



A MONOGRAPH BY
CIAV MALAYSIA

RE-DISCOVERING MALAYSIAN VERNACULAR ARCHITECTURE : **FORM, TRADITION & SUSTAINABILITY**

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ICOMOS MALAYSIA
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Malay traditional village, Klang, Selangor, Malaysia c.1896

In our haste to embrace everything that is modern or progressive and which may appear convenient and advanced, we sometimes forget and discard previous knowledge or technologies and practices that were very suitable and sustainable to the circumstances of where we live.

Although some old or traditional architectural practices may appear outdated, that is sometimes because we have also forgotten the overall wisdom that came with such traditions, yet the modern designs and technologies that replaced them have not fully solved present living problems, while even creating new unsustainable ones - increasing urban sprawl, increased air-conditioning use etc.

This paper examines the virtues and values of traditional architectural designs and practices in the Malay Archipelago or the Nusantara, especially Malaysia, for modern reflection.



Malaysia : Introduction

Malaysia is a country located in the heart of Southeast Asia, between the Asian mainland and the thousands of islands that are collectively known as the Malay Archipelago. The name Malay Archipelago conforms to the concept of the Malay race as observed by German physician Johann Friedrich Blumenbach (1752-1850) for the co-related natives now known as Austronesians, who are the predominant population of this area between mainland Indochina and Australia and between the Indian and Pacific oceans, also called locally as Nusantara. The Austronesian Malay peoples, who originated from within the region but with much admixture, were great seafarers and had freely moved and settled all across these islands around the Malay Archipelago and all the way to Polynesian Pacific islands, long before the introduction of modern political boundaries during the colonial period.

The Malay Archipelago's modern political boundaries were decided between the British, Dutch and Spanish colonials that resulted in the divisions into different countries within the region. For Malaysia and Indonesia, the Anglo-Dutch Treaty of 1824 separated the then Malaya and the Dutch East Indies (now Indonesia) by the British and the Dutch. There was also the Anglo-Siamese Treaty of 1909 between the British and the Kingdom of Siam to demarcate the boundaries between then Malaya and the what is now Thailand.

The countries of the maritime Malay Archipelago now are – in alphabetical order - Brunei, Indonesia, Malaysia, the Philippines and Singapore. Even though the Malay Archipelago has been divided into different countries, the majority of the native peoples living in these different countries share many historic cultural traits such as their languages, food, clothing, arts and crafts, and architecture. Malaysia's Malays are mostly Muslims, and their lifestyle is greatly influenced by Islamic teachings.

Malaysia is geographically divided into two land masses, which are Peninsular Malaysia on the Malay Peninsula or also known as West Malaysia, with Sabah and Sarawak in the northwestern part of Borneo island or East Malaysia. The capital of Malaysia is Kuala Lumpur, located about 30km from the west coast of Peninsular

Malaysia. West Malaysia is separated from East Malaysia by over 700km of what is now known as the South China Sea.

The overall land area of both West and East Malaysia is 330,803 sq.km. Malaysia is a Federation of 13 states and three Federal Territories that together make up the whole country. West Malaysia consists of 11 states and two Federal Territories, while East Malaysia is made up of two states and one Federal Territory. The biggest state in West Malaysia is Pahang, while the biggest state in the country is Sarawak in East Malaysia.

West Malaysia is connected to Southeast Asia's Indochina mainland by the narrow Isthmus of Kra, which is part of Thailand to the north of the Malay Peninsula. West Malaysia shares its entire northern border with Thailand, while the southern border fronts the island state of Singapore. The long Straits of Malacca, historically the busiest geographic shipping corridor in the world, separates West Malaysia from the huge island of Sumatra in Indonesia, with which it closely shares ancient ethno-cultural affinities that were 'unzipped apart' right down the middle of the Straits of Melaka by the afore-mentioned 1824 Anglo-Dutch Treaty. In East Malaysia, both the states of Sarawak and Sabah have borders with Indonesia's Kalimantan provinces and share many Bornean ethno-cultural similarities. Sarawak, which is the biggest state in Malaysia, also shares a border with the Kingdom of Brunei Darussalam.

