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The Critical Need for Collaborative Action and Knowledge Sharing in Architectural Policy, Education, and Practice

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Abstract:

The CAA Knowledge Sharing Partnership was created in accordance with the findings of the Survey of the Built Environment Professions in the Commonwealth, which determined the serious lack of capacity in many Commonwealth countries that are experiencing rapid urbanization yet being the most vulnerable to climate change impacts. There is growing recognition of the shortcomings in many Commonwealths countries'-built environment policies (such as building codes and planning policies) with regard to regulations and execution. This is a result of the corresponding lack of institutional and educational capacity to develop the professions quickly enough. The findings from this research are crucial if risks associated with poorly planned cities, such as disparity, informality, and vulnerability, are to be addressed along with the opportunities provided by urbanization to improve resilience and elevate prosperity. The Commonwealth Association of Architects (CAA) Fact-Finding Survey reveals significant differences in architectural practice, education, and policy across its member organizations. The key findings have been outlined in this paper, which also highlights the critical need for collaborative effort and knowledge sharing in order to encourage resilient communities and sustainable development.

Keywords:

Architectural policy, Commonwealth nations, capacity building, urban growth, sustainable development, market maturity.

Introduction:

Urban expansion is one of the key reasons for risk exposure globally, making urban vulnerability a serious concern ***(Bai, 2018).*** The United Nations Population Division estimated that by 2030, all major emerging regions will have more urban residents than rural ones. By 2050, two-third majority is expected to reside in cities. The global population is predicted to rise significantly throughout the period, with nearly all of that growth occurring in low-income nations. ***(Montgomery, 2008).*** Over one-third population of the world lives in urban areas, specifically in low- and middle-income countries, as do roughly three-quarters of its urban population (***Fig1,2)***. They encompass a great deal of these countries' economic activity as well as the majority of newly created jobs. In a time of globalisation and climate change, urban risk exposure and the adaptive or maladaptive responses of cities affect entire regions.

(Seto, 2012). However, stories of urban development practices that have made populations more vulnerable to risks have repeatedly surfaced, particularly after natural disasters. This has led to questions about how and why locals and authorities did not take more precautions or properly implement development plans that could have prevented harm. Cities are deliberately located in regions like river deltas and coastlines that are particularly vulnerable to storm surges and sea level rise. ***(Neumann, 2015)***. However, urban sprawl and densification have led to increased risks of heating, wildfires, and flooding ***(Hardoy & Lankao, 2011)***. Following such disasters, it is frequently evident that, in spite of information that was accessible, urban development processes, particularly land use change was followed in ways that increased harm ***(Eakin, 2022)***. The direct and indirect effects of climate change pose a threat to millions of urban residents in low and middle income countries due to the informal settlements developed in the major urban centres ***(Cutter, 2018).***

