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An Analysis of Spatial Structure of Kabul New City; A Comparison with Infrastructure Framework and Land Use of Japanese Major Cities

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Abstract - *This paper reviews the spatial structure and urban characteristics of Kabul New City and its relationship with the Japanese major cities. The investigation was made using the quantitative statistical analysis technique of Principal Component Analysis (PCA); in concert with the spatial land use framework and delivery of life support infrastructure for the population density. This analysis compared and consequently related Kabul New City closely to some Japanese cites, on the other hand, disparate to some others. Hence, the results showed findings and judgments about the urban characteristics of Kabul New City beforehand w.r.t. that of the Japanese Major Cities. Furthermore, this study may also play an important role as inference policy notes keeping in mind as change and continuity for the recovery and revitalization experience of Japanese cities post to the War. Consequently, this study should be used as suggesting notes for formulating policies in context of the lessons derived for development of Kabul Metropolitan Area from the Japanese success and failure. The lessons shall be associated with respect to urban design, planning, sustainability, architectures, structural measures, and environmental concerns.*

Key Words: Principal; Component; Analysis, Quantitative; Spatial; Framework; Infrastructure; Population; Sustainability; Architecture; Structural; Policy.

1. INTRODUCTION

As per the adage saying that God made the country and man built the town, as well as, that we build the city so that it will make our children. So, all the efforts related to urban development aimed at for general welfare and prosperity. The existing Kabul city is planned to be further developed in north-east direction between Bagram Airbase and Kabul International Airport. The size of Kabul New city is 722.0 sq.km which is approximately 1.5 times larger than the existing Kabul City. Refer (figure 1.1) for the political map of Afghanistan. The New City is placed mainly in Kabul province with capturing some area from Parwan Province (see fig. 1.2). This location is preferred due to the strength of the availability of the flat land and ample water resources. Equally, the easy access for business and door to international trade is the fact of opportunities in the site. Also, the topographic circumstances on this land which is surrounded by Khawaja Rawash, Safi, and Marko Mountains allow for developing sustainable urban neighborhoods and activities in alleviating additional cost for infrastructure construction in Kabul New City.

Kabul New City is planned to address the severe housing lacking, and unemployment conditions for incrementally increasing population in the capital Kabul. This city is designed to ultimately house a population of about 3 million people with 500,000 job opportunities, and 500,000 housing units, and light industries as an unprecedented mega project in Afghanistan. Furthermore, the development of Kabul New City greatly endorses the private developers of housing, manufacturing, and business sectors in Afghanistan. Likewise, the ancient silk road passing from Afghanistan, connecting Asian countries with European ones via central Asia will revitalize the greater region of Kabul New City. Hence, this research is conducted to relate Kabul New City with the corresponding Japanese Major Cities which are displayed in fig.1.3.

