Our Transportation System is in Crisis – 239

By the time this article is published, I would have given a lecture to a large number of Lower Sixth Form Science students from across the region. The National Institute of Higher Education, Research, Science and Technology (NIHERST) is hosting its tenth Caribbean Youth Science Forum (CYSF) during the period August 7 to 14, 2011 at the University of the West Indies, St. Augustine Campus and the University of Trinidad and Tobago, O'Meara Campus.

Their mission continues to be to promote understanding and appreciation of the relevance of Science and Technology in everyday living and to foster a culture of creativity and innovation in a manner that is stimulating, equitable and sustainable.

I was requested to speak on "Transport and Urban Planning in Satellite Digital Imaging Systems." The intention was to attempt to integrate the role of Science and Technology in the field of Transport and Urban Planning, applying Satellite Digital Imaging Systems. I suppose an expert on Geomatics would be more appropriate for this subject, but I also requested permission to deal with the inter-relationships between transport and urban planning, the issues involved in these subject matters, as well as the associated career options.

The Satellite Digital Imaging System (SDIS) consists of simple hardware and special SDIS software to permit transmission of digital photos of land-use activities from an aircraft in flight to multiple email addresses via a satellite phone. The hardware components are a digital SLR camera, a laptop computer, and a satellite telephone. Photo images can also be captured on the memory card in the digital camera, and may be edited or uploaded after landing. It is currently used by the US Civil Air Patrol (CAP) for a variety of missions, including search and rescue operations, disaster relief, and commercial photography. Digital geospatial imaging is thus a significant tool in understanding and predicting land use patterns and transportation behaviour.

Land being a finite commodity, it is now generally understood that its use cannot be left to a state of laissez-faire. Rationalising its use becomes even more serious when situations arise in the urban context where there is enormous competition for its deployment. Studies may include its current use, its inherent qualities, its present value, its future potentialities, etc. Thus, land-use planning is one of the most important components of the overall physical development planning process.

Land-use planning goes beyond assignment of land-use functions; it includes the intensity of these functions both above and below ground, as well as the activities that these land uses are expected to accommodate at different stages in time, including changes in these activities.

Travel growth is a product of changes in existing patterns of demand and the travel generated by new land use activities. Much of the growth in travel is caused by decisions taken outside the transport arena, yet it is often the transport system that has to accommodate these changes. Simple examples include location decisions affecting new housing, retailing activities, education and health policy. (from David Bannister, Unsustainable Transport, 2005, p. 209)

The connection between land use (urban) and transport planning has been one of the fundamental relationships that have guided both the process of planning as well as the technical tools which planners and engineers rely on. Land use activity creates a socio-economic field which causes attraction forces and these give rise to transport flows.

Planning has to move from being primarily a control and enforcement activity to one that promotes and enables change to take place. Planners need to think more imaginatively about the future, rather than being content with current trends just continuing much as they are at present.

The world is changing and analysis needs to embrace the globalization process such as, international business networks, outsourcing, and the 24-hour society. Internationally, work and business-related activities account for less than 20 percent of all activities, yet most analysis still concentrates on these two activities. The increase is taking place in leisure activities, and this will become increasingly more important in the future. Then there is the potential for Information and Communications Technologies (ICT) for many landuse – transport – related activities.

Next, there is the concern over sustainable development. We need to pursue compact, efficient land use patterns to maximize transport efficiency and improve the urban environment.

Visioning about the future encourages planners and researchers to develop images of the desirable urban area some 20 to 30 years ahead—essentially backcasting. The term backcasting is used to analyse future options in terms of how desirable futures could be attained. It seeks to prescribe future scenarios, by working backwards from the desired end point to the present to determine which package of policy measures could be used to reach that vision.

SDIS can capture our land use and travel patterns progressively over time in our urban environment, what we have been doing, and how successful we have been at it.

Backcasting can then be applied to test the any proposed adjustments in policies.

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