ENVISIONING HUMAN SETTLEMENTS IN THE INFORMATION AGE AND THE UNDERLYING OPPORTUNITIES AND THREATS FOR SUSTAINABLE URBANIZATION

S. M. Mayo, Dr. Ali Iqtadar Mirza, I.Ahmad, A. Aziz, A. Rahman and M.B. Sharif

Department of City and Regional Planning, Department of Civil Engineering, University of Engineering and Technology, Lahore, Department of City and Regional Planning, Lahore College for Women University, Lahore, Department of Geography, Government College University, Lahore

ABSTRACT: Developments of human settlement have always been an effect of the changes in the social, political, and economic conditions at work in the society. Villages were the product of agricultural revolution and cities were the products of industrial age. Industrial age followed agglomeration economies concept and favored S Curve urbanization and resulted into mega cities in the developed world. The industrial age particularly in developing countries, resulted into J Curve urbanization and the worst forms of urban issues such as congestions, traffic delays, environmental concerns, urban sprawl, squatter settlements, social inequalities, and a loss to culture and vernaculars. As we approach to the information age, the form of human settlements are again within transformation phase. The paper while making use of some popular envisions of leading planners, explores all possible opportunities and threats within information age which may be of profound significance in our efforts towards making our settlements healthier, efficient and sustainable.

Key words: Agricultural revolution, Industrial revolution, Agglomeration economies, S&J Curve Urbanization. Information revolution, Network Society.

INTRODUCTION

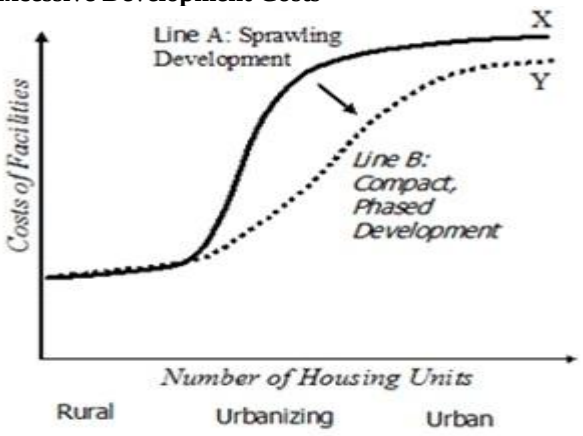
The research paper mainly deals with the theoretical visualization of human settlements and reviews the same in the backdrop of the most dominant societal transformations in the World. The paper explores that the forms of human settlements had always been relying on the contemporary socioeconomic transformations in the society.

The human race by now has experienced three socioeconomic societal transformations namely; agricultural civilization; industrial civilization; and tertiary civilization in chronology. The contemporary information society—alternatively named as post-industrial society, knowledge society, or network society, relates to a place where creations, distribution diffusion, use, and manipulation of information takes place. In this society, the use of Information and Communication Technology (ICT) is very crucial for production, economy, and the society at large. The paper while analyzing renowned connoisseurs envisions regarding future of human settlements, identifies the inherent opportunities and threats which may be of profound importance while making our settlements efficient and sustainable.

The Rise and Perception of Information Society: Initially, Fritz Machlup introduced the concept of information or knowledge society and identified five sectors of knowledge economy, namely; educations, research and development, mass media, information technologies, and information services. (Machlup, 1962). Later on, Peter Drucker, Marc Porat, Daniel Bell, Alain Touraine, Jeane-Francois Lyotard, Peter Otto, Philip Sonntag, Radovan Richta, Nico Stehr, and Alvin Toffler commented on the characteristics of the information society.

According to Dijk (2006), in recent years the concept of network societies was put forward by Manuel Castells followed by Jane Van Dijk, who characterize the network society as a social formation wherein social and media networks become the prime mode of organization of individuals, groups and the society.

