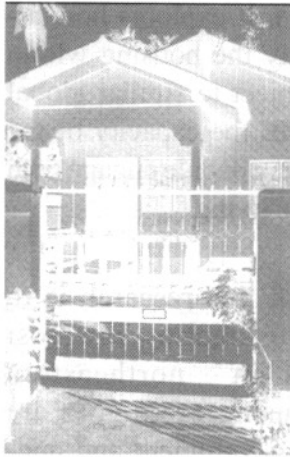

Moderated Influence: Globalisation and Thai Housing



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Abstract

This paper is the first in a series examining the development of new housing typologies at Ban Rai Kok, a rural village in northeastern Thailand. New patterns are emerging in rural villages at a time that the effects of globalisation are becoming apparent. I claim that these new housing patterns change the ways people live in this community and that this is further influenced by flows of global culture, specifically the rise of individualism, the introduction of industrialised building products and the introduction of global housing imagery. This paper demonstrates that this community incorporates select patterns into contemporary situations and these are most clearly evident in traditional houses that have been modified to incorporate a mediated inclusion of new patterns and technologies.

Introduction

The body of existing literature on northeastern Thai housing comes from scholars investigating the influences of spiritual beliefs, construction technologies and materials upon vernacular forms (Charernsupkul 1996; Srisuro 1997; Sutthitham 1997). These scholars speak of vernacular housing typologies emerging from localised modes of production and responding to regional climates. Other scholars speak of the intersections of Thai architecture and anthropology, using built form to demonstrate the range of building types, traditions, uses and contexts (Formoso 1990; Oliver 1997; Waterson 1997). However there is little research detailing changing patterns in rural Thai settlements, nor the influences of global cultural flows in the development of contemporary housing typologies.

This paper tests the hypothesis that new housing patterns in rural areas of northeastern Thailand cause people to change living patterns. Ban Rai Kok, a village in northeastern Thailand, has been selected to identify and document these changes. Data collected with empirical research techniques demonstrates the emergence of new village and housing patterns. Four case study houses built within the last fifty years have been selected as an overview of the types of housing in the village and they are compared to locate the differences in patterning. These differences are then analysed with references to some methods of cultural flow to chart the significant influences helping shape contemporary development. This paper makes reference to the claim that new townscapes and landscapes are produced by

the global diffusion of information, images, professional cultures and sub-cultures and supported by international capital flows (King 1990: 397-411). It explores how architecture, specifically the housing within a rural village, is subject to similar global forces and investigates the capacity of the house to change the way people engage with traditional patterns of living.¹

The purpose of this research is to inform projects investigating low-cost housing programs in northeastern Thailand.² New housing prototypes are being developed by government and non-government agencies in an attempt to demonstrate sustainable housing options to rural communities. Their work to date concentrates upon construction technologies and does not investigate changing patterns of living nor the influences of globalisation. This research aims to fill this gap of knowledge and work alongside other programs to identify and demonstrate sustainable and applicable low-cost housing prototypes.

Ban Rai Kok: A Pattern Language

Ban Rai Kok village is located in northeastern Thailand, the region that is home to nearly fifty percent of the total Thai population (Figure 1). Although the northeast, commonly known as *Isaan*, is governed from Bangkok the region shares its cultural identity with neighbouring Lao and Khmer cultures. Generally speaking the northern parts of Isaan are heavily influenced by Lao culture and the southern parts of Isaan, including Ban Rai Kok, are influenced by Khmer culture (Sutthitham 1997: 133).³ This region is

supplemented with seasonal work in urban centres. In 1999 Ban Rai Kok had 94 houses and 350 registered inhabitants within an area approximately 600 metres long by 300 metres wide.⁴ The village is bounded on

a small river. Houses are surrounded by vegetable gardens, fruit trees, rice barns, animal pens, temples, community meeting areas, rice mills and two small shops. (Figure 2)

