SIMPLIFIED EARLY ACTION PROTOCOL

Myanmar | Urban Heatwaves

sEAP №: **sEAP2024MM01**	Operation №: **MDRMM022**	Total Budget: **CHF 200,000**	Readiness: **CHF 55,442**	
			Prepositioning: **CHF 45,722**	
			Early Action: **CHF 98,837**	
People targeted: **10,220 People**	sEAP approved: **25/11/2024**	sEAP timeframe: **2 Years**	sEAP lead time: **5 days**	Operational timeframe: **4 months**
Prioritized geographical areas: **Urban areas of Yangon and Mandalay**				

RISK ANALYSIS AND EARLY ACTION SELECTION

Prioritized hazard and its historical impact.

There has been a general increase in temperatures across Myanmar over the last six decades. This has resulted in an increase in extreme high temperature days and thus the prevalence of heat-related disorders. Prolonged exposure to extreme heat, resulting in heat stress, is expected to increase in the next five years in all regions and states of Myanmar. According to the Department of Meteorology and Hydrology of Myanmar (DMH), there is high confidence that warming is very likely to continue across Myanmar[1]. Climate change is leading to more frequent and severe heat waves. As global temperatures rise, the occurrence and intensity of heat waves are expected to increase in Myanmar.

The MONREC (Ministry of Natural Resources and Environmental Conservation of the Republic of the Union of Myanmar), in Myanmar's National Adaptation Programme of Action 2016-2030, reports 1,482 cases of heat-related disorders and 260 heat-related deaths during the summer of 2010 across the country. As a so-called silent killer, heatwave deaths are likely underreported. In addition, the report highlights that local populations in Mandalay are experiencing heat-related stresses and diseases more frequently. It adds that extreme heat days in Mandalay forced all schools to close in 2015[2].

In 2010, a heatwave in Mandalay, reaching a daily maximum temperature of 47°C on 20 May 2010, reportedly killed 230 people. On 20 April 2014, during a heatwave with a daily maximum temperature of 41.7°C, 49 heatstroke cases were reported in Mandalay city[3], of which 9 resulted in death.

In Yangon, during a heatwave with a daily maximum temperature of 42.2°C in April 2019[4], 8 people died from heat-related illnesses.

Additionally, while the people of Myanmar are accustomed to high temperatures throughout the year, deadly heat extremes have been increasingly recorded in recent years. This poses a problem as people may believe they are prepared for high temperatures, leading to a false safety perception. Some experiences indicate that individuals who did not seek information on heat-related illnesses during heatwaves are potentially at higher risk[5].

Rapid industrialization and urbanization in the country are leading to higher temperatures in urban areas, with climate change accelerating or increasing the Urban Heat Island (UHI) phenomenon. In urban areas located in wet climate zones, such as Yangon, the impacts of the UHI are further intensified by high humidity levels in the air, which heighten the impact on human health[6].

Furthermore, with urbanization rapidly increasing in Myanmar, the number of urban poor is also expected to rise, exacerbating issues related to access to infrastructure and basic services. These factors increase the risk of negative impacts from heatwaves for the most vulnerable populations. Informal and poor housing settlements are characterized by dense and poorly built structures, with materials such as iron sheets or fibro cement roofs that are highly susceptible to extreme heat[7]. This, combined with widespread poverty, exacerbates the exposure and vulnerability of people living in these settlements to extreme heat events[8].

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[1] https://www.moezala.gov.mm/sites/default/files/articles/Leaflet%2015Mar2019-Final%20%28UpdatedbyAlice%29.pdf
[2] Ministry of Natural Resources and Environmental Conservation (MoNREC), the Republic of the Union of Myanmar, 2016. Myanmar Climate Change Strategy and Action Plan (MCCSAP) 2016–2030 https://policy.asiapacificenergy.org/sites/default/files/MCCSAP-Feb-Version.pdf
[3] https://www.ygnnews.com/2014/04/blog-post_7680.html
[4] https://www.bbc.com/burmese/burma-48291587
[5] Shah, T. et al. 2015. Addressing vulnerability to the health risks of extreme heat in urbanising Ahmedabad, India. https://assets.publishing.service.gov.uk/media/57a08984e5274a27b2000105/CDKN-Ahmedabad-Paper.pdf
[6] Singh, R. et al. RCRC Climate Center. Heatwave Guide for cities. 2019. https://www.climatecentre.org/downloads/files/IFRCGeneva/RCCC%20Heatwave%20Guide%202019%20A4%20RR%20ONLINE%20copy.pdf
[7] Wang, J. 2018. The exposure of slums to high temperature. https://www.researchgate.net/publication/327888209_The_exposure_of_slums_to_high_temperature_Morphology-based_local_scale_thermal_patterns
[8] Scott A.A. 2017. Temperature and heat in informal settlements in Nairobi. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0187300

In addition, jobs involving high levels of physical exertion or prolonged work outdoors (e.g. street vendors, construction workers, …) are particularly affected by increasing heat levels[9], and a higher risk of suffering heat-related illness. Indeed, poverty among outdoor workers is one of the key drivers of heat stress vulnerability, because they must prioritize earning income over protecting themselves against health risks at work.

Generally, informal and poor housing settlements concentrate a high percentage of migrant outdoor workers and factory workers. In Yangon, this has been well documented by Naing, M. and Nitivattananon, V. (2020)[10]. Thus, people living in informal and poor housing settlements hardly have a chance to find relief from heat both during the day and night during a heatwave, due to their livelihood (in the streets or in the factory) and the place they rest in, potentially leading to cumulative heatstrokes. In parallel it is widely accepted that elderly, children under five years old, pregnant women and people with disabilities are the most vulnerable towards high temperatures[11].

Explain which risks have been selected for this protocol and why

MRCS conducted the following studies, to elucidate the impacts of Heatwaves on the most vulnerable:

- Impact Survey targeting outdoor workers in Yangon (516 people interviewed).
- Focus Group Discussions (FGDs) targeting orphanages, elderly care homes, monasteries and public health clinic in Yangon.

From findings of the above-mentioned analysis, the following two impacts have been prioritized in this Simplified Early Action Protocol:

1. Increased health problems associated with heat: the studies have shown that heat waves are causing severe health consequences to vulnerable people (from 516 respondents in Impact Survey, excessive sweating during a heatwave (80.4 per cent), followed by fatigue (61.4 per cent), headache (50.8 per cent), dehydration (25.2 per cent), skin rashes (19.2 per cent), inappetence (18.8 per cent), fever (17.6 per cent), lack of concentration (16.7 per cent), muscle cramp (11.8 per cent), increased body temperature (11.2 per cent), heatstroke (9.9 per cent), cold, pale, clammy skin (7.2 per cent), respiratory problems (7.2 per cent), others (6.2 per cent), and nausea or vomiting (4.1 per cent). Only 1.7 per cent (7) suffered no symptoms).

