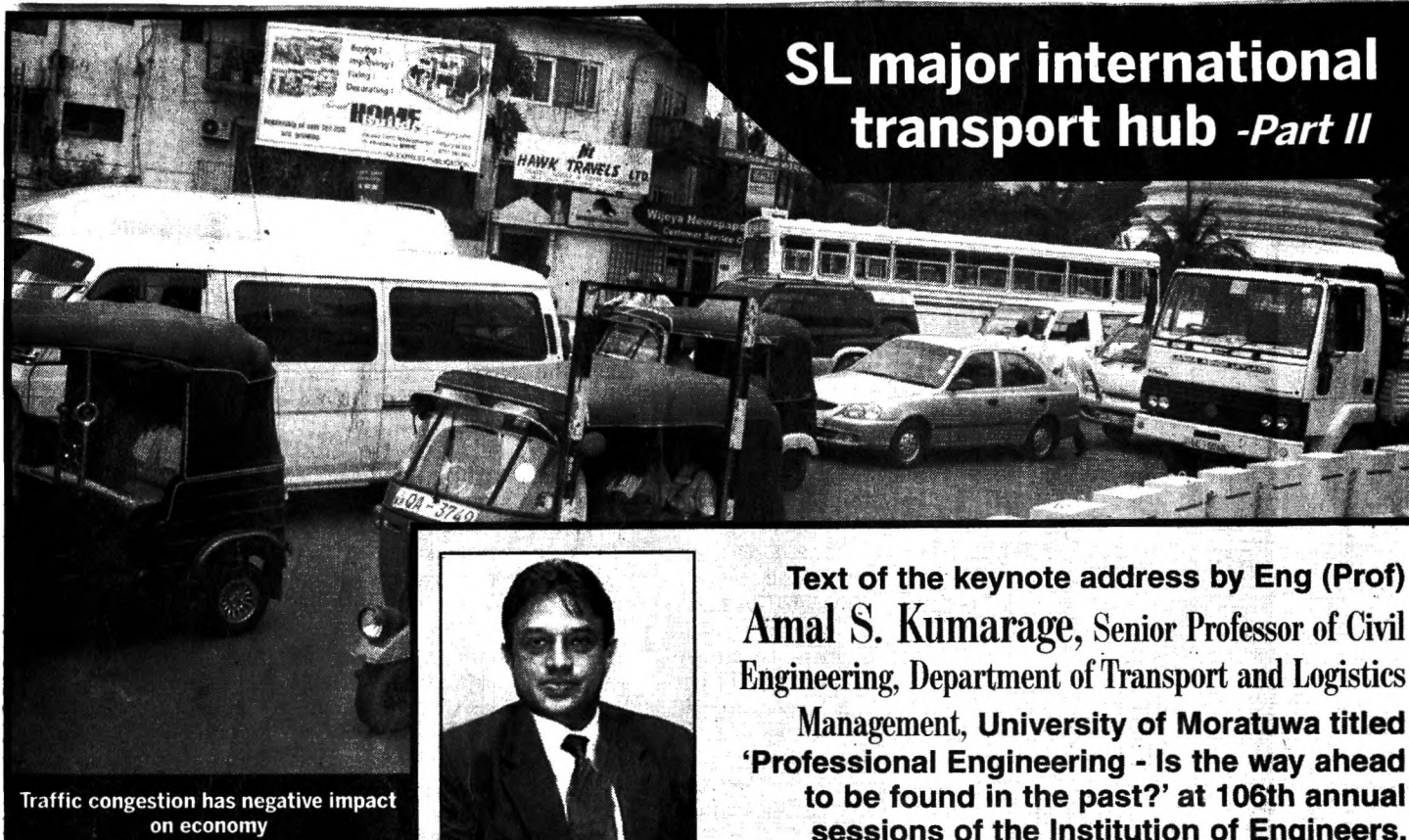




SL major international transport hub -Part II



Text of the keynote address by Eng (Prof) Amal S. Kumarage, Senior Professor of Civil Engineering, Department of Transport and Logistics Management, University of Moratuwa titled 'Professional Engineering - Is the way ahead to be found in the past?' at 106th annual sessions of the Institution of Engineers, Sri Lanka held in BMICH on October 19, 2012

Engineering is teamwork

At a time when much investment is made on developing transport infrastructure, these examples from Sri Lanka's own history cannot be over emphasized. For transport infrastructure to succeed in providing the desired and sustainable economic impetus requires getting the correct synergies. Careful planning to connect the areas of production and consumption and the export nodes and for these nodes to be value additions, is essential for transport investments to yield adequate economic returns.

