



**RELIEF, REHABILITATION &
SETTLEMENT DEPARTMENT
GOVERNMENT OF KHYBER PAKHTUNKHWA**

HEAT WAVE ACTION PLAN 2022



**Provincial Disaster
Management Authority
Khyber Pakhtunkhwa**

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Heat Wave Action Plan Government of Khyber Pakhtunkhwa

1. Situation Analysis:

Climatic changes have many adverse impacts on global temperature which is unfolding in various parts of the world including Pakistan. It is predicted that many countries including Pakistan will be severely hit in the form of heat waves which has the potential to endanger human lives especially in urban centers of our country. Khyber Pakhtunkhwa has been facing the brunt of climate change hazards because of its unique topography. Being home to extreme cold and hot weather significant losses have been incurred which can be linked to climate change related disasters i.e. floods, glacial melting, drought heat waves etc.

According to Pakistan Meteorological Department, heatwave is the condition where the maximum temperature situation reaches to 40 C for the plain and 30 C for the hilly areas with a departure from normal 4.5 C to 6.4 C. The World Meteorological Organization defines a heat wave as five or more consecutive days during which the daily maximum temperature exceeds the average maximum temperature by five degrees Celsius. As per various forecasts and reports including Pakistan Meteorological Department and international satellites data, May 15th 2022, has recorded the highest temperature i.e. 42 C of the current month which is 6 degrees above the normal and 8 degrees above the temperature on the same date as of last year, which is a substantial reason for heat wave declaration.

The upcoming month of June 2022 is forecasted to maintain the same degrees around 41 and 42 C and may touch 50 C as per the weather trend of May 2022. The combination of heat and humidity (**wet bulb temperature**) exceeds the temperature of human body which may lead to heat strokes. The situation of heat waves may cause heat strokes mainly in urban centers affecting the following high-risk groups;

- Laborers including those at construction sites / Outdoor workers / Farmers
- Police personnel / security staff
- Industrial workers working at High Temperature
- Street hawkers / Salesmen
- Rickshaw/auto drivers / Travelers / bus drivers
- Beggars / Homeless/unprivileged residents
- Drugs Addicts
- Children/ Senior citizens etc.

2. Heat Index:

Heat index is the measure of how hot it is actually felt when the effect of relative humidity is coupled with actual temperature. The following table describes various scenarios taking into account actual temperature and relative humidity.

Relative Humidity %	Temperature °C																
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
40	27	28	29	30	31	32	34	35	37	39	41	43	46	48	51	54	57
45	27	28	29	30	32	33	35	37	39	41	43	46	49	51	54	57	
50	27	28	30	31	33	35	36	38	41	43	46	49	52	55	58		
55	28	29	30	32	34	36	38	40	43	46	48	52	54	58			
60	28	29	31	33	35	37	40	42	45	48	51	55	59				
65	28	30	32	34	36	39	41	44	48	51	55	59					
70	29	31	33	35	38	40	43	47	50	54	58						
75	29	31	34	36	39	42	46	49	53	58							
80	30	32	35	38	41	44	48	52	57								
85	30	33	36	39	43	47	51	55									
90	31	34	37	41	45	49	54										
95	31	35	38	42	47	51	57										
100	32	36	40	44	49	56											
<div> <div>Caution</div> <div>Extreme Caution</div> <div>Danger</div> <div>Extreme Danger</div> </div>																	

3. Heat Waves in Khyber Pakhtunkhwa

The peculiar configuration and socio-economic conditions of the inhabitants of Khyber Pakhtunkhwa makes it more vulnerable to adverse impacts of climate change including heat waves. Like other parts of Pakistan, the threshold for a heat wave is much higher in Southern parts and urban centers of central Khyber Pakhtunkhwa than the Northern region.

Based on the aforementioned analogy Khyber Pakhtunkhwa can be divided in; (i) Northern Mountainous Region, (ii) Central Khyber Pakhtunkhwa, and (iii) Southern Dry Plain as of the following details;

