PRIORITIZATION OF THE INDICATORS AND SUB-INDICATORS OF *MAQASID AL-SHARIAH* IN MEASURING LIVEABILITY OF CITIES

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ABSTRACT

Opinions were sought from a panel of two groups of Malaysian experts, i.e., the urban planners and the *Maqasid al-Shariah* scholars with the aim of developing an evaluation model via identifying and ranking the *Maqasid* indicators and sub-indicators for liveability and quality of life in cities. The measurement utilizes the *Dharuriyyat* (essentials or necessities) dimension of the *Maqasid al-Shariah* principles based on Al-Shatibi's School of *maslahah* which targets public interests and benefits of living in cities. This is supported by Ibn Ashur and contemporarily by Yusuf al-Qaradhawi who emphasize harmony, justice and global peace. The Analytic Hierarchy Process (AHP) has been used as the main method to prioritize the indicators and sub-indicators. The AHP results indicate that religion, life, intellect, lineage and wealth are in descending order of importance, similar to the priorities of the classic *Maqasid al-Shariah* doctrine. However, the sub-indicators are ranked in terms of priorities based on the consensus of the urban planners and *maqasid* practitioners which ultimately form the Islamic liveability measurement for cities.

Keywords: *Maqasid al-Shari'ah*; liveability of cities; Malaysia; AHP

1. Introduction

A review of the existing human well-being measurement vis-a-vis liveability indicators, at the world level and the Malaysian level reveals five common themes, namely (i) politics and governance, (ii) economics, (iii) social and culture, (iv)

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environment and (v) infrastructure (Sarkawi et al., 2015). This is evident in the Global Liveability Index by the Economist Intelligence Unit (EIU), the Quality of Living Index by Mercer (global human resources consulting firm) and the Most Liveable City Index by *Monocle* (culture and lifestyle magazine). The review also revealed the missing indicators of religion and lineage within the Western indicators, while the Malaysian indicators appear to show inconsistency and lack of detail about religious indicators in the measurement. However, in the former, terms like religious restrictions and freedom of opinion were used as if connoting religion. For the Malaysian indicators, sporadic religious indicators are used, but not specifically with the idea of fulfilling the objectives of Islamic law. Because of these gaps, this paper aims to streamline the human well-being indicators and sub-indicators in the context of *Maqasid al-Shariah* (objectives of Islamic law) especially in preserving and safeguarding the five essentials of religion (faith), self (life), education (intellect), social (lineage) and economy (wealth) as highlighted by Auda (2008). These five prerequisites of human well-being should be safeguarded in order to render cities liveable.

1.1 Conventional liveability indicators and sub-indicators

At the world level, conventional or Western liveability indicators and sub-indicators that are currently used to rank cities as a 'World's Most Liveable City' are represented by EIU, Mercer and *Monocle*. At the local level, in this case the Malaysian level, there are some liveability, quality of life and sustainability indices that have been formulated by several government agencies. A review of the indicators and sub-indicators at both of these levels serve as a useful precursor to more in-depth study on the missing indicators or gaps of measuring liveability of cities. This study, therefore, points to the need to expand the scope beyond the conventional sphere by examining Islamic perspectives of living which are guided by the safeguarding of indicators and sub-indicators that fulfill the *Maqasid al-Shariah*. In other words, liveability is the ability to protect one's faith, life, intellect, lineage and wealth.

1.1.1 Three world organization's liveability indicators

The conventional liveability branding championed by three world organizations, i.e., EIU (Economist Intelligence Unit), Mercer and *Monocle* is typically concerned with western values as evidenced by the indicators and sub-indicators used by them (STEEP, 2013). They seem to be inclusive and have similar categories and themes, namely political, social, economic, culture, environment, education and infrastructure. These indicators are being used to rate the liveability of cities and rank the cities of the world as "Most Liveable Cities" for expatriates, businessmen and managers. Since the indicators are broad, they can also be applicable to the urban residents living in those cities. This study emphasizes that liveability should be concerned with the very people living in the cities not with what the conventional studies have focused on. Broadly, the indicators and categories of the three organizations clearly reflect a certain degree of similarity. Despite their minor differences, the indicators could fall under the main categories of stability, health, culture and environment, education and infrastructure (see Table 1).

Table 1
Similarities of the three world organization's indicators

EIU's Global Liveability Index (30 Indicators 5 Categories)	**Mercer's Quality of Living Index (39 Indicators 10 Categories)**	**Monocle's Most Liveable City Index (11 Indicators)**
1. Stability	1.Political and Social Environment	1. Safety / Crime
2. Healthcare	2. Medical and Health considerations	2.Medical care
3. Culture and Environment	3. Socio-Cultural environment	3.Environmental issues and access to nature 4. Tolerance 5. Urban Design 6. Quality of Architecture
4. Education	4. Schools and Education	Not mentioned
5. Infrastructure	Not mentioned	7. International Connectivity
	5.Public Services & Transport	8. Public Transportation
Not categorized	6.Economic environment	9. Business conditions
Not categorized	7.Consumer goods	10. Pro-active policy development
Not categorized	8.Recreation	11. Climate / Sunshine
	9.Natural Environment	
Not categorized	10.Housing	Not mentioned

Sources: 1) https://www.imercer.com/content/mobility/quality-of-living-city-rankings.html; 2) https://monocle.com/film/affairs/top-25-cities-201; 3)http://www.news.com.au/lifestyle/real-life/news-life/monocles-2015-quality-of- life-survey

Hence, looking through the indicators of the three organizations, as far as political stability, economic environment, socio-cultural environment, health, education, housing, public transportation and infrastructure are concerned, they are all important and applicable to local residents as well as expatriates. Perhaps indicators such as climate/sunshine, natural environment, urban design, quality of architecture and tolerance are criteria meant more for consideration by expatriates and managers who are to be transferred to cities. These are criteria they can consider and decide whether it is worthwhile for them to take up a post in those cities. If they consider the conditions tolerable enough and the compensation fees given by their companies commensurate enough for their affected quality of life, then they might consider living in those cities. On the other hand, for the people who are part of the native city population these criteria are secondary and not of prime importance. In fact, what really matters for them is the fulfillment of their basic needs and livelihood like availability of social facilities, political stability, housing, employment, infrastructure and good public transportation.

