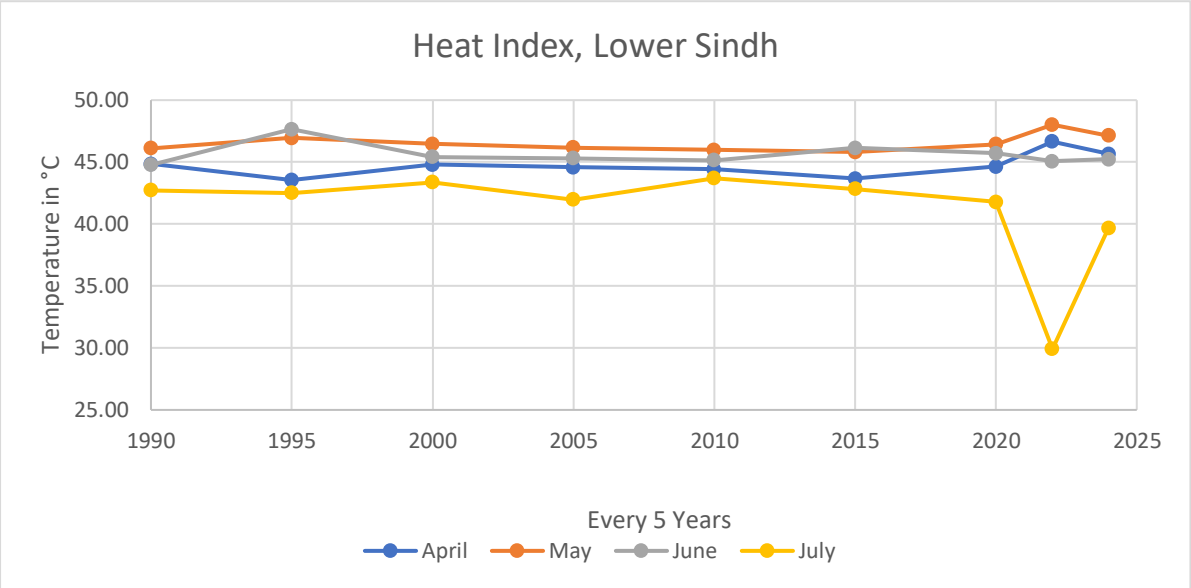
Heat Index in Central Sindh



Source: Pakistan Met Department

Central Sindh including Hyderabad and Shaheed Benazirabad, exhibits a similar warming trend, with the most significant increases recorded in May and June. The graphs highlight a shift in temperature patterns, with peak temperatures occurring earlier in the season compared to previous decades with an increase of over 2°C above historical averages in 2024. The historical data from 1992 to 2024 shows that April, which previously experienced moderate temperatures of 30–35°C, now frequently exceeds 38°C. May and June have seen a marked increase from an average of 38°C in the early 1990s to 45°C in recent years. July provides slight relief due to monsoon activity, but overall temperature levels remain elevated. Central Sindh, particularly Hyderabad and Shaheed Benazirabad are projected to witness prolonged spells exceeding 46°C, increasing the likelihood of urban heat stress in Hyderabad and Shaheed Benazirabad.

Heat Index in Lower Sindh



However, Lower Sindh, including Karachi, Badin and Thatta, has historically experienced relatively milder temperatures compared to Upper and Central Sindh. However, recent trends show an upward shift in temperatures, with increasing heat index values due to rising humidity levels. Historical trends from 1992 to 2024 indicate that April and May have experienced gradual warming, with temperatures rising from 28–32°C in the 1990s to 35–38°C in recent years. June and July have recorded increasing temperatures, reducing the cooling effect of coastal breezes. Higher humidity levels have also intensified the heat index, increasing the frequency of heat stress incidents. Historical analysis reveals that deadly 2015 and 2024 heatwaves, have had devastating impacts, with Karachi alone experiencing temperatures as high as 49°C, leading to hundreds of deaths and thousands of cases treated in hospitals. However, based on the trends, the Lower Sindh will likely experience higher temperatures and increased heat stress due to urbanization and climate change in future.

FACTORS EXACERBATING EXTREME HEATWAVES

There are several factors contribute to the escalating temperature crisis in Sindh, transforming high temperatures into frequent and deadly heatwaves.

- **Climate Change and Global Warming**
  The overall rise in global temperatures has had a pronounced impact on Sindh, elevating the frequency of heatwaves and extending their duration. The province is witnessing prolonged periods of extreme heat, with 2024 surpassing previous years in temperature anomalies.

- **Urbanization and Heat Island Effect**
  Rapid urban expansion in cities like Karachi, Hyderabad, Larkana, Shaheed Benazirabad, and Sukkur has significantly contributed to increased temperatures due to concrete structures absorbing and retaining heat. The lack of green spaces and poor ventilation further amplifies the urban heat island effect, making cities significantly hotter than rural areas.

- **Deforestation**
  The extensive cutting down of trees for urban development and agriculture has removed natural heat regulators. Reduced vegetation cover leads to lower evapotranspiration, which otherwise cools the air, resulting in higher surface temperatures and reduced moisture retention.

- **High Humidity Levels and Heat Index**
  Regions close to the coast, such as Karachi, Badin and Thatta, have experienced rising humidity levels, which significantly increase the perceived temperature or heat index. High humidity reduces the body's ability to cool down through sweating, making heatwaves more dangerous for human health.

