Evaluating stakeholders' preferences: reconciling heritage and sustainability

Wan Abdullah Zawawi Noor Amila*

Civil Engineering Department,
Universiti Teknologi Petronas,
Ipoh, Malaysia
Fax: +605-3656716
E-mail: amilawa@petronas.com.my
*Corresponding author

Abdullah Alias

Kulliyyah of Architecture,
International Islamic University Malaysia,
Kuala Lumpur, Malaysia
E-mail: profalias@gmail.com

Abstract: Decisions on heritage redevelopment are often based on mono-cultural British system guidelines, a narrow representation of Malaysia's multi-cultural society. Involvement of direct stakeholders is minimal in the decision process. This paper provides an objective evaluation for traditional shophouse redevelopment, incorporating multiple stakeholders' preferences. It explores stakeholders' conflicts and values using the Multiple Criteria Analysis (MCA), comparing the stakeholders' preferences on a set of criteria for redevelopment decisions. It was found that they have dissimilar preferences, even within their homogenous groups. This study discovers the potential of MCA to increase transparency in redevelopment decisions involving built heritage and multiple stakeholders.

Keywords: conservation area; traditional shophouse; redevelopment decision; stakeholders' values; multi-cultural society; multi-criteria analysis; AHP; analytical hierarchy process.

Biographical notes: Wan Abdullah Zawawi Noor Amila is an academic who has worked in various higher learning institutions in Malaysia. She specialises in the application of Multicriteria Decision Analysis (MCDA) to urban planning decision making, particularly in the redevelopment of urban heritage areas and sustainability of the built environment. Currently, she is undertaking research in the sustainability of steel for offshore platforms. She is a member of the Malaysian Steel Structural Association and the Malaysian Association of Facilities Management, and is also an associate member of the Institution of Engineers, Malaysia.

Abdullah Alias is an academic with more than 35 years of combined experience in industry and academics. His specialisation lies in the fields of urban and regional planning, as well as spatial planning and MCDA. He held many senior management

posts, and is currently the President of the Malaysian Institute of Planners. He has been actively involved in formulation of national development policies, as well as development plans for Kuala Lumpur.

1   Introduction

The world's limited resources would not allow an individual to reap all the benefits without causing society as a whole to suffer in the long run. The logic of 'commons' (Hardin, 1968) would not allow unchecked urban redevelopment in conservation areas. Cultural values, once lost, are irreplaceable. Jacobs (1961) believed that to remain sustainable, a city must embrace its past in its future planning. The past gives a sense of belonging to the society, supporting future growth. Therefore, progressive development should be balanced with conservation of important cultural values within society (Steinberg, 1996; Kaufman, 2009). Cultural values of a society are strongly associated with the physical structures, particularly the buildings (Fels, 1994; Wan Hashimah and Shuhana, 2005). The evolution of architectural details of each building reflects changing eras. Development that continually replaces these buildings with modern structures will diminish cultural values and disintegrate society (Khoo, 2000), whereby intangible heritage such as local festivities are celebrated less and less every year. Even if they are celebrated, they lack vigour.

In a city such as Kuala Lumpur, redevelopment and conservation make for a quandary. Conservation of the traditional shophouse is strongly opposed by market pressure biased towards economically highest and best land use. The zoning of older areas into commercial property intensifies the redevelopment pressure on this built heritage (Kuala Lumpur City Hall, 2005). The threat of obsolescence requires traditional shophouse owners to decide on the extent of redevelopment: adaptive reuse, rehabilitate, façade conservation or total redevelopment. In general, total redevelopment creates an opportunity to eliminate substandard buildings, incompatible land uses and other unwanted elements (Chen, 1986; Rahim & Co Research Sdn Bhd, 2005). Perpetually increasing land prices render urban redevelopment into attractive economic propositions. The surrounding communities also indirectly benefit from the redevelopment of a site (Zielenbach, 2000). On the other hand, the social function of a city should be just as important. Total redevelopment is commonly associated with gentrification. Many redevelopment examples displaced the original community and thus, destroyed social integrity in most cases (Kleniewski, 2006). Minority groups are often removed from redeveloped areas (Dreier, 1995); a decision made for the greater good easily loses sight of its objectives (Lempert and Nguyen, 2008). However, urban redevelopment as defined in this research could revive the social life of a place. In this respect, adaptive reuse and façade conservation are more favourable options to total redevelopment, because they cause less social disturbance. Both are also much quicker and cheaper options to improve the quality of building stock. More importantly, they are better, sustainable approaches to urban redevelopment: they use existing resources and produce less construction and demolition waste (Langston et al., 2008). Minimal social disruption is particularly important for older inner city areas, because of the existing community and its association with the built heritage.

This paper is part of an ongoing research to provide an objective evaluation for traditional shophouse redevelopment, incorporating multiple stakeholders' preferences. It focuses on

exploring conflicts and values of the stakeholders using the multiple criteria analysis, or MCA, technique. The study is dedicated to provide a mechanism to elicit and objectively evaluate respondents' interests and values. These differences are now measurable, comparable and if so desired, can pave the way for further discussion to understand the issue. This study will act as preliminary findings for political decision makers to further explore the conflict and reasons behind the conflict, thus promoting a transparent and consensual decision-making environment.