This is leading to a risk of increased mortality rate. Due to periods of high temperatures, most outdoor workers in urban areas suffer more health problems during the summer than in other seasons of the year. Specifically, 96.9 per cent of outdoor workers suffer heat related symptoms, and 82.4 per cent outdoor workers experience from 1 to 6 heat health related symptoms during a heatwave. A large proportion suffers symptoms for one to three days, and some even longer periods. In some cases, heat related symptoms up to months or even on a chronic basis are reported. Also, DMH declares a heatwave event when the daily temperature remains high for more than 3 days. Data suggests that the effects of heat can last longer than the heatwave event, and that some people suffer from cumulative excessive heat effects.

Children under 5 years old, elderly and people with disabilities suffer disproportionately during heatwaves. This was confirmed by the FGDs. As an example, children experience a wider range of heat health symptoms (nose bleeding, difficulty to sleep at night, fever, diarrhea, ability to concentrate, confusion, anger …), although many of those are common to the elderly as well (loss of appetite, fatigue, dizziness and vomiting) with in addition excessive sweating and skin rashes. Additionally, the FGDs provided evidence on the importance of heat awareness dissemination, including traditional coping mechanisms (e.g. use of Thanaka, a natural sun protective cream, use of traditional hand fans).

2. Loss of income: More than 40 per cent outdoor workers do exhausting and long journeys outdoors of above 8 hours/day. Daily incomes are meagre: 35.5 per cent earn 3,000 – 5,000 kyats (MMK), 38.4 per cent earn 5,000 – 8,000 kyats, and 26.2 per cent earn above 8,000 kyats. The situation becomes more difficult as input costs and

[9] ILO, 2019. Working on a warmer planet. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf

[10] https://www.researchgate.net/figure/Occupation-of-working-household-members-from-Hlinethaya-Township-Source-UN-Habitat_fig4_344021989

[11] WHO Myanmar. May 2016. Management of heat-related illnesses.

inflation rates rise in country since 2021 and is expected to do so in the coming years. The economic consequences of heatwaves are multidimensional. On one hand, the health impact has economic repercussions. 94.2 per cent have increased medical expenditures during summer.

To cover the economic burden, they do extra jobs, take loans or use their savings, among other negative coping mechanisms. On the other hand, there is a generalized reduction in income partly due to a reduction in daily working hours. The reasons are, but not limited to health issues or heat stress, reduction of working hours as a coping mechanism to avoid the hottest hours of the day and less customers during heat peak hours. 65.5 per cent lose working hours, leading to income reduction with almost 20 per cent seeing a reduction from 76 per cent to 100 per cent of their daily earnings. Providing them with cash before the heatwave can help them to reduce the loss of income and extra economic burden during heatwaves and mitigate the risk of negative coping strategies that may harm them and their families both physically and psychologically, thereby also contributing to the reduction of health impacts.

Findings from the MRCS Impact Survey in which outdoor workers were interviewed in Yangon, revealed that 83.1 per cent receive heatwave weather forecast information. Reasons for not receiving forecasts include no free time to check forecasts and no access to devices (television, phone or radio). 22.6 per cent of people receiving forecasts state it is not clear to them. As many outdoor workers use word of mouth and Facebook to receive forecasts (which are among the most trusted sources), using those methods are appropriate and feasible for disseminating heatwave forecasts. In addition, as many are busy and don't have time to check forecasts and might not have access to devices that provide forecasts, speakers in the streets seem a good way of catching their attention. This would be in line with findings from the 2021 FbF disseminations sessions to Yangon and Mandalay Branches, in which it was concluded that anticipatory action systems should consider both online and non-online channels, as both are widely used among the people of Myanmar.

Describe the selected early actions and explain how they will address the risks and lead to the intended outcome

In general, a combination of hybrid modalities and delivery mechanisms could support people at risk of heatwave impacts. Considering the assessments above mentioned (health and economic impacts), the short lead time, potential logistical problems, and results from discussions with MRCS branches in Yangon (43 Branches) and Mandalay (7 Branches), the following three actions were selected for this EAP:

1. Early warning messaging and awareness on heatwaves:

- via social media and loudspeakers in the street, in places frequented by outdoor workers
- via the Emergency Operations Center will disseminate heatwave early warnings and send daily updates to MRCS Branches (who will communicate the forecast within their respective Regions/States and townships). DMH heat warnings will be accessible from MRCS website.
- by visits to orphanages/schools, elderly and people with disabilities care homes, Township Public Health Centers (mostly pregnant and newborn children): Sensitization on heatwave early warning, heat awareness and FA visits by trained Volunteers to orphanages, elderly and people with disabilities' care homes, Heat vulnerable HHs living in poor housing settlements and places frequented by outdoor workers will provide necessary messages, items and FA messages and care when needed to those groups, both before and during the heatwave. MRCS website will display a link that redirects to heat awareness messages from the Ministry of Health. Also, MRCS will display its website its own awareness messages.

2. First Aid posts, shaded cover and water stands:

- First aid posts with shading space and water stand will be set up in areas frequented by outdoor workers e.g. Wet markets, industrial areas, rickshaw driver stops, …). RCVs trained in First Aid, including Heat related First Aid and awareness, will be stationed in the posts, will welcome people to the shading space and will assess beneficiaries' health condition and will act accordingly. The service is offered to any passers-by in need.

- Awareness on Heat related health symptoms will be provided.
- MRCS Volunteers can refer serious cases (e.g. heatstroke) to hospital, with standby referral vehicles.
- Two (2) First Aid Posts with shaded cover (including Water stand) will be set up, together with 1 Ambulance each, in each selected township.

First Aid Posts: MRCS First Aid guides include messaging on both how to act to avoid heatstrokes and how to deal with heatstrokes in case they happen. MRCS First Aid posts offer to the most potentially affected population a needed service to deal with high temperatures and reduce the incidence of heat health related symptoms among the most vulnerable. The posts include a stretcher in case a person requires to lie down due to heat exhaustion. Referrals through ambulance services are conducted when needed, especially when volunteers identify a hint for serious heat exhaustion and potentially a stroke.

Shading spaces: Adjacent to the First Aid posts, shading spaces are installed, with materials that provide a good shade and are available locally. The shading space welcomes all people that need to take a rest from the heat. The shading space will be equipped with electric fans. To overcome power cuts, people are provided with hand fans (rattan material) as well. It also works as an awareness center, where Volunteers will provide hats (rattan material), heat awareness messages, as well as IEC materials (leaflets, …). Posters on heat awareness will be stick both outside and inside the space. water stands: Water stands are widely spread throughout the streets of cities and villages around Myanmar. Generally, stands usually have from one to five or more earthen jars, that keep water cool with a very efficient method (evaporation through the surface). They are set up adjacent to the shading space, so people both outside and under the shade space can get fresh water. Cardboard disposable cups must be available in the stand, to avoid spread of covid or other communicable diseases.

