

Between water and land: urban and rural settlement forms in Cambodia with special reference to Phnom Penh

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Revised version received 19 May 2015

Abstract. *In explaining urban form in Cambodia, morphological continuity between rural and urban forms is examined. Environment and agrarian land use are decisive factors in the location and shape of plots in the countryside. Under conditions of higher population density, urban plots tend to be compressed versions of rural ones. Adopting a historico-geographical approach, the development of the form of Phnom Penh as a colonial city and capital of a French protectorate is explored as an example of the persistence of a rural settlement pattern in a specific urban context.*

Keywords: Cambodia, Phnom Penh, rural morphology, urban morphology, plot form

The shapes of plots have become a significant, albeit not widely studied, aspect of both urban and rural settlement morphology. However, much of the attention given to this topic hitherto has focused on Europe. This paper examines urban and rural settlement form, especially the relationship between rural and urban plots, in a very different environment – the core area of Cambodia – giving particular attention to the capital city of Phnom Penh.

Phnom Penh is situated in the lower Mekong region. This low-lying central basin, surrounded by uplands and mountains, forms modern Cambodia's densely populated heartland. It attracted permanent human settlement only at a relatively late stage when local hunter-gatherer groups extended their settlement area to the lowlands between the third and possibly the fourth millennium BCE. To early settlers the highlands (and some coastal areas) offered a more diversified range of natural resources and a healthier environment. However, the spread of wet rice cultivation, adapted to the ecological conditions of the

plain, made lowland living sustainable, allowed the population to expand and rendered empire building possible. This explains why the lowlands have been the demographic and economic core area of polities since the Khmer realm of Angkor (ninth to fifteenth centuries) and its successor kingdoms up to the French colonial era (1863-1953) and the period of independence.

After an introduction to Cambodian research, in which the approach adopted and characteristics of urban development in this geographical area are outlined, traditional Khmer plot forms and the persistence of rural forms in the urban context of Phnom Penh are investigated.

Urban research between Angkor Wat and modern Phnom Penh

Research on Cambodia's urban history and development has prioritized two periods: the glorious past of the Khmer Empire of Angkor

and contemporary Phnom Penh. First, there was the ‘discovery’ of the spectacular ruins of Angkor in the 1860s and their initial archaeological exploration by the French: this led to the incorporation of the temples into a larger colonial-political agenda of Khmer *and* French cultural heritage (Edwards, 2007). Secondly, there was the attraction of wider research interest in Phnom Penh, the capital and centre of economic and political power since colonial times. This was associated with the reopening of the country in the 1990s – after the end of the People’s Republic of Kampuchea, the communist regime that had been established after the fall of the Khmer Rouge. This mainly ad hoc research on urbanization has been dominated by non-governmental organizations and the international donor community. It focuses on common challenges of cities in the ‘Global South’: land grabbing, the urban poor and good urban governance. The colonial past meanwhile has been reviewed from the perspective of French national heritage overseas and the preservation of historical monuments and buildings. France, especially the government agency Atelier Parisien d’Urbanisme (APUR), initiated surveys, building documentation and urban development plans in the 1990s and early 2000s, which are exemplary in quality. In addition, the rediscovery and reappraisal of a genuine Khmer modern architecture of the first Sihanouk era (or Sangkum, 1955-70) is noteworthy, particularly with regard to the largely forgotten contribution of Cambodian architects to the International Style and Critical Regionalism. Damage caused by rapid urban growth and speculation menaces this national heritage as well as the colonial legacy (Grant Ross and Collins, 2006).

In comparison, 400 years of post-Angkorian urban history continues to be neglected. It is virtually non-existent, though a notable exception is the work of Mikaelian (2009). Similarly little research has been undertaken on urban development during the period of the French Protectorate. Gregor Muller (2006) has critically investigated aspects of the social history of colonial Phnom Penh, but without referring to town building or urban planning.

The latter has been discussed in Vann Molyvann’s monograph on Khmer cities (Molyvann, 2003) and by Celine Pierdet in her analysis of Phnom Penh’s water management, past and present (Pierdet, 2008). Studies of Cambodia’s colonial urban history, however, have two methodological and conceptual flaws. First, they uncritically consider the paperwork of the French colonial administration as an objective source and thus tend to view the French colonial period as one of purely top-down management of Phnom Penh’s development. Secondly, they overlook the influence and persistence of rural plot forms for spontaneous urban development.