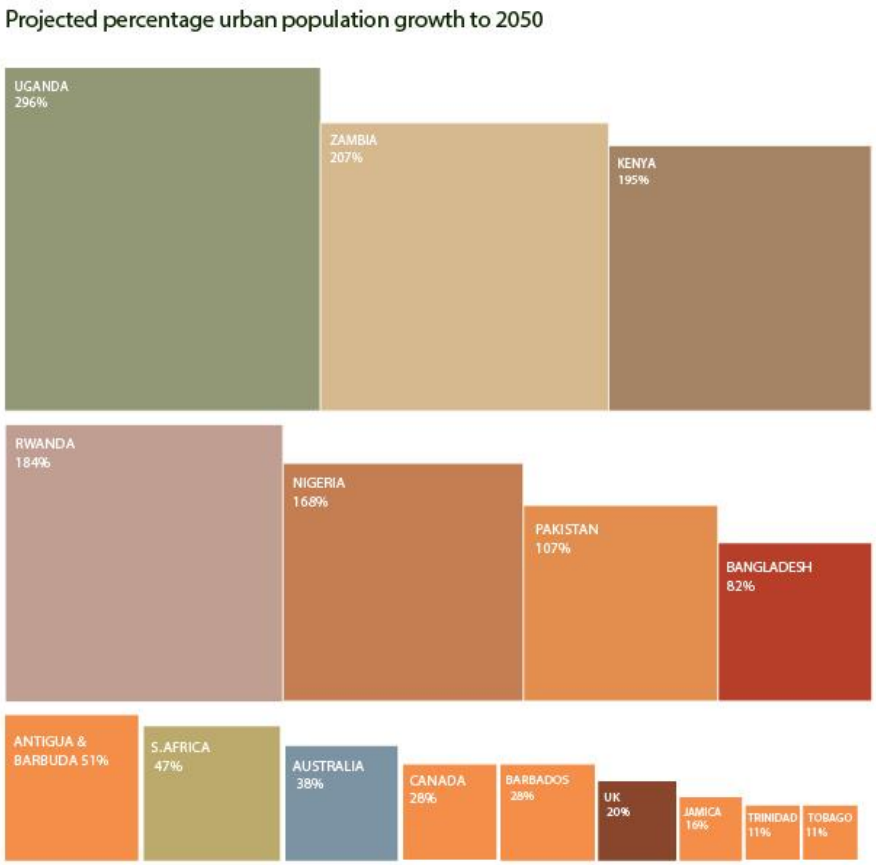

Fig 1. Projected percentage urban population growth to 2050

Region	Country	Projected Urban Pop (2050)	Projected Urban Pop Growth (2020 - 2050)	Projected Urban Pop Growth % (2020 - 2050)
Africa	Kenya	44,184,721	29,209,662	195%
	Nigeria	287,130,349	180,017,823	168%
	Rwanda	6,483,462	4,202,462	184%
	South Africa	58,056,843	18,505,954	47%
	Uganda	46,663,616	34,888,604	296%
	Zambia	25,576,780	17,240,399	207%
Asia	Bangladesh	117,836,927	53,021,974	82%
	Pakistan	160,228,128	82,790,399	107%
Caribbean and Americas	Antigua and Barbuda	38,799	13,117	51%
	Barbados	114,418	24,723	28%
	Canada	39,233,850	8,563,786	28%
	Jamiaca	1,904,123	263,688	16%
	Trinidad and Tobago	812,285	79,139	11%
Europe	Malta	404,948	-6,585	-2%
	United Kingdom	68,007,652	11,512,472	20%
Pacific	Australia	30,186,022	8,282,317	38%
		886,862,923	448,609,934	102%

Fig 2. Projected population growth

An architect plays a key role in this regard as they have a significant impact on urban growth, particularly in terms of planning the use of land. They develop spaces that establish a balance between residential, commercial, and public sectors, ensuring that cities develop in a sustainable manner. An architect's knowledge is especially valuable in low and middle-income countries, where they must deal with issues such as limited resources, unauthorized settlements, and rapidly increasing populations. Their knowledge of sustainable design, planning of infrastructure, and social engagement can help lead urban development that fulfills the demands of a varied population while addressing concerns such as overpopulation and inefficient land usage. Factors contributing to informal urbanization include a lack of effective zoning regulations, poor infrastructure, rapidly growing populations, and insufficient government monitoring. When architects are not involved or their knowledge is neglected, urban areas can grow in disorganized ways, resulting in issues such as slums, traffic congestion, and adverse environmental effects. Adopting a new and radical way of practice is necessary to explore and address urban concerns like recurrent instances of spatial disparities and rapid informal urbanization. Is the traditional, market-driven, technical expertise sufficient when faced with incredibly complicated challenges? It is best to think of urban planning and architecture as a set of processes that interact with social and political reality. It is clear that conceiving of the built environment as an authoritative and independent science has its limitations given the inability of modern architecture and urbanism to meet people's demands. If anybody can build. So, whose originality matters? This demands reconsidering the role of the expert and how discourses of knowledge are generated in certain circumstances. **(*Astolfo, 2018)***

