

URBAN DEVELOPMENT STRATEGY FOR SUKKUR CITY, SINDH, PAKISTAN: A STEP TOWARDS VISIONARY PLANNING AND DEVELOPMENT

M. H. Arsalan, I. Ahmad^{*}, A. Aziz^{*}, M. Hussain, A. I. Osmani and S. Perveen^{**}

Osmani and Company (Pvt.) Ltd., Karachi – Pakistan

^{*}Department of City and Regional Planning, University of Engineering and Technology, Lahore

^{**}Institute of Space and Planetary Astrophysics, University of Karachi

Corresponding author: email: mharsalan@gmail.com

ABSTRACT: The situation of urban Sindh was far from satisfactory as it lagged behind the national averages in human, social and economic development indicators. Government of Sindh established a process for province-wide urban development within short and long term framework. The Directorate of Urban Policy and Strategic Planning, Planning and Development Department was assigned the task with two-fold challenge, first the establishment of a development planning process by means of preparation of policies and plans; and secondly implementation of development projects in view of the enacted policies and plans. Sukkur city had been chosen as a case study. Development projects were identified with time frame in short and long term basis for 20 years. A comprehensive financial plan was developed with implementation strategy. The paper focused on the envisaged urban development strategy for Sukkur City as an outcome of SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and visionary planning.

Key words: Urbanization, Urban Development Plan, City Planning, Sukkur City, Strategic Planning

(Received 11-07-14 Accepted 18-03-15)

INTRODUCTION

In developing countries, urban settlements are expanding rapidly. According to Ahmad *et. al.* (2013), the world's population is increasing at a much faster rate than ever before. It is proved to be one of the reasons for rapid expansion of human settlements. Urbanization phenomenon is more prominent in developing countries compared to developed countries. Mayo *et. al.* (2013), explained that urbanization relates to the ratio of urban population to the rural/total population within a particular region. It also raises concerns over its spatial patterns. The cities are experiencing the urbanization phenomenon with all its enormities and complexities. Apart from measures taken from the government to reduce the harmful effects of urbanization, desired results could not be achieved. On the same issue Arsalan (2006) pointed out that it raises concerns over its spatial distribution patterns and disparities. Moreover, according to Mehdi *et. al.* (2011), the cities are at the stake where the competition between the resource utilization and environmental concerns are at their worst.

Sukkur City is situated at the right bank of River Indus. City represents mixed urban pattern as it started with random pattern based on its topography. Old Sukkur City is following the hills and depressions for the alignment of streets and major roads. However, after development of Barrage Colony on Grid Iron pattern, new formal developments are following the same trend. The city is bounded by Indus River on three sides from

North to West. Main growth factors are the natural population, migration from rural hinterlands, emergence of new residential neighborhoods, and main commercial hub of the region. Junejo *et. al.* (2008) described that besides strengths and opportunities of a modern city, Sukkur is facing many weaknesses and threats. A recent study reveals that the major strengths of Sukkur include central connectivity with Sindh, Balochistan and Punjab Provinces, regional business center, trade and services hub, water front tourism, cultural heritage, and growing middle class population. Based on strengths there are many opportunities which may be harvested for the prosperity of the city, which include location and connectivity, unique land marks, growth potentials and investment, vast local and international market, use of public private partnership (PPP) modes for implementing basic services. The city is facing acute scarcity of potential inclination to develop the city with a vision; law and order administrative control to provide security; quality services to fulfill the basic need of water supply and sanitation; appropriate management of traffic and transport; land use zoning and building control; provision of quality education and healthcare services; enabling environment for industrialization; development of skilled human resource and overall governance. Same weaknesses are growing issues and future challenges and threats for strategy planners. Jamal *et. al.* (2003) pointed out that the situation of overall urban Sindh is far from satisfactory threshold as it lags behind the national averages in almost all the crucial human, social and

economic development indicators and thus suffers from an “Urban Deficit”.

