

# One Day Workshop: Recycled Aggregates Characteristics and Effective Use in Construction



**Professor R K Dhir OBE of United Kingdom and Dr C Q Lye of Singapore**

Whilst the ideal of adopting a zero-waste approach, on grounds of sustainable construction, is well understood, to achieve it in practice can be challenging. For example, even with a great deal of research undertaken worldwide, standards/codes becoming more receptive, only a tiny proportion of the current 50 billion tonnes of aggregate used globally are recycled, why? Could it be that research has remained fragmented and could not be applied in a coherent manner?

This workshop, first of the series, is designed to provide an authoritative dossier on the use of recycled aggregates in various construction applications. It is based on the vast amount of information, collated from over 1400 studies published by staggering number of 2213 researchers working at 965 institutions globally in 67 countries. The sourced data has been analysed and evaluated, and modelled systematically to develop a knowledge base that is well suited for dissemination and is presented in 636 print pages in the form of book.

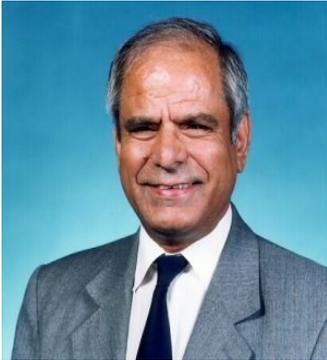
The workshop, based on the book, aims to discuss the production, characteristics and use of recycled aggregates in mortar, concrete, geotechnics and road pavements. In addition, environmental impact arising from the use of the materials will be addressed. References will be made to the related standards and codes, as well as case studies undertaken using recycled aggregates.

The workshop is structured in an incisive and easy to digest manner and is particularly suited for aggregate suppliers, ready-mixed concrete producers, design engineers, professional engineers, resident engineers, specifiers, contractors, as well as academics and researchers.

- Introduction
- Source of Materials
- Production of Recycled Aggregates
- Characteristics
- Use in Mortar and Concrete
  - Fresh Properties
  - Strength
  - Deformation (Elastic, creep and shrinkage)
  - Durability

- Use in Geotechnical Applications
- Use in Road Pavement Applications
- Environmental Impact
- Case Studies
- Standards and Specifications

## Speakers



**Professor Ravindra K Dhir OBE**, an Emeritus Professor of the University of Dundee, UK, also holds the position of adjunct professor at Trinity College Dublin Ireland and honorary professor at the University of Birmingham UK. As a founding Director of Concrete Technology Unit, at Dundee (1988-2008), his hallmark was the development of an internationally acknowledged Centre of Excellence with extensive research facilities, where he worked closely with industry in disseminating research into practice. He won many recognitions, awards and honours including the Order of the British Empire (OBE), and Honorary Fellowships of the Institute of Concrete Technology UK and Indian Concrete Institute. He was Chairman of Concrete Society, Scotland (1986-87) and President of Concrete Society, UK (2009-2010) and he serves on the Editorial Board of the Magazine of Concrete Research.

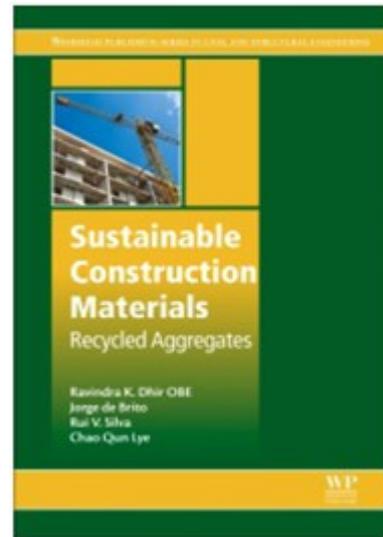


**Dr Chao Qun Lye** is Senior Technical Manager with G&W Group, Singapore, where he is responsible for R&D and Quality Control of concrete products. He obtained his degree of Doctor of Philosophy from the University of Birmingham UK, for his research into the use of recycled and secondary aggregates in concrete and how this may affect the load-dependent and load-independent deformation properties of concrete, such as elastic modulus, creep and shrinkage. He holds a strong interest in sustainability and innovation, applied to the use of cement additions such as fly ash, ground granulated blast-furnace slag and limestone as well as the use of recycled and secondary materials in concrete, geotechnics and road pavement applications.

**Please register by 23 July 2019 to receive this book worth \$275, during the workshop on 30 Aug 2019**

Consisting of 15 Chapters, 636 pages, 141 Figures and 87 Tables, the book, used as Workshop notes, provides an extensive coverage on the use recycled aggregates in various construction applications.