IMPACT OF HEATWAVES ON DIFFERENT SECTORS

Health

Extreme heat poses a severe public health challenge, particularly for outdoor laborers, children, the elderly, and low-income communities. The 2024 heatwave has led to a surge in heat-related illnesses, including;

- Heat exhaustion and dehydration
- Heat strokes, which can be fatal
- Respiratory issues due to poor air quality exacerbated by heat

Hospitals have reported a sharp increase in heat-related cases, overwhelming healthcare infrastructure, especially in rural areas with limited medical facilities.

Water Scarcity and Agricultural Disruptions

Higher temperatures accelerate evaporation, significantly reducing water availability for irrigation and drinking purposes. Sindh's agriculture sector, heavily dependent on river and groundwater sources, is facing serious challenges, including;

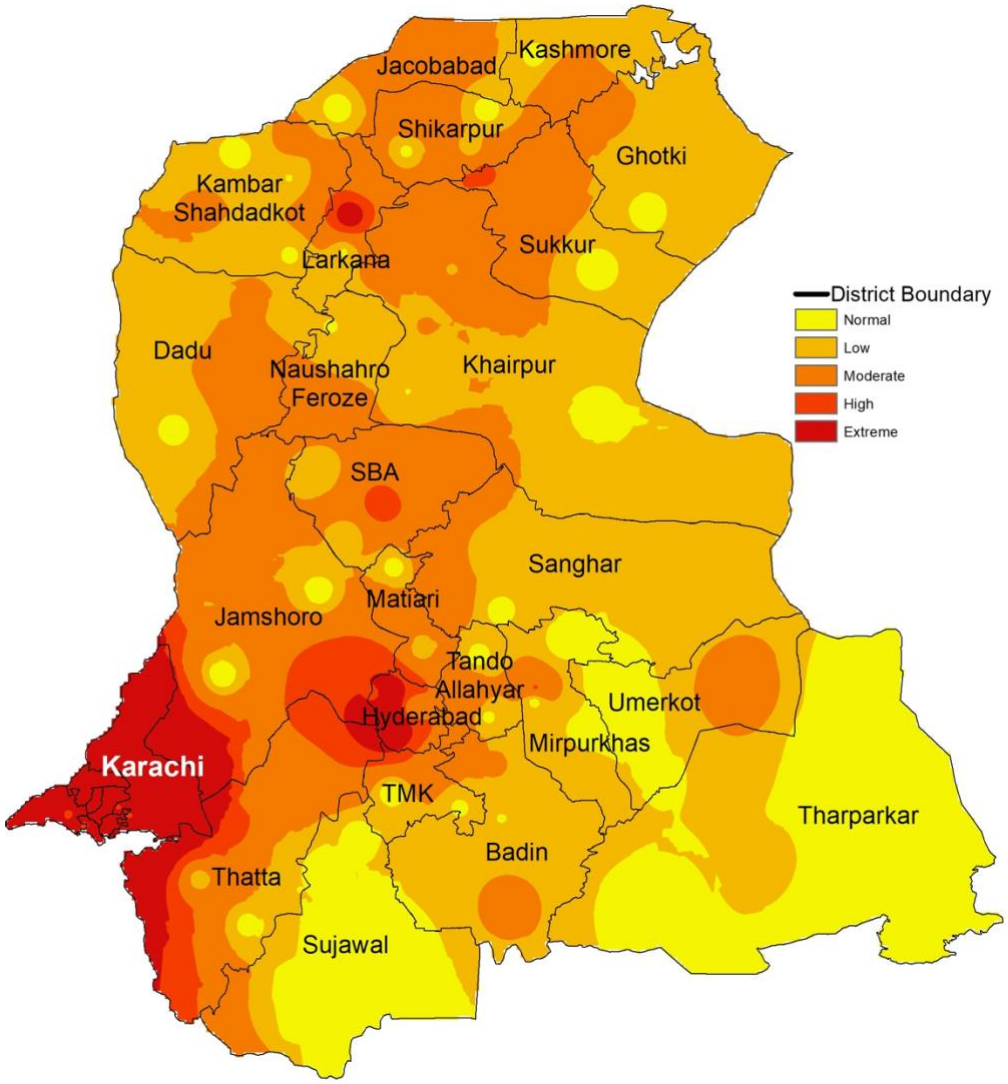
- Reduced crop yields due to extreme heat stress and diseases
- Livestock deaths caused by heat exhaustion and shortage of fodder
- Declining water table levels

Economic and Livelihood Disruptions

The rising heat stress has had severe economic repercussions, particularly for those reliant on outdoor work and manual labor. The following sectors have been particularly impacted;

- Agriculture labour
- Construction and factory work, where extreme heat makes conditions unbearable
- Informal labor sectors, where daily wage workers struggle under intense heat conditions
- Transportation

HEATWAVE RISK ANALYSIS



The data provides an analysis of risk potential in urban centers of Sindh, based on population figures from the 2023 census and cases treated in 2024. Karachi and Hyderabad, the two most populous cities, reported the highest number of heatwave-related cases and fatalities, with Karachi alone accounting for 4,083 cases and 56 deaths. Other urban centers, such as Larkana, Dadu, Jamshoro, Shaheed Benazirabad, Badin, Jacobabad, Sukkur, and Khairpur, also reported significant case numbers. The analysis attributes the heightened impact of the increased in temperature attributed with the Urban heat island effect, where densely populated areas experience higher temperatures due to heat retention from infrastructure and limited ventilation. This phenomenon has intensified the "feels-like" temperature, exacerbating health risks, particularly in May, June and July, which are already the hottest months of the year. The risk levels are categorized into moderate, high, and emergency situations, emphasizing the urgent need for mitigation strategies in the highly vulnerable areas.

