A Multidimensional Model for Feasibility Assessment of Urban Development Projects

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Abstract

Urbanisation is a process of population concentration and it is one of the global challenges of today and of the coming decades. As a country emerging from the uncertainty created by civil unrest and natural disasters such as tsunami and floods, the rapid rate of urbanisation during the past couple of years has attracted widespread attention. Urbanisation creates enormous impacts on environment, society and the economy at the local, regional and global scales. Therefore it is important to assess urban development project feasibility prior to their implementations.

The Research employed a methodology of literature review, preliminary survey and structured interviews with the experts in urban development projects to identify feasibility perspectives and indicators to assess urban development project feasibility. Analytic Hierarchy Process (AHP) tool was applied for data analysis and prioritise feasibility assessment perspectives and indicators.

Results obtained from the survey identified seven (07) multidimensional perspectives, i.e. 'market', 'technical', 'financial', 'social', 'environmental', 'physical' and 'institutional' and 36 indicators for the assessment of urban development project feasibility. The survey further identified market and technical perspectives as the most important aspects in urban development project feasibility assessment. The multidimensional feasibility assessment model developed in this study can be used to enhance the feasibility of existing and future urban development projects and hence to have benefits for future generation in Sri Lanka.

Keywords: *Feasibility Assessment, Urban Development Projects, Analytic Hierarchy Process (AHP), Multidimensional Model, Sri Lanka*

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Introduction

Increasing urbanisation is one of the critical issues faced by developing countries. Urban areas are congested and its issues are integrated. Urban growth is a complex process involving participation of many actors/urban enterprises and interactions with many physical, economic, social, political and demographic factors at various spatial unit levels, which are constantly changing (Chakrabarty, 1998). Salman and Qureshi (2009) mentioned that the urban population of the world is estimated to increase from three billion in 2000 to five billion in 2030. Therefore, it is obvious that environmental problems as well as social and economic problems characterising developing cities will remain a challenge for authorities.

After the end of three decade civil war in Sri Lanka, one of the major challenges the country faces is urban development. According to the ADB report on 'Urbanisation and Sustainability in Asia' (2006), the level of urbanisation in Sri Lanka is lower than in most of the Asian countries. However, many urban areas of the country are experiencing serious environmental and urban development related problems. This presents a significant challenge to national and local government in the Sri Lanka. Government institutes try to ensure urban and regional development in sustainable manner. However, most local authorities do not have the capability to manage and provide basic services to meet the needs of communities and/or support local economic development.

Urbanisation is a continuous process, where haphazard development can be highlighted as its outcome. Siwar and Kasim (1977) identified congestion, inadequate amenities, pollution and shortage of housing, as critical urban issues. According to Sri Lanka Country Report of the Ministry of Health (2002), more than 40 percent of the total population will live in the urban sector by 2030.

Therefore, it is necessary to ensure the planned growth and development of cities. Moreover, it is essential to improve the living standard of the people by giving infrastructure and other necessary facilities. Hara (1999) mentioned that improving safety of the area, attractiveness and quality of life are indispensable to a successful overall development strategy of urban areas. Therefore it is important to develop urban areas in planned manner by providing liveable environments to the people.

In Sri Lanka, most of the urban development plans are prepared and implemented by the Urban Development Authority. It is the agency set up under the Urban Development Law No 41 of 1978 to carry out development activities in the urban declared areas. UDA's main objective is to promote integrated planning and implementation of economic, social and physical development of the areas declared by the UDA (Urban Development Law No 41 of 1978). Urban Development Authority is the main body vested with the power to approve and undertake the urban development projects and schemes approved by the Sri Lankan government.

According to Isaac (1998), urban redevelopment projects have a wide social, economic, environmental and political impact on local residents as well as society as a whole. Moreover, Lehmann and Fryd (2008) show that urban quality development management is dependent on human resource development, institutionalised networks and confident exchange of knowledge, incorporated with multiple environmental, social, economic and cultural aspects.

