

---

This is an electronic reprint of the original article.  
This reprint may differ from the original in pagination and typographic detail.

Hollmen, Saija; Marful, Alexander B.; Niskanen, Taru; Duah, Daniel Y. A.; Manful, Esmeranda; Pitkänen, Meeri; Idun, Irene A.

**Kumasi trees – project of the hearts. Decolonial strategies for advancing urban greenery in a Sub-Saharan city**

*Published in:*  
International Planning Studies

*DOI:*  
[10.1080/13563475.2025.2461664](https://doi.org/10.1080/13563475.2025.2461664)

Published: 01/01/2025

*Document Version*  
Publisher's PDF, also known as Version of record

*Published under the following license:*  
CC BY

*Please cite the original version:*  
Hollmen, S., Marful, A. B., Niskanen, T., Duah, D. Y. A., Manful, E., Pitkänen, M., & Idun, I. A. (2025). Kumasi trees – project of the hearts. Decolonial strategies for advancing urban greenery in a Sub-Saharan city. *International Planning Studies*, 30(1-2), 256-271. <https://doi.org/10.1080/13563475.2025.2461664>

---

This material is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.



## Kumasi trees – project of the hearts. Decolonial strategies for advancing urban greenery in a Sub-Saharan city

Saija H. Hollmén, Alexander B. Marful, Taru Niskanen, Daniel Y. A. Duah, Esmeranda Manful, Meeri Pitkänen & Irene A. Idun

To cite this article: Saija H. Hollmén, Alexander B. Marful, Taru Niskanen, Daniel Y. A. Duah, Esmeranda Manful, Meeri Pitkänen & Irene A. Idun (06 Feb 2025): Kumasi trees – project of the hearts. Decolonial strategies for advancing urban greenery in a Sub-Saharan city, International Planning Studies, DOI: [10.1080/13563475.2025.2461664](https://doi.org/10.1080/13563475.2025.2461664)

To link to this article: <https://doi.org/10.1080/13563475.2025.2461664>



© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 06 Feb 2025.



Submit your article to this journal [↗](#)



Article views: 27




View related articles [↗](#)



View Crossmark data [↗](#)

# Kumasi trees – project of the hearts. Decolonial strategies for advancing urban greenery in a Sub-Saharan city

Saija H. Hollmén <sup>a</sup>, Alexander B. Marful<sup>b</sup>, Taru Niskanen<sup>a</sup>, Daniel Y. A. Duah<sup>b</sup>, Esmeranda Marful<sup>c</sup>, Meeri Pitkänen<sup>a</sup> and Irene A. Idun<sup>d</sup>

<sup>a</sup>Department of Architecture, Aalto University School of Arts Design and Architecture, Aalto, FI, Finland;

<sup>b</sup>Department of Architecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; <sup>c</sup>Department of Sociology and Social Work, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana;

<sup>d</sup>Department of Horticulture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

## ABSTRACT

Rapid expansion in low- and middle-income countries often follows the destructive environmental paths set by wealthier colonial powers. The greatest obstacle is the prevailing mindset: a lack of environmental awareness and continued exploitation of natural and human resources. To achieve sustainable urban planning, it's vital to avoid colonial practices, raise environmental awareness, and foster local appreciation of the environment as a cultural value. This paper explores decolonial approaches in architecture and urban planning to foster a balanced human-nature relationship and new tools for Sustainability Transition in Sub-Saharan Africa. Using the Kumasi Trees – Project of the Hearts as a case study, it shows efforts to re-greening Kumasi, Ghana, through local engagement and knowledge, rediscovering environmental values and cultural identities. The paper examines practices within Decolonial Thought (DT), questioning the universality of Eurocentric thinking, recognizing multiple value systems, and embracing alternative knowledge bases stemming from other cultures.

## ARTICLE HISTORY

Received 16 October 2024

Accepted 24 January 2025

## KEYWORDS

Architecture; decoloniality; environmental awareness; regenerative urban planning; cultural heritage

## Introduction

Environmental degradation is one of the greatest challenges of our time. Climate change and environmental pollution directly influence human settlements and threaten living species' survival in all areas of our planet. Globalization and urban expansion have resulted in most of humankind losing a balanced relationship with our natural environment. Despite the available technological solutions, the greatest challenge and obstacle appears to be the mindset of our contemporary societies: lack of environmental awareness, and the continuous, arrogant, and relentless exploitation of both our natural and human resources. The phenomenon is especially highlighted in low – and middle-income countries, e.g. in Sub-Saharan Africa, where the gap between the speed and ratio of urban expansion and sustainable urban planning practices is alarming (Genovese and Zoure 2023). The rapid growth of cities and lack of ownership combined with inadequate town planning have caused sometimes chaotic and dangerous, albeit vibrant, urban conditions. The speed of modern urbanization has created a multiplicity of challenges, to which the often severely under-resourced

**CONTACT** Saija H. Hollmén  saija.hollmen@aalto.fi  Department of Architecture, Aalto University School of Arts Design and Architecture, Aalto, FI 00076, Finland

© 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

public authorities are struggling to respond. Urban planning decisions often follow the examples of anonymous megacities, detached from local cultural and societal practices, climatic characteristics, and local materials and resources. Contemporary city planning often lags behind the actual needs, resulting in uncontrolled urban sprawl and the dominance of traffic and transportation. Unorganized traffic arrangements are not only unpleasant but also dangerous for pedestrians, and traffic accidents are common (Whelan 2018; Niskanen 2018).

Inadequate urban planning resources are also reflected in the scarcity of parks and publicly maintained green areas, open plazas and pedestrian areas. If these are provided, they are few and often uncared for. The current research is addressing the challenge, with little effect so far. On one hand, this is due to lack of environmental awareness, on the other, to insufficient consideration of indigenous and local cultural features, and a lack of understanding of local conceptions of public space, social structures and indigenous traditions (Nunes Silva 2012; Hollmén 2020). Despite over 50 years of independence, the perceived superiority of the past colonizer's habits and ways is deep-rooted in the societal discourse, both on personal and institutional levels. The resulting (and often-tacit) attitudes of self-undermining cause the ingrained values of local culture and natural environment to remain ignored and disregarded, as the desired way of living is determined from outside (Essed and Goldberg 2002). Rather than stemming from the local traditions and intrinsic cultural values, the discourse of 'modern development' and the standard for 'good life' still mainly considers the so-called Western ideals. Unfortunately, most of them still equal to environmentally and culturally harmful practices of exploitation. The consequences for African cities have been devastating, causing them to lose much of their indigenous features and identities. The legacy of colonialism is lingering throughout the post-colonial era as a continuum to contemporary practices (Lamberg 2024).

Many African cities have a long history, extending far beyond the era of Western colonization (Coquery-Vidrovitch 2005). Even though urban and public space is conceived of in a fundamentally different manner from that of European (Whelan 2018), this is rarely projected in the practices, nor education of urban planning in Sub-Saharan countries. The colonial legacy still prevails in the curriculum of university programs that offer education in architecture and urban planning. Higher education knowledge frameworks are still largely based on Western values, not necessarily reflecting the in-depth local cultural realities or ecological necessities (Olweny 2020). When indigenous building tradition, urban environments and cultural heritage are studied, it is too often observed on a superficial and formalistic level, instead of looking beyond the layers of colonial legacy. Often there prevails a detachment from the tacit indigenous knowledge that is embedded in the architectural form and structure of spatial organization.

