Continuity in transition: spatial transformation in peri-urbanisation in Kumasi

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Abstract
Rapid urbanisation, characterised by population increase and spatial development, is pushing the frontiers of major African cities from old urban cores outward into peri-urban areas. A key outcome is the transitioning of land uses and variations to customary land rights. Yet, understandings of everyday transformational processes and driving forces in peri-urbanisation remain underexplored. This article, using a case study of a peri-urban area of Kumasi, Ghana’s second largest city, contributes to the body of literature on peri-urbanisation by: (i) analysing the spatio-temporal evolution of a peri-urban area; and (ii) examining key underpinning processes and patterns of peri-urban spatial change. Qualitative research methods involving interviews with traditional and local statutory authorities, and peri-urban developers, as well as map analysis, Landsat images, and photographs were used. Findings show rapid but unregulated spatial changes in peri-urban Kumasi, driven by increasing demand for land, land speculation, commodification, and infrastructure projects. Peri-urbanisation processes and patterns were shaped by multiple factors such as modernisation, urban restructuring, and individual home ownership aspirations. The process of spatial change assumed a linear and drastic permanent transition, producing less credence to intermediate and temporary land uses.

Keywords
Peri-urban · Urbanisation · Urban planning · Spatial change · Ghana · Kumasi

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Introduction

With over half of the global population residing in cities, peri-urban zones are increasingly becoming the main habitat for urban residents (Morelli et al. 2014; Yankson and Bertrand 2012; Rauw and de Roo 2011; McGee 2009; Owusu 2008). Across developing countries, particularly those in Africa, peri-urban areas have expanded and are growing rapidly not only in population, but also in spatial influence and scale of planning and management challenges (Anane and Cobbinah 2022; Akaateba et al. 2018; Gough and Yankson 2000). Given their spatial importance, they manifest both the positive and negative aspects of rapid urbanisation in its extreme (Ravetz et al. 2013; Mabin et al. 2013; Iaquinta and Drescher 2000). Peri-urban areas serve as havens of human habitat, citadels of optimism for low-income households and theatres of dreams for immigrants (Iaquinta and Drescher 2000). They are also zones of indigenous livelihood (particularly agriculture) abandonment, considerable ecosystem volatility, and hubs of unregulated informality, land conflicts, speculation, and infrastructure deficiency (Acheampong et al. 2017; Cobbinah and Aboagye 2017). They thus pose significant problems as well as offer tremendous opportunities requiring strong and determined actor response.

But perhaps amongst the most urgent challenges which peri-urban areas in African cities encounter today is that of spatial transformation and how best to plan and manage it to avoid repetition of inner-city problems. This situation, however, is further complicated by a combination of emerging and existing crises, including changing climate, increasing urban poverty, land tenure complexities, and more specifically rapid unplanned urbanisation (Cobbinah et al. 2015; Akaateba et al. 2018). All of these, along with a persistent issue of poor urban governance and weak urban planning and management regulatory frameworks complicate and compound the peri-urban dynamism in African cities (Amoateng et al. 2013; Mabin et al. 2013). These situations continue to create and reinforce conditions and contexts in which the various negative aspects of peri-urbanisation—such as unregulated informal housing development, city sprawl, obliteration of environmentally delicate zones, loss of indigenous livelihoods particularly urban agriculture, and land conflicts prevail and persist.

Given the foregoing context, the appreciation of peri-urban transformational processes and the driving forces in African cities today create a unique challenge. This challenge requires planning interventions that recognise the impact and implications of the complex combination of crises and opportunities that have come to define the reality of African peri-urbanisation. There is a rapidly emerging body of literature on peri-urbanisation in African cities (Anane and Cobbinah 2022; Cobbinah and Aboagye 2017; Mabin et al. 2013; Mubiwa and Annegarn 2013; Yankson and Bertrand 2012; Owusu-Ansah and O’Connor 2010; Owusu 2008; Simon et al. 2004). The objective is to provide policy response both to develop some understanding of the challenges, and to provide a valuable foundation for planning, and management actions. Most of these studies focus on and describe causes and impacts of peri-urbanisation and show that the type of peri-urbanisation occurring in African cities. There is also extensive urban
environmental consequences on both populations and ecosystems. The studies further show that a major limitation in African peri-urbanisation derives from inadequacies of planning and management institutions. These limitations also manifest in weak engagement with traditional authorities and urban residents to collaboratively plan and manage peri-urban areas. These include issues of personnel and logistical incapacities, poor institutional coordination, power relations between traditional authorities and city authorities, vested political interests, and confusion and inconsistencies created by uneven harmonisation of planning and administration actions.

Consequent to these planning and management inefficiencies is unplanned urbanisation which is characterised by rapid spatial expansion. This phenomenon is pushing the frontiers of major urban centres towards uncontrolled peri-urbanisation. This phenomenon does not only occur in major African cities but can be observed in secondary cities too (see Kosoe et al. 2021). However, knowledge on the spatial modification in peri-urban areas where rapid transformation is occurring at different scales and speeds, and generating different spatial patterns is limited. Earlier studies have investigated stand-alone themes such as land tenure and land governance (Akaateba et al. 2018; Owusu-Ansah and Braimah 2013), physical expansion of urban areas into peri-urban areas (Acheampong et al. 2017; Cobbinah and Aboagye 2017). These studies barely touch on how peri-urbanisation combines with multiple factors such as land tenure, land subdivisions, and infrastructural projects to enhance or inhibit the overall transformation in peri-urban areas. In Ghana, the urban population was pegged at about 57% in 2020 and is estimated to reach 72% in 2050 (Woldometer 2020), contributing to widespread transformation of peri-urban areas. This is coupled with the increasing desire of a growing number of urban residents leaving what is often perceived or experienced as a congested, poorly managed, chaotic urban core to seek improved living environments at cities’ peripheries (Yankson and Bertrand 2012). The accompanying impacts of spatial expansion become more evident as peri-urbanisation intensifies. Beyond the statistics on increasing peri-urbanisation and the outward expansion of urban areas into adjoining peri-urban areas, everyday change processes in peri-urban areas that occur subtly over time have received little attention. To address this knowledge gap, this study traces and explains the dynamics of spatial organisation (i.e. the nature of change and the forms and intensities of change) using a case study from Abuakwa near Kumasi, Ghana’s second largest city. This paper contributes to peri-urbanisation literature by: (i) analysing the spatio-temporal evolution of peri-urbanisation from 2003 to 2018; and (ii) examining key underpinning patterns and processes of peri-urban spatial transformation. The paper provides explanation of the pattern of spatial change by tracing the history of the case study community as a village settlement and the influence of Kumasi’s urbanisation on its growth. The influence of urbanisation on the gridiron settlement pattern in the village core of Abuakwa and the mushrooming of western-type housing in the surrounding areas are analysed to understand the processes and dynamics of peri-urbanisation. This article is developed into five parts. Following this background section, the theoretical foundations are presented in Sect. 2. Section 3 discusses the
study context and research methods. Results and discussion are presented in Sect. 4. Finally, Sect. 5 provides the conclusion of the research.

