



International Commission of Occupational Health Scientific Committee on Thermal Factors (SCTF)

5th Meeting Report (2022-2024)

Time: Monday, 19 August 2024, 2:00 p.m. – 3:30 p.m. (UTC+5:30)

Venue: Virtual Meeting on Zoom

Participants: Annex I

1. Welcome and Introduction

1.1 Jason Lee welcomed the attendees and thanked them for their active participation over the past two trinneiums.

1.2 Jason announced that Vidhya Venugopal will be the new Chairperson of the Scientific Committee of Thermal Factors.

1.3 Vidhya thank Jason and introduced herself to the members and other participants.

1.4 Vidhya asked the members for updates.

1.5 The meeting agenda was as follows:

1.5.1 Presentation by Vidhya Venugopal on *“Heat Vulnerabilities – Comparing indoor and outdoor workers”*.

1.5.2 Presentation by PK Latha on *“Indoor Occupational Heat Stress Mitigation: Utilisation Of Building Materials As A Passive Cooling Technology”*.

2. Vidhya Venugopal: *“Heat Vulnerabilities – Comparing indoor and outdoor workers”*.

2.1 [Link to presenter’s deck](#)

2.2 Vidhya Venugopal compared heat stress exposure, physiological responses to heat strain, heat strain symptoms between indoor and outdoor workers.

2.3 Vidhya concluded that occupational heat stress is a high risk factor for workers engaged in manual work, especially during hotter period of the year.

2.4 Vidhya urged for more evidence-based research for heat stress impacts for both indoor and outdoor occupational settings, which can lead to effective and cost-efficient strategies and labour policies to protect vulnerable workers.

2.5 Discussions:

2.5.1 Marcella Mauro asked if the findings from the study has already been published.

2.5.1.1 Vidhya Venugopal replied that most of the data from her team’s work in has been published and suggested that a repository can be made for easy access to these publications.

2.5.1.2 Jason Lee agreed, and added that the SCTF website can be used as a platform to share these publications.

2.5.2 Kinnalesh Vongchanh wanted to find out more about the research done in the education sector.

2.5.2.1 Vidhya answered that her current presentation did not cover the education sector. However, Vidhya highlighted the importance of understanding cognitive functions of students and fatigue levels of teachers in the rural areas where cooling strategies are not readily implemented.

2.5.3 Matthias Otto wondered if the working environment of salt pan workers caused the high urine specific gravity readings.

2.5.3.1 Vidhya postulated that the two main reasons for higher urine specific gravity readings are (1) poor hydration practices and (2) lack of toilet access.

3. PK Latha: “Indoor Occupational Heat Stress Mitigation: Utilisation Of Building Materials As A Passive Cooling Technology”

3.1 [Link to presenter’s deck](#)

3.2 PK Latha shared about her research on the role of building envelope on heat stress exposure, heat-related illnesses and productivity losses, including a [literature review](#) titled “Role of building material in thermal comfort in tropical climates – A review”.

3.3 PK found that (1) 83% of workers are working above safe Threshold Limit Value, (2) 89% of workers who reported heat-related illnesses and 9% who reported productivity loss worked in locations where the roof material had higher heat transfer coefficient, and (3) prevalence of heat strain symptoms was observed among workers working in locations where the roof materials had higher heat transfer coefficient.

3.4 PK concluded that (1) building envelope help to mitigate heat stress exposure and productivity loss, and (2) building materials with better thermal properties are good passive cooling solutions against heat stress exposure.

3.5 Discussion:

3.5.1 Matthias Otto emphasised the importance of PK's study as it can lead to evidence-based policy changes related to building construction. Matthias suggested that the amount of ventilation and shade over windows that a building receives should also be considered.

3.5.1.1 Vidhya added that her team is looking at possible collaborations with building experts such as architects as an extension of the presented project. Moreover, PK's latest project is to evaluate the effectiveness of Heat Action Plans in the rural areas of India where she will be exploring the use of low-cost air conditioners and white-coloured painted roof in April 2025.

3.5.2 Wenjia Cai asked if there is an existing comprehensive list of solutions for outdoor and indoor workplace heat exposure, which can be combined with economic analysis to guide investors who are developing a business case.