Geographically Malaysia is located just north of the Equator, at 2.5 degrees latitude and 112.5 degrees longitude. The distance between Malaysia and the line of the Equator is approximately 278 km. Due to the proximity to the equatorial line, the weather in Malaysia is classified as equatorial rather than tropical. However, both the equatorial and tropical climates are hot and humid throughout the year.

Indeed, the climate of Malaysia is generally hot and humid all year round, with an average daily temperature of 27 degree Celsius with the average annual relative humidity between 74% to 86%. Malaysia receives a lot of rain and the average rainfall is at least



Malaysia

250 centimeters throughout the year. There are two annual monsoon seasons in Malaysia, the southwest monsoon from May until September and the northeast monsoon from November until March. During the two monsoon seasons Malaysia will experience very heavy rainfall, and flooding usually occurs especially in the East Coast states of Peninsular Malaysia. For example, a particularly bad flood experienced in Malaysia was from 15th December 2014 to 3rd January 2015, whereby 200,000 people were affected and 21 people were killed. Other than the annual floods during the monsoon seasons, flash floods can happen anywhere even in the capital city Kuala Lumpur during heavy rainfalls.

Malaysia has a multiracial, multicultural population. According to the Department of Statistics Malaysia (DOSM) the population of Malaysia in 2020 is 32.7 million. The multiracial citizenry is made up of Malays and other indigenous groups known as Bumiputra, who make up the majority (69.6% of the population), Chinese (22.6%) and Indians (6.8%) with the remainder of other ethnicities. The majority of the Chinese and Indian population are the descendants of those who migrated to Malaya (the name before the formation of Malaysia in 1963) largely during colonial times from the 18th until the early 20th centuries.

Malaysia gained independence from the British in two parts, on 31st August 1957 for Malaya the western side, followed by the formation of Malaysia with the eastern side on 16th September 1963. Ever since independence, Malaysia adopted parliamentary democracy under constitutional monarchy, with a Prime Minister as Head of Government. Malaysia has maintained its long history of monarchs or Sultans that have been ruling the various hitherto sovereign Malay sultanate states. Some of these sultanates or kingdoms have roots up to 2000 years old, such as Kedah. The existing hereditary monarchs of nine states take turns to become the *Agong* or King and Head of State of Malaysia for five-year periods.

Malaysian Vernacular Architecture: A Dying Heritage, A Renewed Discovery

Sustainability can take many, widely different forms. Going out of the box, let us take a touristique approach as a way to understanding sustainability:

“Où sont les maisons traditionnelles malaisiennes?...” The beautiful timber ones on stilts with flowery carvings? We want to see those – authentic ones.” So many visitors to Malaysia have asked Nadge Ariffin that question ever since he started tour guiding especially for heritage and architectural tours.

It is such a pity that for example *Rumah Pak Ali* (Pak Ali’s House), a handsome carved timber house in Gombak, near Kuala Lumpur and lived in by Pak Ali’s family for generations, accidentally burned down years ago. It had welcomed over a million visitors through the years who were happy to get a look at its authentic traditional Malay architecture. Without the old house as a lynchpin and with the Jalan Gombak area then redeveloped with modern buildings, tourists have no reason to go there anymore. It didn’t sustain. Tourism died.



Rumah Pak Ali (Pak Ali’s House) in Kuala Lumpur, a popular traditional Malay house destination before it accidentally burnt down on 20th October, 2003



Malay house construction without nails: all elements are pre-cut with holes, allowing for example beams to go through columns and then rigidified with *selak* (wedges), while different parts can also be joined by *pasak* (dowels) that function similarly to nails, yet all *pasak* and *selak* are removable and the entire house is dismantlable.

Nowadays one would be hard-pressed to find traditional houses in original forms in urban areas in Malaysia anymore. The few authentic houses that remain are seen only in the *kampung* or village areas. Many have been modified with modern extensions while so many utilize corrugated zinc roofs – making them unfairly look like poor squatter houses instead.

This is really a pity as the true traditional houses of Malaysia were actually intelligent buildings and part of a wider environment-friendly way of life. Before the arrival of foreign or modern influences, the local peoples of Peninsular Malaysia and their related Bumiputra tribes of Sabah and Sarawak had already highly evolved their traditional dwellings with forms that excellently suited their lifestyles.

Whereas in Peninsular Malaysia single extendable family houses were the norm, many of their Borneo cousins built *Rumah Panjang* or communal 'long-houses' hosting a string of families, each in its own 'apartment' with large or long common multi-purpose verandahs linking the front, called '*ruai*'.

Materials from the Surroundings, and No Need for Any Nailings

Using replenishable natural materials i.e. various timber or bamboo, the local folk fashioned their structures in such a way that it did not need a single nail. Instead, the Malays used pre-cut holes, grooves and dowels to fit and hold the timber prefabricated building elements into one another (*tanggap, pasak & selak* system), effectively making it a 'prefabricated building'. In Sarawak and Sabah rattan ropes were more commonly used as a way to fasten bamboo pieces together. Indeed, all the above were precursors to the concept of IBS, or Industrialized Building Systems that are regaining popularity today.



Rumah Penghulu Abu Seman, a traditional Malay house from Kedah state that, as part of the building tradition, was able to be dismantled piece by piece and reassembled on the grounds of Badan Warisan Malaysia, the Malaysian Heritage Foundation in Kuala Lumpur

Although nails had been invented, and in some houses used minimally for non-structural pieces (for example on supplementary elements), there were benefits of structural flexibility that the rigidity of nailing defeated.

Without nails, a timber house could be dismantled piece by piece and packed to a new location as and when the owner needed to move. For example, this was done for the beautifully restored *Rumah Penghulu Abu Seman*, which was transported from Kedah to Kuala Lumpur by Badan Warisan Malaysia, the Malaysian Heritage Foundation.

In fact, for short distances, the nail-free flexibility and relatively lightweight timber even allowed a traditional-style house on stilts to be lifted on many shoulders through '*gotong-royong*' (community cooperation) and carried to another spot. This elasticity also allowed the house to sway in tremors.

For maintenance, sometimes it would be necessary to replace damaged components of a house. Since nails were not used to put together the elements, they can be more easily taken out and replaced with new pieces.

Traditional timber houses also incorporate design principals still relevant to contemporary architecture such as safety, privacy, shading, and ventilation - qualities easily seen in the house's basic features as in the following sections.

Living in the Air Above, Respect for the Earth Below

A main characteristic of a typical kampung house includes the obvious fact that it is always raised on stilts (or columns or piles). There are five or six advantages for this: to avoid wild animals, to be above floods, to deter thieves and intruders, for added ventilation qualities, and as a storage as well as working area below the house. But most of all, this respects nature.

The fact that the house is elevated on platforms, called "*panggung*" style, is indeed very environment-conscious. For instance, in one stroke, contact with wild animals, from tigers and snakes to centipedes and scorpions is greatly lessened. Yet plants such as herbs and vegetables can still grow to a good extent beneath the house. Thus, conflict with nature is minimized.

One can make a point that the inhabitants basically live on the air, with only the tips of their house - the stilts – touching the Earth. This shows great respect for the *Bumi* by disturbing or occupying the land as little as possible.

It is a philosophy.

Open ground area under the *Rumah Ibu* (main house section) of a Penang style traditional house called *Rumah Gajah Menyusu*.



Space, Form, Function and Proportion - a United Whole



Melaka-style house with a typical *Rumah Ibu* main house on left and a separate *Rumah Dapur* kitchen annex behind it at right, with an optional *Selang* connector space in between

A traditional Malay timber house is almost always in at least two parts: the Main House called *Rumah Ibu* in honour of the mother (*ibu*) and the simpler *Rumah Dapur* or Kitchen Annex - this way if the kitchen catches fire only that part would be damaged, saving the main 'mother house'.

Proportion was also very important to give the house a human scale. Indeed, the *Rumah Ibu* was also named such because the spacings between stilts typically follow the arms-spread width of the wife and mother in the family of the house when being built. Importantly, the lady of the house is acknowledged with its name in her honor.

There is also at least one raised verandah (called *serambi*, or *selasar* in the Malay Peninsular East Coast) attached to the house for working or relaxation or where non-intimate visitors would be entertained. This preserves the privacy of the *Rumah Ibu's* interior, where private chores can be done during the day, and the whole floor areas inside turned into sleeping quarters with *tikar* or mattresses laid out at night.

Note how the traditional house's areas are multi-functional and thus space saving; unlike modern Western-style dwellings where every function is designated a room or at least space that is wasted when unused.

Unwelcoming the Heat, Celebrating the Roof

Basic Malay house roof forms:
'*bumbung lima*' (five-ridge roof)
on left and '*bumbung panjang*'
(single-ridge long roof) on right



Much of modern architectural designs and materials today simply do not use traditions of cooling, thus making heat traps that require air-conditioning and in turn contribute to global warming.

For ventilation and dissipation of heat, the elevation of the traditional house in the wind's path and also its many windows, holed carvings and slatted panels around the walls plus the high ceiling *atap nipah* thatch or thin *senggora* clay tile roofs all contribute to cooling effects. However, the presently popular use of exposed zinc sheets, because of its ease of installation and cheap supply, unfortunately increases heat and is noisy during rain.

All traditional roofs are always pitched to quickly drain off rainwater. Roofs thus become main features and come in two broad categories: '*bumbung panjang*' long roof type with open gable ends or the '*bumbung lima*' or '*limas*' multi-ridge variations. Both types cover almost every conceivable roof design, with some forms peculiar to certain areas or communities, such as the elegant distinctive upward curves of the Negeri Sembilan-style Minangkabau house.

Indeed, each state, regional or co-ethnic group has its own style of house or preferred details. For example, in Melaka the staircase is decoratively moulded and colorfully tiled.

In the Malay Peninsula's East Coast, a local house feature is the distinctive carved roof gable-ends or barge boards (*pemilis*, or *pemeleh* in dialect) somewhat akin to those in Cambodia and Thailand.

Traditional house roofs also always have wide overhangs; important for sun-shading and protection from heavy downpours in tropical climes.

In many cases they have beautifully carved timber eaves called *papan cantik/lawa* or *cucur atap* to decorate the 'visual connection' between roof and sky, especially when seen from the inside while more functionally it helps to reduce glare when looking from the inside out.

Some roofs hold attic bedrooms called *lenting* or *loteng*, effectively making the already raised structure a three-storey edifice. In fact, there have been olden Malay palaces up to five or six storeys high built entirely in nail-free timber, as in Negeri Sembilan's *Seri Menanti Palace*; the tallest in the world (photo at the frontispiece of this paper/article).

Alas, such great edifices of organic materials do not last in exposed conditions without care, and this heritage would diminish as no new authentic traditional houses are constructed. This would be a great loss indeed.



A well-shaded *bumbung limas* roof type Malay kampung house in the Johor style, designed by Nadge. Note the lines of carved *cucur atap* or *papan lawa* roof eaves, and also the *buah butung* roof pointers that were once reserved for chiefs' houses.

Status of Traditional Architecture in Malaysia Today



Writer Nadge at a traditional *rumah panjang* or long-house in Sarawak during a Ngajat welcome dance. Note this long public corridor or *ruai* that fronts the doors to the family rooms on the left. It is both an eco-friendly building and communal-support lifestyle, both of which are dying out in Malaysian Borneo due to modernization.

Malaysian architecture, mesmerized by modernity, does not even look at local traditions where solutions can still be found and further developed for contemporary living requirements. Traditional architectural forms or qualities, such as their tropically-suited roofs and elevated structures with meaningful elements can still be relevant for modern buildings, as often cited in a rare design such as the traditional-inspired “umbrella-roofed” Masjid Negara (National Mosque, completed 1963), Kuala Lumpur, where the raised open-sided *serambi* verandah-like platforms catch breezes.

From the 1950s when about 75% of all individual homes were in naturally environment-conscious tradition-based houses, it is estimated that there are only a few thousand traditional structures left – a dramatic loss.