1.1.2 Malaysian liveability indicators

At the Malaysian level, there are several sets of indicators that measure quality of life vis-à-vis liveability of cities. "Cities" in the Malaysian context are cities that have official city status as declared by the Ministry of Well-being, Housing and Local Government. Compared to world standards, cities in Malaysia are relatively small in size since the top three cities and towns in Malaysia by population based on the 2010 Population and Housing Census were just barely above the one million mark (Department of Statistics Malaysia, 2014). They are as follows:

Kuala Lumpur	(KL)	1,700,750
Petaling Jaya	(PJ)	1,812,633
Johor Bahru	(JB)	1,386,569

However, because it is projected that by 2025 the urban population will increase from

20.29 million to 27.30 million, cities like the above and other major towns are being flocked to by the urban populations, hence questions on liveability have become the central agenda for the government and the local authorities (National Urbanisation Policy 2, 2016-2025). In fact, since 1999, six government agencies have focused their attention on monitoring quality of life and sustainability of Malaysian cities. They have produced their respective well-being studies as follows:

1. Malaysian Wellbeing Index (MWI Report, 2013) by the Economic Planning Unit (EPU). http://www.epu.gov.my/

2. Malaysian Urban-Rural National Indicators Network for Sustainable Development (MURNInets, 2012) by the Federal Town and Country Planning Department (Officially known as JPBD or FTCPD, now rebranded as MalaysiaPlan) https://murninet.townplan.gov.my/

3. Malaysian *Ummah* Development Index (MUDI Report, 2014) Institute of Understanding Islam (Officially, IKIM) http://www.ikim.gov.my/index.php/en/

4. Malaysian Family Wellbeing Index (MFWI, 2011) by the National Family and Population Development Board (Officially, LPPKN) http://www.lppkn.gov.my/index.php/en/population-services/110-kajian-indeks-kesejahteraan-keluarga-malaysia-2011.html

5. Muslim Religiosity and Personality Indexing: Implications for Nation Building, 2006. (MRPI), by Institut Pengajian Komuniti dan Keamanan (PEKKA), now Institute of Social Studies, Universiti Putra Malaysia (UPM).

6. Malaysian Syari'ah Index (MSI, 2015) by the Department of Islamic Development Malaysia (Officially, JAKIM) http://www.islam.gov.my/en

For comparison purposes with the Western indicators, three Malaysian studies qualify to be examined, and they are the MWI, MFWI and MURNInets. Like their Western counterparts, there are five common themes that these three studies have emphasized namely politics and governance, economics, social, environment and infrastructure. This is shown in Table 2. Those sub-indicators in bold highlight the emphasis of the respective agencies which are missing in the Western indicators. For example, the MWI emphasizes public safety and social participation in addition to the other standard of social facilities that cities ought to provide. The MFWI is concerned with family safety, and the role of religion and spiritual practice for family well-being. Lastly, the MURNInets, which is a measuring tool to measure sustainability level of local authorities as represented by their respective cities or towns, stresses the overall planning objective of ensuring quality of life.

Table 2
Five common themes (indicators) and their sub-indicators

The five common themes	**The Malaysian Wellbeing Index, (MWI), EPU**	**The Malaysian Family Wellbeing Index (MFWI), LPPKN**	**The Malaysian Urban Rural National Indicators Network on Sustainable Development (MURNInets), FTCPD**
1.Politics and governance	-governance -**public safety**	-safety at home -**family safety** -emergency response knowledge	-delivery system -strengthening institutions -enforcement and monitoring -security and safety -Municipal development
2.Economics	-income and distribution -working life	-family living standards -family economic situation -future savings -debt burden	-economic growth -poverty -private investment
3.Social	-housing -education -leisure -**social participation** -culture -family	-community cooperation/ relationship/involvement -**role of religion** -**spiritual practice** -parental involvement -family resilience -family functioning -time with family -work-family balance -husband/wife relationship -parental relationship -family health practice -stress management	-residential -**quality of life** -demography
4.Environment	-health -environment	-pollution level -family health level	-changes in land use -heritage preservation, agriculture and tourism -environmental quality -risk management -environmental management
5.Infrastructure	-transport -communica-tions	-basic amenities	-utility efficiency -solid waste& sewerage management -transportation -community facilities

Categorically, based on the five general themes, the examination of the indicators and sub-indicators of the respective agencies, three salient features emerge.

i) Each agency's indicators are very organizational-biased

There are three main purposes for the MWI 2013 of EPU. Firstly, it aims to complement the measurement of economic development which is normally based on income per capita. Secondly, it aims to measure the impact of the government's socio-economic policies on the quality of life and well-being of the people. Lastly, it aims to identify socio-economic issues in order to formulate appropriate policies and strategies for the country's development. Meanwhile, the objective of MURNInets is predominantly to provide a diagnostic tool for urban managers and local governments to undertake regular performance reviews of the urban sub-sectors and to prepare for

budgeting for urban service purposes. The objectives of the MFWI are solely to measure family well-being, to describe the state of family well-being based on a set of indicators developed and to propose recommendations to improve family well-being. To update the family well-being situation, LPPKN has conducted another fresh survey to review the 2011 MFWI study in 2016.

ii) Each agency has different objectives

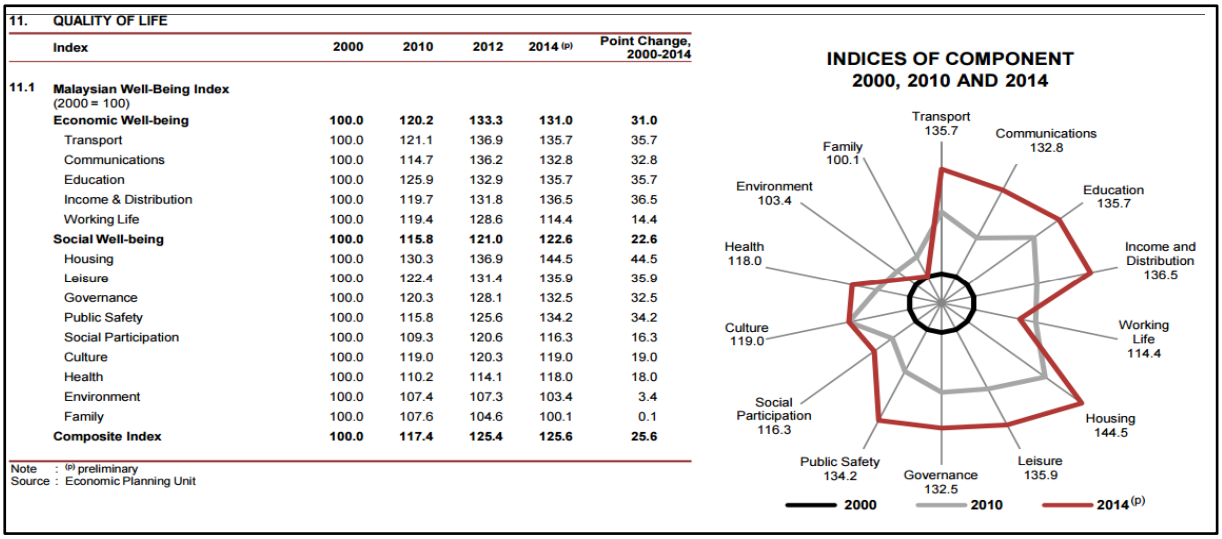
EPU is concerned about socio-economic well-being, thus data sought to satisfy the 14 components that support the various socio-economic indicators. On the other hand, for the FTCPD, which is a department that is responsible for preparing the National Physical plan, structure plans, local plans and special area plans data pertaining to planning for human well-being, liveability of cities and quality of life for both the urban as well as the rural areas need to be collected for the database for planning and development (Town and Country Planning Act, Act 172, 1976). In devising the MURNInets, up-to-date data for the respective dimensions, themes and indicators needs to be keyed-in to come up with the sustainability level of cities i.e. 80 % and above is considered as sustainable, 50% to 80% moderately sustainable and scores below 50% are less sustainable (http://murninet.townplan.gov.my/). Meanwhile, the LPPKN is seen to update its 7 dimensions and 24 indicators of the MFWI through its recent survey exercise (2016). However, while the data collection process seems to overlap, it is found that the three sets of indicators obtained complement each other. This is because each agency's scope and function though quite distinct are useful when coordinated with other agencies.