STANDARD OPERATING PROCEDURES (SOPs)

Role of Govt & Private Departments to carry out Effective Heatwave Management & Response.

Provincial Disaster Management Authority (PDMA) Sindh, has developed a structured response framework categorized into Mitigation & preparedness, Response, and Recovery & Rehabilitation measures, which defines the roles and responsibilities of each entity, establish early warning and response mechanisms, optimize resource allocation, and standardize intervention protocols for an effective heatwave management.

PROVINCIAL DISASTER MANAGEMENT AUTHORITY (PDMA) SINDH

Mitigation/ Preparedness

- Develop Standard Operating Procedures (SOPs) and response strategies for all relevant stakeholders, ensuring a coordinated and effective heatwave response.
- Conduct vulnerability mapping to identify heat-prone districts, urban heat islands, and high-risk populations such as the elderly, pregnant women, children, and persons with disabilities.
- Establish a dedicated heatwave early warning system in collaboration with the Pakistan Meteorological Department (PMD) to ensure continuous monitoring and real-time information sharing.
- Disseminate public awareness messages through campaigns in local languages, focusing on heatwave prevention, symptoms of heatstroke, and emergency response, targeting all communities, including marginalized groups. (ANNEX A)
- Develop partnerships with national and international humanitarian organizations to enhance preparedness and resource mobilization.
- Coordinate with Pakistan Red Crescent Society (PRCS) to provide training and capacity-building programs for district-level authorities, first responders, and community volunteers on heatwave mitigation and response strategies.
- Coordinate with DDMAs to ensure pre-positioning of essential relief supplies, including oral rehydration salts (ORS), cooling facilities, shaded rest areas, and water supply infrastructure in heat-prone areas.

Response

- Activate the early warning dissemination system to ensure alerts and safety messages reach communities in local languages through electronic, print, and social media, as well as local outreach channels.
- Coordinate with District Disaster Management Authorities (DDMAs), emergency services (Rescue 1122, SIEHS), the Health Department, and other relevant stakeholders to deploy immediate Health response and relief measures.
- Support DDMAs in setting up heatwave relief centers, ensuring the availability of cooling spaces, water distribution points, and emergency medical assistance for heatstroke cases.
- Enhance coordination with government departments, I/NGOs, and UN agencies to mobilize additional resources and logistical support as needed within vulnerable areas.

Recovery & Rehabilitation

- Conduct a comprehensive post-heatwave impact assessment to analyze casualties, health impacts, and socio-economic disruptions, using findings to improve future preparedness plans.
- Review and update the Heatwave guidelines based on lessons learned from the latest event, ensuring improved inter-agency collaboration and response efficiency.
- Strengthen long-term urban planning strategies, such as increasing tree plantations, green infrastructure, and shaded pedestrian walkways to mitigate extreme heat effects.

PAKISTAN METEOROLOGICAL DEPARTMENT (PMD)

Mitigation/ Preparedness

- Continuously monitor and analyze historical and real-time temperature trends to identify patterns and emerging heatwave risks.
- Develop accurate and evidence-based heatwave forecasts to support timely decision-making and emergency planning.
- Establish a heatwave early warning system in coordination with PDMA Sindh, ensuring forecasts and advisories reach all relevant authorities and communities well in advance.
- Develop a public mobile application providing real-time weather updates, heatwave alerts, and safety guidance.

Response

- Issue timely heatwave warnings and temperature forecasts to government agencies, emergency services, and the public through multiple communication channels.
- Conduct regular briefings for media and policymakers on temperature trends, expected heatwave duration, and recommended public safety measures.

Recovery & Rehabilitation

- Contribute to policy development by sharing meteorological data and insights with government agencies to enhance long-term heatwave resilience strategies.
- Strengthen research on climate change impacts and heatwave mitigation measures, supporting adaptation efforts at provincial and national levels.

DISTRICT DISASTER MANAGEMENT AUTHORITIES (DDMAs)

Mitigation/ Preparedness

- Identify high-risk zones and develop district-specific heatwave contingency plans in alignment with provincial guidelines and SOPs.
- Disseminate public awareness messages through campaigns in local languages, focusing on heatwave prevention, symptoms of heatstroke, and emergency response, targeting all communities, including marginalized groups. (ANNEX A)
- Establish coordination mechanisms with local line departments, I/ NGOs, UN, and business community to enhance resource availability and logistical preparedness.
- Ensure availability of medical supplies, hydration points, and cooling spaces in high-risk areas before the onset of the heatwave season.

- Implement long-term urban planning interventions such as green corridors, tree plantations, rooftop gardens, and shaded public spaces to reduce urban heat intensity.

Response

- Deploy emergency response teams to distribute water, provide medical assistance, and set up temporary heat relief centers in public spaces such as bus stations, markets, and workplaces.
- Activate local communication channels to disseminate heatwave alerts, safety advisories, and emergency contact details in local languages.
- Coordinate with the Health Department to ensure adequate staffing and medical supplies in hospitals and Heat Stabilization Canters dealing with heat-related illnesses.
- Mobilize transport services to provide free or subsidized transportation for vulnerable groups to access cooling shelters and medical facilities.
- Strengthen monitoring and data collection efforts, documenting cases of heatstroke, dehydration, and other related health impacts for future planning.