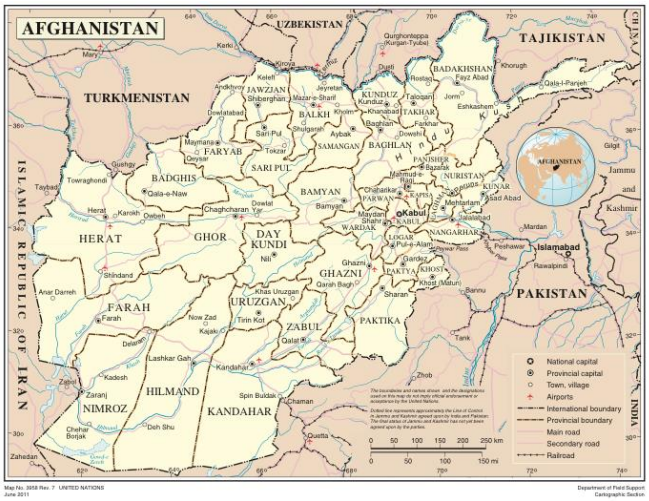


Figure 1.1. Political Map of Afghanistan

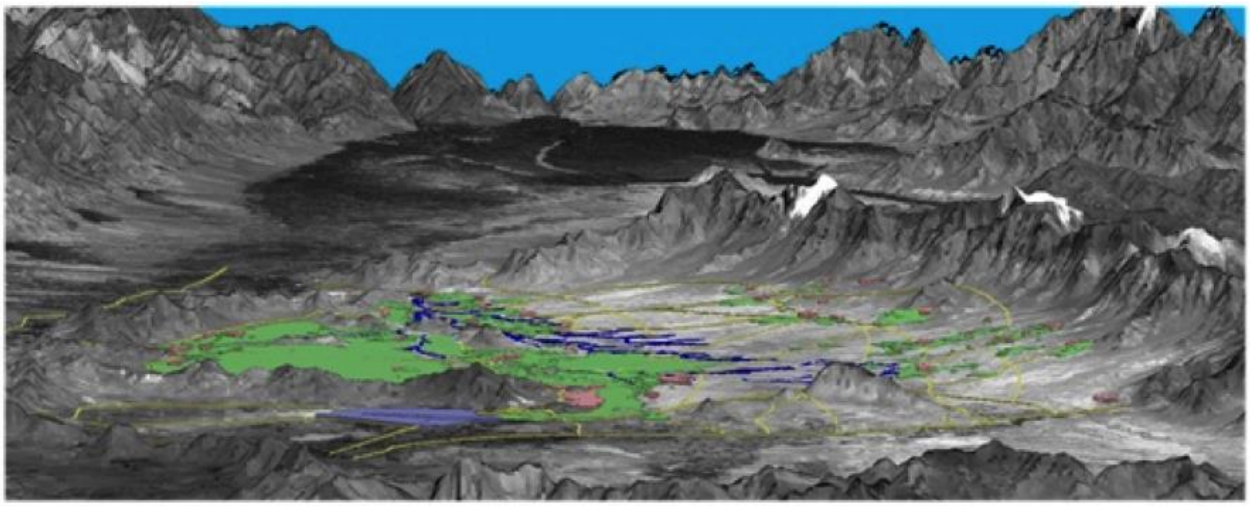


Figure 1.2. Location of Kabul New City

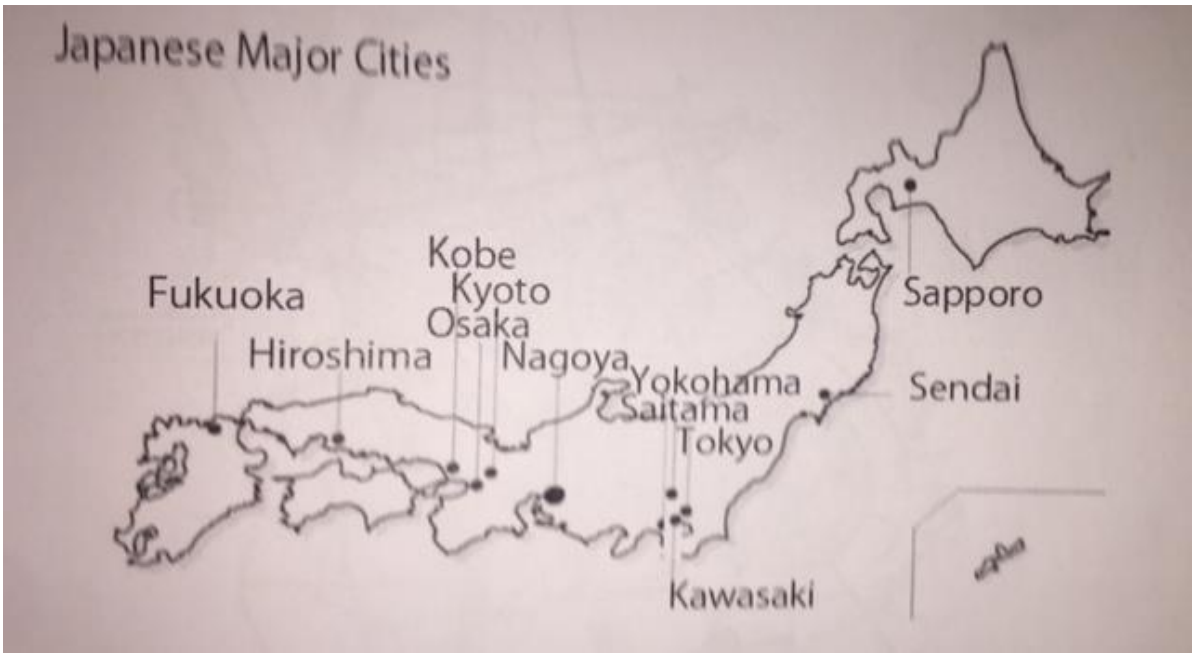


Figure 1.3 Japanese Major Cities targeted in this research

2. Literature Review

Nonetheless, at present there is no study exactly under the same scope, official data was collected from the related government agencies in Afghanistan and Japan, as well as, massive texts on Kabul New City and city planning deliberately was studied and reviewed. Also, studies like comparison of Japanese cities with American and U.K. cities are cited as implication conception in this research. For planning, culture affairs, and social life in urban neighborhoods in Japan the (The Social Life of Small Urban Spaces) of Whyte, William H. (1980) cited in this research studied overwhelmingly.

The main objectives of this study are explained in three phases. Firstly, an overview of spatial structure and land use of Kabul New City and the Japanese major cities. The next central aspect is to compare Kabul New City with the Japanese major cities based on the land use and infrastructure delivery. Finally, to provide a lesson learning tool.

The experience from Japanese cities offered from researches by Barrie Shelton in (Learning from the Japanese City: Looking east in Urban Design), (2012), and in the (The Making of Urban Japan: Cities and Planning from Edo to the 21st Century), (London; Routledge, Sorensen), André. (2002). Specifically, notion studies from Carola Hein, Kunstler, Ewing, Sorensen, and others cited accordingly, shaping the social, economic, political, and environmental review in this research. Therefore, this literature review contributes as learning tool for Kabul New City in conjunction with the success and troubleshooting, change in architecture, structural measures against disasters and environmental trepidations, and urban planning and design policies.

2.1. The Concept of 'Change and Continuity'

The two planning concepts of 'change and continuity' (Carola Hein, Rebuilding Urban Japan after 1945) in rebuilding Japan post to the war have been significantly practiced. Particularly, the concepts are widely measured in land use ordinances and building by laws for urban development and building control in Japanese jurisdiction of urban planning. For example, creation of 100-meter wide boulevards, land readjustment, public open spaces, fireproofing strategies were adopted as change in the previous policies. Hence, 'change and continuity' and or continuity in planning and change in architectures shaped the Japanese cities. This concept has enhanced Japanese urban planning and designing the twenty-first-century Japanese cities as quality, safe, disaster mitigated and lively prosperous urban environments.

It is possible to claim that the slogan of the former president of Afghanistan Dr. Ashraf Ghani Ahmadzai (In power from July 7,2014 until August 15, 2021), which was more interestingly 'Change and Continuity' may be initiated under the same impression of the Japanese success. However, he had prescribed this charter for the state building and to administer government affairs successfully, unconfined to urban development in Afghanistan. Thus, the concept of 'Change and Continuity' was extensively reflected during the conduct of this research, particularly related to the Japanese cities and urban Planning in Japan.

2.2. Comprehensive Urban Planning

Irrefutably, comprehensive urban planning concepts practiced in Japan are well rich in terms of sustainability and socioeconomic prosperity. Equally, the planning concepts applied for Kabul New City include socioeconomic diversity, urban and rural complementary, recycle oriented eco city, and cultural city dimensions for quality urban life.

Similarly, the development of Kabul New City shall include innovative change and continuity efforts, for instance, improvements in land readjustments for urban landscape, smart city and new urbanism trends. This advances may include smart mobility movements and technologies, such as, 15-minutes neighborhoods in terms of accessibility and connectivity, construction-generated dirt, recycling, and district heating and cooling. Moreover, creating sustainable urban infrastructure systems, for example, electric vehicle, electric management systems, improvement of flood control safety, watershed management, rainfall reservoirs, and water reuse systems as a sign of a water saving city. Optimistically, these attributes make cities as resident friendly place responsible to future generations for leading safe social life, culture richness, healthy, a place for production rather than consumption only, hence an auspicious urban matrix.

Hence, the readings and data related to the involved cities together may strengthen this study in terms of richness of both analytical aspects and literature as experience tool for the development of Kabul New City. See figures 2.1, 2.2, and 2.3 which demonstrates respective locations aimed in this research.