The book is one of the series of five written on the subject of sustainable construction materials using a newly developed methodology, *analytical systemisation*. It evaluates the globally published data since 1977 by a staggering number of 2213 researchers working at 965 institutions on the subject of recycled aggregate use in construction.



Published: January 2019

Hardcover ISBN: 9780081009857

**List Price: \$ 275 / € 195 / £ 165**

**Note:**

*Registration after 23 July 2019 may not receive the book on 30 Aug 2019 for the workshop. Participants will need to collect the book from IES Academy on another day after the workshop.*

## Registration Form

### One Day Workshop:

### Recycled Aggregates Characteristics and Effective Use in Construction

Date: 30 August 2019, Friday

Time: 9.00 am to 5.30pm

Venue: IES Academy@Jurong East

80 Jurong East Street 21 #04-10, Devan Nair Institute For Employment and Employability S(609607)

CPD Programme 7 PDU's – To Be Confirmed

Fees (inclusive of GST): IES Members: S\$499.69 Non-Members: S\$553.19

Please register online / email completed form **by 8 August 2019, 3pm** to Karen Phua

IES Academy@Jurong East, 80 Jurong East Street 21 #04-10

Devan Nair Institute For Employment and Employability Singapore 609607

Tel: 6463 9211 / 6461 1239 (DID) Email: karen@iesnet.org.sg

### Participant Details

Name : \_\_\_\_\_ NRIC \_\_\_\_\_

Company: \_\_\_\_\_ Designation: \_\_\_\_\_

Address 1: \_\_\_\_\_  
(For mailing of invoice and receipt)

Address 2: \_\_\_\_\_  
(For mailing of Certificate)

Postal Code : \_\_\_\_\_ Sex: \_\_\_\_\_ Male / Female \_\_\_\_\_

Tel : \_\_\_\_\_ Fax: \_\_\_\_\_

Email : \_\_\_\_\_

Please indicate:  IES members IES M'ship No.: \_\_\_\_\_ P.E. No.: \_\_\_\_\_ (if applicable)  
 Non-members  Sponsored by company

### Contact Person Details (if different from participant)

Name : \_\_\_\_\_ Designation: \_\_\_\_\_

Tel : \_\_\_\_\_ Fax: \_\_\_\_\_

Email : \_\_\_\_\_

### Payment Details

Bank / Cheque No.: \_\_\_\_\_ Amount(\$): \_\_\_\_\_

**Cheque should be made payable to: Engineers Singapore Pte Ltd**

### Acceptance Terms and Conditions for Registrations of IES Academy's Events

I agree to abide by the Terms and Conditions for Registration of IES Academy's Events.

Name : \_\_\_\_\_ Signature: \_\_\_\_\_

## **TERMS & CONDITIONS COURSE REGISTRATION**

### **Registration**

Any registration, whether on-line or fax will be on a *first-come-first-served basis* and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd unless otherwise invoice to company. All registrations must be submitted with duly completed registration form.

### **Closing Date & Payment**

The closing date of the event will be *21 calendar days prior* to event commencement date or earlier. Cheques should be crossed 'A/C payee only' and made payable to '**Engineers Singapore Pte Ltd**', with the *Title of The Event indicated clearly written on the back of the cheques*, and submitted with the duly completed registration forms to:

**Attn: Karen Phua**

**IES Academy@Jurong East**

Devan Nair Institute for Employment and Employability, 80 Jurong East Street 21, #04-10 Singapore 609607

### **Confirmation of Registration**

Confirmation of registration will be given at least 14 calendar days before the commencement date via email. *If you do not receive the said confirmation email, you are required to contact IESA at 6463 9211 during office hours.*

IESA reserves the right to allow only confirmed registrants to attend the Event.

### **Withdrawals/Refunds of Fees**

Written notice *at least 14 calendar days in advance* before the commencement of the event full course fee shall be refunded subjected to 4.5% transaction charge.

No show of participant would not be accepted as a valid reason for withdrawal/refund.

One time replacement is allowed only if written notice is received by us at least 1 week before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

### **Cancellation/Postponement**

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by IESA.

### **Personal Data Protection Act**

I consent to the processing by Institution of Engineers, Singapore of personal data, including sensitive personal data as defined in the Data Protection Act 2014, about me for the proper purposes of Institution of Engineers, Singapore (IES). I undertake to observe the provisions of the Data Protection Act 2014 in relation to any personal data I may myself hold and process as a Members of Institution of Engineers, Singapore, and I agree to indemnify Institution of Engineers, Singapore from liability for any claims or damages that may arise from the processing of this data. For more information kindly refer to [here](#).

### **Enquiries**

For further enquiries, please contact IESA general office at 64639211 or email Karen at [karen@iesnet.org.sg](mailto:karen@iesnet.org.sg).