Recovery & Rehabilitation

- Conduct post-event evaluations in collaboration with health authorities and emergency response teams to assess the effectiveness of response measures.
- Analyze gaps and challenges faced during the emergency response, integrating lessons learned into future preparedness and contingency planning.
- Develop long-term heatwave resilience initiatives, such as improving water supply systems, expanding green infrastructure, and enforcing heat-resistant building codes.

HEALTH DEPARTMENT

Mitigation/ Preparedness

- Upgrade hospitals with cooling systems, ventilated spaces, and maintain essential stocks of IV fluids, life-saving medicines, and supplies.
- Train healthcare workers on heatstroke management, first aid, and emergency response.
- Establish Heatstroke Stabilization Centers in hospitals, transit hubs, and through mobile units.
- Ensure availability of separate treatment areas for women, children, elderly, and persons with disabilities (PWDs).
- Develop a public awareness campaign on heatwave symptoms, prevention, and first aid.

Response

- Deploy mobile medical teams for emergency response in affected areas.
- Provide psychosocial support and counseling for vulnerable groups, including children, elderly, and PWDs.
- Ensure an uninterrupted supply of essential medicines and medical equipment in heatwave-affected areas.
- Set up emergency hydration stations within healthcare facilities.
- Provide and facilitate timely referral/ transportation of critical patients.

Recovery & Rehabilitation

- Assess and document cases to improve future heatwave response.
- Review and update treatment protocols for heat-related illnesses based on the recent event.
- Implement post-emergency health surveillance to monitor long-term effects on vulnerable populations.
- Strengthen healthcare infrastructure to withstand future heatwaves, integrating energy-efficient cooling systems.

LOCAL GOVERNMENT DEPARTMENT

Mitigation/ Preparedness

- Implement heat-resilient urban planning, incorporating green spaces, shaded walkways, and reflective surfaces.
- Identify and designate locations for temporary cooling shelters in heat-prone areas.
- Introduce and enforce building codes promoting heat-resistant materials and designs.
- Expand tree plantations, urban greening, and rooftop gardens to mitigate heat impact.
- Develop and communicate a city-wide heat action plan with risk zones clearly mapped.

Response

- Activate and manage temporary cooling centers in vulnerable locations.
- Deploy water tankers and install hydration stations in public spaces, transit points, and marketplaces.
- Implement emergency road and infrastructure cooling measures, such as water spraying in high-risk urban areas.
- Regulate and enforce restrictions on outdoor labor and construction activities during peak heat hours.
- Monitor heatwave-related damages to urban infrastructure and coordinate immediate repairs.

Recovery & Rehabilitation

- Conduct an impact assessment to identify urban heat island hotspots for future interventions.
- Strengthen policies to improve heat resilience in urban development plans.
- Implement long-term urban cooling strategies, including increased natural ventilation and green architecture integration.

SOCIAL WELFARE DEPARTMENT

Mitigation/ Preparedness

- Integrate heatwave preparedness into social protection programs, prioritizing vulnerable groups.
- Develop targeted awareness campaigns for women, elderly, and PWDs on heatwave risks and prevention measures.
- Establish coordination mechanisms with humanitarian agencies for rapid assistance during extreme heat events.

- Identify high-risk populations and develop a response plan for their evacuation and protection.

Response

- Provide financial aid and immediate relief to affected low-income families.
- Ensure inclusion of marginalized groups in emergency shelters and relief distribution efforts.
- Operate helplines for heatwave-related support, including emergency response coordination.
- Facilitate linkages with existing cash assistance programs to support vulnerable groups in coping with economic impacts.

Recovery & Rehabilitation

- Assess the socio-economic impact of the heatwave on vulnerable communities.
- Enhance social safety net programs to provide sustained assistance during future heatwaves.

SINDH ENERGY DEPARTMENT (SEPCO, HESCO, KARACHI ELECTRIC)

Mitigation/ Preparedness

- Develop contingency plans to ensure uninterrupted power supply to critical infrastructure, including hospitals and cooling centers.
- Upgrade grid capacity to handle increased demand during extreme heat conditions.
- Establish maintenance schedules for power lines and transformers to prevent heat-induced failures.
- Identify and stockpile emergency backup power solutions such as mobile generators and battery storage systems.

Response

- Prioritize power supply to hospitals, stabilization centers, and public cooling shelters.
- Implement load management strategies to prevent blackouts during peak demand.
- Rapidly restore power in affected areas through emergency response teams.
- Provide real-time updates to the public on power restoration efforts and alternative arrangements.

Recovery & Rehabilitation

- Assess the power infrastructure's performance and resilience during the heatwave.
- Upgrade transmission and distribution systems to withstand extreme temperatures.

PUBLIC HEALTH ENGINEERING DEPARTMENT (PHED)

Mitigation/ Preparedness

- Develop a heatwave water supply management plan, ensuring adequate storage and distribution systems.
- Promote water conservation techniques, including awareness campaigns on efficient water use.
- Install permanent hydration stations in high-risk areas, including schools, bus stations, and marketplaces.
- Strengthen water infrastructure to ensure resilience during extreme heat conditions.