**Literature review**

**Peri-urban transformation: understanding spatial change**

This study is underpinned by the assumption that over time, urban areas expand outwards into former farmlands to create additional space for increasing populations. This sets in motion several processes including land subdivision and change in tenure arrangements to cater for new uses. This assumption is premised on existing theories and empirical works in urban morphology (see Moudon 1997). The urban life cycle theory (see Klaassen et al. 1981) is adapted for explaining the various factors and processes that drive peri-urban transformation. The theory uses generic factors such as demographic and economic forces to explain how increasing population and structural changes in on-farm to off-farm activities begin the change from ‘ruralness’ to ‘urbanness’. The urban life cycle theory is adapted for this study because of its ability to provide theoretical underpinnings to explain urban and peri-urban spatial change processes within the concepts of ‘cycle’ and ‘transition’ (Klaassen et al. 1981). Morelli et al. (2014) explain a ‘cycle’ as the period in which a population phase of a specific spatial element develops and decays, whereas a ‘transition’ is the time between two cycles. Rauws and de Roo (2011, p. 272) consider transition as an emerging process of structural change from one level of relative stability to another, representing the various stages of development affecting the system as a whole. It could provide an alternative perspective on peri-urban transformations from the urban–rural divide to integrated urban-rural areas. (Rauws and de Roo 2011, p. 272)

Urban and peri-urban transition is multi-directional as one outcome of transformation could become a driver of another change process. As a result, peri-urban transition can be characterised as a “multidimensional, multilevel, qualitative and irreversible process” (Konijnendijk 2009, p. 2). Peri-urban transition involves complex processes, which may be rapid, discontinuous, or elusive, in some instances due to transitional stages in the transformation of peri-urban areas (Ravetz et al. 2013; Mabin et al. 2013). Within this context, city and peri-urban transformation happen via change in the direction of growth and population changes with time. As such, population increases or decline in an urban area can determine the level of change that one can expect in peri-urban areas. Projections by the UN in recent years forecast world population to reach about 10 billion by 2050, much of which is expected in Asia and sub-Saharan Africa (UN 2017). These projected population increases have implications for urban and peri-urban transformation in these regions.

Rauws and de Roo (2011) liken peri-urban transformation to social change, which results from rural–urban migration or counter urbanisation. That is, as
more people migrate from villages to cities in the wake of demographic change, the excess population in the urban core moves to live in the peri-urban areas. With this, it is important to state that demographic change and transformation are important in understanding peri-urban areas and human settlements. In sub-Saharan Africa, land market inefficiencies have been a major driver of peri-urban transformation. The land administration system creates a market for land purchases during the formalisation of rights to land through titling. As land subdivisions occur, the elite class, including politicians, buys land at low prices for speculative purposes (Cotula et al. 2004). In countries such as Kenya, land speculation has triggered elite acquisition of agricultural land, which is left undeveloped for a period, whilst speculators wait for increased land values or future developments. The individualisation of land rights through registration contributes to alienating indigenous populations from land by enabling the sale to the elite and middle class.

Across the Global South, private sector participation in the transformation of urban spaces is noticeable. Within liberalisation and increasing private sector-led involvement in the delivery of services, private capital inflows prompt further transformation in urban areas (Mabin et al. 2013). Through the injection of private capital in housing, development is a major contributor to the expansion of peri-urban frontiers. Beyond triggering speculation, the modernisation of major cities in sub-Saharan Africa, coupled with neoliberal restructuring involving financialisation and investment flows, has caused spatial transformation in peri-urban areas (Yeboah 2000). This reinforces the need by formal sector institutions for efficient land markets with legal security for private investments. Thus, land becomes a physical and financial asset, which requires legalisation that secures land rights, to safeguard private capital. Through structural economic reforms in sub-Saharan African countries, private participation in all forms of national economies was encouraged. The implementation of the Structural Adjustment Programmes (SAPs) by most countries in the 1990s, fuelled rapid urbanisation and peri-urbanisation. One main aim of the SAPs was to encourage market involvement in the provision of goods and services, including private investment in the housing market amid the state’s inability to match the supply of houses with increasing demand. These interventions also resulted in rural–urban migration, which created excess population moving to settle in peri-urban areas.

The transitory nature of peri-urban areas introduces the concept of ‘spatial change’. City and peri-urban forms are framed by physical transformations, which have been discussed in urban morphology literature (Moudon 1997; Larkham 2006). Moudon (1997) argues that spatial change in European and North American cities is significant and can be ‘read’ through the physical form of these cities. It can be understood only historically through time, resolution, and form. The ability to analyse spatial change helps in understanding the processes through which human modification of the environment occurs over a period and how human settlements develop over time. Urban form can be understood as “three fundamental physical elements [namely] buildings and their related open spaces; plots; and streets” (Moudon 1997, p. 7). In the Global South, the three elements identified by Moudon (1997) are changing gradually because of increasing demand for land and the
development of land markets in the course of transition of spaces from rural to urban. Thus, spatial change evokes much of ‘spatial configuration’, which involves urban network patterns and land use (Shen and Karimi 2015). The process of spatial change in the Global South is gradual, making the development of peri-urban areas a piecemeal process, which may proceed until the outskirts become fully urban (Zasada et al. 2011). Peri-urban spatial change involves physical development such as buildings, or urban projects that include the reorganisation of land uses, introducing new typologies and zoning in response to modernisation policies.

In Southeast Asia, spatial change in peri-urban areas connotes transformational processes whereby the rural–urban interface interacts functionally as both settlements and agricultural land uses coexist (McGee 2009). Through the desakota model, McGee (2009) examines the functional relationship of the city and the peri-urban in Jakarta, Bangkok, and Manila. The relationship of the city and peri-urban areas is such that populations in desakota areas supply the city with their agricultural produce and, in return, transfer urban goods and services. This nature of the relationship further leads to the intensification of daily commuting between the city and desakota regions. Desakota regions have also been reported outside of Southeast Asia. In the late twentieth century, urbanisation and transformation in southern China have witnessed this form of spatial development (Guldin 1996; Xie et al. 2006). Cairns (2002) argues that desakota regions show a rural–urban gradient—spatial land use patterns with mixed land uses such as traditional agriculture and cottage industry, and mixed forms of informal housing and gated communities. The mixture of land uses makes these areas depart from functional urban land use plans with zoning of residential and non-residential land uses.

In sub-Saharan Africa, the phrase ‘spatial change’ connotes a complex morphology of changing peri-urban areas. It is usually used interchangeably with physical development, human modification of space or conversion of spaces from one use to another (Simon et al. 2004; Amoateng et al. 2013). Physically, spatial transformation in peri-urban areas is associated with the clearing of vegetation for building, mining, industry, commercial, farming, and other economic purposes (Mubiwa and Annegarn 2013; Amoateng et al. 2013). The resultant spatial organisation is that of different spatial patterns of change in that “…some may resemble relatively uniform sprawl; others honeycomb structures or spines of growth along specific corridors… [which] vary in width and nature and are subject to rapid change with increasing urban pressures” (Simon et al. 2004, p. 236). Across Africa, the implementation and formalisation of rights and land administration systems intensifies the process of spatial change (Cotula and Neves 2007). The triggers of spatial change, therefore, also include land administration and land tenure systems, which in turn respond to land markets. Increasingly, peri-urban areas are showing manifestations of rapid expansion characterised by improved housing and limited municipal service, particularly in Africa. In major cities in South Africa, the injection of private capital in housing development has in some cases disrupted informal settlements through evictions and erasure of traditional settlements by modern buildings (Mabin et al. 2013). Also, the spatial outcome is witnessed in formally planned areas standing side-by-side with informal housing. The advent of private infrastructure development in a peri-urban area may lead to a scramble for
land by various classes of people and can even lead to land grabbing and speculation by multinational companies with a view to undertaking large-scale projects (Mabin et al. 2013; Asiedu and Arku 2009). Land subdivisions may occur rapidly during the transition and make land available at lower prices. Yet little is known about everyday spatial change processes in peri-urban areas where transformation is occurring at different scales and speeds, and generating different spatial patterns. This research is based on the foregoing context.