1.1   Redevelopment vs. conservation

Conservation and redevelopment have been harmonious concepts due to the general misconception of conservation as preservation, which is now an obsolete concept (Sullivan, 2003). For conservation to be part of sustainable development, future growth of urban areas within its progressive context is inevitable. As Malaysia made its place in the global economy, Kuala Lumpur or KL, as it is fondly known, as the capital experiences rapid growth far ahead of other cities (Morshidi and Suriati, 1999). Rapid development creates demands for more space within the city centre. Despite consuming all vacant land, there is still the need for more land. Older areas become potential developable land via urban redevelopment. Urban redevelopment consists of many stages of newer development, which can be as minimal as interior renovation (also known as façade conservation), changes in the façade and interior, increase in the floor areas or even total removal of the existing building, to be replaced by a new building. At the market's will, increasing demands will eventually change the urban form altogether. Developments in Kuala Lumpur were most rapid during the second half of the nineteenth century and the first half of the twentieth century. During the 1960s and early 1970s, the growth was determined by national forces, dependent on the performance of the national economy. In 1980, the government initiated integration of KL's economy with the global economy. By 1995, the KL Stock Exchange, or KLSE, was ranked fifth in the Asia Pacific Region after Tokyo, Osaka, Hong Kong and Australia (Morshidi and Suriati, 1999). KL became a centre for trade, finance and commerce. Commercial land use increased more than 25% from 1984 to 2000, whilst other land uses decreased. The fast pace of growth has led to corresponding pressures on the city centre's limited land supply, resulting in substantial, and in some cases irreversible, changes to its built form and socio-cultural character. The existing space, a legacy of colonial decisions in the immediate past, represents different socio-economic and political forces and circumstances. Now that KL has rapidly developed as a global city, the demands for more commercial floor space have increased the pressure for these heritage areas to be redeveloped as modern structures. The conservation guidelines imposed on these older areas are perceived as unnecessary development obstacles. Many owners want the freedom to express their business identities via the outlook of their premises. Nevertheless, some pro-conservation groups are of the opinion that the original urban character should be conserved to maintain KL's unique urban identity.

1.2   Guidelines and regulations

Malaysia's built heritage is a recent one, as compared to other world heritages such as Jordan's ancient city Petra. However, this does not in any away imply that it should not be protected against total redevelopment. On its own, the built heritage may not be spectacular,

but together with its intangible resources, such as multiculturalism and ethnic diversity, they are worth preserving for future generations. Architectural significance has been heavily emphasised in guidelines for redevelopment within conservation areas in KL. More than 40% of the heritage nomination and survey forms used by local authorities concentrate on architectural details such as type of architecture, i.e., Moorish, Art-Deco or Neo-Classic. Conservation guidelines also stress architectural aspects, i.e., redevelopment allowed must abide by façade uniformity defined by level parapet lines, similar building materials and others (Kuala Lumpur City Hall, 2008b). In reality, there are many other aspects which could be objectively considered in decisions to redevelop culturally significant urban areas. Deeper understanding of the values and interests of different stakeholders would assist in sustainability of the built heritage.

1.3   Public involvement in redevelopment decisions

The emphasis on involvement of multiple stakeholders in urban planning is one of the approaches to a sustainable future (Tweed and Sutherland, 2007). It is an integral element in planning to successfully create a vibrant and sustainable urban area. As it is, current planning decisions are made exclusively by a group of stakeholders. However, successful urban redevelopment in many countries shows that they were initiated and driven mainly by the communities themselves (Dreier, 1995; Landorf, 2009; Aas et al., 2005; de Merode et al., 2004). This has not been the case for Malaysia, whereby community participation in conservation is minimal (Zainah, 2006). Urban redevelopment in Malaysia follows the typical top-down planning process. Public participation in planning decisions has been very limited, and at best, a mere formality. For example, the Kuala Lumpur Draft Local Plan, KLDCP (2008a), is currently in the process of gazetting. There was no involvement from the public until public viewing of the draft development plan. The public are then invited to view and subsequently submit their objections, if any. A public hearing committee was appointed to hear all objections and submit a report to recommend changes on the draft plan to the Mayor. The final decision as to whether or not to adopt the recommendations lies exclusively with the Mayor. Multiple stakeholders' viewpoints, which are possibly conflicting, are not appropriately incorporated.

