



# The changing urban-rural interface of African cities: definitional issues and an application to Kumasi, Ghana

David Simon, Duncan McGregor and Kwasi Nsiah-Gyabaah

David Simon is professor of development geography at Royal Holloway, University of London, and has wide research experience on urbanization, development and environmental issues in sub-Saharan Africa and tropical Asia.

Address: Centre for Developing Areas Research (CEDAR), Department of Geography, Royal Holloway, University of London, Egham, Surrey TW20 0EX, UK; e-mail: d.simon@rhul.ac.uk

Duncan McGregor is senior lecturer in geography at Royal Holloway, University of London. He has worked on land degradation and environmental change, principally in the Caribbean, Latin America, Ghana and Kenya.

Address: Centre for Developing Areas Research (CEDAR), Department of Geography, Royal Holloway, University of London, Egham, Surrey TW20 0EX, UK; e-mail: d.mcgregor@rhul.ac.uk

Kwasi Nsiah-Gyabaah is principal of Sunyani Polytechnic in Ghana. He holds a PhD from Wye College, University of London, and has worked on several DFID NRSP projects in the country.

Address: Sunyani Polytechnic, Sunyani, Brong Ahafo, Ghana; e-mail: spolytec@ghana.com

**SUMMARY:** This paper discusses the growing interest among researchers and international agencies in better understanding the rural-urban interface in Africa. It also illustrates the key features of this interface and associated definitional issues, drawing on research in eight villages around the city of Kumasi in Ghana. All villages had processes of change linked to Kumasi, although with very different degrees of, for instance, the extent of land commercialization and its use for housing, the provision for infrastructure, and the proportion of the workforce in non-agricultural work or commuting to Kumasi. The extent of the changes in villages was influenced by many factors other than distance or accessibility, including whether the village was within Kumasi's boundaries, the power of local inhabitants in negotiations with local government, and where land for settlement by new migrants was most readily available. This supports the concept of a non-linear and non-uniform gradient of urban influences on peri-urban areas.

## I. INTRODUCTION

THE TERMS "URBAN" and "rural" are still often used colloquially, as if they were clearly different and even mutually exclusive, and most people have clear mental conceptions of some ideal landscape corresponding to each. However, this simple dichotomy has long ceased to have much meaning, either in practice or for policy-making purposes in many parts of the South, not least sub-Saharan Africa. This is because rapid urban population growth and an expansion of the built-up area, technological change, global economic restructuring and the impact of externally-driven macro-economic adjustment policies have combined to alter the interface between "urban" and "rural" quite profoundly in many places.

Nowhere is there a neat dividing line where the city meets the savannah, bushveld, forest or desert. The process has been differentiated according to combinations of the following factors:

- the size and structure of the existing city;
- the composition of the urban and migrant populations in terms of age, sex, family and household structure (including multi-local households), ethnic, cultural and religious diversity, educational and income levels, urban experience and so forth;
- extensive oscillating or circular migration, with multi-local households often spanning rural areas and different categories of urban centre;
- physical terrain and environmental barriers beyond the existing built-up area;

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- the orientation, accessibility and affordability of transport networks;
- land tenure systems, land values and land uses surrounding the city; and
- sometimes substantial differences between administrative/political and *de facto* urban boundaries, which may give rise to contestations over boundaries, dividing jurisdiction between urban and non-urban local authorities and/or between traditional and state authorities.

As a result, there are today different types of transition zone between city and countryside, between what is unambiguously “urban” and supposedly typically “rural”. Some may resemble relatively uniform sprawl, others honeycomb structures or spines of growth along specific corridors. These transition zones – generally known as “peri-urban areas” in English – vary in width and nature, and are subject to rapid change with increasing urban pressures. Many indigenous villages, previously located in rural areas a considerable distance from the city, have experienced in-migration, growth, changes in population composition, land use and economic base. As a generalization, the closer the city comes, the more pronounced is the transition from “rural” to “urban” characteristics. Eventually, these settlements become part of the built-up urban area, which then comprises a complex mixture of formal houses, shanties, rural huts and other dwellings. Although the dwellings may be rebuilt in more urban styles over time, these areas often retain distinct identities and even traditional chieftaincy structures. In addition, urban-style land use regulations, often introduced under town-planning legislation and embodied in village layout plans, are often ignored on the ground by the land alienation practices of chiefs. As indicated above, such issues could bring traditional and state authorities into conflict. Furthermore, peri-urban areas may fall within combinations of urban and/or rural local authority boundaries. Subsequent boundary changes to reflect the results of rapid urban growth could then change their administrative status.

The objective of this paper is to provide an assessment of recent approaches to the study of peri-urban zones or interfaces, with particular reference to Africa. The general arguments are then illustrated with data from a recently completed research project, Peri-urban Natural Resource Management at the Watershed Level in Kumasi, undertaken for the UK Department for International Development (DFID). Data from a structured sample of eight villages in and around Kumasi are analyzed to show the diversity of conditions at different positions within the peri-urban zone. These findings support the notion of an (admittedly non-linear and non-uniform) urban–rural gradient with increasing distance from the city, and thus validate the application of the peri-urban interface concept to Kumasi.

