

What are the issues involved in the recent collapse of the Caroni River Bridge on the Southern Main Road and its associated consequences? There are three steel truss bridges at that location: the recent ones, opened in 1997 on the western side, and in January this year on the eastern side. The oldest, and centrally located, was built by the British in the late 19th century. The first two bridges are single-lane traffic structures, and their use was discontinued when the newest double-lane two-way structure was opened.

Prime Minister Patrick Manning appointed a three-member forensic committee to investigate the collapse of the bridge which killed one person and injured four others.

Newsday reported on August 5, that the western bridge was in the process of being disassembled by workers from the Ministry of Works and Transport (MWT) when disaster occurred. In that article, Minister Imbert confirmed that “ministry workers were in charge of dismantling the bridge and not contractor Jugmohan and Sons whose sole responsibility was the provision of a flat bed hydraulic truck.” According to the Trinidad Express on August 3, work on dismantling the bridge began two weeks earlier.

At the time of the bridge collapse, a worker reported that he heard a sudden loud snap and he was immediately submerged in the river.

Every structural member of a steel bridge has an important role in supporting dead load (that is, the weight of the steel and asphalt of the bridge) and live load (or weight of the vehicles). If it is assumed that some of these steel members were already removed over the prior two weeks, then the structure would have been already weakened for supporting dead and live loads. And the remaining steel members would

have had to carry unintended additional loading.

What were the order and procedure for removing these steel members, so as to prevent such an occurrence? The process of assembly and disassembly of this type of structure must be a fundamental component of the Manufacturer’s specifications. These specifications would have been lodged with the MWT, and would have been given to the work team conducting the dismantling.

Was the work-team adhering rigidly to the disassembly specifications? Were the supervisory personnel monitoring the operations of the work-team; are they sufficiently experienced to identify clues of work-team inadequacy, or the subtleties of underprepared work zone safety?

There are other issues concerning bridges in TnT. I now discuss some of them. Newsday reported on August 6 that a businessman plans to launch a campaign to prevent the MWT from dismantling the original bridge across the Caroni River because it is a historic structure and was built in 1873. I fully agree. It is certainly not a transferable bridge like the Bailey-type (started by the US during World War II) or the Mabey-type (subsequently modelled by the British). My primary problem here is that, as a people, we generally do not preserve the contribution and knowledge of our engineering features and pioneers. We hardly ever seek to archive the efforts of our experts, whether successes or failures. This would have a significant effect on our current and future professionals: from the earlier examples, minimise errors and maximise accomplishment. This is what project managers term as ‘lessons learnt.’

The American Society of Civil Engineers (ASCE) website states “Civil engineers build the world's

infrastructure. In doing so, they shape the history of nations around the world. Most times, it is so ubiquitous that people take it for granted. On this site, you will find information on the distinguished civil engineers throughout the ages who used their ingenuity, knowledge and experience to create projects that have improved the quality of life over the centuries. In addition, there is a database of all the national and international projects that have been named by ASCE to be Historic Civil Engineering Landmarks.”

So what is the legacy of the practice of civil engineering in Trinidad and Tobago? For example, the University of the West Indies (UWI) is currently celebrating 60 years in existence, and for the better part of 40 years, civil engineering students of UWI must have been subjected to the idiosyncrasies of Prof. IDC Imbert and Prof. Harry Phelps. Prof. Imbert is the father of the current Minister. Were they perfect? I am sure they were not, but are we? Did they have failures? Perhaps! Are graduates not better off as a result of their efforts? Absolutely! They might have received national commendations, but I believe that their highest recognition would be documentation of their work, including shortcomings, if any.

Why not procure researchers to conduct investigations and documentation of our civil engineering heritage. They may even be entered into a post-graduate programme of study as part of this project, under the supervision of a suitable project director, and assisted by some of our pioneer professionals. This would be an invaluable investment of our financial resources.

Next, since March 2006 I wrote that narrow road bridges do not have sufficient extra width for pedestrians, and the problem is

compounded on long bridges, because, after the pedestrian has made the decision enter, it is frightening to share the limited space available with vehicles. Many examples may be found of the former in rural areas, but the latter may be seen in St. Helena Village at the tight two-lane bridge over the Caroni River. There is no exclusive facility for pedestrians, nor is there another route that pedestrians may use. Therefore, a non-motorist makes an unsafe decision every-time he risks crossing this bridge. This bridge is also over the Caroni River and is in a local community, but it seems that pedestrians who use this bridge have been forgotten.

And finally, a disaster of the bridge collapse results is what is known as a post-event emergency: one that occurs following an unplanned catastrophic event. In December 2007 I wrote about the need an emergency response plan. No single solution will deliver similar levels of mobility and accessibility for various events without safety, congestion, environmental, or other consequences. The way forward is a balanced approach to emergency response planning. The analysis should also include the generalized hypothesis that the rationality of the affected user fails: the user acts without information on the transportation network's state of congestion and, due to panic, is unable to evaluate lucidly any information received in real time.

I concluded then that Cabinet should appoint a standing advisory committee for National Emergency Response Transportation Planning and Traffic Management. The committee would comprise key persons in the transportation industry, and would invite participation from specific stakeholders when required.