Response

- Ensure an uninterrupted and increased water supply to heat-affected communities.
- Deploy emergency water tankers to areas experiencing shortages.
- Maintain and refill hydration stations across public spaces.
- Implement temporary water rationing strategies to prioritize essential services.

Recovery & Rehabilitation

- Assess the effectiveness of water distribution during the heatwave and identify gaps.
- Expand access to clean drinking water in vulnerable regions through new infrastructure projects.

LABOUR & HUMAN RESOURCES DEPARTMENT

Mitigation/ Preparedness

- Develop and enforce regulations ensuring heat safety measures for outdoor workers.
- Conduct mass awareness campaigns targeting construction workers and other outdoor laborers.
- Coordinate with employers to establish shaded rest areas, hydration stations, and regulated work hours.
- Ensure provision of cooling vests, hydration packs, and first aid supplies at work sites.

Response

- Conduct workplace inspections to verify compliance with heat safety regulations.
- Ensure business owners and employers implement emergency protocols, such as heat breaks and shaded rest areas.
- Distribute oral rehydration salts (ORS) and first aid kits to outdoor workers.
- Provide emergency medical support and rapid response teams for heat-related illnesses.

Recovery & Rehabilitation

- Evaluate the effectiveness of heatwave safety measures in workplaces and recommend improvements.
- Revise labor laws to include mandatory employer-provided heat protection measures.
- Integrate heatwave safety training into workforce development programs.

SINDH TRANSPORT DEPARTMENT, NHA & MOTORWAY

Mitigation/ Preparedness

- Design and construct shaded waiting areas at bus stops, railway stations, and transport hubs.
- Establish hydration stations along major travel routes and public transport locations.
- Develop heat-sensitive transport advisories for public awareness.

Response

- Issue real-time travel alerts and advisories on extreme heat conditions.
- Increase frequency of public transport services to minimize wait times in extreme temperatures.
- Provide emergency medical assistance and hydration facilities at transit points.
- Ensure ventilation and cooling systems are functional in public transport vehicles.

Recovery & Rehabilitation

- Review and assess transport-related heatwave response effectiveness.
- Implement permanent shaded waiting areas and ensure adequate hydration points across transport networks.

SINDH EDUCATION & LITERACY DEPARTMENT

Mitigation/ Preparedness

- Develop and implement school-based heatwave preparedness plans.
- Organize educational programs on heatwave safety, targeting students, teachers, and staff.
- Promote tree plantation in and around school premises for natural shade.
- Integrate alternative energy solutions, such as solar-powered cooling systems in school buildings.

Response

- Modify school timings to avoid exposure to peak heat hours.
- Ensure availability of clean drinking water and hydration stations in all schools.
- Implement temporary cooling measures such as air circulation fans and shaded outdoor areas.
- Provide immediate medical assistance for students affected by heat-related illnesses.

Recovery & Rehabilitation

- Assess school preparedness and identify areas for improvement in heatwave response.
- Design heat-adaptive school infrastructure with improved ventilation and insulation.
- Integrate climate change and heatwave awareness into the school curriculum for long-term preparedness.

INFORMATION DEPARTMENT

Mitigation/ Preparedness

- Develop and run public awareness campaigns on heatwave prevention and safety.

- Use radio, TV, newspapers, social media, and SMS alerts to inform people about heat risks.
- Ensure all heatwave alerts from the Pakistan Meteorological Department (PMD) are quickly shared with the public.
- Create educational videos and infographics on how to stay safe during extreme heat.
- Coordinate with schools, mosques, and community centers to spread awareness.

Response

- Issue emergency heatwave warnings across all media channels.
- Broadcast safety guidelines like drinking water, avoiding direct sun exposure, and recognizing heatstroke symptoms in local languages.
- Collaborate with DDMA, Health, Education, Traffic police, PHED, Municipal and other line departments to have updates on emergency response services.

Recovery & Rehabilitation

- Work with local governments, I/NGOs and UN partners to promote long-term climate adaptation messages.
- Continue public awareness campaigns on planting trees, heat-resistant construction, and proper home ventilation.

TRAFFIC POLICE

Mitigation/ Preparedness

- Identify and mark high-risk areas like long, unshaded roads where people may suffer from heat exposure.
- Coordinate with local governments to ensure the construction of shaded waiting areas at bus stops.
- Educate drivers, bikers, and pedestrians on staying hydrated and recognizing heat exhaustion.
- Ensure that public transport is available early in the morning and late in the evening to reduce travel in peak heat hours.

Response

- Manage traffic congestion during extreme heat to prevent roadblocks and accidents in major cities and nearby hospitals and Schools.
- Ensure priority clearance for ambulances and emergency vehicles during heat-related medical emergencies.
- Assist in setting up water distribution points at major intersections.
- Issue traffic advisories and travel restrictions during peak heat hours.

Recovery & Rehabilitation

- Review heatwave-related traffic incidents and emergencies to improve future preparedness.
- Enforce long-term regulations on heavy traffic movement during extreme heat conditions.

AMBULANCE SERVICES (SIEHS & RESCUE 1122)

Mitigation/Preparedness

- Train paramedics and ambulance staff to handle cases related to heatstroke, dehydration, and exhaustion.
- Ensure all ambulances are equipped with cold IV fluids, ORS (Oral Rehydration Salts), and cooling packs, etc.
- Work with hospitals to set up heatstroke stabilization centers near vulnerable areas.
- Conduct heatwave emergency response drills for drivers.