Peri-urbanisation and land use planning process in Ghana

The advent of increasing urbanisation in Ghanaian cities calls for proper land use planning to produce safe, secure, and resilient human settlements in line with global agendas. As Ghana strives to operationalise and achieve the goals espoused by global agendas on sustainable cities, the people-land relationship remains a key planning challenge. The SDG 11 emphasises, in particular, the role of land use planning as an activity to bring about inclusiveness, safety, resilience, and sustainability in all human habitats (UN-DESA 2020). Land use planning involves the decisions about how land and buildings are arranged in a particular area (Bugri 2012). This definition illuminates the interfaces between land, buildings, roads, and other physical modifications to the environment in urban and peri-urban areas. There are also the technical and legal aspects of land use planning and the role of statutory bodies to direct how human activities should be planned, organised, enabled and their excesses controlled.

Ghana has land use planning legislation contained in the Land Use and Spatial Planning Act 925 of 2016 and the Local Governance Act of 2016 (Act 936). There are other laws that guide land use planning, such as the National Building Regulations, 1996 (LI 1630) and the Ghana Building Code 2018, GS 1207. Article 267 of the 1992 Constitution mandates only statutory planning authorities to approve a developer’s request to put any piece of land in urban and peri-urban areas to use. Act 925 of 2016 further operationalises the spirit and letter of Article 267 by specifying land use and spatial planning processes in national development (Republic of Ghana 2016a). The main challenge facing the realisation of the objectives on land use enshrined in pieces of legislation is the land administration system in Ghana (Kasanga and Kotey 2001; Bugri 2012). As in other countries in sub-Saharan Africa, land use planning in Ghana is further made complex by the multiplicity of laws that give both statutory and traditional authorities powers in land governance. The implications of the legal plurality in land administration and the different actors present planners with a complex situation in terms of land tenure, land use planning, and land development (Kasanga and Kotey 2001). The entire land administration framework is fraught with challenges such as lack of transparency because an applicant in search of land or in search of a permit to commence development on any piece of land must juggle through customary tenure institutions and statutory institutional arrangements (Kasanga and Kotey 2001; Kuusaana and Gerber 2015). There seems to be confusion in the
Constitution regarding the role of chiefs in land disposition and the issuance of land use permits. On the one hand, the 1992 Constitution gives traditional authorities the power to transfer land to developers, but on the other hand, they cannot issue permits for land use.

**Major stakeholders in land administration and land use planning in Ghana**

The major institutions in land administration under the customary tenure and statutory land use planning framework in Ghana are the Physical Planning Department, Lands Commission, Office of the Administrator of Stool Lands, Traditional Authorities and Metropolitan, Municipal and District Assemblies. Given their importance in my case study, I set out each one below. The Lands Commission is a national institution with offices in various regional capitals. It plays a central role in land administration in Ghana. By law, the Commission oversees land administration and liaises with the Physical Planning Department to prepare planning schemes for physical development. Article 258 (1) of the Constitution summarises the functions of the Commission as follows:

(a) on behalf of the Government, manage public lands and any lands vested in the President by this Constitution or by any other law or any lands vested in the Commission; (b) advise the Government, local authorities and traditional authorities on the policy framework for the development of particular areas of Ghana to ensure that the development of individual pieces of land is coordinated with the relevant development plan for the area concerned; (c) formulate and submit to Government recommendations on national policy with respect to land use and capability; (d) advise on, and assist in the execution of, a comprehensive programme for the registration of title to land throughout Ghana; and (e) perform such other functions as the Minister responsible for lands and natural resources may assign to the Commission.

Items ‘a’, ‘b’, ‘c’, and ‘d’ in the quoted paragraph above relate to the functions of the Commission in the case study in this paper.

The administration of lands that fall under a stool is in general provided for through the Office of the Administrator of Stool Lands (OASL). The OASL is established under Act 481 of 1994 “to provide for the administration of Stool Lands generally” (Republic of Ghana 1994, p. vi). Pursuant to clause (2) of Article 267 of the Constitution, the OASL is mandated to play an important role concerning land revenue. According to Act 481, the OASL’s functions are threefold. First, the OASL establishes a stool land account for each stool. The Act stipulates that “all rents, dues, royalties, revenue, and any other payments, whether in the nature of income or capital from the stool lands are to be paid into these accounts” (ibid.). Second, the OASL collects these rents, dues, royalties, revenues, or the other payments, both income and capital, and has to account for them. Third, the OASL disburses the revenues determined following the prescriptions in Section 7 of Act 481 which states that
twenty-five per cent to the stool through the traditional authority for the main-
tenance of the stool in keeping with its status; (b) twenty per cent to the tra-
ditional authority; and (c) fifty-five per cent to the District Assembly within
the area of authority in which the stool lands are situated (Republic of Ghana
1994, p. 1903).

There is some diversion between theory and practice about the prescriptions
of the Act and what actually transpires in the management of revenues accruing
from the sale of land. A recent study by Akaateba et al. (2018) suggests that
the management of revenues by the OASL has been faced with challenges,
particularly the non-disclosure of certain revenues from the sale of land. As
already mentioned, chiefs and other traditional authorities play significant roles
in land administration. Their role in land administration practices and land use
planning on the continent predates colonialism (Kessey 2006). To date, the
chieftaincy institution remains a strong politico-traditional partner in statutory
governance systems in spearheading development in Africa (Yaro 2012). In
Ghana, the Constitution recognises customary authorities who operate through
their respective Traditional Councils and Regional Houses of Chiefs. The
Traditional Council is made up of the Paramount Chief as the head, Divisional
Chiefs, and sub-chiefs in stool/skin land areas as members. Traditional
Councils are recognised by the 1992 Constitution to undertake functions such
as the adjudication of matters, for instance, conflict resolution in chieftaincy,
land disputes, and boundary settlements. The Regional House of Chiefs is an
organisation of paramount chiefs from the various paramountcies in a region,
which meet to discuss matters affecting the chieftaincy institution. There is also a
National House of Chiefs which operates at the national level with representation
from all the regions of Ghana.

Ghana operates a local governance system which is made of Metropolitan,
Municipal and District Assemblies (MMDAs), Sub-Metropolitan District Councils,
Urban Councils, Town Councils, Area Councils, and Unit Committees (Republic of
Ghana 2016b). In terms of distinction by population, a metropolitan, municipal, and
district have a minimum of 250,000, 95,000, and 75,000 inhabitants, respectively
(ibid.). The Local Governance Act 936 was passed in 2016
to provide for local governance in accordance with the Constitution; to
establish a Local Government Service; to provide for the establishment and
administration of the District Assemblies Common Fund; to provide for a
National Development Planning System; to define and regulate planning
procedures of District Assemblies; to co-ordinate, facilitate, monitor, and
supervise internal audit activities within District Assemblies and for related
matters (Republic of Ghana 2016b, p. 12).

The MMDAs are empowered by the Act to make by-laws to direct all local planning
schemes, including the issuance of development permits. Those who flout these
by-laws are liable for a fine or imprisonment.

The final stakeholder I discuss is the Physical Planning Department. It began
as the Town and Country Planning Department (TCPD) in the colonial era. The
mandate of the Physical Planning Department is to oversee urban planning at the national, regional, and local levels. The overall land use planning system in Ghana is under the Land Use and Spatial Planning Authority (LUSPA), which ensures that land use plans are prepared by the Metropolitan, Municipal and District Physical Planning Departments to meet Medium Term Development Plans. Physical Planning Departments at the district level interact with the Lands Commission and traditional authorities at the level of land administration to govern land use and spatial planning (MEST and TCP 2011). The LUSPA is headquartered in Accra and has regional and district offices to facilitate the three-tier planning system, which involves the preparation of Spatial Development Frameworks, Structure Plans and Local Plans. In 2011, the Ministry of Environment, Science and Technology (MEST) and the TCPD prepared a Manual for the Preparation of Spatial Plans (see Fig. 1) to guide the ‘Three-Tiered Spatial Planning Model’ (MEST and TCPD 2011).