The Survey highlights critical challenges within the architectural profession in low and middle-income nations, focusing on areas such as regulatory enforcement, educational shortcomings, and inadequate policy frameworks. The survey, conducted among 16 signatories, reveals that architects in these regions often struggle to manage urban disasters effectively. This is largely due to inadequate exposure to international standards and lack of collaboration between developed and developing countries. The highlighted challenges span multiple domains, from policy development and program implementation to education and practice, emphasising the widespread need for improved knowledge exchange. Numerous urban institutions, including community-based groups, non-governmental organisations, local and national governments, and international organisations, will need to be committed to addressing the social aspects of climate change ***(Bartlett, 2009).*** The research proposes that filing these loopholes requires targeted solutions that includes access to global architectural standards, opportunities for international partnerships, and advanced educational curricula to better prepare architects in developing nations.

LITERATURE REVIEW

The development of urban areas in recent decades has been driven by unusual occurrences such as rapid global urbanisation, rising population, and the establishment of various major cities. This development is particularly apparent in Latin America, Asia, and Africa, where post-World War II population booms transformed the urban environment, but these growth rates have lately slowed. Studies show that although urbanisation in the Global North was accompanied by planned infrastructure development and economic progress, urbanisation in the Global South frequently lacked such anticipation, resulting in uncontrolled urban expansion and the creation of slums **(*Davis, M. 2010,2011*).** The evolving demographic dynamics, including changes in household composition and age structures, have further influenced urban development. For low-income and many middle-income nations, a significant portion of urbanization is still on the horizon, presenting an opportunity to plan and manage this growth more effectively. By proactively addressing the challenges associated with climate change, these nations can ensure that their urbanization processes are resilient and sustainable ***(Dodman, 2012).*** However, this rapid urban growth requires architects and town planners to possess substantial knowledge, gained through hands-on experience and familiarity with the latest technologies and building regulations. Without this expertise, managing such swift urbanization in a way that is both sustainable and adaptive to future risks would be exceedingly difficult.

There are numerous parallels between sustainable architecture and sustainable education. For instance, they both have their roots in the development of human-nature ties and environmental concerns. The environmental movement of the 1960s and 1970s played a critical role in shaping the development of sustainable architecture and sustainable education. During this period, growing awareness of environmental degradation, resource depletion, and pollution led to a widespread call for more responsible and eco-friendly practices in various fields, including architecture and education. ***(Chansomsak, 2008).***

Creating sustainable built environments involves complex and varied challenges that require different skills and knowledge depending on the specific location and context. Consequently, sustainable design demands a multidisciplinary approach, considering factors related to natural ecosystem, built environment and human ecological conditions ***(Martin, 2001).*** While architects cannot be experts in all fields, they must continuously expand their understanding of sustainable design and planning to enhance their ability to create sustainable communities. The integration of diverse perspectives and expertise is essential to address the complexities inherent in sustainable architecture ***(Chansomsak, 2009)***.

In order to establish sustainability within a community, architects must include the notion of sustainable community development into their work as professionals and as citizens ***(Crane, 2000).*** Since the late 20th century, sustainability has become a global priority across various professions, notably in education and architecture. The 1992 Earth Summit's Agenda 21, underscored the crucial role of education in curating sustainable development. ***(UNCED, 1992)***. Education for sustainability aims to not only increase knowledge and awareness but also to inspire behavioural change and responsible actions. This shift has led to a greater emphasis on sustainability in educational curricula and professional practices, especially in architecture, where sustainable design principles are now integral to training and practice. ***(Chansomsak, 2008)***

Local organisations and governments may work together to generate funds for community projects while providing valuable information that assists in decision making ***(Mattessich, 1997)***. Public participation and transparency in decision-making are crucial, as they not only encourage local involvement but also play a key role in combating corruption. However, the entrenched nature of political and administrative systems often hinders effective collaboration ***(Chansomsak, 2009).*** Traditional government structures, which are typically centralized, frequently fail to address local issues adequately, making them ill-suited to support community-driven efforts.