Notwithstanding, EPU looks at the population at the macro scale; the FTCPD focuses on physical planning as stipulated by the Town and Country Planning Act of 1976 and the LPPKN zooms into the family context. However, upon examining all of the three agencies indicators and sub-indicators, five common themes emerged as far as quality of life is concerned. They are politics, economics, society, environment and infrastructure. Noticeably, some liveability indicators that are supposed to specifically relate to the *Maqasid al-Shariah* indicators are not extensively detailed in this list. For instance, referring back to Table 2 (see bold text)**,** EPU mentions public safety in passing as well as social participation; in the MFWI, there are things like family safety, role of religion and spiritual practice; and in the MURNInets, there is an indicator tagged as quality of life. In fact, all these indicators imply protection of religion, life, family and community harmony which the *Maqasid al-Shariah* espouses.

iii) Well-being policy making based on different premise

EPU's overall Malaysian Well-being Index is based on macro and secondary data sources. The MURNInets is based on secondary data from various agencies at the local government level while the MFWI is based on sample surveys of families in Kuala Lumpur. Hence, all three agencies are basing their well-being policies on a different premise; therefore, their findings cannot be generalized and are non-comparable to represent the urban population living in Malaysian cities. However, the results of these three human well-being studies provide useful information to policy makers. For example, the EPU's study (Figure 1**)** clearly shows that the components of family, environment and working life need further action by the relevant government agencies. This is because the social well-being of Malaysians is lagging behind the economic well-being where the latter improved by 31 points from 2000 to 2014 whereas the former achieved an improvement of only 22.6 points. The family index showed only a minimal improvement of 0.1 point. Therefore, this unhealthy

imbalance should be rectified in order to create a truly happy and desired quality of life for all Malaysians. Also income and distribution increased to 136.5 points at the expense of environment (103.4 pts.) and working life (114.4 pts.). This depicts that even though the overall or Composite Index showed an improvement of 25.6 points, what matters is that the social well-being component has not satisfactorily increased. Therefore, it has not translated to an increase in the desired quality of life and liveability for the average Malaysians.



11. QUALITY OF LIFE

Index	2000	2010	2012	2014 (p)	Point Change, 2000-2014
11.1 **Malaysian Well-Being Index** (2000 = 100)					
Economic Well-being	**100.0**	**120.2**	**133.3**	**131.0**	**31.0**
Transport	100.0	121.1	136.9	135.7	35.7
Communications	100.0	114.7	136.2	132.8	32.8
Education	100.0	125.9	132.9	135.7	35.7
Income & Distribution	100.0	119.7	131.8	136.5	36.5
Working Life	100.0	119.4	128.6	114.4	14.4
Social Well-being	**100.0**	**115.8**	**121.0**	**122.6**	**22.6**
Housing	100.0	130.3	136.9	144.5	44.5
Leisure	100.0	122.4	131.4	135.9	35.9
Governance	100.0	120.3	128.1	132.5	32.5
Public Safety	100.0	115.8	125.6	134.2	34.2
Social Participation	100.0	109.3	120.6	116.3	16.3
Culture	100.0	119.0	120.3	119.0	19.0
Health	100.0	110.2	114.1	118.0	18.0
Environment	100.0	107.4	107.3	103.4	3.4
Family	100.0	107.6	104.6	100.1	0.1
Composite Index	**100.0**	**117.4**	**125.4**	**125.6**	**25.6**

Note : (p) preliminary
Source : Economic Planning Unit

Source: The Malaysian Economy in Figures (2016), Economic Planning Unit (EPU).

Figure 1 Malaysian quality of life 2000-2014 by EPU

On the contrary, the results of the MFWI's study shows that religion and spirituality gained the highest score in the family well-being context, that is 8.25 as compared to family economy which is only at 6.90 (the lowest score). Table 3 lists the scores of all the seven domains based on the MFWI's study. The agency monitors the situation by conducting a fresh survey (2016) and the MFWI will be updated accordingly.

Table 3
Malaysian Family Well-being Index, 2011

The Seven Domains	Scores out of 10.0
1. Family & Religion/Spirituality	8.25
2. Family& Community	7.83
3. Family Relationships	7.82
4. Family Safety	7.39
5. Family Health	7.38
6. Housing & Environment	7.28
7. Family Economy	6.90
Overall Family Wellbeing Index	**7.55**

Source: The Malaysian Family Wellbeing Index Report, 2011

Overall, the studies conducted by the three Malaysian agencies help policy makers effectively make decisions in their sphere of authority and responsibility. However, they need to collaborate and coordinate their efforts towards achieving Malaysian well-being as a whole. Nevertheless, the results help move towards a more pragmatic measurement of quality of life in Malaysia, hence streamlining more strategic policies and development for the achievement of an overall quality and well-being of Malaysians. The effort to streamline these studies has been monitored by the Malaysian *Syariah* Index (MSI) by JAKIM (2015) launched by the government (Razak, 2015). MSI is an effort to reflect the compliance to the *Maqasid al-Shariah* indicators by the respective government departments in fulfilling the objectives of Islamic principles. The aim of the index is to measure and evaluate Malaysia's level of *Maqasid al-Shariah* compliance in the government's administration system. With this, Malaysia is said to be the first country in the world that introduces and applies the five main elements of *Dharuriyyāt al-khams* of the *Maqasid al-Shariah* (Kamali, 2012). The MSI is a measurement method that may also be termed as Key Performance Indicator (KPI). Hence, the KPI determines whether the particular sector is performing its functions better or worse and is monitored annually. Performance by average scores by sectors for the two years can be seen in Table 4.