1.4   Multicultural heritage

KL's distinctive local identity is entrenched in its traditional shophouse. The traditional shophouse with a covered *kaki lima* (literally five foot) way is unique to early urban settlements in Southeast Asia, particularly Malaysia, Singapore and Thailand. The *kaki lima* is an adaptation to the local hot and humid climate and torrential rain. This oldest extant urban settlement is the repository of a lifestyle from a different era. It was the era of small-scale economy and living that ironically nurtured the current economic success. Apart from markets and places of worship, the traditional shophouse is one of the three main components of early major towns in Malaysia (Gullick, 2005). Many have played a central role in the life of a city for close to a century. Malaysian built heritage is largely regarded as the product of a colonial plural society (Fels, 2002; A Ghafar, 1997). Diverse cultural influences are clearly manifested in the architectural details of the traditional shophouse. The traditional shophouse is one of the earliest urban structures in Malaysian towns. Its floor space was designed to cater for functions that met the needs of the then urban people. The ground floor is for business, whereas the top floor is for residences. It was extremely

convenient for traders and merchants to live within the proximity of their workplace. As their businesses grew, the merchants moved their residences to the outskirts for a better living environment for their families. The vacant residential quarters were converted into quarters for their workers or rented out to tenants. Over the years, the traditional shophouse has played a major role in meeting housing needs for urban dwellers (Khoo, 2000). It has been silently, albeit strongly, supporting economic growth, and helped sustain businesses for many generations in the rapidly developing city centre.

1.5   The study area

The City Hall of Kuala Lumpur or CHKL has been quite proactive in protecting all heritage buildings and areas within the city centre. CHKL has drafted a local plan that defines three heritage zones within the city centre, which mostly contains the traditional shophouse: Primary, Secondary and Tertiary Heritage Zones. The designated zones define the level of conservation enforcement. The Secondary Zone encompasses an area that is "less contiguous and contains mixture of newer and older buildings with significant historic merit". The zone is the oldest commercial area, where the most number of traditional shophouses with historical or architectural merits are located. It is populated with Category 3 heritage buildings: buildings with "elements or characteristics of some historical or architectural significance which are recommended to be conserved" (Kuala Lumpur City Hall, 2008a).

The 'owners' in this study are the people carrying out business activities within the area. Twenty individuals were approached for a structured interview, but only nine of them cooperated. They are lay people, representing the community made up of owners and tenants in the study area. They were chosen based on the premises they occupied, namely the traditional shophouses within traditional commercial areas undergoing rapid redevelopment nearby and in the surrounding areas. This publication is one part of a research work published elsewhere.

2   The methodology

2.1   MCA technique

MCA is not the only tool used to measure different aspects in sustainability (Lempert and Nguyen, 2008). MCA was chosen in this study for a number of reasons. MCA effectively decomposes a decision problem in a structured manner. Each stakeholder is to consider and assign a weighting factor to each criterion (Janssen, 1992). The need to justify criteria and weight choices can contribute to openness, traceability and accountability in the decision-making process. It enables stakeholders to learn about their own preferences (and of others as well). Transparency in decision making is increasingly demanded in public and private decisions that affect scarce public resources, such as land and its associated uses (Surin, 2007). The MCA method provides an insight into how different individuals approach a decision and the intensity of consensus or conflict among individuals. One of the most popular MCA methods is the analytical hierarchy process or AHP proposed by Saaty (1980). The working principles of AHP comprise decomposition, comparative judgment and synthesis of priorities. AHP outlines three basic steps: model building, pairwise comparison and ranking. A set of criteria is established and decomposed into different levels of independent elements, with increasing degree of specificity, known as a decision hierarchy (Figure 1). The criteria will be used to evaluate the alternatives.

Figure 1 Redevelopment decision problem decomposed into decision hierarchy
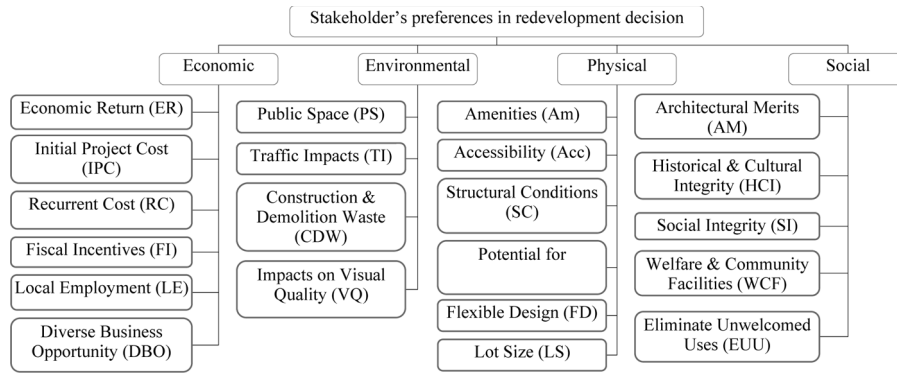
Comparative judgment compares the relative importance of one decision criterion to another at the same pairwise level. Stakeholders will assign weights to each criterion according to their preferences on a scale that ranges from equal importance to extreme importance, represented by the numbers 1–9. Even numbers are considered as intermediate points between adjacent values.