Moreover, the lack of financial and technical support poses significant challenges to sustainable community development and collaborative work. To ease financial constraints, instead of seeking new funding, sustainable community initiatives should focus on optimizing the use of existing resources or rethinking budget allocations ***(PITTMAN, 2014).*** In some circumstances, using local technology and techniques, such as using natural systems and tapping into local resources and skills, might result in cost-effective solutions.

The Knowledge Sharing Partnership by the CAA has highlighted a number of critical gaps in architectural policy, education, and practice. Addressing these gaps is critical for building a future that is sustainable. The Fact-Finding Survey, conducted by 16 signatories of a Knowledge Sharing Partnership within the Commonwealth Association of Architects (CAA), includes representatives from 10 ODA* and 6 non-ODA countries across all five Commonwealth regions. This collaboration involves members from Africa (Kenya, Nigeria, Rwanda, South Africa, Uganda, and Zambia), Asia (Bangladesh and Pakistan), the Caribbean and Americas (Antigua & Barbuda, Barbados, Canada, Jamaica, Trinidad & Tobago), Europe (Malta and the United Kingdom), and the Pacific (Australia). The survey's goal is to facilitate a comparative study that assesses the knowledge-sharing needs and opportunities among these diverse nations. Findings will help to understand the ecosystem in each country, highlighting barriers and enablers to sustainable urbanization that member organizations face. Additionally, this study aims to identify common concerns to prioritize impactful topics, particularly for those with the greatest needs.

Key Findings

The Signatories participated in an online survey to identify critical priorities for knowledge sharing in advocacy, capacity building, and climate action. The survey was composed of around 100 questions carefully organized into different categories that target these focus areas. The aim of the survey was to uncover the specific needs, challenges, and opportunities each organization faces, hence forming a foundation for developing targeted strategies. The insights gained will guide collaborative efforts

among member organizations to enhance the impact of knowledge-sharing initiatives in promoting sustainable development across the Commonwealth. The principal findings from the fact-finding survey are summarised as follows:

The Profession

The profession of architecture confronts multiple challenges, especially in upholding professional standards and enforcing current laws. Respondents cited *"the failure to implement and enforce legislation, inadequate oversight of unqualified individuals practicing beyond their competency, and deficiencies in the drafting and application of the Architects Act"* as some of the most pressing regulatory challenges ***(Fig 3).***

Region	Country	ODA Status	Population	Registered Architects (2018)	Verified Arch Faculties (CAA)	Accredited Arch Faculties (CAA)	Population per Accredited Arch Faculty	Rate of Urban Pop Growth (%) (2022)	Climate Risk Index
Africa	Kenya	LMIC	54,027,490	1,085	5	2	27,013,745	3.7%	33.00
	Nigeria	LMIC	218,541,210	7,468	40	31	7,049,716	3.8%	70.00
	Rwanda	LDC	13,766,600	178	2	1	13,766,600	3.2%	53.33
	South Africa	UMIC	59,893,890	4,153	10	10	5,989,389	1.6%	32.50
	Uganda	LDC	47,249,580	327	4	4	11,812,395	5.3%	42.17
	Zambia	LDC	20,017,670	312	3	1	20,017,670	4.0%	63.33
Asia	Bangladesh	LDC	171,186,370	3,350	26	13	13,168,182	2.7%	23.50
	Pakistan	LMIC	235,824,860	6,028	22	19	12,411,835	2.7%	29.00
Caribbean and Americas	Antigua and Barbuda	UMIC	93,760	21	0	0	-	0.5%	64.50
	Barbados	-	281,630	97	0	0	-	0.4%	118.00
	Canada	-	38,929,900	10,136	12	12	3,244,158	1.9%	65.67
	Jamiaca	UMIC	2,827,380	119	1	1	2,827,380	0.6%	118.00
	Trinidad and Tobago	-	1,531,040	96	0	0	-	0.5%	118.00
Europe	Malta	-	523,420	1,026	1	1	523,420	2.5%	67.33
	United Kingdom	-	66,971,410	41,170	61	61	1,097,892	0.2%	90.83
Pacific	Australia	-	25,978,940	13,567	22	22	1,237,092	1.4%	28.00

Lower Middle Income Country Upper Middle Income Country Least Developed Country

Fig 3. Professional and Educational Capacity

Bridging the gap between academic learning and professional practice is a significant concern in architectural education. The respondents elaborated that this disconnect affects the professional's preparedness and limits their ability to participate effectively within the field. Some of the pressing

concerns include lack of resources such as some major teaching tools like advanced hardware, specialized softwares and model making materials. In addition, the shortage of faculty with the necessary professional experience and international exposure limits students access to practical insights and global perspectives.