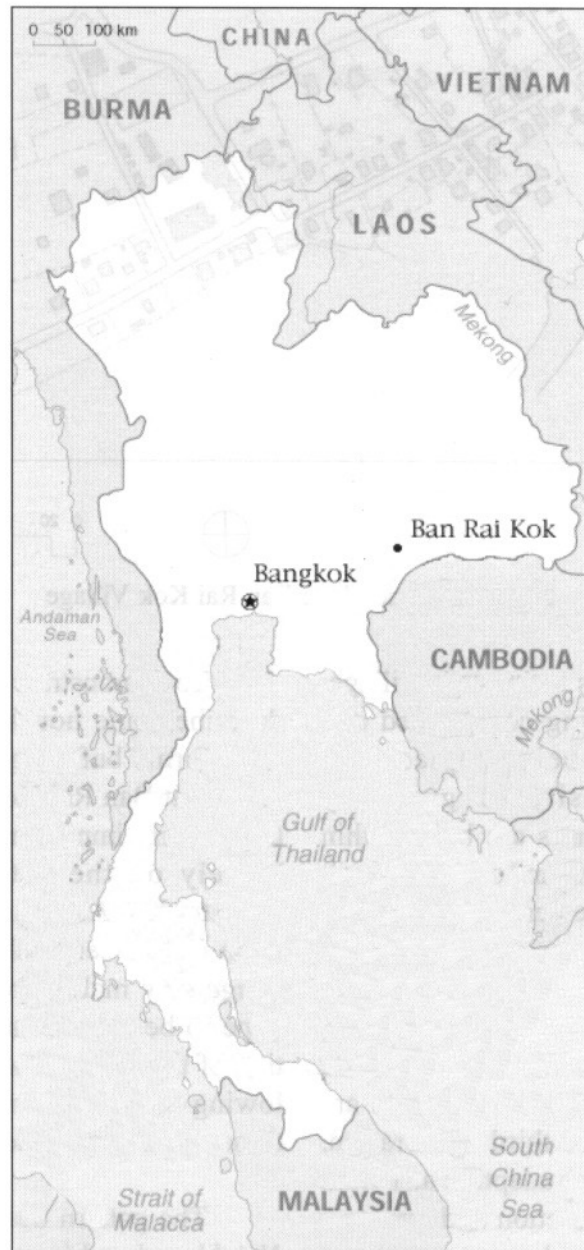


Figure 1 Map of Thailand locating Ban Rai Kok



Figure 2 Land Use
Ban Rai Kok Village

Figure 2 Land Use : Ban Rai Kok Village

Ban Rai Kok is a dynamic village, new buildings are being constructed and older buildings are being replaced or modified. The density is gradually increasing as new houses are built within the existing village fabric and others are built at the outer edges.⁵ The vernacular housing regularly undergoes various degrees of change due to the maintenance required as natural construction materials degenerate. Thatch roofing and bamboo walling require yearly replacement and timber houses are rebuilt every second or third generation. These factors encourage adaptive and fluid modes of housing production and lead to a dynamic villagescape and, more recently, a variety of housing forms.

To demonstrate types of housing I will describe some housing types and discuss their forms before going on to detail the change at Ban Rai Kok. I will begin by detailing some important patterns, basing them loosely on the patterns identified by Christopher Alexander and his research team in the seminal text *A Pattern Language*.⁶ By making reference to this text I hope to be able to summarise my description of the village and housing patterns, allowing us the opportunity to understand these patterns in a global context.

The pattern described as *Identifiable Neighbourhood* (pattern number 14) speaks of clearly defined residential spatial units

to which people have a clear sense of belonging. This is particularly evident at Ban Rai Kok where the boundaries of the village are clearly defined and physically act to bind people together. This neighbourhood identity is further reinforced by a culturally homogeneity based upon both shared religious and social activities. Outsiders are viewed with some suspicion if they attempted to settle into the existing village neighbourhood and become part of the local community and this cultural stability serves to further reinforce existing patterns, defining both the physical and social boundaries of the village.

Multiple *Activity Nodes* (30) are scattered throughout Ban Rai Kok and serve to focus community action. Some nodes are functional places for activities such as cooperative rice milling, whilst others are for commercial purposes such as the two small shops that are located in the front room of houses. Another place for concentrated social activity is the *sala*, a covered outdoor meeting space. The place of the *sala* in Thai village form is significant and it shares the characteristics of the pattern *Public Outdoor Room* (69). In this role it acts as a protected communally owned meeting place within the village. There are two *salas* in Ban Rai Kok and both are located by the *Activity Nodes*, close to small shops and residential areas. These places are regularly used by people for socialising, one *sala* is more formal and hosts community meetings, whilst the other is less formal, less enclosed and has hammocks for general use.