Feasibility study is the first and most important consideration before undertaking project design and construction (Shen, Tam, Tam, & Ji, 2010). The effectiveness of the feasibility study will affect directly the success of a project. Further, Urkiaga et al. (2006) defined feasibility study as an evaluation or analysis of the potential impact of a proposed project or program. It is conducted to assist decision-makers in determining whether or not to implement a particular project or program. Therefore, before implementing a project, it is important to carry out a comprehensive feasibility study. It tries to balance goals and ambitions with means and practical feasibility and stresses the importance of commitment among key stakeholders needed for successful implementation (Davidson, 1996; Halla, 2002; Steinberg, 2005; Wong, Tang, Horen, 2006 (as cited De Graaf & Dewulf, 2010).

Traditionally, a feasibility study was carried focused on the financial aspects. Oprea (2010) says that feasibility in a simple form uses a profit and loss style statement whereby the estimated expenses of the project are subtracted from the estimated revenue of the project, giving a profit or a loss. Economic performance is given the most concern in the current practice of project feasibility studies, whilst less attention is given to the social and environmental performance (Shen et al. 2010). Further, Hara (1999) points out that the accepted focus of urban development on improving a community's economic conditions has overlooked social and environmental effects. However, these social functions are essential to sustain healthy and well functioning communities as well as successful economies. Most of the projects are profit oriented hence give priority for the financial aspect. De Filippi & Melhado (2010) argue that since we are living in project oriented society, it is necessary to go through quicker, more objective and precise feasibility analysis. Feasibility analysis mistakes can lead to losing a contract to a competitor or cause financial loss that may compromise a company‘s bottom line results. Therefore, implementing a project, not only financial aspects but also other factors such as social, environment and design aspects need to be considered.

Various research studies have been carried out to assess the feasibility of construction projects. However, most studies have assessed the impact of limited factors such as economics, social and environmental issues on aspects of feasibility of urban development projects without conclusive and substantiated results. There is a lack of comprehensive and elaborate feasibility assessment indicators to assess success, failure or impact of urban development project to the whole nation. There is therefore, a void in the literature on suitable indicators to assess the feasibility of urban development projects. The aim of this study is therefore to develop a comprehensive feasibility assessment model with necessary perspectives and indicators enabling a multidimensional evaluation of the impact of urban development projects on the entire society.

The paper begins with an introduction to the study followed by a literature review on urban development projects to identify feasibility assessment perspectives and indicators. The next section presents urban development project feasibility assessment hierarchy developed for empirical study. The subsequent section briefs research methodology with data collection, analysis and validation tools followed by data analysis and research findings. The final section presents urban development project feasibility assessment model and summarises conclusions derived from the findings.

Urban Development Project Feasibility Assessment

Urkage et al. (2006) identified three (03) definitions of the word ‘feasibility’ in Webster‘s Third International Dictionary. The first is ‘capable of being done, executed or effected’; the second is ‘capable of being managed, utilised or dealt with successfully’; and the third is ‘reasonable, likely’. Having considered different definitions, Ukage et.al. (2006) defined the term ‘feasibility’ as the degree to which (i) a given alternative mode, management strategy, design or location is economically justified; (ii) such an alternative is considered preferable from an environmental or social perspective; and (iii) eventual construction and operation of such an alternative can be financed and managed. Moreover, Wren (2003) proposed that a feasibility study should be conducted during the early stage of a project immediately following project initiation. Farrel (1995) shows that aproject feasibility consists four stages; namely, identification, pre-selection, analysis and evaluation of prospective projects. Khanna (2011) stated that some organisations carried out feasibility studies prior to making a final decision about starting a project. Most of the organisations however, target only on the financial aspects and only financial analysis is carried out as feasibility study. Learnining (2002) pointed out that assessing the feasibility of a proposed scenario requires an understanding of the social, technological, ecological, economic and political factors all of which are involved.

Urban Development Project Feasibility Assessment Hierarchy

Yan and Chan (2008) developed a multi-criteria decision making framework for evaluating feasibility of deferent schemes of urban regeneration projects. This framework contains the factors to be considered when planning an urban renewal project. They further introduced 16 criteria under four categories, namely “economic”, “environmental”, “physical” and “social” to achieve set goals. However, their framework is lacking with aspects such as market analysis and technical analysis perspectives and potential demand, government subsidies, stakeholder satisfaction and disaster mitigation measures to name a few. Kanna (2011) identified four major criteria to evaluate feasibility, i.e.: market analysis, technical analysis, financial analysis and environmental analysis. Shen et al. (2010) shows that promoting the balance of environment protection, economic development and social development are important for development. Further, he highlighted that the existing practice of conducting project feasibility studies vary largely among different types of projects. The difference can be found by examining the factors or attributes that are considered in the process of feasibility study. Those attributes had been broadly divided into three major pillars; namely economic performance, social performance and environment performance.