Importance intensity	Definition
1	Criteria *i* and *i'* are equally important
3	Criterion *i* is moderately more important than criterion *i'*
5	Criterion *i* is strongly more important than criterion *i'*
7	Criterion *i* is very strongly more important than criterion *i'*
9	Criterion *i* is extremely more important than criterion *i'*

One of the strength of AHP is that decision makers are assumed to be inconsistent in their values and judgments. The AHP employs a measurement of this inconsistency to help stakeholder(s) learn more about the decision in question, and of their own and others' biases and inconsistencies. An inconsistency ratio <0.10 indicates a reasonable level of consistency. When the ratio ≥0.10, suggest revising the original pairwise comparison values. The AHP is a mathematical decision evaluation tool; it provides a valuable means to deal with complex decision evaluation. AHP sets aside consideration for both qualitative and quantitative aspects of an evaluation. It can reduce complex decisions to a series of one-on-one comparisons by assisting with identifying and weighting selection criteria, analysing data collected for the criteria and expediting the decision-making process.

2.2 *Consensus building*

Consensus building is established by creating awareness among the stakeholders of the differences within the group. It captures and subsumes conflict balancing or consensus building within the redevelopment decision process. However, in situations where stakeholder objectives and priorities are in conflict, it is difficult in practice to reach agreement on the relative importance of individual criterion. In these cases, it is more appropriate to explore the various dimensions of the conflict, as represented in criteria choices and weightings, by producing group rankings that are based on the ranks generated by individual group

members. To test the significance of the association between pairs of stakeholder criteria rankings and between the ranks for individuals, Spearman's rank correlation coefficients (r_s) were calculated for the rankings of criteria by stakeholders. The test statistic assumes that at least five pairs of observations are present and that the observations are ranked from 1 to *n*, with many tied ranks being represented by average ranks (Siegel et al., 1988). Assuming that the number of pairs of tied ranks does not exceed 25% of *n*, the statistic has the following form (Siegel et al., 1988):

$$r_S = \left(\frac{6\sum_{i=1}^{n} d_i^2}{n^3 - n} \right)$$

where d_i^2 is the squared difference between the ranks for alternatives *i*; *n* is the number of observations. When *n* is greater than 10, the distribution of r_s approaches the *t* distribution, allowing the significance of r_s to be tested against the critical values of *t* as a value of *t* with $n - 2$ degrees of freedom (Adams and May, 1991). The transformation of r_s values to Student's *t* is calculated by:

$$t = r_s \sqrt{\frac{n-2}{1-r_c^2}}.$$

2.4   *Data collection*

The overall approach of this paper involves survey using questionnaire to identify stakeholders' preferences or priority for each criterion. The preferences indicated by each stakeholder are subsequently compared pairwise to other stakeholders. Consistency of evaluation is maintained through moderation by the same researcher who, while guiding the stakeholders through their input on preferences, was careful not to bias any aspect of the process. The sample chosen is based on purposive sampling, meaning only selected individuals are chosen as respondents. They are owners and tenants. The questionnaire comprises of three parts, including the particulars of the respondent, preference weightage and open ended feedback on the criteria. The second part defined criteria weighting. The questionnaire survey was conducted in the setting of a structured interview. Respondents were given a detailed explanation on the background and objectives of the survey. Each criterion was explained in detail to make sure that respondents had common understanding of the key terms and criteria to be weighed. The respondents are allowed to ask questions to remove ambiguities. This process is crucial to ensure consistent interpretations of the terminology, so that the results can be analysed in a meaningful way.

3   MCA framework for redevelopment decisions

3.1   *The problem description*

Sustainable development includes encouraging urban redevelopment to help release pressure on land supply within the city. Unfortunately, redevelopment might not be as agreeable from one stakeholder to another. Competing land use has led to increasing levels of land-related conflict: highest and best uses at the expense of heritage loss, socio-cultural changes, infrastructure limitations, opportunities for future development and degradation of

culture and social integrity. Many of the conflicts centred on redevelopment projects within the heritage zones in Kuala Lumpur. It is a difficult feat to balance the diverse interests of stakeholders (The Star, 2006). An example of the tug-of-war can be observed in the redevelopment of Jalan Petaling, a famous bazaar shopping district. The proposal was made in 1992 to upgrade Jalan Petaling. It did not take off until a decade later due to inability to reach a compromise between the business community and the local authority (Kuala Lumpur City Hall, 1999; The Sun, 2004). Among the issues were the fear of too many changes, uncertainties in future of business locations and distrust in intentions for redevelopment. The number of stakeholders involved was intimidating: there were 700 hawkers with the Chinese Chambers of Association as of 2003 and 300 unregistered hawkers operating in Jalan Petaling. Multiple levels of discussion were carried out within and between different stakeholders' groups. After a series of many heated discussions, and intervention by various political parties and representatives, the project took off and was finally completed in 2007 (Roziana, 2003). To evaluate conflict and consensus balancing in redevelopment decisions, the study attempted to understand stakeholders' interests and priorities.