Two patterns *Holy Ground* (66) and *Carnival* (58) have a significant role to play at Ban Rai Kok and demonstrate the importance of specific places for community gatherings. Weddings, funerals and religious

ordinations and other major events in village life require both formal and informal space within the village. The focus for formal religious activities within the village is the *wat* which contains the temple, monks quarters and religious school. However these community activities also require space for families to host informal celebrations. These gatherings call for the erection of temporary shelters around the host's house, requiring a demand for village densities that enable communal gatherings within residential areas. The patterns of the houses built more than a decade ago fulfil these spatial social obligations and associated networks that form the communal nature of village life. However houses built within the last decade are often not capable of providing space for large gatherings and therefore appear to renegotiate some spatial requirements required for communal living patterns.

We now need to investigate the houses within the village. To facilitate the study of the 94 houses they have been divided into four categories; timber houses built twenty or more years ago, slightly modified houses incorporating concrete technologies, significantly modified houses exhibiting complex and hybrid alterations; and new houses built within the last five years (Figure 3). Four houses have been selected for closer analysis with the aim to discuss changes in patterning and each house is typical of one of the four categories. House #1 represents an example of the traditional regional housing. Houses #2 and #3 are both houses that have been modified from the traditional type within the last ten years. House #4 was built within the last five years in a contemporary style that is becoming increasingly common within the region.

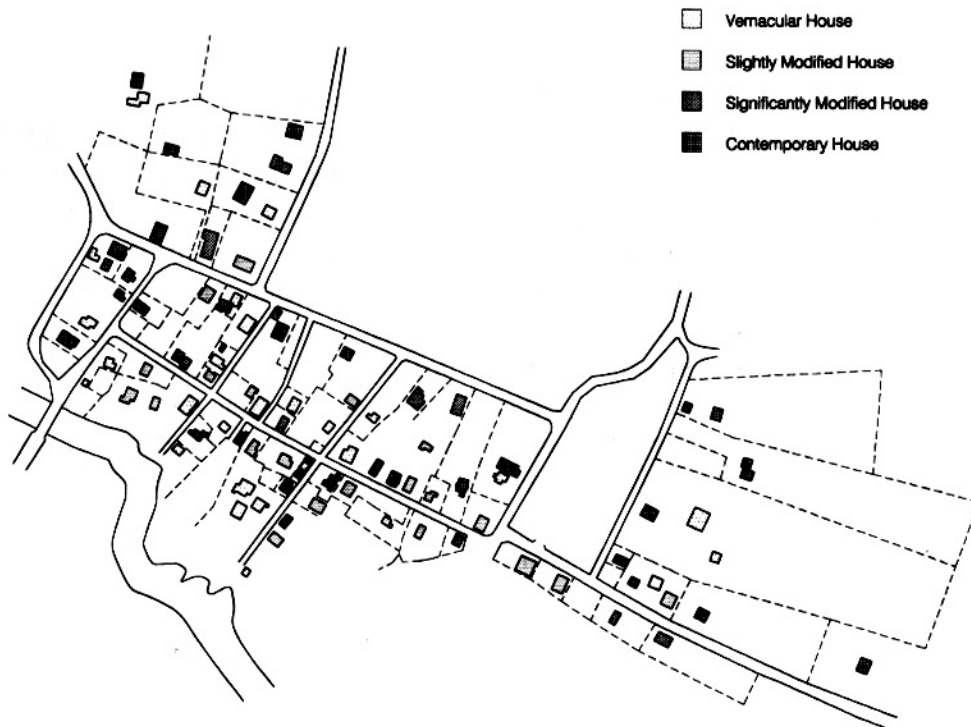


Figure 3 Housing Types
Ban Rai Kok Village



0 20 100 200 metres

Figure 3 Housing Types : Ban Rai Kok Village



Figure 4 House # 1 Vernacular house

House #1 (Figure 4) is an example of the vernacular timber house in Ban Rai Kok and is raised above ground level to take advantage of the shade and cooling breezes. Its form owes more to the Khmer style of housing than the central or northern Thai styles, reflecting the influences of the cultural linkages with northern Cambodia. The well shaded space below the house is used during the day for activities such as food preparation, eating and socialising. It may also be used to store farming equipment and shelter animals. A significant feature of this style of house is the outdoor work and relaxation space, commonly called a *chalieng*. Located at ground level below the main house this sitting area has direct visual and social access to the street and has much in

common with the patterns *Outdoor Room* (163), *Opening To The Street* (165) and *Seat Spots* (241). The spatial planning of this house is based upon modular principles, the kitchen forms a 2x1 spatial module whilst upstairs there is a living area (2x2) and a partitioned bedroom (2x1).⁷ The evolution of this planning typology, developed hand in hand with construction technologies, demonstrates the importance of a graded series of spaces, from the openness of the *chalieng* to the enclosed and private sleeping space. This reflects the patterns *Entrance Transition* (112), *Structure Follows Social Spaces* (205) as well as *Efficient Structure* (206) and demonstrates the refinement that vernacular housing forms achieved.