Figure 2.1. Respective Locations reflected in this research

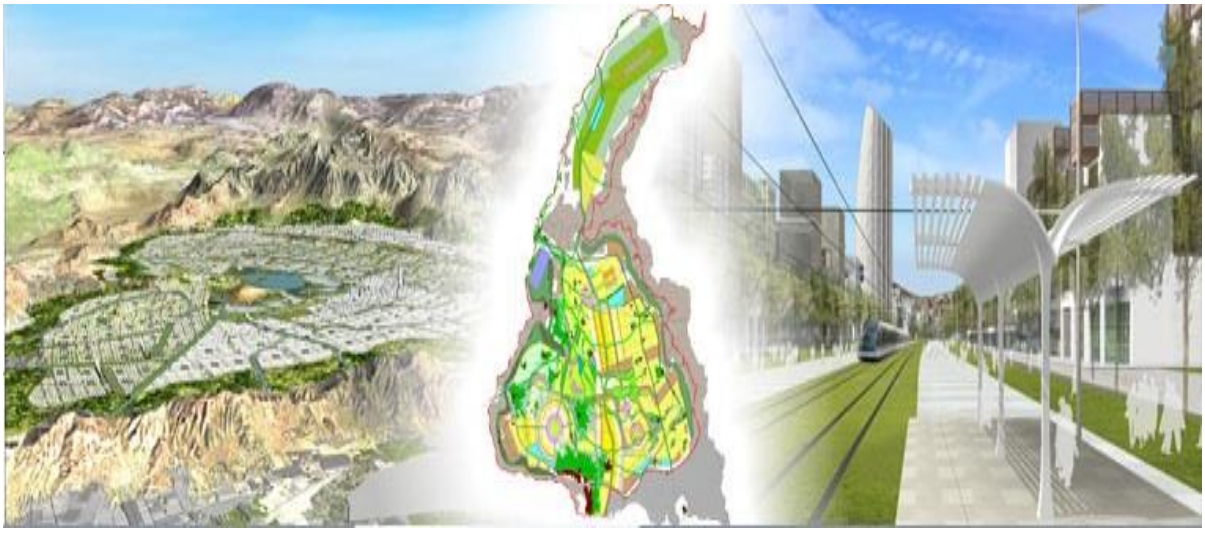
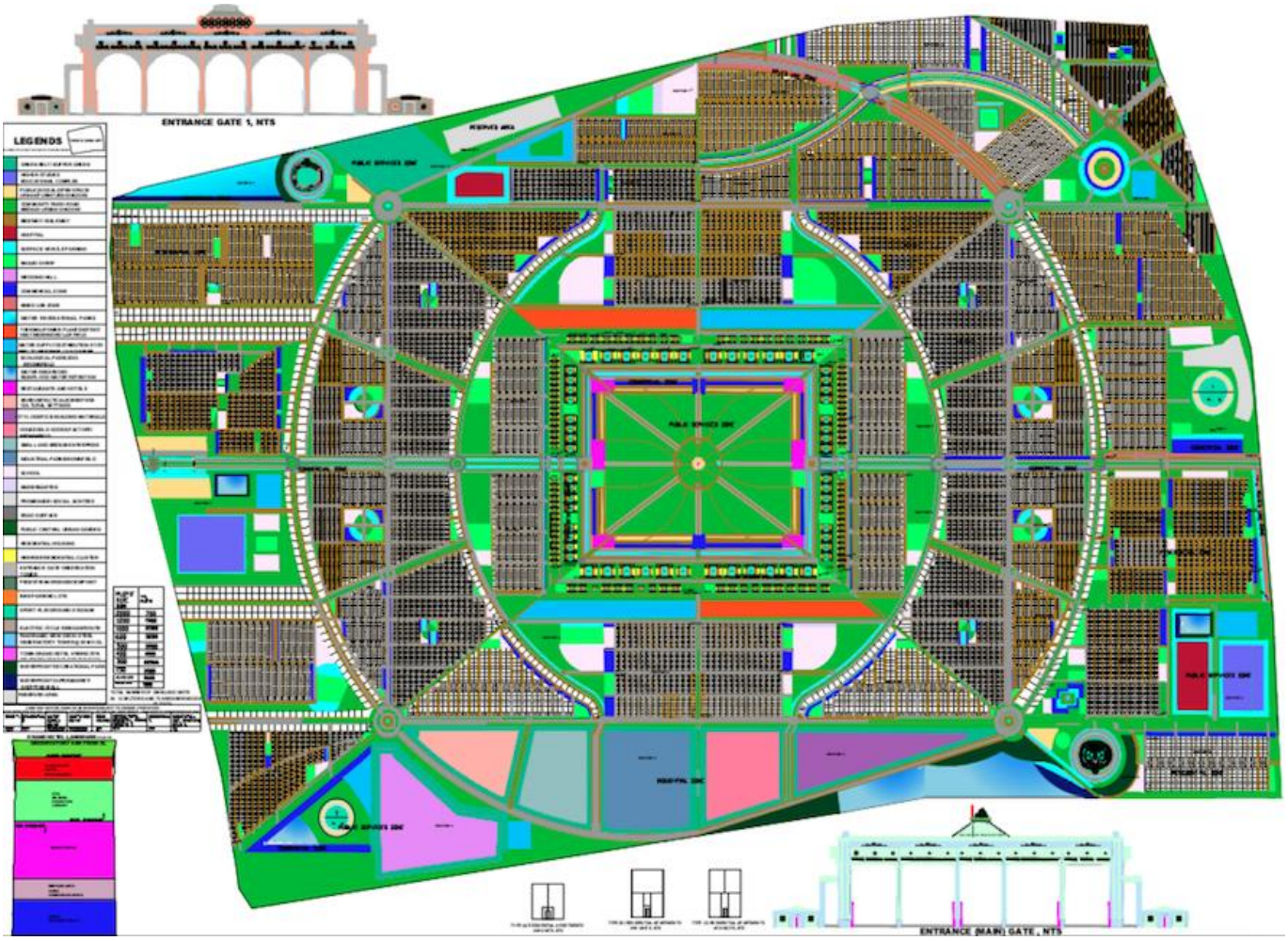


Figure 2.2. Artistic View of Kabul New City and architectural design of a section

2.3. Urban Development Framework for Kabul New City

A detailed Master Plan as urban development framework is proposed for a project in 5500 ha. As 'Tebula Rasa' land at a section in Kabul New City which was initially designed in 5000 ha.

Figure 2.4 Detailed Master Plan of a project in 5500 Ha. land in Kabul New City



Significantly, this land has been added for the low income residents. This portion is intended and design as a sign of more affordable site bearing equal and sustainable effective features exactly the same as the rest of the city, except the size of the plot which is 150 sq. m per household.

This project is planned sensibly and cited as a case study in this research where various civic and productive intentions are well realized. In fact, all basic principles associated with urban design and plan such as, land use, zoning ordinances for structural densities including FAR, BCR, building codes and urban development laws, the latest trends and advent of technology in smart city development, and new urbanism tactics are clearly imitated. Correspondingly, civic, ecological, and dynamic settings together in the city ensure socially, economic, and environmentally friendly and engaging place. Social and economic diversity, cohesion, quality for living, working, and playing for the residing population can be identified.