## II. SITUATING THE PERI-URBAN

### a. Beyond the built-up city: peri-urban areas and urban footprints

*THE PERI-URBAN Interface: A Tale of Two Cities*,<sup>(1)</sup> a publication arising directly from DFID’s peri-urban interface research programme in Kumasi and Hubli–Dharwad, India, represents probably the only book-length treatment of peri-urban dynamics, although it was quickly followed by a more popular booklet on Hubli–Dharwad’s peri-urban interface based on the same body of research.<sup>(2)</sup> Even today, little if any attention is devoted to peri-urban zones in most of the many journal articles and individual chapters on

Earlier versions of parts of this paper appeared as: Simon, David (2001), “Veränderungen von urban-ländlichen Zonen in afrikanischen Städten”, *Peripherie* Vol 81/82, pages 138–162, and benefited from thoughtful discussion of an earlier draft at the conference on African Urban Economies at the African Studies Centre, University of Leiden, 9–11 November 2001. The Kumasi material was collected during the course of Project R7330: Peri-urban Natural Resource Management at the Watershed Level, Kumasi, Ghana (1999–2002). The collaboration of several colleagues, especially Mrs Hilary Warburton and Mrs Vesta Adu-Gyamfi, is gratefully acknowledged. The original version of the paper appeared as Project R7330 Kumasi Paper 1 in January 2001. As such, this is also an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID. Helpful comments by the anonymous referees on drafts of this paper are also acknowledged.

1. Brook, Robert M and Julio D Dávila (editors) (2000), *The Peri-urban Interface: A Tale of Two Cities*, School of Agricultural and Forest Sciences, University of Wales, Bangor, and Development Planning Unit, UCL, London.

2. Brook, Robert, Sangeetha Purushothaman and Chandrashekar Hunshal (2001), *Changing Frontiers: the Peri-urban Interface Hubli–Dharwad, India*, Books for Change, Bangalore.

3. Guyer, Jane I (editor) (1987), *Feeding Africa’s Cities; Studies in Regional Social History*, Manchester University Press, Manchester; also Sanyal, B (1987), “Urban cultivation amidst modernization: how should we interpret it?”,

*Journal of Planning Education and Research* Vol 6, pages 197–207; Rakodi, Carole (1988), "Urban agriculture: research questions and Zambian evidence", *Journal of Modern African Studies* Vol 26, pages 495–515; Freeman, Donald B (1991), *A City of Farmers; Informal Urban Agriculture in the Open Spaces of Nairobi*, McGill University Press, Montreal; Smit, Jac and Joe Nasr (1992), "Urban agriculture for sustainable cities: using wastes and idle land and water bodies as resources", *Environment and Urbanization* Vol 4, No 2, pages 141–152; Gefu, Jerome O (1992), "Part-time farming as an urban survival strategy: a Nigerian case study", in Baker, Jonathan and Poul Ove Pedersen (editors), *The Rural-Urban Interface in Africa: Expansion and Adaptation*, Nordiska Afrikainstitutet, Uppsala; and Memon, Pyar A and Diana Lee-Smith (1993), "Urban agriculture in Kenya", *Canadian Journal of African Studies* Vol 27, No 1, pages 25–42.

4. Marshall, Judith and Otto Roesch (1993), "The 'green zones' agricultural co-operatives of Nampula city: a new phase in the Mozambican co-operative movement?", *Journal of Southern African Studies* Vol 19, No 2, pages 240–272.

5. Briggs, John and Davis Mwamfupe (1999), "The changing nature of the peri-urban zone in Africa: evidence from Dar-es-Salaam, Tanzania", *Scottish Geographical Journal* Vol 115, No 4, pages 269–282 (especially pages 269–272); also Briggs, John and Davis Mwamfupe (2000), "Peri-urban development in an era of structural adjustment in Africa: the city of Dar es Salaam, Tanzania", *Urban Studies* Vol 37, No 4, pages 797–809; and Acho-Chi (1998), "Human interference and environmental instability: addressing the environmental consequences of rapid

African cities within more general edited books.

Since the 1980s, the importance of peri-urban areas as a source of urban food supply has been underlined by the growing body of research on urban agriculture, even though much of this literature concentrates largely on urban areas themselves, and the "peri-urban" has been treated in different ways.<sup>(3)</sup> A notable exception is Marshall and Roesch's study of land tenure and food production in the *zonas verdes* (green zones) surrounding Nampula in Mozambique, which examines how many predominantly female producer cooperatives gained access to high-quality land to supply the urban market successfully before the wave of land privatization during the 1990s.<sup>(4)</sup> Briggs and Mwamfupe argue that concern with expanding urban agriculture, along with subsequent critiques of this phenomenon and its promotion, and research into subsistence versus commercial production priorities there, have been largely responsible for the resurgence of interest in peri-urban zones across Africa since the early 1990s; more recently, attention has also embraced the emergence of formal and informal land markets and the related land-use changes in peri-urban areas.<sup>(5)</sup>

Of particular relevance here is the paper by Maxwell and colleagues,<sup>(6)</sup> which highlights the differences in processes in four peri-urban sites around the Ghanaian capital, Accra. Depending on specific combinations of circumstances, these areas have variously experienced one or more of the following: land loss to housing, economic transformation away from agriculture, agricultural intensification and commercialization, environmental degradation, and agricultural decline without replacement by alternative economic activities.

Although the terminology and approach of livelihood strategies, including diversification and risk-spreading rather than merely strategizing for survival, have rarely been applied to such published work on peri-urban areas, they have been adopted within some ongoing donor-sponsored research;<sup>(7)</sup> also, DFID has sponsored a recent edited book<sup>(8)</sup> to demonstrate applications of the approach to urban areas. As the livelihoods framework recognizes, many people's livelihood strategies embrace urban, peri-urban and/or rural areas.<sup>(9)</sup> This provides another reminder of the contextual meanings and significance of these terms.