However, architecture can be seen as a powerful sociocultural instrument, with great potential for cultural and societal change. As a transdisciplinary framework, architecture has the capacity to connect across cultural and societal, material, economic and environmental realities (Pallasmaa 2006). To rebuild cultural identities, the cultural heritage of the built environment is worth investigating since the indigenous architectural expressions are informative in culturally relevant typologies and societal hierarchies, as well as climatic adaptation (Hollmén 2020).

This paper discusses possible decolonial approaches for architecture and urban planning to promote a balanced human-nature relationship and create new tools for Sustainability Transition in Sub-Saharan Africa. By considering historical layers of African urban environments, we reflect on communicative urban planning strategies in partnership with local communities, as well as academic collaborations and higher education. By investigating a case study named *Kumasi Trees*, taking place in the Ashanti capital of Kumasi in Ghana, this paper presents Indigenous and Local Knowledge (ILK) as a means for decolonization to rediscover environmental values and cultural identities. We look at ILK systems as a body of thought that can greatly contribute to sustainability science when integrated into the global knowledge system (Chilisa 2017).

As in Decolonial Thought (DT) that emerged as a critique and counterargument to the Modern/Colonial world system, *Kumasi Trees* can be seen as a 'decolonial project that takes seriously the

critical thinking of the epistemic traditions of the Global South'. It questions the universality of Eurocentric thinking and the paradigm of Modernity, which suggests a rupture with tradition (Mignolo 2007; Heynen 1999). DT began in countries at the time they were colonized, and its approach to social understanding has been solidly articulated by twentieth and twenty-first-century scholars (Taboada et al. 2020). It comes from outside European and Western thought, from the so-called periphery, where local knowledge has been rendered invisible in Western and Westernized cultures (Grosfoguel 2013). Thus, DT can be described as a form of 'border thinking', 'grounded in the experiences of the colonies and subaltern empires' (Mignolo and Tlostanova 2006), striving to move away from the dominant and 'universal' knowledge of Modernism.

The case of *Kumasi Trees* outlines the need for societal subsystems to make profound social-technical transitions towards sustainability (Geels 2011; Köhler et al. 2019). It contributes to the debate on Sustainability Transitions and Design Research by exploring the processes by which transitions take place (Ceschin and Gaziulusoy 2016), and how those can contribute to rebuilding cultural identities, stemming 'from within' indigenous cultural realities. Experimentations and co-creation are essential methods for the study, where experiments are 'inclusive, practice-based and challenge-led initiatives designed to promote systems innovation' (Sengers, Wiczorek, and Raven 2019). Closely related are also the concept of biocultural diversity (BCD), and biocultural diversity heritage, as there is an intimate link between nature and indigenous cultural identity of the Ashante in Kumasi, specifically in the heritage related to trees and their cultural significance (Cocks and Shackleton 2020; Quagraine 2011).

## Strategies for urban greening

Amidst the accelerating climate change, cities all around the world are taking action to implement strategies that help lower their temperatures and create more liveable environments for their residents. Preserving, providing and maintaining green spaces and promoting walkability and cycling within urban environments, improves liveability and quality of life (Cocks and Shackleton 2020; Hall 2023). London, Paris and Singapore are among those who have established ambitious projects to plant thousands of trees for greening their streets and squares, providing shade, comfort and recreational opportunities for city dwellers (Masterson 2022; Trees for London 2022; About the Movement 2020).

Urban trees and nature-based solutions can be seen as urban ecosystem services and catalysts for improving urban life and the environment in multiple ways. Trees function as a microcosm of climate change resilience, absorbing carbon dioxide, purifying the air, and regulating micro-climate. They significantly reduce the heat island effect (occurring because of concentrated, non-vegetated surfaces) by providing shade and releasing water through evapotranspiration, fostering biodiversity and water management, promoting natural balance, and enhancing the community's ability to adapt to changing climate conditions.

Trees improve the well-being of humans and all species by releasing oxygen into the air. They enhance the beauty of landscapes, and provide spaces for recreation, improving overall well-being. They have considerable cultural and spiritual significance. Trees promote economic opportunities, by providing shade and reducing the need for air conditioning, hence lowering energy costs in buildings. People also prefer to live and work on greener streets (Phillips et al. 2023; Russo and Cirella 2021; Quagraine 2011).

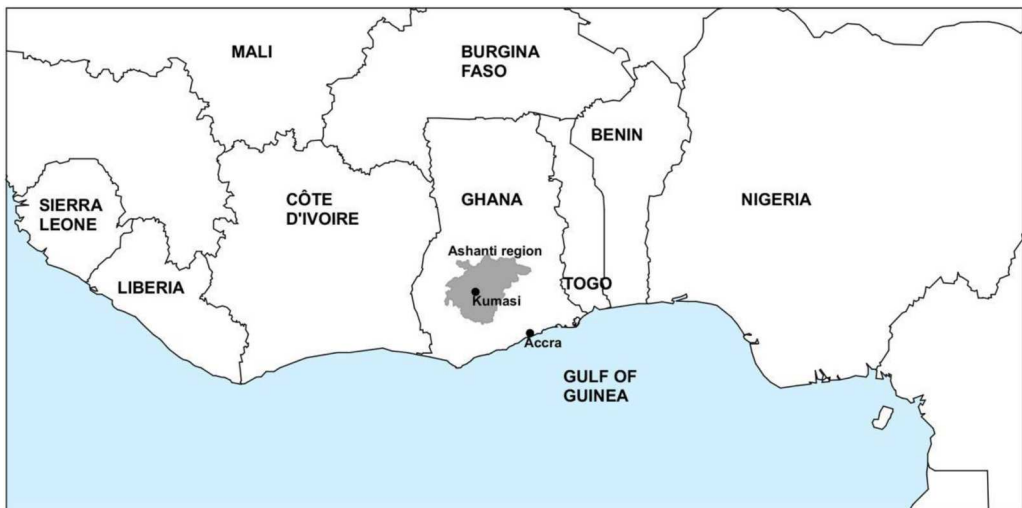
In African cities, initiatives to replant trees in large quantities are yet to be seen. Despite the scientific evidence of urban trees lowering temperatures, absorbing rain waters, providing shade and urban liveability, most African cities do not seem to consider greenery as a comfort factor. They rather appear to rely on private cars as the most comfortable climatic environment and preferred mode of transport, instead of providing suitable environments for walking and urban street life (Adarkwa 2011). In cities where urban greenery is present, its structuring is often inherited from colonial masters, and distributed unequally both between and within towns. As such, it reflects the

social environment of cities, historical patterns of development and inadequacy of planning policies (Gwedla and Shackleton 2019). Studies e.g. in the South African context have shown, that the legacy of colonialism still prevails in the urban green infrastructure and can be seen in the distribution of public urban green spaces, in the plant species and suitability of the spaces and species for the local cultures (Shackleton and Gwedla 2021).