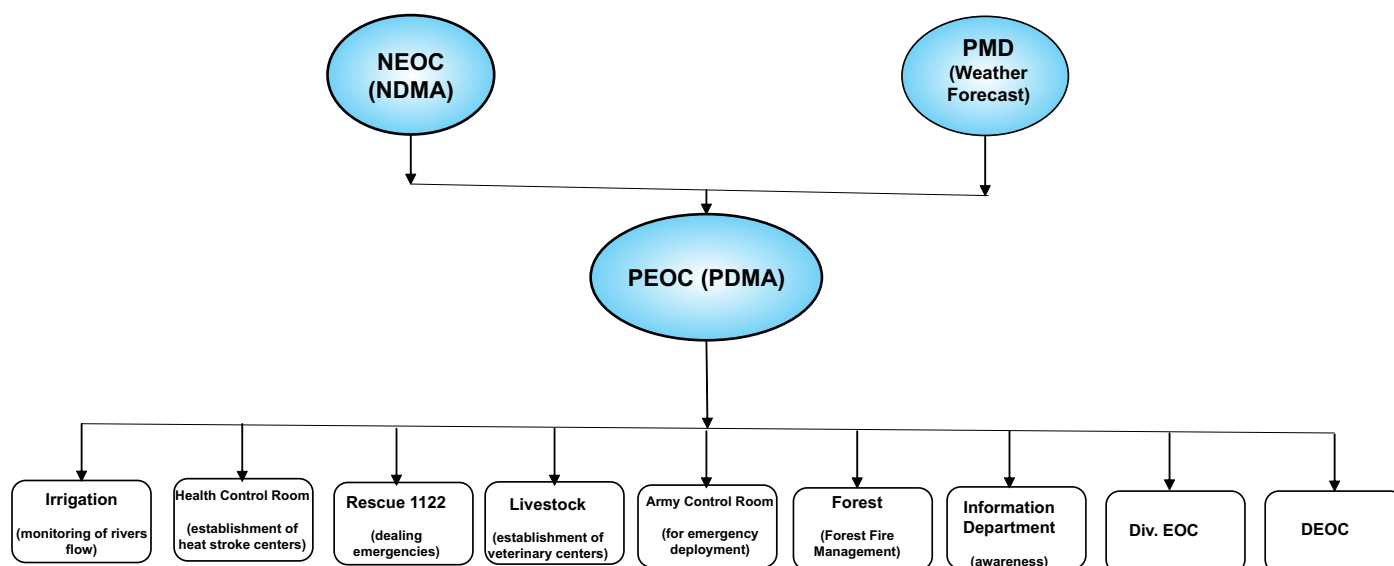
Northern Mountainous Region	Central Khyber Pakhtunkhwa	Southern Dry Plain
<ul style="list-style-type: none"> The heat wave may trigger the hazards like; <ul style="list-style-type: none"> Rapid Glacier Melting Glacial Lake Outburst Floods (GLOFs) Land Sliding Episodic rainfall and high-speed winds The affects can be felt as; Human and Capital loss of the local communities, Disruption of the Tourist Services, Damages to the Infrastructures (esp. road & bridges), adverse impact on crops/orchards yield/production and forest fire eruption etc. 	<ul style="list-style-type: none"> The heat wave may trigger the hazards like; <ul style="list-style-type: none"> Sudden Weather Local Phenomena Sudden rise of the local winds Winds(cyclones) Increased River Flows (Indus & Kabul) Forest Fire The affects can be felt in the form of; medical emergencies, high demand of energy which may lead to electricity disruption, adverse impacts on crops/orchards yield/production, damages to electricity lines and falling of billboards etc. 	<ul style="list-style-type: none"> The heat wave may trigger the hazards like; <ul style="list-style-type: none"> Drought Sudden rise of the local winds Forest Fire Winds The affects can be felt in the form of; medical emergencies, irrigation water scarcity, high demand of energy which may lead to electricity disruption and adverse impacts on crops/orchards yield/production

4. Early Warning & Coordination

Provincial Disaster Management Authority coordinates efforts of all stakeholders for effective disaster risk management in the province. Its coordination mechanism is simple but effective for the dissemination of early warning, surveillance and management of the disaster situation. PDMA entails horizontal coordination with the relevant provincial line departments and headquarters engineers 11 corps Peshawar on one side and with the humanitarian community on other side. On the other hand, vertical coordination occurs with federal agencies including NDMA and Pakistan Meteorological Department, and with the divisional and district administrations.

Provincial Emergency Operation Center (PEOC) at PDMA aims to provide a platform and bridge for timely and accurate coordination between the stakeholders. The center is connected with Rescue 1122, Health, irrigation, livestock, forest departments, Police, NDMA and Pakistan Army. It remains active 24/7 and provides access to general public through toll free No.

During heatwave the PEOC receives the heatwave alert and forecast from Pakistan Meteorological Department and National Emergency Operation Center (NEOC) at NDMA and will issues advisory to the district administration, line departments, media and other stakeholders. The coordination is illustrated as;



5. Heat Wave Declaration

The temperature forecasts are an integral part of declaring heat days and heatwave emergencies. Records on heat-related illness and mortality give an additional measure of the ongoing impacts of heat in the weather conditions.