MATERIALS AND METHODS

According to Government of Pakistan (1999), the population of Sukkur city was assessed as 335 thousand in 1998 with 3.38 percent annual growth rate. The adopted methodology for the Urban Development Strategy was formulated on guidelines developed by Bellosillo (2012), in which detailed overview for preparing master plans for secondary cities of Sindh under Sindh Cities Improvement Investment Programme (SCIP) was given. These guidelines help to evaluate the strengths, weaknesses, opportunities and threats based on existing situation of all urban development sectors. It will encourage the participation of stakeholders for formulating the future urban development vision, setting up the goals and prioritization of the development

projects. Based on the development vision, urban growth strategy, goals and objectives, it was important to relate urban development strategy with local economic potentials and provincial priorities. The guidelines specifically, desired the local economic development opportunities to make the development more sustainable.

Integrated strengths, weaknesses, opportunities, and threats identified the priorities that needed to be addressed to make a visionary Sukkur in future. However, existing economic appraisals were the backbone of the current development trends, which led to create a harmonic local economic development strategy with the urban growth and strategic development. Figure-1 above showed the stepwise methodological framework, which was undertaken systematically to complete the paper. Two analytical techniques namely Situation and SWOT (Strengths, Weaknesses, Opportunities, Threats) analyses were used to reach on concrete conclusion.

