

City Dynamics and Complexity: Sustainability or ‘Bust’

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On behalf of the Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM) I would like to extend our warmest welcome to all those present in this Round Table Dialog on **MODELLING THE COMPLEXITY OF LIVABLE URBANIZATION** this morning. This meeting is exceptionally honored by the presence of Professor Dr. Michael Batty from the University of College London, who, from this quote from a commentary of his book *Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals* (2005) published by MIT press - that ‘unites into an integrated whole path-breaking methods in urban research centered on ideas of non-linear dynamic emergence and self-organization (Berry 2005), is the leading guru of urban complexity modeling in the world. We are also honored by the presence of Associate Professor Dr. Ray Wyatt, from the University of Melbourne, Australia who is also working on aspects of city complexity, and has been visiting the Institute from time to time. We are equally honored by the presence and willingness of our local colleagues who have been spending their productive research lives on the city-unraveling its mystery and importance, and to come to the dialog to share with us their experiences today. We are equally honored to have with us participants from the academia, the non-governmental organizations and representatives of associated government departments, who are practitioners in city issues in the country.

URBANIZATION, URBAN GROWTH AND A NEW WAY TO STUDY CITIES

Christopher Flavin, President, Worldwatch Institute wrote in the preface to the book, *State of the World, Our Urban Future* (2007), “sometime in 2008, the world will cross an invisible but momentous milestone: the point at which more than half the people on the planet - roughly 3.2 billion human beings - live in cities’. About 50 million people are moving to the cities and suburbs each year. He went on to remark that more than at any

time in history, the future of humanity, our economy and the planet that supports us will be determined in the world cities.

On a much smaller scale, Malaysia too is in the midst of experiencing this urban explosion. If we relax the conventional definition of an 'urban' area to include people in the rubber estates decades ago and in the Federal Land Development Authority (FELDA) now, whose economic mainstay is commercial agriculture, the percentage of the 28 million Malaysian populations residing in urban areas could reach the 80 percent level (Malaysia, 1971 through 2006). The post 1970s shift in the engine of growth from exporting agricultural produce and tin mining in the past to the export of industrial products has produced widespread effects on the conventionally defined urban areas. This trend in development was spurred by the implementation of the New Economic Policy (NEP) with the dual prong strategy of eradicating poverty irrespective of race and restructuring the divided Malaysian society at the time such that in future years there will develop a multi-racial Malaysian society without any race being identified with any economic function (Malaysia 1971). That export industries were located mainly in cities and towns, and in newly developed townships have produced the necessary conditions for new patterns of multi-ethnic new housing neighborhoods. The policy is very attractive for the in-movement of rural youths searching for work, and eventually made the cities their new homes. Soon a diversity of physical and social, financial and recreational services that range from the most essential to the most specialized, broaden the opportunity base for these rural migrants to choose from. Thus, city based economic production; services and consumption have been the drivers of urban development, and equally the enablers that change the cities. Yet, the creation of those opportunities has outpaced the supply of local youth who are said to be willing to serve in the range of available city jobs. As some jobs are becoming relatively filtered down for the local workforce, migrant workers from the neighboring countries have crossed our international borders to come and take up opportunities in construction industries and in the so-called 'dirty' services.

The economic and social drivers of city growth are not evenly distributed in the country. Some 'regions' are well endowed with local advantages to leverage industrial policies in promoting manufacturing activities and their related spillovers. Others are less endowed in that sense. On the Malaysian cultural landscape, there are now mega cities – the main ones are the Kelang Valley urban conurbation, with sprawling urban areas stretching from Kuala Lumpur to the coast; the Penang-Kulim High Tech

and Sungai Petani urban stretch in south Kedah, and the Johore Bahru-Pasir Gudang urban conurbation - the outcome of the earlier - 1970-2007 - industrial corridor policy as deliberated in the Malaysian Five -Year Development Plans numbers 2 to 7 spanning the years 1970–2006 (Malaysia 1971 to 2006). The development corridors comprising the North Corridor-Penang, Perlis, Kedah and North Perak; the Eastern Corridor - stretching from Kelantan, Trengganu to Eastern Johore; The Sarawak Corridor; The Sabah Corridor of development, and the Iskandar Development Corridor in Johore are future centers of city growth spawned by those expected economic, services and social development. If the corridor development of the past is to be used as the urban growth barometer of the country, the expected rise of urban conurbations in the newly instituted corridors will be equally spectacular. More people will make the cities their homes in decades to come.

Placing the recent urban development in Malaysia in the space-time of the Malaysian development initiatives, we have come to witness the varying speeds of those individual urban growths and its subsequent expansion. The Kelang valley as expected has been recording the fastest growth and easily maintains that position today. The fact that the Malaysian seat of government is in the corridor has attracted a myriad of industrial, educational, recreational establishments and services. The Penang-South Kedah industrial corridor likewise has spurred the sprawling growth of urban places following the internationalization of the Penang economy in the 1970s. The Johore-Pasir Gudang urban area too has followed the footsteps of the other two corridors. The rest of the country lags behind further. The newly announced economic corridors are expected to fill in the lagging areas with urban based economic and social drivers, enabling those areas to rise from stagnation to new urbanized corridors in the next few decades. Come 2020 the initiatives to make Malaysia achieve a developed country status are fulfilled.