3. Cash assistance:

Aims to reduce the loss of income and extra economic burden during heatwaves by:

- reducing severe health problems associated with heatwave due to lack of preventative / protective measures as people are unable to cover additional costs such as doctor's visits and other medical costs needed by the elderly/young children.
- providing cash to cover the loss of income enabling the target population (described below) to avoid resorting to negative coping mechanisms that can harm them and their families both physically and psychologically such as working outdoors during heat peak hours or the sale of assets to cover additional costs generated due to heatwave

This will be accompanied by awareness messages on heatwave risk.

Based on MRCS past experiences, with projects such as the German Red Cross (GRC) supported Disaster Management projects, some mitigation measures will accompany the cash based intervention, such as sensitization on heatwave early warning, awareness raising through radio, social media/Facebook, posters and speakers in street, focus group discussions and community meetings, meeting with stakeholders as well as training and retraining MRCS First Aid emergency teams and Emergency Response Teams (ERTs).

FSPs will not be used in this action because currently their services and transfer times exceed current available lead times.

EARLY ACTION INTERVENTION

Overall objective of the intervention	The proposed intervention aims to mitigate impacts of heatwaves by providing outdoor workers, elderly, children, people with disabilities and people living in poor housing with early warning information and heat awareness, first aid services, shading spaces, and multipurpose cash to save lives, reduce negative heat health impacts and protect livelihoods.

	To achieve this objective, MRCS through its already existing coordination with DMH, and through its extensive network of RCVs, including First Responders, ERTs and Emergency Operations Centers throughout many of the States/Regions of Myanmar, will conduct activities such as monitoring of heatwave risks, community preparedness activities and heatwave sensitization and awareness.
Potential geographical high-risk areas that the simplified EAP would target	This Simplified EAP will focus on Urban Heatwaves, and specifically in the two largest urban centres of the country: Yangon and Mandalay cities. According to the general heatwave outlooks for Myanmar, the most intense heatwaves are more likely in the largest urban centers. The EAP will target the following townships: • Yangon: Hlaingtharya, Shwepyitha, Dagon Seikkan, Dagon South, Dala. • Mandalay: Patheingyi, Amarapura, Pyigyitagon. Highly urbanized and populated spaces create Urban Heat Islands, whereby the air temperature within the city is far higher than the surrounding rural areas. Barren open spaces, lack of tree cover, increasing traffic and urbanization, factories and pollution worsen the situation. In addition, these spaces gather the largest population of people living in poor housing settlements and outdoor workers, one of the most exposed groups towards heatwaves, as they never have a chance to find relief from heat both during the night (due to poor constructions prone to overheating) and during the day (working under the sun). In addition, it is widely accepted among the scientific community that people with disabilities, elderly, and children under five years old are the most vulnerable groups towards the adverse effects of heat. In Yangon, the selection of intervention areas within the respective urban areas was done by combining the following layers of information: • Exposure: people living in informal settlements. Data from UN Habitat, 2018[12]. • Vulnerability: elderly (+65 years old), children (0-14 years old) and people with disabilities (according to gov data this includes one of the four disabilities: seeing, hearing, walking, remembering)). Data from Government Census 2014, supported by UN). • Hazard: city heat map. Different sources. The following risk formula was applied to adjust the weight of the different layers (see Annex II): Risk=(Vulnerability*0.3)+(Exposure*0.5)+(Hazard*0.2) After combining these three layers of information, 5 townships among the 10 most at-risk townships in Yangon were chosen. In Mandalay, official numbers of people living in informal settlements are not available. Therefore, the prioritization was done by looking at overall vulnerable populations as defined by the Government (Census 2014, supported by UN), which includes most at risk groups regarding heat (children, elderly and people with disabilities). MRCS Branch capacities for conducting this EAP actions were considered in the final selection. MRCS's general knowledge on poverty, street worker presence, slums and other information that is directly related to the levels of vulnerability and exposure to heatwaves

[12] https://unhabitat.org.mm/projects/active-projects/mapping-yangon-the-untapped-communities/

	in each township, was also crosschecked and triangulated with the quantitative available data.
Who will be assisted through this operation and what criteria will be used for their selection?	The intervention will seek to target 10,210 people, and targeting will be as follows: • For setting up FA posts, including shading places and water stands and dissemination of forecasts and awareness messages with speakers in the streets in areas frequented by outdoor workers: outdoor workers (e.g. Street Vendors, Trishaw Driver, Garbage Collector, Construction worker, Food Delivery) and pedestrians. The shading space welcomes all people that need to take a rest from the heat (see below "Planned Intervention: Health & Care". • For the Heat Awareness / First Aid visits: children in orphanages, schools, elderly in elderly and People with disabilities in care homes, patients in Township Public Health Centers (mostly pregnant and newborn children) vulnerable HHs living in poor housing settlements. • For the cash distribution, the identification of HHs for the intervention will consider the following criteria and higher scores will be given to HHs who fit multiple vulnerability criteria: - HH located in poor housing settlements, depends on only one family member's income, and this person is daily worker and works outdoors (eg., Food Delivery, Street Vendors, Trishaw Driver, Garbage Collector, Construction worker, …. - HH has person with disability. The disability type will be described, should not be double counted with" chronic diseases" below - HH has children under 5 years old. - HH has elderly above 65 years old. - HH has pregnant/Lactating woman - HH has person with chronic disease(s). - Not received external support from the government, non-government and other organizations. - Single (female/male/minor/orphan, disabled, elderly)-headed household. - HH has no support from other external family members (for food, accommodation, costs of living, etc..). - HH has no family members who are paid staff (e.g. pension, salary) - The current living address must be the permanent address. (if rented, it should be the households which have been living above six months in this area). • Depending on the Early Action, beneficiaries' selection methodology will be: - For setting up First Aid posts, including shading places and water stands, will be set up in places with high concentration of outdoor workers such as open markets (e.g. Street Vendors, Trishaw Driver, Garbage Collector, Construction worker, Food Delivery) in targeted townships. - For the Heat Awareness / First Aid visits: orphanages, schools, elderly and People with disabilities in care homes, Township Public Health Centers (mostly pregnant and newborn children), Heat vulnerable HHs living in poor housing settlements: they will be selected within the targeted townships, NB: Many