3.2   The stakeholders

A stakeholder is a person who is involved in or affected by a course of action determined by a decision. The stakeholder's involvement as decision maker is often classified in relation to the level where decisions are made, i.e. national, regional or local levels, the scale and the durability of their decisions. Stakeholders can be classified based on the effect of the decision making (2003) or decision contexts (2000). This study combines the two methods. We classify the landowners/tenants in older Kuala Lumpur to be in a "direct group with homogenous decision making context" (Noor Amila et al., 2010). Whether the premises are occupied by owners or tenants, they have direct interest in the use and value increase of the land or premise. Many of them share a common objective to optimise the land into the highest and best uses particularly from economic perspective. On the other hand, because of the cultural values associated with the land, several stakeholders from indirect but homogeneous groups such as the Heritage of Malaysia Trust and conservation authorities are taking legal and proactive measures to promote conservation of the shophouse as heritage.

3.3   The criteria

To carry out an objective evaluation of redevelopment decisions, a set of criteria was identified, selected from the extensive literature based on redevelopment experience elsewhere, and from discussion with various stakeholders within the city Centre. For the purpose of this evaluation of stakeholder's preferences, the study selected 21 criteria that are relevant to redevelopment decisions (Noor Amila et al., 2010). It is important that the decision evaluation considers issues beyond the economic aspect in land redevelopment (Healey and Barrett, 1990; Guy and Henneberry, 2000; Alias, 1994). The selection criteria must be as broad as possible to equally represent all aspects of consideration, encompassing economical, social and environmental/physical dimensions, but should not be so broad that evaluation becomes too complicated, leading to increased inconsistency in judgment and uncertainty (Alias, 1994). The MCA technique was applied to rank the relative importance of each criterion based on each individual's preferences and underlying objectives (Hobbs et al., 1992).

4   Research findings

The fundamental elements of consensus and conflict in multiple stakeholder decision making are shown in Figures 2–5 and Table 1: the extent of agreement concerning the criteria for redevelopment decisions, and differentials in the relative importance of individual criteria, as expressed through weight settings. Figure 2 shows the average criteria weightage for all nine stakeholders. Economic Return is weighted as most important by eight stakeholders; six of them give the highest priority to this criterion. There is a gap of more than 60% between Economic Return and the next most important criterion. This is followed by another three criteria in the economic category: Diversity in Business Opportunity, Fiscal Incentives and Local Employment, as shown in Figure 3. It is evident from the priority weights assignment that the economic aspect is the most important factor for owners and tenants in the case study area.
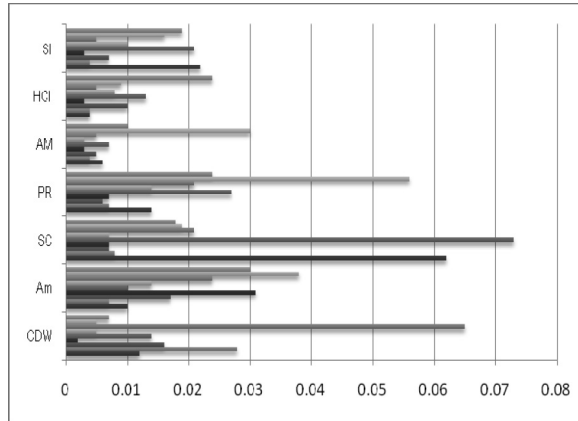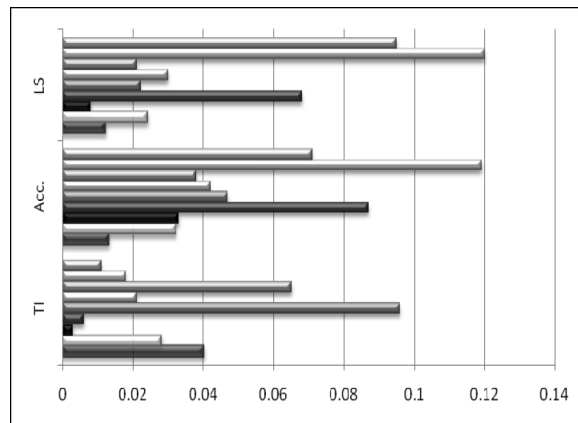
Figure 2   Overall weightage preferences
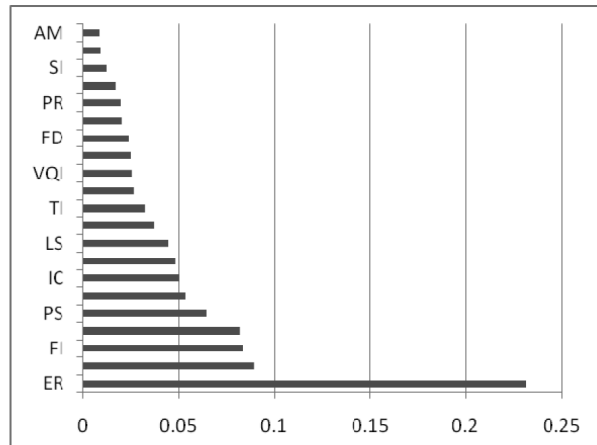
Figure 3   Criteria given highest weightage by at least 3 stakeholders
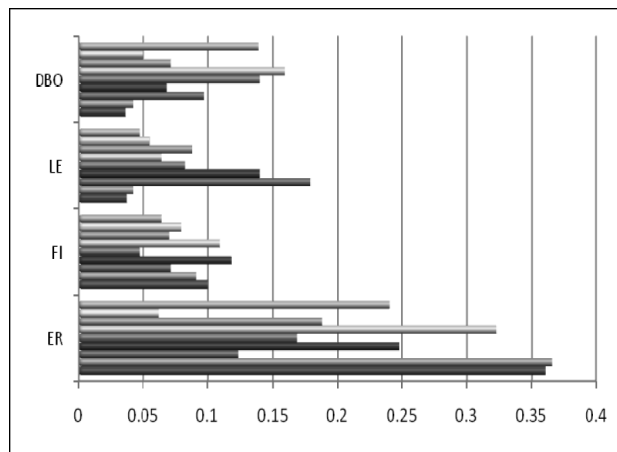
Figure 4 Criteria given lowest weightage by at least three stakeholders