More generally, the growing debate in the early 1990s about urban sustainability helped to concentrate attention on the impacts of cities beyond their boundaries. William Rees introduced the now-popular term "urban ecological footprint" to capture these relationships in terms of the importance of thinking about sustainable cities as parts of wider sustainable systems.<sup>(10)</sup> This concept refers to the impact of an urban area on the environment, ecology and natural resources often well beyond its boundaries, in terms of "appropriated carrying-capacity". This involves both source and sink functions, in terms of which resources (including people [as migrants and commuters], construction materials, fuelwood and other energy sources, and food and water) are supplied to cities, while urban manufactured products, services, effluents and wastes from them are sold, dumped or diffused elsewhere. The precise balance of positive and negative impacts, and their spatial extent, vary over time and between locations.<sup>(11)</sup> However, by virtue of their spatial contiguity, peri-urban zones commonly – but not necessarily – experience some of the most substantial impacts.

In turn, these issues have now been linked to the stated objectives of several multilateral and bilateral donor organizations, including DFID, to reduce or eliminate poverty,<sup>(12)</sup> although the peri-urban has been defined or conceptualized in very diverse ways, if at all. Since the majority of

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rural–urban migrants in most parts of the global South nowadays are relatively and/or absolutely poor, they have a great impact on overall levels and intensities of urban poverty already often exacerbated by structural adjustment and liberalization policies. Moreover, the difficulties of finding and/or affording accommodation within the existing city means that for some considerable time already, a substantial proportion of predominantly poor urban dwellers have resorted to the urban fringe or peri-urban areas to buy, rent or construct their own shelter. All these factors have combined to create a very dynamic and important peri-urban transitional or interface zone between city and countryside, between the urban and the rural. This raises obvious definitional difficulties, to which we now turn.

### b. Defining the peri-urban

DFID is funding a research programme on the “peri-urban interface” (PUI) as one of the “production systems” within its ten-year Natural Resources Systems Programme (NRSP), a multimillion pound initiative launched in 1995. The natural resource focus gives the NRSP a strong rural orientation, but the PUI programme represents a conscious strategy to generate new knowledge on the dynamics of change and to ascertain what may be distinctive with respect to the implications of urbanization for natural resource use and the environment. Initially, the NRSP defined the peri-urban thus:

*“The peri-urban interface is characterized by strong urban influences, easy access to markets, services and other inputs, ready supplies of labour, but relative shortages of land, and risks from pollution and urban growth. It can be divided into two zones:*

- *a zone of direct impact – which experiences the immediate impacts of land demands from urban growth, pollution and the like; and*
- *a wider, market-related zone of influence – recognizable in terms of the handling of agricultural and natural resource products.”*<sup>(13)</sup>

As Mbiba and Huchzermeyer point out,<sup>(14)</sup> there has been some divergence of view – and even uncoordinated duplication of research and review effort – with respect to the PUI between different arms of DFID and other agencies. However, the above definition forms a useful starting point for the main section of this paper, although we do not make such a clear-cut sub-division within the peri-urban area, preferring instead the notion of an approximate continuum. It is also worth pointing out that even within the NRSP’s PUI programme, different definitions have been adopted by the parallel streams of research on Hubli–Dharwad in India and Kumasi in Ghana. For the former, the definition used has been loosely “...the area comprised within the Hubli–Dharwad city region but outside the core urban area, and encompassing the villages connected to Hubli and Dharwad by city bus services.”<sup>(15)</sup> Similarly, Phillips and colleagues<sup>(16)</sup> suggest a radius of about 40 kilometres around Kumasi as approximating the peri-urban interface. In contrast, the original baseline study for Kumasi differed significantly and avoided setting such spatial limits on account of their only brief value in a situation of rapid growth, and because various activities and processes would straddle any such arbitrary boundary. Instead, the villages selected for study were included by virtue of having bush/fallow agriculture, but experiencing competition for land with non-agricultural uses.<sup>(17)</sup> Our own approach, as set out below, is broadly compatible with this, but goes further. Accordingly, it appears that no single definition will fit all circumstances and situations, unless couched in broad and functional terms rather than

urban growth in Bamenda, Cameroon”, *Environment and Urbanization* Vol 10, No 2, October, pages 161–174.

6. Maxwell, David, W Odami Larbi, Grace M Lamptey, Sawudatu Zakariah and Margaret Armar-Klemesu (1999), “Farming in the shadow of the city; changes in land rights and livelihoods in peri-urban Accra”, *Third World Planning Review* Vol 21, No 4, pages 373–391.

7. See reference 1; also Mbiba, Beacon and Marie Huchzermeyer (2002), “Contentious development: peri-urban studies in sub-Saharan Africa”, *Progress in Development Studies* Vol 2, No 2, pages 113–131.

8. Rakodi, Carole with Tony Lloyd-Jones (editors) (2002), *Urban Livelihoods; a People-centred Approach to Reducing Poverty*, Earthscan, London.

9. Diyamett, Bitrina, Mathew Diyamett, Jovita James and Richard Malaba (2001), *The Case of Nimo and its Region, Northern Tanzania*, IIED Working Paper 1 on Rural–Urban Interactions and Livelihood, IIED, London.

10. Rees, William E (1992), “Ecological footprints and appropriated carrying-capacity: what urban economics leaves out”, *Environment and Urbanization* Vol 4, No 2, pages 121–130.