	orphanages, schools and elderly/PWDs homes in Myanmar are faith-based institutions. - Both for First Aid posts and awareness visits, selection of places will be done in consultation with respective MRCS Township Branches as well as authorities, within the most risk townships (see above mapping methodology). For the cash distribution, the identification of HHs for the intervention will be done as follows: • Before the summer reason (during readiness phase), MRCS will conduct the following activities in the most at-risk Townships: 1. Relevant Branch staff and RCVs are trained/received refreshers in CVA and Beneficiary Assessment. 2. The township RC branches will collect current available demographic information from their respective General Administration Departments (GAD), to ascertain whether the household's members meet the agreed upon criteria. 3. Advocacy meeting with township branch, RCV, local authorities, local organisations and stakeholders to present the Early Action. 4. Committee formed with the RC Executive Committee members and community leaders (around 10 people) to select and prioritize beneficiaries according to established criteria. 5. HH Assessment is conducted by the RCVs with Kobo toolbox. 6. Beneficiary selection and registration is conducted, ,by the RCVs under the supervision of committee members using above targeting criteria. As the beneficiary list may exceed available resources, the above criteria will generate a scoring system to prioritize the most vulnerable households. Total HHs targeted with the cash assistance: 1,200 HHs (150 HHs/township).
Trigger(s) statement	The Simplified EAP will be activated when: Calculated Heat Index (HI) ≥ 62.6 Yangon / 58.2 Mandalay for more or equal than 3 consecutive days (No unit to HI as it refers to Index Value) is forecasted based on DMH´s forecasts. The Trigger system used is a 5-day Numerical Weather Prediction (NWP) product of Department of Meteorology & Hydrology (DMH) forecasts - daily maximum temperature & humidity corresponding to a heat index (HI) of more than 90 percentile values for the summer months (March-May), which is 62.6 for Kaba Aye (Yangon) & 58.2 for Mandalay, for at least three consecutive days, with a lead time of maximum 5 days. The lead time of 5 days includes the 3 days heatwave duration. As parameters can be forecasted maximum 5 days in advance, the HW can be forecasted as early as 2 days and as late as just before the HW onset. In case of sudden changes in the forecast, the activation can be triggered on days –4 and -3. For clarification, please refer to Annex I. The confirmation of trigger will initiate early action activities with the targeted population of the corresponding region, which includes setting up FA posts, with shading places and water stands, Heat Awareness / FA visits including the preparation for the cash assistance. **Stop Mechanism 1-day HW** A stop mechanism for the high value early actions ((cash)will be initiated if the forecasted HI thresholds doesn't hold true for the corresponding forecasted days and/or the observed daily maximum temperature and humidity for the given day do not correspond to the respective HI thresholds for Yangon and Mandalay. This means, for the cash activity, all the related activities will be conducted when the trigger is reached, but the cash distribution per se will only be implemented during the forecasted heatwave period with

a minimum of 48h lead time. And this will be confirmed only when observed HI value surpasses the thresholds for that day and the forecasted HI values for next two days are also surpassing the thresholds, as DMH NWP are more reliable and accurate for 2-3 days lead time only.

So, for continuation of the process and full implementation of the EAP including the cash distribution, forecasts must always confirm thresholds being reached for the consecutive 3 days. During the activation phase, in case the forecasted values fall below the predefined thresholds, any activities related to cash distribution shall stop immediately.

The proposed HI thresholds might seem very high compared to other countries. However, this is what the observed climate data from DMH shows. These high levels support the idea that heatwaves are a serious concern in the country. During the period of 2010 – 2022, the aforementioned trigger thresholds for Yangon would have been reached in 2012, 2013, 2019 and 2020. However, the Mandalay trigger thresholds would have been reached during 2012 & 2014 but would have missed in 2010 which was the foremost the deadliest heatwave in record with daily temperature reaching to 47°C leading to 230 deaths. Correlation between HI and Impact in Yangon (2019) and Mandalay (2014, 2010) is indicated in table 1 below. This might be because humidity is less relevant in Mandalay to define a heatwave, as the area is drier as compared to Yangon. Therefore, the future development of full EAP will include more research on the relevance of using either HI or daily maximum temperature or both for Mandalay.

Station	**Summer Months (March – April – May) – Heat Index**			**Suggested Thresholds**	**Impact Correlation**
	99 Percentile	**95 Percentile**	**90 Percentile**		
Yangon (Kaba Aye)	72.1	66.3	62.6	HI > 90 Percentile for more than 3 days consecutively	16-23 April 2019 (8 deaths),
Mandalay	73	61.5	58.2	HI > 90 Percentile for more than 3 days consecutively	18 – 28, April 2014 (49 heatstroke, 9 deaths) May 2010 (HI not reaching but temp consistently above 42 – 230 deaths)

10 day preactivation trigger

Note that the 10 days numerical weather prediction from Indian Meteorology Department (IMD) for Yangon and Mandalay shall also refer to any potential heat extremes in the region. In addition to inform the further monitoring of DMH forecasts and calculation of corresponding heat index for trigger confirmation in next 5 days, it will act as a Pre-Activation Trigger, that will start some preparation activities for cash (e.g. heads up to EC members, Verification of beneficiaries), and setting up FA posts. Although its accuracy is low, it facilitates for the NS to be able to start key low-cost actions that will enable the effective roll out of early actions in case the trigger is activated. Actions happening between the 10-day pre-activation trigger and before the trigger is reached are under readiness.

Trigger threshold justification

The Department of Meteorology and Hydrology of Myanmar (DMH) has climate stations in both Yangon (Kaba Aye) and Mandalay (Chanmyathazi). Historical observed data on daily maximum temperature (Tx) and relative humidity (Rh) were collected from these two stations covering the period from 2010 – 2022. Using the multiple regression equation