Type of Alert	Criteria	Response
Hot Day Advisory	Temperature rises from normal with a departure up to 4.5°C	Increased communication in media on heat issues
Hot Day Warning	Departure from normal is > 4.5°C	High level of public awareness and preparedness of government agencies
Heatwave Emergency	Departure from normal is > 6.4°C When there are significant levels of heat related illness and even mortality there must be the declaration of a Heatwave Emergency and a rapid response regardless of specific weather criteria.	Declaration of heatwave emergency

6. Heat wave Surveillance & Coordination

Sustained collection and review of information is an important factor for ensuring better response to Heat Wave Management. The Ministry of Climate Change has notified a task force which includes the Minister for Climate Change (chairperson), Minister for Water Resources, Minister for National Food Security & Research, Minister for Information and Broadcasting, Secretaries of Ministry of Climate Change, Ministry for Water Resources, National Food Security & Research, Ministry of Information and Broadcasting, Ministry of National Health Services Regulation and Coordination, Chairman NDMA, Director General Pakistan Metrological Department, All Chief Secretaries and other co-opted member for taking stock of immediate preparedness and response for heat wave mitigation and management.

Daily coordination meeting of NDMA, PDMA, PMD, NIH and Provincial Health Department are held for monitoring the situation and review of the below information for initiating appropriate actions.

- Forecast maximum and minimum temperatures for the next 24 hrs and next 7 days from PMD; and
- Reports on numbers of heat related illnesses and fatalities at all hospitals and heat stroke centers.

PDMA regularly monitor the situation and issue the Daily Situation Report which described the influx of heatstroke patients in the heat stroke centers and the mortality of human being and livestock. Furthermore, DSR also give the event record of forest fire erupted in the province.

7. Roles and Responsibilities

The management of heat wave is a complex task involving different stakeholders for taking necessary actions for mitigation of the overall heat wave situations. The following section details roles and responsibilities of various departments.

7.1 Immediate Measures

S No	Action	Responsibility
1.	Establishment of Heat Stroke Centers in all Health Facilities across the province and ensuring availability of Emergency Medicines and Human Resource. Mobile health centers for major public places coverage.	Health Deptt
2.	Ambulatory services readiness for stroke patients	Rescue 1122
3.	Awareness amongst farmers, meeting the water demand of the Live Stock, Crops/Orchards and Strategy for ensuring food security	Agriculture Deptt:
4.	Availability of Drinking Water at Public Places especially in Addas, Markets, Mandis and Parks etc	Local Govt Deptt:
5.	Installation of Sheds for market/mandis	Local Govt/District Admin
6.	Un-interrupted power supply and activation of Complaint Centers	PESCO/TESCO
7.	Ensuring smooth supply of Clean Drinking Water	PHE Deptt
8.	Continuous monitoring of the rivers flow and timely coordination with relevant departments	Irrigation Deptt:
9.	Timely issuance of heat wave alerts and weather forecast to all depts. and general public	Met Dept/PDMA/Information Deptt
10.	To ensure better working condition for Laborers and Industrial Workers.	Labor/Industries Deptt
11.	Taking measures to prevent forest fires	Forest Deptt/Distt Admin
12.	Ensuring precautionary measures for field staff working under direct sun light	All Deptt: especially Police Deptt:
13.	Safety of petrol/diesel/CNG usage-enforcement	District Admin
14.	Panahgahs activation for shelter less people	Social Welfare Deptt
15.	Raising awareness regarding heat wave related illness and its prevention amongst teachers and students. Review school timings and other precautionary measures.	Education Dept
16.	Establishment of Provincial and District Control Rooms	All Relevant Deptt/Distt Admin
17.	Public Awareness Campaign	Information Deptt
18.	Daily situation reports and continuous monitoring of the situation	PDMA PEOC
19.	To issue proper advisory and make necessary arrangements for various events accordingly.	Tourism Department

7.2 Preparedness Measures

Keeping in view the afore mentioned responsibilities the action taken by the departments are as under;

7.2.1. Health Department

Heatwave may cause the heatstroke and bear the consequences of human health especially in the Central and Southern regions of Khyber Pakhtunkhwa. In this connection the health department has established the heat stroke centers for dealing the heat wave patients as per the following details;