Response

- Remain active on emergency Toll free numbers for 24/7.
- Deploy ambulances to high-risk areas such as busy markets, bus stops, and highways.
- Ensure a fast-track system for heatstroke patients in hospitals.
- Set up first-aid stations in public places where people can get emergency relief.
- Increase ambulance patrols in urban areas to identify heatstroke cases quickly.
- Coordinate and share updates with PDMA/ DDMAs on daily basis.

Recovery & Rehabilitation

- Evaluate the response time and effectiveness of emergency services during the heatwave.
- Upgrade ambulance cooling systems for better patient care.
- Work with government agencies to improve emergency response coordination in future heatwaves.

KARACHI METROPOLITAN CORPORATION (KMC)

Mitigation/Preparedness

- Develop green spaces and urban forests to reduce the city's heat levels.
- Create water distribution points at markets, bus stops, and railway stations.
- Ensure that all hospitals and dispensaries under KMC have cooling facilities.
- Enforce building regulations that encourage whitewashing of roofs, better ventilation, and rooftop gardens.

Response

- Activate temporary cooling shelters in public buildings, parks, and community centers.
- Distribute water and ORS sachets in slums, labor colonies, and crowded areas.
- Ensure that KMC hospitals are fully equipped to handle heatwave patients.
- Remove garbage and waste from streets to avoid worsening urban heat effects.

Recovery & Rehabilitation

- Repair and upgrade public drinking water stations for long-term use.
- Increase the number of heat-resistant trees planted across Karachi.
- Improve waste management and drainage systems to prevent heat-amplifying conditions.

MUNICIPAL CORPORATIONS OF OTHER DIVISIONS IN SINDH (HYDERABAD, SUKKUR, LARKANA, MIRPURKHAS, SHAHEED BENAZIRABAD)

Mitigation/Preparedness

- Identify heatwave hotspots in each city and implement targeted interventions.
- Work with local businesses, I/NGOs, and UN partners to install free water stations in public places.
- Ensure that markets, bus stops, and railway stations have proper shade.
- Enforce strict building codes requiring ventilation, heat-resistant roofs, and green rooftops.

Response

- Set up temporary cooling shelters in schools, community halls, and municipal offices.
- Coordinate with hospitals and ambulance services to ensure quick treatment for heatstroke patients.
- Work with traffic police to create dedicated cooling spots for travelers.
- Ensure that water supply services remain uninterrupted during heatwaves.

Recovery & Rehabilitation

- Develop urban greening programs with community involvement.
- Upgrade municipal infrastructure by using heat-resistant road materials and reflective paint on public buildings.

I/NGOS AND UN PARTNERS

Mitigation/ Preparedness

- Establish strong coordination mechanisms with PDMA and DDMAs at district and provincial levels to ensure preparedness.
- Conduct heatwave risk assessments and identify high-risk communities.
- Develop contingency plans and pre-position ORS (Oral Rehydration Salts), cold water, and essential medical supplies.
- Train healthcare workers, volunteers, and community responders on first aid, heat stress symptoms, and emergency response protocols.
- Launch awareness campaigns in local languages to educate communities about heatwave risks and safety measures.
- Promote sustainable solutions such as tree plantation drives, urban greening projects, and heat-resistant infrastructure improvements.

Response

- Mobilize emergency response teams to provide immediate relief in affected areas.
- Set up heatwave relief camps equipped with cold water stations, shaded rest areas, and first aid services.
- Distribute ORS, cooling packs, and necessary medications, prioritizing vulnerable groups such as the elderly, PWDs, children, and pregnant & lactating women.

- Work closely with health authorities to support heat stabilization centers for critical patients.
- Strengthen public communication and awareness efforts to reinforce life-saving heatwave safety measures.

Recovery & Rehabilitation

- Assess the impact of the heatwave and document lessons learned for future preparedness.
- Rehabilitate affected communities by supporting livelihood recovery and sustainable initiatives.
- Enhance climate adaptation strategies by advocating for long-term policy changes, urban tree cover expansion, and infrastructure resilience programs.
- Provide technical and financial support for community-led heat mitigation solutions, such as green rooftops and reflective housing materials.

ROLE OF COMMUNITY MEMBERS

Mitigation/ Preparedness

- Stay informed about heatwave risks and adopt early preparedness measures.
- Ensure adequate water storage at home and stock up on ORS solutions.
- Where possible, modify homes to improve ventilation, use reflective materials on roofs and walls, and plant trees for shade.
- Educate family members, neighbors, and vulnerable individuals on preventive heatwave measures.
- Participate in community initiatives promoting tree plantations, water conservation, and rooftop gardening to create cooling effects.

Response

- Take proactive steps to protect vulnerable groups, including elderly individuals, persons with disabilities, children, and pregnant & lactating women.
- Stay hydrated by drinking plenty of water and avoiding outdoor activities during peak heat hours.
- Use lightweight, loose-fitting clothing and keep cooling towels on the body to prevent heat stress.
- Assist in community-led efforts such as setting up local cooling shelters or distributing water and ORS to those in need.
- Monitor individuals showing signs of heat exhaustion or heatstroke and seek immediate medical attention if required.