Sources and methods

The French colonial regime left an extensive photographic and paper heritage, which is archived in the National Archives of Cambodia (NAC) in Phnom Penh and in France’s overseas archives – the Archives Nationales d’Outre-Mer (ANOM) – in Aix-en-Provence. These archives contain numerous plans, cadastral maps and photographs, which provide detailed insight into the chronology of the physical development of Phnom Penh and other Cambodian towns. A micro-analytical approach allows assessment of these plans as tools for implementing colonial rule and as colonial representations of the area. It is evident that the colonial regime frequently had to change its plans: compromises had to be made, notably with influential individuals of the old Khmer regime – mostly local Chinese investors. This historico-geographical interpretation of visual sources can be complemented by critical analysis of corresponding written sources, such as protocols and minutes. However, colonial sources tend to be biased. By reading ‘against the grain’, one may hear the ‘voices’ of the indigenous population and reconstruct their interests where no other evidence exists.

In this paper two perspectives are adopted on what, following Henri Lefebvre (1991), might be termed the ‘co-production of colonial urban form’. First, there is the potential for

‘equifinality’ of urban forms. In both the traditional cosmic geometries of the Khmers and in rational French planning there was preference for straight lines and grids in the structure of their urban settlements: these two principles, with very different historical backgrounds, produced in Phnom Penh a form that was neither fully French nor fully Khmer but ‘equifinal’ (Kolnberger, 2014b). The second perspective relates to the persistence of rural village forms: in Cambodia the emergence of rural and urban forms cannot be separated.

A historical perspective on Phnom Penh’s urban development

In Khmer history, houses, villages, even an entire city, could be ‘mobile’ and subject to planned relocations. During the fifteenth century the Khmer kings left the Angkor region for political as well as economic reasons and founded new capitals farther south-east. Basan (*Charktomuk* or ‘Les quatre bras’ in French) was the capital between 1432 and 1525/30, followed by Longvek (1525/30–1593), Srei Santhor (1594–1620) and Oudong twice (1620–58 and 1794–1863/65). Phnom Penh was the last in this series of capitals. Its situation at the confluence of four rivers and the associated phenomenon of the annually reversing flow of the Tonle Sap made the place a holy site. After each of these relocations the capital needed to be ‘re-rooted’. The palace and royal *wat* were positioned at the crossing of two visual axes, which determined the symbolic focus of the world, where a third, the spiritual cosmic axis, was raised to connect Heaven and Earth. Like the village headman leading his clan to establish a new settlement, the king similarly had to delineate the royal domain and erect his palace. Topographical considerations and rituals performed by the divine monarch (*devaraja*) and by commoners influenced the location of the built environment on sites with good practical and spiritual ‘energy’. On these grounds, the ‘perfect spot’ of the royal residence, determined by a ritual specialist,

could become the political gravitation point of the entire state. This ‘galactic’ or ‘solar polity’ (Tambiah, 1977) depicted the geometric connection between the microcosm (city, temple, home) and the macrocosm (the eternal) in cardinal orthogonality. Space, especially urban form, was designed to mimic the cosmos as a hierarchical example for the secular order on earth (Malville and Gujral, 2000; Népote, 1973, 2003, 2004).

When the Khmer kings decided to move their residence from the north-east of the Great Lake to the south-western end of it, they reproduced this cosmic geography, but at a much smaller scale. At its peak Greater Angkor had been ‘the world’s most extensive preindustrial low-density urban complex ... a cumulative settlement palimpsest, with an organic and polynuclear form arising from social and environmental processes operating over more than half a millennium’ (Evans *et al.*, 2007, pp. 1479–80), its central sector covering 900–1000 km².

The relocation of the capital resulted in modification of its function. Greater Angkor had been a ‘hydraulic city’ designed to attract as many settlers as possible by extensive irrigation works that would enable production of an agrarian surplus around a residential complex containing the palace and the spiritual centre of the temple-mountain. The royal towns afterwards were river-port polities, similar to other land-locked port cities of peninsular South-east Asia, such as Ayutthaya and early Thonburi/Bangkok (Kathirithamby-Wells and Villiers, 1990). Like them, the Cambodian post-Angkorian emporia were set up to secure effective control of local and long-distance trading patterns, small-scale production and taxes. The significance of the one and only ‘Central Place’ (the royal residence) as political, cultural, economic and military centre of the kingdom remained unchanged, but the port cities lacked a wider rural hinterland and the centripetal force of the old Khmer empire.