Figure 5 Criteria given mixed weightage

Table 1 Correlations of stakeholders' importance ranking

Stakeholder, S_i to S_i	Rs	Student's t-statistic	Significant@95%	Significant@99%
S_1-S_3	0.431818182	2.08684466	Yes	No
S_1-S_4	0.482792208	2.403058677	Yes	No
S_1-S_8	0.138311688	0.608737399	No	No
S_1-S_9	0.193181818	0.858226456	No	No
S_2-S_8	0.416883117	1.99915417	Yes	No
S_2-S_9	0.418181818	2.006699516	Yes	No
S_3-S_5	0.307142857	1.406804808	No	No
S_3-S_8	0.339285714	1.572167838	No	No
S_3-S_9	0.47012987	2.321838862	Yes	No
S_5-S_8	0.399350649	1.898704644	Yes	No
S_7-S_8	0.215584416	0.962339905	No	No
S_7-S_9	0.380519481	1.793571107	Yes	No

At the other end of the bar chart, three criteria are least preferred by the stakeholders: Architectural Merits, Historical/cultural Integrity and Social Integrity. All in all, there are six least important criteria, as shown in Figure 4. Eight of nine stakeholders consider Architectural Merits as the least important. Many stakeholders feel that conservation of these values is mainly the responsibility of the government and local authorities. Unless the benefits can be made tangible in some ways to favour their businesses, they do not think these criteria are important. However, many verbally express willingness to cooperate in conservation efforts. Figure 5 shows three criteria that receive mixed weightage, meaning they were ranked highly important by some and of low importance by other(s). Two stakeholders feel that Lot Sizes is an important criterion. One stakeholder thinks it is the least important, where as the other six give it medium priority. Comparatively, this group of stakeholders is more homogenous compared to Professionals (Noor Amila et al., 2010), which gives mixed weightage to five criteria: Amenities, Flexible Design, Lot Sizes, Structural Conditions and Welfare & Community Facilities.

NOTE Some understanding of each stakeholder's objectives and concerns is required to understand the origin of conflict and the rationale underlying criteria weights. Many of the owners/tenants have been operating for more than 15 years. Up until the year 2000, traditional shophouses were classified as controlled premise under the Control of Rent Act 1960 (Repealed 2000). Overhead costs are low, allowing businesses to sustain despite rapid redevelopment in the surrounding areas. However, low rent gives little incentives for owners to properly maintain their premises. This has led to dilapidated states of traditional shophouses and the surrounding areas. The stakeholders wish to continue operating their businesses in the same premises, regardless of whether redevelopment takes place or not. However, a majority stressed the need for more public spaces and better access to the area. Owners and tenants in general perceived that conservation is the responsibility of the government and the planners and architects in the City Hall. Architectural, historical and social were voted to be of low importance. Many owners perceived that these criteria are the responsibilities of the government or local authorities. They are willing to give their support in terms of cooperation and by following the guidelines set by the authorities. This lack of perceived importance could be because of inability to directly relate the values added by these criteria to economic gain. Many stressed improvement in area safety. This may be because crime rates are quite high in the city centre, and as a major tourist spot, such issues would definitely have negative impacts on businesses.

Table 1 shows the correlations of the stakeholders' importance ranking for consensus building. From the importance ranking of 9 stakeholders, 36 pairwise comparisons S_i to $S_{i'}$, are done to determine the strength and significance of correlations between the ranks. Pairwise r_s values confirmed strong and significant positive correlations between ranks of importance for 24 pairs at the 99% confidence level, except between 12 pairs shown in (Table 1). Significant positive correlations at the 95% confidence level are observed between seven compared rankings in the table. The ranking of importance by S_8 has insignificant correlations with three other stakeholders, S_1, S_3 and S_7. Five pairwise comparisons have correlations below the 95% confidence level. S_6 has strong and significant correlations at the 99% confidence level with all the stakeholders. The Consistency Index (CI) for both S_8 and S_9 is very high, 0.39 and 0.27 respectively, followed by S_3 at 0.23. The other stakeholders have CI equal to or less than 0.1.