Figure 5 House # 2 Slightly modified house

House #2 (Figure 5), once similar to House #1, has undergone a simple modification. The ground floor has been enclosed with concrete blocks to form one large room and a lean-to kitchen has been added at the rear of the house. A formal entry has been located from the street and opens directly into the sitting room containing the television which is a new focus for family activity.⁸ This room also serves as the place for sleeping and part of the room has been partitioned for this purpose. The upper floor is empty and appears not to have been used in some time. Whilst this modification has made the sleeping spaces more accessible,

it has lessened the linkages between public and private space. In its original form this house had strong visual and social connections to the street. This has been compromised by this new configuration which has had the effect of minimising the strength of the patterns, *Outdoor Room (163)*, *Opening To The Street (165)* and *Seat Spots (241)* evident in House #1. However some seating has been located at the front of the house to negate the loss of the *chalieng* and allows the residents to maintain some social connection with people on the street, *Front Door Bench (242)*.



Figure 6 House # 3 Slightly modified house

House #3 (Figure 6) has undergone a similar set of alterations to House #2. The ground floor has been enclosed and two sets of doors are used to enter the house, one formal at the front of the house, and one informal at the rear. Visitors were traditionally received at the *chalieng* and did not enter into the vernacular house. With the enclosure of the space below the house, visitors must now be received into the house

and we often see the inclusion of a formal entry, *Main Entrance* (110). The planning and appearance of this house has become complex, a storeroom has been added to the upper floor and projects from the walls of the original house to form a tiny room, *Alcoves* (179). The additional small roof over this alcove also introduces the pattern *Cascade Of Roofs* (116).⁹



Figure 7 House # 4 Contemporary house

House #4 (Figure 7), a single storey house, is an example of the most recent type of housing development in the village and the first to include a formal entry yard entered through steel gates. The traditional patterns *Degrees Of Publicness* (36), *Opening To The Street* (165) and *Seat Spots* (241) are replaced with new spatial configurations. The front fence and formal gates act as a significant barrier between the residents and people on communal land. Gender politics within Thai households require food preparation and cooking to be done by female members of the household. The location of the kitchen at the rear of this house has displaced the females from the traditional prominent social position close to the street to a new position that removes them from the public domain. This house demonstrates new construction typologies based on concrete technologies such as, *Ground Floor Slab* (215), *Box Columns* (216) and *Perimeter Beams* (217). Other materials used during construction are industrialised and prefabricated; concrete blocks, concrete balustrading, aluminium window frames, glazed windows, plastic doors and ceramic tiles.

Agents of Change: Global Cultural Flows and Ban Rai Kok

So far this study has demonstrated that village and housing patterns are undergoing change at Ban Rai Kok. But we might ask what factors influence this change in light of the claim that architecture is subject to global cultural flow. Appadurai (1996: 33) identified five dimensions of cultural flow that identify agents of change: 'ethnoscapes', produced by flow of people;

'technoscapes', the flow of technology; 'finanscapes', the flow of money; 'mediascapes', the flow of images & information; and 'ideoscapes', the flow of ideological movements. Let us now examine these global cultural flows as they intersect with local patterns at Ban Rai Kok.

Ethnoscape. Both national and global industries attract workers away from agriculture with wages above levels required for a subsistence living. People from Ban Rai Kok often migrate to work as taxi drivers, construction labourers or in the entertainment industry. With employment networks that stretch between Bangkok and the Middle East, this mobile workforce enables fluid cross-cultural exchanges across national and international boundaries. This allows many community members contact with a world not previously known within the village and in turn provides multiple opportunities for the flow of cultures across both national and international boundaries.