Spatial Development Frameworks involve long-term planning, targeting areas of high growth, which require the preparation of a Structure Plan to guide development.
Structure Plans may be developed at any level, including district, sub-district, city, or town, whereas local plans may be prepared for neighbourhoods that detail planning at plot level (Republic of Ghana 2015). The 3-tiered planning system seeks to promote a bottom-up approach to depart from the more centralised or technocrat-led planning inherited from colonial planning systems. It also allows for spatial planning to reflect the aspirations of local people and the surroundings (ibid.).

Research area and methods

Research setting

The research centred on a peri-urban community, Abuakwa, near the city of Kumasi, the second largest city in Ghana. With over 2 million people, Kumasi consists of nine municipalities and one metropolis (Ghana Statistical Service 2014). Kumasi has grown rapidly, coupled with intensive expansion in its peri-urban settlements, such as Abuakwa (Ghana Statistical Service 2014; Acheampong et al. 2017; Amoateng et al. 2013; Cobbinah and Amoako 2012). Many of the urbanising peri-urban areas including Abuakwa, which fall under the Greater Kumasi Metropolitan Spatial Region (Acheampong et al. 2017) are outside of the Kumasi Metropolitan Area and not included in the figure of over 2 million people. A recent figure shows that the annual average growth in built-up areas in the Greater Kumasi Metropolitan Spatial Region, of which Abuakwa is part, is around 6% (ibid.). The increasing urban growth rate in Kumasi hints of its outward expansion into the peri-urban region and further increases in the future.

Traditionally, Kumasi is a city with a strong traditional governance system which gives considerable power to chiefs to spearhead land management and planning schemes in peri-urban areas. This makes it an ‘ideal city’ to study planning processes in the peri-urban political economy of Ghana. Most vacant land parcels in peri-urban Kumasi fall under the control of the King (Otumfuo) of the Ashanti Kingdom, who acts as the custodian of all lands in the Ashanti Kingdom (Owusu-Ansah and Braimah 2013). Divisional chiefs of the various stools administer land rights to members in their jurisdictions on behalf of the Otumfuo and are accountable to him (Asiama 2004). Owusu-Ansah and Braimah (2013) estimate that about 90% of all land in Kumasi is under customary tenure. The customary tenure system in Kumasi further strengthens traditional authorities to exercise greater control over land management and planning compared to statutory authorities.

Location wise, Abuakwa community (see Fig. 2) is within the Atwima Nwabiagya Municipality (ANM) located on the Kumasi-Sunyani and Bibiani thoroughfares. It is located 12 km from the city of Kumasi’s Central Business District with about 30,000 residents. Approximately, 32% are indigenous residents with relocated residents from Kumasi constituting 68% (Amoateng et al. 2013).

Abuakwa has strong functional relationship with Kumasi because more than 60% of its population commute daily to and from Kumasi for various purposes including education and work. Like other peri-urban towns in the Greater Kumasi
Metropolitan Area, it provides a significant dormitory enclave. Transformation patterns in Abuakwa occur under traditional aristocracy exercising control over land and land rights administered by the traditional authority (divisional chief). Chiefs normally occupy surveyors to develop local planning schemes without the involvement or knowledge of formal planning agencies. As a result, Abuakwa is undergoing unfettered spatial expansion characterised by sporadic spatial change subsuming neighbouring villages without effective land use planning.

**Research method**

The study adopted the qualitative comparative analysis within the qualitative research paradigm. The qualitative comparative analysis in part uses both qualitative and other methods to deepen the understanding of a phenomenon under different cases (Pattyn et al. 2019). The use of the multiple methods of analysis was to understand the extent to which chiefs, planners, and peri-urban developers exerted themselves on urban planning practices and the associated spatial outcomes in peri-urban areas under the customary forms of tenure. First, mapping of specific spatial changes that had occurred in Abuakwa was conducted. The mapping involved taking satellite images of Abuakwa (2003, 2008, 2013, and 2018) from Digital-Globe via Google Maps and converting them to land use maps. The scenes were

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**Fig. 2** Cluster of settlements in the Greater Kumasi Metropolitan Spatial Area. *Source* Based on Landsat images, 2019
georeferenced by assigning geographic coordinates to the satellite image’s sectors using the World Geodetic System 84 (WGS-84). The satellite images were ground thruthed relating the images to real spatial features (land uses) in the case area. The ground thruthing was carried out by recording the coordinates of land use features, including commercial facilities, roads, marketplaces, and chiefs’ palaces. A Geographic Positioning Systems (GPS) Android Software application (Handy GPS™) was used in the recording of coordinates. This was followed by digitising the various land uses where sectors were combined to obtain a composite map from 2003 to 2018 for Abuakwa using ArcGIS 10.5. Through the analysis of geospatial data, the rate of spatial expansion was researched by analysing spatial configuration and typologies (residential, commercial, public spaces, open spaces, and green spaces) in 2003, 2008, 2013, and 2018. The choice of these four periods was to trace spatial transformation over time in Abuakwa and offered a comparatively recent picture and understanding of peri-urban spatial change. Figure 3 shows the geospatial data collection and processing procedure for the study.

Second, secondary data were reviewed, which included existing research, articles, and government policy documents (e.g. Medium-Term Development Plans for the Atwima Nwabiagya Municipality). This included desk analysis of documents on spatial transformation and land administration systems in Ghana. Third, the secondary textual and spatial data were complemented by primary data generated through interviews conducted with knowledge-rich participants. These participants included representative of traditional authority, local statutory planning officials, and selected peri-urban developers in Abuakwa in 2018 and 2019 (see Table 1). A total of 16 in-depth interviews were carried out. Purposive sampling method was used to sample identifiable actors in the land administration system since they possessed adequate knowledge in addition to their ability to discuss issues about spatial change and transformation in Abuakwa. The snowball sampling technique was applied to complement the purposive sampling technique to select respondents with relevant knowledge, which is known to the original respondents, or to ‘hard to find’ participants. Peri-urban developers and local opinion leaders were hard to find and could

Fig. 3 Geospatial data collection and processing procedures
only be contacted with the help of other participants or leads provided by community members. The snowball sampling technique, therefore, helped in contacting, as Scott and Morrison (2005, p. 221) put it, “research participants [in this case peri-urban developers] to direct the researcher to other potential participants”. Peri-urban developers who have lived in Abuakwa for a minimum of ten years were involved in the interview as they have knowledge and experience in, as well as observed the pattern of spatial change between 2003 and 2018. The nature of the study required that purposive and snowball sampling techniques were combined to select participants for interviews. This was done because the variables examined in this study required the views and opinions of specific people who possessed knowledge or who have had an encounter with knowledgeable people by virtue of their positions or their working relations with knowledge-rich people in the course of their work. The convenience sampling technique was used and the number of interviews for peri-urban developers was determined based on the concept of saturation (Glaser and Strauss 1967). The foundation of saturation is in ‘information power’ which is rooted on the principle that the more a sample has relevant knowledge or information in the topic under study, the lower the number of participants required (Malterud et al. 2016). The interviews started without any predetermined number of interviewees. The interviews were concluded once all the information I needed was obtained. For my interviews with peri-urban developers in Abuakwa, saturation was reached after interviewing ten peri-urban developers. Saturation was reached because the narratives shared by the interviewees became repetitive.

