

RURAL (LOW INCOME) HOUSING: INSPIRING COMMUNITIES TO SHAPE THEIR FUTURE



Fig 1: Example of rural low-income housing near Uganda Martyrs University.

WHICH ARE YOUR ARCHITECTURAL(R) SOLUTIONS TO THE SOCIAL, ENVIRONMENTAL AND ECONOMIC CHALLENGES OF TODAY?

Research summary

Sustainable rural development is vital to the economic, social and environmental viability of nations. In many countries today, built environment strategies to address sustainability tend to focus on large-scale programmes in areas such as renewable energy and energy efficiency. While this approach can improve national environmental indicators such as carbon emissions profiles, it appears unlikely to achieve sustainability (Gampfer, 2012). Furthermore, most of these programmes focus the teaching and learning aspects of sustainability to more urban settings relegating rural areas to mere destinations for project implementation. This is unfortunate because a narrow focus on urban centres is counterproductive since negative impacts of rural practices inadvertently affect urban centres. This paper argues that rural universities can provide a more comprehensive approach to long-term social, environmental and economic development in rural communities. Neighbourhood-scale development interventions, which enhance day-to-day living patterns, are more sustainable in the long run. Further, teaching methods suited for interdisciplinary or intercultural cooperation are a key element of built environment characteristics, which support sustainability. In this paper these are referred to as 'Neighbourhood-scale' approaches, which are envisaged to ensure transfer of technology, improvement of construction skills, innovative use of available materials and a comprehensive concern for the environment.

Keywords: Low-Income, Housing, Neighbourhood-scale, Well-being, Sustainability

1. Introduction

Good-quality, affordable, and safe housing is essential for human wellbeing. On a larger scale, Wiseman and Brasher (2008), define community wellbeing as the combination of social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to flourish and fulfil their potential. Any emphasis to achieve sustainable wellbeing in our world today should focus on development that aims to address these basic needs while avoiding negative environmental impacts. Academic investigations and other funded discussions today explore aspects of improving resource management and climate specific housing design. However, housing investors still favour urban areas for the anticipatable return on investment they offer. Coupled with this, Built Environment scholars on sustainable housing favour these same urban areas for the likely level of exposure to larger audiences.

Be that as it may, focusing financial and academic resources solely on urban centres leaves rural areas lagging behind. It is worth noting that rural housing in the global south exists outside of planning authorities and the formal construction sector (Tiwari, 2007). Yet outcomes of theoretical investigations are repeatedly planted in rural communities as finished products. In most cases, little is established in these communities or left behind by the implementers to monitor longevity or ensure assimilation of these projects. The last thing we want is to repeat past failures of good-intentioned development projects across Africa that have built schools, water boreholes and clinics only to see them disintegrate when the NGO withdraws (Confino, 2009). Rural communities are consistently left out of the loop yet these same communities are a vital piece of the puzzle toward good design and construction practice since over 60% of the population in the global south currently reside in these areas. Bryant and Granjon (2000)

argue that ultimately, urban sustainability cannot be divorced from rural sustainability. Urban and rural milieus are intimately tied together in a synergetic fashion, the one depending upon the other. While much urban activity and population have been decoupled from the rural milieu, in the final analysis it is not possible to conceive of urban sustainability being achieved without being juxtaposed and integrated with the rural milieu.

The sustainability of the global environment and human life will not be achieved unless, among other things, human settlements in both urban and rural areas are made economically buoyant, socially vibrant and environmentally sound, with full respect for cultural, religious and natural heritage and diversity (United Nations, 2014). Planning authorities in Uganda focus on urban centres where monitoring and enforcement of penalties is easier. However, rural housing practices, which are ignored by these enforcers, are eventually observed in the informal settlements at the fringes of these urban centres. In the context of the housing, urban areas often reflect the flows and counter flows of rural to urban and seasonal urban to rural migration (N .H. C, 2009).