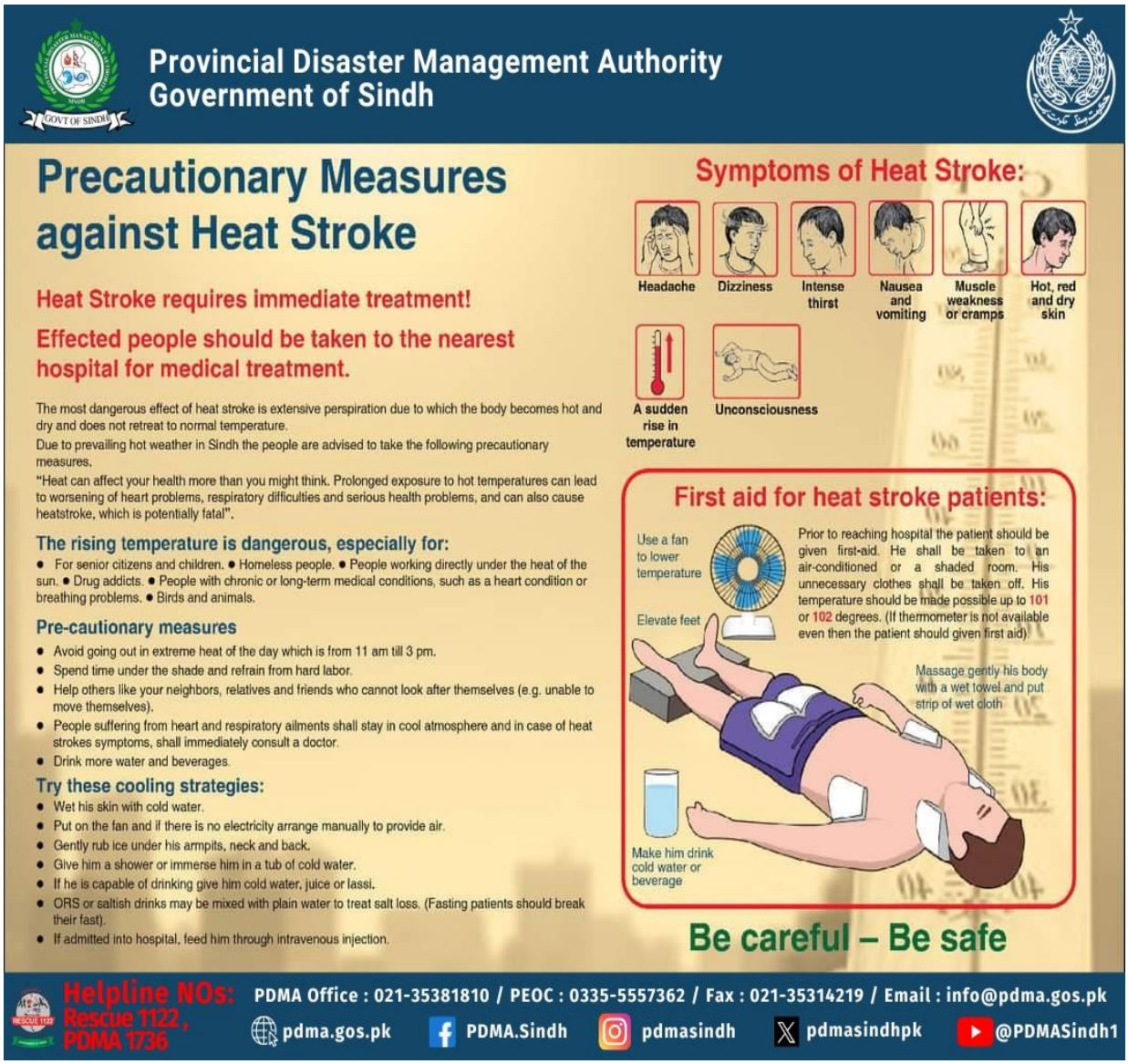
Recovery & Rehabilitation

- Strengthen long-term community resilience by actively participating in afforestation and climate adaptation programs.
- Support initiatives and advocate for better local heat management infrastructure, such as public water stations, shaded walkways, and green urban spaces.

ANNEX – A

Mass Awareness and Public Education

Mass awareness and public education are critical components of heatwave management. All departments, civil society stakeholders and community are equally responsibile for responding to heatwaves through promoting heatstroke safety and preparedness. PDMA Sindh through the guidelines from NDMA has designed following IEC posters in local languages for the dissemination amongst most vulnerable population. Therefore, all concerned departments and stakeholders shall promote public awareness campaigns to educate the public on heatwave safety, prevention, and response measures, and to promote behavioural change to mitigate the impact of heatwaves.