| Respondent category                                      | Total number of interviews | Sampling technique       |
|----------------------------------------------------------|----------------------------|--------------------------|
| Lands Commission                                         | 1                          | Purposive sampling       |
| Physical Planning Department of the Atwima Nwabiagya     | 1                          | Purposive sampling       |
| District Assembly                                         |                            |                          |
| Chief of the Apemhase Stool                              | 2                          | Purposive sampling       |
| In-depth interviews with peri-urban developers           | 10                         | Snowball sampling        |
| Local opinion leaders                                    | 2                          | Snowball sampling        |

Using NVivo 10 software package, the interviews were transcribed and organised into thematic topics relating to peri-urban transformation and land administration systems. Major themes included spatial manifestations of transformation, and how they influenced the planning processes. The in-depth interviews with chiefs and planning officers on planning processes helped in explaining spatial change in terms of timelines of specific transitions in Abuakwa. The use of a combination of methods helped in soliciting the views and experiences of chiefs, peri-urban developers, and local statutory planners in the land administration systems on the manifestations of spatial change in Abuakwa.
Results and discussion

Background of spatial change in peri-urban Abuakwa

Physical expansion in Abuakwa can be traced to the 1970s, although it remained a village by the national classification of 5000 people seemingly up until the late 1980s. The 2010 Population and Housing Census recorded Abuakwa’s population at 23,201. Out of this number, 68% were non-indigenes and 32% indigenes (Ghana Statistical Service 2014). At the time of the fieldwork (2019), a planning officer estimated the population of Abuakwa at approximately 30,000. The ‘urban’ rather than ‘village’ status has implications on planning processes, which includes urban land use planning and the involvement of different authorities. With the change from village to urban area, the demand and supply of social and commercial services increased (Interview, Physical Planner, Nkawie, 30.12.2019).

Residential development in Abuakwa can be classified under two types, the courtyard housing on the gridiron layout in the village core area (see Fig. 4) and the bungalow type in the areas surrounding the core area. The traditional ‘village core’ or old residential area still consists mostly of traditional single-storey compound or courtyard houses, also referred to as the Atakpame building style (Afrane and Asamoah 2011). Parts of the village core are witnessing the erasure of the compound houses through redevelopment of commercial and residential buildings (see Fig. 5).

![Fig. 4 Spatial pattern in the village core of Abuakwa, and redevelopment in the bottom left corner. Source Author’s construction based on self-made drone images, 2019](image)
Historically, Kumasi has a strong connection in terms of architecture and culture with many villages on its periphery, which today form the Greater Kumasi Metropolitan Region (Acheampong et al. 2017). A chief in Abuakwa confirmed this in his historical account of the housing pattern in Abuakwa:

Our fathers and their families moved from Kumasi to settle in Abuakwa. This influenced the type of buildings and the street patterns because that is how the houses were built in Kumasi. To some extent, the streets in Abuakwa are better than those in the central part of Kumasi (Interview, Chief of the Apemhase Stool, Abuakwa, 06.12.2019).

Owusu-Ansah and O’Connor (2010, p. 4) describe Kumasi “as an amalgamation of previous villages, many of which still retain their old established cores”. Thus, Abuakwa’s compound houses, arranged on a tight grid, have similarities with the village cores of other peri-urban areas in Kumasi. Abuakwa’s village core emerged along the Kumasi-Sunyani-Bibiani trunk road. The village core area expanded from the trunk road over time. The architectural style of Kumasi is like that of Abuakwa illustrative of the compound or courtyard house, whereas in more rural villages a linear form of compound housing has remained predominant (Afram and Korboe 2009). The village core shows compact development compared to the surrounding newly developing residential areas where plots are in street blocks that are separated by wider streets. However, the newly developing residential areas generally have inadequately surfaced and partly eroded access roads. The bungalow housing type in the new residential areas is single-family housing rather than compound housing. Plots in the new area are on average 1000 m² compared to approximately 500 m² in the compound housing grid.

The pattern of growth and expansion of Abuakwa along a major road is a typical development in other peri-urban areas of Kumasi, such as Ejisu, which is also situated along the Kumasi-Accra Road. Peri-urban areas further away from major
arterial routes are difficult to access and often served by only unpaved roads. The present-day preference for roadside living amongst peri-urban residents is also partly triggered by the availability of waterlines and electricity along major arterial routes. For example, it is easier to get connected to essential municipal services the closer one is to the major road. The extent of physical development in Abuakwa in 2019 (see Fig. 6) showed that the once road-based urbanisation pattern has changed over time. Almost every portion of land apart from river courses, valleys, or wetlands, has been used for physical development. Commercial activities, however, remain strung along the main arterial and intensified at the Y-junction in the middle of Abuakwa.

Whereas Amoateng et al. (2013) found that the increasing population in Abuakwa and concomitant physical expansion were triggered by proximity to Kumasi and available land for development, the Chief of the Apemhase Stool explained that the pressure on land in Abuakwa also stems from indigenes in other Ghanaian cities. He mentioned Accra, and Sekondi-Takoradi as well as Ghanaians living in diaspora who are keen to invest back home (Interview, Chief of the Apemhase Stool, Abuakwa, 06.12.2019). The influence of Kumasi on Abuakwa has changed and intensified due to improved transportation. Apart from the middle class living in Abuakwa, who are mostly public servants, using private cars, many residents patronise shared minibus known in Ghana as trotro, that ply the route from Kumasi and beyond Abuakwa. Trotros operate “between specific destinations with passengers alighting at designations or assumed bus stops, whilst others get on board” (Sarfo 2016, p. 15). Fares are less expensive than private taxi cabs. This makes it possible for people to make several daily commutes between Kumasi and Abuakwa for work or business.

Fig. 6  Concentration of commercial activities and land use along the trunk roads, and location of the village core around the road intersection in Abuakwa. Source Based on Google Earth data, 2019
Spatio-temporal analysis of peri-urban Abuakwa (2003–2018)

Reis et al. (2016, p. 257) explain that geospatial metrics are used by “urban planners and geographers to measure spatial patterns”. In this paper, I measured the urban expansion rate in Abuakwa by computing the annual rate of conversion of urban land from non-built-up areas to built-up areas. Table 2 summarises the land use inventory dynamics from 2003 to 2018 over a land area of 1800.7 hectares. Based on the land use inventory data in Table 2, Abuakwa has rapidly urbanised with non-built-up area declining quickly, frequently changed into built-up development, such as residential and commercial uses and roads. Over a period of one and half decades (2003 to 2018), the land use inventory for non-built-up area (including agricultural land, undeveloped land, tree canopy cover, irrigated and non-irrigated grass cover) in Abuakwa reduced from 899.6 acres (49.9%) to 424.4 acres (23.6%).