Some of the deficiencies in rural housing communities include: - lack of water and electricity, over dependence without replenishment causing depletion of certain material sources, Poor infrastructure (Poor structural quality or duration of dwelling), lack of adequate sanitation and drainage facilities, constructing in protected areas, threat of disease and the lack of school and health services. On the other hand, the benefits of sustainable practices that promote wellbeing at level include, but are not limited to: - provision of essential utilities like electricity and water, proper disposal of sewage and other solid waste, access to better construction technology, and innovative use of available raw materials

Communities need to become more

knowledgeable about their own bioregions if they are to survive in future societies, which will demand better management of resources (Dawson, 2010). Therefore, this paper presents an investigation to determine the place of rural universities in Uganda as beacons to inspire local communities and guide them toward improved housing and a sustainable development process. This is especially opportune for universities located near rural communities; since those institutions are more able to connect with community members, then monitor interactive development programmes over time. Neighbourhood-scale approaches have proven to be a cost effective strategy to ensure wellbeing, particularly because different communities have unique challenges. Neighbourhood-scale projects are manageable and can elicit support from the communities since they can resolve an appropriate deficiency in a given locale. As such, this paper proposes community collaborations, which can influence social change when they establish conditions that foster mutual social, economic, and environmental benefits to partner universities and their adjacent communities.

2. Research objectives

The genesis of this research is an offshoot of a study, which investigated: - commonly used materials, popular building techniques, and material utilisation in the construction of low-income housing in Uganda. Findings from this study highlighted a need to introduce rural residents and their local artisans to alternative construction methods and techniques to achieve more suitable results in rural housing. The study also revealed a need to investigate the notions and motivations that lead the questionnaire respondents toward their preference in housing design and construction.

This research proposes to examine the potential of an initiative through which rural based universities act as drivers for development in their communities. Local universities would benefit from participating in community empowerment activities to improve adjacent livelihoods by harnessing the existing skills within their community and showcasing the outstanding competencies of that particular university.

Promoting community wellbeing would require proposed projects to include health, social and economic aspects of community development which include:- community waste management / disposal strategies, effective land management, housing, and construction material identification or production.

1. Specific objectives

This project purports to develop a framework to continually pursue opportunities and challenges facing communities around particular universities, identifying indicators that will shape the project's context specific criteria.

The programme expects to institute guidelines for material selection and initiate an appreciation of the potential of locally available building resources. As the project progresses, the instigated hands-on encounters can serve as opportunities for student and professional in academia to develop fresh ideas and continuously interrogate local resources to resolve contextual disquiet. Generating the open-mindedness essential for a new thinking of built environment professionals (Sinclair, 2006).

It is envisaged that the project will incite local communities to become champions for environmental concern applying their newfound knowledge about the fragile nature of our planet and the need to ensure that human development activities seek to improve and sustain the natural habitat.

3. Method

A World Bank (2002) project on Upgrading of Low Income Urban Settlements in Mali and Ghana found that the population was motivated to adopt a project when there was a visible investment to improve the neighbourhood. Allaying a community construction need is a vital selling point for a project of this nature. It should be noted that unlike developed countries where most of the basic human needs have been met, a critical motivator for rural communities in Africa to embrace key environmental initiatives would be to address basic human needs through the provision of housing and social infrastructure such as school and hospitals (Gibberd, 2001).

This advocacy approach was adopted for this research; the Neighbourhood-scale approach is directed toward rural residents who are interested and able to bring a positive change in their communities.

3.1 Focus group discussions

The initial approach was designed to assess the internal status and identify an outstanding proficiency each university can harness to sustain selected community development projects. Through these discussions the project teams were identified and recruited. These focus group sessions then informed the local council to let their constituents know about impending walk through surveys and their aim. The final stage specialised group discussions to prioritise local artisans, tradesmen and material suppliers in the locale. The specialised teams presented the current material pallet, which enabled the project team to obtain a baseline understanding of their design and construction context.

3.2 Walk through survey

The survey tool for the study was structured to gather general to specific data. This would ensure that adequate data was collected with

the ability to inform diverse outputs and opportunities for subsequent interventions. A key section in the survey was to gather background information that provided insight into the decisions made by stakeholders, especially those that are involved in the construction of dwellings.

A record of the underlying reasons behind the use of various building materials was also captured. It was found that the survey tool was not effective in urban centres because urban low-income housing profiles indicated that the majority of residents were tenants; who often have little or no say in construction material selection and could thus not be considered as credible sources of information.

3.2 Stakeholder Workshop

The necessary collaborative decision-making took place in these action-planning workshops. Action teams begun stakeholder collaborations and opened dialogue to ensure that the projects objectives lead to clear priorities and action plans. This method as proposed by the World Bank Participation Sourcebook (1996) energized the local community members, who as the local experts shared local knowledge with the facilitators. Participatory rural appraisal and SARAR (an acronym based on five attributes the approach sought to build; Self-esteem, associative strength, resourcefulness, action planning and responsibility) prompted the use local materials and visual tools to bridge literacy status and cultural gaps.