Most of the urban development projects are designed to provide services for the public who live in that area. However, before proposing a project, it is essential to consider potential demand for the projects. According to Khanna (2011), market situation depends on the income level, education level, age level, size of a family, geographical division and industry or a combination of some or all of these factors. Khanna (2011) and Shen et.al. (2010) identified potential demand, price and promotion as important indicators to evaluate feasibility and to make the project to function. Location advantage is another very important aspect for the feasibility of a project. Hence the market analysis perspective includes four indicators; namely potential demand for project, marketable value of the project, location advantages and promotion. According to Khanna (2011), technical feasibility is another important aspect in feasibility analysis. Several researchers identified location (Khanna, 2011), availability of technology (Shen et.al., 2010), technical skills (Lee & Chan, 2009 & 2010), and technical standards (Erkip, 2000) as Important indicators for technical analysis. Further, Yan and Chan (2008), Shen et.al. (2010) and Khanna (2011) identified project cost, project return and government subsidies as important factors to be considered under financial feasibility. Urban development projects are implemented to provide services for people and hence, it is essential to get social acceptance for the project. Literature highlighted welfare and community facilities (Yan and Chan, 2008), social disturbances (Yan and Chan, 2008), social behaviour (Hara, 1999), availability of public infrastructure (Nojon, 2006), socio-cultural composition, cultural heritage (Ha, 2010) and level of satisfaction (Lee & Chan, 2010) as important indicators in social analysis perspective. Physical analysis considers spatial compatibility of the project and within this perspective, it is essential to consider existing spatial structure, land tenure and ownership, existing land use (Nojon, 2006) and new developments (Corre, 1991). From the proposed stage to implementation stage of the project, there are legal and mandated procedures to be followed. Especially in the urban areas, there are special rules and regulations to be followed (Nojon, 2006, Hara, 1999 and Olewiler, 2006).

The feasibility assessment perspectives and indicators identified from literature review were then revised using a preliminary survey. A preliminary survey was carried out among the fifteen experts in the urban development projects. Based on the above comprehensive literature review and preliminary survey, seven (07) feasibility assessment perspectives and 36 indicators were identified and urban development project feasibility assessment hierarchy was developed as shown in Figure 1. Given the ambiguity surrounding the terminologies used by various authors and experts, the best judgment has been used in grouping the facility indicators.

Research Methodology

A comprehensive literature review was conducted to identify the feasibility assessment perspectives and indicators. Preliminary survey was carried out through informal interviews with fifteen professionals who are practising in urban development projects, both in the private and public sectors in order to revise the perspectives and indicators to develop feasibility assessment hierarchy.

The next step of the study is data collection and analysis using Analytic Hierarchy Process (AHP) tool. AHP is a multi-criteria decision making tool that uses hierarchical structures to represent a problem and then develop priorities for alternatives based on the judgment of the user (Saaty, 1994). The AHP method is used to identify high priority tasks or issues based on weighted selection criteria. It is a matrix diagram where the variables in the rows and columns are the same. This multi-criteria decision support system uses a 9 to 1/9 scale (9, 7, 5, 3, 1, 1/3, 1/5, 1/7 and 1/9) to assign a rate based on pairwise comparison among key factors. For example, point 5 is awarded for the situation where the row in a paired comparison matrix is 5 times more significant than the column. The main advantage of this ratio-scale over a Likert-scale is, in Likert-scale, a score of 2 could not be interpreted as twice as important as a score of 1, whereas, with ratio-scale, that statement can be made (Norris, 1992). Calculation using AHP tool with an example is discussed in the following section.

The structured questionnaire was prepared based on the AHP hierarchy and survey was conducted among 51 experts who are involved in urban development projects in Sri Lanka. The compositions of the respondents are given in table 1.