### ***Kumasi – the Ashanti capital***

Notably limited urban greenery is found also in the city of Kumasi in Ghana. It provides a vivid example of a rapidly expanding urban environment in Sub-Saharan Africa with exceptional cultural values. While being the second-largest city of the Republic of Ghana, it is also the capital of the Ashanti kingdom – one of the largest indigenous socio-political entities in Sub-Saharan Africa. The history of the Ashanti Empire dates back to the seventeenth century, and due to its sophisticated hierarchy, social stratification and culture (McCaskie 1986), it has maintained its influence in modern-day Ghana. Although a ceremonial ruler, the authority of the Asantehene – the King of the Ashanti people – is indisputable within the Ashanti nation. With no executive or judicial powers in democratic Ghanaian governance, the Ashanti leadership holds unparalleled socio-cultural authority that is of permanent quality, exceeding the four-year parliamentary cycle. The respect for the Ashanti cultural structures, and the rule of the Asantehene and Asanteman Council, is unquestionable, resonating in the entire Ghanaian society. As an internationally respected leader, the blessing and guidance of the King is sought by elected politicians and people in the Kumasi area alike. The Asantehene is deeply respected and loved among the Ashanti people, as an emblem of the power and vitality of their indigenous culture. The Ashanti nation presents a unique socio-cultural structure and influential indigenous leadership in modern-day Ghana, with a rich cultural history and indisputable importance in the African political landscape. Today the Asanteman still exists as a constitutionally protected, sub-national traditional state in the Republic of Ghana (Ampene and Nyantakyi 2016; Bofo-Arthur 2003; Baeyens 2012, Figure 1).

The name Kumasi, in Twi, signifies that the city was established ‘under a Kum tree’ (Britannica 2024). It was once famed for its luxurious gardens and flowering trees, which provided a pleasant environment for residents and left an indelible impression on its visitors. The magnificent impression was created by the beautiful Bayan, or Kum trees, lining the streets. The pre-colonial



**Figure 1.** Ashanti Region in Ghana.

housing typology consisted predominantly of traditional Akan courtyard houses. The city was brutally destroyed by the British in 1874, leaving the city in need of total reconstruction. The beautiful architectural layout of the Kumasi was never restored, as the British sought to control the architecture and the formulation of the city plan in a process of deliberate architectural acculturation (Yeboah 2019). The city plan of 1945, drawn by Maxwell Fry and Jane Drew, marked a new emphasis on colonial development by the British government. The plan envisaged a Garden City: a central area ringed by low-density suburbs, where the built-up area was to be penetrated by green space along the many shallow river valleys (Korboe and Tipple 1995). Kumasi famously became labelled the *Garden City of West Africa*, by Her Majesty, Queen Elizabeth II, during her visit to Kumasi in 1961 (Marfo 2021). Over the following decades, however, most of the trees were taken down, with little consideration of the long-term consequences and liveability of the city. To date, after several endeavours to re-install and re-establish the image of the Garden City of Kumasi, no significant impact has been achieved.

Today, Kumasi shares the typical challenges facing African cities: rapid urban expansion, lack of adequate long-term planning, investor-driven and ad-hoc developments, deficient infrastructure and inadequate public transport. The disappearance of trees from the cityscape has aggravated the heat peaks and exacerbated the living conditions of the less privileged (Quagraine 2011). Attractive urban areas are mainly found in the few air-conditioned shopping malls, leaving the streets under the scorching sun. The small-scale economy, on which the vast population of street vendors and hawkers rely, has little means to escape the heated temperatures of the city.

Yet, the residents of Kumasi still cherish the nearly lost image of their city as a green garden. The shared intergenerational memory of the Kumasi dwellers still identifies with the flowering trees, and with its image as the Garden City of West Africa. Although the trees disappeared from the streets long ago, they did not disappear from the memories, minds and hearts of the Kumasi people. The shared cultural identity and reminiscences still connect to the blossoming trees lining the streets of the city, as a source of pride and self-esteem. The realities of the city have changed, but the perception and recollection of Kumasi still reflect its history as the Garden City. Endeavours to replant the trees have been created and implemented, but so far without long-term success. As a result, the trees have either died out or been indifferently cut down, due to lack of sustained management plan, engagement or ownership.

### North–South University collaboration

The re-greening of African cities is possible, but it requires local investment and engagement from the population to not only plant the trees but also maintain and care for them in the future. One vehicle towards such developments is academic collaboration, which has great potential to instigate new knowledge creation and generate societal impact. A collaborative endeavour between Aalto University in Finland, and the Kwame Nkrumah University of Science & Technology (KNUST) in Kumasi, Ghana, was initiated in 2022, with the intention to create cultural exchange and mutual understanding of local conditions. The collaboration started within the framework of the *Interplay of Cultures Studio*, a master-level architectural course organized by the *World in Transition Research Lab* at Aalto University Department of Architecture, focusing on the thematic areas of global sustainability and cultural locality (WITLAB 2024). Encompassing all scales of architectural design, the course aims to learn about the features of a foreign culture and to enhance understanding of the living environment and conditions of local communities.

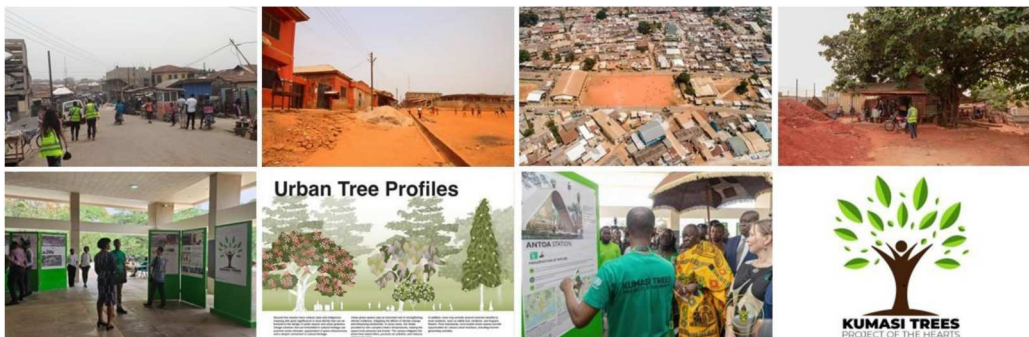
Already since 1993, the *Interplay of Cultures Studio* course has exposed architectural students to cultural realities and experiences across continents (IoC 2024). It includes studies on local building traditions and materials and the local culture's social, economic, and climatic characteristics. The course aims at providing the students with a wider perspective and understanding of the processes of decolonization and architectural practice when working in various cultural contexts, in countries such as Senegal, Benin, Cambodia, Philippines, Tanzania, Sápmi, and Rwanda. It focuses on

sustainable design solutions and culturally knowledgeable architecture while aiming at developing the students' value system and sense of responsibility. Over the years, the importance of university collaboration has become more and more apparent. Mutual knowledge creation and sharing, together with decolonial thinking are the values and principles to follow when engaging in conversations and joint fieldwork with a cohort of students from different cultural backgrounds. Aalto University and KNUST signed a Memorandum of Understanding (MoU) in February 2023 and since then, the *Interplay of Cultures Studio*, hosting a cohort of international students, has travelled to Kumasi for an annual 3-week intensive fieldwork, to pursue urban surveys and investigations on local cultural features, and to deepen mutual understanding of the urban qualities of the capital of the Ashanti Kingdom.