	provided by NOAA, corresponding daily heat index (HI) for summer months of 2010 -2022 were calculated. An analysis of 99th, 95th and 90th percentile values of HI for the summer months provided a basis for ascertaining a heatwave event for the SEAP. Although, these percentile values especially the 90th percentile seem to be reached very often in the past all these stayed for one or maximum of two consecutive days. So, a HI value of 90th percentile for consecutive 3 days has been chosen as a trigger threshold for heatwave event, which is not a frequent phenomenon. Furthermore, 3 consecutive days is also the minimum duration set by the national DMH to define a heat event as a 'heatwave' in Myanmar however, these heat warnings are entirely based on temperature only. The proposed HI thresholds also correlate well with some past heatwave event and observed impacts in Yangon and Mandalay. The trigger mechanism makes use of weather forecast coming from the DMH, the national hydro-met service of Myanmar. DMH has been running different weather prediction models to forecast temperature, relative humidity, wind-speed, sea-level pressure and rainfall for different regions of Myanmar including Yangon and Mandalay with a maximum of 5 days lead time. A detailed verification of the DMH forecasts for the heat extremes has not been done at this stage, but a quick evaluation of HI forecasts for 2022 indicates a workable level of accuracy for a lead time up to 3 days. This is to note that DMH, at present doesn't provide forecast of heat index nor are the quantitative forecasts on temperature and relative humidity available in the public domain. Currently, a MRCS Senior Meteorologist Consultant previously worked for DMH is able to receive those user-restricted weather forecast data including the 10 days. IMD weather prediction and can build a Heat Index forecast based on the forecasted daily maximum and relative humidity, which is afterward shared with the relevant parties within the MRCS and GRC. However, in the future, it is expected to have a formal memorandum of understanding (MoU) between DMH and MRCS so that MRCS will be able to receive the quantitative forecasts on daily maximum & relative humidity from DMH or even the heat index forecast for the target provinces/regions and share it with the relevant stakeholders. Therefore, for the first heatwave season (March-April) in 2024, the weather parameters and forecasts will be monitored manually by the team of the senior climate science and modelling expert, and other project team members from the MRCS on a daily basis. Plans will be made to develop an automated system from 2025 onwards. Ideally, an auto generated email from DMH indicating the trigger thresholds is reached or not will be available in the future. The MRCS Emergency Operations Center (EOC), supported by the MRCS Meteorologist Consultant, receives daily the Heat Indexes from the Consultant´s team and in consultation with DM department and MRCS leadership, is in charge of Trigger activation. Plans are being made so as the EOC is in charge of monitoring the parameters and build the Heat Index independently. EOC also monitor the forecasts from DMH and IDM and then spread the forecasts messages to the relevant actors and throughout MRCS' State/Region EOC network, through different channels including email and social media (messenger, viber, etc…).
Next steps – For National Societies that intend to develop a full EAP (Optional)	• Considering the industrialization and urbanization of the targeted cities in Myanmar which leads to higher temperatures in urban areas, the heat index thresholds might require some adjustment for Urban Heat Island (UHI) effect (such as monitoring night-time temperatures), this shall be explored further in the full EAP. • Based on the lessons learnt from the activation of the SEAP, selected triggers and early actions will be refined and incorporated into a future Full EAP.

	• More research on Global Forecasting sources will be conducted, to potentially increase prepositioning lead times for the Full EAP. • Full EAP will appraise possibilities of expansion to other urban areas of the country, as well as rural areas, especially Dry Zone (and linkages to the National Drought Monitoring Center located in Mandalay). Linkages to a potential drought EAP (UN-MRCS) will be explored. • Full EAP will reassess the need to use Heat Index in places where humidity levels might not be as relevant in the final heat perception of the human body. This will be in line with the geographical and meteorological diversity of the country. • Full EAP will also undertake a thorough assessments of forecasts skills and accuracy of the numerical weather predictions from DMH, and any other regional or global forecast sources being considered. Also, the false alarm ratio and hit rate shall be calculated for the chosen trigger thresholds.

PLANNED OPERATIONS

	**Multi-purpose Cash**	**Budget**	**CHF 67,190**
		No. people targeted	1,200 households (6,000 people)
Indicator:	**Number of people reached with multi-purpose cash in advance of a hazard**	**Target:**	6,000
Readiness activities:	**1.** Annual briefing with IFRC MMR and Regional Offices on the EAP, to familiarize them with the trigger and to understand the processes / speed at which they need to react / contingency in case they are on holiday or other reasons. If financial challenges in country are existing (crediting of funds takes more time than usual, etc…), and MRCS cannot front the funds, discussions with IFRC MMR to preposition funds or other solutions will be needed at this stage. **2.** Conduct cash in envelope risk assessment. **3.** Advocacy meeting in related township branch, RCV and local authorities, to present the Early Action. **4.** A committee is formed with the RC Executive Committee members and community leaders (around 10 people in total) for the purpose of beneficiary selections and prioritization processes. **5.** Train volunteers on CVA Beneficiary Assessment, Selection and Registration and Cash Distribution process, Key Messaging, Code of Conduct, Use of CEA Specific Tools sensitive PGI and CVA checklist. Also mentioned in NSD section. **6.** Review targeting criteria, checking communication messages on usage of cash transfers, finalizing HH registration questionnaires. **7.** The respective township Red Cross branches will collect current available demographic information from the respective General Administration Departments (GAD), to ascertain whether the household's members meet the agreed upon criteria. **8.** Conduct HH Assessment by RCVs through a paper-based system or Kobo toolbox. **9.** Conduct beneficiary selection and registration. **Pre activation Trigger (IMD Department) - 10 days before the onset of the forecasted heatwave:**		

	10. Heads Up to EC to secure swift approval of Beneficiary lists (10 days before the potential heatwave, with IMD forecast). **11.** Sensitization of community committee members on Heatwave risks, early warning, early actions, and Cash Assistance, and targeting criteria. **12.** Revalidation of Beneficiary HHs lists. Ensuring data collected is disaggregated on SADDD (Sex, age, disability disaggregated data). **13.** EC approval process for the selected beneficiaries. **14.** Announcement and CEA set up. **15.** Define Distribution points and assign RCVs. Distribution points will be places that protect people from the ongoing heatwave (include good shadow and other basics). **16.** Conduct related CVA refreshers. **Cash Transfer Value** Cash Transfer value per HH (150.000 MMk) was calculated based on results from the impact survey, FGDs and Cash PDM. It is a one-off payment that aims at covering economic losses experienced during a heatwave (1 worker per HH), increased medical costs, and the need for items such as drinking water and umbrellas. All these needs are associated with the impact of heatwaves. The cash transfer value covers a period of 5 days: 3 days heatwave + 1 day pre HW + 1 day post HW. The reason is that heatwaves don't usually happen as sudden as other hazards, but the parameters increase and descend softly. Therefore, it is assumed that both 1 day pre and post event, it will be dangerously hot as well. Therefore, the Cash transfer Value is not in line with the country MEB (less than MEB), provided by the Cash Working Group calculations. Moreover, it is the first time in Myanmar that a Standard Cash Transfer value is designed to help HHs address impacts of Heatwaves. See Annex III for more details on the Cash Transfer Calculation. As per Market Assessments by different actors in Yangon and Mandalay during the summer season, as well as general observations by MRCS staff, it is known that Markets will be able to provide the products the cash is intended to during Heatwaves.
Prepositioning activities:	**1.** Prepositioning Heat awareness IECs (leaflet, posters, ...), Visibility, protective equipment for volunteers and related logistics for cash distribution.
Prioritized Early Actions:	**1.** Deploy volunteers previously trained to provide information and assistance to the population related to the cash intervention process, including beneficiary selection. **2.** Prepare envelopes. **3.** Cash Distribution in envelopes to selected HHs. **4.** Post distribution monitoring (after EA phase and around two weeks to one month after distribution).