Royal Khmer cities of the post-Angkorian time display two distinct major morphological regions: the palace quarter and the civil town. In and around the palace, the king’s extensive

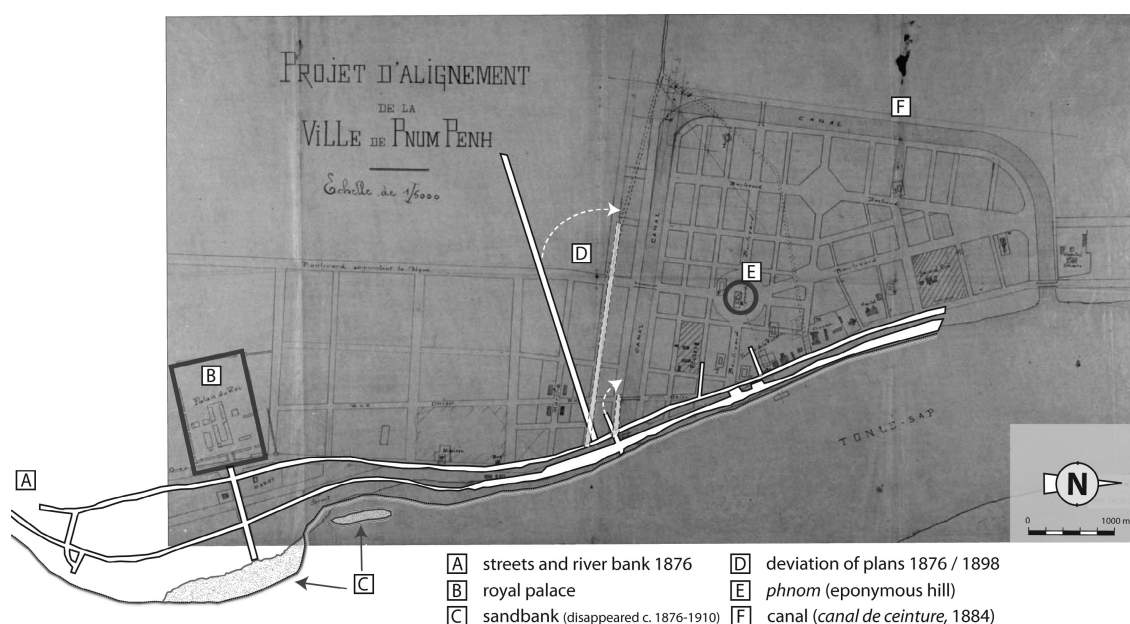


Figure 1. Phnom Penh's original layout and the French *plan d'alignement*. Based on National Archives of Cambodia (NAC), Résident Supérieur du Cambodge (RSC): *Projet d'alignement de la Ville de Pnum Penh*, NAC/RSC 24126, 1898 and *Avant-projet de protection des berges du Tonlé Sap – Défense de la rive droite au droit du Palais du Roi*, NAC/RSC 10246/2-4, 1876.

family and his retainers formed a royal household and royal administration in a compact and concentric arrangement of buildings. In contrast, the commoners settled in 'civil lines' of the linear type. In the case of Phnom Penh, the civil town was mainly along the banks of the Tonle Sap. This dual character of the royal town was buttressed by various social logics and the physical characteristics of the plots of land. Royal rule and sovereignty were based on a physical 'inner circle' over which the king reigned like a *pater familias*: one could gain – or lose – everything by being close to the king. To create appropriate space, the outline of the palatial-sacral complex was made flood-proof by ditches, drainage canals and retention basins, which offered valuable building lots.

The 'civil town' housed the commercial district – the 'bazaar of Cambodia', as visitors disparagingly described it. A compact form similar to that of the palace emerged only around the main market. A dominant feature was two parallel roads, emphasizing the

elongated layout (Figure 1).