The year 2024 marked the 25-year reign of His Royal Majesty Otumfuo Osei Tutu II. To celebrate the occasion and the King's renowned efforts for raising environmental awareness, the Aalto – KNUST collaboration initiated a project for re-greening and reinstalling the trees of Kumasi. Seeking to establish culturally relevant practices that involve a large group of stakeholders, *Kumasi Trees – Project of the Hearts* proceeded to seek the blessing of the King, to introduce the project as an opportunity to mark his legacy as the Asantehene, celebrate his 25 years in reign and position him as an international leader in regenerative urban practices. The Asantehene accepted to embrace *Kumasi Trees* as his signature project in October 2023, requesting the universities to 'educate people that 'if the last tree dies, the last man dies'' (Opemsuo 2023, Figure 2).

The first stage of the project included the selection of 25 pilot areas, hosted by 25 engaged Champions from each of the areas and communities. During the 3-week intensive fieldwork in March 2024, Aalto and KNUST students conducted urban surveys in seven of the designated 25 areas. The different methods followed Jan Gehl's 12 quality criteria checklist for public life, including mapping and counting as well as assessing the quality of the urban environment. Combined with community interviews, the survey provided the data and knowledge base for validating the concept designs that the students produced as the first suggestions for improved urban greenery in the pilot areas.

The course produced an exhibition on the initial designs for the *Kumasi Trees* project, which was opened on May 7, 2024, by His Majesty, King Otumfuo Osei Tutu II, the Asantehene and the Chancellor of KNUST, in the Great Hall of KNUST campus. The results of the fieldwork surveys and concept designs were presented together with a *Gift from the King* – a handout in the format of either a seed bag or a seedling of a local tree, which comes with a request to care for and protect the tree for future generations. The exhibition and the first iteration of the project ideas highlighted the accountability of the *Kumasi Trees* project laying in the future – not so much in the number of trees planted, rather than how many of them are still alive and prosperous in five, 10 or 20 years to come.



**Figure 2.** Upper line photos: Aalto/KNUST Urban Survey; Bottom line images: Meeri Pitkänen, Kumasi Trees Project team.



## **Kumasi trees – project of the hearts**

Through multistakeholder engagement, *Kumasi Trees – Project of the Hearts* seeks to (1) introduce practices to replant trees in urban areas and re-invigorate the image of the Garden City, and (2) secure the preservation of the trees for future generations by embedding their maintenance into the cultural habits and practices of the city dwellers and authorities alike. The blessing of the King serves as a vehicle and an entry point to creating regenerative urban practices that are culturally appropriate, owned by the people, and maintained out of respect and love for the Asantehene – as a ‘*Project of the Hearts*.’ The authority and blessing of the King serve as a catalyst, create positive pressure, and allow access to stakeholders on all levels and layers of the society in Kumasi, necessary for a project of such magnitude. In addition to cultural acceptance, the re-planting of the trees involves design professions, landscape, horticultural and technical expertise, integration with city infrastructures and instalment of appropriate street furniture. In the context of Kumasi, the King’s blessing is imperative, to allow the coordination of all stakeholders.

*Kumasi Trees* builds on the MoU between Aalto and KNUST, and expands into a transdisciplinary endeavour, involving the university students and faculty members from Aalto and Tampere Universities, KNUST, the Manhyia Palace of the Asantehene, authorities from the Kumasi Metropolitan area, NGOs, communities, families, companies and businesses. *Kumasi Trees* studies cultural heritage and local customs to create a deeper understanding of the Ashanti culture, and the specific customs and societal and environmental relations of its people. It further investigates how urban areas and public spaces are perceived, and what elements of urban life the city dwellers of Kumasi consider valuable.

*Kumasi Trees* operates through architectural and urban planning practices that engage local communities in collaborative design processes, with a ‘decolonized mind’, acknowledging multiple value systems and the hegemonic powers at play. It accepts that Western knowledge is not universal and as such recognizes and adopts the basis of alternative pieces of knowledge that come from other cultures (de Sousa Santos 2015; Taboada et al. 2020; Chilisa 2017).

*Kumasi Trees* strives to (1) create methods for regenerative urban planning policies, greening of cities and promoting a more balanced human-nature relationship, (2) develop creative practices as entry points to cultural identities behind and below the layers of colonial legacies, and (3) strengthen cultural resilience through Decolonial Thought against harmful exploitation of natural resources and promote the environment as an intrinsic cultural value. It also provides an opportunity to inquire into the deeper levels of the embedded cultural knowledge within the spatial hierarchies, choice of materials, the empowering cycles of maintenance and their social-gender-based origins, rooted in cultural traditions.

## **Partnerships and educational opportunities**

*Kumasi Trees* provides a framework for transdisciplinary education and research on multiple levels. It serves as a vehicle to test and evaluate interdisciplinary pedagogical practices for critical thinking, transformative learning and societal impact. It helps to reveal essential indigenous knowledge, and develop, test and employ new types of decolonial practices and approaches. It serves as a framework for educators to test, critically review and reflect on new ideas and put them into practice. Through the education of future generations of professionals, the *Kumasi Trees* framework will mitigate the harmful environmental effects of construction, raise awareness and appreciation of indigenous building materials and improve the conditions of their usage. The continued mutual North–South knowledge creation and sharing helps to establish a lasting collaboration between institutions and disciplines, decolonial practices for regenerative urban planning, and new methods for accessing and exploiting cultural heritage and identities.

*Kumasi Trees* creates a framework to explore cultural heritage and local customs to create a deeper understanding of the local culture, and the specific customs and societal and environmental

relations of its people. It equally allows further investigation of how urban areas and public spaces are perceived, and what elements of urban life the city dwellers of Kumasi consider valuable.

The multi-dimensional framework of *Kumasi Trees* strives to reveal, question, and erase the still prevailing colonial influence and attitudes of false admiration towards environmentally harmful practices, raising appreciation of indigenous knowledge, and allowing reconnecting with local cultural identities. It builds on local knowledge, socially and culturally embedded habits and traditions, by evoking communities' self-esteem and ownership through participation.

### **Methods and research questions**

By building collaborations with stakeholders at multiple levels and scales, starting with the analysis and design of urban environments, and moving to strategic policy planning, *Kumasi Trees* poses the following research questions:

- How can cultural heritage and identities be useful in raising awareness and appreciation of environmental values and generating environmentally friendly and liveable urban environments?
- What kind of collaborative and decolonial practices are useful in redefining cultural identities and raising cultural self-esteem?
- How can architectural and urban planning practices and education be utilized to achieve deeper cultural understanding and a more balanced human-environment relationship?