11. Drakakis-Smith, David (1995), “Third World cities: sustainable urban development, 1”, *Urban Studies* Vol 32, No 4–5, pages 659–677; also Pugh, Cedric (editor) (1996), *Sustainability, the Environment and Urbanization*, Earthscan, London; Mitlin, Diana and David Satterthwaite (1996), “Sustainable development and cities”, in Pugh, Cedric (editor), see above; Satterthwaite, David (1997), “Sustainable cities or cities that contribute to sustainable development?”, *Urban Studies* Vol 34, No 10, pages 1667–1997; Simon, David

(1999), "Rethinking cities, sustainability and development in Africa", in Kalipeni, Ezekiel and Paul Tiyambe Zeleza (editors), *Public Quarrels and Sacred Spaces; African Cultural and Economic Landscapes*, Africa World Press, Trenton, NJ, USA; Yankson, Paul and Kate Gough (1999), "The environmental impact of rapid urbanisation in the peri-urban area of Accra", *Danish Journal of Geography* Vol 99, No 1, pages 89–100; and Siddiqui, Mansoor Alam (2000), *Urban Impact on Fringe Areas*, BR Publishing, Delhi.

12. Burnell, Paul (1998), "Britain's new government, new White Paper, new aid? Eliminating world poverty: a challenge for the 21st century", *Third World Quarterly* Vol 19, No 4, pages 787–802; also, see reference 1; see reference 7, Mbiba and Huchzermeyer (2002); and see reference 8.

13. Phillips, David, Keith Williams, Gavin Andrews, Judith Clarke, Matt Carter, Phillip Kinsman, David Smith, Katie Willis, Ian Bradbury, Kegang Wu and Annie Hillyer (1999), "Literature review on peri-urban natural resource conceptualisation and management approaches", Final Technical Report, DFID Natural Resources Systems Programme, Project R6949, University of Nottingham and University of Liverpool, pages 5–6.

14. See reference 7, Mbiba and Huchzermeyer (2002), pages 118–9.

15. See reference 1.

16. See reference 13.

17. See reference 1, pages 13 and 25–6.

18. Conversely, the peri-urban zone should also be considered as part of the adjacent rural area for purposes of an holistic approach to rural research and development, as there are two-way influences and interactions.

attempting to set discrete spatial limits.

Hence, our emphasis now is on conceptual distinctions and a process orientation. This is more appropriate for examining the continuum between the poles of urban and rural and understanding the dynamics of change as they affect particular parts of the peri-urban zone, as well as shifts in the position of the zone as a whole. Theoretically, a peri-urban zone may change in width and the steepness of what we might call its rural–urban gradient over quite short periods of time, depending on the nature of pressures within the growing metropolis and of migration towards it. Similarly, there is little conceptual value in seeking to discern empirical regularities, e.g. whether particular city size classes have similar peri-urban features, because of:

- the divergent rates of change around cities that are of similar size but located in regions of different degrees of economic dynamism; and
- the likely influence of sociocultural and environmental differences in creating diverse situations in cities of comparable size.

It is thus unhelpful to expect uniform processes in different circumstances. We need greater flexibility of concept. In practice, the extent of peri-urban zones varies for the reasons just indicated, although 30–50 kilometres beyond the urban edge is a reasonable generalization for large cities; major metropolises may have even wider zones.

As a generalization, there is commonly a gradient between more "urban" and more "rural" segments within a peri-urban zone. This gradient slopes away from the city but is not of uniform steepness either across the entire zone or in all directions. Indeed, there may well be islands of "urbanness" in the outer (more rural) segment if pre-existing settlements of considerable size and distinctive economic mix have recently come to be within the zone. In time, these may be absorbed into the expanding city, as has already happened to many proximate villages and other settlements. Conversely, but more unusually, zones or pockets of more rural character may persist within the growing urban area on account of particular environmental, political, institutional or social and cultural factors.

For many purposes, it is important to consider the peri-urban zone as an extension of the city rather than as an entirely separate area.<sup>(18)</sup> This is because the city–region functions in a more or less integrated way in terms not only of its ecological footprint but also of its economic and demographic processes. For instance, agricultural markets provided by rapidly growing urban populations may stimulate commercial production in peri-urban and closer rural areas (see the Nampula example cited above), while landscapes of leisure and pleasure in the PUI may cater to urban and international clientele. In practice, there are often obstacles to adopting such an integrated functional perspective, let alone to implementing integrated policies. One can distinguish several reasons for this:

- Urban and peri-urban areas commonly fall under separate administrative jurisdictions, with different resources, capacities and political leanings. In many metropolises, the municipal or metropolitan council boundaries have been expanded to take account of rapid urban growth, e.g. Greater Harare and Nairobi during the 1970s. However, this has often divided the peri-urban zone, either immediately or after a further period of urban growth, with the inner segment falling within the town and townlands and the outer segment then falling within one or more peri-urban or rural jurisdictions. Sometimes, however, as in China, the expanded metropolitan boundaries may still encompass the entire peri-urban zone.

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- Responsibility for the provision and maintenance of infrastructure and services may lie with different government departments or agencies, at central, regional and local government levels.
- Following on from the above, census or other urban statistical databases seldom cover the entire area. Compiling inclusive data sets is therefore time-consuming and difficult, especially if they have different base years or geographical extents and accuracy of coverage.
- There is no tradition of holistic planning, so that most officials adhere to narrow conceptual and procedural guidelines. Traditional bureaucratic procedures invariably discouraged integration across sectors, agencies and areas; this is beginning to change only slowly and unevenly in the face of demonstrable failures of existing practices, and the examples being demonstrated by externally funded initiatives.
- In terms of ecological footprints, it is often in the interests of urban officials and planners not to have to engage with, and bear responsibility for, waste disposal and environmental quality “downstream”, beyond the jurisdiction of the local authority. They may therefore seek to avoid such integrated city–region initiatives.
- Villages and rural areas that are becoming more closely associated with and enmeshed in the city’s sphere of influence in its peri-urban zone often have distinct histories and identities which the inhabitants are keen to safeguard, even if their lives become more integrated into the urban economy and society over time. Being an analytical concept used in geography and planning, the term “peri-urban” or “urban fringe” is also alien to the vast majority of local people. Instead, village membership is often retained as the main source of community identity, even long after settlements have been enveloped by the expanding city, as will be demonstrated below.

