ICCMC News, Vol. 4, Nov. 2002

Interview with Professor Joost Walraven *fib* President (2000-2002)

ICCMC News was given an opportunity to interview Prof Walraven in between his busy schedule on Sunday 13 October during the First *fib* Congress, in Osaka. Following is an extract of the interview. Full transcript can be read at www.iccmc.org

ICCMC News: What is the relationship between *fib* code and Euro code?

Prof Walraven: Euro code is a code which is meant to be operational that means people apply it legally and they have to obey the rules if they want to build a structure in Europe. A model code (*fib* code) is something different. A model code is a code which is future oriented and is made by scientific people and practitioners. They take into account all types of new developments like design code, durability and repair of structures, and even monitoring and dismantlement and the kinds of things which are now not in the code. So it is meant as an example, an advanced state-of-the-art which can be used to derive as a code.

ICCMC News: Will the model code take into account maintenance which is not currently covered?

Prof Walraven: Yes, but also for instance new materials. Up to now we have concretes and we have extended the code to cover higher strength but now we have all types of new materials. We have self-compacting concrete, self-compacting fiber concrete, high-strength self-compacting fiber concrete, very low strength concrete, concrete which is self-curing, and so on, what we call nowadays, *'defined performance concretes'*. And if you use the codes now, you cannot use those materials because they are not officially allowed. So we have to make the codes where it is possible that such types of innovated materials can be used very quickly.

ICCMC News: Am I correct to say that Euro code is based on the former FIP-CEB code?

Prof Walraven: Yes. The model code of 90s has been very essential in preparing the new Euro code.

ICCMC News: ACMC is a completely new code, not based on any existing codes. Besides ACMC provides only basics without specifying any format or value so that each Asian country can easily accept it and develop her own national code based on ACMC. In the case of Euro code, do you know how it plans to make the European countries, some already have their own formula, to accept it?

Prof Walraven: We have produced now the new English version of the Euro code and they will now be translated into two other languages (French and German). And in one year, they will have to vote whether they accept it or not. We hope that it is yes, I think it will be yes. Then there is an implementation period of 5 years. During these 5 years, people may use their national codes which exist and the Euro code parallel or they may choose one of the two. And after 5 years, there is a decision and then the national code will be withdrawn and only the Euro code. So the Euro code will only be obliged 6 years from now.

ICCMC News: When you say they have to vote, who are they?

Prof Walraven: The countries. The national delegations of the countries. They may say yes or no. There is a certain criteria, a list of combinations that if a large number of small countries or a small number of big countries is engaged, 2 big countries and 1 small, and so on. And if you exceed the number that is voted against and it is not admitted, what will happen then is that the EC people are going to the countries and ask what is the reason that they vote against and then try to convince. Then they will see what is the difficulty and they will really be pushing so that it will be accepted. I think there is no way that they can't.

ICCMC News: If the number of votes against is more than that of votes for, does it mean that the code will not be implemented at all or for that particular country only?

Prof Walraven If one country voted against, it is nevertheless accepted, also for that country. But there is some flexibility in the code because if you negotiate with that country what you have done. So we have one code which every country has its national application document and nationally defined parameters. They may limitedly choose their own figures. So they can allow a larger deflection or a higher stress or another load that meet national exceptions. So the code will be basically the same but within a country you might have for instance a small variation and we think otherwise that if this is not acceptable we will never get it through. And we hope that if they use it and they have national exceptions and it is acceptable to them, then the next step may be everything will be harmonized.

ICCMC News: The revision of *fib* code is expected to be completed in 2006?

Prof Walraven: That is the model code. We will start the work directly after this conference. We are now selecting teams of experts as we have to make a new content. We think about project teams for various chapters. We are thinking about how to and whom to ask to contribute. And then the work will start beginning of next year and it will start with a number of groups preparing the code documents. And after one year, the code documents are given to the commissions and the commissions have to review it and complete it. And then it's coming back and then we will try to make one document which is consistent. And then we have the latter four years, we hope to have it ready by the year 2006, *fib* Congress in Naples.

ICCMC News: Euro code is listed under the drafted ISO code which is an umbrella code similar to ACMC, how do you plan to introduce *fib* code into the ISO code?

