https://doi.org/10.31705/BPRM.v2(2).2022.11

Impact of Climate Change on Workplace Safety and Health Hazard in Facilities Management

> “Annually, 4% of global GDP is lost from accidents in workplaces; through stoppages, interruptions, treatment of injuries, rehabilitation and compensation .”

Annually, 4% of global GDP is lost from accidents in workplaces; through stoppages, interruptions, treatment of injuries, rehabilitation and compensation [1]. Workplace safety and health (WSH) is thus a vital component of decent work, and by extension a step towards achieving sustainable development. WSH is considered a key policy area in addressing environmental, economic and social sustainability. This is ever important due to the transforming workplaces amidst the challenges posed by one of the other biggest challenges faced by the world today; climate change [2]. This is especially true for traditional industries such as building and construction, where green retrofitting and climate adaptation have been observed, altering traditional patterns of employment. The negative impacts induced by climate change on employment include damages to buildings and the impact on labour productivity by affecting working conditions and WSH of the facilities management (FM) industry. Such effects of climate change on WSH of future work have not been explored.

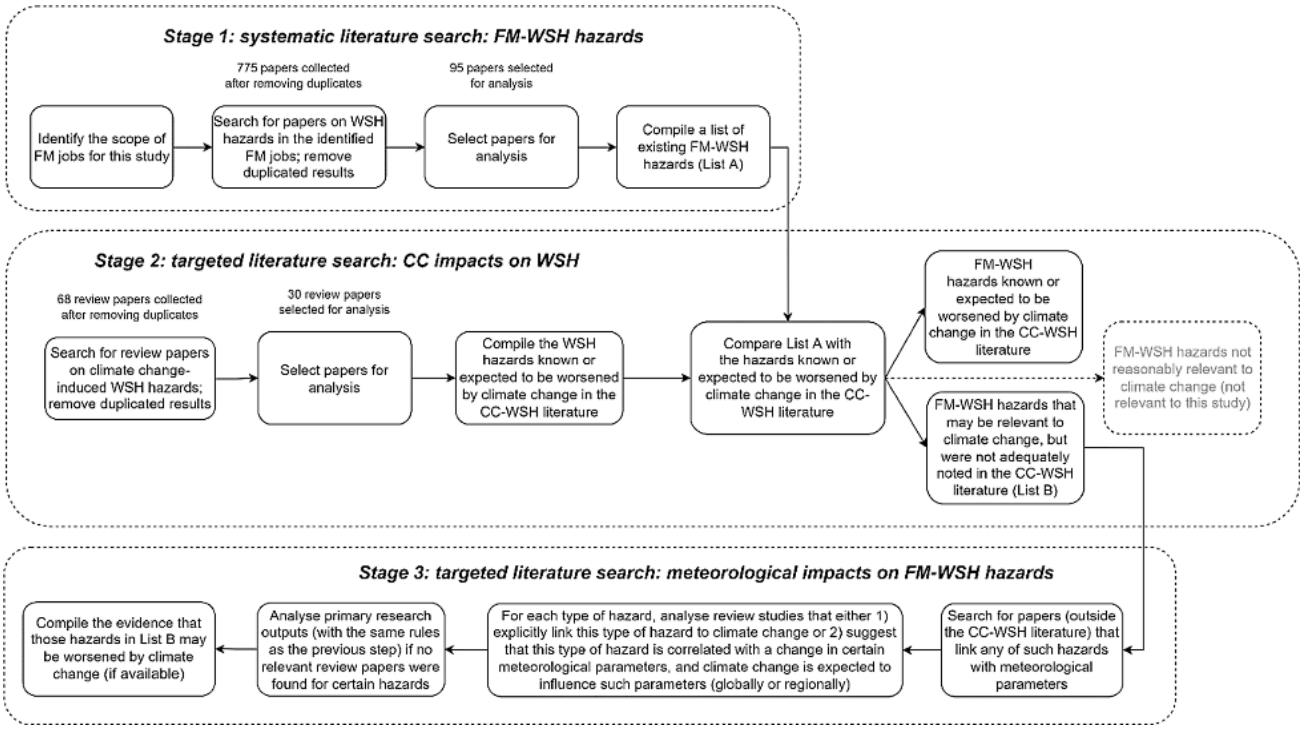

Figure 1: Methodology flowchart for this paper.