*Kumasi Trees* adopts methodologies and dispositions from Participatory Action Research (PAR), which begins with a specific social context and a desire to take action for changes towards improvement and better conditions. PAR is meant both as a learning process and aimed at the production of knowledge and improvement of practice within committed communities in some social context where the research took place (McTaggart 1994, Katoppo and Sudradjat 2015). Design thinking is also used as a method, for a comprehensive, collaborative and systemic way of thinking. It is aimed at innovation and the collection of problem-solving ideas and their implementation. It is a cyclical process to develop systemic solutions (Brown and Wyatt 2010). Acting as a catalyst, *Kumasi Trees* actively dives into the inquiry of local customs and cultural habits through interviews of residents and authorities, interactive workshops and questionnaires, to reveal possibilities of evoking ownership, generating local investment, (both in funding and commitment), for the planting of trees and securing their maintenance through community engagement. Participatory community workshops, as well as targeted workshops for professionals of urban planning from government, municipality and HEIs, will help to reflect and identify perceptions of the urban environment by city dwellers. This provides vital background information for contemporary urban planning, based on local cultural heritage, creating strategies for rediscovering cultural identities and evoking deeply rooted local ownership and pride. Creative practices such as storytelling and performances will be used as entry points to cultural identities behind and below the layers of colonial legacies.

### **2025 fieldwork**

The collaborative framework between Aalto University and KNUST serves to facilitate the immediate project activities, taken further by the faculty members and authors of this article, providing both the students, the authorities and communities with the pedagogical framework where the Participatory Action Research takes place. The *Interplay of Cultures* Studio course at Aalto will continue to host fieldwork with multicultural groups of students, joining forces with KNUST in the urban surveys and mapping of the 25 pilot areas. The first focus is given to the seven areas for which the initial designs we presented in the opening exhibition at KNUST in May 2024. The fieldwork of 2025 will see an interdisciplinary cohort of students from varied disciplinary backgrounds:

architecture, urban planning, landscape architecture and horticulture, design, sociology and business. The teams will study and examine the pilot areas in-depth, building on the knowledge produced by the previous groups' fieldwork. The fieldwork of 2025 adopts a practical approach of tree and greenery planting in the areas of Dicheonso and Bremang in Kumasi, connecting the grassroots community engagement in the presence of the King, with an effective and engaging maintenance strategy.

To advance the urban greening of the pilot areas, the activities will include the following subject areas:

- a) *Spatial qualities*: Surveying the layers and qualities of open and public urban spaces and their systemic and ecological functions within the neighbourhood. Mapping the existing technical infrastructure, traffic arrangements and building typologies. Identifying the physical locations for tree planting and greenery.
- b) *Cultural heritage*: Collecting stories, narratives and histories of local trees and their shared meanings. Conducting walk-along interviews, sensory mappings, and pedestrian environment assessments. Studying the history and identity of Kumasi as the Garden City of West Africa, to understand the cultural connotations, images, and features that constituted its former reputation as the Garden City.
- c) *Urban greenery*: Qualitative analysis of green infrastructure. Mapping of green areas, trees and plants, selecting suitable local species and defining their planting and maintenance requirements.
- d) *Design and Business opportunities*: Designing potential green infrastructure interventions such as street furniture, planting pots and stormwater infiltration for creating inclusive public urban areas, using local materials, trees and species. Examining potential business frameworks for the production and marketing of the designs.
- e) *Municipality collaboration*: Engaging with municipal authorities to examine regulations, limitations and barriers, land ownership and infrastructure. Developing a long-term maintenance strategy involving local authorities.
- f) *Museum exhibition*: Transforming the Kumasi Trees exhibition into a permanent installation in the Manhyia Palace Museum.
- g) *Community participation*: Engaging with the selected Community Champions, local chiefs and elders, to evoke community participation. Conducting practical Tree Planting Workshops in identified locations (e.g. schoolyards, urban squares, street sides), assigning caretakers, providing caring instructions and establishing maintenance plans for the protection of the trees and plants.

To inject the required energy, enthusiasm and excitement, and to maintain momentum, the results of the practical workshops, tree planting, caring instructions and maintenance plans will be, communicated, assessed and maintained in collaboration with the communities, authorities, students and neighbourhoods. The coursework will be collected in joint publications for dissemination and further inspiration for the practical implementation of the *Kumasi Trees* project, for the academic community and larger public, as a collective and collaborative effort, facilitated by universities.

### **Roadmap for next steps: a way forward**

The long-term plan towards the success of *Kumasi Trees – Project of the Hearts*, is to develop effective strategies for sparking and sustaining local engagement, ownership and maintenance for securing the continued resilience of the established green urban areas. A series of mid – and long-term activities is drafted below, to give ideas and direction to practical implementation, stakeholder

engagement and inspiration. The list is not comprehensive nor limited, but rather an invitation to consider various directions towards scalability and reaching the project goals. It serves the specific context of Kumasi, but in theory, it can be adapted to fit other cultural contexts to inform transferable strategies and policy recommendations.

### ***Planning and implementation of urban green infrastructure***

#### *1) His Majesty's Special Committee for Kumasi Trees – Project of the Hearts*

A special committee established by the Manhyia Palace of the Asantehene, hosted and led by KNUST, with representation from (i) Municipal assemblies, (ii) Forestry Commission, (iii) Community Champions, (iv) Universities, research collaborators, and (v) NGOs and INGOs.

#### *2) Community Champions*

A committee of Community Champions, initiating and leading (i) Business opportunity development, (ii) Community engagement: Chiefs, Elders, youth, entrepreneurs, etc., (iii) Community participation (Concerns and opportunities in urban spaces) (iv) Evoking the collection of stories, narratives, histories, traditions, and indigenous knowledge, (v) Organizing events to raise environmental awareness, and distribute seedlings (Gifts from the King).

#### *3) Higher Education and Research Collaboration*

The continuing Aalto – KNUST collaboration will be complemented by other academic partnerships and research institutions, to organize and establish joint courses, fieldwork and workshops including participation from (i) Architecture and planning (urban analysis and mapping of pilot areas within communities; designs of concept and detailed examples of incorporating greenery in urban areas), (ii) Engineering, infrastructure construction, water and waste management (technical implementation), (iii) Horticulture and landscape architecture (species, maintenance and care; Urban biodiversity, Ecosystem services), (iv) Socio-cultural studies (Trees in the Ashanti culture, social meanings, indigenous knowledge), and (v) Arts, design, media, film (stories and narratives, public reach and inspiration).

The expected research collaboration will enhance mutual knowledge creation and exchange, joint conferences, and produce scientific journal articles and publications. It will facilitate an international university network of professionals and academics to become involved in reflecting and implementing the emerging interdisciplinary learning environment, and their potential for promoting the environment as an intrinsic cultural value.

#### *4) Research and Publications*

The *Kumasi Trees* implementation will require (i) the definition and acquisition of suitable plants (urban planting, Gift from the King) (ii) Care instructions for different species, (iii) Maintenance plan and guidelines for urban greenery. It will help produce joint publications and journal articles on local experiences and policy recommendations.

#### *5) Permanent exhibition in the Manhyia Palace Museum*

A permanent exhibition will be curated in the Manhyia Palace Museum, open to visitors of all ages and origins. The exhibition will recount and display the (i) Importance of trees in the Ashanti

Culture, (ii) Importance of trees and nature for humans, (iii) Basic information on the Kumasi Trees Project, and (iv) explain the concept of the Gift from the King (seed bags). The Palace Museum hosts regular visits of school children of all age groups. The *Kumasi Trees* exhibition will serve as an inspiration to take up the teacher-led task in the classroom, of planting the seeds, caring and following up, to educate the next generation of environmental activists and ambassadors of the Asantehene's vision of Green Kumasi.