S.No	District	Heat Stroke Centre's	Bedding Capacity
1	Abbottabad	6	27
2	Bajaur	3	40
3	Bannu	6	55
4	Battagram	2	12
5	Buner	0	0
6	Charsadda	5	48
7	Chitral Lower	4	17
8	Chitral Upper	0	0
9	Dera Ismail Khan	13	64
10	Dir Lower	7	16
11	Dir Upper	3	14
12	Hangu	4	20
13	Haripur	12	74
14	Karak	3	30
15	Khyber	3	16
16	Kohat	8	60
17	Kohistan Lower	2	6
18	Kohistan Upper	2	3
19	Kolai Pallas	2	7
20	Kurram	1	20
21	Lakki Marwat	3	20
22	Malakand	9	32
23	Mansehra	5	18
24	Mardan	10	65
25	Mohamand	2	15
26	North Waziristan	1	4
27	Nowshera	4	28
28	Orakzai	6	30
29	Peshawar	8	41
30	Shangla	1	4
31	South Waziristan	1	10
32	Swabi	11	49
33	Swat	8	43
34	Tank	4	26
35	Toorghar	0	0
Total		159	914

7.2.2. Forest Department

The heat wave may trigger the eruption of forest fire therefore the forest department has notified detailed SOPs for forest fire prevention and mitigation. Highlights of the SOPs are reproduced as under;

- The oversight arrangements are in place through a Divisional Forest Fire Management Team (FFMT) headed by Commissioner and including all stakeholders.
- Section 144 is imposed on fireworks/campfire etc. from May to September.
- Fire-lines have been marked across reserve forests and wildlife national parks.
- Plotting of forest fires in the last 10 years through GPS towards rough indication of hotspots.
- Rapid Response Teams, dedicated to fire-fighting, along with their equipment headed by the SDFOs concerned, with required mobility, as near to hotspots as possible
- Mapping of water sources to pre-indicate nearest such sources to hotspots in advance
- Completed the procurement process for additional fire-fighting equipment by the relevant department
- Collection and disposal of pine needles on time to avoid chances of fire by the relevant department
- Sustained social mobilization campaigns in the concerned communities through village committees, mosques, hujras etc. and public representatives, backed by installation of billboards with “precautionary messages”, printing of material on that account & its distribution through mosques, public places and other modes by the relevant department
- For private / community forests, jirgas and meetings with private owners / village committees for advocacy and binding them to aid in extinguishing of fires by the relevant department.

7.2.3. Livestock Department

The livestock department has established centers for livestock in the province as per below details;

Sr. No	Location (District)	No. of Centers Established
1	Abbottabad	51
2	Bajaur	29
3	Bannu	148
4	Battagram	24
5	Buner	29
6	Charsadda	50
7	Chitral Lower	15
8	Chitral Upper	16
9	D I Khan	82
10	Dir Lower	45
11	Dir Upper	27
12	Hangu	15
13	Haripur	44
14	Karak	40
15	Khyber	51
16	Kohat	28
17	Kohistan Lower	13

18	Kohistan Upper	14
19	Kolai Palas	11
20	Kurram	53
21	Lakki Marwat	56
22	Malakand	38
23	Mansehra	61
24	Mardan	68
25	Mohmand	56
26	North Waziristan	94
27	Nowshera	52
28	Orakzai	65
29	Peshawar	91
30	Shangla	71
31	South Waziristan	76
32	Swabi	16
33	Swat	81
34	Tank	39
35	Toorghar	16
Total		1665

7.2.4. Traffic Police

The on-duty traffic police personnel are more vulnerable to heat stroke due to direct exposure to sunlight. The traffic police department have taken stock of the on-duty police personnel and is in the process of making necessary arrangements as follow;

Provision of Information Traffic Police, Khyber Pakhtunkhwa

S.No	Regions	Number of on Duty Traffic Personnel	Available Shades
1	Peshawar	990	30
2	Mardan	217	10
3	Malakand	946	563
4	Hazara	537	26
5	Kohat	225	14
6	Bannu	325	2
7	DI Khan	132	76
Total		3372	721

7.2.5. Information Department

Information department will implement awareness campaign in close collaboration with Health Department and PDMA. The primary audience for the awareness campaign about heatwave and its precautions will be the general public, who will be provided information about risk characteristics, preventative actions, symptoms (heat cramps, heat exhaustion, heat stroke) and appropriate behavior during a heatwave.

The Heatwave awareness campaign will utilize clear and simple formats with more use of pictures to convey the key messages using local languages/ Urdu, the messages will be conveyed via:

- Banners,
- Leaflets,
- Handouts, and
- Different sources of Media.

The key messages that will be communicated to the public to reduce the health impacts of heatwave will be in line with the guidelines of Health Department Khyber Pakhtunkhwa.