Table 2  Land use/land cover inventory (acres)

| Area/year | 2003 | %    | 2008 | %    | 2013 | %    | 2018 | %    |
|-----------|------|------|------|------|------|------|------|------|
| Built-up  | 901.1| 50.1 | 1148.5| 63.8 | 1286.7| 71.5 | 1376.3| 76.4 |
| Non-built-up | 899.6| 49.9 | 652.2| 36.2 | 514  | 28.5 | 424.4 | 23.6 |
| Total     | 1800.7| 100  | 1800.7| 100  | 1800.7| 100  | 1800.7| 100  |

Source Field Survey (May, 2019)

Fig. 7  Trend in physical expansion in Abuakwa. Source Based on Landsat images and field visits, 2019
Figure 7 illustrates that over a 15-year period, Abuakwa has experienced over 50% expansion of its built-up area. The periods 2003–2008 and 2008–2013 registered the highest spatial expansion in the built-up area: 50.1% and 71.5%, respectively, which translates to a reduction of the non-built-up area by 49.9% and 28.5% for the same periods, respectively. This transformation in Abuakwa’s spatial structure has been dictated by the administrative and economic structure of the peri-urban community, which has attracted people to the peri-urban area. This situation provides further credence to the urban life cycle theory characterisation of demographic phase emergence in spatial change (Morreli et al. 2014) as fundamental determinants of peri-urban transformation. Abuakwa’s location along trunk roads, with major thoroughfares to regional capitals of Kumasi, Sunyani, and Sefwi Wiawso, has contributed to arrival of people mostly from Kumasi into the peri-urban community. Expectedly, Abuakwa has experienced an annual growth rate in population of about 2% since the year 2000. The increasing rate of spatial expansion in Abuakwa reflects the experiences in other peri-urban communities around Kumasi. For instance, Ejisu described by Cobbinah and Aboagye (2017) and peri-urban areas in Takoradi and Bolgatanga described by Kleemann et al. (2017). As shown in Table 2, decline in non-built-up area has resulted in an increase in development in the built-up areas. To explain the rapid spatial expansion in Abuakwa, an official at the Physical Planning Department mentioned that:

The intensification of development in Abuakwa appears to respond to multiple factors. For example, because of the road expansion project and market, other commercial activities are growing along the trunk road. It has also brought about the demolition of old buildings and the rise of new and high-rise buildings which are built by private individuals. Banks have also moved in to serve the financial needs of businesses. (Interview, Physical Planner, Nkawie, 30.12.2019)

The interview findings indicate that the rapid spatial expansion of built-up area in Abuakwa mirrors the socio-political land tenure contention between traditional and statutory planning authorities. Anane and Cobbinah (2022) explain that traditional authorities go beyond their traditional mandate of serving as custodian of the land to determining land uses, a role expected to be performed by statutory planning agencies. In fact, a key issue is poor engagement and collaboration between traditional and statutory planning authorities. For example, interview data indicate that traditional authorities frequently allocate and lease land without prior endorsement from the statutory planning authorities:

Chiefs make a lot of changes to the approved Scheme to suit their own interests. There are certain areas on the schemes which have been converted to other uses without the knowledge of the Assembly. What we do is that we do not grant development permits to people who purchase these plots. So, they have developed the plots alright, but they cannot get permits…We also
earmark any such physical development for demolition (Interview, Physical Planner, Nkawie, 30.12.2019).

This situation leads to uncontrolled pattern of spatial expansion. An interesting part of physical expansion in Abuakwa is the rise in multi-storey buildings for commercial uses as of 2018. The area adjacent to the new market is witnessing intensification and verticalisation of buildings (see Fig. 8) in the core area, hitherto known for single-storey compound houses. The intensification of development around the new market appears to respond to multiple factors. Asked how the Market Project has affected the spatial extent of Abuakwa, a planner explained that:

Because of the Market, other commercial activities are growing around the market. It has also brought about the demolition of old buildings and the rise of new and high-rise buildings which are built by private individuals. Banks have also moved in to serve the financial needs of the market women (Interview, Physical Planner, Nkawie, 30.12.2019).

The above quote suggests that statutory planning agencies are incapable to guarantee strict enforcement of planning requirements in land use plans as they are made ineffective by traditional authorities on the determination of land use. Interviews with the representatives of the traditional authorities, however, suggest otherwise. The representatives disagreed with this claim, explaining that
state institutions are powerless in managing the morphological development of Abuakwa because of rapid population growth that outstrips their planning capacity.

The conflicting land use and planning roles of statutory planning agencies and traditional authorities have implications for uncontrolled pattern of spatial expansion in Abuakwa. Further muddling the capacity of statutory planning agencies to successfully control spatial change are inadequate resources, political meddling, and corruption:

Sometimes it is difficult in working with traditional authorities in land administration. Chiefs have the power of the people and so the allegiance of the people is very much skewed towards traditional leaders and not statutory authorities. We collaborated with them to correct the deficiencies in the Plan they submitted for approval, but they almost always had their way… The major challenge is that by the time we set out to correct the plan, development would have occurred (Interview, Physical Planner, Nkawie, 04.05.2019).

Although the majority of the statutory agency officials interviewed acknowledged that there may be cases of bureaucracies, corruption and biases connected to their operations (e.g. development permit issuance) in the statutory planning institutions, they maintained that the traditional authorities encouraged poor and unplanned development contributing to uncontrolled expansion of the peri-urban community. Regrettably, this situation has contributed to unrestricted and chaotic urban expansion and the invasion on ecologically sensitive areas within the peri-urban community (Cobbinah and Amoako 2012). As shown in Table 2, a reduction in non-built-up area is linked to an increase in the built-up area. For instance, between 2003 and 2008, there was a 247.4-acre decline in non-built-up area and a matching increase in the built-up area. Comparable variations were recognised for the other periods (i.e. 2008–2013 and 2013–2018). An interviewee stated that:

Abuakwa’s growth has increased rapidly considering that about ten years ago, the place was mostly made up of the village core and few buildings in the surrounding fringe areas (Interview, Physical Planner, Nkawie, 04.05.2019)

As of 2018, out of a total land area of 1800.7 acres, Abuakwa has only about 424.4 acres of non-built-up area, or 26.3%. The secondary data review (i.e. the planning scheme for Abuakwa, and Amoateng et al. 2013), and the spatio-temporal analysis (Fig. 6) showed that the main enduring non-built-up area is mostly located at the extreme fringes of the peri-urban community. The urban life cycle of non-built-up area in peri-urban Abuakwa is challenged by the limited engagement amongst the key institutions on land use, planning, development, and management. This contention between traditional and statutory planning authorities stifes the opportunity to adequately collaborate and effectively plan the spatial transformation of Abuakwa.
Pattern of spatial change in Abuakwa

Spatial change patterns in Abuakwa show mixed transformations shaped by similar processes but with different outcomes. Patterns of spatial change involve the material and non-material forms by which former rural areas become urban though human interventions. The study identified three main patterns of spatial change in Abuakwa. They included planning processes that unfolded from the interactions between the various actors, the rate of conversion of non-built to built-up areas, and the association between city and village cores. The local planning scheme in Abuakwa followed ‘western’ iterations of town planning, although they were designed by land surveyors and not by planners. The scheme was initiated by traditional authorities who allowed for development to occur before approval was granted by the municipal assembly. The process was dominated by private licenced surveyors working with chiefs to stake out plots. The post facto retrofitting of the proposed plan by planners from the municipal assembly, before its official approval, changed the initial scheme. Natural areas designated as open spaces appear compromised or encroached upon. An interviewee revealed that:

The surveyor-led planning approach did not allow for proper urban planning considerations by planners. Planners came into the picture when it was more difficult to do proper planning (Interview, Physical Planner, Nkawie, 04.05.2019)

Peri-urban transformation in Abuakwa was dominated by the change of non-built-up areas to built-up areas and an incremental uptake of development rights through construction.

The Abuakwa case depicted peri-urban transformation emanating from the ‘village core area’ with unique architecture found in the compound houses in a regular grid. The pattern of spatial change in Abuakwa depicted strong core-periphery linkages in the village core and peri-urban areas characterised by a cultural, social, and economic network of residents. An interviewee revealed that:

With the change from village to an urbanised area, the demand and supply of social and commercial services increased. This is evident in the traffic situation in the area which is partly caused by increased mobility between urban and peri-urban areas (Interview, Physical Planner, Nkawie, 30.12.2019).