Table 4
Sectoral scores of the Malaysian *Syariah* Index (MSI), 2015 and 2016

SECTOR	**AVERAGE SCORE**		**PERFORMANCE DESCRIPTION**	
YEAR	2015	2016	2015	2016
Law	87.19	84.91	Excellent	Excellent
Politics	79.19	74.70	Good	Good
Economics	65.27	65.46	Good	Good
Education	82.49	80.12	Excellent	Excellent
Health	73.92	77.79	Good	Good
Culture	66.47	64.67	Good	Good
Infra. and Environment	62.31	72.89	Good	Good
Social	68.52	72.28	Good	Good
Overall score	**75.42%**	**76.06%**	**Good**	**Good**

Source: Jab. Kemajuan Islam Malaysia (JAKIM, 2016) and The New Straits Times 12th August, 2017.

There is a slight improvement of the Syriah index from 75.42% in 2015 to 76.6% in 2016. Even though the scores have not yet met the target of 80% as set by the former Prime Minister, the *Syariah* Index is proof that efforts and initiatives taken and implemented by the government have impacted the people in terms of improvements especially in three sectors, namely health, infrastructure and society which include well-being of the community, religious care, and religious activities.

Hence, the vision as embedded in the *Maqasid al-Shariah* that seeks to protect human welfare, regardless of race, language and religion has been given priority. This means that not only the basic, physical and material needs have to be adequately provided, but ethical values and spiritual needs of human beings must also be protected.

Maqasid al-Shariah is seen as capable in playing its part, for instance, in balancing work and play and balancing thinking globally and acting locally and practicing religious values and enjoying a good neighborhood, solidarity and community bonding especially in the context of Malaysia's diversity in race and religion. In essence, these factors when given equal weight and consideration would provide an overall goal of development and in achieving the desired quality of life for Malaysians in all aspects of life - socially, economically, environmentally and religiously and as a package for holistic liveable Malaysian cities.

When comparing Western indicators against the Malaysian ones, some features need to be highlighted. The literature regarding quality of life and liveable cities indicators from the world organizations show an outstanding gap, i.e., the religion factor is not considered. However, the analysis of the indicators and the results of city ranking based on the five specific domains reveal some commonalities. In other words, the indicators are seen to be exhaustively streamlined. But, at the same time they also serve as evidence that the indicators, interpretation and scope, organizational aim and objectives and methodology of the survey conducted influenced the different results on the cities ranking.

The literature also exposes that, in fact, there are no 'one-size-fits-all' indicators as far as liveability and quality of life of cities is concerned (Sarkawi et al., 2015). Nevertheless, the world indicators are not targeting the quality of life for native residents or city populations per se but more for expatriates, businessmen, investors, corporations and to a lesser extent visitors and tourists. In fact, they are very much applicable to local residents and useful for town planners and city managers so that investments could be made to improve the facilities for the people. Hence, in the long run, ranking of these cities will be on par with those of other cities in the world. Similarly, for the Malaysian models, even though there are attempts to include religious or Islamic indicators in some of the studies, the emphasis is not deep enough to incorporate *Maqasid al-Shariah*. Therefore, it is proposed that the religious factor especially emphasizing the *Maqasid al-Shariah* fundamentals be the main Islamic liveability indicators and sub-indicators that this study aims to formulate.

1.2 Universal importance of religion for liveability

The outstanding finding from the Western liveability indicators reveals that the only thing lacking is that religious indicators are not included when religion is generally and historically important (Albright & Ashbrook, 2001). A survey was done by the Pew Research Centre to determine whether religion is indeed important to human lives (see Figure 2). Conclusively, all the population from the twenty three countries, west and east, developed and undeveloped countries, agreed that religion is important to them. Universally, religion here includes Christianity, Islam, Hinduism, Buddhism, etc.

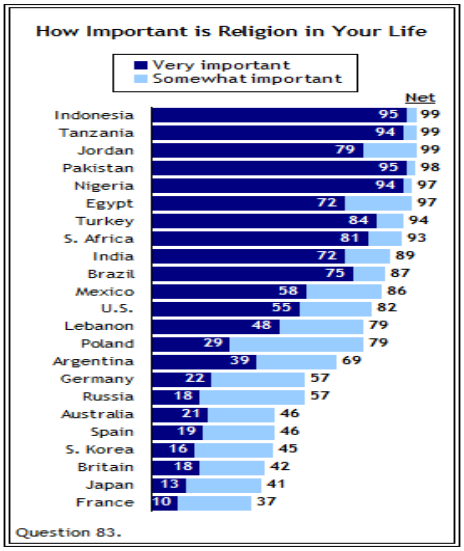


Figure 2 Importance of religion in one's life
Source: Pew Research Centre, a non-partisan American "fact tank" based in Washington, D.C.

2. The *Maqasid al-shariah* fundamentals

In defining the core dimension of *Dharuriyyat* (necessities) of human lives this study adopts the *Maqasid* views of renowned scholars like al-Shatibi, Ibn Ashur, Auda Jasser, and Yusuf al-Qardhawi. Generally, since the collective concern of urban liveability by these scholars is *Maslahah* (public benefits), this study approaches human liveability and quality of life via the Islamic framework of *Maqasid al-Shariah* (as listed in Table 5).

Table 5
The core dimension of *Maqasid al-Shariah – Dharuriyyat* (necessities)

Dharuriyyat Dimension	1. Faith/Religion (*Al-Din*) 2. Life (*Al-Nafs*) 3. Intellect/Mind (*Al-Aql*) 4. Lineage/Progeny/Dignity (*Al-Nasl/Al-Nas/Al-Ird*) 5. Wealth/Property (*Al-Mal*)

Islam as a way of life embraces the five essentials of its law, namely the dimension of Necessities (*Dharuriyyat*) and its five indicators. This study focuses on the *Dharuriyyat* not the *Hajiyyat* (complementary) and *Tahsiniyyat* (embellishment).

