

**HUMAN FACTORS & ERGONOMICS SOCIETY MALAYSIA (HFEM)
EXPERTS' JOINT MEDIA STATEMENT ON THE LRT TRAIN COLLISION INCIDENT
25th MAY 2021**

On the 24th May 2021, an accident of two LRT trains head-on collision shook the nation, which is an unprecedented event in the 20 plus years of its operation. A total of 213 passengers were reportedly injured; some suffered from critical injuries needing intensive care and while others needed medical attention. HFEM applaud swift Prasarana's announcement of their immediate assistance for all victims. This is definitely a positive response expected from the operator. Our hearts and prayers go to those victims, and we pray for their speedy recovery.

Whilst it should be stressed that all accidents are preventable, human error and negligence are inevitably the most common given "excuses" for accidents as was pointed out in the preliminary report by Land Public Transport Agency (APAD). HFEM as a group of professionals on human factors and ergonomics (including safety and health) is instead very concerned over the actual root cause(s) leading to this incident.

HFEM believes that the aim of any investigation should focus on prevention by identifying the organizational and systemic problems that contribute to an accident, and promotes a "no-blame" approach by focusing not on "who blundered", but on "how and why the defenses failed" in order for arrangements to be made in prevention of a recurrence and ensure a safer working (and commuting) environment.

Design of a complex system (or in this case, the railway system) may influence the ability of the operators to behave or perform in a safe and reliable manner. This is where the three (3) broad domains of ergonomics; physical, cognitive and organizational aspects must be considered holistically:

- Physical ergonomics is concerned with fitting the physical characteristics of the workplace to the employees which integrates the knowledge across different subject matter – anatomy, anthropometry, biomechanics, physiology, etc.
- Cognitive ergonomics addresses the tasks requirement in terms of mental processes (loads/burden), decision making, skills and training, human computer/machine interaction (HCI/HMI), etc.
- Organizational ergonomics focuses on optimization of sociotechnical system such as communication, organizational culture, organizational structures, policies and processes, work design (roles and responsibilities), resource management, etc.

Human error and negligence are only the symptom, whereas human performance influencing factors such as workplace design, control panel and HMI arrangement, work procedures, environment, personnel competency, mental state and other human factors significantly affect the human behaviour and decision-making process as a system becomes more sophisticated.

By analysing the accident from a HF/E perspective, we will allow ourselves to examine the deeper, interconnecting issues that may lie within the organizational aspects, cognitive and the physical aspects leading to the accident in the first place. HFEM look forward to a thorough and holistic approach being adopted in the technical investigation and is prepared to offer services of our professionals to assist in the investigation.

As the main operator of public transportation heavily dependent on the masses in the city, the corrective actions and continuous review following the results of the investigation would be of public interest instead of playing the blame game. This will give a firm reassurance to everyone affected by the incident including the many daily users who are dependent on this mode of transportation to commute especially daily.

Ergonomics (used interchangeably with human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance."

Human Factors and Ergonomics Society of Malaysia (HFEM) is an interdisciplinary non-profit organization consisting of human factors and ergonomics professionals. HFEM promotes the sharing and application of knowledge concerning the characteristics of humans that are applicable to the design of products, systems, and services.

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