7.2.6. Halal Food Authority

During the heat waves the conservation and cleanliness of food in the market is a crucial aspect in which can be monitor by the Halah Food Authority regularly, following are the mapping of food testing laboratories of Halah Food Authority.

Regions	No. of food testing laboratories
Northern KP (Malakand & Hazara Division)	Malakand Division – 01
	Hazara Division – 01
Central KP (Mardan & Peshawar Division & Kohat District)	Mardan Division – 01
	Peshawar Division – 01
	Kohat Division – 01
Southern KP (DI Khan & Bannu)	DI Khan Division – 01
	Bannu Division – 01
Total	07

7.3 Long Term Strategies

- Urban Greening initiatives
- Tree plantation along roads/motorways
- Conservation of water and storage capacity development in urban centers and interruptible supply of water
- Electricity supply measure improvements
- Solid waste management improvement
- Cooling roofs strategies
- Increasing overall green cover
- Subsidizing solar power generation for households
- Limiting Carbon footprint by industries/vehicles etc
- Forestation measures
- Efficient use of water resources

Awareness Messages by PDMA



پی ڈی ایم اے ایڈٹس

خیبر پختونخوا میں آئندہ 4 سے 5 دنوں کے دوران درجہ حرارت معمول سے 5-07 سنٹی گریڈ بڑھنے کا امکان۔ محکمہ موسمیات
اپراور لوئر چترال، کوہستان اور کے برفانی علاقوں میں گرمی کی لہر کی صورت حال پیدا ہونے کا امکان۔
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Heat Stroke

Who is at Risk?

Seniors, Children, Sportsman, Labour

Preventive Measures

Avoid Direct Heat Exposure, Drink Plenty of Water & Juices, Take Cold Water's Showers, Avoid Hot Beverages, Consult Doctor in Emergency

Plan Trees, Protect Environment

Signs & Symptoms

No Sweating, Hot, Red & Dry Skin, Nausea & Vomiting, Extreme Thirst, Dizziness, Unconsciousness

091-9213959, 091-9213545, 1700

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گرمی کی حالیہ لہر کے پیش نظر گاڑی کی ٹینکی میں فیول سے پوری فل نہ کریں۔
یہ نقصان کا باعث بن سکتی ہے۔

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- ✓ دھوپ سے بچیں اور سایہ دار جگہ پر روکیں۔
- ✓ پانی کا استعمال زیادہ کریں۔
- ✓ کسان فصلوں کے لیے پانی کا مناسب انتظام کریں۔
- ✓ سر کو ڈھانپنے اور نرم و ہلکے کپڑے پہنیں۔

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جنگلات ماحول کو صاف ستھرا p میں اہمیت کی حامل ہیں۔ جنگلات کے بے شمار ماحولیاتی اور معاشی فوائد کے پیش آں کی اہمیت مسلمہ ہے۔ جنگلات کی کثرت سے ماحولیاتی آلودگی، زہیہ فٹاؤ اور سیلابوں سے ہونے والے نقصانات کا ارک بھی ہوگا۔ شجرکاری کی اہمیت، افادیہ کو معاشرے کے ہر فرد، بچوں، خواتین اور جوانوں میں اس حوالے سے شعور اجا کرنے کی سخت ضرورت ہے۔ جنگلی و جنگلی حیات قدرت کا ایہ انمول شاہکار ہے جو کہد* کے بہت سے علاقوں میں پئے جاتے ہیں۔

ضروری ہدایت پ عمل کریں۔

- * زیادہ سے زیادہ درخت لگائیں تاکہ ماحولیاتی آلودگی میں کمی لائی جاسکے۔
- * ہر سال شجرکاری مہم کے دوران جنگلوں میں نئے درخت لگا کر اپنے اور اپنے آنے والے نسلوں کی بقاء و سلامتی یقینی بنائیں۔
- * جنگلی حیات کے لیے رضا کارانہ طور پر پانی کا بندوبست کریں۔
- * جنگلوں میں آگ نہیں جلانے پکنک کی غرض سے جاتے ہوئے اپنے ساتھ کھانے پینے کی تیار اشیاء ساتھ لے جائے۔
- * استعمال کی چیز میں (پلاسٹک کے تھیلے، جوس کے ڈبے وغیرہ) جنگل میں نہ پھینکا کریں تاکہ جنگلی ماحول خراب نہ ہو۔
- * باشعور عوامی طبقے اپنے ذمہ داریوں کا تعین کر کے لوگوں میں شعور اجاگر کرنے کی کوشش کریں تاکہ رضا کارانہ طور پر لوگ اپنے ذمہ داریوں اور قومی اثاثوں کا خیال رکھا کریں۔



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