THE AURA OF THE INTERNAL CITY IN MALAYSIA

Let us now turn to consider the individual city, to look at its internal structure and its dynamics of change. In the space-time of each city's internal rate of changes also varies from one part of the city to another, responding to the variations of local economic and social drivers. The variant in the speed of change can be traced back from as early as the founding of the city. For most Malaysian major cities, their beginnings were linked to the

British colonial government administration in the Straits Settlements, the Federated Malay States and much later to the Federation of Malaya, the Brooks family in Sarawak and the East India Company earlier in Sabah (Lim Heng Kow 1978; Abdul Samad Hadi & Sulong Mohamad, 1990). Cities were founded to administer law and order that in turn allows for the prospering of British investment in tin exploitation and rubber growing in estates. The administrative functions were instrumental in influencing the arrangement of the internal urban structure; colonial complex - comprising, for example, the Resident's house and British officials' housing area, the administrative center, the court house, churches and green areas. All were built in close proximity to each other for ease of mobility and also for security. The police head quarters was close by for overseeing social order and the general safety of the city.

With improved law and order, the economic climate was ripe for the peopling of the internal city; first the incoming of migrant workers from Southern China to man the tin mining areas, and Indians from South India for general maintenance works in the city. The mines spawned small scale entrepreneurs, at first to serve the retail needs of the workers but later branching out to provide internal transport and services needed by the town people. Over the years, these retail activities grew to fill up the commercial center. The Malays remained in their kampungs, some of which might be overtaken by urban activities to remain as islands in the midst of the modernizing town. The rural Malay migrants headed for the kampungs in the city which served as the best port of entry and the immediate shelter for them. As more rural in-migrants entered the city squatter settlements rose on empty government areas in the city, helping to multiply the squatter settlements of Chinese and Indians workers earlier. There exists a clear plural city population, each racial group occupying specific neighborhoods.

The general scene of a typical internal city at the time remained until Independence in 1957. New housing areas, though somewhat limited, initiated a new direction of change in neighborhood development. The urban history in Malaysia reached a watershed in the 1970s after which urban development and city growth recorded dynamic changes that became increasingly complex, spurred by the implementation of the New Economic Policy.

THE NEED FOR A NEW VIEWING OF CITY

Critical viewing of both the external and internal cities in Malaysia has been done largely through western concepts and theories, despite Terry McGee's (1971) reminder that the urbanization process in the Third World does not follow the path of the First World. His seminal work on the urbanization process has been proven and generalized leading to its acceptance world wide. To the extent that studies have applied the Christaller's hierarchy model to cities' functions, the Von Thunen linear model to land use changes with distance from the city center, marriage migration distances, and the distance decay in inter-urban migration patterns have produced interesting results confirming the earlier general findings from studies in other parts of the world. However, it is generally true also if search is made to fit the normative models of urban land use - be it the multiple nuclei, the sector or the concentric zones, they could be found.

I have implied above that the city dynamics in Malaysia could be more complex following its historical beginning and the embedded constraints to its growth and expansion in space and time before Malaysia's Independence and the liberalizing policies for development after that. At the local level within the city the speed of change varied tremendously despite the policy intervention by the Federal government. Certainly, growth and change are more complex than linear.

Another factor that needs to be considered in the complexity is the question of sustainability. After the Earth Summit in Rio 1992, Malaysia too goes for sustainable development as a common vision, holding to the principles of economic growth, societal development and environmental protection (Malaysia 1976; 1981, 1986, 2001). Though 'sustainable development' for Malaysia is still conceptually opened to contestation, the city has to be made sustainable. It is the focal point of virtually all economic, social and environmental activities and their consequences. An overall facet of city sustainability can be shown in its quality of life that in turns showcase the level of its vibrancy and livability. Because the speed of change in the space-time of the localities in a city differs, those localities showing slower changes may have many negativities and hence the place is highly vulnerable - in terms of economic, social and environmental downgrading. Localities that have all the necessary requirements for a vibrant life can be regarded as having a livable space for the urbanites. Acknowledging that the Malaysian cities continue to be the center of attraction for people of the country and also for labor in some

countries in the Asian region to come and work. The livability of the cities is important to maintain else the cities will revert to grappling problems often associated with over-urbanization. The Malaysian urbanization experience in the past has taught Malaysians to go for city sustainability or the gloomy option is 'bust' in which the city will become infested with marginal communities unable to make ends meet.

Given the layers of urbanization with different factors overlapping one another, influencing later drivers and those impacted by urbanization, an approach that simplified the variables and disregard the interaction among variables much of the urbanization phenomena. This is why the project on local urban sustainability attempts to utilize the complexity approach to make sense of the 'messy' situation of urbanization. Especially that of the Third World where the modernity agenda stands side by side with the traditional and in many ways creolized modernity itself.

The work using complexity as a guide seeked out tipping points, agents and networks responsible for the urbanization process and the resulting fitness landscape of the urban region.

The main task of our project on modeling city complexity is to provide a simple model of the city complexity within the ambit of a livable city. From our readings of the experiences of complexity modeling, I think we have started some what over ambitious. Having gone over the whole city development issues we have come to term with the call for a small beginning, making the model simple and understood in an incremental order to help realize the full complexity of the city. The dialog today will facilitate and becomes an enabler to help the research group's effort at realizing the need to keep the model of complexity simple, yet of wider relevance to the country.

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