3.3 Design Build Project

This design build project stands as a living example, which successfully addressed one or more issues, which were found relevant for the region, site or users from the initial project stages. During the gradual design process consisted research informed the process through design, and was helpful for the identification and integration of essential issues by the student teams. The research process

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was the principal educational goal of these projects since much of project outlines were developed throughout the design and construction process. As Gampfer (2012) purported, this problem-oriented teaching method was found suitable for interdisciplinary or intercultural cooperation for the university and local community teams alike. The exchange of ideas between students, academics and rural community members with different backgrounds lead to tolerance for unusual or new solutions and created an informal platform for research and discussion.

4. Results and design potential

The design project shown in Figure 2 was recently completed by students from the University of Augsburg in Mathare, Kenya and is a good example of the use of the farms and surrounding countryside of one of the largest slums in Nairobi to foster sustainable wellbeing.

The currently operational Skills Centre enables young people to learn new skills and have a chance at a better future. The school program includes among other things crafts training for carpenters, tailors and electricians. During the construction, however, local artisans learned various construction skills, which included the use of mechanical and electrical equipment.



Fig 2: Local artisans and students University of Augsburg on their final day of construction a Classroom Block



Fig 3: small strands of Bamboo used as door mesh.

Enrolled students and other site visitors get a first hand view of the innovative use of Bamboo which is a natural and sustainable building material used in this project for filigree supporting structures and roof support. Bamboo is hardly used as a building material in the region yet it is commonplace and can be used after a few years for growing. Since the material grows irregularly certain pieces cannot be used for structural building elements; however, those pieces are sectioned into small strands that are used as a mesh for the doors shown in figure 3. During construction, off-cuts are stored and repurposed to ensure that hardly waste remains.

Water and power supply are designed independently since the Skills Center is located outside Nairobi off the main grid lines. A photovoltaic system provides electricity for night lighting, which makes the building stand out as the only lit up building in the area at night. Deep wells supply drinking water and harvested rainwater is stored for other uses including the centers own agriculture efforts. Dry toilets and a biological treatment plant manage human waste.

5. Future implementation

Community engagement focused of design-build necessitates a place-based practice in which the 'citizen-architect' replaces both the technical expert and the craftsperson. The citizen-architect practices a form of civic expertise that encourages discursive, inclusive and multifaceted approaches to problem solving that incorporate formal and tacit forms of knowledge (Brand and Karvonen, 2007). Rural communities will be better suited to embrace the reigns to discover their housing future and development potential when they reject the notion that a building is a commodity that should be designed at a distance by experts.

As such they will always be mindful of their rural university as a pillar of support and development partner. In the long run such universities will stand out, as they will be adept at advancement of Knowledge and experience to educate young minds to generate contextually relevant solutions even as they understand changing global trends.

Rural universities will assume a comfortable position and stand out as pioneers, attracting; local and international research interest, prospective students, and supporting other regional counterparts to perpetuate these neighbourhood scale projects to improve rural housing and realise community wellbeing.

6. Conclusions

Universities actively involved in the development of adjacent communities enjoy the benefit of real-time assessment, refinement and documentation of various alternatives in the emerging configurations for better housing design and material use.

Furthermore, the on-going appraisal of contextual opportunities as well as the interrogation of respective challenges offers unique foresight to the universities. Involved universities can forecast and subsequently

develop curriculum to remain relevant and competitive in our ever-changing world. Students also get to appreciate the importance of teamwork, which presents an opportunity for fledgling professions to engage directly with the needs of the wider population. Further, community involvement equips students with a deeper appreciation of the demands of 'real-world' design and construction making them keen to devise contextually relevant solutions.

Engaging rural communities in the construction of regionally suitable housing projects can offer a host of opportunities for these communities to devise local innovations to direct their own future housing potential. The hands-on approach will ensure that the participating residents gain basic technical skills in the use and assembly of available housing resources. In the long run, adjacent communities will appreciate the efficacy of competent artisans for high-level technical assistance on their construction projects. Completed projects will be a testament for residents to enjoy the health, social and economic benefits of environmental conscious housing. Consequently, it is envisaged that local communities will eventually garner more champions toward a new generation of environmentally conscious rural communities.

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Africa, and the Uganda Martyrs University in Uganda.

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