The cultural dimension is prevalent in the core area as families initially settled here whereas new arrivals occupied the surrounding areas. The housing tenancy type also changed from multi-habitation houses to single-family dwellings over time as statutory planning practices were introduced.

One important transformational feature in Abuakwa is its strong connection with the urban centre of Kumasi. The study found that peri-urban and urban areas are interlaced both in material and non-material dimensions as depicted by the close cultural, social, and economic networks as already revealed in
Ghana by Cobbinah and Amoako (2012), Owusu-Ansah and Braimah (2013), Agyemang et al. (2019). The Abuakwa case shows a typical peri-urban transformation in Ghanaian cities (Cobbinah and Aboagye 2017), characterised by linear growth, mostly along trunk roads of urban centres. The map analysis reveals that the pattern of spatial change peculiar to the Abuakwa case study was the erasure of old residential buildings in the village core area particularly along the trunk road. Private investments have resulted in the leasing of old compound houses in the core area to private developers who demolish old structures and, in their place, build multipurpose commercial buildings. The extent of erasure was not explored in detail in this paper but there were indications that this trend will continue in the years to come. There were no strategies from either the municipal authorities or traditional authorities to reverse this trend and protect the historic built form in the urban core area. The visible signs of spatial change identified in Abuakwa from 2003 to 2018 formed only a snapshot of a spatial transformation that is expected to intensify in years to come. The recognisable trend of land use conversions, land speculation, and confusing roles and mandates make the question of the effectiveness of land administration and its relationship with the traditional authorities, which remain vested in the area and its transformation, a pressing question for the future.

**Complex drivers of spatial transformation in the Abuakwa**

The paper revealed that the drivers of spatial transformation were complex, as were the relationships amongst the various actors. What initially appeared as the most obvious drivers of spatial transformation were urbanisation and demographic shifts. However, theoretically, peri-urban transformation can be attributed to multiple factors such as modernisation, urban restructuring, and individual home ownership aspirations. The Abuakwa case study revealed that peri-urban transformation is driven by specific peri-urban change cycles mainly manifested in increasing demand for land, land speculation, commodification, and infrastructural projects. These factors are complex as they may not show a direct relationship in the peri-urban transformation process.

Increasing demand for land was prevalent in Abuakwa. This was attributed to individual aspirations to acquire land for residential and commercial development. The interview data show that land speculation triggers peri-urban spatial change and manifests in the statutory and customary land tenure systems. The increasing demand for land triggers the situation in which people acquired land not for immediate use but in anticipation of appreciating land values in the future. A Lands Commission official hinted that:

> The customary land tenure system is recipe for land speculation because development precedes proper planning. Abuakwa like the other peri-urban communities is facing its own land issues which have dire future planning implications. Certain maps presented by developers from Abuakwa are not accurate, so it becomes difficult to grant concurrence (Phone interview, Lands Commission official, Kumasi, 05.07.2019).
The nature of land speculation in Abuakwa was subtle and not cited by interviewees as a main driver of transformation. This is because the rate of change was rapid and at the time of this work there were few vacant plots. How land speculation thrived after development occurs remains complex and was not explored in this paper. In Abuakwa, traditional authorities were on hand to take back plots and transfer them to another prospective developer if the plot was not developed within the stipulated time of two years. An interviewee revealed that:

    Our aim is to see development and so if you acquire a plot of land and do not develop it within two years, we will take back the land and give it to another developer who is ready. We do not allow developers to slow the pace of development in the community (Interview, Chief of the Apemhase Stool, Abuakwa, 06.12.2019).

In Abuakwa the pre-existing road was already tarred and fully functional, though congested. Property speculation in Abuakwa was not at the level of residential plots but rather at the level of commercial opportunities unlocked by the road expansion, as Abuakwa was transitioning into a significant commercial hub. A member of the Physical Planning Department at the ANMA articulated the economic implications:

    Commercially, the road dualisation project was initiated to improve transportation by improving accessibility and growth. The project has opened up Abuakwa because commercial activities have increased and travelling time improved, despite the project suffering completion deadlines (Interview, Physical Planner, Nkawie, 30.12.2019).

The market relocation was intricately tied to the road expansion and associated economic transformation of Abuakwa. The demolition of the old market appeared to foreshadow the erasure of the historical village core with the traditional seat of the traditional authority and treed public areas faced onto the trunk road with its passing traffic. The road expansion project had already affected some of the historical compound houses, which gave way to multi-storey commercial buildings along the trunk road in the village core area. It was not clear whether demolitions and redevelopment would continue to other parts of the village core area in the future. The chief of the Apemhase Stool also commented on the increased traffic on the road. The increasing demand for land in Abuakwa for residential development was partly triggered by the anticipated relief of traffic congestion on the Abuakwa road after completion.

    The opinions of the chief and planner reflect their ambition of achieving ‘good’ roads in Abuakwa with road markings which eliminate vehicular and human congestion. The Chief’s motivation to get the road completed may be informed by similar roads he has seen during his travels to the United Kingdom and Germany, which he disclosed during the interviews (Interview, Chief of the Apemhase Stool, Abuakwa, 06.12.2019). The Chief’s motivation for the Road Project (see Fig. 9) suggests that he values modernisation projects such as roads over the preservation of traditional compound houses along the main road. The views of the chief suggest that the wider
the road, the more cars will try to pass, which in itself reproduces traffic. The views of the planner, however, are informed by the objectives of the Medium-Term Development Plan of the Municipal Assembly, which seeks to make Abuakwa a commercial hub in the Greater Kumasi Metropolitan Area.

The dualisation of the single carriage road passing through Abuakwa will provide a much wider road, but the aim of activating trading in the Abuakwa corridor may not be achieved. Interviews with peri-urban residents suggested that the completion of the Road Project was going to improve traffic flow but will collapse roadside trading. One Abuakwa resident said:

The road project is good but once it is completed, crossing it to the other side will be dangerous unless they provide overhead bridges. Cars will over speed and I am worried about the safety of our children (Interview, Abuakwa Resident, 06.01.2020).

Wider roads will trigger faster-moving traffic, which is usually dangerous for pedestrians. During the study from 2018 to 2019, much of the traffic in Abuakwa was through-traffic which encouraged trading activities along the road and in traffic. Once channelled into a dual carriageway, through-traffic is less likely to stop and support local trade and boost the local economy as the current single carriage road does. Therefore, alongside the anticipated economic ‘benefits’, evidently, the Dualisation Project was having negative effects on the finer grain of economic activity in Abuakwa. The Road Project demonstrates how one of the many ways
development projects can end vibrant roadside trade for those who may not be able to afford rental stalls or formal shop space.

**Contributions to peri-urbanisation literature**

This paper has demonstrated that unregulated spatial expansion is one of the most thought-provoking features of peri-urbanisation in Kumasi specifically, and across African cities in general. It is, of course, probable to argue that the increasing levels of urbanisation across cities in the global south, including Ghana (Cobbinah et al. 2015; UN 2017), and the recognition of urban planning practice inefficiency to address population growth and related crises such as land tenure issues (Akateeba et al. 2018) are in themselves contributors to unregulated peri-urban spatial expansion. This may be correct to some degree. However, as some writers (e.g. Acheampong et al. 2017; Cobbinah and Aboagye 2017) have argued, whilst peri-urbanisation traditionally leads to spatial expansion that is organised and provides havens of residential habitat, citadels of optimism for low-income households and theatres of dreams for immigrants, peri-urban areas also serve as zones of indigenous livelihood (particularly agriculture) abandonment, considerable ecosystem volatility, and hubs of unregulated informality, land conflicts, speculation, and infrastructure deficiency across African cities. As a result, peri-urbanisation that provides balanced outcomes and sustainable urban environment for urban and rural residents and ecosystem survival is lacking in African cities, particularly Kumasi.