Figure-2 Typical S Curve Urbanization with Inherent Excessive Development Costs



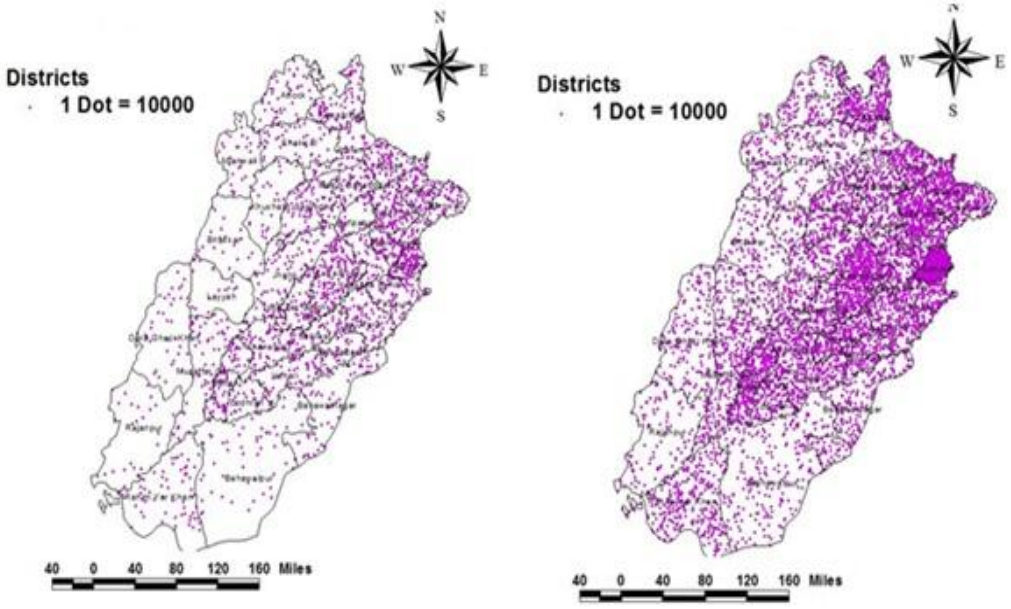
Source: Pat Dugan 2008

Counting on Urbanization?: Although, the term urbanization is most widely used within development discourse, it is also equally misunderstood in its forms and meanings. Nonetheless, urbanization is the most influencing phenomenon we are currently dealing with. Philip Hirsch (1995) correctly spoke about urbanization as one of the most dramatic demographic, economic, and social change occurring in the world.

As urbanization relates to the ratio of urban population to the rural/total population within a particular region, it also raises concerns over its spatial distribution pattern. Talking about the process of urbanization, Chen (2012) introduced two typical forms/models emerge out of empirical analysis, namely; S Curve and J Curve. S Curve model has been grossly observed within developed countries and the J Curve model is mostly observed within developing countries. Pat Dugan (2008) while measuring on the cost of urbanization argues that the typical S Curve urbanization can cost a lot to developing nations and that can be reduced significantly if alternative urbanization patterns are followed such as compact phased development or balanced urbanization.

Pakistan being an urbanizing economy shows a mix of both evenly distributed rural settlements as well as oozing metropolises at some locations. The following maps (figure-1 & 2) indicate the mixed characteristics of both transformations within Punjab Province. Areas which were mainly dependent on agriculture, followed a distributed settlement pattern from the year 1951 to 1998, whereas, areas having high concentration of industrial and secondary occupations observed a concentrated urbanization pattern from 1951 to 1998. These trends were also empirically verified by S.M. Mayo & Aziz (2011) while analyzing the industrial concentration pattern and urbanization trends in Punjab Province of Pakistan.

Figure-1 & 2 Population Density Patterns in Punjab (1951 and 1998)



Source: Authors own construct based on 1951 and 1998 census

Human Settlements and Socioeconomic Transformations; a Cause-Effect Relationship: The development of human settlements has always been an effect of changes in the socioeconomic status of the society at that time. Fourastie′ and Gross identified the structural transformations in various countries during the last three centuries. Fourastie (1963) stressed that the ongoing era of industrialization is in fact a transitory period—through which the society has transformed from traditional status to the tertiary civilization. The detailed characteristics of his model include (Table-1):

Gross (1966) also visualized the representative characteristics of pre-industrial, industrial and post-industrial stages of human civilizations. The detailed characteristics of Gross's model are elaborated as under (table-2):

Similarly, envision of Jacobson and Parakash (1971) identifies employment in the tertiary sector and urbanization follow a rising S-curve (figure-3.1, 3.2, 3.3), and the advent of information revolution will change the human settlements into diffused pattern.

On the whole, Fourastie′, Gross, and Jacobson & Parakash's empirical study reveals that the technological progress, the structural changes in the employment patterns, levels of urbanization and the patterns of spatial development are highly correlated.

Table-1 Fourastie′s General Envision and its Characteristics

Characteristics	Before 1800 Traditional Civilization	Transitory Period (Industrial Civilization)			Beyond 2000 Tertiary Civilization
		Take off	Expansion	Achievement	
Technological Progress	Zero or very weak	Notable	Strong	Very strong	Considerable & growing
Primary employment	Stable	Decreasing	Decreasing	Decreasing	Stable
Secondary employment	Stable	Growing	Stable	Decreasing	Stable
Tertiary employment	Stable	Stable	Growing	Growing	Stable
Crises	Under-production in primary sector	Over-production in primary sector	Severe over-production in secondary sector	Over-production in secondary sector	Under-production in tertiary sector
Revenues	Land tax	Income tax	Confusion in tax structure	Systematic reduction and elimination of land and income taxes	Service charges