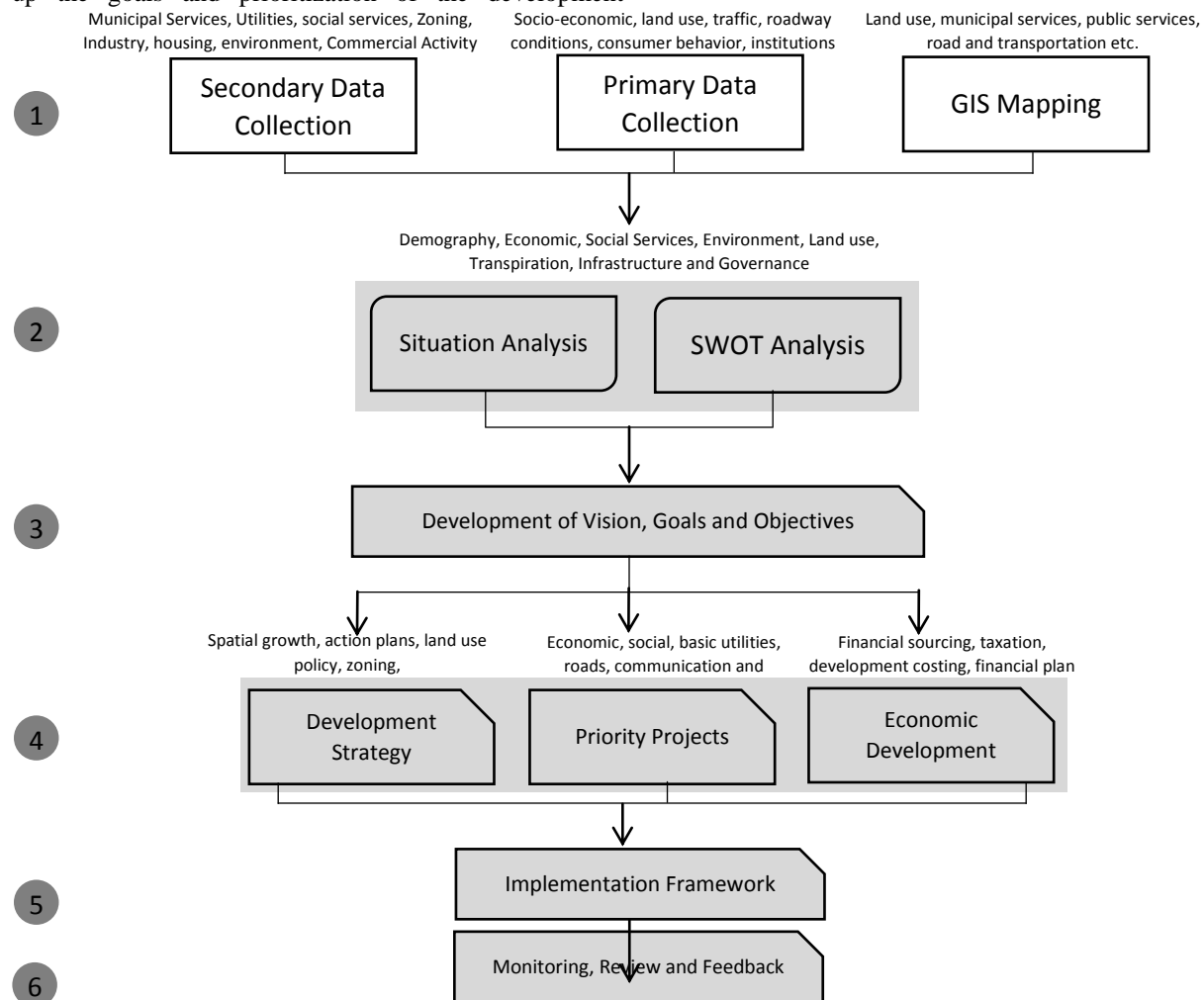


Figure-1 showing Methodological Framework
Authors Own Construct 2014

RESULTS AND DISCUSSION

Due to urbanization, the cities of Pakistan are expanding rapidly and creating varied nature of problems for the planning agencies mainly responsible for the smooth and planned development of areas. Ahmad *et. al.* (2013) pointed out that continuous urbanization and industrialization especially in big cities of developing countries are creating numerous problems like overcrowding, haphazard spatial growth, slum formations, shortage of basic services etc. The same situation applied to Sukkur that is also expanding. According to Arif and Hamid (2009), Sukkur City is the third largest urban center of Sindh province having estimated population of 552 thousand on approximately 8000 acres urban built-up area. Shaikh *et. al.* (2006) further explained that Sukkur

City had been an important strategic center and trading route as archaeological site of Lakhueen-jo-Daro (within the city) made it perhaps one of the oldest human settlement in the world—pushing back its origin to 2400 B.C. Sukkurcity represented mixed urban pattern as it started with random pattern based on the topography. Low income housing schemes were missing in the city planning therefore creating burden in the form of slums/*Katchi Abadis*. According to Government of Sindh (2014), half of Sukkur urban residents are living in slums. Old Sukkurcity was following the hills and depressions for the alignment of streets and major roads. However, after development of Barrage Colony on Grid Iron pattern, new formal developments were following the same trend (figure-2).



Figure-2(a) showing Highly Dense Area of Nusrat Colony in Old Sukkur



Figure-2(b) showing Medium Density Area of Sindhi Muslim Society in New Sukkur

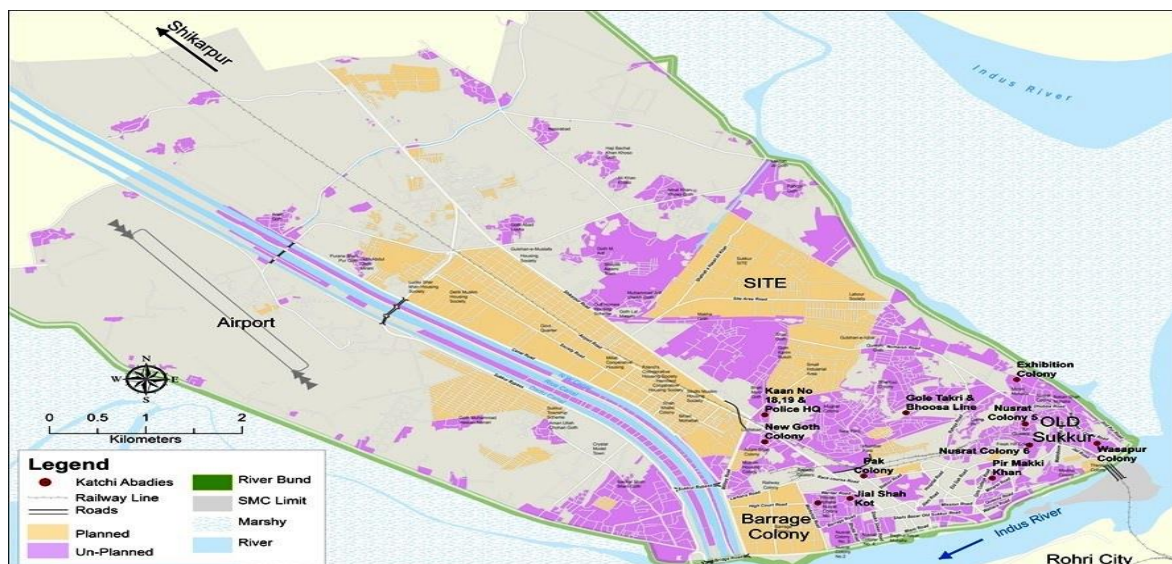


Figure-2c showing Planned and Unplanned Neighborhoods

Sukkur city had good linkages with neighboring settlements through roadway, railway and airway (figure-2c). This linkage was the back bone of the Sukkur's economy as it provided opportunity for business and trade as commercial hub and trade corridor. Due to population pressure, the administrative area of Sukkur Municipal Corporation was recently extended up to 14,500 acres in which half of the area was built-up and it was urban.