Architectural education lacks emphasis on sustainable, climate-adaptive design, which is the need of the hour given the urgency of environmental issues. Research participants highlighted *"limited availability of scholarships, funding, and continuing CPD programs, that are required for developing advanced knowledge within the field. There is also a need to strengthen the accreditation system for architecture schools to ensure consistent standards across all institutions".*

Regulation of the Profession and Market Maturity

The results of the study show that both ODA and non-ODA respondents are concerned about the lack of adequate laws and policy enforcement ***(Fig 4).*** Across the board, respondents emphasized that existing laws are often outdated, insufficient, or entirely lacking, severely hindering the effectiveness of urban policy and governance. This is compounded by poor data management practices, with respondents citing ineffective data use and limited data-sharing mechanisms as significant obstacles to informed decision-making. By improving legislative frameworks and modernizing data practices, these countries could better align their urban policies with contemporary needs and climate realities, creating a more adaptive approach to urban development.

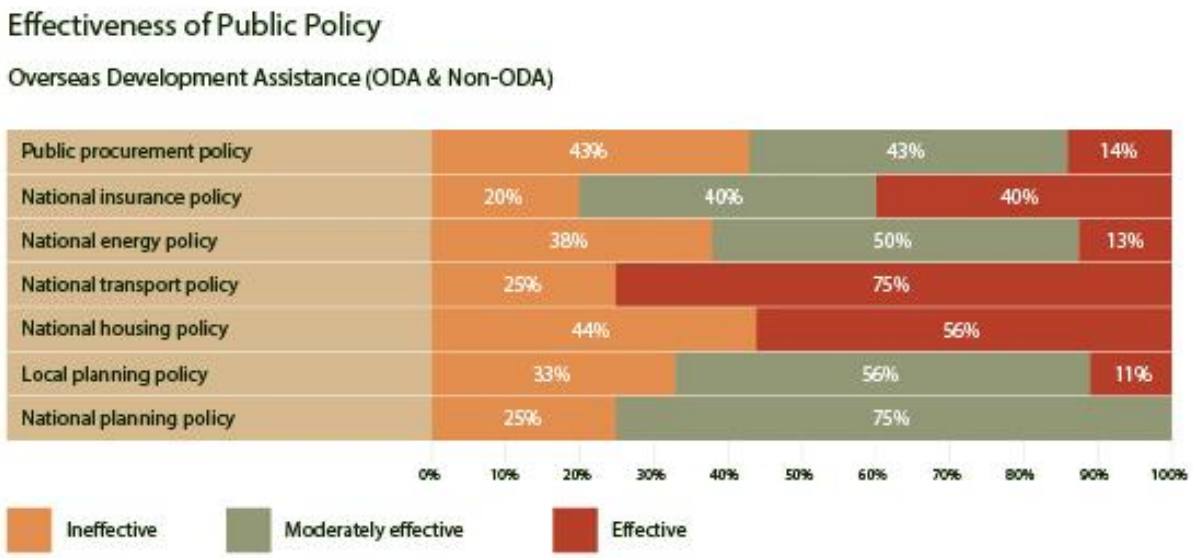

Fig4, Effectiveness of Public Policy (ODA & Non-ODA combined)

Quality of the Built Environment:

The provision of adequate, sustainable, and affordable housing remains a universal concern across both ODA and non-ODA countries, with particularly acute challenges identified in ODA countries ***(Fig 5).*** These nations are not only dealing with rapid urbanization and high population growth but also facing severe shortages in professional expertise for the built environment and limited access to financing options. Respondents from both ODA and non-ODA countries consistently identified housing as a

priority area, yet the challenges in ODA regions are compounded by the prevalence of informal settlements, which contribute to significant social exclusion.