In 1863, the kingdom became a protectorate of France. Over the next few decades, the kernel of a compact city with a rectilinear layout was to evolve. The riverbanks became stabilised to fix the waterfront as a straight-lined building frontage, main causeway and river harbour site, while land reclamations progressively created an artificial flat platform for a tropical French town. 'Polderization', unusual in Khmer building tradition, provided further building land. This land was porous enough to absorb heavy precipitation, unlike the paved surfaces that the colonial power was now creating. The compact city became the new French/European quarter in the north of the town, semi-encircled and demarcated by a canal (Figure 1). Khmer planning needed to be loose and open – an urban micro water management which Vann Molyvann, Cambodia's foremost architect and planner after independence (1953), successfully adapted to create a modern Phnom Penh (Kolnberger, 2014a). Phnom Penh became a

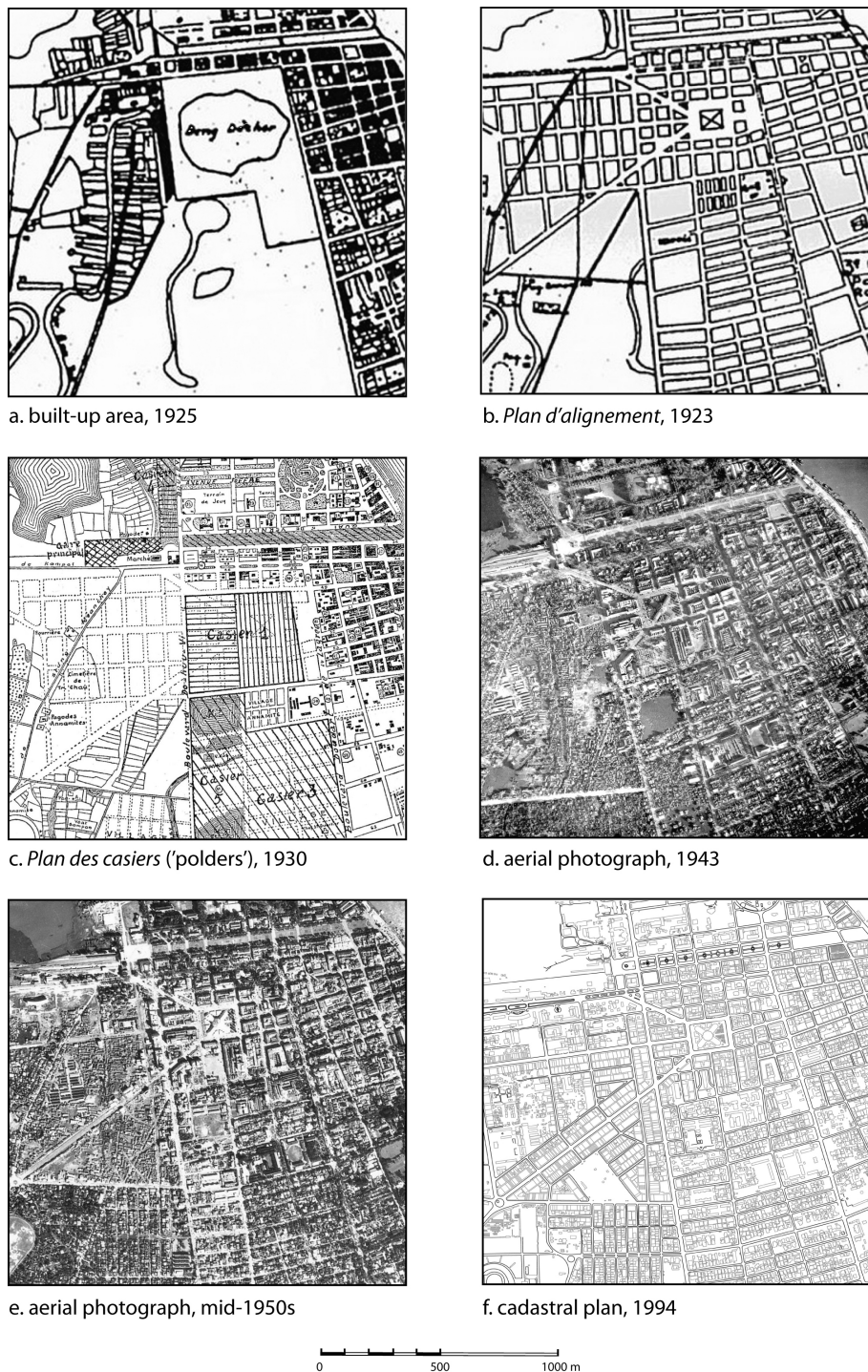


Figure 2. Morphological persistence and change in central Phnom Penh ('Beng Dèchor' polder). Sources: (a) and (b) – NAC, B.351, Cambodge Nouveau, 1 Septembre 1971; (c) – ANOM/Indo.GG1 50150, Rapport d'ensemble sur la situation au Cambodge, 1929-1930; (d) – Municipalité de Phnom Penh (Institut de Géographique National), Paris, 1943; (e) – Archives (Mekong River Commission), Vientiane, MK 59/MIN/G-140, c. 1954; (f) – Municipalité de Phnom Penh, Atelier Parisien d'Urbanisme, Paris-Phnom Penh, 1994.