Figure-3 and Table-1 show the land use distribution within urban area. Old city area was built on alluvial soil and limestone hills that had good load bearing strength. In the vicinity a considerable extent of land was already developed in form of societies and adjoining areas were quite suitable for urban development.

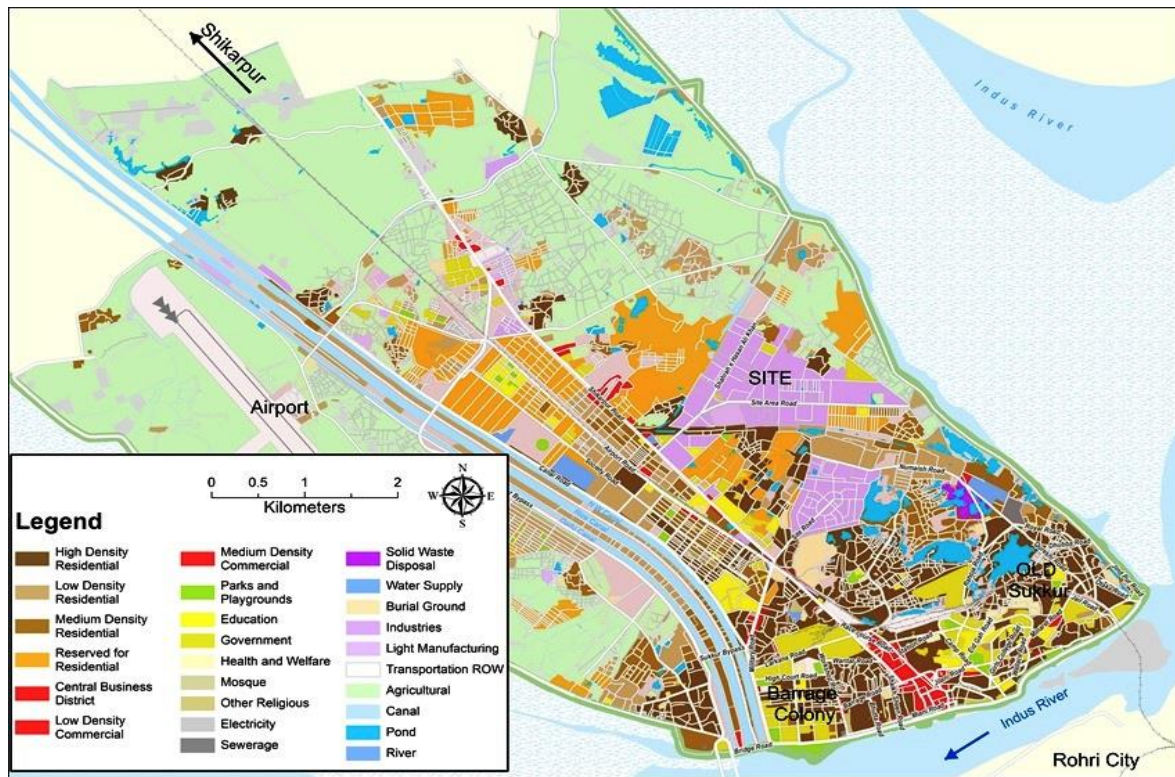


Figure-3 showing land use distribution in urban built-up area of Sukkur

Provision of quality social and utility services was the weakest area and needed immediate attention of decision makers. The current water demand of the city is around 22.1 MGD (Million Gallons per Day) which is hardly 50% fulfilled by the regular low quality piped water. Most of the city was based on open drains for sewage and storm water disposal with highly disintegrated manner, as 33 pumping stations at a time dispose of untreated sewage directly into the River Indus and Irrigation Canal. Solid waste was disposed in open dumping areas within the city without any segregation of waste. An efficient sanitation system is necessary for the healthy inhabitants of one area. Ahmad *et. al.* (2012) on this situation commented that the rate of affectees due to sewerage related problems are increasing. The urban areas where majority of masses are living draws more attention. The main reason which has increased the intensity of problem is the urbanization phenomenon. Similar type of situation was present in Sukkur city