Likewise, sustainable basic infrastructure, affordable housing, and equitable social services well planned in means of livable, resilient, and healthy, with no disadvantaged area in the city. Additionally, accessible and connected safe collector and distributor street intersection and transportation networks and corridors serves for mobility, walkable, bikeable environments. Furthermore, local markets and commercial areas ensure agriculture and industrial activities as a sign of complement of rural and urban well utilized 15-minutes neighborhoods for social welfare.

Similarly, during my research in Japan, I was strolling on various urban neighborhoods for the modern architecture and urban fabrics in various urban settings as a part of my research. It was noticed that excessive attention has always been granted for particular urban interests. For instance, effective use of space, aesthetic concerns, and eco-friendly environment, insulation for heating, cooling, sound and noise pollution control, cogeneration thermal and power energy, illumine sensors, motion detection in light fixtures and air-conditioning for saving energy, renewing and repairing of building elements, elegant landscape, interior and exterior aspects in buildings may be suitable exemplar for being unique model for Kabul New City.

Notably, it was learned that every place shall be made such that to harmonize with its topography and take the optimum advantage of its nature in the same way as in Japan. This criterion may be exemplified as sun light, air circulation and natural ventilation, greenery, wind and solar energy utilization in Japanese cities. More importantly, the architecture design shall be adopted in compliance with the culture, the way how the people live and where they want to live, like visioning process of community development through 'The Oregon Model'. Also, structural measures against various imposed forces on high rise buildings, bridges, infrastructure systems, and other structures shall be comprehensively analyzed and calculated. This measures may include prudent design calculations and analysis, structural damping, or energy dissipation, seismic isolation, and other sensitive concerns associated with durability and reliability of civil structures.

3. Methodology and Typology Analysis of Urban Components

This study is carried out based on statistical quantitative analysis of the spatial data of Kabul New City and that of major Japanese cities. The comparison study is conducted at aiming to relate Kabul New City to Japanese Major cities in terms of land use framework and infrastructure delivery in the cities accordingly. Statistical method of 'Principal Component Analysis' is adopted as a quantitative technique to perform this analysis for comparison, relationship, and classification of data set of the cities involved in this study.

3.1 Data Collection

In the present study, research data was collected from the official administration in Afghanistan as well as Japanese municipalities of the cities incorporated in this research. The result of data analysis is improbable from the data set, while it is shown graphically in the statistical method of Principal Component Analysis. See table 3.1 for data set of observations as land use overview in Japanese major cities and that in Kabul New City.

Furthermore, beyond the data for performing the statistical calculation and analysis, several papers were reviewed for the purpose of learning from Japanese cities. Most relevant aspects such as rapid intensification, post war influx of migrants and internally displaced, urban sprawls, environmental crisis, climate change rising GHG emission and consequently global warning also studied for the optimum solution of the possible dilemma in Kabul New City. Also, successful implementation and imposing urban regulations and laws, addressing land grabbing, and land acquisition, urban revitalization strategies, upgrading and redevelopment plans, large scale public housing construction are the features to deal with for forming metropolis. In contrast, ignoring social, legal, environmental, political, architectural, and urban planning and design experience of other cities may result in excessive failure. For instance, inequities in the costs and benefits, inadequate infrastructure, weak building regulations, lesser width of streets and roads in many residential areas, insufficient open space, parks and emergency shelters can be mentioned as leading serious social concerns.

Table 3.1 Data Set of Observation for Land Use

Name	Population Density	Total Water Supply (㎥/year)	Total Sewage(㎥/year)	Road Length(km/km2)	Commercial Area(%)	Industrial Area(%)	Residential Area(%)	Agricultural Forestry Industries (%)	Municipal Park Area(%)	Gross Area (km2)	Total Population
Sapporo	1698.586235	194689000	389010000		0.70	0.63	10.32	0.00008920	1.63	1121.1	1904319
Sendai	1298.2643	122617000	148918000	4.64	0.92	1.55	8.95	0.00009646	1.55	785.85	1020241
Saitama	5627.633454	137352000	134131000	19.5	1.34	14.30	28.82	0.00019771	1.84	217.49	1223954
Tokyo	14440.15634	1,534,045,000	1677483000	19.1	3.19	2.68	44.68	0.00001445	6.40	622.99	8996073
Yokohama	8297.720518	435117000	616504000	17.8	2.13	6.82	36.79	0.00013032	3.02	437.38	3629257
Kawasaki	9730.070077	188481000	206489000	17.7	1.89	14.67	34.14	0.00037842	1.38	142.7	1388481
Nagoya	6684.906412	290745000	438380000	19.5	3.20	6.19	34.45	0.00067396	3.50	326.43	2182154
Kyoto	1669.42022	204796000	337906000	4.35	0.34	0.96	7.83	0.00004107	0.69	827.9	1382113
Osaka	11404.20179	444360000	652038000	17.9	6.49	10.44	29.66	0.00013901	3.74	223	2543137
Kobe	2723.244966	196510000	186170000	7.77	0.83	3.18	11.65	0.00072038	3.15	555.26	1512109
Hiroshima	1286.327741	140975000	157298000	4.79	0.31	9.90	7.05	0.00005191	0.68	905.41	1164654
Fukuoka	4163.977173	147148000	212119000	11.5	2.89	2.79	18.52	0.00049751	3.49	341.7	1422831
Kabul New City	4155.124654	200000000	230000000	10.7	3.4	4.3	33.5	11.4	7.9	722	3000000

Source: Data from research

3.2 Technique of Principal Component Analysis

The method of Principal Component Analysis dates back to Pearson (1901) with a modern form by Hotelling in 1933. This is a multivariate statistical analysis method used for comparison, relationship, and classification of a set of correlated variables. The dimension a.k.a. variables are for reducing the dimensionality is to lower complexity hence to avail simple data description. The new variables are derived in decreasing order of importance, the greatest variance comes on the first coordinate, followed by second, third, and so on. The positive and negative signs denote the contribution to the factor.

The analysis of the data in this research thus enables one to visualize the nature of Kabul New City and relate it to the Japanese city (or cities) alike or dissimilar w.r.t. urban characteristics and physical infrastructure provision.

Apparently, social, economic, environmental, political, and historical aspects differentiate countries, while the same were compared and correlated in Japan and Afghanistan. Accordingly, several factors that enable the comparison task in this study may comprise, for example, singularity and forming metropolis in Tokyo, national and local governance interaction in Osaka, building from ZERO 'Tebula Rasa' in Hiroshima, and Kyoto for its topography and geography.