Since the overriding aim of this study is to develop a model to measure liveability of cities by using *Maqasid al-Shariah* indicators and sub-indicators based on the *Dharuriyyāt* dimension, the study design embraces a mixed-method approach where interviews of experts of two related fields i.e. the *Maqasid al-Shariah* scholars and the professional urban planners were carried out in two phases. The first phase which is qualitative in nature was based on semi-structured face-to-face interviews, and the second phase utilized the expert opinion survey via structured questionnaires which solicited both qualitative and quantitative data. The second phase was carried out in

three stages of Analytic Hierarchy Process (AHP) application, the verification or validation stage (qualitative) via the Face Validity Technique and finally the actual conducting of the opinion survey stage (quantitative) via questionnaires. This is a crucial stage because the AHP could gather quantitative judgements in prioritizing the dimension, indicators and sub-indicators of *Maqasid al-Shariah* via the Pairwise Comparison Matrices (PCM). Prioritization is important to determine which indicators and sub-indicators are relatively more important in measuring liveability of cities within the Islamic realm.

During the validation stage of the AHP, the *Maqasid al-Shariah* experts endorsed and verified the indicators and sub-indicators of the *Maqasid* principle as comprehensive and meaningful to be expanded into the *Maqasidic* Model of Liveability of Cities. Those sub-indicators are based on literature reviews and expert opinions from surveys undertaken by the researchers. Each indicator is given an initial for instance (F) for Religion or Faith and is further broken down into sub-indicators initialled as F1, F2, F3, and F4 and so on as listed in Table 6. Initials are useful when doing pairwise comparisons and their respective weights to determine the ranking or prioritization or importance level during the analysis stages.

Table 6
Five indicators of the *Maqasid al-Shariah* and their respective sub-indicators

Indicators	Sub-indicators
1. Faith/Religion (*Al-Din*)-(F)	• Safeguarding religious facilities, schools, mosques, *suraus*, Islamic land use planning (F1) • Religious activities/ programs at all levels of city-neighbourhoods (F2) • Investments/Budget on religious facilities and activities e.g. funding mosques, religious schools/ *madrasahs*/ "*pondok*" (F3) • Constitution/Legislation/State Enactment (F4)
2. Life (*Al-Nafs*)-(L)	• Fulfilling basic needs-food, shelter, housing, transportation, jobs etc. through zakat, job-matching, poverty eradication programs and charity. Equitable *Baitulmal* distribution for the 8 *asnafs*, *waqaf* etc.(L1) • Public healthcare and recreational facilities/Green environment (L2) • Safety – security and protection against social crimes (L3) • Charity/Welfare Centres/Social facilities (L4) • Constitution/Legislation/State Enactment (L5)
3. Intellect (*Al-Aql*)-(A)	• Integrated *Aqli* and *Naqli* education system and facilities. Allocations on R & D, Nation Building programs for future leaders, Lifelong learning, freedom of speech/views/*Ijtihad* etc. (A1 • No drugs, No Alcohol (A2) • ICT Infrastructure (A3) • Constitution/Legislation/State Enactment (A4)
4. Lineage/Progeny/Dignity (*Al-Nasl/Al-Nasb/Al-Ird*)-(P)	• Protecting family units and upholding the Marriage institution (P1) • Individual privacy/social rights/dignity-protecting families and neighbourhoods-guarded and gated facilities (P2) • Prevention of immoral behaviours/adultery/vice/crime (P3) • Prevention of discrimination/women's dignity/ '*awrah*', minority, racial, religion etc. (P4) • Constitution/Legislation/State Enactment (P5)
5. Wealth/Property (*Al-Mal*)	• Wealth generation/economic opportunities. Halal job generation, crime against wealth, halal investment business opportunities etc. (W1) • Security of property/wealth. Crime against wealth, bribery, '*riba*', cheating (W2) • Islamic wealth and financial management services(W3) • Constitution/Legislation/State Enactment (W4)

The next section provides a brief review of literature on applications of AHP in urban and regional planning and urban liveability.

3. Literature review

3.1 AHP in urban and regional planning

Since its introduction, AHP has been applied extensively and effectively in many disciplines especially in complex decision and evaluation problems involving a multitude of objectives and stakeholders (Saaty, 1977). This is because AHP is flexible, explicit and easily traceable (Contreras et al., 2008; Anis & Islam, 2015). In fact, AHP has been applied in more than 30 diverse fields ranging from medicine, logistics, petroleum pipeline, hospitality, fast food restaurants, accounting, urban and regional planning and so on (Saaty & Islam, 2015).

Urban planning involves the "arts" and "sciences", combining qualitative and quantitative criteria in its plan making. AHP's flexibility, simplicity and capability form a powerful tool for urban planning applications. Furthermore, urban planning handles voluminous and heterogeneous data; therefore, AHP performs effective analysis in deriving priorities, insights and options for planning scenarios or alternatives. Meanwhile, the wills and decisions of political masters are real when it comes to the execution of planning policies and strategies of the plans prepared by the urban planners. AHP is able to simply define the extent of land use zones, the preferred development area and the ideal urban planning scenarios. These qualities of AHP will guide the politicians in decision-making resulting in systematic solutions of problems.

There are numerous applications of AHP in urban and regional planning (Zebardast, 2002). Zebardast concludes that AHP is a suitable method in urban and regional planning due to its inherent simplicity and ability to incorporate both qualitative as well as quantitative factors. He discussed how AHP can be used in a site selection problem for urban development. On the other hand, Lee and Chan (2008) have used AHP for urban renewal in Hong Kong. According to the authors, multiple parties are involved in the renewal process that comprises citizens, professionals, policy makers and so on and each group has its own concerns. The authors recognize the difficulty in fulfilling everybody's objectives, nevertheless through the AHP prioritization process an amicable trade-off can be reached.

Ameen and Mourshed (2018) have used AHP to develop an urban assessment framework for Iraqi cities. Due to decades-long conflicts and war, the infrastructure of Iraqi cities has been severely damaged. The authors have made commendable efforts to develop the afore-mentioned model by identifying and assigning priorities to the prime indicators. The authors found that water, safety and transportation and infrastructure indicators were rated highly by the respondents. The authors conclude that their developed methodology would play a key role in the promotion of built environment and ensuring sustainable Iraqi cities.

3.2 AHP in liveability measures

In one of his pioneering and early works, Saaty (1986) used his own developed absolute measurement process of AHP to rank 329 cities in the United States. He used nine criteria, namely, climate, housing, healthcare, crime, transportation, education, arts, recreation, economics and a set of intensities for each criterion. The 10 best cities were found to be: Nassau, NY; San Francisco, CA; Los Angeles, CA;

Boston, MA; Burlington, VT; Portsmouth, MA; Albany, NY; Philadelphia, PA; Seattle, WA; and Pittsburgh, PA. In another work, Saaty (2013) used the BOCR framework of AHP to rank six cities in the world, namely: Dubai, Istanbul, La Paz, New York, Riyadh and Tokyo.