	Health & Care	**Budget**	**CHF 59,204**
		No. people targeted	3,840
Indicator:	**Number of people reached with health and care interventions in advance of a hazard**	**Target:**	3,840

Readiness activities:	**1.** Design and printing of IEC materials (leaflets, posters, …), as well as heat forecast/awareness messages (to broadcast through the speakers). **2.** Awareness raising activities (distribution of IEC materials, key messages in social media) about prevention measures during heatwaves (annual activities). **3.** Conduct training on Heat Awareness messages or MRCS volunteers. Also mentioned in NSD section **4.** Conduct First Aid trainings, with emphasis on heat exhaustion and heat stroke management, FA post and ambulance referral for MRCS Volunteers. Also mentioned in NSD section **5.** Mapping of places very frequented during the day by outdoor workers (outdoor vendors, rickshaw drivers, construction workers, garbage collectors, food delivery cyclers, etc…) e.g. wet markets **6.** Dissemination of forecast through speakers in the street, specifically around places where FA posts will be set up. **Pre activation Trigger (IMD Department) - 10 days before the onset of the forecasted heatwave:** **7.** Set up FA posts and prepositioning of related material. **8.** Conduct FA, Heat Awareness and Ambulance Management Related refreshers.
Prepositioning activities:	**1.** Procurement of FA posts materials (include FA kits, stretcher, …), shading space materials, electric fans, water stands, heat awareness IECs (leaflet, posters, …), traditional hand fans, thanaka paste, speakers (with battery), and related logistics. FA/shading post design in Annex IV.
Prioritized Early Actions:	**1. Provision of First aid by setting up First Aid posts, complemented by shading spaces and water stands** in areas frequented by outdoor workers (e.g. Wet Markets) – 2 FA/shading posts per township (in total 16 posts in 8 townships): • First Aid Posts: MRCS FA guides include heat symptoms and heatstroke management guidelines. MRCS FA posts offer to the most potentially affected population a needed service to deal with high temperatures and reduce the incidence of heat health related symptoms among the most vulnerable. The posts include a stretcher in case a person requires to lie down due to heat exhaustion. Referrals through ambulance services are conducted when needed, especially when volunteers identify a hint for serious heat exhaustion and potentially a stroke. • Shading spaces: Adjacent to the First Aid posts, shading spaces are installed (with bamboo mats on the floor and a frame with water jars). Above the FA post and the shading space, a net is installed, with ropes. The net consists in a lower layer of black nets – good heat absorption - and an upper layer of white/aluminum net - good reflection. The shading space welcomes all people that need to take a rest from the heat. The shading space will be equipped with electric fans. To overcome power cuts, people are provided with hand fans (rattan material) as well. It also works as an First Aid and awareness center, where Volunteers will provide FA if needed, heat awareness messages, as well as IEC materials (leaflets, …). Posters on heat awareness will be sticked both outside and inside the FA post. water stands: Water stands are widely spread throughout the streets of cities and villages around Myanmar. Generally, stands usually have from one to five or more earthen jars, that keep water cool with a very efficient method (evaporation through the surface). They are set up in the shading space, so people both outside and under the shade space can get fresh water.

	Cardboard disposable cups must be available in the stand, to avoid the spread of covid or other communicable diseases. • Heatwave awareness messages will be broadcasted through Speakers moving in the crowded area surrounding the FA posts. **2. Heat Awareness raising and FA visits** to orphanages/schools, elderly and people with disabilities' care homes, Township Public Health Centers and Heat vulnerable HHs living in poor housing settlements: Sensitization on heatwave early warning, heat awareness and FA visits by trained Volunteers to orphanages, elderly and people with disabilities' care homes and Heat vulnerable HHs living in poor housing settlement will provide necessary messages, items and FA messages and care when needed to those groups, both before and during the heatwave.

	**Risk Reduction, climate adaptation and Recovery**	**Budget**	**CHF 24,764**	
		No. people targeted		
Indicator:	• **Number of people reached with risk reduction and/or climate adaptation interventions in advance of a hazard** • **Number of staff and volunteers trained on risk monitoring**		**Target:**	At least 50 staff and volunteers trained on risk monitoring
Readiness activities:	**1.** Annual review of secondary data on heatwave and forecasts. **2.** Train Staff and Volunteer on risk monitoring, interpretation of risks levels, use of DMH data to build Heat Index forecast, forecast information and trigger mechanism **3.** Production of awareness messages on Heatwave risk and preparedness. These will be mainstreamed in MRCS´ website and also via local FM radio (Yangon FM and Mandalay FM). **4.** When summer period starts (beg of March), Dissemination of forecast through media/Facebook/MRCS website. In addition, MRCS Emergency Operation Center Network will communicate the forecast to the respective Regional/State EOCs and MRCS Township Branches, that will inform within their respective social networks in their townships.			
Prepositioning activities:	**1.** Prepositioning of Hand Fans with Heatwave awareness message.			
Prioritized Early Actions:	**1.** Dissemination of forecast through media/Facebook/MRCS website			

	**Community Engagement and Accountability**	**Budget**	**CHF 8,976**	
		People targeted	7,872	
Indicator:	• **Number of people reached with community engagement and accountability interventions in advance of a hazard**		**Target:**	• 7,872 • 80% of interviewed HH

	• **Percentage of households satisfied with the services provided**		are satisfied with the services provided
Readiness activities:	**1.** Production of awareness messages on Heatwave risk and preparedness. **2.** Develop a feedback mechanism to collect feedback, complaints and suggestions, based on the community preferred and trusted communication channels. **3.** Setup or update Referral pathways for Sensitive Complaints management. **4.** Integrate CEA and PGI in all phases of programme operation.		
Prepositioning activities:	-		
Prioritized Early Actions:	**1.** Community feedback mechanisms´ roll out and feedback, complaints, and suggestions are collected. **2.** Deploy the feedback mechanism to plan distribution process with community and their representatives and collect feedback, complaints, and suggestions. Validate with communities the beneficiary selection criteria. **3.** Communicate plans on grievance redressal, and feedback mechanisms from the communities, communicate to beneficiaries ahead of the day, venue, time for distribution post-activation of trigger, and their entitlements. **4.** Conduct FGDs post-intervention with different community groups and community leaders. **5.** Conduct multi sector PDM with targeted communities and beneficiaries.		

ENABLING APPROACHES

	National Society Strengthening	**Budget**	**CHF 33,800**	
		People targeted	-	
Indicator:	• **Number of volunteers trained in heatwave awareness and response** *(around 210 volunteers are trained in heatwave awareness messages, first aid for heat exhaustion and heatstroke, including post-management of first aid stations and ambulance referral)* • **Number of volunteers trained in cash and CVA processes** *(120 volunteers are trained in CVA beneficiary assessment, selection, registration, cash distribution processes, key messaging, code of conduct, use of CEA-specific tools, and application of PGI and CVA-sensitive checklists.)* • **Number of lessons learned workshops conducted** ***(****one workshop conducted to evaluate the operation and capture insights for future improvements)*	**Target:**	• 320 MRCS Staff and Volunteers • 1 LLW conducted	
Readiness activities:	**1.** FA training for volunteers with emphasis on heat exhaustion and heatstroke management.			