Source; Fourastie′, 1963

Table-2 Gross's Characterization during Transitory Phases of Human Civilizations

Characteristics	Pre-Industrial	Industrial	Post-Industrial
Demographic	- Low life expectancy - Low education	- High life expectancy - Much more education	- Very high life expectancy Highly educated population
Socio-cultural	- Relatively little differentiation (fused)	- Considerable differentiation	- Still more differentiation
Normative values	- Localism	- Activism - Cosmopolitanism - Nationalism	- Humanism - Megapolitanism - Trans-nationalism
Power structure and social system	- Restrictive elites - Centrifugal tendencies	- Multiple elites - More integration with growth of nationalism	- Dispersed elites - Less integration with growth of trans-nationalism
Institutional	- Small government sector	- Large government and mixed sector	- Large public & private service sector
Transport and communication network	- Weak	- Highly developed	- Still more highly developed

Source; Gross, 1966

The inherent Opportunities and Threats for Sustainable Urbanization in the Information Age: Anis ur Rahmaan (1999) visualizes differential journey to tertiary civilization by different nations—in terms of timings, ways, and means—and further describes it as a journey of hope and despair—hope for those who are prepared for it; and despair for those who will be caught unaware. However, to bring into display the inherent opportunities and threats of information age, the paper make use of P.W. Newton's (1997) thought provoking scenario mentioned in the following. The pertinent factors and their attributes in this scenario, which act as opportunity or threat, have been marked by check marks accordingly (table-3):

Comparing urbanization process within developed and developing countries, indicates a sharp contrasts. Codrington and Scott (1996) pointed out, it is ironic that in 1950 out of top 15 cities 6 were from the European Continent but by the year 1994 within top 15 cities list there was not a single city from the European Continent. This shows that the phenomenon of agglomeration economies is more dominant in developing countries, and has contributed much to the J Curve urbanization and has resulted into severe urban issues.

Figure-3.1 Predominant Employing Sector

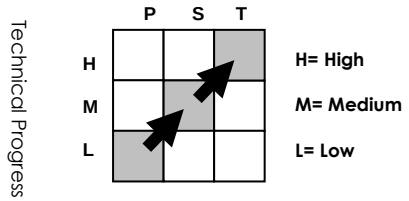


Figure-3.2 Level of Urbanization

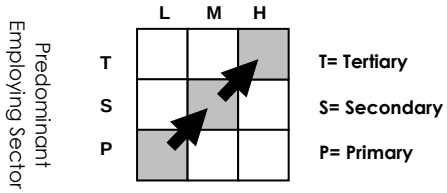
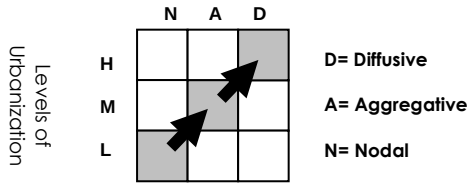


Figure-3.3 Patterns of Spatial Development



Source; Jacobson and Parakash (1971) in The Global City of the 21st Century by Anis-ur-Rahmaan in Ekistics, 394, January/February, p.106, (1999)

Table-3. Newton's Prophecy of Transition to an Information Society

Transition factors	Societal Transitions			Remarks	
	Agriculture	Industrial	Informational	Opportunity	Threat
Industry location	Dispersed	Centralized	Centralized with decentralized	✓	X
Industry process	Handicraft	Mass production	Flexible specialization	✓	X
Economic engine	Human muscle	Machines	Human knowledge	✓	X
Product	Customized	Uniform	Personalized	✓	X
Work conditions	Informal	Formal	Team	✓	X
Dominant mode of interaction	Face to face	Hierarchical	Information network	✓	X
Type of information transfer at work	Verbal	Paper	Electronic	✓	X
Market orientation	Local	National	Global	X	✓
Commuting pattern	Dispersed	Focused	Dispersed	✓	X
Transport network	Minimal grid/ribbon	Radial	Extensive Grid	✓	X
Transport mode	Private, walk	Public rail	Private, car	X	✓

Source; Newton et al. (1997) in Badcock, Making Sense of Cities, p.64 (2002)

Conclusions: A meticulous analysis of the pertinent literature on prospects of information society reveals that the sustainable urbanization is highly dependent on tapping opportunities of the information revolution. Within developed nations there are recognizable indicators which suggest that they have surpassed the industrial or urbanization maturity phase—exhibiting S Curve urbanization process. The conditions within developing nations suggest a mix of the traditional, industrial, and postindustrial society—thereby exhibiting J Curve urbanization and Pakistan and Punjab Province also exhibits the J Curve urbanization process. A number of earlier mentioned empirical envisions suggests that information society will be an agglomeration free economy. Therefore, developing countries may use ICT for transforming J Curve urbanization into sustainable urbanization.