#### 6) *Gift from the King*

The first iteration of the *Gift from the King* was handed out to the public in the opening ceremony of the Kumasi Trees exhibition at KNUST in May 2024. The production of the seedlings and seed bags includes (i) Information about local seeds and seedlings, (ii) Pouch and bag design and their production in large quantities, (iii) Website design with detailed information (QR code in the Gift leaflet) and (iv) Geo-mapping for tracking of the trees. The *Gift from the King* implies that there be a designated caretaker for every tree, who is identified as the responsible person of the particular tree or plant, following the principle: 'By accepting the Gift from the King, you accept the responsibility that comes with it.'

#### 7) *Education Strategy*

As requested by the Asantehene, the *Kumasi Trees* project strives to 'educate the people' to appreciate and cherish the natural environment of Kumasi and become advocates for environmental values. Children of all age levels can become ambassadors for the King's vision if different age groups are provided appropriate strategies for learning and experimenting: (i) Early childhood education and care (crafting and storytelling), (ii) Planting and growing seeds in kindergarten (caring and follow-up), (iii) Primary schools: Project work (writing & drawing of trees in Ashanti culture); Planting and growing seeds in the classroom (caring and follow-up), (iv) Secondary schools: Research on the importance of Trees in Ashanti culture; Research on the importance of trees in the combat against climate change; Writing competition; Planting and growing seeds in the classroom (caring and follow-up).

In addition, projects in private and urban areas with informal education sector stakeholders can be implemented for wider impact and awareness.

#### 8) *Visibility and Branding*

For effective implementation of the Asantehene's vision and the *Kumasi Trees* project, the project will create and implement a public communication strategy with the help of local publication channels. This will include a well-maintained website outlining (i) the Vision of the Asantehene, (ii) Trees in the Ashanti Culture, (iii) Kumasi Trees Project description (iv) His Majesty's Special Committee for Implementation, (v) Community Champions and Engagement, (vi) University and Research Collaboration, (vii) Education material, (viii) Gift from the King (caring instructions for all species), (ix) Map of Trees (interactive Geo-mapping; caretakers; images, stories and narratives), (x) Manhyia Palace Museum (permanent exhibition). A visibility and awareness strategy also includes theatre debates, events management, mobile applications, cartoons, films, songs, music and performances.

#### 9) *Fundraising*

Eventually, the project requires joint fundraising efforts targeting (i) Technical detailing, (ii) Planting and Construction, (iii) Visibility and Events, and (iv) the Gift from the King.



**Figure 3.** Roadmap for required activities for the *Kumasi Trees* Project. Source: Kumasi Trees project team.

*Kumasi Trees* will develop a long-term maintenance strategy for green urban areas, based on heritage and belonging, that will sustain local engagement and ownership. Therefore, fundraising for the project implementation cannot solely rely on the prospect of participation of international development organizations, but engage local stakeholders, businesses, institutions, municipalities and private individuals, to be at the forefront of locally embedded engagement for urban greening and environmental values (Figure 3).

The role of university collaboration in the outlined framework is to be a catalyst and an outsider-facilitator, with a critical view and a decolonial voice. When critically assessed, an international academic perspective has the potential to question the *modus operandi* and *status quo* of contemporary practices and ways of working. At its best, universities can inspire innovation, encourage new thinking, and promote more inclusive, ethical and equitable approaches. This critical engagement can ultimately lead to positive changes in public awareness, policies, programs, and practices in global development and environmental awareness (Hollmén 2024).

### Expected results and conclusion

*Kumasi Trees* appreciates indigenous and local knowledge and adopts an approach of investigation from within, rather than top-down. By questioning the Eurocentric thinking and view of the world, the project seeks to identify and reveal the prevailing colonial practices, by raising awareness and appreciation of cultural identities beyond colonial legacies. It explores artistic and creative methods and practices to reconnect with cultural traditions and evokes joint cultural ownership, belonging, dignity and pride. It employs Decolonial Thought as a means for rediscovering environmental values that connect with cultural identities. It raises environmental awareness and responsibility by promoting cultural self-understanding, self-appreciation and self-esteem. It investigates inherent and situated knowledge, that serves as a vehicle towards locally adapted decolonial practices for sustainable urban planning. By considering architecture’s socio-cultural dimensions, it investigates the local ways of using and ‘inhabiting’ public space, its hierarchies and connections to cultural habits.

*Kumasi Trees* applies innovative and engaging participatory urban planning practices for raising collective ambition towards communities' environmental relationship, and comprehension of the environment as an integral part of local cultural values. It reveals cultural meanings in the spatial hierarchies and their connections to cultural habits and relations. *Kumasi Trees* promotes a shift in mindset and raises appreciation of local architectural values, local materials, culturally relevant and regenerative urban planning and sustainable construction practices. It helps sustain long-term environmental values and strives to avoid abuse and exploitation of natural resources.

Finally, *Kumasi Trees* contributes to the creation of the above-described practices through research, education and societal discourse. It engages and connects universities, communities, urban planners, city authorities and indigenous leadership to find common ways for understanding the balance of species and develops tangible solutions for better ways of promoting dignified living environments, that consider the co-existence of humans and other species alike. The project offers a timely discussion to consider alternative knowledge frameworks in curriculum development in and across higher education, rooted in local realities with environmental and sociocultural emphasis.

Despite being a technical project, the innovation of *Kumasi Trees* project lies in the socio-cultural perspective, and a *change in mindset* to evoke a collective feeling of shared ownership for the continuous maintenance of the planted trees. The expected commitment of communities is closely related to people's respect for the indigenous leadership. The King's vision of a Green Kumasi is embraced by local communities, due to the indisputable authority of the Asantehene, although environmental awareness remains low. The technical challenges and obstacles include cumbersome land ownership and governance, and insufficient planning policies and coordination.

For securing longevity, the ownership of the trees needs to be connected to strong cultural habits such as e.g. funeral traditions, where a family could adopt a tree as a memorial of a late loved one and honour their memory in the format of a blossoming tree full of life, that provides shade and solicitude for the generations to come. Or, as suggested by Quagraine, by 'continuous education and inclusion of the public in the planning and execution of urban tree projects, conscious promotion of mass urban tree planting and maintenance, formulation of sound rules and regulations concerning new construction developments and paved parking lots, provision of attractive incentive packages and also punitive systems backed by a rigid legal system' (2011, 228). The revival of the Garden City requires that every tree be treated as an 'individual', with a designated carer, a named family or an individual to keep and maintain them with dedication and respect.

Reinvigorating the brand of Kumasi as the Garden City has the potential to set a powerful example of African ways of creating African cities, and revival of cultural identities *from within*, looking beyond colonial layers of cultural interpretations. Serving as a pull factor for tourism and the economy, the shade of the trees can equally offer an inviting opportunity for small-scale businesses, embracing inclusive rather than erasing policies for enriching the urban life.