5   Conclusion

Given that urban redevelopment is a complicated process with long-term impacts upon society, sensitive urban areas such as culturally significant zones should adopt cautious

consideration of the decision-making process. There is the need for a balanced mix of decision-makers in urban redevelopment. This paper has presented an MCA-based evaluation to urban redevelopment decisions in culturally significant areas to uncover conflict and consensus in decision making. Analysis of the problem shows that this evaluation method works rather well in exposing individual and sub-group dimensions of commonality, and to identify differences among individuals in a group. This study finds economic aspects to be the main priority in redevelopment decisions, followed by environmental aspects. A majority of the stakeholders share similar preferences. However, one-third of the stakeholders have little in common with each other. The complexities of real world decision making are obvious, despite superficially similar interests. Individually, they have personal interests that influence their decisions in redevelopment. In reality, many other stakeholders from different backgrounds are involved in redevelopment decisions. They are informationally dissimilar due to differences in skills, knowledge bases, abilities and perspectives. It would be meaningful to have a more comprehensive comparison between the sentiments of all these stakeholders. Serving as a preliminary investigation of the differences in the perceived criterion weightings among stakeholders, this study could be extended beyond direct and homogenous groups.

The decision-making evaluation developed in this study has potential for practical application. The framework developed in this paper may offer a way of facilitating community involvement in urban redevelopment processes. The MCA model in this study is not only suitable for deciding whether redevelopment should take place; it is also useful for evaluating different schemes of redevelopment projects. For each decision criterion, a number of indicators can be chosen, so that the options for urban redevelopment can be assessed or rated with reference to that particular criterion. The availability of a set of criterion weightings enables formulation of an overall rating after all the criteria are assessed. This will establish ranking of the alternatives through comparison between the ratings of different alternative sites. Furthermore, it is possible for urban redevelopment managers or planners to use the decision-making framework as a planning and design tool. Redevelopment proposals can be evaluated from a wider angle, and refinements to the proposals can be made to achieve a higher rating for the redevelopment project subject to time, funds and other practical constraints. In its simplest interpretation, sustainable development is a compromise between stakeholders' conflicting objectives. That means a sustainable redevelopment decision should take into consideration the interplay between physical, social, environmental and economic dimensions. Due to its multiple dimensions and objectives, stakeholders comprise people with different interests, who uphold various values. The findings in this study suggested that even those with similar interests and decision contexts can have divergent views pertaining to the relative importance of the decision criteria. This is perhaps one of the major roots of disputes over urban redevelopment and conservation efforts in present-day society. The researchers acknowledge the limitation of this study in terms of generalisation of the findings to other cities or urban areas. Since urban areas are complex and dynamic systems, urban redevelopment is a response to the opportunities and challenges which are manifested by urban decay in a particular space at a specific moment in time. Solutions attempted previously may have little relevance to another place and time. It is valuable to extend the investigation to explore whether stakeholders' preferences are project-, time- or location-specific.

Acknowledgement

References

A Ghafar, A. (1997) *British Colonial Architecture in Malaysia 1800–1930*, Museums Association of Malaysia, Kuala Lumpur.

Aas, C., Ladkin, A. and Fletcher, J. (2005) 'Stakeholder collaboration and heritage management', *Annals of Tourism Research*, Vol. 32, pp.28–48.

Adams, C.D. and May, H.G. (1991) 'Active and passive behaviour in land ownership', *Urban Studies*, Vol. 28, pp.687–705.

Alias, A. (1994) 'An integrated method of MCDM and GIS for land use planning and environmental resources management', *Graduate School of Science and Technology*, Kumamoto University, Japan.

Chen, V.F. (1986) 'Ideas and trends in conservation and adaptive reuse of existing building – KL central market: a study', *Majalan Arkitek (Architecture Malaysia)*. Mar/Apr, pp.20–22.

De Merode, E., Smeets, R. and Westrik, C. (Eds.) (2004) *World Heritage Papers 13. Linking Universal and Local Values: Managing Sustainable Future for World Heritage*, UNESCO World Heritage Center, Amsterdam, The Netherlands.

Dreier, P. (1995) 'Boston's west end 35 years after the bulldozer', *Planning*, Vol. 14, pp.14–17.

Feick, R.D. (2000) *A Multi-Participant Spatial Decision Support System for Planning Tourism-Related Land Use Change in Small Island States*, Geography, University of Waterloo, Ontario.

Fels, P.T. (1994) 'Penang's shophouse culture', *Places*, Vol. 9, pp.46–55.

Fels, P.T. (2002) 'Conserving the shophouse city', *The Penang Story – International Conference 2002*, The City Bayview Hotel, Penang, Malaysia.

Gullick, J.M. (2005) *Old Kuala Lumpur*, Oxford University Press, Shah Alam.