Provincial Disaster Management Authority
Government of Sindh
GOVT OF SINDH
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بے ہوشی
اچانک تیز بخار آنا
ہیٹ اسٹروک (لُو لگنے) کے متاثر کے لیے ابتدائی طبی امداد:
درجہ حرارت کم کرنے کیلئے پنکھے کا استعمال
ٹانگوں کو سہلا دے کر بلند کریں
ٹھنڈے پانی کی پٹیاں جسم پر رکھیں
پانی یا مشروبات پلائیے
ہیٹ اسٹروک فوری علاج طلب ہے!
متاثرہ فرد کو طبی امداد کی فراہمی کے لیے فوری طور پر قریبی ہسپتال پہنچائیں۔
ہیٹ اسٹروک کا جسم پر سب سے خطرناک اثر یہ ہوتا ہے کہ پسینہ زیادہ آنے کے بعد پانی کی کمی کی وجہ سے جسم حد سے زیادہ گرم اور خشک ہو جاتا ہے اور کسی صورت ٹھنڈا نہیں ہوتا۔
صوبہ سندھ میں جاری گرمی کی شدید لہر کے مدنظر عوام ہیٹ اسٹروک (گرمی کے امکانی حملے) سے محفوظ رہنے کے لیے درج ذیل احتیاطی تدابیر اختیار کریں۔
"گرمی آپ کی سوچ سے زیادہ آپ کی صحت کو نقصان پہنچا سکتی ہے۔ درجہ حرارت کی شدت میں اضافہ دل کے مسائل، سانس لینے میں مشکلات، صحت کے گمبھیر مسائل اور ہیٹ اسٹروک (لُو لگنے) بھی خراب صورتحال پیدا کر سکتا ہے جو جان لیوا بھی ہو سکتی ہے"۔
درجہ حرارت میں اضافہ خطرناک ہے، خصوصاً:
☆ بزرگوں اور بچوں کے لیے۔ ☆ بے گھر افراد کے لیے۔ ☆ سورج کی تپش میں مزدوری کرنے والے افراد کے لیے۔ ☆ نشے کے عادی افراد کے لیے
☆ وہ لوگ جو کسی عارضے میں مبتلا ہیں یا لمبے عرصے تک بیماری جیسا کہ امراض قلب یا سانس کی تکلیف کی حالت میں رہے ہیں۔ ☆ پرندے اور جانور
احتیاطی تدابیر:
☆ دن کے گرم ترین اوقات صبح 11 بجے سے سہ پہر 3 بجے کے دوران باہر جانے سے اجتناب کریں۔
☆ سائے میں وقت گذاریں اور سخت محنت سے احتیاط کریں۔
☆ دوسروں کی مدد کریں: اپنے ان پڑوسیوں، رشتہ داروں اور دوستوں کا خیال رکھیں، جو اپنا خیال نہیں رکھ سکتے (مثلاً اگر کوئی چلنے پھرنے سے لاچار ہو)۔
☆ دل اور سانس کی بیماری میں مبتلا افراد کو گھنٹے ماحول میں رہنا چاہیے، اگر کوئی گھنٹے کی علامات ہوں تو فوری طور پر ڈاکٹر سے رجوع کریں۔
☆ پانی اور تازہ مشروبات کا متواتر استعمال کریں۔
ٹھنڈک پہنچانے کے لیے درج ذیل حکمت عملی اختیار کریں:
☆ مریض کا جسم ٹھنڈے پانی سے گیلا کریں۔
☆ پنکھا چلائیں، بجلی نہ ہو تو ہاتھ والا پنکھا استعمال کریں۔
☆ اس کے بغلوں، گردن اور پیٹ پر برف کی ٹکور کریں۔
☆ اسے شعور کے پیچھے ٹھنڈا کریں یا ٹھنڈے پانی کے ٹب میں ڈبو دیں۔
☆ اگر وہ پینے کا اہل ہے تو اسے ٹھنڈا پانی، جوس یا لسی دیں۔
☆ نمکیات کی کمی کو پورا کرنے کے لیے او آر ایس یا نمک ملا پانی دیں۔ (روزے دار مریض افطار و سحر کے وقت دیں)۔
☆ ہسپتالوں میں، نقد شریانی نظام IV (Intravenous) انجکشن کے ذریعے دیں۔
احتیاط کیجیے — محفوظ رہیے
Helpline NOs: Rescue 1122, PDMA 1736
PDMA Office : 021-35381810 / PEOC : 0335-5557362 / Fax : 021-35314219 / Email : info@pdma.gos.pk
pdma.gos.pk PDMA.Sindh pdmasindh pdmasindhpk @PDMASindh1


Provincial Disaster Management Authority
Government of Sindh
هيٽ اسٽروڪ (لُڪ لڳڻ)
ڪان بچاءُ جون احتياطي تدبيرون
هيٽ اسٽروڪ فوري علاج طلب آهي!
متاثر شخص کي طبي امداد جي فراهمي لاءِ فوري طور تي ويجهي اسپتال پهچايو.
گرمي پد ۾ اضافو خطرناڪ آهي خاص طور تي:
احتياطي تدبيرون:
تڏ پهچائڻ لاءِ هيٺين حڪمت عملي اختيار ڪريو:
هيٽ اسٽروڪ (لُڪ لڳڻ) جون علامتون:
مٿي ۾ سور
چڪر اچڻ/ مٿو ڦرڻ
شديد اُڃ لڳڻ
الٽي ۽ اوڪارا اچڻ
ڪمزوري ۽ پٺن ۾ ڇڪ
گرم، ڀڄاڙهي ۽ خشڪ چمڙي
اوچتو تيز بخار اچڻ
بيهوشي
هيٽ اسٽروڪ (لُڪ لڳڻ)
جي متاثرن لاءِ ابتدائي طبي امداد:
گرمي پد گهٽائڻ لاءِ پکي جو استعمال
ٺنڊي کي سهارو ڏئي مٿي ڪريو
ٺنڊي پاڻي جون پٽيون جسم تي رکو
پاڻي يا مشروبات پياريو
احتياط ڪريو ـ محفوظ رهو
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PROVINCIAL DISASTER MANAGEMENT AUTHORITY,
REHABILITATION DEPARTMENT
GOVERNMENT OF SINDH
PLOT NO. 26-C, MAIN KHAYABAN-E-JAMI,DHA PHASE–VII, KARACHI.

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