

WORKSHOP PRESENTATION

INFRASTRUCTURE

APPLICATIONS OF FRP

COMPOSITES

FRP COMPOSITES IN CIVIL INFRASTRUCTURE – TRENDS AND OPPORTUNITIES IN AUSTRALIA

ABSTRACT

The application of fibre reinforced polymer (FRP) composites in civil infrastructure has substantially increased in the last two decades. Breakthrough research and developments on composite materials and structures over the years have paved way to increasing applications and acceptance of composites in civil infrastructure. In Australia, the pioneering work was initiated at the University of Southern Queensland (USQ) within the Centre of Excellence in Engineered Fibre Composites (CEEFC) resulting in the first Australian fibre composite bridge in 2002. Since then, projects involving new and innovative design and structural concepts to make engineered composites a suitable solution in civil infrastructure have emerged in Australia. Through close involvement with major asset owners, these technologies have evolved from initial technology demonstrators to become viable commercial alternatives to traditional solutions.

This presentation will highlight some of the innovative applications on FRP composites in civil infrastructure in Australia. These projects include sustainable fibre composite bridge girders, pile rehabilitation and composite pile systems, railway sleepers, strengthening and retrofitting of existing structures, and other innovative applications of FRP composites in civil infrastructure. The challenges faced in applying this emerging technology in civil infrastructure will be discussed including the need for appropriate education and training of students and young engineers. Future prospects on this advanced FRP composites for wider applications and acceptance in civil infrastructure will be presented.



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Professor Thiru Aravinthan is a Professor of Structural Engineering and Director of the Centre of Excellence in Engineered Fibre Composites (CEEFC) at University of Southern Queensland (USQ). He is a Chartered Professional Engineer in Australia and a registered Professional Engineer at Oregon State, USA. His expertise includes fibre composites structures, prestressed concrete technology, structural rehabilitation and engineering education. Prof Aravinthan is actively involved in national and international organisations including Engineers Australia, Composite Australia and Council Member of International Institute for FRP in Construction. He has over 25 years of engineering experience in the industry, research and academia and involved in several industry funded projects. He was awarded the USQ Award for Excellence in Research in 2003 (Early Career) and 2009 (Open Category) and several other teaching excellence awards. He was part of the team that was awarded the prestigious JEC Europe 2014 Innovation Award in the oil and gas category for the development of a novel composite clamp for pipeline repair.