dual city, typical of Western colonialism, with two urban foci: the palace and the 'white' administrative town. Between these a third centre emerged: the market area.

Figure 2 shows the development of the layout of central Phnom Penh over a 70-year time-span up to 1995. The French linear development of streets and blocks was extended towards the south-west of the city. The first alignments to the east along the river front left an irregular street grid. This was influenced by a combination of legal aspects of ownership and the high cost of building in swampland (Kolnberger, 2014b). In contrast, the tabula rasa provided by the landfill of the lake-swamp 'Beng Dèchor' allowed a perfect rectangular form, with the new main market hall in the middle. Over the subsequent decades the 'formal' and 'informal' parts of Phnom Penh, particularly on both sides of the 'Beng Dèchor' landfill, underwent parallel growth. The dirt roads of the agrarian and semi-urban parts, with different plot forms, became partly integrated into the new zones of city development. Towards the centre and around the Central Market, which opened in 1937, the rural plots were smaller. Access to the street and the amount of pedestrian movement were key factors (Kolnberger, 2012). The ground floors of the 'commercial residential buildings' here (cf. Davis, 2009) served (and still do serve) as a sales and working floor for retailing and offices. Architecturally, these urban structures are very similar to rural types, except for the absence of stilts on the ground floor of the 'shophouse'. Some scholars have attributed the development of this functional type of house to an 'invention' of a particular time and place, instead of recognizing the transfer of a building form from a rural to an urban setting (see, for example, Lee, 2003).

Rural settlement forms

In the lowlands of Cambodia, the principal village plot forms are strips. Sizes and the width to length ratio (on average about 1:9) vary considerably depending on the topo-

graphy of the site. The elongated shape predominates along roads and water bodies, especially rivers. Though hamlets and dispersed settlements do exist in Cambodia, the typical village form in the 'land of rice' (or land of the 'rice people' – *neak sre*) is linear. This is quite different from concentric Cambodian towns and villages with the prefix *kampong* or *kampung* (for example, Kampong Cham or Kampong Chhnang), which suggests a more ethnically mixed population and the Malaysian/Indonesian or Cham (a Muslim ethnic group) origins of the hamlet. Clustered village or irregularly nucleated village, to translate the German *Haufendorf* approximately, would be a rough description. A third village form is an ephemeral 'floating village' – a cluster of house boats on pontoons along riverbanks or on lakes (of mostly Cham, Vietnamese or Sino-Khmer fishermen). More remote forest villages of Cambodia's so-called ethnic minorities in the highlands have various shapes – some are circular, like the *Brou* (Matras-Troubetzkoy, 1983). In contrast to the latter two forms, the shape of Khmer rice villages is a direct consequence of agricultural parcelling. Houses are aligned irregularly on one of the narrow sides of the plot. They are typically facing water: either a natural river, a pond, or a human-made canal, trench or artificial pond. This arrangement of adjacent, roughly equal-sized plots has two purposes rooted in Cambodia's common law and historical land-use pattern. First, the water or street frontages are kept narrow to provide everyone with access to water for irrigation and/or transportation. Secondly, the stretched shape facilitates specialization (between annually inundated, irrigated and unirrigated parts) and potential commercial use along the road frontage. The immediate area around the house is designated for living, as a working area and for keeping small domestic animals and occasionally water buffalos; the remainder is kitchen garden and orchard, including sugar palm trees. In this way, the agricultural parcel combines various crops and has a cultivation range from highly intensive to extensive and fallow (or even unworked land reserve). This diversification of agricultural production is a

risk-spreading strategy on behalf of the peasants. In contrast, rice fields, which are usually separated from the 'house plot' (that is, the agricultural parcel, or *dey phum* in Khmer, plus the building plot), are a different land-use category and plot form: they are mono-agricultural and of irregular rectilinear shape.