Table 1: Composition of the respondents

Profession	Number	Responded number
Engineers	10	8
Project Managers	10	7
Architects	12	10
Town Planners	15	13
Quantity Surveyors	8	7
Environment Specialists	4	3
Sociologists	4	3
Total	**63**	**51**

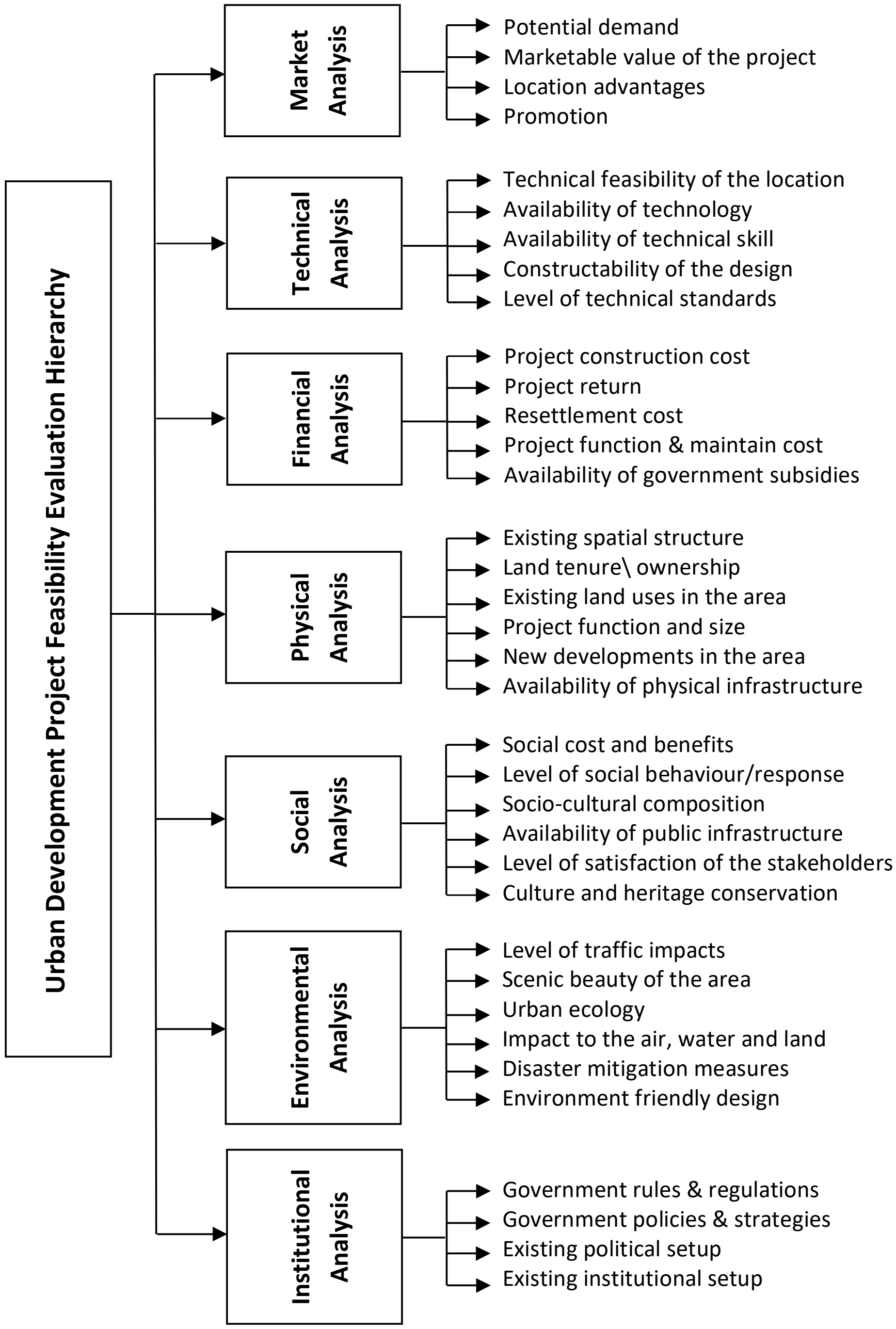

Fig. 1: Urban development project feasibility assessment hierarchy

The respondents were asked to give their individual opinions and indicate the magnitude of the importance placed on feasibility assessment perspectives and indicators using the one-to-nine ratio scale. Criterion in each level was compared pair wise with respect to their importance to a criterion in the next higher level and starting at the top of the hierarchy and working down. For all decision alternatives, geometric mean was calculated from the allocated weights by the participants; the mean for each alternative was considered in the analysis.