3.5.2.1 Vidhya responded that PK has consolidated a list of solutions and technology based on thermal properties, which can be used in conjunction with the information from PK's presented study and Wenjia's data to create a business case.

3.5.3 Jason Lee reminded the group on three physiological issues: (1) concern should be given to individuals who have difficulty sweating when working in the heat; (2) urine specific gravity measurements immediately post-exercise may not properly reflect hydration levels due to changes in antidiuretic hormone and aldosterone levels; (3) discrepancies between readings from infrared thermometers and core temperature should be better understood.

3.5.4 Jason added a concluding statement, where he would like members to ponder if such impact studies have led to policy changes, and whether the revised policies have been enforced.

4. AOB

4.1 Clarence Leow informed the members about the [SCTF website](#), where they can find out about upcoming events, view past events, and read past meeting reports.

4.2 Clarence reminded the members about their membership renewal for the period 2024–2026. Individual communications from ICOH Secretariat with the relevant information will be sent to the members.

4.3 Clarence informed members about the [Conference of Parties \(COP\) 29](#) held from 11 to 22 November 2024 in Baku, Azerbaijan.

4.3.1 Pouné Saberi asked if any member of SCTF would be attending COP29.

4.3.2 Weijia Cai replied that she might be attending.

4.3.3 Jason Lee encouraged members attending COP29 to promote occupational safety among workers, together with the [International Labour Organisation \(ILO\)](#).

4.4 Clarence informed members about the [Expo 2025](#) held from 13 Apr to 13 Oct 2025 in Osaka, Japan. Clarence also highlighted the [Global Initiative for Safety, Health and Well-being](#), which will be held during the Expo 2025, from 16 to 19 July 2025, where climate change will be discussed on Days 1 and 3.

4.4.1 Yuka Ujita shared about the [outline of GISHW](#) which would include a world assembly, dialogue sessions, international symposiums, various workshops and the ILO Youth Congress.

4.5 Vidhya ended the meeting by thanking the participants for the active discussions, and mentioned that she will be reaching out to some members to gather ideas on future plans for SCTF.

4.6 Vidhya suggested that we establish a distinct literature repository so that team members can exchange information.

Meeting minutes were recorded by Clarence Leow, endorsed by Vidhya Venugopal (Chair) and approved by Vidhya Venugopal (Chair).

Annex I – List of Attendees

Vidhya Venugopal (Chair), Sri Ramachandra Institute of Higher Education and Research, India

Chikage Nagano, University of Occupational and Environmental Health, Japan

Clarence Leow, National University of Singapore, Singapore

Elsbeth Oppermaun, Ludwig-Maximilian University of Munich, Germany

Gayathri K G, Sri Ramachandra Institute of Higher Education and Research, India

Gerald Tan, National University of Singapore, Singapore

Jamie Lye, National University of Singapore, Singapore

Jason Lee, National University of Singapore, Singapore

Kinnaeth Vongchanh, Institute of Technology of Cambodia, Cambodia

Pheak Kor, Institute of Technology of Cambodia, Cambodia

Jun Hao Kwek, National University of Singapore, Singapore

Marcella Mauro, University of Trieste, Italy

Mohammed Al-Bouwarthan, Imam Abdulrahman Bin Faisal University, Saudi Arabia

Paul Matthias Otto, Nelson Marlborough Institute of Technology, New Zealand

PK Latha, Sri Ramachandra Institute of Higher Education and Research, India

Poune Saberi, Veteran's Health Administration Medical Center

Raagavi Mani, National University of Singapore, Singapore

Sandhya Bahrathi, Sri Ramachandra Institute of Higher Education and Research, India

Seichi Horie, University of Occupational and Environmental Health, Japan

Shawn Tan, National University of Singapore, Singapore

Stesha Low, National University of Singapore, Singapore

Subashini T, Sri Ramachandra Institute of Higher Education and Research, India

Tanya Isaac, Sri Ramachandra Institute of Higher Education and Research, India

Trinh Tran, National University of Singapore, Singapore

Yuka Ujita, International Labour Organisation, Switzerland

Vanes Tay, National University of Singapore, Singapore

Wenjia Cai, Tsinghua University, China

Yuri Hosokawa, Waseda University, Japan

Screenshot of participants in meeting on Zoom:

