# Justifying the Cultural Landscape Significance of the Kinta Valley Post-Industrial Mining Landscape, Malaysia

Suriati Ahmad and David Jones

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## INTRODUCTION

> The industrial heritage is highly vulnerable and often at risk, often lost for less of awareness, documentation, recognition or protection but also because of changing economic trends, negative perceptions, environmental issues or its sheer size and complexity (Joint ICOMOS-TICCIH 2011, p. 2).

Post-industrial mining landscapes are often described as unproductive land with lots of environmental issues bound within its ground. This is a literal statement of people's perception towards the industrial environment, to either land that has been abandoned or the industrialization process still in progress. Describing these scenes as 'landscape scar', Storm argues that the heritage value embedded within these lands often 'conveys ambiguous and complex pasts about injustice and fear, along with survival, resilience, and courage … they are physical reminders of something ...' (Storm 2014, p. 1). Interestingly, post-industrial landscapes do contain immense historical values, and that these landscapes carry a rich cultural tapestry that records human responses and stewardship towards land. Since its introduction in 1925 by Professor Carl Sauer, the cultural landscape concept has evolved and finally reached the international heritage community in early 1990s.

Integrating both cultural and natural heritage values, three categories were outlined by the UNESCO in considering a wide spectrum of landscape themes and including industrial landscapes. The first recognition upon this landscape category or type was granted to the Blaenovan Industrial Landscape in the United Kingdom in 2000 thus elevating a new paradigm of landscape heritage to be internationally practised and acknowledged. Jones (2007, p. 8) has argued that the cultural landscape assessments 'provide a more comprehensive perspective'. Accordingly this paper seeks to explore the potential of the Kinta Valley post-industrial mining

landscape in Malaysia, having regard to the establishment of its cultural landscape significance and to further develop its cultural heritage evaluation guided by the *Burra Charter*.

## METHODOLOGY

In qualifying the cultural landscape significance and heritage values of the Kinta Valley post-industrial mining landscape, this study has adopted a mixed-methods research approach. Imposing the embedded designed prototype by Creswell and Plano Clark (2011), this research explored the potential of the Kinta Valley post-industrial mining landscape from various perspectives. Yin (2009) highlights that qualitative data enables researchers to explain phenomena at a higher level while 'fine-grained' quantitative data can be used to support the evaluation of the case study design. Greene (2007, p. 20) however describes mixed method research as involving 'multiple ways of seeing and hearing, multiple ways of making sense of the social world, and multiple standpoints on what is important to be valued and cherished'. Therefore, using the mixed methods research approach has enabled an ability to investigate, discover and serendipitously identify and map the values of the Kinta Valley vernacular landscape that has evolved as a consequence of extensive tin mining activities dating back to the 19$^{th}$ century.

Maintaining qualitative research strand, data accumulated from the in depth interviews and questionnaire survey were used as supplementary results to support the major analysis that was undertaken for this study. However within the major focus of this paper, results and discussion presented will only concentrate on the core study analysis accumulated from qualitative methodology encompassing the expert focus group workshop; documentary research involving primary and secondary data; as well as site visits and observations. Through collaboration from the Landscape Department of Ipoh City Council, an expert focus group workshop has successfully undertaken on 12$^{th}$ August 2014 whereby from this program, important mining

elements and its associated features that contributed to Kinta Valley cultural landscape significance were identified and mapped.

**Cultural Landscape Assessment**

In reading and understanding the cultural landscape values of the Kinta Valley post-industrial mining landscape, it is important that major landscape elements and the layers that contribute to the cultural significance of a place are identified, mapped and documented in order to establish knowledge of the current landscape condition before undergoing any specific assessment and evaluation. This is because 'places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences' (*The Burra Charter* (2013, p. 1).

Apart of the cultural landscape components that make up the fabric of this valley include; spatial arrangements, land uses, natural features, topography, cluster arrangements, cultural traditions, circulation, vegetation, buildings and structures, views and vistas, constructed water features and small scale features (Jones 2007; Lennon 2011; Taylor 1989; U.S. Department of the Interior n.d.). Further Taylor (1989, p. 17) argues that the arrangement of these landscape components will create a 'montage effect' on the physical landscape thus possesses tangible and intangible values that Jones (2007, p. 14) describes as 'socially treasures' embracing the cultural landscape philosophy of human and nature dependencies.

### 3.1 Response to Natural Features and Topography

Covering an area of 195,804 ha, Kinta Valley was covered with rain forest reserves that were rich with variety species of flora and fauna located on the eastern (Main Range) and western precinct (Keledang Range) of this valley. Experiencing a near uniform temperature and heavy rainfalls

throughout the year, this natural condition informed the emergence of lavish water sources that exist on both ranges thus framing Kinta River and its major tributaries importance in relation to massive tin mining explorations dating back from the 1880s. Up to the present time, the footprint of previous massive tin mining explorations that commenced within the envelope of this valley were still notable especially alongside the river corridors. Particularly, Kinta Valley ground was covered with calcareous series (limestone) and alluvium that exist almost entirely stanniferous. Edwards and Atkinson (1986, p. 184) after Ingham, Scrivenor and Walker, reported that the Kinta Valley alluvial 'is believed to be derived from the erosion of tin-bearing veins, pipes, stock works, greisen and stringers cutting granitoids or sedimentary rocks in contact with them'. Further Ingham and Bradford (1960, p. 108) argue that much of the concentrated and 'deep alluvial channel' (refer to Figure 1) had established within the foothill of the valley granitic range as well as established in varies thickness throughout the Kinta Valley ground.

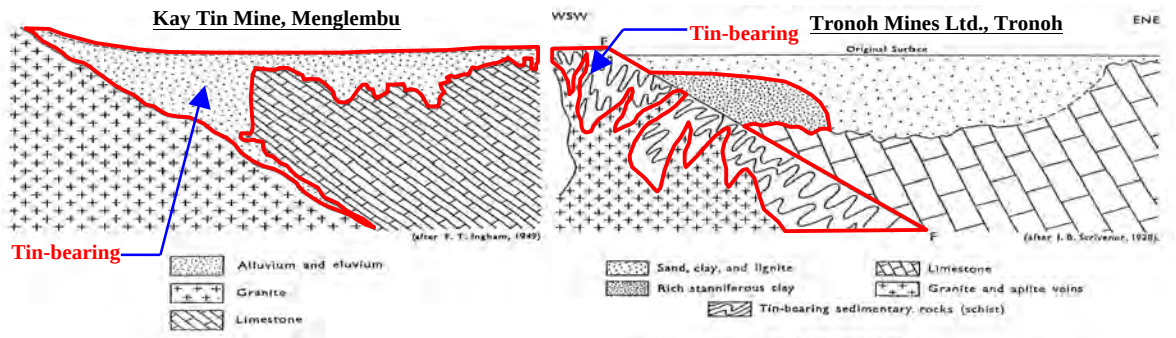


Figure 1: Cross-section illustrating the typical mining ground highlighting the occurrence of tin lodes (stanniferous alluvium) within the Kinta Valley bedrock.
Source: Reproduced from Ingham and Bradford (1960, p. 108 & 79); Author modification

As evidence, 15 extant dams were discovered in the field work to have been established within both ranges that were constructed during the mining boom in Kinta Valley as supporting a water system for mining sites as well as in assisting the growing of an agricultural industry (especially rubber estate plantations established by Kinta planters from 1876) although this industry has slipped into second favour by the former colonial administer (Ahmad & Jones 2015). Thus, from

field investigations, 12 dams were uncovered in Kinta Valley's southern precinct with highly concentrated areas focused around Gopeng. With extraordinary alluvium ground thickness and coupled with strategic location, there is no doubt why Gopeng was able to develop as an important mining place in Kinta Valley. Supporting the expansion and rapid growth of tin mining industry in 1920s, the increased demand for a stable electrical supply also witnessed the construction of 2 permanent electric power stations; the Malim Nawar Power Station (built in the year 1927 - refer to Figure 2) and the Chenderoh Power Station that was constructed in April 1928 (Ipoh Echo (Archives) 2013).


Figure 2: (A) Chendaroh Power Station; (B) Malim Nawar Power Stations; (C) Mining dam on Kampar River
Source: Photograph A-Google image, Photograph B-Ipoh Echo (Archives) (2013), Photograph C by author, 2013.

Apart from tin, other mineral deposits that are present within the Kinta Valley boundary (although they were deemed not of great economic importance) include; antimony, bismuth, cobalt, copper, gold, iron, lead, lithium, manganese, torium, titanium, niobium, tantalum and tungsten, and by-product of tin dressing including ilmenite and monazite (Ingham & Bradford 1960). At present, tin, iron ore, by-product minerals and limestone outcrops continue to contribute to the district's and the Perak State economy although the current production is not as significant as what is was during its boom era (Department of Town and Regional Planning 2008; Minerals and Geoscience Department Malaysia 2013). Having regards to the availability of lavish water resources, coupled with its rich geological ground, physiographic and topographical factors,

this permeable condition influenced human responses towards the Kinta Valley landscape whereby the limestone hills were continued to be overrun as a part of the ongoing industrialization process.

### 3.2 The Establishment of Spatial Organization

Chronologically, patterns of the early settlements that established in Kinta Valley was perceived to concentrate along the Kinta River and its major tributaries. This is because the river was the major transportation route before the year 1880 and serviced the working of padi fields by the native people whom occupied plantation areas particularly along the Kinta River (this was due to easy water supply that could accommodate their cultivation areas). With only a few jungle tracks available, since much of the Kinta Valley land was covered by swamps, bushes and jungles, it was hard to travel inland incomparable to river transportation. Having regard to this condition, therefore much of the early Malay villages (e.g. Kampung Paloh, etc.) that established in Kinta Valley were clustered along the Kinta River corridor (refer to Figure 3).

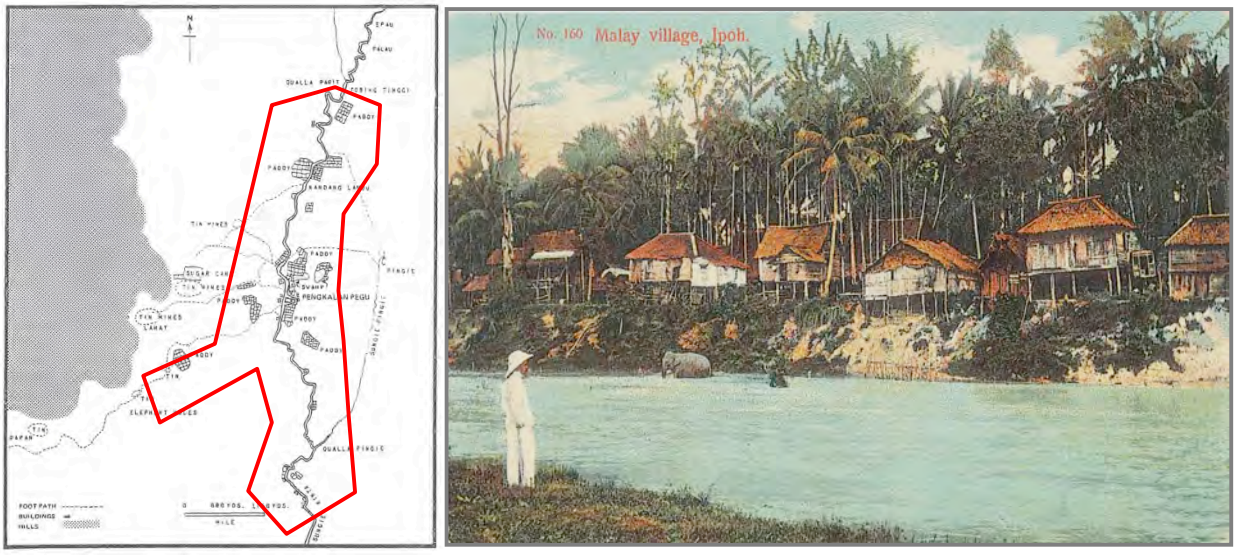


Figure 3: Old map and photograph of the settlement patterns in Kinta Valley within the year 1870s
Source: Reproduced map (left) from '*The Journal of J.W.W.Birch*' (cited in Khoo & Lubis 2005, p.10) with author modification; and old photograph (right) from Cheah (2009, p. 109)

Further, since patterns of concentrated tin mining sites that were established in the Kinta Valley were attracted to the thickness of stanniferous alluvium ground deposits, with deep channels of concentrated tin lodes found mainly within the foothills of the valley, this massive exploitation resulted in an establishment of 22 important mining places (settlements that existed were known as mining towns and villages). The emergence of these important places occurred between 1870s until early 1900s signified the valley's importance as the major tin district producer for Malaya (Malaysia). Further with the discovery of the lavish tin field in Kinta Valley from 1870s, the spatial arrangement of this valley evolved drastically, from river settlements to a modern well planned district. Even the Perak Resident Swettenham made a significant claim mentioning that the Kinta district is a successful model district that the government has ever created for the Malay States. Accordingly, in supporting the rapid growth of tin mining operations, a new transportation network involving the development of railway lines and a road system was constructed in 1880s further linking all important mining places that emerged in this valley (refer to Figure 4).

The establishment of these new circulation networks, as illustrated in Figure 3, manifested the major economic concentrations that undoubtedly were monopolised by tin mineralisation although during the same era, the rubber plantation industry prospered in Kinta Valley. Further, with the development of this new circulation network, settlement patterns, including new villages, vegetable gardens, market gardening and ancillary industries including timber mills, *amang* retreatment plants, etc., flourished along the new constructed trunk road in conjunction with much of the landscape mosaic and spatial arrangement that existed since the early 1900s extant until the present day (refer to Figure 4-map year 2000s).

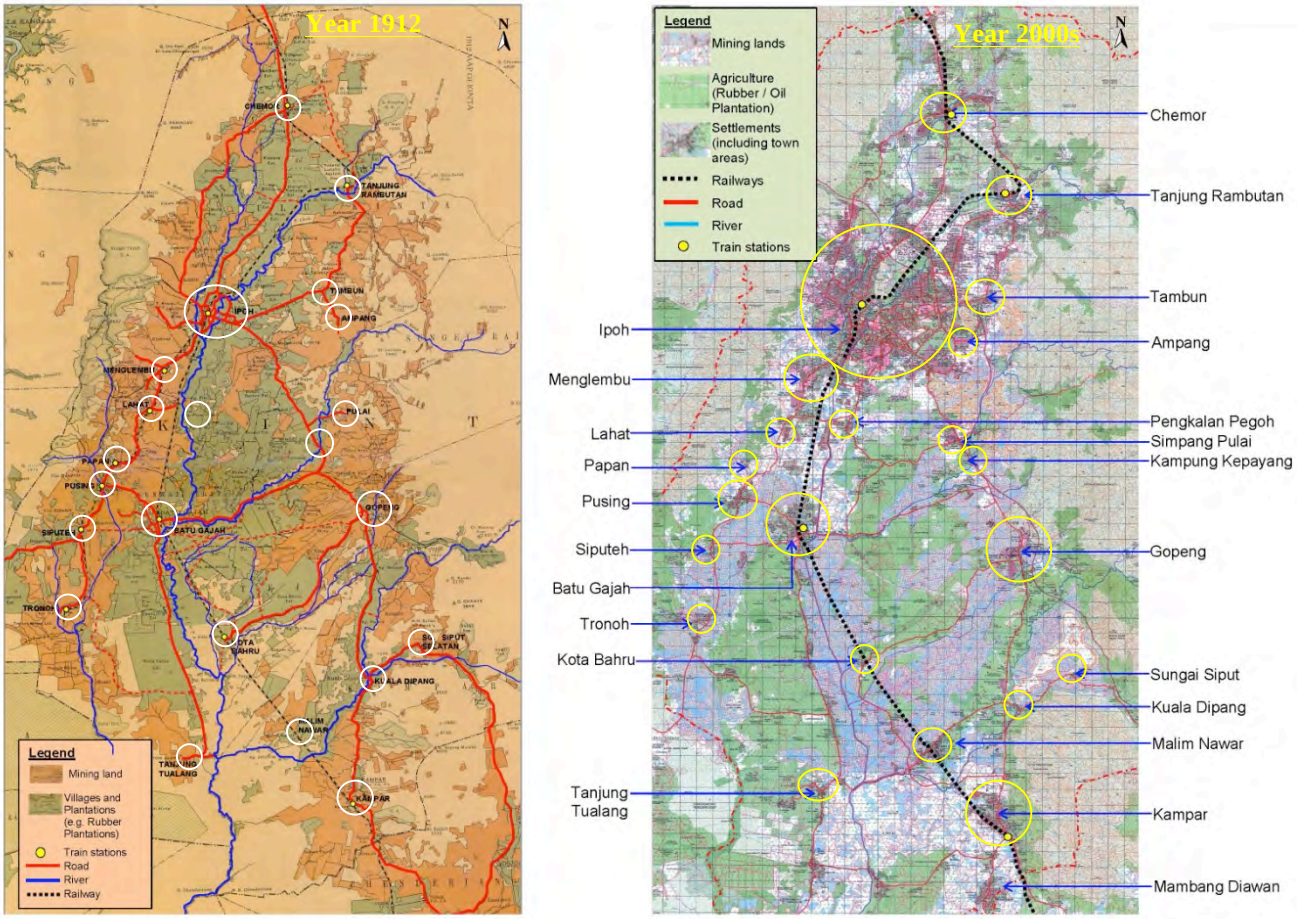


Figure 4: The establishment of the spatial arrangement of the Kinta Valley within the year 1912 (map on the left) with almost similar landscape pattern extent in map year 2000s (map on the right)
Source: Map year 1912 reproduced from Khoo and Lubis (2005) with author modification; Map year 2000s reproduced with consent from the Department of Survey and Mapping Malaysia (JUPEM) with author modification.

## 3.3 Land Use

Before the mining era monopolized the Kinta Valley ground, Kinta Valley was covered with bushes, swamps and jungles with some Malay villages established along the Kinta River (Birch 1976). Guarded by the Keledang Range on the western flank and the Main Range on the eastern flank, Kinta Valley was blessed with rich natural resources and forest reserves. Therefore, with the discovery of large tin field in the Kinta Valley after the Larut War, the landscapes of this valley progressively evolved and finally turned Kinta Valley into an important mining district for

Malaya. Different from the Cornwall and West Devon geological ground (hard rock mining), the existence of rich stanniferous alluvium within the Kinta Valley boundary influenced the evolution of mining techniques introduced to extract tin.

Utilising open cast, hydraulic, gravel pump mining, and dredges, the workings of these mining methods impacted upon the physical surface of the valley. Evidence of the past and current mining operational areas (the post-industrial landscape scar) are today easily perceived within the present of landscape fabric including mining features like open cut areas, bushes, pits, mining ponds and large mullock tailings areas that are still visible and continue to be a noticeable montage for Kinta Valley especially in its western and southern precincts (refer to Figure 5).

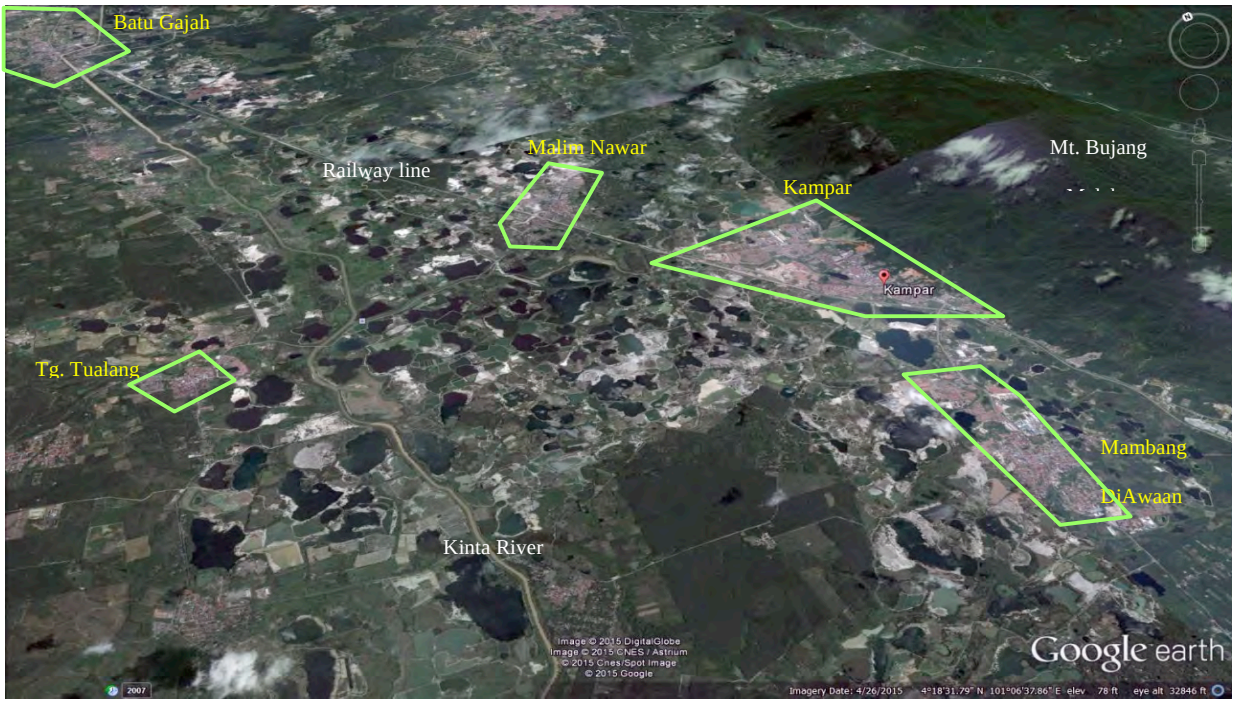


Figure 5: The landscape mosaic of the southern precinct of the Kinta Valley
Source: Google earth

Additionally, the historic land use that was established in Kinta Valley by the year 1920s was predominantly characterised by mining land (as illustrated on map 1912 highlighted in Figure 4). From 1870s-1890s, tin mining 'was the only business in Kinta' (Khoo & Lubis 2005, p. 22). Hence with the development of a new road circulation system that linked all important mining areas within the valley provided access to new land. Therefore starting from the year 1890, agriculture was promoted by the Kinta Valley administration offering new tracts of *padi* plantations areas, coffee, orchards and pepper to the Sumatran immigrants and maintaining the Perak Malay farmers with their descendent occupations, including cultivating *padi* (Hill 2012; Khoo & Lubis 2005; Loh 1988). Additionally, the state government released land to lower the rental price of land in order to stimulate the growth of an agricultural industry. Around the same time, Para rubber or the Rubber tree (*Hevea brasiliensis*) was brought to Kinta Valley from the Kuala Kangsar District enabling experimentations at Batu Gajah. Due to its survival, large agricultural land was requested to the government to enable the cultivation of *Hevea brasiliensis* in conjunction with established areas to the south of Batu Gajah, Kampar, Kota Bahru as well as to small holders involved in rubber plantations situated in Gunung Mesah (Gopeng), Kampung Cholek (Gopeng), and Sengat (Sungei Raia) since the year 1896. Much of this former agricultural land use existed under the colonial administration in Perak is still visible and extent today although at present some former mining land, especially within the area of Papan, south Batu Gajah, Tanjung Tualang, Sungai Raia, Kota Bharu, Gopeng, Chemor and Kampar, have been converted into agriculture land use (economic plantation) maintaining rubber cultivation, vegetable farms and market gardening with some tracts of land have been replanted with palm oil plantation (*Elaeis guineensis*).

According to Khoo and Lubis (2005, p. 51), further action taken by the colonial administration from the 1890s was to develop an alternative economic sector taking into consideration the

possible collapse of the tin mining industry as well to encourage ‘permanent settlers’ due to squatting contributed by the significant numbers of Chinese mining coolies. Due to economic slump following the First World War, much of the mining coolies lost their jobs and shifted to vegetable farming. This shift provided a fast cash crop that helped sustained their family economies mediating their dependency upon the mining industry to agriculture as a source of food and income to the family. However government and investor priority was still given to mining activities (from early 20$^{th}$ century) facilitated by all means that the government could avail including acquisition and or cessation of agriculture leases land to enable mining activity expansion.

Thus, due to the past political ideologies, much of the present rural dwellings that emerged during the Kinta Valley golden era, coupled with the resettlement program and the implementation of Briggs Plan right after the World War II, were perceived to extend within the western and southern precincts of the valley. As a consequence, the spatial arrangements together with land use reflect a tapestry montage of an industrial ruinous character expressive of the Kinta Valley post-industrial mining landscape. This landscape has some similarities with the abandoned industrial landscapes presented by the Burra and Moonta landscapes in South Australia as well as the Cornwall and West Devon mining landscape in the United Kingdom. Further, within the core settlement areas that were established in Kinta Valley from the 1880s (refer to the highlighted areas in Figures 4 and 5), significant land uses that were established within these historical areas included businesses and services (e.g. retail, pawn shops, tin ore dealer shops, medicinal shops, etc.); community facilities including post offices, schools and markets; villages; and ancillaries industries (e.g. timber mills, tin smelting, *amang* retreatment plants, etc.).

Interestingly, to date, much of these historic land uses have remained in Kinta Valley, with some areas being perceived to have physically expanded due to changes in lifestyle especially within places suffering urban encroachment by Ipoh, the capital city of the Perak state (Ahmad & Jones 2013). Further, other than agriculture, these former mining lands were located close to the main roads and thus have been reclaimed and converted into other land uses including new residential areas, industrial, institutional and commercial resulting in the loss of the aesthetic and functional fabric of the historic landscape of the Kinta Valley. Additionally, due to land conversion (the term 'development' defined by ICOMOS (2005) threatening factors to historic places), the most significant area that has faced economic expansion is in Gopeng, Kampar, Sungai Raia (old spelling 'Sungei Raia'), and particularly in areas concentrated in the northern precinct of the Kinta Valley including Chemor, Tanjung Rambutan, Lahat, Menglembu, Tambun and Ampang. Development along the Gopeng-Ipoh road clearly demonstrates the results of the dismantlement of 'Paip Besar Gopeng' (built in 1908) and the deterioration of old shop houses in Tekkah (Sungai Raia). Both places (Sungai Raia and Gopeng) were influential in tin mining since 1870s and are increasingly loosing their important elements and thus industrial identity.

### 3.4 Circulation, Cluster Arrangement and Cultural Tradition

Since mining industrialization occurred in Kinta Valley from 1880s, much of the spatial patterns that existed within this valley resulted in cluster arrangements involving settlement areas (including towns with rows of buildings; villages; cemeteries; schools; markets; post offices; and police stations), ancillary commercial activities, agriculture, and even concentrated mining lands and infrastructure. As an example, in Gopeng (refer to Figure 6), the cluster arrangement that exists within the boundary of this area has a similarity in pattern to other early mining settlements that were established in Kinta Valley. In the early 1900s, Gopeng emerged as the largest mining village in Kinta Valley (some colonial documents and historian describe the Gopeng settlement

as a ‘town’). Due to its importance, Kota Bharu was acknowledged as the port for Gopeng resulting to the establishment of government administration in this area before it was transferred to Batu Gajah due to a malaria outbreak in Kota Bharu.

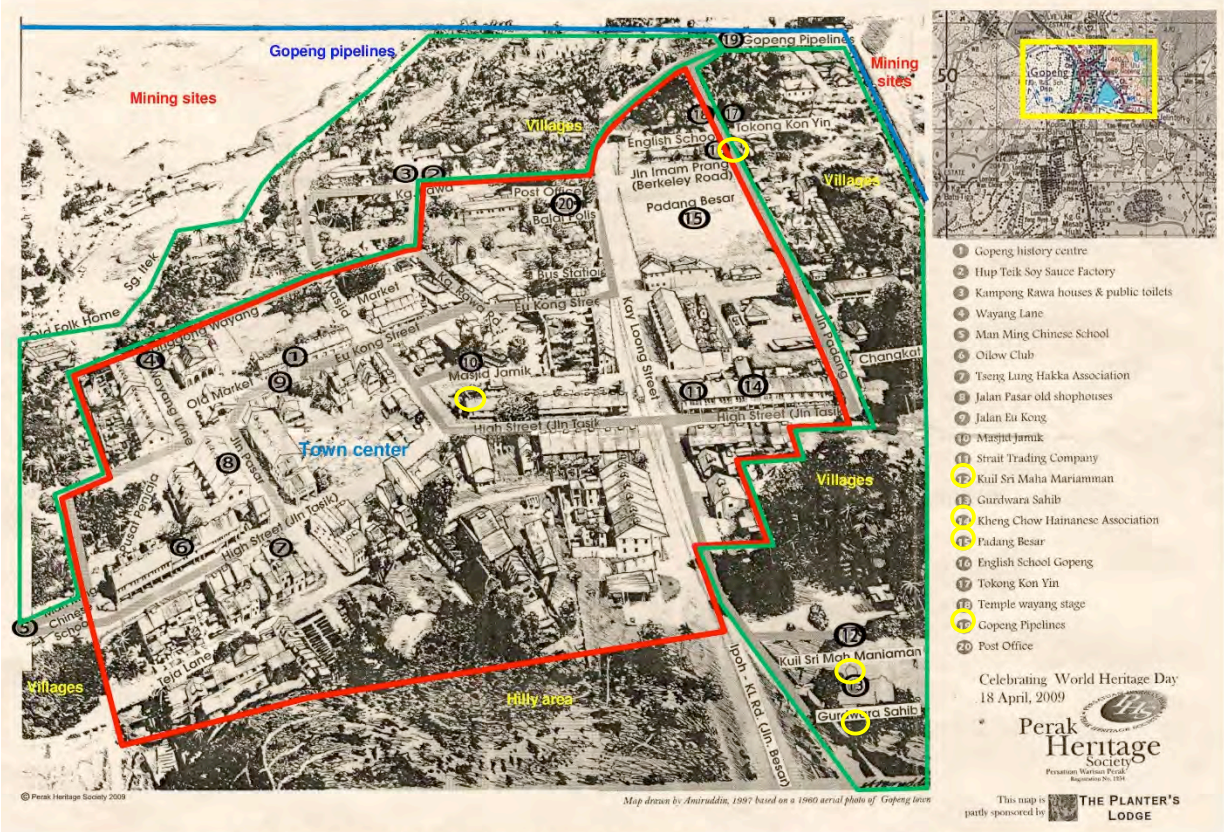


Figure 6: Cluster arrangement that exist within the Gopeng town centre in 1960s; Illustration by Aminuddin in 1997
Source: Reproduced from the Perak Heritage Society (2009); Key map was reproduced with consent from the Department of Survey and Mapping Malaysia with author modification.

Other than cluster arrangements, cultural traditions were also practised within this settlement areas. Having regard to various nationalities and cultures that were attracted to settled in Kinta Valley, this scenario impacted upon the physical setting and character of the valley. For example in Gopeng, Kampung Rawa was established in Sungai Itek and was dominated by Sumatran Malays (‘foreign Malays’) whom were mostly Muslims and thus built the Masjid Jamek (mosque) within their periphery. Another example in Kampar, due to the domination of Chinese

in this area whom practised the Feng Shui system, it resulted in the utilisation of large tract of land located in the foothills of Mount Bujang Melaka for their cemeteries. A similar pattern was also occurred in Papan. With historical emergence of 22 settlements in the valley to assist the mobilization of tin, railway lines and trunk roads were constructed in 1880s. Thus, while massive mining exploration and activities resulted in the aquatic siltration for the Kinta River, thus in 1950s Kinta River was canalized straightening involving 61 kilometres of the river between Kuala Chenderiang to Lahat to maximise tin excavation efficiencies, and straight road and road alignments.

### 3.5 Vegetation and its Impact towards the Visual Appearance of the Kinta Valley

Within the peripheral of the former mining land, the most discernable visual impact was dominance of a forested landscape with bushes with the emergence of some native aquatic plants including Lotus (*Nelumbo nucifera*), Yellow sawah lettuce *(Limnocharis flava),* Colok cina *(Typha* domingensis) and Kangkung (Ipomoea spp.). Due to the presence of abundant mining ponds in this valley, the Lotus plant was easily cultivated and sold in the old markets or in some Chinese shops in Tanjung Tualang, Batu Gajah and Kampar because it is an important cooking ingredient for making Chinese soup. Other native plants that are a ‘landmark’ to the Kinta Valley former mining areas include the Rain tree (*Samanea saman*), Ketapang (*Terminalia catappa*), and Mangium (*Acacia mangium*) that were visually significant along the main corridor of the Kinta River.

### Assessment of Cultural Significance

Within the context of the *Burra Charter*, places of cultural significance should inculcate five important values comprising aesthetic, historical, scientific, social and spiritual values. Based on this cultural landscape assessment, partially reviewed in this paper, that has been conducted for

the Kinta Valley post-industrial mining landscape, it can be concluded that the landscape fabric that is currently extant in Kinta Valley is still evident including much of the former land uses that emerged in the 1880s that are still extant today. Mining industrialization resulted in place making together with the establishment of 22 settlements that demonstrate significant character, that were established under a colonial administration, that controlled the political ideology before the independence of Malaya.

Accordingly, the extent of the tin mining exploitation landscape fabric within the boundary of this Valley offers a palette of demonstrating the landscape integrity and authenticity of the Kinta Valley post-industrial mining landscape that was established because of extensive mining industrialization. This rich cultural tapestry, embedded within the Kinta Valley landscape, can be translated and successfully mapped against the five cultural heritage values discussed in the *Burra Charter* and evidences the presence of these values. Thus, a key conclusion forthcoming is that the he Kinta Valley post-industrial mining landscape could be proclaimed as a significant culture heritage landscape for Perak State in Malaysia.

**Conclusion**

> The scars in the landscape, cause by industrial activity, constitute the flipside to the history of our modern society- integrated by necessity, yet not acknowledge accordingly … a scar is a reminder, the trace of wound … but also the associated narratives, experiences, and memories (Storm 2014, p. 1).

The cultural landscape assessment that has been undertaken for the Kinta Valley post–industrial mining landscape has enabled a reading of historic fabric of the cultural layers of this valley to established and documented. Exploring the tracery of human interventions, and human responses to this environment has exposed the valley's rich cultural tapestry link to tin mining exploitation

that possesses extant tangible and intangible forms and meanings that can be evaluated. It is therefore apparent that Relph discusses about place, being identity as being composed of three interrelated components or 'physical features or appearance, observable activities and function, and meaning or symbol' (cited in Taylor 2008, p. 5). Taylor (2008, p. 4) has argued that that identity 'is critical to a sense of place-*genus loci*-for people' and in the case of Kinta Valley, the extant fabric together with the continuity of cultural traditions and practices directly influences the physical development of the landscape in conjunction with its human and community ideology. The mining industrialization of the Kinta Valley landscape also resulted in changes and reformation of communities including the Malay Aboriginal (*Orang Asli*), Perak Malays, Sumatrans ('foreign Malays'), Chinese (as much of them were brought to Kinta Valley as mining coolies), Indians, etc.

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