STANDARD PROCESS of HEATSTRESS PREVENTION AT WORK FOR WORKERS
Vietnam is a country being affected by increasingly severe climate change. This is particularly evident in the increase in average temperature and heat waves, which have increased both in intensity and maximum temperature.

In assessing the need for action to reduce the thermal impact on workers and reduce labor insecurity caused by the heat, COHED Centre has developed this document “Standard process of heat stress prevention at work for workers” within the framework of the project funded by the Rockefeller Foundation. Participation and positive contributions have been received from the Labour Safety Department of the Ministry of Labour, Invalids and Social Affairs and the Department of Labour, Invalids and Social Affairs of Da Nang.

This document is issued for the purpose of guiding and supporting businesses to take measures and specific actions to prevent and adapt to the effects of heat in their production and business activities. The document also suggests specific activities for each department’s participation in a model of work Health and Safety, organization and management that Vietnamese enterprises have deployed under the provisions of the State of Vietnam.

COHED Center is pleased to thank the professionals, agencies and organizations that have contributed to the compilation of this document. We are especially pleased to acknowledge the effective and practical contribution made by the enterprises in Da Nang in compiling this document.

COHED Center
The occupational safety and health management departments of firms are responsible for implementing heat stress (HS) preventive activities at the work place.

**ORGANIZATIONAL PREVENTION PROCESS**

- Medical Center
- Occupational Safety Staff
- Safety Staff
- Field Supervisor, Crew Leader

**Lookout**

- Capacity building, knowledge and awareness
- Onsite intervention:  
  - Technical
  - Human
- EWS and emergency response

**WORKERS**

**MANAGEMENT**
Implementing Heat Stress Prevention

Regular Activities

1. Monitoring the weather and providing warning if at risk of HS (Include but are not limited to the following)

   **Occupational Safety Staff and Safety Staff**
   - Check the weather forecast daily.
   - Provide early warning to the Foreman, Field Supervisor and Crew Leader if experiencing an extremely hot day or heat wave.

   **Supervisor/Foreman/Field Supervisor/ Crew Leader**
   - Warn workers of HS level
   - Take into consideration when it will be necessary to make modifications to the work schedule:
     - Reschedule the job
     - Work at night or during the cooler hours of the day
     - Increase the number of water and rest breaks

   **Safety Staff**
   - Monitor temperature and humidity at sites
   - Promptly warn Foreman, Field Supervisor and Crew leader
   - Require workers to stop working if at risk of HS illness or occupational accidents

   **Medical Staff at Sites**
   - Do first aid and apply the correct process on recognizing the signs that a worker is suffering from HS
   - (Guidance on measuring temperature and providing warning are presented in Part C)
2 Provision of water

(Include but are not limited to the following)

**WORKERS**
- Drink water actively and regularly
- Workers should make sure they are drinking enough fluids to prevent dehydration, even when they do not feel thirsty

**SUPERVISOR/ FOREMAN**
- Ensure that the provision of water is part of the regular plan of the company

**FIELD SUPERVISOR AND CREW LEADER**
- Bring drinking water containers to the site everyday
- Cups or disposable cups will be made available to workers and will be kept clean until used
- Water containers are to be placed at a convenient location for all workers to access
- Schedule work to have time to take rest and drink water

**OCCUPATIONAL SAFETY STAFF AND SAFETY STAFF**
- Check the provision of water periodically
  - Encourage workers to drink water frequently

**OCCUPATIONAL SAFETY STAFF, MEDICAL STAFF AT SITES**
- Train and remind workers of the importance of drinking enough water during the “Occupational safety and health” training course
3. Personal Protective Equipment (PPE)

(Include but are not limited to the following)

**WORKERS**
- Wear protective clothing, PPE while working

**SUPERVISOR/ FOREMAN/FIELD SUPERVISOR**
- Ensure that the provision of PPE is part of the regular plan of the company

**OCCUPATIONAL SAFETY STAFF AND SAFETY STAFF**
- Make sure that workers wear protective clothing

4. Acclimatization

(Include but are not limited to the following)

**FIELD SUPERVISOR AND CREW LEADER**
- Schedule a work plan and gradually increase the intensity of work for new workers or workers who return from 7 days absent
- Reschedule work time during a heat wave or heat spike