	2. Emergency Ambulance Crew training + Handling and Transportation Training for volunteers. **3.** Trainings on CVA Beneficiary Assessment, Selection and Registration and Cash Distribution process. **4.** Conduct monitoring visits to the project sites
Prepositioning activities:	-
Prioritized Early Actions:	**1.** Conduct lessons learned workshop to provide recommendations for future response operations.

CONDITIONS TO DELIVER THE EARLY ACTION

Experience and/or capacity to implement the early actions. *Assumptions or minimum conditions needed to deliver on the early actions (including issues to be resolved)*	The MRCS is the country's foremost humanitarian organisation and has a nationwide presence through its network of 330 branches, reaching communities across all of the country's regions and states. Following the civil unrest that started in 2021, MRCS FA/health teams capacities have boosted and have played a vital role, providing critical first aid, healthcare and ambulance services in a situation of breakdown of the health system in country. Between February 2021 and December 2021, a total of around 13,400 people received MRCS emergency First Aid and ambulance services from over 2,000 volunteers across Myanmar. Close to 550 First Aid posts provided care for thousands of people. Since 2015 Floods Operation, MRCS took great steps forward in building its Cash Transfer Programming (CTP) capacity, one of the preferred assistance modalities of the governmental offices and humanitarian agencies in Myanmar. MRCS developed standard procedures and extended their cash-based approach to urban areas as a response to COVID 19 (Yangon), to conflict-affected areas in Rakhine and Kachin (e.g. unconditional cash grants for IDP households). IFRC, ICRC, PNS (German Red Cross, Norwegian Red Cross, Danish Red Cross, Swedish Red Cross) use extensively cash transfers both in humanitarian assistance and disaster preparedness programs. MRCS Co leads the national Cash Working Group. The CVA file at the national headquarter of the MRCS (under DM Department) is handled by a CVA trained team. MRCS is in the stage of establishing CVA Focal points in all State/Region Branches. These will be constantly being mentored and trained in line with CVA best practices including the PGI sensitive CVA Checklist. In addition to CVA interventions, the CVA team also frequently provides CVA trainings to UN Agencies (e.g. WFP), INGOs and CSOs in Myanmar. Some examples of successful operations include distribution of cash to people affected by floods in 2015 in Sagaing, Chin, Magway, Irrawaddy and Bago (4,089 HHs, 1.5 million USD), to people conflict affected people in Rakhine in 2019 (7,145 HHs, 200.000 USD) and to COVID vulnerable HHs in Yangon Urban area (2,000 HHs, 372,000 USD). Currently, there are 104 MRCS RCVs and 29 staff around the country trained in Kobo data collection. Due to delays in funds crediting in country, MRCS and IFRC will discuss any potential solution annually. In addition, MRCS does not have the means to advance funding for activation and has already explored a range of options which are not feasible at present (i.e.

	seasonal bank loan is not currently possible, Disaster Management Fund is depleted, etc.). MRCS will ensure duty of care to the Volunteers and staff so they can carry out their voluntary duties with safety and security.
Red Cross Red Crescent Movement partners, Governmental / other agencies consulted/involved on this simplified EAP	The Red Cross Climate Centre has supported the development of this plan through advice and guidance, especially as it pertains to the trigger mechanism. IFRC Myanmar, GRC Myanmar and Finnish Red Cross Myanmar offices have provided ongoing support and guidance in all sections. In general, Mandalay and Yangon regions are less prone to violence as compared to other states / regions in Myanmar. However, the MRCS, supported by other Movement partners (including the ICRC and GRC) is working at branch preparedness / readiness to respond to emergencies which include elements such as Safer Access, First Aid & emergency ambulances, and Mine Risk awareness. The mentioned topics are technically supported by the ICRC in a collaborative and complimentary manner with IFRC/GRC. In the overall support to MRCS in the Anticipation file, GRC is also working in collaboration with ICRC for supporting the MRCS. Although it will not likely be a separate Early Action Protocol specifically developed for conflict displaced persons, the NS readiness to support affected population due to conflict will be included in the overall MRCS Anticipation programs, under "compound risk". ICRC plans to scale up their support towards MRCS in this regard, including further discussions with GRC on identifying possible areas of operational collaboration, as well as active participation in the Anticipation task Force.

BUDGET

EAP2024MM01 - Myanmar Red Cross Society - Heatwaves

	Readiness	Pre-Pos Stock	Early Action	TOTAL
	17,785	**45,722**	**96,627**	**160,134**
Shelter and Basic Household Items	0	0	0	**0**
Livelihoods	0	0	0	**0**
Multi-purpose Cash	5,129	1,099	60,962	**67,190**
Health	0	30,225	28,979	**59,204**
Water, Sanitation & Hygiene	0	0	0	**0**
Protection, Gender and Inclusion	0	0	0	**0**
Education	0	0	0	**0**
Migration	0	0	0	**0**
Risk Red., Climate Adapt. and Recovery	10,366	14,398	0	**24,764**
Community Engagement and Accountability	2,290	0	6,686	**8,976**
Environmental Sustainability	0	0	0	**0**
	32,894	**0**	**1,099**	**33,993**
Coordination and Partnerships	824	0	0	**824**
Secretariat Services	4,030	0	1,028	**5,058**
National Society Strengthening	32,803	0	1,181	**33,984**
TOTAL BUDGET	**55,442**	**45,722**	**98,837**	**200,000**

Contact information

For further information, specifically related to this simplified EAP please contact:

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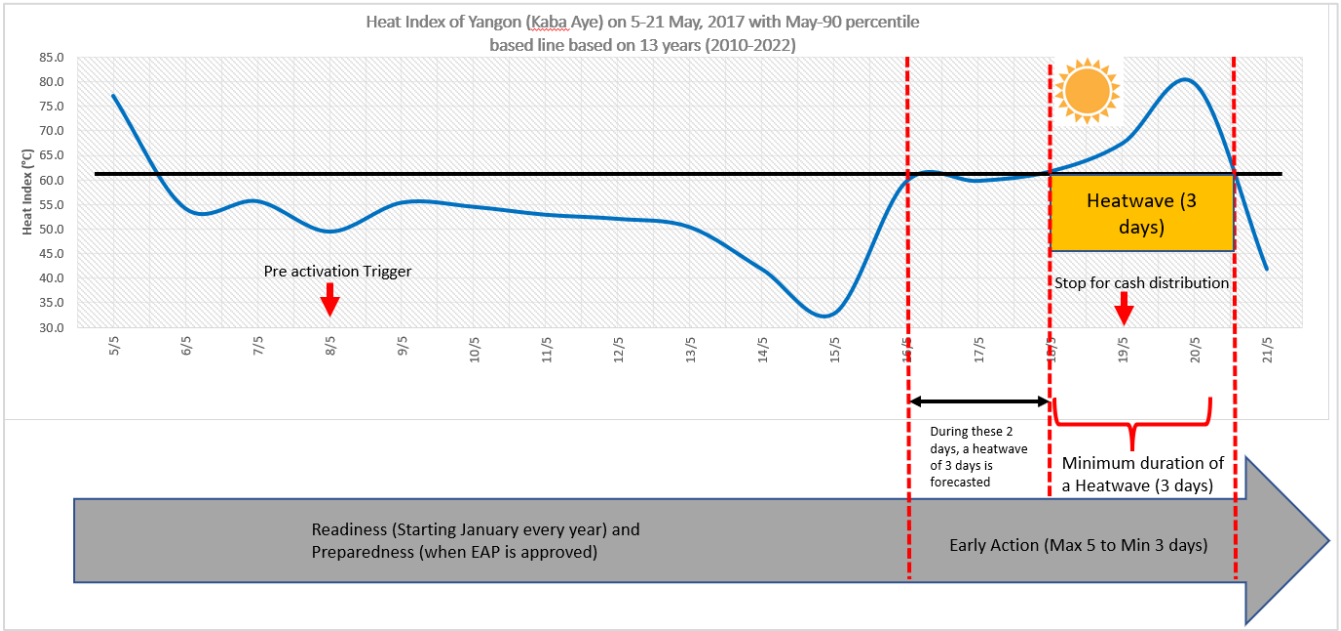
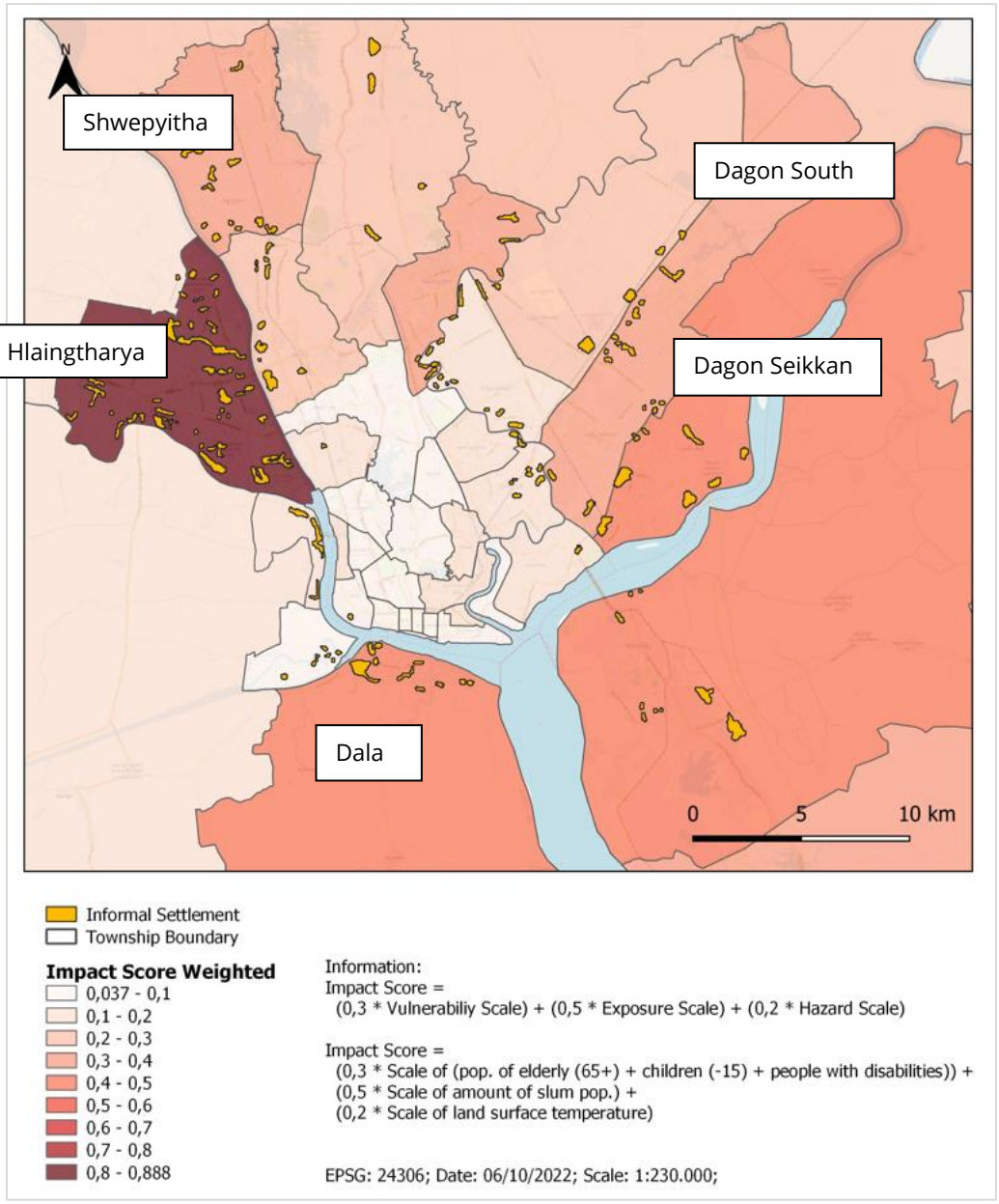
Annex I:

Graph displaying Heat Index, phases and Trigger reached in May 2017 in Yangon.



Annex II:

Heat risk map – Yangon, with selected most at-risk townships.



Annex III:

Table showing Cash Transfer Value for one Household during a Heatwave, calculated based on needs to be covered. It is based on a 5-day period (1-day pre + 3 days Heatwave + 1 day post), and considering only 1 income earner per HH (for loss of income, doctor and medical fees).

Item/Activity	Metric	Quantity	Unit cost	Total
Loss of income per day	Days	5	15.000	75.000
Doctor visit to Public Hospital	Visit	1	15.000	15.000
Medicine (Paracetamol, Omeprazol, Vitamins, electrolytes)	Unit	1	15.000	15.000
Drinking Water Gallon (20 Liters, including the bottle)	Unit	2	7.500	15.000
Umbrella	Unit	2	15.000	30.000
Total				**150.000 MMK**

Annex IV:

Firs Aid - Shading post design (front and side)