where poor sanitation system proved to be one of the major source for poor health conditions of the people of Sukkur. Healthcare facilities in Sukkur were highly scarce and dilapidated as all major health indicators were less than 50% including mother-child health and trauma management. The overall bed-patient ratio was over 1:2426, and lacking basic resources. Public sector higher education was missing and low grade educational resources were also in deplorable condition. Looking towards the urbanization trends in Sukkur, the economic and fiscal base of city comprised of agriculture, industrial, trade and services sectors (table-1) which occupied varying degree of importance in Sukkur's economy. Mayo and Amer(2011) described that there exist a strong relationship between the financial investment and higher level of urbanization. Given the strategic geographical location the district as a whole served as a main conduit for business and trade centre for inter and intra provincial regional trade.

Table-1. Showing Distribution of Major Land uses in Sukkur Built-up Limits

Sr. No.	Urban / Non-urban	Land use	Area (Acres)	%
1	Urban	Residential	3741	25.67
2		Commercial	179	1.23
3		Industrial	605	4.15
4		Amenities	840	5.76
5		Transportation	1571	10.78
6		Special Use	1046	7.18
7		Parks and Playground	99	0.68
		Sub Total	8,081	55.45
8	Non-urban	Agriculture	5596	38.40
9		Water Bodies	897	6.15
		Sub Total	6493	44.55
		Grand Total	14,574	100

The study revealed that the major strengths of Sukkur included central connectivity to Sindh, Balochistan and Punjab Provinces, regional business center, trade and services hub, water front tourism and cultural heritage, and growing middle class population. Based on strengths there were many opportunities which were harvested for the prosperity of the city, which included location and connectivity, unique land marks, growth potential and investment, vast local and international market. The city was facing acute scarcity of political inclination to develop the city with a vision; law and order administrative control to provide security; quality services to fulfil the basic need of water supply and sanitation; appropriate management of traffic and transport; land use zoning and building control; provision of quality education and healthcare services; enabling environment for industrialization; development of skilled human resource and overall governance. Same weaknesses and growing issues are future challenges and threats for strategic plan.

Based on the available strengths and opportunities by minimizing weaknesses and strengths, a future vision for the city could be derived and got weighted through many stakeholders *i.e.* "A Sustainable, Safe and Sound Trading Hub with Healthy Environment, Comfortable Living and Economic Opportunities for its Residents, Visitors and Tourists". The main pillars of this vision included a sound local economy; a balanced development strategy; an increased flow of public revenues; and increased and inclusive opportunities for growth. Detailed study portrayed the targets and objectives for the city as; revitalization of declining commercial and industrial areas, obsolete facilities through redevelopment, rehabilitation and other available means, sites for expansion of existing commercial and

industrial uses, attraction of new establishments and projects, improvement in municipal services and sanitation to avoid deteriorating health conditions of the dwellers and visitors, establishment of higher education infrastructure and technology learning centers, preservation and enhancement of Sukkur's assets and trading city character, economic investment which results in maximum public revenues and minimum public service costs, a wide range of diversified employment opportunities for Sukkur residents.

The future growth scenario had been developed within short and long terms perspective that covered a period up to 2035. Urban morphology and extent of the city was evident that the city had limited flexibility for its growth due the River Indus. However, when it was combined with its sister / twin city Rohri (figure 2 & 3), it had more options. The integrated implementation of development activities in these two adjoining cities would also ensure the effective control of future expansion, while accommodating the urban growth needs of over one million population of Sukkur and Rohri within next 25 years. From any arbitrary centre of Sukkur city like Clock Tower Chowk (Ghanta Ghar), the major parts of both the cities came within 5 Km. radius, and future expansion for next 20-25 years could easily be accommodated within 10 Km. radius, as shown in figure-4. Based on this scenario, it was suggested that outside the second circle of 10 Km. radius, extensive development should not be encouraged except industrial, trade and commerce activities. Revitalization and renewal projects to accommodate demands for housing and allied civic facilities, could be initiated within first circle of 5 Km. radius, to enhance its functionality and particularly the services provision and mobility aspects.