**WORKERS (NEW WORKERS OR WORKERS WHO RETURN FROM 7 DAYS ABSENT)**
- Actively arrange the work schedule (if possible) and gradually build up to heavy work

5. Technical and engineering controls

(Include but are not limited to the following)

**EVERYONE**
- Be creative and actively apply Technical Controls in order to isolate heat sources and mitigate the adverse impacts of heat

**EMPLOYER/FIELD SUPERVISOR**
- Apply a bonus policy for good ideas and realizable solutions
Monitoring and creating health records of workers

(Include but are not limited to the following)

**WORKERS**
- Self-awareness of health by themselves
- Those people who are unacclimatized, overweight, older in age and suffer from heart diseases should inform the medical staff to be monitored and prepare effective prevention

**SUPERVISOR/ FOREMAN/FIELD SUPERVISOR**
- Hold periodical health checks annually and regularly monitor workers’ health

**OCCUPATIONAL SAFETY STAFF, MEDICAL STAFF AT SITES, FIELD SUPERVISOR AND CREW LEADER**
- Collaborate to monitor sick days and the health situation of workers

Training and raising awareness

(Include but are not limited to the following)

**WORKERS**
- Be trained to prevent HS once a year. Content of training course: HS preventive measures, Rules of HS prevention, how to do first-aid for sick workers and how to handle emergency situations
  - New workers: Will be trained on HS before starting to work

**EMPLOYER/FIELD SUPERVISOR**
- Approve budget for training and communication of HS prevention each year

**MEDICAL CENTER**
- Training for medical staff on: doing first-aid; dealing with emergency situations, building the prevention guideline

**OCCUPATIONAL SAFETY STAFF AND SAFETY STAFF**
- Annual training
- Guidance on monitoring weather, temperature and early warning instruction.
  - Preparing emergency response
- Planning awareness raising and training on HS; training for new workers
  - Submit ideas and plans to employers
Emergency response
(Include but are not limited to the following)

**OCCUPATIONAL SAFETY STAFF:**
- Provide a map along with clear and precise directions, to avoid a delay of emergency and medical services

**OCCUPATIONAL SAFETY STAFF, MEDICAL STAFF, SUPERVISOR, CREW LEADER:**
- Carry cell phone or other means of communication to ensure that emergency medical services can be called

**SAFETY STAFF:**
- Remind and encourage workers to report immediately to their supervisor any signs and symptoms of heat stress they are experiencing
II ACTIVITIES IN SPECIFIC CASES

1. Working environment is higher than 32 degrees
   - Workers
     - Will be observed for alertness and signs and symptoms of heat illness by Safety staff and colleagues
     - Will be reminded throughout the work shift to drink plenty of water
     - Have been trained on symptoms and signs of heat illness
   - Crew Leader, Safety Staff
     - Communicate with Medical Center/medical staff for guidance
   - Field Supervisor and Crew Leader
     - Provide first-aid boxes
     - Prepare means of communication if it is necessary to call 115

2. Workers show signs of heat illness
   - When an employee displays possible signs or symptoms of heat illness, move her/him to a cooler place. Safety staff should apply first aid if necessary or call emergency services as required
   - Crew Leader, Safety Staff, Colleagues
     - Call emergency services immediately if any employee displays signs or symptoms of HS illness such as: loss of consciousness, incoherent speech, convulsions, red and hot face, does not get better after drinking cool water and resting in the shade
     - Prepare means of communication if it is necessary to call 115
   - Supervisor
     - Provide cool water or mineral water or fruit juice
     - Cut short or reschedule the work time if needed

3. High heat (heat wave)
   - Occupational Safety Staff and Safety Staff
     - Consider modifying the work schedule and changing the work plan
     - Monitor provision of water
   - Supervisor
     - Provide cool water or mineral water or fruit juice
     - Cut short or reschedule the work time if needed
GUIDANCE ON MONITORING TEMPERATURE & PROVIDING WARNING

Monitoring temperature (apply in first year for enterprises which have stable sites)

**Method (outdoor)**
- Time: between 1PM and 3PM
- Place: the hottest place

**Method (indoor where exposed to heat sources)**
- Time: between 1PM and 3PM
- Place: the hottest place

Creating Records in order to compare the differences between forecast temperature and measured temperature