Comparisons in a matrix may not be consistent as in eliciting judgments. Cheng and Li (2001) points out that AHP is likely to be more reliable than simple rating method, because Consistency Ratio (CR) prevents respondents from making arbitrary, incorrect and non-professional judgments. Inconsistency refers to a lack of transitivity of preference. A CR of 0.10 or less is considered as acceptable (Saaty, 1994). In this study, reliability was achieved through consistency calculations and construct validity was achieved through data triangulation.

Data Analysis and Research Findings

The AHP consists of a set of mathematical calculations mainly focussed on three steps, i.e. "Pair-wise Comparisons", "Normalise the Comparisons" and "Consistency Calculations".

Pairwise Comparisons of Feasibility Assessment Perspectives

The first step of AHP analysis is to enter the pairwise comparison responses into the comparison table. Table 2 shows pair wise comparisons of the feasibility assessment perspectives. For example, if perspective A is evaluated as W_1 times (W_1 is ratio scale) important as perspective B, the reciprocity axiom must be $1/W_1$. This study used geometric mean of individual value judgments to increase the accuracy of the data.

Table 2: Pair-Wise Comparison of Urban Development Project Feasibility Evaluation Perspectives

Feasibility Perspectives	**Market Analysis**	**Technical Analysis**	**Financial Analysis**	**Env. Analysis**	**Social Analysis**	**Physical Analysis**	**Institutional Analysis**
Market Analysis	1.000	2.084	1.347	1.538	2.128	2.284	2.516
Technical Analysis	0.480	1.000	2.413	1.528	2.170	1.717	2.527
Financial Analysis	0.743	0.414	1.000	1.466	2.197	2.204	2.520
Environmental Analysis	0.650	0.655	0.682	1.000	1.261	2.593	4.027
Social Analysis	0.470	0.461	0.455	0.793	1.000	2.327	3.060
Physical Analysis	0.438	0.582	0.454	0.386	0.430	1.000	2.820
Institutional Analysis	0.398	0.396	0.397	0.248	0.327	0.355	1.000
Sum	**4.178**	**5.592**	**6.748**	**6.958**	**9.513**	**12.479**	**18.469**

Pair-wise Normalised Comparisons of the Feasibility Assessment Perspectives

The second step of AHP analysis is normalising the pair-wise comparisons. In this step, the relative preferences are simply added up and normalised to 1. This step starts with dividing each element of the matrix by its column sum. The pair-wise normalised comparison of this study is given in the Table 3. An average of each row in the normalised matrix is the performance score of each perspective.

Table 3: Normalised Comparisons of Urban Development Project Feasibility Evaluation Perspectives

Feasibility Perspectives	Market Analysis	Technical Analysis	Financial Analysis	Env: Analysis	Social Analysis	Physical Analysis	Institutional Analysis	Sum	Performance Score
Market Analysis	0.239	0.373	0.200	0.221	0.224	0.183	0.136	1.575	0.225
Technical Analysis	0.115	0.179	0.358	0.220	0.228	0.138	0.137	1.373	0.196
Financial Analysis	0.178	0.074	0.148	0.211	0.231	0.177	0.136	1.155	0.165
Environmental Analysis	0.156	0.117	0.101	0.144	0.133	0.208	0.218	1.076	0.154
Social Analysis	0.112	0.082	0.067	0.114	0.105	0.186	0.166	0.834	0.119
Physical Analysis	0.105	0.104	0.067	0.055	0.045	0.080	0.153	0.610	0.087
Institutional Analysis	0.095	0.071	0.059	0.036	0.034	0.028	0.054	0.377	0.054
								7.000	**1.000**

Consistency Calculations for the Feasibility Assessment Perspectives

However, the perspective A compared to perspective B, may not precisely reflect how the respondents feel about B compared to A. Hence, the pairwise comparison matrix may not be consistent. This could lead to a problem if it is restricted to simple normalising vectors. Thus, it is essential to calculate the Consistency Ratio (CR). CR is the ratio between consistency index and random index. Consistency calculations are shown in Table 4.

