



PROCEEDING BOOK

International Conference on Environmentally Friendly Civil Engineering Construction and Materials *"Creating and Adapting Sustainable Technologies"*

13-14 November 2014 Manado - Indonesia

Supported by
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Faculty of Engineering
Sam Ratulangi University

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PROCEEDING



**The International Conference on Environmentally Friendly Civil
Engineering Construction and Materials**

Creating and Adapting Sustainable Technologies

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1. Structure, geopolymer and other construction materials, 2. Water resources and environmental management, 3. Transportation and urban infrastructure, 4. Geotechnical engineering

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PREFACE

During the recent decades, environmental quality has become a main issue in most aspects of life including in construction industries. Significant progress has been made to protect the quality of environment through implementation of methods and the use of construction materials which pro the quality of environment. Construction industries, however, also significantly contribute to the environmental degradation. Carbon dioxide emission from the manufacture process of portland cement is one of main contributors to the global warming. Therefore, it is important to apply a comprehensive and sustainable approach to reduce the impact of construction industries on environmental quality. Application of methods and use of materials for civil engineering infrastructure which are environmentally friendly would be the wise solution to minimize the environmental impacts due to construction activities.

The conference has been organized to provide an opportunity to link professional and researchers to learn, share and exchange the latest method, approach and developed theories which may reduce the impact of civil engineering construction activities on environmental quality, with following objectives:

1. To provide a forum for exchange of ideas, achievements and experiences and information addressing to environmental issues among academics, researchers, engineers, manufacturers and post graduate scholars in civil engineering field.
2. To discuss and evaluate the latest methods, approaches and innovative technologies to improve environmental quality which are related to civil engineering field.
3. To increase interaction between civil engineering practice, research and education to prevent environmental degradation.

Participants of the conference included researchers, academic staffs, postgraduate students, industries and governments. The keynote speeches during the conference were presented by:

Prof. Joseph Davidovits,

President of Geopolymer Institute in French.

Prof. Vijaya Rangan,

Emeritus Professor from Curtin University, Australia.

Prof. Jun Shimada,

President of Center for Marine Environment Studies, Kumamoto University, Japan

Prof. Ashantha Goonetilleke,

Queensland University of Technology, Australia.

Prof. Djwantoro Hardjito,

Petra Christian University, Indonesia.

Prof. Ofyar Z. Tamin,
Bandung Institute of Technology, Indonesia

Prof. Tommy Ilyas,
University of Indonesia, Indonesia

Dr. Giovanni Luca Pesce,
Univeristy of Bath, United Kingdom.

The conference papers and oral presentations were divided into four major main topics as follow:

1. Structure, Geopolymer and Other Construction Materials.
2. Water Resources and Environmental Management.
3. Transportation and Urban Infrastructure.
4. Geotechnical Engineering.

Finally, the conference Organizing Committee wishes that the conference may provide beneficial scientific information to the participants and the conference proceeding readers.

Organizing Committee,

Dr. Isri Ronald Mangangka
(Chairman)

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