Policy recommendations for developing countries: Bearing in mind a responsive attitude of developing countries towards emerging knowledge economy, following policy recommendations are envisaged:

1. The growth of mega cities needs to be controlled. The opportunities of ICT may be tapped to alter the J Curve urbanization process within developing countries.
2. The contemporary intermediate towns in the developing countries, which lagged behind during industrial age can be invigorated through knowledge industry which is less dependent on the agglomeration economies.
3. There is a need to develop university/education towns within existing small towns which is expected to diffuse tertiary sector employment into marginalized areas.
4. Other sustainable urbanization concepts such as green belts, satellite towns, new towns, and compact cities need to be invigorated. The adoption of these spatial concepts will lead developing countries to a confident entry into information age.

REFERENCES

Anis-ur-Rahmaan, The Global City of the 21st Century, Ekistics, 394, January/February, p.107, (1999)

Bertram M. Gross, The State of the Nation: Social System Accounting, in Raymond A. Bauer (ed) Social Indicators, MIT Press, pp.214-215, (1996) in Anis-ur-Rahmaan, The Global City of the 21st Century, Ekistics, 394, January/February, p.107, (1999)

Chen Yan-Guang (2012) On the Urbanization Curves: Types, Stages, and Research methods, SCIENTIA GEOGRAPHICA SINICA 2012, Vol.1, pp. 12-17, (2012) http://geoscien. neigae. ac.cn /EN/abstract/ abstract8796.shtm, accessed on 13.07.2013

Codrington and Scott (1996) Investigating Our World, Cambridge University Press, Cambridge, p.31, (1996)

Dugan Pat, Costs of Sprawl and Related Conundrums, (2008) an online paper available at http://www.mrsc.org/focus/ pladvisor/pla1008.aspx, accessed on 13.07.2013

Fritz Machlup, The Production and Distribution of Knowledge in the United States, Princeton University Press, Princeton, (1962) available at http://en.wikipedia.org/wiki/information_society , accessed on 13. 07. 2013

Government of Pakistan, Pakistan National Report for Habitat-II Conference-Istanbul, Ministry of Environment, Urban Affairs, Forestry & Wildlife, Islamabad, p.xiv, (1996)

Hirsch, Phillip, Urbanization and Development, Geography Review, 8(4) in Codrington and Scott (1996) Investigating Our World, Cambridge University Press, Cambridge, p.30 (1995)

J. Fourastie (1963) Le Grand Espoir du XX Siecle, Edition definitive, Gallimard, Paris, (1963) in Anis-ur-Rahmaan, The Global City of the 21st Century, Ekistics, 394, January/February, p.106 (1999)

Jane Van Dijk (2006) The Network Society, Sage London, (2006) available at http://en.wikipedia.org/ wiki/ information_ society, accessed on 13.07.2013

L. Jakobson and V. Prakash, Urbanization and Urban development: Proposals for an Integrated Policy Base, (1971) in L. Jakobson and V. Prakash (ed.) Urbanization and National Development, Sage, Beverly Hills, pp.30-32, (1971) in Anis-ur-Rahmaan, The Global City of the 21st Century, Ekistics, 394, January/February, p.107, (1999)

Mayo, Shaker and Morishita, Space against Place; the Identity Crises of Human Settlements in Pakistan, a paper presented in the 4th Special Seminar on "Lessons Learnt in Processes, Drawbacks and Progresses from Human Settlements, Human Security and Human Development", on June 28, 2007 at the Graduate School of Policy Studies, Aichi Gakuin University, Japan, (2007)

Mayo, S.M. and Aziz, A. An Overview of Industry, Urbanization, and Disaster Risk Nexus in Punjab, in Pakistan Journal of Science, Vol. 63, No.1, (2011)

Newton, P. W. et al. Cities in Transition: Changing Economic and Technological Processes in Australia's Settlement System, (1997) in

Badcock, Blair, Making Sense of Cities: A Geographical Survey, Arnold, London, p.64, (2002)

Philip McCann, Urban and Regional Economics, Oxford University Press, Oxford, pp.58-60, (2001)

Population: Fundamentals of Growth Patterns of World Urbanization, based on United Nations, World Urbanization Prospects, (1999) available at www.prb.org, p.1, accessed on 13.07.2013

Saskia Sassen (1991) The Global City: New York, London, Tokyo, Princeton University Press, (1991) available at http://en.wikipedia.org /wiki/Global_city

United Nations, State of the World Population 2007 Report, (2007) available at http://www.prb.org/ Articles/ 2007/Urban Populationto Become Majority.aspx , accessed on 13. 07.2013

World Commission on Environment and Development, Our Common Future, Oxford University Press, Oxford, p.107-8, (1987)