Table 4: Consistency Calculation of Urban Development Project Feasibility Evaluation Perspectives

Feasibility Perspectives	Market Analysis	Technical Analysis	Financial Analysis	Env: Analysis	Social Analysis	Physical Analysis	Institutional Analysis	Sum	Performance Score
Market Analysis	0.225	0.409	0.165	0.236	0.253	0.199	0.136	1.623	7.212
Technical Analysis	0.108	0.196	0.398	0.235	0.258	0.150	0.136	1.481	7.550
Financial Analysis	0.167	0.081	0.165	0.225	0.262	0.192	0.136	1.228	7.445
Environmental Analysis	0.146	0.128	0.113	0.154	0.150	0.226	0.217	1.134	7.379
Social Analysis	0.106	0.090	0.075	0.122	0.119	0.203	0.165	0.880	7.388
Physical Analysis	0.099	0.114	0.075	0.059	0.051	0.087	0.152	0.637	7.317
Institutional Analysis	0.089	0.078	0.065	0.038	0.039	0.031	0.054	0.394	7.318
									7.373

$CR = [(\lambda_{max} – n) / (n – 1)] \times (1 / RI) = [(7.373 – 7) / (7 – 1)] \times (1 / 1.35) = 0.046$

Where, CR is Consistency Ratio, n is size of matrix (e.g.: Number of perspectives), λ_{max} is the average of SUM/Performance Score column and RI is Random Index for n number of matrices.

According to Saaty (1994), consistency ratio of 0.10 or less is a positive evidence and acceptable, and therefore above data can be considered as consistent, reliable and valid.

A similar exercise was applied towards the feasibility assessment indicators in each perspective. The final step of this study is to prioritise the feasibility assessment perspectives and indicators. The results of all pair-wise matrices were synthesised to achieve the overall ranking of the perspectives and indicators.

Urban Development Project Feasibility Assessment Model

The results of the above analysis summarised into Urban Development Project Feasibility Assessment Model is presented in Table 5. The values included in the second column have been obtained by transferring the performance scores in the final column of the pair-wise normalised comparisons table.

According to Table 5, the highest performance score which is 0.225, had been obtained by the ‘Market Analysis’. Therefore, market analysis is the most significant perspective in assessing the urban development project feasibility. At the same time ‘Technical Analysis’ obtained the second highest performance score with 0.196. Third place was obtained by ‘Financial Analysis’ (0.165) perspective. Further fourth, fifth and sixth ranks of the level of relative importance have been obtained by ‘Environment Analysis’ (0.154), ‘Social Analysis’ (0.119) and ‘Physical Analysis’ (0.087) perspective. According to the performance score of the Table 4, the least important perspective was ‘Institutional Analysis’ with the performance score of 0.054. The 'Market Analysis' holds the higher percentage comparative to the remaining perspectives. 'Institutional Analysis' holds a lower performance score from important level. Further 'Market Analysis' and 'Technical Analysis' perspectives are relatively twice more important than the other perspective.

When considering the market analysis, perspective 'potential demand' for project, is two times higher than ‘marketable value’ of the project and four times higher than the ‘promotion’. In the technical analysis, 'technical feasibility of the location' is three times higher than the 'level of technical standards'. In the financial analysis, 'project construction cost' is two times higher than the ‘resettlement cost of the project’ and three times higher than the ‘availability of government subsidies’. 'Urban ecology' and ‘impact to the air, water, and land are relatively equally important under the environment analysis perspective. 'Scenic beauty' of the area obtained the least value within this perspective. In the social analysis perspective, 'social cost and benefits' is three times important than the 'level of satisfaction of the stakeholders'. 'Project function and size' and ‘existing land uses in the area’ are relatively equally important within the physical analysis. In the institutional analysis, 'government rules and regulations' and 'existing institutional setup’ are of equal importance.

In Table 5, last column presents overall rank of the indicators. This table helps to identify most important indicators, equal important indicators and least important indicators.

Considering the overall ranking values in the last column, most important indicator is ‘potential demand for project’. Further, second and third important indicators are 'technical feasibility of the location' and 'project construction cost'. The least important indicator is the 'existing institutional setup' within the institutional analysis perspective and obtained 26th rank from overall ranking value. 25th ranked indicator is 'availability of physical infrastructure'.