Measuring liveability of cities is an important task as it provides useful information to the people who would like to choose the best place to live. It also provides information to local councils on which aspects of the city life need improvement. A number of research works are available regarding liveability measures of cities in China. Huang et al. (2018) embarked on a project to evaluate liveability of living spaces of a number of provinces in China. The authors integrated AHP with the data collected from remote sensing and a statistical survey. The results showed a significant difference in liveability measures between villages and towns. The liveability index for towns was found to be higher compared to villages. Further, spatial difference of the functional elements of land use was ascribed as the main reason for the difference in liveability measures.

Lee and Chi (2010) developed an integrated method using ANP and Delphi to evaluate liveability of a selected number of places in China using five criteria: health, safety, comfort, convenience and socio-economics. The findings, as the authors claim, provide the local authorities with information to help combat natural disasters, but the paper did not provide the details on how these disasters could be averted. In another related work on city liveability measurement in China, Yan et al. (2011) used the multiplicative model of AHP. The authors claim that for evaluation of urban habitability, their method is more scientific when compared with the existing methods used for a similar purpose.

This is the first time that AHP is being applied in the planning field (liveability) explicitly relating to *Maqāṣid al-Sharīah*. This research attempts to spearhead the application of the AHP technique in the liveability planning sphere in the context of Islamic values and ethics since none of the previous studies in urban planning or built environment-based relate to the objectives of Islamic Law.

4. Theoretical framework

A theoretical framework forms the structure and components towards developing the Islamic liveability evaluation model. Generally AHP involves four levels in a hierarchy, namely the goal (level 1), dimension (level 2), sub-dimensions (level 3) and indicators (level 4). Applying this hierarchy (Figure 3) in the context of liveability, the goal is to prioritize the indicators and sub-indicators of *Maqasid al-Shariah* in measuring liveability of cities. Necessities (*Dharuriyyat)* form the focus or dimension of which they are to safeguard the five *Maqasid al-Shariah* essentials or indicators of faith, life, intellect, lineage and wealth. Each indicator is further broken down into sub-indicators. For example, under faith there are four salient sub-indicators to be measured like availability of religious facilities, activities, funds and enforcement of religious legislations to nurture and protect faith of the *ummah* or Muslim communities in cities.

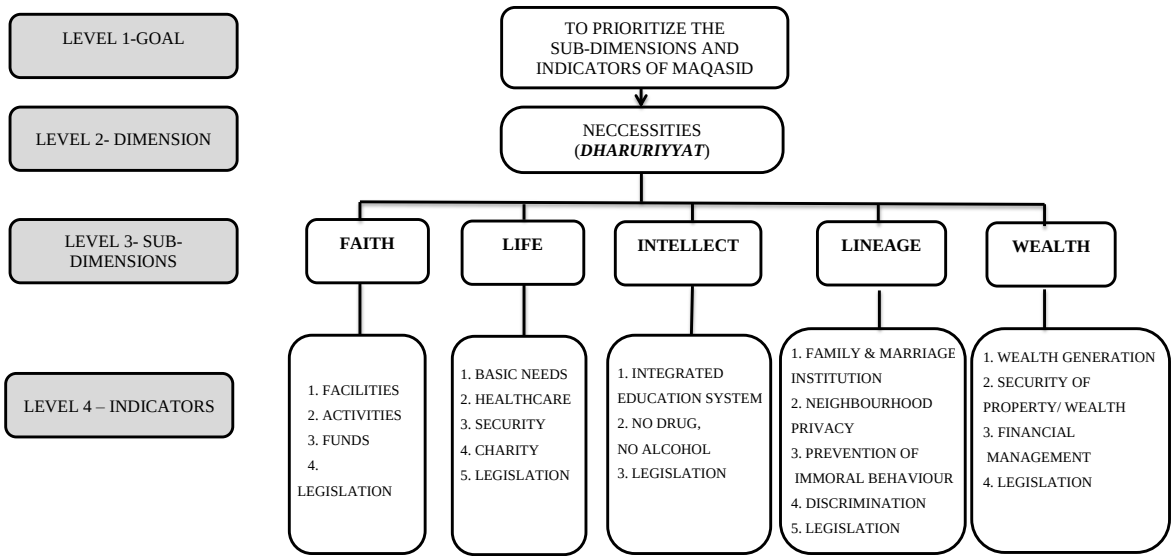


Figure 3 Theoretical framework for the Islamic liveability measurement

Since the indicators and the sub-indicators are involved with multiple choices, according to Anis and Islam (2011), a multiple criteria decision making process such as the AHP questionnaire survey is an appropriate approach. Therefore, a questionnaire survey involving 25 senior Malaysian urban planners and 25 religious department officials and *Maqasid al-Shariah* practitioners was conducted to prioritize the indicators and the sub-indicators. This is to satisfy the objectives of the study, which are as follows: 1. To ascertain the indicators and sub-indicators that measure liveability, quality of life and sustainability of urban living and well-being of urban residents; 2. To rank the indicators and sub-indicators as precursors to measure urban liveability

5. Methodology

The application of the mixed-method of qualitative and quantitative methodologies used for this study help to strengthen the findings in terms of expanding the qualitative cardinal ranking into quantitative ordinal ranking (Creswell, 2009). This research combines five qualitative surveys (interview surveys) and one quantitative (questionnaire survey) data collection method. The qualitative surveys furnished subjective opinions and were analyzed by the ATLAS.ti software while the quantitative survey translated them into the degree of relative importance via weighting of the AHP's SuperDecisions software. For example, traditionally the five pertinent indicators of the *Maqasid al-Shariah* are considered of equal importance and subjectively ranked in a descending order of significance. This order however may differ on a case to case and urgency basis. However, the quantitative method is more definitive as it ranks religion first because it was given the highest weight by all the respondents; in this case, it was judged as having extreme importance according to the numerical rating (Saaty, 2008). The scores also show the degree of importance among the respective indicators in relation to another indicator. The SuperDecisions software was employed to extract the weight of priorities of the *Maqasid* indicators

and sub-indicators. Besides ranking the priorities, the Consistency Ratio (CR) was also determined.

The CR reveals reliability and consistency levels of the feedback. Overall, it was found that the CR is almost significantly identical for all the indicators and sub-indicators. Each CR showed that they are all well below the threshold value of 0.1 with the highest at only 0.067 and the lowest at 0.0149. This means that the consistencies of their judgments are high.