Access to basic urban services, including public transport, energy, water, sanitation, and solid waste management, is another area of significant concern. Survey responses reveal critical deficiencies in ODA countries, specifically in public transportation infrastructure, which restricts mobility and limits economic and social opportunities for urban residents. Additionally, respondents across both ODA and non-ODA countries were concerned over the lack of adequate measures for addressing biodiversity, ecosystem conservation, and climate resilience. While sustainability and climate adaptation are recognized as crucial priorities, responses indicate that current efforts are insufficient to bring about long-term impacts in climate change. Hence highlighting the need for effective policies to support sustainable urban growth, affordable and climate responsive housing as well as climate resilience, particularly in rapidly urbanizing and resource constrained settings.

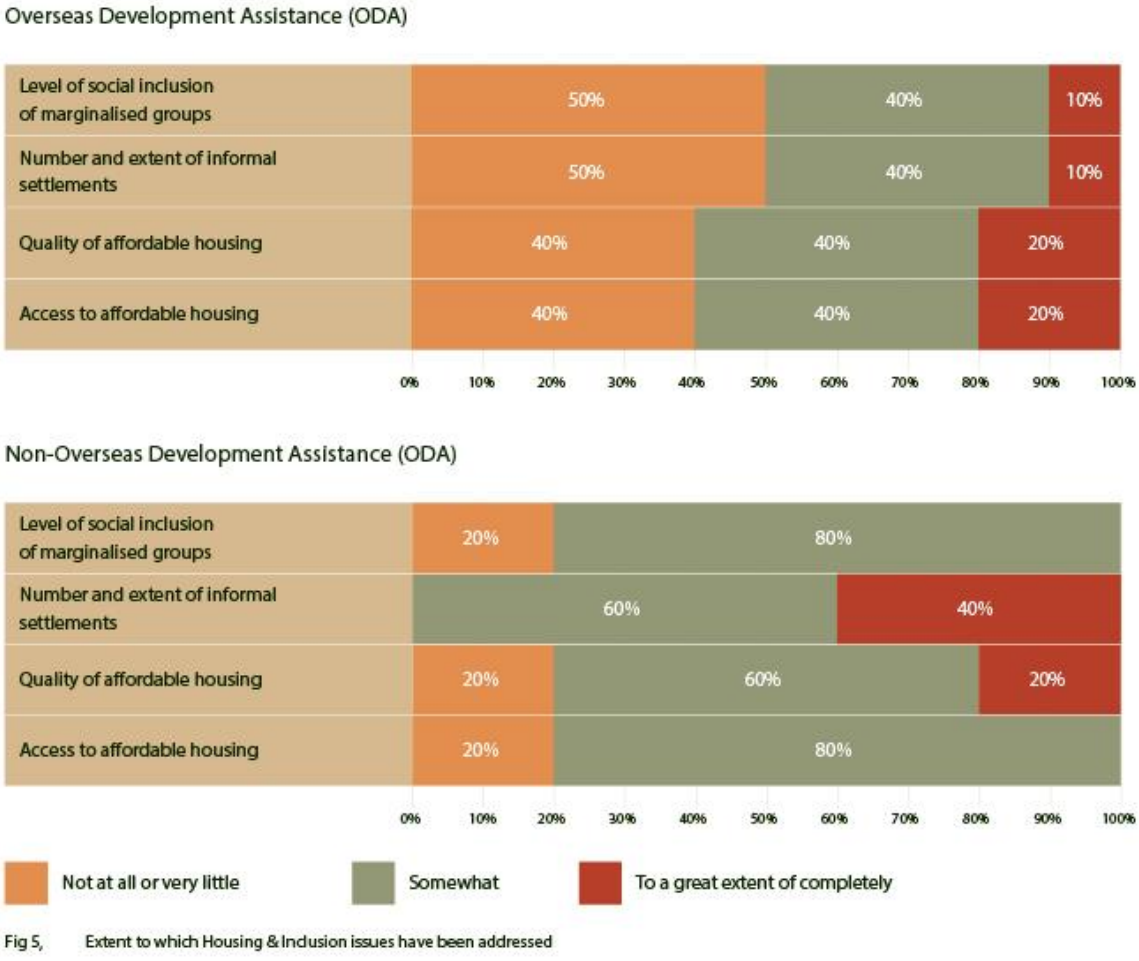

Fig 5, Extent to which Housing & Inclusion issues have been addressed

The New Urban Agenda (NUA) has struggled to gain relevance within the architectural profession, with most members only somewhat aware of it and few finding it applicable in their work. According to survey responses, only a minority of members consider their governments are actively implementing NUA principles, with many unsure about progress reporting. ODA countries, in particular, seek support in advocacy, capacity building, and climate action to address these issues.

The Commonwealth Association of Architects (CAA) will create an action plan in response to these findings that is in line with the objectives that have been determined. Promoting sustainable growth, funding research programs, providing continuing professional development on project and practice management, setting up mentorship and internship programs, and encouraging cooperative research are some of the objectives. A tentative framework for capacity development based on five major themes: Leadership, Governance, Education and Knowledge Sharing, Finance, and Integrated Design have been suggested by the CAA after examination. The purpose of this framework is to assist member organisations in advancing sustainable, adaptable, and inclusive growth throughout the sector.

Conclusion:

The rapid and unrestricted growth of urban areas, particularly in Commonwealth nations constitutes significant risks to environmental and social stability. Informal urban development has become increasingly common as cities struggle to keep up with growing populations, resulting in endless unplanned communities with lack of basic infrastructure and services. This unplanned growth restrains resources such as water, energy, and waste management while contributing to pollution, loss of biodiversity and increased vulnerability to natural disasters such as floods, landslides, and extreme heat. Due to the limited access to affordable housing and inadequate policies, downgraded communities