Stories that change the paradigm: bamboo structures for sustainable and resilient communities

Co-Organisers: BASE Builds | Homeless People`s Federation of the Philippines (HPFPI)
Community Architects Network (CAN)

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Authors Salzer, Corinna | Fadrigo, Sonia | Fitrianto, Andrea | Boram, Kim

Picture 1: BASE, HPFPI & CAN Philippines Participatory Housing Design Workshop, Philippines

Picture 2: Joint BASE and HPFPI Housing Project Iloilo, Panay, Philippines

ABSTRACT

The session presents ***stories of low-income people*** and supporting partners**,** in which sustainable and resilient communities are created through the use of bamboo for their daily life structures. Insights into cases throughout Asia-Pacific highlight that a ***change of paradigm*** is actually possible, making bamboo-based structures not only acceptable for low-income groups, but an entry point for overall social uplift and empowerment through a participatory development process. One key for success is to raise ownership among the people involved. When their needs are addressed in partnership with stakeholders from government, international organizations, engineers, architects, urban planners, social enterprises and others, the application of cost-efficient bamboo structures has significant potential to reach scale. A message of the United Nations visualizes the tremendous global need for cost-efficient, socially-inclusive, disaster-resistant and ecological-friendly housing. Consecutively, the session bridges the gap between the introduced need and the potential seen, by discussing pathways how these or similar activities can tackle the housing need and community empowerment at scale. In a panel discussion and concluding message to the World Bamboo Organization Committee, the pathways forward are being framed and an involvement of the World Bamboo Community is called for.

Picture 3: In-city informal neighbourhoods in Quezon City, Philippines

INTRODUCTION

The session ***Stories that change the paradigm: bamboo structures for sustainable and resilient communities*** highlights the role of bamboo as load bearing, permanent element in structures benefiting low income groups in urban and peri-urban settings of Asia and the Pacific in particular and the world in general.

Unprecedented urbanisation in Asia and the Pacific and the world holds the promise of economic and social development to lift hundreds of millions of people out of poverty. However, current urban development patterns are often unsustainable and inequitable [1]. Most visibly, over 40 percent of the region's urban population lives in inadequate, disaster-prone shelter, while the construction and utilisation of conventional buildings has a significant environmental impact [2]. The global challenge of slums and inadequate living environments in cities of developing countries calls for cost- and eco-efficient, disaster-resistant and socially-inclusive building concepts for the region's urban areas, as one of the entry points in tackling the tremendous issue. This is reflected as a target in both the sustainable urban development agenda and disaster risk reduction programs such as [3, 4].

In many parts of Asia-Pacific, the use of bamboo has a long tradition in rural construction as described in [6]. In urban areas, however, bamboo is mainly used for temporary structures and by low-income groups, since it is available and affordable for the people. This choice of using bamboo is mostly driven by urgency and affordability and is often associated with poverty and vulnerability

of the inhabitants in times of disasters [5]. As a result, the potential of bamboo in social and technical dimension remains underutilized.

Picture 4 (left): Post-disaster assessment of Base and HPFPI after typhoon Haiyan, Panay, Philippines

Picture 5 (right): Temporary shelter built in the Philippines using bamboo, Panay, Philippines

In the last two decades, bamboo professionals around the globe have used bamboo as structural material for aesthetically and technically extra-ordinary structures such as [7, 8], which have already obtained world recognition. Exploiting the potential of the poles has enabled high value buildings, which successfully brought about a paradigm shift from bamboo as a poor man's lumber towards eco-conscious middle and high income customers.

Despite the urgency of the need, improving the adequacy, performance, and social aspiration of bamboo-based structures for low income groups has not received the attention it deserves. ***This session responds to the gap between today's outstanding bamboo structures and the urgent need for more adequate, cost-efficient building solutions for low-income communities in Asia, the Pacific and beyond.***

Picture 6: Participatory bamboo bridge building workshop by CAN and HPFPI, Davao, Philippines

DEVELOPMENT

The session presents success stories of projects pursued with and by marginalized communities throughout Asia-Pacific, which have experienced significant benefit from bamboo structures as parts of their daily life. With that, the session addresses the possible role of bamboo in the complex challenge of adequate housing and community empowerment. Contributing to the described issues at relevant magnitude requires holistic bamboo-based housing concepts, which place the needs of people and peoples-organizations in the center of attention. The session highlights the relevance of participatory development as one key component for overcoming the acceptance challenge. Insights are provided how participatory development is able to meet the end users' needs and therefore, bamboo-based construction concepts are perceived without negative connotation of the latter being for the poor only. The cases further showcase how adequacy can be obtained when technical, ecological and economic developments are aligned to the social needs, which make bamboo-based structures a convincing concept for governments and other stakeholders. In addition, the session highlights that people actively use bamboo structures and buildings when they are part of a process, which is developed as a combination of local knowledge, global exchange and sharing as well as addition of new concepts.

Several cases throughout Asia-Pacific underline the meaning of such holistic bamboo-based concepts. One case presented is the collaboration of the community organization Homeless People`s Federation of the Philippines (HPFPI) with the social enterprise BASE Bahay, an initiative of Hilti

Foundation, and their interaction with government entities, international organizations, construction professionals and academe in applying round bamboo for more sustainable and resilient communities. It is shown that through a participatory process by the community organization, a comprehensive technical development, and an inclusive business model of the social enterprise partnering with them, low-income groups and local governments gain trust in the technology and enable the replication of projects at larger scale. Modern, cost-efficient and resistant urban bamboo housing is shown to be on a successful track record. In a second case at the Philippines, HPFPI has partnered with the Community Architects Network (CAN), for the participatory construction of a modern bamboo bridge reducing the flood risk of a vulnerable community. During a flash flood after the completion of the bridge it was proven, that the bridge provides a secured escape route for the community members, which indeed saved many lives. Both cases have changed people`s perception about using bamboo as load bearing members for structures in the communities. The sharing of more successful cases for and with urban poor communities throughout Asia and the Pacific, such as the ones above in the Philippines, serves as an evidence of a *paradigm shift*.

Besides the presentation of these cases, the session is a platform for sharing and discussing experiences and views among the attending stakeholders of communities, practitioners, professionals, academe, international and none-governmental organizations as well as social enterprises, private sector and policy makers. Through a multi-stakeholder panel dialogue, the session discusses key challenges of people-centered bamboo projects and reflects on the paths forward to create global impact with affordable, resistant bamboo structures for low income groups. The session concludes with a reflection on what the world bamboo community can and should do to enable as well as scale-up these practices. Key messages made during the session are delivered to the committee of the WBC and to be included in their conclusive declaration.

Picture 7: Community inspection and feedback on bamboo demonstration houses of Base and HPFPI, Bicol, Philippines

Picture 8: Bamboo community centre built above drainage in Yogyakarta, Indonesia by CAN

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