Technoscape. Construction technologies within rural regionstr additionally emerged from the migration of communities to unused land and the utilisation of natural forest materials. This afforded residents a great deal of flexibility to modify and add to the dwelling. As resources permitted, houses could increase in size, temporary materials could be replaced with more permanent materials and decorative elements could be introduced (Roonrakwit 1996; Unger 1998). The availability of timber has declined steadily in the last few decades, forcing prices beyond the means of rural house builders and requiring the introduction of new building materials and

modes of production¹⁰ At Ban Rai Kok new construction technologies such as concrete block have replaced the use of timber in contemporary houses and there is a trend to use prefabricated components such as corrugated iron, bathroom fixtures, doors and glazed windows.

Financescape. Traditional forms of finance, most commonly the cooperative work group, have become less important as rural Thai communities transform from subsistence lifestyles to participation in the global economy (Klausner 1998: 8). The economic dependence of rice farming has decreased, leading to a rise in the use of paid labour and task specialisation, especially in the building industry where the use of industrialised materials has redefined traditional practice. A cash economy has enabled rural people to modify or replace their existing vernacular houses and employ construction specialists to renovate and include factory made components. Increased wealth has also enabled contemporary houses to be built with decorative elements such as concrete balustrading, decorative window frames and complex roof forms helping identify the owner's economic status within the village.

Mediascape. The flow of images controlled by the media is significant in helping focus the desire for acquisition and the construction of new lifestyles. Although King (1991: 27) speaks of American domination and global impact through satellite television, we see in Thailand hybrid forms of entertainment emerging where Western ideology and images intersect with Thai cultural values. Popular television soap operas depict glamorous images of double storey detached concrete

houses in private garden suburbs. Elaborate formal entry halls, owing much to the imagery of *Gone With The Wind*, serve as a backdrop for the drama, positioning the house as a stage set against which the action takes place. The images that come from these television programs, absorbed by both the urban dwellers and the rural poor, contribute to the redefinition of housing forms. Housing developers recognise the Thai market's interest to engage with this imagery and offer double storey villas complete with carports, manicured gardens, Greek styled colonnades and Georgian facades.¹¹ (Figure 8)



Figure 8 Advertisement for houses in new suburban development

Ideoscape. This paper makes the claim that the ideologies that inform contemporary housing development have a history that reflects both the influence of traditional Thai agencies of power as well as those of the West. The mediation of both Eastern and Western ideologies, traditionally controlled by both the monarchy and Buddhist belief, was in part motivated by the threats to Thai independence during the nineteenth century. King Mongkut and King Chulalongkorn voluntarily undertook reforms with the hope of moderating the processes of globalisation and allowing for a considered integration of Western culture¹² When King Chulalongkorn visited Europe in 1897 and again in 1907 he aimed to dispel the claim made by some European diplomats that the East was barbaric and undeveloped (Apinan 1993: Vol. I 286). From this period Western mannerisms, clothing and art styles were adopted in the Thai court and the study of European languages and sciences was encouraged (Aasen 1998: 133).

The Bang Pa-In Palace, built eighty kilometres north of Bangkok, was begun in the seventeenth century but substantially rebuilt by King Chulalongkorn as his interest with European art and architecture intensified. This palace complex is an eclectic selection of buildings set into a royal parkland. (Figure 9) As with many other royal projects constructed during this period, the architectural styles demonstrate a strong engagement with Western forms of expression through a liberal adoption of elements such as Corinthian columns, rounded arches, decorative concrete balustrades and marble statues (Aasen 1998: 192). Building styles within the complex include replicas of neo Greek and neo Gothic forms, Swiss style chalets and a Moorish lookout tower. By

contrast the Chakri Maha Prasat Throne Hall does not directly replicate European architecture, instead it displays an intersection of Western and Thai forms. (Figure 10) Built for King Chulalongkorn and completed in 1882, it was designed by an English architect as the place for the Thai Court to receive European ambassadors.¹³ The planning of the building is formal and based on classical proportions and styling. Originally designed with a large domed roof, it was later completed with a roof form derived from traditional Thai palace styles. This hybrid form reflects both traditional Thai forms as well as demonstrating the ability of the Thai monarchy to utilise Western imagery and maintain the appearance of a nationalist architecture. This design ideology comes from the Thai tradition of dualism and hybridisation whereby a mediated path is sought rather than a position based upon singularity.¹⁴



Figure 9 Details of buildings at Bang Pa-In Palace



Figure 10 Chakri Maha Prasat Throne Hall

The Global and The Local

There are two schools of thought detailing how these global flows of culture might intersect with local cultures. The first is presented by scholars writing on globalised architecture impacting upon the vernacular such as King (1996) and Robertson (1990). They speak of an architecture that is imposed from positions of economic and political power constructed with minimal adaptation to local living patterns and environmental conditions. The architecture of the Bang Pa-In Palace speaks of this type of global influence within Thailand. Alternatively scholars such as Hall (1991) and Abu-Lughod (1991) speak of a global form that does not attempt to obliterate the local, but reshapes without absolutely destroying what is specific and particular. This hybridisation that results from a carefully mediated cross-cultural intersection is strongly evident in the architecture of the Chakri Maha Prasat Throne Hall and speaks of both an orientalised Western patterns and the de-localisation of Thai patterns.