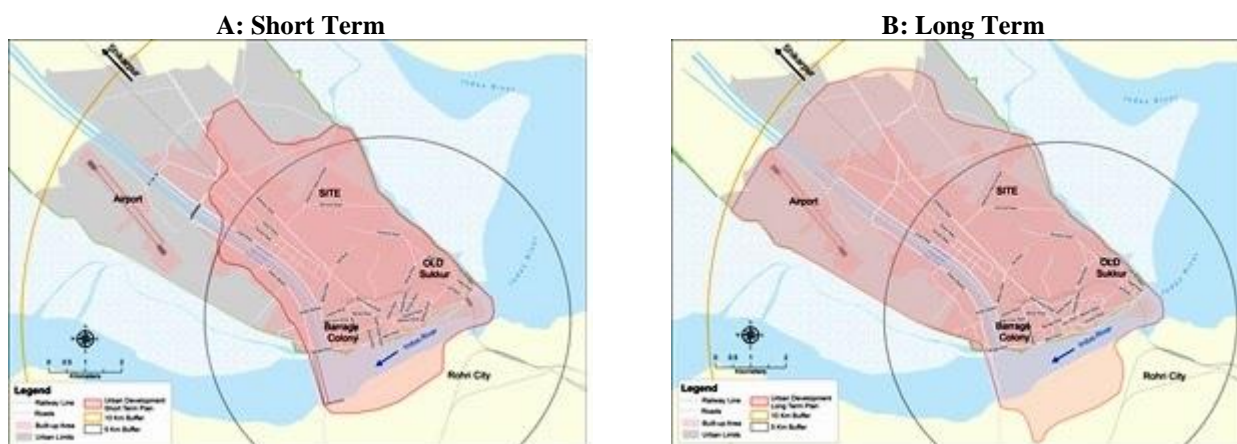


Figure-4 showing Urban Development Strategy

With existing population of over 0.55 million, Sukkur would accommodate an additional 0.145 million population to make it a city of 0.7 million in 2020. Applying the household size of 6.23, about 23,000 housing units would be required till 2020 at 3,900 per annum. The current estimated housing backlog is nearly 5,000 units. Presently the housing demand was met by sub-division into portions and addition of floor area in existing houses, informal / un-planned houses in peripheral areas, further obesity of *Katchi Abadis*, and through planned housing projects by private sector both through site and services schemes (known as society area in Sukkur), and apartment buildings. The projected population in 2035 is 1.15 million, which mean that another Sukkur city of current population would be added. It would require about 70-85 thousand housing units and allied civic services and economic support. The estimated additional land requirements would be around 6500 – 8500 acres. This could easily be accommodated within the Sukkur Municipal Corporation limits notified recently in 2013.

In the short term actions plan, the focus would be on rehabilitation, improvements of utility services with high services delivery indicators. During this phase, the basic aim would be to enhance the urban services delivery and first impression of Sukkur city. Short term development strategy for the period 2014-2020 included; detailed studies in the form of subject or sectoral development plans, creation of major surface drainage network to eliminate the water pounding in the city, renewal of area under *Katchi Abadis* with special emphasis to curb this practice in future, construction of trunk networks and allied facilities for water supply, sewage, waste water; and development of primary distribution and collection systems to link with above mentioned trunk infrastructure leading to full recovery of O and M cost, improvement of road hierarchy by construction of missing links and traffic flow management particularly in CBD area, improvement of

street / road lighting, strengthening of local emergency rescue and response capacity.

Long term development strategy, following major steps on high priority would need to be taken for the period 2020-35 included; detailed studies and feasibilities conducted in short term action plan phase of UDS-Sukkur, implementation of the identified projects in phases, development of DRM Plan based on multi-hazard urban risk assessment for Sukkur and Rohri taking into account the impacts stemming from the phenomena of climate change, construction of New Slaughterhouse, Sukkur Export Processing Zone and Sukkur Dry Port, development of low income housing projects, construction of 500 beds General Teaching Hospital. Immediate need had been felt to launch a detailed study of CBD to re-assess all multi-storey buildings, residential cum commercial units, shops and other establishments, which had come up in place of old residential houses.