The achievements of *Kumasi Trees* will be measured in tangible forms: How many trees have been planted and adopted for long-term care and maintenance by local residents? How has the project altered the city surroundings, and have the trees provided more liveable and inclusive urban environments and business opportunities? Have the citizens witnessed a concrete and tangible change in their environment? Has their perception of urban green areas and the identity of the city changed, and has it raised their awareness of environmental sustainability? Has it influenced their cultural identity as Kumasi residents?

The project's approach is based on situated indigenous and local knowledge, specific to the Asante Kingdom, and as such, it is not replicable in any other location outside Ghana. However, should the project become successful and genuinely rooted in the 'minds and hearts of local communities', it can pave the way to explore parallels in other locations and cities. We believe that *Kumasi Trees* also provides an opportunity for further analysis of the results and knowledge creation, to develop new transferable and scalable standards, policies and guidelines for Sub-Saharan cities and governments in their respective urban greening endeavours. The project holds the potential to re-introduce the cherished image of Kumasi as the Garden City and create cultural

ownership, self-esteem, dignity and pride. As a vehicle for long-term impact, it can become the lasting legacy of the Asantehene, draw international attention and inspire hope.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## ORCID

Saija H. Hollmén  <http://orcid.org/0000-0002-8275-2796>

## References

- About the Movement. 2020. <https://www.nparks.gov.sg/treesg/one-million-trees-movement/about-the-movement>.
- Adarkwa, Kwasi Kwafo, ed. 2011. *Future of the Tree: Towards Growth and Development of Kumasi*. Kumasi: University Printing Press (UPK), Kwame Nkrumah University of Science and Technology. <http://books.google.com/books?id=a7FRDwairPOC>.
- Ampene, Kwasi, and Nana K. Nyantakyi III. 2016. *Engaging Modernity: Asante in the Twenty-First Century*. Michigan: Michigan Publishing, University of Michigan Library. <https://hdl.handle.net/2027/fulcrum.6t053j29b>.
- Baeyens, Anne. 2012. "Kumasi, Ghana." *Critical Study of an African Urban Structure*.
- Boafo-Arthur, Kwame. 2003. "Chieftaincy in Ghana: Challenges and Prospects in the 21st Century." *African and Asian Studies* 2 (2): 125–153. <https://doi.org/10.1163/156920903322149400>.
- Britannica. 2024. "Kumasi, Ghana, Map, Population, & History, Britannica". 23 September 2024. <https://www.britannica.com/place/Kumasi>.
- Brown, Tim, and Jocelyn Wyatt. 2010. "Design Thinking for Social Innovation." *Development Outreach* 12 (1): 29–43. [https://doi.org/10.1596/1020-797X\\_12\\_1\\_29](https://doi.org/10.1596/1020-797X_12_1_29).
- Ceschin, Fabrizio, and Idil Gaziulusoy. 2016. "Evolution of Design for Sustainability: From Product Design to Design for System Innovations and Transitions." *Design Studies* 47 (November): 118–163. <https://doi.org/10.1016/j.destud.2016.09.002>.
- Chilisa, Bagele. 2017. "Decolonising Transdisciplinary Research Approaches: An African Perspective for Enhancing Knowledge Integration in Sustainability Science." *Sustainability Science* 12 (5): 813–827. <https://doi.org/10.1007/s11625-017-0461-1>.
- Cocks, Michelle, and C. M. Shackleton. 2020. *Urban Nature: Enriching Belonging, Wellbeing and Bioculture*. *Routledge Studies in Urban Ecology*. London: Routledge.
- Coquery-Vidrovitch, Catherine. 2005. "Introduction: AFRICAN URBAN SPACES: HISTORY AND CULTURE." In *African Urban Spaces in Historical Perspective, NED-New Edition*, edited by Steven J. Salm, and Toyin Falola, xv–xl. Woodbridge, Suffolk: Boydell and Brewer. <https://doi.org/10.7722/j.ctt1bh496h.4>.
- Essed, Philomena, and David Theo Goldberg. 2002. "Cloning Cultures: The Social Injustices of Sameness." *Ethnic and Racial Studies* 25 (6): 1066–1082. <https://doi.org/10.1080/0141987022000009430>.
- Geels, Frank W. 2011. "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms." *Environmental Innovation and Societal Transitions* 1 (1): 24–40. <https://doi.org/10.1016/j.eist.2011.02.002>.
- Genovese, P. V., and A. N. Zoure. 2023. "Architecture Trends and Challenges in Sub-Saharan Africa's Construction Industry: A Theoretical Guideline of a Bioclimatic Architecture Evolution Based on the Multi-Scale Approach and Circular Economy." *Renewable and Sustainable Energy Reviews* 184 (September): 113593. <https://doi.org/10.1016/j.rser.2023.113593>.
- Grosfoguel, Ramón. 2013. "The Structure of Knowledge in Westernized Universities: Epistemic Racism/Sexism and the Four Genocides/Epistemicides of the Long 16th Century." *Human Architecture: Journal of the Sociology of Self-Knowledge* 11 (1), <https://scholarworks.umb.edu/humanarchitecture/vol11/iss1/8>.
- Gwedla, Nanamhla, and Charlie M. Shackleton. 2019. "Perceptions and Preferences for Urban Trees Across Multiple Socio-Economic Contexts in the Eastern Cape, South Africa." *Landscape and Urban Planning* 189 (September): 225–234. <https://doi.org/10.1016/j.landurbplan.2019.05.001>.
- Hall, Rachel. 2023. "Planting More Trees in Cities Could Cut Deaths from Summer Heat, Says Study, Access to Green Space. The Guardian". Accessed 24 September 2024. <https://amp-theguardian-com.cdn.ampproject.org/c/s/amp.theguardian.com/environment/2023/feb/01/planting-trees-cities-cut-deaths-summer-heat-study>.
- Heynen, Hilde. 1999. *Architecture and Modernity: A Critique*. Cambridge, MA: MIT Press.
- Hollmén, Saija. 2020. "'Now the Baobab Shines!' - Cultural Locality Interfacing with Interdisciplinary Pedagogies in Architectural Education." In *Aalto University Publication Series DOCTORAL DISSERTATIONS; 170/2020*. Aalto University. [http://urn.fi/URN:ISBN:978-952-64-0102-7\[urn\]](http://urn.fi/URN:ISBN:978-952-64-0102-7[urn]).