As we return to our study area at Ban Rai Kok we are now able to shed some more light on our claim that new housing types have encouraged people to change traditional living patterns and that this change is driven by global cultural flows. We shall briefly revisit our modified and contemporary case study houses to identify some patterns influenced by global cultural flows.

The recently completed contemporary style house (House #4) appears to strongly support the notion of a global

architecture arriving upon the localised patterns of this rural community. Its function and form offer little recognition to the vernacular patterns of the village, instead they speak of the housing forms in Bangkok and, to some degree, further afield. The spatial functions of this house lack the transparency of vernacular patterns and are hidden from view, either behind the fence and entry gates or located behind the house. The form of the house contrasts to its vernacular predecessors, primarily due to the single storey design and the new modes of production based upon new technologies. The style of this house reflects much of the type of globalisation spoken about by King (1996) and Robertson (1990) as well as the ideology that introduced the Bang Pa-In Palace to Thailand. Put simply, we can easily observe how living in this house requires the residents to change traditional living patterns.

The modified houses, (Houses #2 and #3) are essentially vernacular types with enclosed ground floors and as such they retain some traditional patterns. Toilets, washing areas and kitchens are at the rear of the house and outside sitting areas are important features at the front. However, new forms and functions are introduced as a result of this intersection, primarily due to the inclusion of private enclosed living spaces that focus some family activities on the television and enclose consumer goods such as the refrigerator. These changes result in new localised patterns that demonstrate intersection, but not adoption, with global patterns and again we are reminded of the hybridity of the Chakri Maha Prasat Throne Hall. The resultant hybrid style of the modified houses at Ban Rai Kok reflect what scholars such as Hall (1991) and Abu-Lughod (1991)

speak of when they describe a global form that reshapes the local, or indeed a local form that reshapes the global. We can again observe how these hybrid houses require the residents to change some of their traditional living patterns, but importantly, these house forms have been modified to respond to the needs of the evolving patterns of living.

Conclusion

Klausner (1998: 8) claims that global flows of culture have caused revolutionary changes in Thailand, the effects of which can be seen in areas of transportation, communication, economics, industrialisation, education, individualism, food, music, entertainment, dress and language. While I generally agree with this observation I believe that this lacks some precision as we focus upon the architecture of the contemporary Thai village. My sense is that in Ban Rai Kok the influence of the media, specifically the television, has had a significant impact upon the family both by introducing global imagery and by diminishing the importance of communal social interaction. We see the effects of this in the housing pattern that encloses the television, shutting it from communal space and placing it within the body of the house. Similarly the use of new construction materials at Ban Rai Kok reflects two significant influences, the first of which is a global trend towards the adoption of concrete houses with Westernised imagery and the second is the requirement to minimise the use of timber in response to the effects of

deforestation. Together these are important influences in the developments of new typologies.

This paper began by testing the hypothesis that new housing patterns in rural areas of northeastern Thailand cause people to change traditional patterns of living. Whilst this paper has demonstrated that this holds true there are some important issues that require further evaluation and research. Is it possible that new housing typologies might make people change some living patterns to a greater degree than they would otherwise wish to do? To what extent do new house forms limit the scope for the continued incremental development of living patterns? How can housing design respond to the already demonstrated skills in modifying houses? Future housing should respond to these issues and form an architecture that reflects an engagement with both the forces of globalisation as well as select patterns from the past.

Acknowledgements

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Note

¹ This paper makes reference to Christopher Alexander's language for building and planning, as developed and discussed in *A Pattern Language*, to provide a framework for this investigation of village and housing form.

² During 1999 there were three organisations investigating the construction of low-cost houses in rural Thailand. These programs concentrate on ways to develop prototype houses that minimise timber consumption.