### III. THE PERI-URBAN CONTINUUM: A CASE STUDY OF KUMASI

THE CENTRAL AIM of the Kumasi peri-urban project was to formulate a participatory framework for sustainable local environmental management at the scale of individual watersheds in and around Kumasi, the second city of Ghana.<sup>(19)</sup> Watersheds, or catchments, are increasingly seen as appropriate units for integrated water and other resource conservation and (co-) management, since they are naturally determined physiographic entities. The principal focus is not directly relevant to this paper, but baseline research into the peri-urban dynamics and changes that underlie the project has provided useful data for illustrating the general arguments outlined above.

Kumasi now has a population of over 1 million according to local experts and preliminary results from the national census of March 2000. It has been growing rapidly in recent years and urban poverty and environmental problems are widespread. The political situation in and around Kumasi is also complex, a factor not unrelated to the extent of these problems,<sup>(20)</sup> which are distinct from, albeit in some ways comparable to, those prevailing around Accra.<sup>(21)</sup> Kumasi’s peri-urban zone has been undergoing profound changes, not least an outward movement as the city absorbs previously peri-urban land. Estimates of its width range from 20 to 40 kilometres, but this has changed over time and is almost certain to continue doing so with future urban growth.<sup>(22)</sup> The zone is also not of uniform width around the city, being most extended along the major trunk roads to the east (the Accra

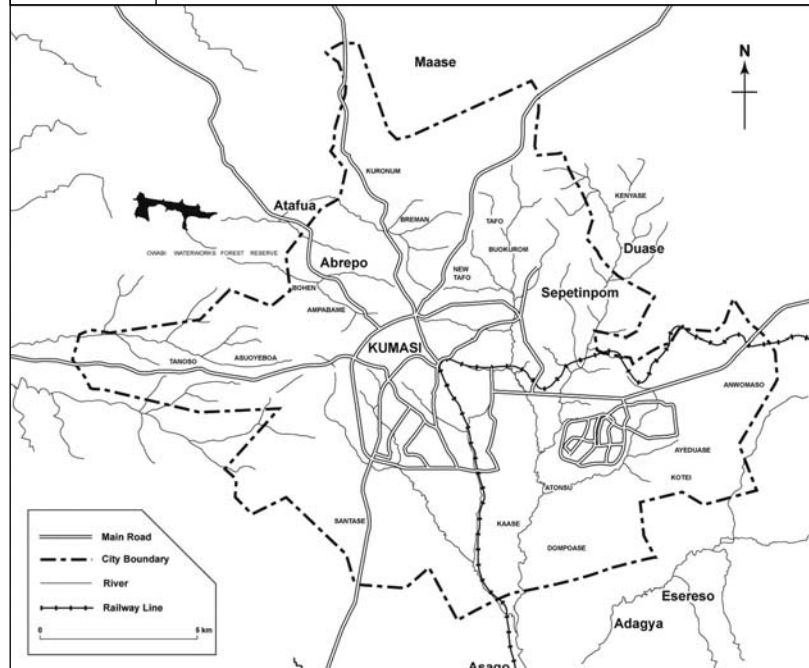
19. DFID Project R7330: Peri-urban Natural Resource Management at the Watershed Level: Kumasi, Ghana (1999–2002).

20. Devas, Nick and David Korboe (2000), “City governance and poverty: the case of Kumasi”, *Environment and Urbanization* Vol 12, No 1, April, pages 123–135; also Adarkwa, Kwafu K and Johan Post (editors) (2001), *The Fate of the Tree; Planning and Managing the Development of Kumasi, Ghana*, Thela Thesis and Woeli, Amsterdam and Accra.

21. Gough, Katherine (1999), “The changing nature of urban governance in peri-urban Accra, Ghana”, *Third World Planning Review* Vol 21, No 4, pages 393–410.

22. See reference 1.

**Figure 1: Kumasi and its surrounds**



road), north and west (Figure 1), and where resources – including land for settlement by new migrants (both Ashanti indigenes and “strangers” from northern Ghana and Burkina Faso) – are most readily available.

In order to capture a representative cross-section of prevailing conditions in different segments and positions within the peri-urban zone surrounding Kumasi, the research team identified a total of eight villages in which to undertake detailed research and to develop and test participatory approaches. These villages are situated in two representative watersheds that run through parts of the peri-urban and urban areas (Figure 1). The eight communities were studied in considerable depth, using a combination of conventional and participatory methods, both qualitative and quantitative. One of these villages was also included in previous and closely related DFID-funded projects,<sup>(23)</sup> thus giving a greater time-depth to the database and our understanding of its problems. In keeping with the objectives of this paper, only issues relevant to the nature of the peri-urban zone will be addressed here.

Since the objective of this and related projects was to address the impacts of rapid urbanization on livelihoods and poverty in the peri-urban zone, the eight villages selected vary in their key characteristics along an urban–rural continuum, but are located within what we might consider the inner to middle segments of Kumasi’s peri-urban zone. In other words, they lie some 6–12 kilometres from the city centre as the crow flies, but the actual road distances are considerably further in some cases. Given the current high levels of traffic congestion, travel times are long (up to one hour) during much of the working day, and often longer at peak times. Travel time, rather than either linear or road distance, is generally regarded as the most appropriate indicator of accessibility. In turn, accessibility is a key

23. Especially R6799: Kumasi Natural Resources Management Programme. See Adam, Martin et al. (2000), “Final technical report for DFID Natural Resources Systems Programme (NRSP) Project 6799”, Kumasi Natural Resources Management Programme, Natural Resources Institute, University of Greenwich, London.