Most importantly, however, this research acknowledges the centrality of spatial evolution and underlying processes framing and shaping patterns of peri-urban spatial expansion in African cities, particularly in Kumasi. Although urban planners involved in this study demonstrated strong awareness of the peri-urbanisation dynamics, a deeper understanding of many knowledge areas and analysis of planning practice critical for addressing rapid unplanned peri-urbanisation remain to be developed. First, many planning agency respondents expressed limitations with their ability to exercise control, apply and make judgments on planning decisions for peri-urbanisation in their practice in Kumasi. Expectedly, they all indicated that the land tenure system in Kumasi, favouring customary arrangements, has impacted on statutory planning agencies’ capacity to plan peri-urbanisation. Second, findings show that the case study area witnessed a spatial expansion of 50% in less than two decades. Whilst most of the underlying factors such as urbanisation, land ownership and tenure arrangements, weak urban planning and regulatory system are frequently reported in the literature (e.g. Amoateng et al. 2013; Gough and Yankson 2000; Mabin et al. 2013), this study also identifies modernisation, urban restructuring, and individual home ownership aspirations as important contributors to the peri-urbanisation discourse in Kumasi. In fact, majority of the traditional housing and development types in the case study area are rapidly morphed modernisation and urban restructuring. Third, there is a sharp contrast between planning practice in peri-urban areas, on the one hand, and the development patterns occurring in terms of land use, physical development and infrastructure and service provision, on the
other hand. Whilst majority of respondents acknowledged that planning was chasing peri-urban development due to Kumasi’s influence on peri-urban areas, some identified the limited visibility of planners in peri-urban areas.

Although this article is different from previous studies on peri-urbanisation and urban sprawl in the Global South, in that it has examined the spatial evolution, underpinning factors, and process of spatial change, it also supports earlier arguments that peri-urbanisation involves urban network patterns and land use (Shen and Karimi 2015), and spatial change is a piecemeal process, mostly unregulated (Zasada et al. 2011). It further lends credence to previous studies that peri-urbanisation in African cities is unlikely to produce sustainable development, preserve indigenous architecture, and address land use conflicts (Yankson and Bertrand 2012; Owusu-Ansah and O’Connor 2010; Owusu 2008; Simon et al. 2004). The study’s findings also strengthen the assessment that the multiplicity and complexity of factors involved in peri-urbanisation in African cities have rendered urban planners powerless (Anane and Cobbinah 2022).

In discourses of peri-urbanisation in the Global South in the context of urban planning, pillars of strong urban–rural linkages (in terms of flow of agriculture produce from peri-urban to the cities), provision and availability of infrastructure and service are much debated (Iaquinta and Drescher 2000; Mabin et al. 2013; Simon et al. 2004). This study revealed limited evidence of infrastructure provision (e.g. access roads), and increasing conversion of peri-urban agricultural land into residential and related uses in peri-urban Kumasi. Despite widespread strong functional relationship between Kumasi and its peri-urban areas, findings from this research show peri-urban areas mostly serve as dormitory towns for large cities. This, of course, is not to argue that there are no meaningful economic or industrial activities occurring in peri-urban areas in African cities. For example, as shown in Fig. 6, there are emerging commercial activities in the case study area. However, with increasing land use change occurring in peri-urban areas in African cities, it is surprising that important indigenous livelihoods such as peri-urban agriculture are increasingly abandoned in Kumasi. Unfortunately, whilst planning officials involved in this study consider the above factors as important, peri-urban areas in many African cities exhibit change but continuity of chaotic urban expansion. This research proposes that for urban planners to be at the forefront in addressing challenges of peri-urbanisation in African cities, their knowledge and skills ought to be strengthened through improved collaborations with customary land owners, and improved visibility in their communities of practice. With the generally limited planning action and increasing spatial growth of peri-urban areas in Kumasi, meaningful actions to improve peri-urbanisation can only emerge and more likely flourish by developing the knowledge and skills, coordination, and collaboration of urban planners. This will involve particularly engagement skills to empower planners to involve, lobby, value, act, and evaluate the perspectives and actions of traditional leaders and the local community.
Conclusion

The study has analysed the spatio-temporal evolution of peri-urban Abuakwa located at the outskirt of Kumasi, Ghana’s second largest city. It examined ways in which key underpinning processes influence patterns of peri-urban spatial change. Findings show that peri-urbanisation is rife in Kumasi with the case study area, Abuakwa, rapidly expanding in its spatial extent. The spatio-temporal analysis showed a substantial spatial expansion (about 50%) in the proportion of built-up area in Abuakwa in less than two decades (i.e. between 2003 and 2018). Numerous influences were stated to have contributed to the fast-paced spatial expansion of Abuakwa. Major influences identified were rapid urbanisation, land ownership and tenure provisions, weak urban planning and regulatory system, modernisation, urban restructuring, and individual home ownership aspirations. For example, the influence of Kumasi’s rapid urbanisation is not only on Abuakwa as many other peri-urban communities are experiencing rapid spatial expansion.

Findings from the study further showed that the resultant spatial organisation in Abuakwa is one that juxtaposes the compound housing and multi-habitation at the village core area. The surrounding areas are illustrative of ‘western’ style buildings and single-family tenancies. Consequently, the peri-urban community is rapidly losing its traditional architecture as private investment in foreign architecture is growing. Lending credence to the spatio-temporal analysis, interview data indicate that spatial change in Abuakwa is shaped by a multifaceted convention of manifold processes. These are happening correspondingly and trigger different arrangements of physical development epitomised by spatial expansion of the surroundings. There are both intended and unintended outcomes of the various forms of physical development. For example, via the land distribution controls entrusted to traditional authorities, the community-level decisions on land leasing trigger procedures that dictate spatial change which is inconsistent with formal planning requirements. The Abuakwa case sheds light on how the regulated development that was anticipated in approved planning schemes can produce ‘unregulated and problematic’ outcomes when the regulatory powers of traditional authorities and statutory institutions clash, overpower relations, and fail to enforce compliance.

Based on the preceding insights, this research contends that improving coordination and partnership between traditional and planning authorities in planning scheme preparation and implementation in Abuakwa and other peri-urban communities would lead to regulated pattern of spatial development. The study recommends for planning authorities to institute an integrated planning process that fully engages planners and surveyors to ensure that the latter does not stake out plots for development without the involvement of the former. As to whether planners, surveyors, and the other stakeholders are trained or prepared for such an integrated planning system is yet another discussion. This study recommends regular engagement between the land sector agencies on matters bordering on land use and peri-urban development. As earlier discussed, both traditional authorities and agency officials recognise the value and consequences of regulated peri-urbanisation on the sustainable future of Abuakwa. They, however, find it challenging to
cooperate due to power relations contributing to limited enforcement of land use planning requirements. It is, therefore, important for statutory planning agencies not to consider traditional authorities as competitors but to collaboratively work with them to improve the image of planning in ongoing peri-urbanisation. This will result in the formulation of practical and acceptable planning schemes in peri-urban areas, and protection of important traditional architecture.

In summary, the importance of regulating peri-urbanisation process is a public policy matter, as it improves the functionality of cities, promote sustainable development initiatives, and support healthy living in this era of fast-paced urbanisation. This study thus concludes that the process of spatial change assumes a drastic permanent transition, producing less credence to intermediate and temporary land uses. Thus, the need to regulate peri-urbanisation to ensure sustainable spatial transformation.

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Declarations

Conflict of interest No potential or actual conflict of interest reported.

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