Learning from the timber construction tradition in South-East Asia for a history of disaster vulnerability and resilience practice

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Failure to plan for disaster recovery often produces a rebuilding process that portends the next disaster. The first adoption of the Disaster Risk Management strategy has an ancient origin. It allowed for a systematic approach to assessing and supporting the socio-economic resources of people affected by calamities. The paper focused on specific case studies where resilience practices have inspired building systems against disasters. This topic introduces the issues of documentation on site (traditional and digital) and, in the case of post-disaster recovery, environmental risks and how we can preserve even oral traditions. It allows us to introduce a peculiar and relevant context, such as Indonesia, where a local building tradition needs to be documented and preserved at a high risk of natural disasters. In Indonesia, various examples of adaptation and preservation of traditional vernacular buildings resistant to natural disasters constitute Tangible and Intangible Cultural Heritage which are also relevant for emulation in other geographical contexts.

Indonesia's traditional wooden building system has examples of meaningful buildings characterized by wood construction that provides seismic resistance. The study of the timber construction tradition in South-East Asia, due to the high seismicity and various types of interlocking, which are still used today by different Asian cultures, needed the use of digital technologies as on-site surveys and damage assessment to deal with the necessary documentation and the building conditions. The photographic campaign, damage survey, 3D documentation, metric and photogrammetric surveys, and tests are partly planned and will also be included in the project proposal to verify disaster performance (testing of mechanical properties of materials, structural static and dynamic performance, and the retrofit method of wooden structure. Digital documentation is also supported by hands-on learning in workshops on traditional timber design and carpentry. The tradition of building, rehabilitating, and maintaining structures with wood joints is ancient and widespread in Asia, which, when examined in detail and simulated in today's contexts, can still teach us a lot about how to prevent a hazard.

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