³ There are many reasons for selecting Ban Rai Kok as a case study. The village is spatially typical of those in the region and many families have an interest in programs initiated by a local non-government organisation and are sympathetic to the research aims.

⁴ The population varies with the seasons, increasing during the rice harvesting time and decreasing during the dry season.

⁵ This housing density is similar to most of the suburban developments in Australia.

⁶ Alexander's research proposes 253 patterns as a network for the design and construction of cities and housing. From these I have identified those that are of particular relevance to Ban Rai Kok and this investigation

⁷ Each module is approximately three metres by three metres and has been determined by localised construction materials and technologies.

⁸ Despite this new formal entry opening to the street the family and close friends use the informal entry at the side of the house. It appears that the formal entry is rarely used.

⁹ It is not clear why the owners built this alcove. It is possible that it was included to add to the complexity of the overall house form and in doing so mimic some of the new housing styles of contemporary developments in urbanised areas.

¹⁰ The forest cover in Thailand has decreased from fifty-five percent to twenty-eight percent of the country's land between 1961 and 1988. A 1995 report *Forests, Famine and War* by Global Witness, a London based NGO reporting on the illegal timber trade, claims companies representing Thai military officers and Cambodian Khmer Rouge guerillas exchanged between US\$ 10-20 million worth of timber per month during 1995. At this rate of deforestation little hope remains for a sustainable regional timber industry.

¹¹ More recently there has been an adoption of many Feng Shui design principles in the planning and construction of these houses in order to respond to the requirements of the large number of clients with Chinese heritage.

¹² The war between China and England in 1842 demonstrated that European empires were willing and able to play a strategic role in the region, a role which could be reinforced with superior warfare techniques and technologies.

¹³ The interior of this hall is decorated with gifts from European royalty and includes large Western style paintings illustrating the contact between Thailand and the Europeans.

¹⁴ There was some debate amongst the ruling elite about how best to balance the Western influences with the traditional Thai structures. This openness to global forms was interpreted by some later political figures as a betrayal of Thai identity.

References

- Aasen, C. (1998). Architecture of Siam. New York, Oxford University Press.
- Abu-Lughod, J. (1991). Going Beyond Global Babble. Culture, Globalization and the World-System. A. D. King, Macmillan.
- Alexander, C. (1968). A Pattern Language. Berkeley, California, Center for Environmental Structure.
- Apinan, P. (1993). Western-style Painting and Sculpture in the Royal Thai Court. Bangkok, Amarin.
- Appadurai, A. (1996). Modernity at Large. Minneapolis, University of Minnesota Press.
- Charernsupkul, A. (1996). Northern Thai Domestic Architecture. Northern Thai Domestic Architecture and Rituals in House Building. V. T. Anuvit Charernsupkul. Bangkok, Thammasat University Press.
- Formoso, B. (1990). "From the Human Body to the Humanized Space." The Journal of the Siam Society 78.
- Global Witness (1995). Forests, Famine and War. London.
- Hall, S. (1991). The Local and the Global. Culture, Globalization and the World-System. A. D. King, Macmillan.
- King, A. D. (1990). Architecture, Capital and the Globalization of Culture. Global Culture: Nationalism, Globalization, and Modernity. M. Featherstone. London, Sage Publications.
- King, A. D., Ed. (1991). Culture, Globalization and the World-System, Macmillan.
- King, A. D. (1996). Vernacular, Transnational, Post-Colonial. Casabella. 60.
- Klausner, W. (1998). Thai Culture in Transition. Bangkok, The Siam Society.
- Oliver, P. (1997). Encyclopedia of Vernacular Architecture of the World. Cambridge, Cambridge University Press.
- Robertson, R. (1990). Mapping the Global Condition. Global Culture, Nationalism, Globalization and Modernity. M. Featherstone. London, Sage.
- Roonrakwit, P. (1996). Traditional Based Housing Design for Low-Income People in Thailand.
- Sutthitham, T. (1997). Vernacular Architecture: Indigenous Architecture for the Environment. Conservation and Revitalization of Vernacular Architecture, Bangkok, Thailand, ICOMOS.
- Srisuro, W. (1997). Crisis in the Local Architecture of the Northeast. Conservation and Revitalization of Vernacular Architecture, Bangkok, Thailand, ICOMOS.
- Unger, D. (1998). Building Social Capital in Thailand. Cambridge, Cambridge University Press.
- Waterson, R. (1997). The Living House, Thames and Hudson.