The respondents comprise two groups of 50 experts in their respective fields i.e. 25 urban planners and 25 *Maqasid al-Shariah* scholars and practitioners. The researchers set several criteria of selection with the objective of ensuring data quality. For the urban planners, three main criteria that meet the purposeful sampling technique for the selection of respondents are as follows:

i) Very senior (more than 20 years working experience) Malaysian public sector officials and practicing urban planners at the Ministry, Federal, State, Putrajaya, Local Authorities, and Private practice levels.
ii) Have been involved directly with the promotion of sustainability planning
iii) Have professional experience in the Ministry of Urban Well-being, Housing and Local Government, Federal Town and Country Planning Department, State Town and Country Planning Department, Consulting Firms and Putrajaya Corporation.

For the *Maqasid* group, the criteria for selection are their involvement in religious affairs like:

i) Being officials in the State government who are directly related to *Shariah* matters.
ii) Holding religious positions and practice like Nazir, Imams, Bilal and Ustaz
iii) University Chairman and lecturers who are involved in *Maqasid al-Shariah* portfolios.
iv) Head of Islamic project of an economic entity, Perbadanan Nasional Berhad (PNB).
v) Senior Fellows of the Islamic Understanding Institute Malaysia (IKIM).

6. Data analysis

For the data analysis, data was gathered from the two AHP steps as follows:
Step 1 – Validation stage that involved feedback from four selected *Maqasid* experts via the Face Validity Interviews.
Step 2 - Questionnaire Survey that involved 25 *Maqasid* practitioners and 25 urban planners (N = 50)

The AHP process started with the validation stage of the questionnaire. This pertains to feedback on the draft questionnaire devised by the researcher based on literature reviews and data gathered from three preliminary interview surveys. Advice and additions from the experts were incorporated and the AHP questionnaire was finalized before distribution to the 50 respondents to answer via the drop and collect survey method (Brown, 1987). Respondents were required to do the Pairwise Comparison Matrices (PCM) on the indicators and their respective sub-indicators as shown in Table 6. Consequently, this study produced altogether 18 results in the form of PCM tables and 18 histograms.

As an example, a sample of the combined (N = 50) completed questionnaire responses are shown in Table 7. Figure 4 shows the weights in a graphical form. Table 7 shows the respective relative importance of the five indicators as reflected by their weights and ranks. The overall CR is also provided. Figure 4 clearly compares the weights of the individual indicator which signifies its priority.

Table 7
The PCM combined (N = 50)

***Dharuriyyat* Indicators (N = 50)**							
Indicators	RELIGION	LIFE	INTELLECT	LINEAGE	WEALTH	Weights	**Rank**
RELIGION	1	2.79	3.11	3.97	3.73	0.432	1
LIFE		1	2.24	2.28	3.25	0.231	2
INTELLECT			1	1.50	3.73	0.155	3
LINEAGE				1	3.05	0.119	4
WEALTH					1	0.063	5
CR = 0.054							

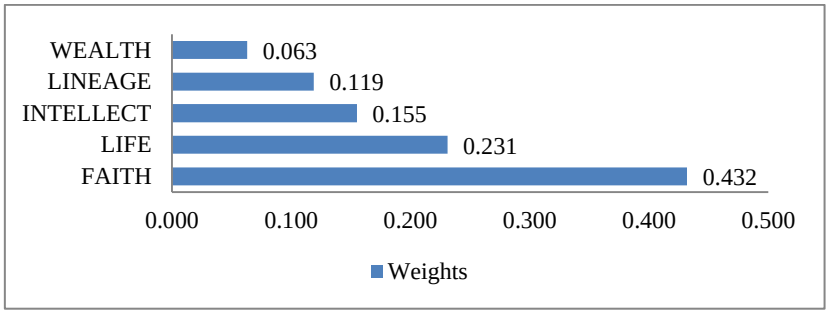


Figure 4 Weights of indicators

To form aggregated PCM, the geometric means method was used (Basak & Saaty, 1993). This is a mathematical equivalent of the consensus of the group judgment obtained from the feedback of the 50 respondents (Islam, 2010). The SuperDecisions software was used to calculate the priorities of the indicators and sub-indicators from the PCMs using those geometric means. The Consistency Ratio (CR) of less than 0.1 is considered acceptable and overall the CR was 0.054 which is less than 0.1; hence it is regarded as consistent and reliable.

7. Findings

Results of the responses from the 50 respondents to the AHP questionnaire survey are in the form of Pairwise Comparison Matrix (PCM) tables and were done individually. Each PCM is accompanied by a histogram that shows the weights and Consistency Ratios (CR). Altogether, there are 18 results in PCM tables and 18 histograms. Hence, the findings are divided into individual groups of *Maqasid* experts and urban planners. However, for the purpose of this paper, the combined findings are deemed representative of the overall findings since the weights are not significantly contrasting.

One significant finding is that all 50 respondents ranked the *Dharuriyyat* indicators in the exact order of the classic *Maqasid al-Shariah* discipline. Hence, the priorities are assigned in the descending order of religion, life, intellect, lineage and wealth accordingly. But, in terms of their cardinal values, Figure 4 shows their respective weight. Faith or religion scored the highest at 0.432 followed by life and so on. Meanwhile, Figure 5 reveals the priorities for the sub-indicators where the 50 experts have confirmed the five *Dharuriyyat* of the *Maqasid al-Shariah* classic fundamentals; the respondents have assigned priorities to the sub-indicators according to their point of view.

The respective sub-indicators that scored the first rank are as follows:
F2-Religious activities/ programs at all levels of city-neighborhoods.
L1-Fulfilling basic needs-food, shelter, housing, transportation, jobs etc. through zakat, job-matching, poverty eradication programs and charity. Equitable *Baitulmal* distribution for the 8 *asnafs, waqaf* etc**.**
A1-Integrated *Aqli* and *Naqli* education system and facilities. Allocations on R & D, nation building programs for future leaders, lifelong learning, freedom of speech/views/*Ijtihad* etc**.**
P1- Protecting family units and upholding the marriage institution
W1-Wealth generation/economic opportunities, *Halal* job generation, crime against wealth, *halal* investment business opportunities, etc**.**