have to bear the brunt of environmental degradation, social exclusion, and health hazards. Urban sprawl resulting in the encroachment on green spaces and agricultural land disrupts natural ecosystems and intensifies urban heat islands. Without coordinated intervention, these issues will only escalate and jeopardize the well-being of future generations. Collaborative action is crucial in eradicating these challenges by implying sustainable practices, enhancing green building standards and prioritizing inclusive development.

The findings suggest that architects in low- and middle-income nations are frequently underprepared to deal with the simultaneous constraints of climate adaptation and rapid urban expansion due to the gap between academic training and practical application, with educational institutions unable to provide students with the skills and resources they need to contribute successfully to sustainable development. To address the challenges faced dur to the informal urban expansion, environmental degradation and vulnerability to climate risks, this research recommends a set of collaborative and sustainable solutions. These include drafting a strong planning framework, advocating collaborative partnerships between government, local and international organizations, implementing strict zoning laws, enforcing building codes, and promoting sustainable land-use policies including the upgradation of outdated regulations and establishing urban growth boundaries to prevent sprawl.

Capacity building measures are also critical for providing professionals and organisations with the skills required for sustainable urban development. The Commonwealth Association of Architects (CAA) can help with this by offering knowledge-sharing platforms and training in green building practices, climate resilience, and urban governance. Targeted educational programs for architects and urban planners, particularly in low- and middle-income countries can help in developing sustainable communities. In order to create such a community, their is an essential need for the participation of the locals, by engaging local communities in the planning process and creating accessible, affordable housing, governments can help in reducing the need for informal settlements.

Additionally, international partnerships can be significantly helpful in sharing best practices, technological innovations, and funding opportunities for sustainable urban projects. By such collaborated efforts, these nations can develop urban areas that will not only be able to support economic growth but also protect natural resources while helping in maintaining the natural ecosystem

In summary, a cooperative strategy for urban development that emphasises professional capacity building, community involvement, policy intervention and international collaboration may turn the difficulties posed by rapid urbanisation into opportunities for building a more resilient, inclusive, and sustainable environment.

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