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determinant of the rate of change and increases in urbanness among peri-urban villages.

Two of the eight villages, Abrepo and Sepetinpom, now form part of the Kumasi built-up urban area. Duase lies just on the urban fringe, and Esereso is already experiencing rapid development of luxury suburban villa-style housing at the same time as Kumasi's expanding main industrial area is approaching the northern and northeastern fringes of its village lands. The other villages remained distinct physical entities in 2002, with Adagya and Asago being the least accessible and poorest. Even so, over the course of this project, there was evidence of infrastructural improvements and gradual modernization there, as road-upgrading, the extension of electricity and telephone networks and the completion of borehole projects took place in Asago, the poorest and hitherto most isolated village. The built-up urban fringe also continues to draw closer.

Discussions with villagers during our participatory village appraisals provided clear support for the sense of increasing urban pressures and influences over the longer term. Asked about the major changes in their village since 1983 (the year of a severe drought in the region, which inscribed the date in people's minds), there was a remarkable consistency of response from different groups of villagers in all eight settlements. The precise rankings varied according to the interests of the respective discussion groups according to gender, status and occupation, as well as in terms of each village's proximity to Kumasi and the precise range of facilities now available in each. However, a clear and consistent picture emerged of:

- increased population size due principally to in-migration of both indigenes and strangers, the latter mainly from distant rural areas (including neighbouring countries) or other cities, and the former both from rural areas and, increasingly, from the city itself, in search of available building land;
- declining areas of available agricultural land and land under cultivation;
- reduced farm size due to pressure of population growth;
- decreased soil fertility close to the villages;
- shortened fallow periods;
- reduced crop yields;
- gradual increases in the number and range of facilities and infrastructure – especially boreholes or hand-dug wells, access roads, primary and junior secondary schools, pit latrines and, in some cases, a clinic, Kumasi ventilated improved pit latrines (KVIPs), electricity and piped water;
- increasing legal and illegal mining of sand within village lands, often with no remedial rehabilitation once the resource is exhausted; and
- increasing sale of land by the chief for housing and commercial development.

Land conversion to residential and other non-agricultural uses was most intense (and the price per plot highest) in villages most accessible to Kumasi; in Abrepo and Sepetinpom virtually all land was already urban in use. These two villages have KVIPs, as do a few others, and refuse removal services. Clinics, electricity and the like are also clearly associated with being in or close to the urban area. However, the availability of such infrastructure should not be taken to mean universal accessibility by villagers or, indeed, adequate service provision. Many residents cannot afford the connection or user charges for electricity; refuse collection by the Kumasi Metropolitan Assembly is notoriously inadequate and subject to interruption during disputes or when finances are exhausted; and latrines may be poorly maintained and inadequate to cope with current needs.



Variables not shown in the tables are housing type and quality within the eight villages, which are also commonly-used indicators of modernity and the influences of urbanization. These variables also follow a similar pattern. At the urban end of the spectrum, it is physically and visually impossible to distinguish Abrepo and Sepetinpom from adjacent urban neighbourhoods: there is no visible boundary or break in the densely-built housing and no clear differences in architecture, size or quality of the dwellings. In the intermediate group of villages, there is a mix of housing styles, sizes, construction materials and decorative features, reflecting sharp income, occupational and status inequalities as the residents' profile changes. New villa-style houses, boasting all modern conveniences and surrounded by high walls and gardens, contrast sharply with older, often poorly-maintained homes constructed during the colonial era or shortly thereafter, and also some more traditional houses built of wood, mud and clay, with thatched or corrugated iron roofs. At the opposite end of the spectrum, Asago comprises almost entirely dwellings built from traditional materials, albeit in some cases with corrugated iron roofs instead of thatch. The houses vary in size and age but are mostly in a poor state of repair; some seem scarcely capable of offering protection against the heavy tropical rain. The paths and spaces between the houses are not well maintained and rainwater rills are evident in many places. In a sharp echo of urban apartheid, there is also a separate area, the *zongo*, for strangers, who hail mainly from northern Ghana or Burkina Faso. This is separated from the indigenes' part of the village by a *cordon sanitaire* of open land. Somewhat ironically, though, the average condition of *zongo* dwellings is no worse, and in some cases is better, than those of the indigenes.

Urbanization pressures and the availability or appropriateness of land for new settlement are also reflected in plot prices and the rate of conversion of farm or open land to residential and commercial or industrial uses.

Overall, there is a clear (but by no means linear) gradient with respect to different indicators of "urbaness" and "rurality", which are well correlated with one another. Tables 1 and 2 illustrate this point with respect to the relationships between distance from the city (Figure 1) and accessibility on the one hand, and the variables of infrastructural quality, available facilities, and livelihood strategies and occupational profiles on the other. Adagya and Asago are at the opposite end of the spectrum from Abrepo and Sepetinpom, with Duase, Maase and Esereso forming an intermediate group.<sup>(24)</sup> Maase should have been connected to the electricity grid several years ago, but some of the copper wiring was stolen before the cabling could be completed and the connection made. Successive delays have frustrated the villagers ever since. Atafua is in a somewhat anomalous position (Tables 1 and 2).

