



AROSHA GAMAGE

EXPLORING BIOMIMICRY APPROACH TO ENHANCE ECOLOGICAL SUSTAINABILITY IN ARCHITECTURE
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This research is about exploring Biomimicry Approach (BA), potentially to enhance ecological sustainability in Architecture. This involves investigating, what BA is and identifying its theoretical standpoint within the context of Ecologically Sustainable Design (ESD). Analysing existing literature of ESD, and Biomimicry, offers a new path to a systematic design thinking process which takes ecology as a model. Such a theoretical model that draws from a systematic design thinking process based on the understanding of the performance of the ecosystem pertaining to Architecture remains elusive.

Based on the developed Biomimicry Theoretical model (BTM) and Framework (BTF) (Gamage & Hyde, 2011; Gamage & Hyde, 2012), an experimental project was designed and built: Eco House. Its concept, design with nature and less with more was directed by using Biomimicry as a design Approach. This involved indirect mimicking: use of Biomimicry principles such as diversity, multi-functionality, spatial integration and direct mimicking: use of characteristics of a lowland tropical rainforest. It helped in the early stages of the design process to identify and eliminate waste spaces and use resources and energy efficiently. The experience in thinking according to this framework: BTF, made it clearer in identifying a path way to find out the collective character of the constituents by identify some of the design propositions appropriate to Biomimicry Approach. All these findings instigated to pursue this research journey to the next level, to plan the overall research design.

Eco House was nominated for the World Architecture Award (Wan) 2010 and is listed under World Top Design under the category Residential.