Water management and elevation

The traditional Khmer rice field on the plain can be rain-fed or irrigated. When flowing water is close, short branch canals or ephemeral riverbeds (*prek*) are used to run the silt-laden waters of the annual monsoon floods into the fields. To keep the fields well-watered they are edged by bunds or low dikes. The lowland plain of Cambodia is intersected by sills running in a north-east to south-west direction and at a micro scale the terrain contains depressions, gullies and inselbergs. Effective field farming has to follow this natural micro topography, which gives the farmland plots their irregular outlines and results in 'cellular' parcelling, with plots of 0.5 to 2 ha. In general, the Khmer do not practise labour and cost intensive large-scale hydraulic rice cultivation: they are masters of low-density gravity surface irrigation, taking advantage of slopes and natural flooding by modifying such gradients with small-scale earthworks. This work is usually undertaken collectively through collaborative communal effort or by small neighbourhood groups.

As in the case of the rice-farming plot the individual house plot is also set up to enable the owners to exercise flood-retreat farming and gardening at the riverbanks, to store floodwaters in bunded areas and reservoirs for the dry season. Therefore, the site for the house has to be chosen carefully.

Rural-urban forms

Year by year, the rhythm of the monsoons transforms the lowlands into an amphibian landscape, supporting the development of wooden houses on stilts as the principal form

of dwelling. These light-frame constructions make the moving of the whole house easy. In addition to flood protection, the construction on stilts offers a habitable 'open air' working, cooking and storage room protected from sun and rainfall underneath the wooden 'hard shell' of the sleeping quarters above. Land was abundant in the lowlands and with some exceptions, such as around Battambang, of mediocre quality. This gave settlers a wide choice, especially during the nineteenth and early-twentieth centuries.

For determining the 'right' location, the Khmer vernacular offers an elaborate nomenclature of terrain quality. According to Huy (2003) this is based on the practical experience of generations, taking all kinds of factors into consideration.

For farmsteads, geomancy (indigenous *vastu sastra* or *fengshui*) plays a role in the positioning of the house within the plot. First of all, the dwelling should not defy the local spirits because, owing to its function as shelter, the building is destined to protect the household from any possible harmful influences of the outside world – meteorologically and spiritually. Rituals like the foundation ceremony are still practised today in rural areas, even though 'they are beginning to fade in urban areas, especially when the dwellings are blocks of brick flats' (Luco, 2006, p. 104). However, the spirit house (a miniature house or temple usually mounted on a pillar, which can also serve as a house altar) remains a common sight in Cambodia's towns – even in front of skyscrapers.

Cambodian peasants are essentially practical people, a quality that resurfaced after the brutal social experiment of the *Khmer Rouge* communist extremists to collectivize Cambodian life by any means between 1975 and 1979). After this the creation of a harmonious place in coexistence with local supernatural divinities was only of secondary importance. The build-up – or revival – of the common physical village order to restart traditional rural life, however, was crucial: it provided the basis to dwell in peace and harmony with the new neighbours. It included the revival of 'row villages' – the predominant



Figure 3. The contact face of rural and urban: strip plots at the eastern fringe of Phnom Penh. Reproduced from Khon, 2001; original photograph in colour, taken in the 1990s.

feature in the lowland countryside.

After the fall of Phnom Penh on 17 April 1975, the Khmer Rouge forcibly evacuated the city population within days. Phnom Penh remained a ‘ghost-city’ for almost 4 years. Repopulation commenced in the wake of Pol Pot’s defeat by the Vietnamese at the turn of the year 1978/79 (Kolnberger, 2015, forthcoming). Meanwhile an alluvial island, *Koh Pich* (or Diamond Island), had emerged, and grew by the build-up of sediment to a size of 68 ha by the beginning of the twenty-first century. This prime farming land attracted 300 families, who divided the island collectively into ‘house plots’ of 10 to 20 m in width and up to 500 m in length. Figure 3 shows this southern fringe of Phnom Penh in the late 1990s. Most striking is the interrelation of urban fringe and rural plots, and, despite the profound cultural shock suffered at the hands of the Khmer Rouge, the way in which the rural population has aligned its dwellings.