Table 3.2 Fundamental Statistics Obtained from Chief Elements Analysis

Fundamental Statistics		**Chief Elements Analysis**				
Variable	n	Average	Unbiased Variance	Standard Deviation	Minimum	Maximum
Population Density	13	5629.20	18128977.30	4257.81	1286.33	14440.16
Total Water Supply (㎥/year)	13	325910384.62	142766188904756000.00	377844133.08	122617000.00	1534045000.00
Total Sewage(㎥/year)	13	409789692.31	175849066697897000.00	419343614.11	134131000.00	1677483000.00
Road Length(km/km2)	13	12.32	41.13	6.41	4.35	19.50
Commercial Area(%)	13	2.13	2.99	1.73	0.31	6.49
Industrial Area(%)	13	6.03	23.82	4.88	0.63	14.67
Residence Area(%)	13	23.57	174.29	13.20	7.05	44.68
Agricultural Forestry Industries Area(%)	13	0.88	10.00	3.16	0.00	11.40
Municipal Park Area(%)	13	3.00	4.61	2.15	0.68	7.90

Source: Data from research

Moreover, structural space, population, urban densities, land use, infrastructure provision, architecture, demand for housing, economic development, culture, historic preservation, neighborhood identities, are other qualities influencing the relation and urban characteristics in the targeted cities. Successively, the results of analysis will specify and associate certain elements in the cities by approximating data by means of largest variance in the statistics.

The urban elements are compared and related such that they may be nearly equal or making a significant difference in terms of higher or smaller values called as 'typology'. In order to create a typology overview, the given data shall be visualized, quantified, and correlated for similarity, and (or) variation criteria. Now, this may be a complicated task to construe the data from the table, in contrast, a process of computation is performed to judge the proximity among the cities and categorize them accordingly. Hence, the final findings treated as tool letting us know the urban characteristic of Kabul New City will be most similar to which Japanese city or cities. In this process, chief elements analysis lead to fundamental statistics tabulated in table 3.2 and a correlation matrix illustrated in Table 3.3, present uncorrelated orthogonal factors and principal component or Eigenvectors shown in figure 3.2, which determine unbiased variance, and standard deviation. The correlated variables enhance the accuracy and reliability of the model and reduce the dimensionality and complexity, subsequently leading more interpretable description.

Table 3.3 Correlation Matrix

Correlation Matrix	Population Density	Total Water Supply (㎥/Year)	Total Sewage(㎥ /Year)	Road Length Km/Km²	Commercial Area(%)	Industrial Area(%)	Residential Area(%)	Agricultural Forestry Industries Area(%)	Municipal Park Area(%)
Population Density									
Total Water Supply (㎥/Year)	0.752	1	0.982	0.442	0.357	-0.159	0.597	-0.1	0.522
Total Sewage(㎥ /Year)	0.756	0.982	1	0.444	0.398	-0.191	0.578	-0.171	0.464
Road Length(Km/Km2)	0.85	0.442	0.444	1	0.624	0.576	0.907	-0.076	0.373
Commercial Area(%)	0.694	0.357	0.398	0.624	1	0.212	0.631	0.221	0.609
Industrial Area(%)	0.373	-0.159	-0.191	0.576	0.212	1	0.374	-0.107	-0.203
Residence Area(%)	0.872	0.597	0.578	0.907	0.631	0.374	1	0.226	0.638
Agricultural Forestry Industries Area(%)	-0.104	-0.1	-0.171	-0.076	0.221	-0.107	0.226	1	0.686
Municipal Park Area(%)	0.462	0.522	0.464	0.373	0.609	-0.203	0.638	0.686	1

Source: Data from research

The Eigenvectors for the factors shown graphically in table 3.4 as list of Eigenvalues with the positive and negative contribution to the specific factors in eigenvector. Here, we may be suggested that a specific Japanese city is similar to Kabul New City though being different in some way, and to associate certain elements with cities, so approximate data by means of largest variance in the data. The information can be summarized on a plot of the variances i.e., nonzero eigenvalues, corresponding principal component number (eigenvector number) and displayed graphically on vertical and horizontal axis of the plot in figure 3.3 as variance plot corresponding to figures 3.1 as eigenvector 1 and eigenvector 2 illustrated in figure 3.2. The table 3.5 shows the data for generating the graphs.

Table 3.4 List of Eigenvectors

Variable	Chief Element 1	Chief Element 2
Population Density	0.9496	-0.2319
Total Water Supply (㎥/Year)	0.7837	0.2395
Total Sewage(㎥/Year)	0.7851	0.2356
Road Length(Km/Km2)	0.8385	-0.4469
Commercial Area(%)	0.7519	0.0172
Industrial Area(%)	0.2392	-0.8160
Residence Area(%)	0.9307	-0.1075
Agricultural Forestry Industries And Fishers Area(%)	0.1258	0.6142
Municipal Park Area(%)	0.6910	0.6182