- Monitoring table
- Difference between forecast temperature and measured temperature
  $\Delta T(\text{daily}) = T(\text{Measured}) - T(\text{forecast})$
- Average of $\Delta T(\text{daily})$
  \[
  \text{Average of } \Delta T = \frac{\Delta T_1 + \Delta T_2 + \Delta T_3 + \ldots + \Delta T_{30}}{30}
  \]

Warning HS Risk

**Early Warning**
- Monitor forecast weather: Forecast temperature
- Forecast temperature at work: $T = T(\text{forecast}) + \text{Average of } \Delta T$
- Determine the level of HS index
- Implement HS prevention

**Warning at work site**
- Check the thermometer at work
- Determine the level of HS index
- Implement HS prevention
**MONITORING TABLE**

Place: .................................................................................................................................

Name: ................................................................................................................................. Title: .................................................................

Time (month): ........................................................................................................................

<table>
<thead>
<tr>
<th>Date</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
<th>TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcasted Temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of HS risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No. of days at level 1: ………… No. of days at level 3: …………

No. of days at level 2: ………… No. of days at level 4: …………

No. of days under the warning level: …………

Monitor
# Heat Stress Index

<table>
<thead>
<tr>
<th>RELATIVE HUMIDITY (%)</th>
<th>TEMPERATURE (°C)</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
<th>32</th>
<th>33</th>
<th>34</th>
<th>35</th>
<th>36</th>
<th>37</th>
<th>38</th>
<th>39</th>
<th>40</th>
<th>41</th>
<th>42</th>
<th>43</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td>35</td>
<td>36</td>
<td>37</td>
<td>39</td>
<td>41</td>
<td>43</td>
<td>46</td>
<td>48</td>
<td>51</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>32</td>
<td>33</td>
<td>35</td>
<td>37</td>
<td>39</td>
<td>41</td>
<td>43</td>
<td>46</td>
<td>48</td>
<td>51</td>
<td>54</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>27</td>
<td>28</td>
<td>30</td>
<td>31</td>
<td>33</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>41</td>
<td>43</td>
<td>46</td>
<td>49</td>
<td>52</td>
<td>55</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td></td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>32</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>40</td>
<td>43</td>
<td>46</td>
<td>48</td>
<td>52</td>
<td>55</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>28</td>
<td>29</td>
<td>31</td>
<td>33</td>
<td>35</td>
<td>37</td>
<td>40</td>
<td>42</td>
<td>45</td>
<td>48</td>
<td>51</td>
<td>55</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td></td>
<td>28</td>
<td>30</td>
<td>32</td>
<td>34</td>
<td>36</td>
<td>39</td>
<td>41</td>
<td>44</td>
<td>48</td>
<td>51</td>
<td>55</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td>29</td>
<td>31</td>
<td>33</td>
<td>35</td>
<td>38</td>
<td>40</td>
<td>43</td>
<td>47</td>
<td>50</td>
<td>54</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>29</td>
<td>31</td>
<td>34</td>
<td>36</td>
<td>39</td>
<td>42</td>
<td>46</td>
<td>49</td>
<td>53</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>30</td>
<td>32</td>
<td>35</td>
<td>38</td>
<td>41</td>
<td>44</td>
<td>48</td>
<td>52</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td>30</td>
<td>33</td>
<td>36</td>
<td>39</td>
<td>43</td>
<td>47</td>
<td>51</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>31</td>
<td>34</td>
<td>37</td>
<td>41</td>
<td>45</td>
<td>49</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
<td>31</td>
<td>35</td>
<td>38</td>
<td>42</td>
<td>47</td>
<td>51</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>32</td>
<td>36</td>
<td>40</td>
<td>44</td>
<td>49</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat stress Index (°C)</td>
<td>Level</td>
<td>General effect of heat index on health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27–32</td>
<td>Caution</td>
<td>Fatigue possible with prolonged exposure and/or physical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32–41</td>
<td>Extreme caution</td>
<td>Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42–54</td>
<td>Danger</td>
<td>Sun stroke, heat cramps or heat exhaustions likely, and heatstroke possible with prolonged exposure and/or physical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above 54</td>
<td>Extreme danger</td>
<td>Heat/sunstroke highly likely with continued exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>