Comparatively the development of transport since independence has been disappointing. The canal system has all but disappeared and rendered non-functional. The railway has continuously lost market share and has become a commercial burden even though its economic potential remains. The road network is overcrowded, slow and unsafe. The bus network has not been reformed to suit the open-market conditions. Institutions charged with these functions have grown in size and in budgets they execute, but their services have continuously deteriorated.

There has been no serious effort to develop a national transport strategy or transport network. The Southern Highway, Katunayake Expressway, Port of Hambantota and Hambantota International Airport are not a part of any known overall strategic plan to develop the country's resources for trade or consumption. Most transport infrastructure projects are piece-meal investments. Today they are a plethora of unsolicited proposals. On the other hand the budgeted expenditure for 2013 for all modes of transport exceeds Rs 250 billion or nearly 4 percent of GDP. The question we need to

ask is whether they will bear fruit as much as the transport investments that were made in the 18th and 19th century.

Most of this expenditure will flow through engineers and engineering institutions both state and private. While such spending should be heralded as good news to the industry, it also brings with it the responsibility of spending such large sum of money wisely for the future well being of the country. I have considered that there are areas of concern that engineers today should respond to in discharging their professional responsibility.

Economic development

Engineering developed as a profession and earned its place in society as a contributor to social well being and improved quality of life. The first professional institute of engineering, the Institute of Civil Engineers in UK, was formed in 1818 with very altruistic principles worthy of being recalled today. For example the ICE Charter states that its objectives are:

".....the general advancement of mechanical science, and more particularly for promoting the acquisition of that species of knowledge which constitutes the profession of a civil engineer; being the art of directing the great sources of power in nature for the use and convenience of man, as the means of production and of traffic in states, both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation, and docks."

This objective was established in the beginning of the 19th century at the end of the industrial age and the beginning of the rail-

replace water transport worldwide. This was also the thinking after the Renaissance of the 17th century where the inventions arising from the 'advancement of science' began to be applied to civil life and benefit as against military application. Engineering itself became more oriented towards being used for the 'convenience of man' as set out in the ICE charter.

Furthermore, it is interesting to note that the objectives of civil engineering were defined as 'the production and transport (called traffic at that time) as represented in the construction of the required infrastructure for purpose of commerce and human settlements. This was the basis of engineering practice. This was the exact basis that secured the future of the economy of Sri Lanka where the transport networks of the 18th and 19th century were engineered.

The professional nature of engineering of the transport infrastructure at that time reflected a move away from infrastructure being used primarily for military use and for strengthening of political power to using it for economic development and social upliftment. This principle of professionalism in engineering has extended to all branches of engineering where inventions such as the steam engine were used primarily for civil use. The more modern fields such as electrical engineering and computing led to more consumer oriented goods with individual applications as against public infrastructure.

Scarce resources

Since the beginning of professionalism in engineering, trans-

both globally and nationally, with extensive railway lines, canals, roads, ports and airports being planned, designed and constructed by famous engineers such as Thomas Telford the pioneer of the ICE and Isambard Kingdom Brunel considered as one of the greatest engineers of all times. The subsequent creation of the Suez Canal and the Panama Canal changed international trade patterns.

We need to ensure we add more value to the world than what is taken out from it. Today engineers are blamed for taking out of the environment's increasingly scarce resources in large quantities than what is put back. We should be aware that transport activity is one of the biggest contributors to Climate Change. Minimizing resource use in transport infrastructure construction and in fact minimizing travel itself should become an objective of transport engineering. Thus our plans to build more infrastructure must be balanced with attaining a reduction in trips, travel distances, travel times and the associated negative impacts on both the environment and society.

It is thus the duty of engineers who have the opportunity to plan, design, and construct transport infrastructure to ensure that their professional intent is to safeguard against the negative impacts and that all transport infrastructure is created for the common good and not for the mere creation of monuments for leaders or for the consolidation of political or military power.

Engineering institutions

Unlike the work of a physician teacher or lawyer, engineering is not a profession that can be practiced individually. It is work undertaken by a team for the community. Most engineering tasks require a planning, design construction and operation or maintenance stage. Within these there are many specializations required, all of which need to come together.

In an engineering organization the people undertaking these activities are bound together by processes which are fundamental to the practice of sound engineering. If you take these processes away then even engineers will not be able to practice engineering.