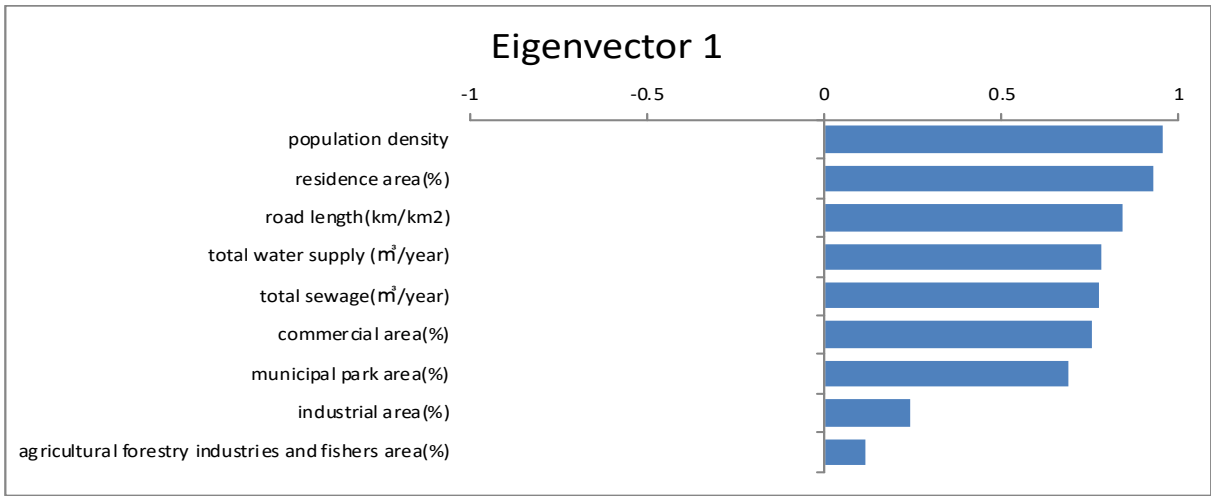
Source: Data from research

Table 3.5 Data for Generating Graph

Variable	Chief Element1	Variable	Chief Element 2	variable	Chief Element 3
Population Density	0.9496	Municipal Park Area(%)	0.6182	Agricultural Forestry Industries Area(%)	0.7331
Residential Area(%)	0.9307	Agricultural Forestry Industries Area(%)	0.6142	Industrial Area(%)	0.4101
Road Length(km/km2)	0.8385	Total Water Supply (㎥/year)	0.2395	Municipal Park Area(%)	0.3258
Total Sewage(㎥/year)	0.7851	Total Sewage(㎥/year)	0.2356	Commercial Area(%)	0.3042
Total Water Supply (㎥/year)	0.7837	Commercial Area(%)	0.0172	Residential Area(%)	0.2012
Commercial Area(%)	0.7519	Residential Area(%)	-0.1075	Road Length(km/km2)	0.159
Municipal Park area(%)	0.691	Population Density	-0.2319	Population Density	-0.1204
Industrial Area(%)	0.2392	Road Length(km/km2)	-0.4469	Total Water Supply (㎥/year)	-0.5311
Agricultural Forestry Industries area(%)	0.1258	Industrial Area(%)	-0.816	Total Sewage(㎥/year)	-0.5531

Source: Data from research

Figure 3.1 Eigenvector 1



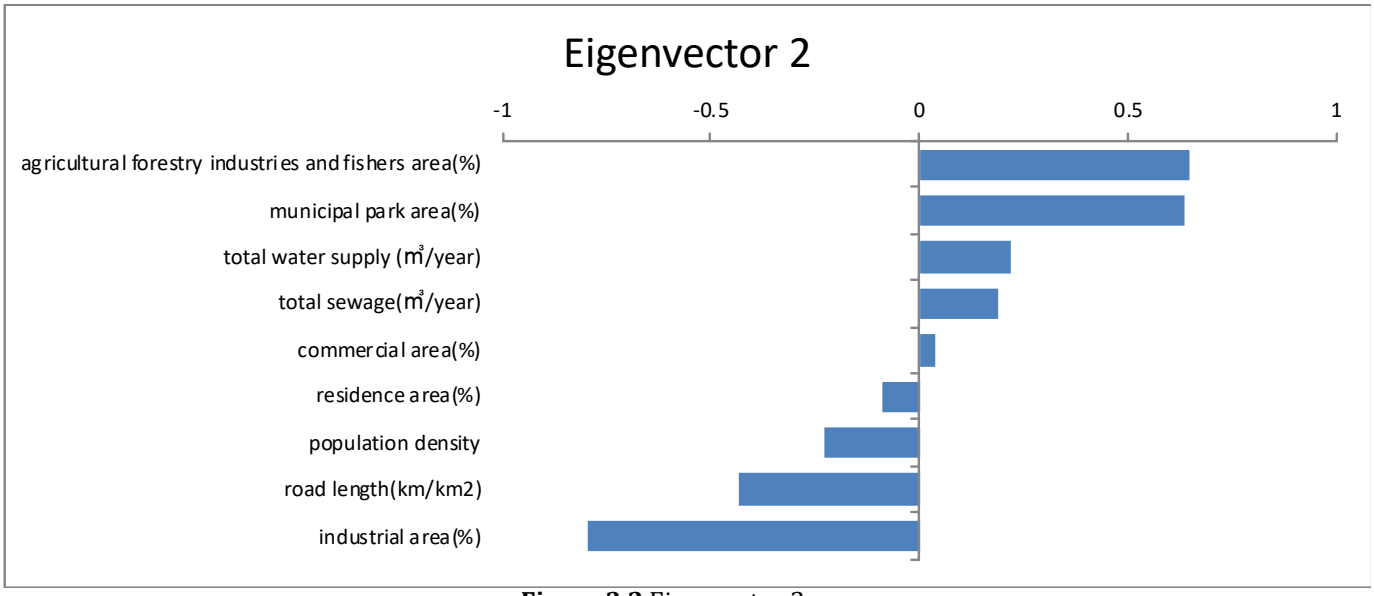


Figure 3.2 Eigenvector 2

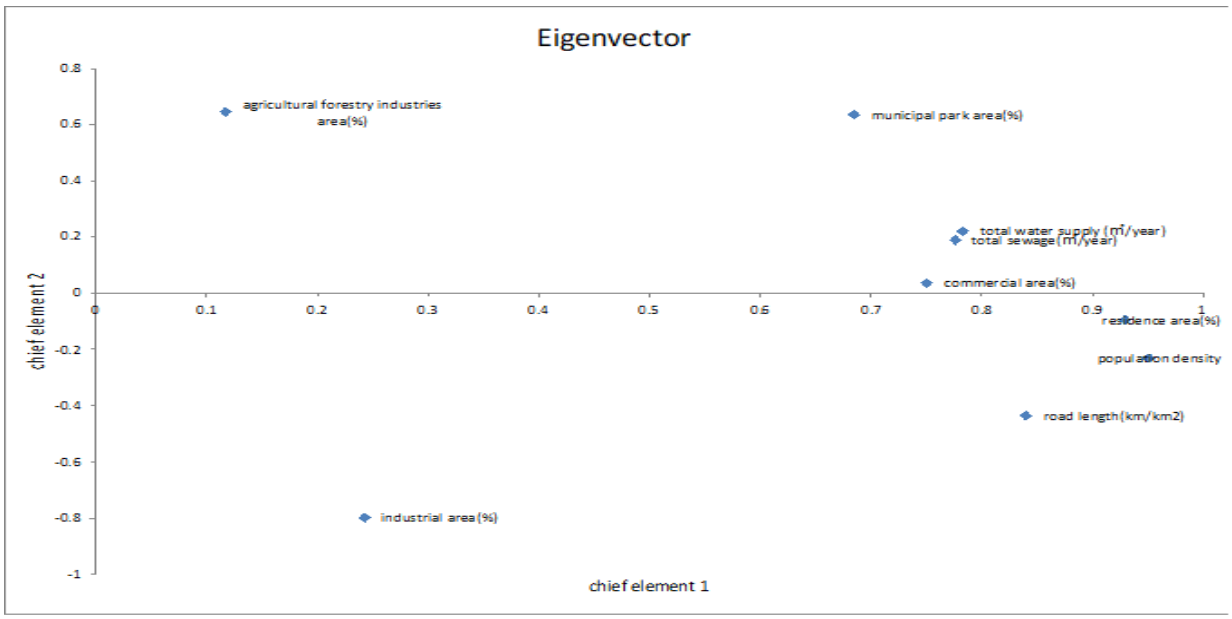


Figure 3.3 Variance Plot

The Scores or samples shown on the score plot a.k.a. samples map indicate difference in elements and their characteristics. Bi-plot indicates the combination of scores and variables or loadings. The table 3.6 demonstrates principal component score for each city with contribution positively or negatively of the chief elements.

