



Keywords: organized by governmental corporations, project developers and other private enterprises. Here, housing is offered to consumers (renters or buyers), which is organized in a 'top-down' manner. In contrast, self-help housing is principally organized in a 'bottom-up' manner, and can be formalized and assisted by the government or NGOs. Self-help or self-managed housing – the house production method of millions of households worldwide – may also lead towards informal cities, but not always. This paper focuses on, among other things, assisted self-help

assistance through inter alia housing finance mechanisms, land-for-

they are not designed in a way that allows for such changes. In housing complexes in Manaus, Brazil, it was found that the projects and the policy do not support the occurring practice of incremental expansions. The large number of – illegal – extensions revealed that there is a certain demand among the residents for incremental housing. Thus, the design for housing and the built environment should contain solutions for incremental finishing of homes [16].

Urban planning is a basic task of local government. In order to connect urban planning with the demands of populations, local groups of residents should be directly involved in planning processes. Urban planners, including architects, civil engineers and other specialists, might develop new working methods to share their skills directly with local households regarding, for example, developing community action plans and establishing housing cooperatives. Co-operation between the various stakeholders will lead to new working methods concerning participatory planning and housing. Another concern is the offering of assistance for self-builders, for example by community architects and construction aid workers. House design assistance for the self-building process in the region of Campinas, Brazil is an example [17]. Ismael [18] describes the technical training resource centre (TTRC) that was set up by a young trainee of the Orangi Pilot Project-Research and Training Institute (OPP-RTI) to support better quality housing and infrastructure provision in the informal settlements of Karachi, Pakistan. The Community Architect Program was created in Cuba in 1994 to support self-help housing construction. Community architects have used participatory techniques to provide technical advice to residents who wish to build, expand or renovate their homes. This has been done by more than one thousand community architects in Cuba [19].

In 2010 in Nairobi, Kenya, an international workshop of young planning professionals resulted in additional recommendations. This workshop, jointly organized by UN Habitat, the Government of Kenya, the city council of Nairobi, the Architectural Association of Kenya, the University of Nairobi and ISOCARP, the International Society of City and Regional Planners, focused on Kibera, one of the largest informal

of opportunities and threats. Improvement of living and working conditions of residents and business owners hinges on the cooperation between local government, residents, local entrepreneurs, and other stakeholders. Trust between the various stakeholders is crucial. A

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economic development.

Adobe blocks: Adobe bricks are made from a mixture of clay-based soil, straw and water. Wet adobe is formed into bricks and then laid out to dry in the sun for several days. They are used for the construction of walls, with wet adobe serving as the mortar. Methods of construction vary considerably by climate. Most homes have a thin coating of adobe on the outside to create a smooth surface, which can be painted. Adobe is applicable in rural areas but in urbanizing areas – with higher densities – the use of this sustainable material is usually not appropriate.

The applicability of the above-mentioned building materials in urban settings where the majority of the world's population will live in the future demands more attention. Currently, the use of such sustainable and affordable construction materials in high-density urban areas is not very common. Despite the advantages outlined above, city-dwellers do not want to live in houses that in their perception may consist of modest building materials. Therefore, there are probably far more opportunities for the application of the described sustainable building materials in rural areas, villages and small towns than in dense cities.

Social sustainability and housing

The development of new urban residential areas is an organizational and technical challenge and new residents must be involved in planning and housing issues as soon as possible. Social sustainability is also an issue in existing settlements and urban neighbourhoods and governments should facilitate the establishment of durable, self-reliant communities. Self-reliant, local communities make eventually fewer claims on public forms of support and governments should make use of the power of local communities and support them where necessary. Community potential has been recognized by the World Bank, whereby community-based organizations (CBOs) are included in projects and residents are seen as the most important stakeholders in living and working areas. Until 2010 international institutions such as UN-Habitat, the World Bank and Cities Alliance were mainly focusing on the improvement of slums – neighbourhoods – which meant for example improving roads, sewerage, parks and playgrounds. A good example is the extensive and successful Kampung Improvement Program in Indonesia, which was

Some sustainable applications and measures for affordable housing are achievable for low-income households, but sustainability issues are not yet central to the decision-making of the poor. In this paper I have argued that low-income households can contribute to sustainable urban development and housing, provided that the right conditions are met. For example, there must be adequate urban planning, households and local communities must gain the appropriate knowledge and skills, and sustainable building materials must be made available. If assisted self-help housing and training programmes for self-builders become available, the use of sustainable building materials and applications can