According to custom and practice in Cambodia, land is granted to the tiller, as long as the appropriation is peaceful and in accordance with the neighbour(s). A condition for ownership is continuous cultivation. The

cultivated and built-up area corresponds to the land title, supported by natural landmarks, sometimes reinforced by boundary signs and, most importantly, underpinned by the collective ‘cadastral’ memory of the rural or urban neighbourhood.

After the front row was completed, a second row of houses appeared on *Koh Pich*, erected notably by part-time farmers (peasants-cum-workers) who did not cultivate rice. Their riparian market gardens supplied Phnom Penh’s local markets with vegetables and fruit. From an economic-geographical perspective, this rural-urban landscape was close to a reproduction of von Thünen’s model of agrarian land use in concentric rings (with dairying and market gardening as the innermost ‘ring’ and grains and forest in outer ones).

On the other side of the canal/*prek* (a sidearm of the Tonle Bassac), the situation and settlement form are different. The steep riverbank on the whole leaves little space for gardening. The second and third rows along the ‘causeway’ have developed approximately at the same time, while farther to the west an ‘informal settlement’ is developing. There is a very orderly alignment of ‘micro-rows’

along lanes (with a 'main street' of carriage width and footpaths as 'side streets'). The basic form and its social-material basis vary in places owing to the lack of an agrarian function. Its potential real-estate value brought this spontaneous rural-urban growth to an end, when developers enforced unfavourable buy-outs on the tillers and evicted the remaining ones in 2005. The whole zone was transformed into a modern suburb as a quasi-gated community for the new middle and upper class of the capital.

In the transitional years of the 1990s and early 2000s, many spontaneous quarters emerged within Phnom Penh's historical city limits. Few survived to leave an imprint on the urban tissue after the sudden onslaught of real estate and crony capitalism of the 2010s. The interaction between spontaneous and planned city development of pre-colonial times, during the French Protectorate and the first decades of independence, was politically more balanced and left a hybrid morphological legacy.

Conclusion

Cambodia's rural and urban development illustrates that there is no contradiction between the idea 'that cities are the result of deliberate and co-ordinated human effort on the one hand and exhibit characteristics of 'self-organization' and emergent behaviour on the other' (Kropf, 2009, p. 106). Cities can be both planned and emergent. In the case of Cambodia the continuity between rural and urban form prevails: the basic morphological pattern becomes compressed only at higher population densities. Developments of urban and rural forms over time that exemplify this have been explained here by a historical-geographical approach.

The study of Phnom Penh's urban form, especially the process of its formation and transformation, is particularly revealing of this city's colonial context. An urban morphological approach has proved to be an appropriate means of discerning colonial power relations through the built environment. In

general, studying urban form has a high potential for the evaluation of relations between colonizers and colonized and the questioning of colonial master narratives. It can offer a fresh perspective, which hitherto has been fully employed neither in colonial and post-colonial studies nor in this journal. In view of the growth in the 'material-cultural turn', such 'things' as urban tissue may also be matters for cultural studies or history. Due recognition of this would place the venerable concept of urban morphology at intersections within interdisciplinary research, especially in relation to fields of knowledge in which colonial urban history is prominent.

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CHeriScape

At the heart of the CHeriScape initiative is an integrated series of five conferences. These conferences are focused on both research and practice. Each conference explores a different aspect of the importance to society of 'landscape as heritage' – in the fields of policy, science and research, community, global change and virtual futures.

Underlying all five events is an awareness that the potential of heritage to provide social benefits and inform policy making has not yet been fully realized. A combination of the two will offer new opportunities in line with the Faro Convention on the Value of Cultural Heritage for Society and the European Landscape Convention.

Outcomes of the CHeriScape Conferences include scientific publications and conference proceedings. Policy and public briefings are also produced. These include briefings for the European research and policy community about how land-

scape and heritage help to address land-based and community-focused challenges.

The final CHeriScape conference will be in Newcastle upon Tyne, UK in June 2016. Entitled 'Landscape in imagination and the virtual future' it will look forwards – and inwards – into imagination. The mental landscapes we inhabit are increasingly digital as well as remembered. New media are changing how people interact and even how they think. The digital way of perceiving landscapes is just another turn to the definition of landscape as areas 'perceived by people'. Emerging technologies could enable increased democratic engagement with landscape heritage and with landscape futures. This conference will explore how futures that grow from the past can be explored through new forms of heritage and landscape representations, and thus how present and future landscapes will be shaped and constructed.