Table 3.6
Principal Component Score

Name	Chief Element 1	Chief Element 2
Sapporo	-2.024	0.727
Sendai	-2.350	0.532
Saitama	0.032	-1.973
Tokyo	4.811	1.197
Yokohama	1.308	-0.559
Kawasaki	0.677	-2.168
Nagoya	1.151	-0.492
Kyoto	-2.383	0.508
Osaka	2.493	-0.847
Kobe	-1.577	0.503
Hiroshima	-2.437	-0.673
Fukuoka	-0.560	0.363
Kabul New City	0.857	2.881

At this instant, cluster analysis is made as indicated in table 3.7, as well as table 3.8 presents graph of scale and average which results in determining possible combination and probability known as Tree Diagram illustrated in fig. 3.4.

Table 3.7 Cluster Analysis

Name	Sapporo	Sendai	Saitama	Tokyo	Yokohama	Kawasaki	Nagoya	Kyoto	Osaka	Kobe	Hiroshima	Fukuoka	Kabul New City
Sapporo	0	0.38	3.393	6.851	3.572	3.959	3.401	0.421	4.783	0.499	1.46	1.508	3.597
Sendai	0.38	0	3.457	7.192	3.818	4.056	3.648	0.041	5.036	0.773	1.208	1.798	3.975
Saitama	3.393	3.457	0	5.735	1.905	0.674	1.856	3.462	2.706	2.954	2.79	2.41	4.924
Tokyo	6.851	7.192	5.735	0	3.919	5.331	4.031	7.227	3.091	6.426	7.486	5.436	4.298
Yokohama	3.572	3.818	1.905	3.919	0	1.728	0.171	3.842	1.219	3.075	3.747	2.084	3.47
Kawasaki	3.959	4.056	0.674	5.331	1.728	0	1.742	4.065	2.246	3.496	3.454	2.817	5.053
Nagoya	3.401	3.648	1.856	4.031	0.171	1.742	0	3.673	1.388	2.905	3.593	1.913	3.386
Kyoto	0.421	0.041	3.462	7.227	3.842	4.065	3.673	0	5.061	0.805	1.182	1.829	4.016
Osaka	4.783	5.036	2.706	3.091	1.219	2.246	1.388	5.061	0	4.289	4.933	3.284	4.071
Kobe	0.499	0.773	2.954	6.426	3.075	3.496	2.905	0.805	4.289	0	1.457	1.027	3.403
Hiroshima	1.46	1.208	2.79	7.486	3.747	3.454	3.593	1.182	4.933	1.457	0	2.144	4.846
Fukuoka	1.508	1.798	2.41	5.436	2.084	2.817	1.913	1.829	3.284	1.027	2.144	0	2.889
Kabul New City	3.597	3.975	4.924	4.298	3.47	5.053	3.386	4.016	4.071	3.403	4.846	2.889	0

Source: Data from research

Table 3.8
Graph of Scale and Average

Cluster No.	Scale	Chief Element 1	Chief Element 2
Cluster 1	6	-1.888	0.327
Cluster 2	5	1.133	-1.208
Cluster 3	2	2.834	2.039

Source: Data from research

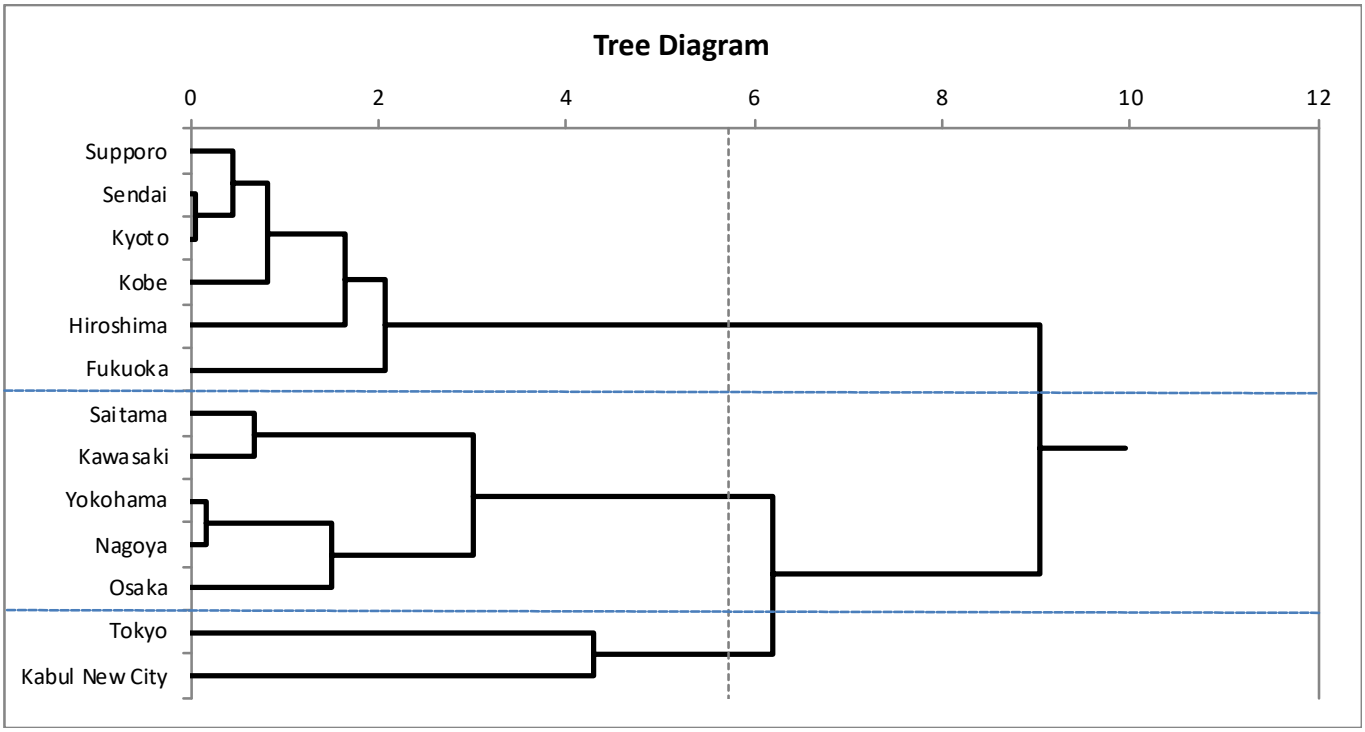


Figure 3.4 Tree Diagram

The final findings obtained from the cluster analysis carried out in three groups indicated by blue dotted lines. As shown above, Kabul New City is categorized with Tokyo under the same cluster. Nonetheless, the urban characteristics for the intended population density provided in similar way compared with the cities gathered in the other two clusters too. Now, the cities in the other clusters may be less or more correlated to Kabul New City, for instance, the cities in the second cluster may be the nearest cities in terms of infrastructure delivery for the population and other land use criteria adopted in these cities. While, the cities under the third cluster, viz., Supporo, Sendai, Kyoto, Kobe, Hiroshima, and Fukuoka seem to be rather dissimilar as per the results obtained from the analysis. Conversely, there may be some similarities with Kabul New City though.

3.3 Lessons Learning from Japanese Cities

During conducting this research, numerous case studies on Japanese cities scrutinized to produce lessons to be implemented or inferred in the planning and development process of Kabul New City. For example, the city physical structures, fabrics, zoning, area development plans, and other regulations and the imposed controls in the targeted cities were reviewed.

According to André Sorensen in 'the Making of Urban Japan' (2002), the Japanese experience on city planning is a unique model and the following five features are strictly remarkable in the urbanization and planning scenario of japan. Firstly, That the economic development is vital for state resources. Secondly, weak public and society relation in planning. Thirdly, central government leads in planning processes. Also, there is preference options for public building projects On instruction of intervention of private development. Lastly, autonomy of urban neighborhoods development in Japan.

Likewise, ibid, the following are further instrumental properties as lessons learning tool of Japanese urbanization for the rest countries. The suggestions include controls of land development on urban peripheries, sustainable development and quality living, and working conditions, decentralization and granting planning powers to local jurisdiction as self-governing administration. Similarly, city planning and decision making process turned public engagement, and lastly for lively city centers mixed use policy of urban development plays a dynamic role for prosperity of the city.

Therefore, the corresponding Japanese city or cities may be a unique model for Kabul New City w.r.t. strategies of 'New Urbanism', Lean Urbanism of Community Development', and Smart City development. The trends are influential for economic growth, climate change, alleviating air pollution as biophilic city, sanitation, housing and infrastructure provision in Tebula Rasa Development. The lessons learned are suggested in the proposed project in 55 sq.km in Kabul New City as resilient urban neighborhood, illustrated in fig.2.3. By the author of this paper.

4. CONCLUSIONS

The focus of this research is to relate Kabul New City to Japanese major city (or cities) in compliance with physical urban quality, in order to decide the nature and appearance of Kabul New City. Hence, the results and final findings

indicate various tools to be adopted for superior city development of Kabul New City. The study encompasses diverse urban criteria, namely, architecture, urban design and planning principles, structural prospective and technology under the impression of Japanese cities. Data observations, analysis, and final typology produced as the result of the research through analytical statistical computation.

The foremost investigation from this research is obtained through the final results of the typology study conducted through the quantitative statistical technique of 'Principal Component Analysis'. The observation data was processed as fundamental statistics for variance and deviation led a correlation matrix for the formation of Eigenvalues for which Eigenvector being established. The eigenvalues for the factors shown graphically with the positive and negative contribution to specific factors in eigenvectors.

Finally, the results enable one to note that which Japanese city targeted in this research is similar and different in ways to Kabul New City. This decision is probable through association of certain urban elements and land use and approximating the data by means of largest variance in them. The information was summarized in a plot of the variances as nonzero eigenvalues. The eigenvector charts and map were derived and illustrated in figures 3.3. Consequently, the Tree Diagram indicated in fig. 3.4 generated indicates the final result such that the Kabul New City is supposed to be more alike to Tokyo as both categorized in the same cluster. Furthermore, the Tree Diagram, also infers that Osaka, Nagoya, Yokohama, Kawasaki, and Saitama are the cities comparatively similar in urban characteristics to Kabul New City in second cluster. Whereas, the third cluster display the cities, namely, Sapporo, Fukuoka, Hiroshima, Sendai, Kyoto, and Kobe as dissimilar in city planning and design aspects with that of Kabul New City.

5. RECOMMENDATIONS

Certainly, the final findings and results of this research would be retrieved for its role in order to judge the nature, behavior, and urban characteristics of Kabul New City corresponding to Japanese cities. the following aspects in addition to the lesson learning tool may be recommended to be reflected in the development of Kabul New City.

1. Professional ethic in its wide range and solid interaction with the public and communities shall be thoroughly focused through the life cycle of development of Kabul New City. This will settle social disputes, avoid isolation and discrimination by social groups or income, land grabbing, land acquisition, public safety, health, comfort and legal concerns as public policy framework. For example, well-equipped and safe public spaces, adequate seating and emergency shelter from wind, fire, earthquake, rain, flood and other disasters, toilet facilities for the people shall be further incorporated as vital public concerns.
2. Strictly implement, maintain, and control urban characters and laws, for instance, residential zoning ordinances, such height, bulk, setback, parking, landscaping, roofs, greenery, wall materials, windows, balconies, projections, and other design criteria. Also, regional and city planning development plan shall be analyzed on the performance of The Oregon Model for comprehensive community visioning process as well as SWOT analysis for suitable outcome. Ensure an urban matrix such that a place for production rather than consumption alone.
3. Last but not the least, adopt 'Smart' urban development, 'New urbanism' and 'Lean Urbanism', maneuvers for sustaining improved conditions for resilient city. For instance, adopt environmental strategies for managing transportation and vehicular traffic, commercial, and industrial activities for protecting the nature and alleviating GHG emission causing climate change, high temperature and global warming, air pollution, contaminating water resources. Additionally, design housing electric management system as district heating, and cooling, factory electric management systems, electric vehicles and other smart transportation systems for zero carbon 'Biophilic' city. Furthermore, improve surroundings of Masjids, schools, libraries, community facilities and ensure 15-minutes neighborhoods, bring more open space into use, walking and cycling opportunities in respect to connectivity and accessibility, planting, informative city and signs, and urban indicators, may be asserted as supplementary instruments to be deliberated in the development of Kabul New City.

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