Table 5: Urban Development Project Feasibility Assessment Model

Perspectives & Indicators	Performance Score	Overall Performance Score %	Overall Rank
Market Analysis	0.225		
Potential Demand for Project	0.462	10.4	01
Marketable Value of the Project	0.250	5.6	03
Location Advantages	0.203	4.6	05
Promotion	0.085	1.9	17
Technical Analysis	0.196		
Technical Feasibility of the Location	0.304	6.0	02
Availability of Technology	0.256	5.0	04
Availability of Technical Skill	0.164	3.2	09
Constructability of the Design	0.146	2.9	11
Level of Technical Standards	0.131	2.6	13
Financial Analysis	0.165		
Project Construction Cost	0.339	5.6	03
Project Return	0.253	4.2	06
Resettlement Cost	0.163	2.7	12
Project Function & Maintain Cost	0.158	2.6	13
Availability of Government Subsidies	0.088	1.5	21
Environmental Analysis	0.154		
Urban Ecology	0.212	3.3	08
Impact to the Air, Water, Land	0.201	3.1	10
Disaster Mitigation Measures	0.189	2.9	11
Level of Traffic Impacts	0.158	2.4	14
Environment Friendly Design	0.157	2.4	14
Scenic Beauty of the Area	0.083	1.3	23
Social Analysis	0.119		
Social Cost and Benefits	0.318	3.8	07
Level of Social Behaviour/response	0.193	2.3	15
Socio-Cultural Composition	0.148	1.8	18
Availability of Public Infrastructure	0.124	1.5	21
Culture and Heritage Conservation	0.119	1.4	22
Level of Satisfaction of the Stakeholders	0.098	1.2	24
Physical Analysis	0.087		
Existing Spatial Structure	0.240	2.1	16
Project Function and Size	0.182	1.6	20
Existing Land Uses in the Area	0.174	1.5	21
New Developments in the Area	0.159	1.4	22
Land Tenure\ Ownership	0.143	1.2	24
Availability of Physical Infrastructure	0.103	0.9	25
Institutional Analysis	0.054		
Government Rules & Regulations	0.344	1.9	17
Existing Political Setup	0.311	1.7	19
Government Policies & Strategies	0.227	1.2	24

Within the market analysis, 'potential demand for project', 'marketable value of the project', and 'location advantages' obtained high rank values. 'Promotion indicator' in the market analysis obtained mid rank value out of all indicators. In the technical analysis perspective, 'technical feasibility of the location' and 'availability of technology' obtained the high rank values. Other indicators within the technical analysis obtained mid rank values. In the financial analysis perspective, high ranks are obtained by 'project construction cost' and 'project return' indicators. Further, 'resettlement cost' and 'project function and maintenance cost' obtained mid ranking values. However, availability of government subsidies obtained low rank value. Considering the environment analysis perspective, 'urban ecology' obtained the highest ranking value and 'scenic beauty' of the area indicator obtained the lowest value. Within the social analysis perspective, 'social cost and benefits' obtained the highest rank out of all indicators. Availability of 'public infrastructure', 'culture and heritage conservation' and 'level of satisfaction of the stakeholders' obtained low ranking values.

Conclusions

Project feasibility assessment plays an important role at the project formulation stage. A feasibility study helps to understand the viability of any project as well as effect of the project on various aspects. The study identified seven feasibility assessment perspectives and 36 indicators to evaluate urban development project feasibility.

AHP tool had been used to prioritise the perspective and indicators, finalised from unstructured interview. According to the analysis, market analyses perspective obtained the highest performance score among the seven perspectives. Technical analysis obtained the second highest performance score and institutional analysis perspectives obtained the least.

According to the overall analysis, potential demand for the project became the most important indicator followed by technical feasibility of the location, marketable value of the project and project construction cost. The least important indicators are the level of satisfaction of the stakeholders, land tenure/land ownership, government policies and strategies, availability of physical infrastructure and existing institutional setup.

The model will guide in conducting comprehensive feasibility studies based on multidimensional seven perspectives and 36 indicators. Hence, the urban development project professionals, industry practitioners and investors can identify highly influential feasibility perspectives and indicators in assessing feasibility of any urban development project. Their implementers can concentrate more on important perspectives in preparation of new project proposals and also use the model for selecting the best proposal out of alternatives. Further, respective institutions (private/public) can use this model as a tool to select most feasible project out of similar projects and hence it would act as an incentive for local governments to consider different dimensions of feasibility before project implementation.

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