The range in the occupations of both men and women, and the consequent nature of villagers' livelihood strategies, as illustrated in Table 2, is marked. The proportion of non-agricultural, and especially service, occupations increases with greater proximity to Kumasi. Also noteworthy is a significant inter-generational shift away from agriculture towards services, in particular, among both men and women. This is evident across the rural-urban continuum but is clearest in those villages close to Kumasi, where greater opportunities for, and accessibility to, non-agricultural activities exist. Nevertheless, poorer households commonly have diversified livelihood strategies, involving subsistence and other activities. Adjectives such as "few", "some" and "most" in Table 2 are those used by the villagers in our participatory discussions, which were deliberately qualitative. Research for a related project in other peri-urban villages has shown a

24. McGregor, Duncan, David Simon, Donald Thompson, James Quashie-Sam, Kwasi Nsiah-Gyabaah, Martin Adam, Judith Pender, Richard Pole and Hilary Warburton (1999), "Inception report for Project R7330: Peri-urban Natural Resources Management at the Watershed Level, Kumasi, Ghana (1999-2002)", Centre for Developing Areas Research (CEDAR), Department of Geography, Royal Holloway, University of London, Egham, Surrey.

## FEEDBACK

<b>Table 1: Facilities in villages</b>						
Village	Electricity installed	Piped water	School*	Market	Trotro cost to Kumasi**	Other facilities and activities
Abrepo	1968	Yes	SSS	No	300	Many: phones, small enterprises
Sepetinpom	1971	Yes	JSS	Yes	300	Many: phones, small enterprises
Esereso	1991	No	JSS	Yes	350	Some: phones, small enterprises
Duase	1992	Yes	JSS	No	300	Few: quarry nearby
Maase	No	No	JSS	No	500	Few
Atafua	No	Yes	Close by	No	300	Four poultry farms;*** tile factory
Adagya	1997	No	PS	No	450	Few: four poultry farms
Asago	1999	No	PS	No	400	Few

\*Abbreviations used: PS: primary school; JSS: junior secondary school; SSS: senior secondary school.

\*\* These were the fares in September 1999. Due to the rapid depreciation of the Ghanaian Cedi against hard currencies, and the related increases in fuel prices, these fares have subsequently risen substantially. However, the relative fares have remained constant, providing a good proxy measure for distance and/or time from Kumasi, which is why they are included here.

\*\*\* These are fairly intensive commercial operations geared to the urban market, and are very different from conventional rural poultry-rearing in this region.

SOURCE: McGregor, Duncan, David Simon, Donald Thompson, James Quashie-Sam, Kwasi Nsiah-Gyabaah, Martin Adam, Judith Pender, Richard Pole and Hilary Warburton (1999), "Inception report for Project R7330: Peri-urban Natural Resources Management at the Watershed Level, Kumasi, Ghana (1999-2002)", CEDAR, Department of Geography, Royal Holloway, University of London, Egham, Surrey.

significant inter-generational occupational shift out of agriculture and into urban productive and service jobs, especially those requiring apprenticeships rather than formal qualifications.<sup>(25)</sup>

Overall, it is important to note that there is no inevitable or simple relationship between the different variables in the tables. For example, Atafua is one of the more accessible villages to and from Kumasi, and hence the majority of villagers there are engaged principally in non-agricultural jobs. However, Atafua is also one of the least urbanized villages. The intermediate group, in particular, contains villages with diverse combinations of features and facilities. This is entirely consistent with the conceptions of the peri-urban zone or interface explored above.

25. See reference 23.

Village	Older men	Older women	Young men	Young women	Job location
Abrepo	Some farmers, trades, construction	Some farmers, trading, sewing, teaching	Few farmers, trades, construction	Very few farmers, petty trade, construction labour	Most in Kumasi
Sepetinpom	About half farmers, trades, trading	About half farmers, trading, cooked foods, fish-smoking	Few farmers (mainly outside village), trades, steelworks, trading	Few farmers, trading	Most in Kumasi
Esereso	Some farmers, trades, sawmills, trading	About half farmers, trading, cooked food, teachers	Few farmers, trades, sawmills, construction	Some farmers, trading, hairdressing, sewing	About half in Kumasi
Duase	Some farmers, trades, cocoa, steelworks	Majority farmers, trading	Some farmers, trades	Very few farmers, trading, hairdressing, sewing, construction labour	Most in Kumasi
Maase	Almost all farmers, weaving, trading	Most are farmers, petty trade, cooked foods	Majority farmers, weaving, trades	Less than half farmers, petty trade, construction labour	Most in village
Atafua	Few farmers, trades, construction, trading	Majority farmers, trading, cooked foods, construction labour	About one-third farmers, trades, construction labour	Very few farmers, petty trade, hairdressing, sewing	Most in Kumasi
Adagya	Almost all farmers, trading, palm wine	Almost all farmers, petty trade, cooked foods	Most are farmers, trades, steelworks	Most are farmers, petty trade	Most in village
Asago	Almost all farmers, fishing, sawmills	Almost all farmers, trading, fish-trading	Most are farmers, trades, sawmills, fishing	Majority farmers, petty trade	Most in village

SOURCE: McGregor, Duncan, David Simon, Donald Thompson, James Quashie-Sam, Kwasi Nsiah-Gyabaah, Martin Adam, Judith Pender, Richard Pole and Hilary Warburton (1999), "Inception report for Project R7330: Peri-urban Natural Resources Management at the Watershed Level, Kumasi, Ghana (1999-2002)", CEDAR, Department of Geography, Royal Holloway, University of London, Egham, Surrey.

Hence, Abrepo lies within the urban area, which has also embraced Sepetinpom within the last few years. Duase can be characterized as being within the narrow urban fringe or innermost ring of the peri-urban interface, although soon it too will become "urban". There is certainly no evidence here of polycentricity in and around Kumasi, let alone any of the more complex forms, such as an extended metropolitan region.