- Hollmén, Saija. 2024. "University Collaboration as a Catalyst for Global Development." In *Aalto Global Impact – a Cross-Continental Journey in Sustainability Education*, edited by Matleena Muhonen, Najmeh Viki, and Riina Subra, 121–129. Espoo: Aalto University. <https://aaltodoc.aalto.fi/handle/123456789/130945>.
- Interplay of Cultures Studio (Aalto ARTS), Aalto University. 2024. <https://www.aalto.fi/en/witlab/interplay-of-cultures-studio-aalto-arts>.
- Katoppo, Martin L., and Iwan Sudradjat. 2015. "Combining Participatory Action Research (PAR) and Design Thinking (DT) as an Alternative Research Method in Architecture." *Procedia - Social and Behavioral Sciences, REFLECTIONS ON CREATIVITY: PUBLIC ENGAGEMENT AND THE MAKING OF PLACE* 184 (May): 118–125. <https://doi.org/10.1016/j.sbspro.2015.05.069>.
- Köhler, Jonathan, Frank W. Geels, Florian Kern, Jochen Markard, Elsie Onsongo, Anna Wieczorek, Floortje Alkemade, et al. 2019. "An Agenda for Sustainability Transitions Research: State of the Art and Future Directions." *Environmental Innovation and Societal Transitions* 31 (June): 1–32. <https://doi.org/10.1016/j.eist.2019.01.004>.
- Korboe, David, and A. Graham Tipple. 1995. "Kumasi." *Cities, Economic Regeneration Strategies in British Cities* 12 (4): 267–274. [https://doi.org/10.1016/0264-2751\(95\)00051-M](https://doi.org/10.1016/0264-2751(95)00051-M).
- Lamberg, Essi. 2024. "Garden City Planning and Nordic (de)Colonial Ambivalence in Tanga, Mbeya and Moshi Master Plans (1973–1975)." *The Journal of Architecture* 29 (1–2): 5–35. <https://doi.org/10.1080/13602365.2024.2325339>.
- Marfo, Edward Oppong. 2021. "Restore Kumasi to its Garden City Status – Residents Urge Stakeholders". *Citizennewsroom - Comprehensive News in Ghana* (blog). 12 June 2021. <https://citizennewsroom.com/2021/06/restore-kumasi-to-its-garden-city-status-residents-urge-stakeholders/>.
- Masterson, Victoria. 2022. "The Best Way to Keep Cool in Heatwaves? Plant 170,000 Trees, According to Paris". *World Economic Forum*. 24 August 2022. <https://www.weforum.org/agenda/2022/08/paris-trees-climate-change/>.
- McCaskie, T. C. 1986. "Komfo Anokye of Asante: Meaning, History and Philosophy in an African Society." *The Journal of African History* 27 (2): 315–339. <https://doi.org/10.1017/S0021853700036690>.
- McTaggart, Robin. 1994. "Participatory Action Research: Issues in Theory and Practice." *Educational Action Research* 2 (3): 313–337. <https://doi.org/10.1080/0965079940020302>.
- Mignolo, Walter D. 2007. "Introduction." *Cultural Studies* 21 (2–3): 155–167. <https://doi.org/10.1080/09502380601162498>.
- Mignolo, Walter D., and Madina V. Tlostanova. 2006. "Theorizing from the Borders: Shifting to Geo- and Body-Politics of Knowledge." *European Journal of Social Theory* 9 (2): 205–221. <https://doi.org/10.1177/1368431006063333>.
- Niskanen, Taru. 2018. *Kumasi – Contemporary Yet traditional – African City.* In *Donitseista muffineiksi: 30 vuotta kaupunkisuunnittelua=Doughnuts to muffins : 30 years of urban planning*, by Henu Kjisik, Charlotte Nyholm, Sofia de Vocht, and Iris Andersson. Helsinki: Rakennustieto Oy.
- Nunes Silva, Carlos. 2012. "Urban Planning in Sub-Saharan Africa: A New Role in the Urban Transition." *Cities* 29 (June): 155–157. <https://doi.org/10.1016/j.cities.2012.01.006>.
- Olweny, Mark R. O. 2020. "Architectural Education in Sub-Saharan Africa: An Investigation into Pedagogical Positions and Knowledge Frameworks." *The Journal of Architecture* 25 (6): 717. [https://www.academia.edu/87664068/Architectural\\_education\\_in\\_sub\\_Saharan\\_Africa\\_an\\_investigation\\_into\\_pedagogical\\_positions\\_and\\_knowledge\\_frameworks](https://www.academia.edu/87664068/Architectural_education_in_sub_Saharan_Africa_an_investigation_into_pedagogical_positions_and_knowledge_frameworks).
- Opemsuo. 2023. "KNUST Partners Aalto University to Restore Kumasi as the Garden City". *Opemsuo 104.7* (blog). 27 October 2023. <https://opemsuo.com/knust-partners-aalto-university-to-restore-kumasi-as-the-garden-city/>.
- Pallasmaa, Juhani. 2006. "A Built Self-Identity." In *Exhibition Catalogue: Architecture in Finland. Finnish-Ethiopian Co-Operation in Architectural Training and Research*, edited by Saija Hollmén, 2–3. Exhibition at the Addis Ababa City Hall. 22.2.-12.2.2006. Addis Ababa and Helsinki: Ministry for Foreign Affairs of Finland.
- Phillips, Amy, Nicola da Schio, Frank Canters, and Ahmed Z. Khan. 2023. "“A Living Street and Not Just Green”: Exploring Public Preferences and Concerns Regarding Nature-Based Solution Implementation in Urban Streetscapes." *Urban Forestry & Urban Greening* 86 (August): 128034. <https://doi.org/10.1016/j.ufug.2023.128034>.
- Quagraine, Victor Kwesi. 2011. "Urban Landscape Depletion in the Kumasi Metropolis." In *Future of the Tree: Towards Growth and Development of Kumasi*, edited by Kwasi Kwafo Adarkwa, 212–233. Kumasi: University Printing Press (UPK), Kwame Nkrumah University of Science and Technology. <http://books.google.com/books?id=a7FRDwairPOC>.
- Russo, Alessio, and Giuseppe T. Cirella, eds. 2021. *Urban Ecosystem Services*. Basel: MDPI - Multidisciplinary Digital Publishing Institute. <https://doi.org/10.3390/books978-3-0365-0583-1>.
- Sengers, Frans, Anna J. Wieczorek, and Rob Raven. 2019. "Experimenting for Sustainability Transitions: A Systematic Literature Review." *Technological Forecasting and Social Change* 145 (August): 153–164. <https://doi.org/10.1016/j.techfore.2016.08.031>.

- Shackleton, Charlie M., and N. Gwedla. 2021. "The Legacy Effects of Colonial and Apartheid Imprints on Urban Greening in South Africa: Spaces, Species, and Suitability." *Frontiers in Ecology and Evolution* 8 (January), <https://doi.org/10.3389/fevo.2020.579813>.
- Sousa Santos, Boaventura de. 2015. *Epistemologies of the South: Justice Against Epistemicide*. New York: Routledge.
- Taboada, Manuela B., Sol Rojas-Lizana,, Leo X.C. Dutra, Adi VasuLevu, and M. Levu. 2020. "Decolonial Design in Practice: Designing Meaningful and Transformative Science Communications for Navakavu, Fiji." *Design and Culture* 12 (2): 141–164. <https://doi.org/10.1080/17547075.2020.1724479>.
- Trees for London, London City Hall. 2022. <https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/parks-green-spaces-and-biodiversity/trees-and-woodlands/trees-london>.
- Whelan, Debbie. 2018. "Negotiating the Edge: Understanding Public Space in Post-Transformation South Africa through the Lens of History and Architecture." *Unbound: A Journal of Discourse and Creative Practices* 2), <http://www.unboundjournal.in/?p=1271>.
- WiTLAB, Aalto University. 2024. <https://www.aalto.fi/en/witlab>.
- Yeboah, Tony. 2019. "Phoenix Rise: A History of the Architectural Reconstruction of the Burnt City of Kumase, 1874–1960." *Journal of West African History* 5 (1): 53–82. <https://doi.org/10.14321/jwestafrihist.5.1.0053>.