An analysis would find that this drastic drop is due to many complicated and inter-related factors. Certainly, there has not been any governmental policy against traditional houses although in turn there has been precious little for its conservation either.

A major negative influence is the colonialism-instigated perception that anything old or indigenous is bad or just out-dated and old fashioned, and the traditional house becomes a clear victim to be torn down and replaced.

It is only recently and with much effort that “old is gold” is beginning to hold. And this is only because tourism, where anything of locally characteristic heritage is a potential attraction, plays a large role in this revitalization.

While there are commendable efforts by some in the private or NGO sectors as well as governmental funding for heritage awareness and conservation, much still needs to be done.

Environment Friendly, But Real Sustainability? Recall the Malay Replanters

While the enviro-conscious traditional forms and features such as raised platform building, pitched roofs with good overhangs and cool elevated structures can be re-modelled in modern designs for sustainability through less energy use and so on, there is still the issue of timber.

Some say that we cannot afford to build in timber, as more trees would be cut down. While governmental push is needed to replant hardwood forests, unfortunately even the local community has lost the sustaining culture that came with building in wood. Modern Malaysians have now forgotten sustainable timber customs practiced by their forefathers.

Most of the ancient Malay peoples of Southeast Asia maintained a form of self-regenerating environmental culture. **Since their houses were built in timber, it was a custom that for every child born, the parents would plant at least one tree on behalf of that child. Thus, trees were replanted with each generation!**

Usually, the most popular tree would be the *kelapa* (coconut) 'tree of a thousand uses' but even timber shoots were known to be planted for a child, so that the future generation may use it when the time comes to build a home. In some areas the practice was quite sensibly for its time a coconut tree for a female baby and hardwood trees for males. Whichever, it preserves the greenery and the environment with each generation.

Wouldn't it be good if this environment friendly heritage of sustainable timber planting and building is continuously practiced?

Authors' Biography

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Ar. Ahmad Najib 'Nadge' Ariffin was born when a majority of Malaysians still lived in serene 'kampung' (village) environments. He has since lived around the world, earning two degrees, in Building Science and Architecture, from the United States of America and a stint in Italy, Turkey as well as other countries.

In the various places he stayed in, he picked up interests in heritage and tourism as well as the French, Italian, Spanish and Turkish languages. Today he is a professional Guide for visitors to Malaysia in these languages or on official tours, and is also a researcher and lecturer on architectural, heritage and tourism issues. But the traditional architecture he grew up with is still close to his heart. He is a founding member of ICOMOS Malaysia.

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Ar. Mohd Zulhemlee bin An is a professional Architect practicing in Petaling Jaya, Malaysia. He studied architecture at the University of Arkansas, Fayetteville, Arkansas in the United States of America from 1983 until 1988. During his college days, Ar. Mohd Zulhemlee bin An was an avid student of history and heritage buildings. He joined the National Heritage Society to educate himself on the conservation of heritage buildings by the National Heritage Society throughout the United States of America.

Ar Mohd Zulhemlee is currently a Council Member of ICOMOS Malaysia, and a member of the committee under the Department of National Heritage Malaysia that evaluates the nomination of heritage buildings and sites.



About CIAV MALAYSIA

CIAV MALAYSIA is ICOMOS MALAYSIA's National Committee of Vernacular Architecture. It is an extension of CIAV (Comité International d'Architecture Vernaculaire), an international platform for the dialogue and cooperation between professionals, experts, academics and students of vernacular heritage through CIAV annual meetings and scientific conferences. CIAV fosters discussions and activities on national, regional and international levels.



ICOMOS Malaysia forms part of the ICOMOS international network of multi-disciplinary professionals involved in conservation of tangible and intangible heritage. It is an independent organisation which acts as a national and international link between public authorities, institutions and individuals involved in the study and conservation of all places of cultural heritage significance. At a national level, the Committee serves as a forum for discussion and information exchange, nationally and internationally, on matters of doctrine and of technical, legal and administrative practices, affecting the conservation, restoration, rehabilitation and enhancement of monuments, groups of buildings, and sites.