Guy, S. and Henneberry, J. (2000) 'Understanding urban development processes: integrating the economic and the social in property research', *Urban Studies*, Vol. 37, pp.2399–2416.

Hardin, G. (1968) 'The tragedy of the commons', *Science*, Vol. 162, pp.1243–1248.

Healey, P. and Barrett, S.M. (1990) 'Structure and agency in land and property development processes: some ideas for research', *Urban Studies*, Vol. 27, pp.89–104.

Hobbs, B.F., Chankong, V. and Hamadeh, W. (1992) 'Does choice of multicriteria method matter? An experiment in water resources planning', *Water Resources Research*, Vol. 28, pp.1767–1779.

Jacobs, J. (1961) *The Death and Life of Great American Cities*, Vintage Books, New York.

Janssen, R. (1992) *Multiobjective Decision Support for Environmental Management*, Kluwer Academic Publishers, Dordrecht.

Kaufman, F. (2009) 'The end of sustainability', *International Journal of Sustainable Society*, Vol. 1, pp.383–390.

Khoo, B.T. (2000) *The Repeal of Rent Control: Requiem for Gerakan*, Penang.

Kleniewski, N. (2006) *Cities, Change and Conflict: A Political Economy of Urban Life*, Thomson Wadsworth.

Kuala Lumpur City Hall (1999) *Proposal to Improve Petaling Street and Surrounding Areas*, Kuala Lumpur, Author.

Kuala Lumpur City Hall (2005) *Kuala Lumpur Structure Plan 2020*, Kuala Lumpur, Author.

Kuala Lumpur City Hall (2008a) *Draft Kuala Lumpur City Plan 2020*, Vol. 1, Kuala Lumpur, Author.

Kuala Lumpur City Hall (2008b) *Proposed Guidelines for the Conservation of Buildings and Conservation Areas in Kuala Lumpur*, Kuala Lumpur, Author.

Landorf, C. (2009) 'A framework for sustainable heritage management: a study of UK industrial heritage sites', *International Journal of Heritage Studies*, Vol. 15, pp.494–510.

Langston, C., Wong, F.K.W., Hui, E.C.M. and Shen, L-Y. (2008) 'Strategic assessment of building adaptive reuse opportunities in Hong Kong', *Building and Environment*, Vol. 43, pp.1709–1718.

Lempert, D. and Nguyen, H.N. (2008) 'A sustainable development indicator for NGOs and international organisations', *International Journal of Sustainable Society*, Vol. 1, pp.44–54.

Morshidi, S. and Suriati, G. (1999) *Globalisation of Economic Activity and Third World Cities: A Case Study of Kuala Lumpur*, Utusan Publications and Distributors Sdn Bhd, Kuala Lumpur.

Noor Amila, W.A.Z., Alias, A. and Arazi, I. (2010) 'Sustainable planning: specifying stakeholders' preferences in redevelopment decisions for conservation area in Kuala Lumpur, *International Conference on Sustainable Building and Infrastructure (ICSBI'10)*, Kuala Lumpur.

Rahim & Co Research Sdn Bhd (2005, August) *Battling Inner City Decay*, *Housing and Property*. Vol. 8, pp.8–9.

Roziana, H. (2003) *Modern Chinatown for Petaling Street*, New Straits Times, Kuala Lumpur.

Saaty, T.L. (1980) *The Analytical Hierarchy Process*, McGraw-Hill, New York.

Siegel, S., Castellan, J. and John, N. (1988) *Nonparametric Statistics for the Behavioural Sciences*, McGraw-Hill, New York.

Steinberg, F. (1996) 'Conservation and rehabilitation of urban heritage in developing countries', *Habitat International*, Vol. 20, p.463.

Sullivan, S. (2003) 'Local involvement and traditional practices in the world heritage system', in Merode, E.D., Smeets, R. and Westrik, C. (Eds.): *Linking Universal and Local Values: Managing a Sustainable Future for World Heritage*, UNESCO World Heritage Centre, Amsterdam, the Netherlands. pp.49–57.

Surin, J.A. (2007) *A Toothless Act*, The Sun, Kuala Lumpur.

The Sun (2004) *Petaling Street is Our Heritage*, The Sun, Kuala Lumpur.

The Star (2006) *Need for Balance*, The Star.

Tweed, C. and Sutherland, M. (2007) 'Built cultural heritage and sustainable urban development', *Landscape and Urban Planning*, Vol. 83, pp.62–69.

Wan Hashimah, W.I. and Shuhana, S. (2005) 'The old shophouses as part of malaysian urban heritage: the current dilemma', *8th International Conference of the Asian Planning Schools Association*, Penang.

Zainah, I. (2006) 'A research on urban conservation: a framework for community involvement in Malaysia', *Malaysian Townplan*, Vol. 3, pp.44–51.

Zielenbach, S. (2000) *The Art of Revitalization: Improving Conditions in Distressed Inner-City Neighborhoods*, Garland Publishing Inc., New York.