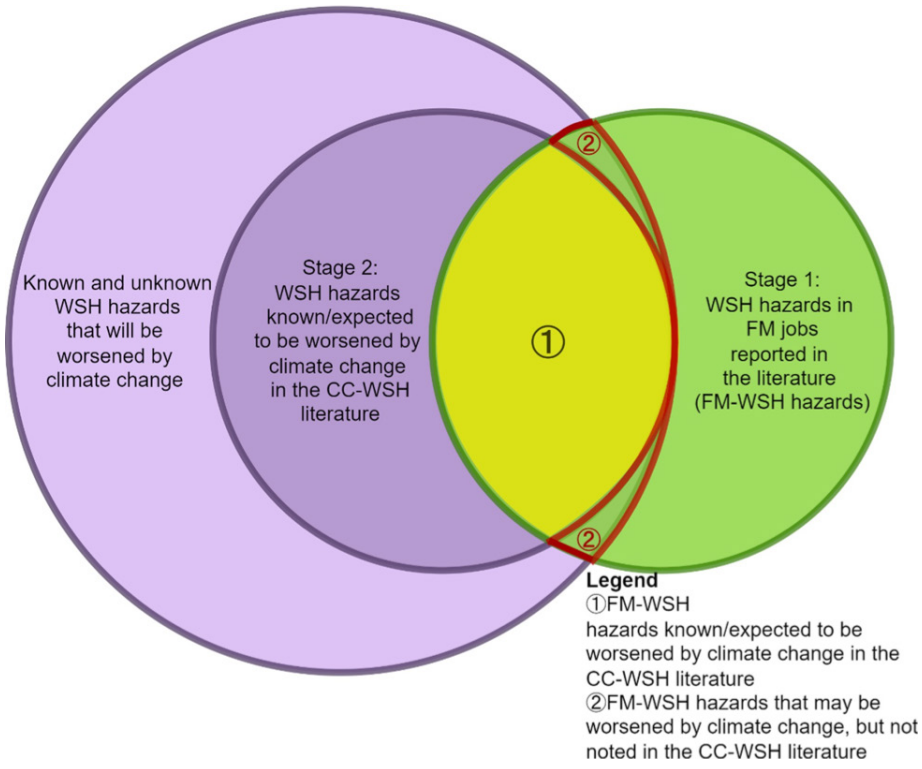

Figure 2: Venn diagram for illustrating the areas of interest in this paper.

Research to explore this gap was initiated as a collaboration between the University of Moratuwa and the National University of Singapore, culminating in a recent publication of a review article in the reputed peer-reviewed journal Safety Science. This study reviews the current knowledge on WSH hazards in the FM industry and investigates how such hazards may worsen with climate change. Methodology used in this research is illustrated in fig. 1. The areas of interest explored by the literature review is then illustrated in fig. 2. Here, the WSH hazards faced by the FM industry as identified through published work is identified by the green circle, and the WSH hazard that are worsened by climate change are indicated by the purple circle. The known WSH hazards in the FM industry expected to be worsened with climate change are then noted with the colour yellow. With that, this study identifies the gap where climate change literature has not represented the WSH hazards affecting the FM industry in the region with the red curves. The number of papers discussing known WSH hazards of each FM job function is represented in Figure 3.

Findings indicated that heat related FM hazards were widely known and understood, and hazards such as exposure to pesticides and vector-borne diseases are known to be worsened with climate change. Whereas legionellosis, soil-borne diseases and disinfectant, bioaerosol, UV exposure hazard may be worsened by climate change, and yet are not adequately covered in WSH and climate change literature.

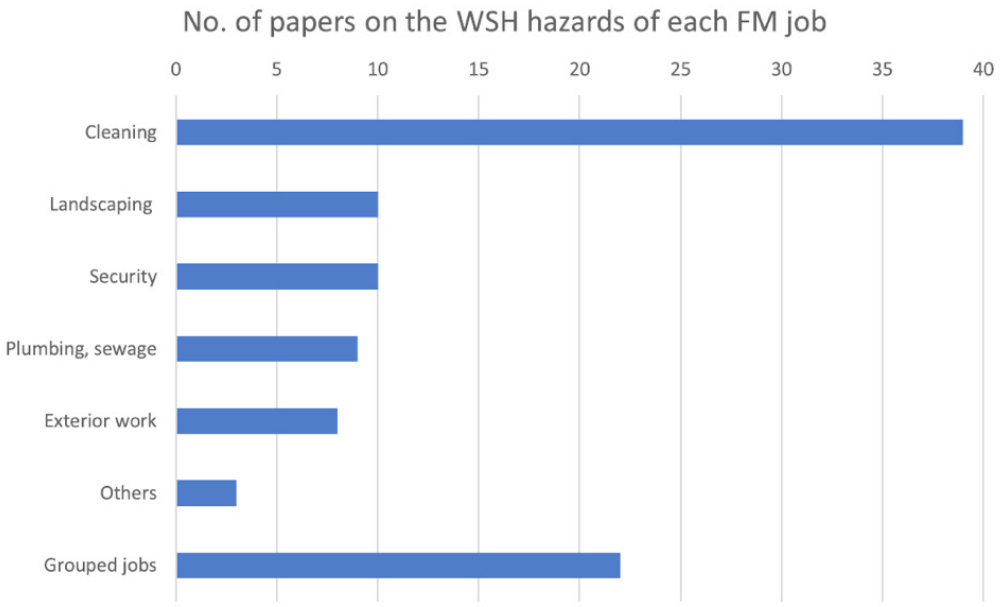

Figure 3: No. of papers on the WSH hazards of each job.

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[1] R. Mallett, Decent work, migration and the 2030 agenda for sustainable development, Geneva Swiss Agency Dev. Coop. (2018).

[2] P. Arias, N. Bellouin, E. Coppola, R. Jones, G. Krinner, J. Marotzke, V. Naik, M. Palmer, G.-K. Plattner, J. Rogelj, Climate Change 2021: The Physical Science Basis. Contribution of Working Group 141 to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change; Technical Summary, (2021).

Article by

Ashan Asmone

Department of Building Economics, Faculty of Architecture, University of Moratuwa, Sri Lanka.