Conclusion: Sukkur city has potential to be developed on sustainable basis as the same is proved to be full of strengths and opportunities. This is blessed with the eminent natural beauty of mighty River Indus with full of aquatic scenic attractiveness. This part of the river is full of historic iconic features such as Lansdowne Bridge, Sukkur Barrage, Bukkur Island, Sadho Belo, Sattian Jo Astano and other islands. The only need is to develop visionary and strategic planning tools and the sincere implementation.

Acknowledgement: The authors would like to express their special gratitude to Mr. Khalid Mahmood Siddiqui, Directorate of Urban Policy and Strategic Planning, Karachi for his constant guidance and encouragement. We are also grateful to Dr. Niaz Ahmed Abbasi, Commissioner Sukkur Division, Mr. Shehzad Ahmed Thaheem, Deputy Commissioner Sukkur, Mr. Qurban Ali Kalwar, Director P&D, MD-NSUSC, and all other government officers in relevant departments for

extending support and giving relevant suggestions for formulating the development strategies.

REFERENCES

- Ahmad, I., S. M. Mayo, I. U. Bajwa, S. M. Mayo, M. B. Sharif and A. U. Qazi, Urban Sewerage Planning Through Community Participation, *Pak. J. Sci.*, 64(1):24 (2012)
- Ahmad, I., S. M. Mayo, A. Aziz, A. Rahman and M. Hussain, Implementation of Development Control Regulations in Lahore – Pakistan; A Step towards Healthy Built Environment, *Pak. J. Sci.*, 65(2):252 (2013)
- Ahmad, I., S. M. Mayo, I. U. Bajwa, A. Rahman and A. I. Mirza, Role of Development Authorities in Managing Spatial Urban Growth; A Case Study of Lahore Development Authority, Pakistan, *Pak. J. Sci.*, 65(4):546 (2013)
- Arif, G. M. and S. Hamid, Urbanization, City Growth and Quality of Life in Pakistan, *European J. of Social Sci.*, 10(2):196 (2009)
- Arsalan, M. H., M. R. Mehdi, and M. Hussain, A Regional Planning Application of Satellite Image Processing in Pakistan. *Proceedings of International Conference on Advances in Space Technologies*, (2006)
- Bellosillo R.V., Guidelines for master plan preparation, Government of Sindh, (2012)
- Government of Pakistan, 1998 District Census Report of Sukkur, Population Census Organization, Statistical Division, Government of Pakistan, (1999)
- Government of Sindh, Urban Development Strategy for Sukkur, Urban Policy and Strategic Planning Directorate, P and D Department, Government of Sindh, Osmani and Company (Pvt.) Ltd., Karachi, (2014)
- Jamal, H., A. J. Khan, I. A. Toor and N., Amir, Mapping the Spatial Deprivation of Pakistan; *The Pakistan development Review-2* (Summer), pp-91-111, (2003)
- Junejo, M. A., C. Rohra and P. Lal, An Empirical Study on the Key Issues of the Small Industrial Growth in Sindh: A Case Study of Sukkur Estate Area, *Australian J. of Basic and Applied Sci.*, 2(4): 1463 (2008)
- Qazi M. M., Lakhueen-Jo-Daro, *Journal of Central Asia*, XII(1):(1989)
- Mayo, S. M. and Amer Aziz, An Overview of Industry, Urbanization and Disaster Risk Nexus in Punjab, *Pak. J. Sci.* 63(1):10 (2011)
- Mayo, S. M., A. I. Mirza, I. Ahmad, A. Aziz, A. Rahman and M. B. Sharif, Envisioning Human Settlements in the Information Age and the Underlying Opportunities and Threats for Sustainable Urbanization, *Pak. J. Sci.*, 65(3):366 (2013)
- Mehdi, M.R., M. Kim, J. C. Seong, and M. H. Arsalan, Spatio-temporal patterns of road traffic noise pollution in Karachi, Pakistan, *Environment international*, 37(1):97-104, (2011)
- Shaikh, N., Q. H. Mallah and G.M. Vaseer, The Excavation of Indus Period Site Lakhueen Jo Daro 2006: A Preliminary Report, in F. Husain (Ed), *Sindh-Past, Present and Future*, pp-238-264, (2006).