Living and Sustainability: An Environmental Critique of Design and Building Practices, Locally and Globally

<u>Abstract / Initial Proposal Form:</u>

1. Paper / Proposal Title:

(Re)formation of Malaysian Conventional Housing Design in Landslide -Prone Areas via Algorithmic Remodeling of Form

2. Format:

Written paper / verbal presentation

3. Author(s) Name:

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ii- Professor Dr. Roslan Zainal Abidin

4. University or Company Affiliation:

i- Aimee Roslan Atelier, Kuala Lumpur, Malaysia

ii- Infrastructure University Kuala Lumpur (IUKL), Malaysia

5. Abstract (300 words):

This paper aims to address the irrelevancy of the status quo of Malaysian conventional residential design in the local landslide-prone areas, and the urgency to (re)form its design through algorithmic remodeling of form in today's digital era of of Neo-Modernism towards creating a landslide-resistant building.

Landslide is Malaysia's number one natural disaster with the highest of recorded damages and fatalities. From a comparative data recorded since the 1960s, the main cause of death in local landslide tragedies is not the soil itself; but the ruptured building debris from concrete pieces to wall blocks falling onto victims and trapping them.

Traditional houses in Malaysia were built by timber post and stilt construction for centuries, with the characteristics of rectangular plans and elevation, high-pitched roof, large openings and north-arrow form. The rise of Modernism in the 1960s resulted in the replacement of modern materials in the Malaysian architectural scene such as the prefab-concrete, yet still maintaining the former characters to date.

A precedent research was conducted by the author on the destroyed buildings in local major landslide tragedies in the last 5 decades concluded these buildings shared a common factor - they were all carrying traditional characters - structurally imposes high-stress concentration resulting in a catastrophic destruction in the event of landslide for being unable to resist the momentum.

Using the theory of algorithmic manipulation with the combination of new antiballistic material to replace the current ones, is there a possibility for the reformation of the old to take place in order to avoid the loss of lives and materials in the future?

6. Author(s) Biography (200 words each):

i- **Aimee Roslan** is an architect, model, fashion designer and researcher from Kuala Lumpur, Malaysia.

Her research interest involves image, innovation and future technology that focus on advanced digital process and tools; indeterminate forms and generative algorithm interplaying with the semantic structure of symbols and icons. She spent a considerable number of years in a mixture cultural context since childhood in Japan, Malaysia and United Kingdom.

Aimee's active involvement in architectural research has seen her being invited to speak at local and international architectural conferences and forums, including 17th ARCASIA Forum, Nepal; and 18th ACA Congress, Thailand.

Aimee has been modelling for fashion lines, magazines, and professional photography works, and embarked as the creative director of her atelier that develops style through digital architecture approach.

Currently Aimee is focusing on a tandem research with Malaysian engineering and geo-technical experts towards the further development of the region's landslide-proof building through generative design approach to combat the fatality of building failure due to natural disaster that happens annually in her home country.

ii- **Professor Dr. Roslan Zainal Abidin** is the President and Vice-Chancellor of Infrastructure University Kuala Lumpur (IUKL), Malaysia.

He obtained 6 gold, 7 silver and 7 bronze medals for his invention and innovation research products portfolio at both national and international levels. One of his inventions, 'ROM Scale' -

the first magnitude empirical scale for soil erosion was awarded distinction at the Geneva International Invention Exhibition.

He is currently the representative of the International Consortium on Landslide (ICL), Research Committee Members of International Hydrological Programme (IHP), Panel Assessor for Malaysian Qualifications Agency (MQA), Executive Member of Malaysian National Committee on Irrigation and Drainage (MANCID), Members of Malaysian Hydrological Society (MHS), Panel Assessor of Humid Tropic Centre For The Asia Pacific, panel of judges for invention and innovation competition at both national & international level besides sitting on the editorial Board of the Malaysian Construction Research Journal, Construction Research Institute of Malaysia (CREAM).

He has published and presented more than 200 technical papers and books at local and international conferences, seminars and workshops including as keynote and invited speaker.