Nevertheless, all these villages are characterized by increasingly complex land markets, as family and stool land is sold off for non-agricultural purposes, particularly residential and commercial/industrial use. The proceeds are often shared principally between the chief (and sometimes elders) and *Asantehene* (paramount chief of the Asante), with the community as a whole gaining little, if any, benefit. Individual families who lose their agricultural land in this process may consequently even lose their livelihoods as, in some places, there is little if any other available land to give

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them in compensation, and financial compensation is also usually meagre – Eaton and Hilhorst document similar problems of insecure rights to peri-urban farming land around Bamako and Ouagadougou.<sup>(26)</sup> The intensity and rate of land conversion and commercialization are highest in villages closest to the expanding city<sup>(27)</sup> so, in this respect, too, there is an urban–rural gradient. One crucial corollary of this process is that agriculture is declining in importance close to the city; indeed, in the most urbanized peri-urban villages it has all but disappeared. Only further out, where agricultural land remains widely available, does this activity still continue, as indicated by the occupational profiles in Table 2. Equally, only in Maase did we find significant evidence that the proximity of Kumasi’s large urban market had acted as a stimulus to new, more intensive cultivation and agricultural innovation. This was a case of substantial new tomato cultivation, using fertilizer and (toxic) pesticides. There was no evidence elsewhere of a substantial recent shift in crop patterns attributable to peri-urbaness.

Our project also revealed that social cohesion and levels of community organization are not so easily categorized, and there is no clear-cut rural–urban gradient. The roles of particular village histories, the status and energy of the chief, queen mother, individual elders, unit committee chair, water and sanitation committee secretary or district assembly representative are often crucial, even in the absence of substantial financial resources among villagers as a whole. That said, however, it is certainly more difficult for poor village communities like Asago to apply leverage and political pressure on the district assembly, area council and regional coordinating council, or the Kumasi Metropolitan Assembly to tackle problems, than it is for wealthier and politically better-connected villages.

Whether a village falls just within the Kumasi Metropolitan Assembly boundary (like Abrepo and Sepetinpom) or just beyond it (like Duase) can also make a substantial difference in terms of access to the seat of power and effective political leverage. The relative power, resources and effectiveness of the respective district assemblies and the Kumasi Metropolitan Assembly vary, as does their political allegiance. One key problem for villages outside the Kumasi Metropolitan Assembly boundary is that they often suffer “downstream” pollution or disruptive effects from the city or the Assembly’s waste disposal activities, but have little means to seek or obtain redress. Thus, institutional structure and administrative boundaries are other factors to bear in mind with respect to the urban integration process and its interface with the peri-urban zone.

During the second half of this project’s life, we developed participatory environmental resource management initiatives with the village communities and respective local authorities and government agencies. It became important to ascertain how the different levels of social cohesion, enthusiasm and dynamism within and between the eight villages related to the factors discussed above. In a comparable initiative on the outskirts of Lima, Peru, Hordijk<sup>(28)</sup> found significant variations between the informal settlements in relation to these factors when the communities formulated a Local Agenda 21.

## IV. CONCLUSION

THIS PAPER HAS presented an analysis of current thinking on the urban–rural interface, with particular reference to Africa. The simple traditional dichotomy between “urban” and “rural” has been inadequate for a considerable time now, especially in the context of rapid urbanization,

26. Eaton, Derek and Thea Hilhorst (2003), “Opportunities for managing solid waste flows in the peri-urban interface of Bamako and Ouagadougou”, *Environment and Urbanization* Vol 15, No 1, pages 53–63.

27. Edusah, Sampson and David Simon (2001), “Land use and land allocation in Kumasi peri-urban villages”, CEDAR/IRNR Kumasi Paper 9, December, Centre for Developing Areas Research (CEDAR), Department of Geography, Royal Holloway, University of London, Egham, Surrey, and Institute for Renewable Natural Resources (IRNR), Kumasi, 21 pages.

28. Hordijk, Michaela (1999), “A dream of green and water: community-based formulation of a Local Agenda 21 in peri-urban Lima”, *Environment and Urbanization* Vol 11, No 2, pages 11–29.

urban change and the differential impacts of globalization. The term "peri-urban zone" (or area) has become widely used in recent years to denote the zone of transition between the clearly urban and distinctly rural. In terms of present-day qualitative and post-structural approaches to research, empirical measurement and identification of specific distances and areas corresponding to such labels is not seen as important. This is extremely difficult to do in practice, has limited use and is subject to rapid change in such dynamic conditions. Instead, research in different localities has shown that there is, broadly speaking, a gradient from predominantly urban to predominantly rural as one moves outwards beyond the city limits. However, this is neither a constant gradient nor one that is uniform in different directions around the city.

Furthermore, the growing importance and policy relevance of sustainable development (albeit conceptualized in diverse ways) has focused attention on the bi-directional flows of resources and waste products between cities and their surrounding regions in a way previously considered mainly with respect to human mobility and migration. This is encapsulated by the concept of an urban ecological footprint, which embraces an area stretching far beyond the city itself. In many respects, it is very similar to the notion of a functional region or city-region.

Work recently undertaken on a research project on local-level sustainable and participatory environmental management in and around Kumasi, Ghana, was used as an illustration of these processes and phenomena. Distinctions were drawn between urban-rural gradients within the peri-urban area in terms of physical, environmental and economic attributes on the one hand and differences in social cohesion, organization and dynamism on the other. This is important because the latter variables depend on many factors, and cannot simply be inferred from the former ones. Community responses and degrees of involvement and "ownership" of the management processes in the eight villages concerned will emerge over time.