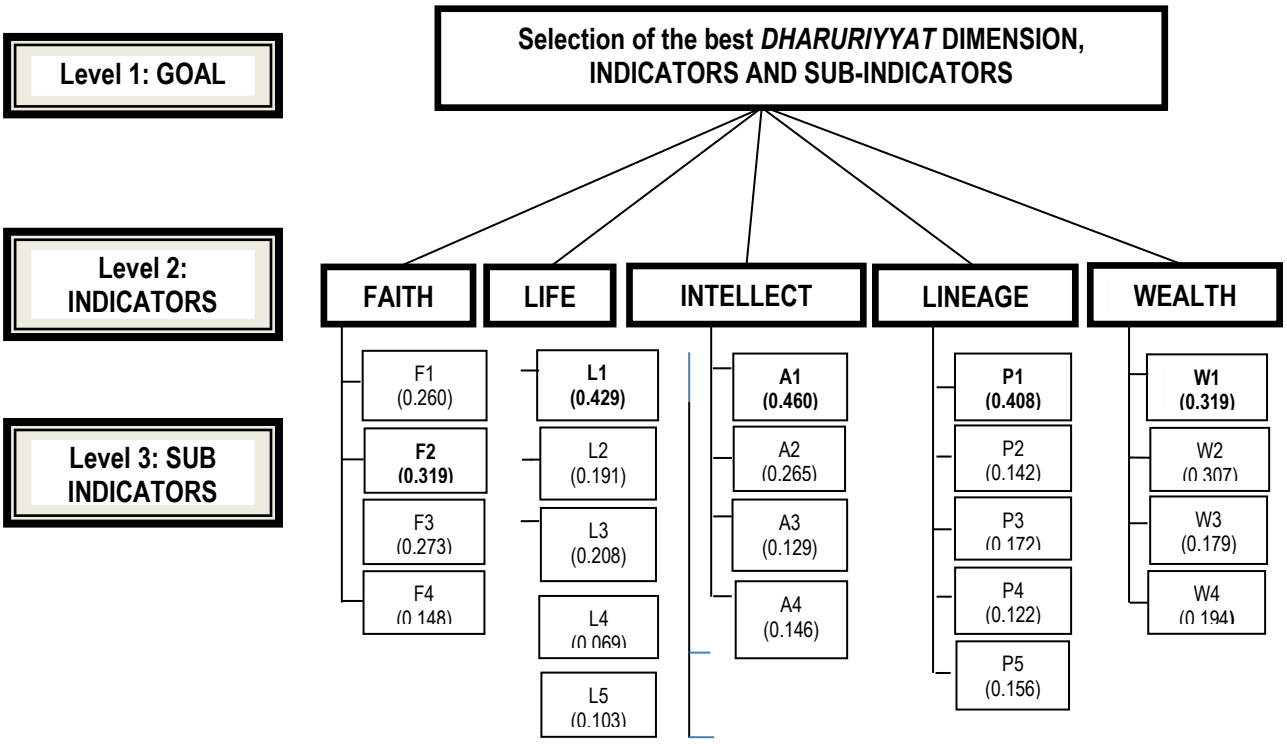


Figure 5 Hierarchic model of *Maqasid al-Shariah* with weights of the sub-indicators (Note: Detailed breakdown of the sub-indicator category as denoted with the initials can be seen in Table 6)

The sub-indicators, **F2, L1, A1, P1** and **W1** (shown bold in Figure 5) are the most important within their respective sub-indicator category. Hence, for a city to qualify as liveable, it should be measured against these five sub-indicators i.e. it should have religious activities/programs at all levels of city-neighborhoods, fulfill basic needs, provide integrated education system, protect family and provide halal economic activities and wealth generation institutions.

Conclusively, Table 8 highlights the ranking of importance of indicators and sub-indicators by both of the expert groups. In terms of indicators, the ranking tallies with the classical *Maqasid al-Shariah* priorities. However, in terms of the sub-indicators, the expert groups ranked those according to their own judgments based on their experience and contemporary issues and values. Indeed, *Maqasid al-Shariah* should be suited to the modern times and context. The combination of theological ethics as outlined by *Maqasid al-Shariah* and its modern day human-centric applications will finally propagate liveability and human well-being.

Table 8
Ranking of indicators and sub-indicators by the combined respondents

Indicators	Rank	Sub-Indicators	Rank	Sub-Indicators	Rank	Sub-Indicators	Rank	Sub-Indicators	Rank	Sub-Indicators	Rank
RELIGION	**1**										
LIFE	**2**	F1	3	L1	1	A1	1	P1	1	W1	1
INTELLECT	**3**	F2	1	L2	3	A2	2	P2	4	W2	2
LINEAGE	**4**	F3	2	L3	2	A3	4	P3	2	W3	4
WEALTH	**5**	F4	4	L4	5	A4	3	P4	5	W4	3
				L5	4			P5	3		

8. Conclusions

This study provides insights regarding the confirmation of the five priorities of the *Dharuriyyat* dimension of the *Maqasid al-Shariah* as far as liveability, quality of life and sustainability of human living in cities are concerned. Results from the AHP exercise which is objective and scientific in nature establishes that the various *Maqasid al-Shariah* elements, namely religion, life, intellect, lineage and wealth are in the descending order of importance. Modern day urban planners and *Maqasid al-Shariah* scholars and religious officials unwaveringly concur with this order in their judgments as evidenced by their responses in the questionnaire survey. This study therefore provides a strong empirical conclusion on the importance of *Maqasid al-Shariah* for human well-being and the findings are in agreement with the set priorities laid out by the 'old school' doctrine. However, this study further extended these set priorities by elaborating on them in terms of rank and weight. Also this study provides details on sub-indicators in each category and ranks the priorities from the calculated weights of the SuperDecisions software. Interestingly, from the AHP analysis two other striking conclusions could be drawn.

1) Overall, both groups came up with exactly the same ranking despite their very different religious background. The urban planners are Western and have a modern background while the *Maqasid* officials have an Islamic educational and practice background. However, their outlook remains intact where they exude strong 'religious' perspectives and consensus.

2) The Consistency Ratio (CR) is very high throughout which shows that they are consistent with their opinions and judgments. It reflects that they gave honest and well-thought opinions and therefore the overall conclusions of the study are very reliable.

Finally, the findings of this study support the application of the AHP as an appropriate and viable technique because of the multiplicity of variables or indicators and sub-indicators involved. Even though the sample size is relatively small, i.e., 25 respondents for each group, the respondents are experts and high profile personnel in their respective fields. Their invaluable insights gave credit to the quality of responses that they gave, and therefore form a wealth of information and judgments. In conclusion, to render a city liveable, it has to protect religion, life, intellect, lineage and wealth. Also, it has to ensure that the sub-indicators pertaining to religion and religious activities persists, the education system is inclusive and integrates both worldly and the religious knowledge, the family institution and intellect are protected,

and lastly, the halal wealth generation and distribution are preserved and safeguarded for the sake of the city inhabitants.

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