Prof Walraven: *fib* code is independent, has a lot of freedom, it is also not obliged. People sometimes use *fib* code if there is no answer in another code. But it is chiefly meant as a future code which is free for use by everybody if you agree on. But it is not an operational code.

There is no strong relation between *fib* code and ISO code, because the intention of *fib* is future oriented code. Now we for instance changed the table of contents because we think it is more logic to go from conceptual design to design, detailing and then we have execution and maintenance and so on. And so we describe the whole life cycle in the code. It is a new type of idea which is not in the existing code. We hope with the code like this people will adopt it. So the model code is meant for code makers to orient, to give ideas for the code.

ICCMC News: You said that the new *fib* code would also cover construction and maintenance. I understand that Euro code will only concentrate on design, do you know if it will cover maintenance?

Prof Walraven: No, it won't. Euro code has no maintenance chapter. In *fib* code, maintenance is a big chapter, we call it conservation and execution is a big chapter because it determines the qualities. You will see that those chapters are growing in importance because 50 years ago we had no big problems with repairs of structures and maintenance but now repairing structures is creating a big market in engineering work so it has to be reflected in the code too. You see those chapters are growing in size and importance.

ICCMC News: How do you envision the relationship between ICCMC and *fib*?

Prof Walraven: I think we should not be in competition. I am just a technician not a politician so I like to open exchange of ideas. But some people say well we have to push the Euro code everywhere in the world because that means if China adopts our Euro code, our firms can build structures there too. This is a very interesting question because I feel that sometime there is a competition, people want to be better than the others.

At the end of the interview, Prof Walraven accepted an invitation from ICCMC News to become an honorary member of ICCMC.

ICCMC and ISO/TC71

ISO/TC71 (Concrete, Reinforced Concrete and Pre-stressed Concrete) is responsible for standardization of the technology of concrete, of the design and construction of concrete, reinforced concrete and pre-stressed concrete structures. There is no ISO code on structural design, material and construction, and maintenance like ACMC although some codes on structural design and materials and construction are in a preparatory stage in TC71. Actively participating Asian countries in TC71 are Japan and Korea. The two countries have intensively put forward comments for better coordination between ISO drafted codes and ACMC. The drafted code "Performance and assessment requirements for acceptance of national standards on structural concrete" is very similar in its nature to ACMC 2001 except for the maintenance part. The present draft reflects significant comments from Japan and as a result the main contents of the draft do not conflict with those in ACMC 2001.

ISO/TC 71 does not prepare any maintenance code at present. In this sense ACMC is ahead of ISO. It might be an option for the Asian members to initiate drafting a maintenance code in ISO/TC 71 with close collaboration with ICCMC. Should this be the case an umbrella-like code should be prepared first. As a well-known fact, the Asian presence in the code drafting of ISO is significantly less compared with that of the western world, especially Europe. An international body in Asia like ICCMC is probably the most effective way to strengthen our presence. The primary reason for the greater presence of the western world is not only the financial aids from each country but also the fact that they already have an international model code, i.e. the European code (CEN) and the American code. Moreover CEN is code easily accepted as the basis of the ISO code because of the Vienna Treaty. It is obvious that the existence of a model code like ACMC does make a significant difference in the ISO code drafting.

(Tamon Ueda, Hokkaido University, Japan)

Level 3 Document for Maintenance

The Japanese working group is now writing a level 3 document for maintenance of concrete structures against chloride induced deterioration and deformation. As everybody recognizes, maintaining a structure in good conditions should be of importance to meet the required performances. This document describes the general procedure to maintain concrete structures such as an overall strategy, the method of inspection, basic knowledge on deterioration mechanism and prediction, evaluation, and remedial actions. It is based on the result of estimation of future deterioration progress to chloride migration and rebar corrosion. Important and useful information is attached as appendices in the document: recent inspection techniques including non-destructive testing, a performance-based strategy for maintenance, prediction of deterioration progress based on visually inspected results, remaining load-carrying capacity of deteriorated structures, and recent repair/strengthening techniques. The full text of document will be completed by the end of October 2002 and circulated at the next ICCMC meeting in Seoul.

(Hiroshi Yokota, Port and Airport Research Institute, Japan)

Inspection of chloride induced deterioration of a concrete structure.

Maintenance Code for Vietnam

Vietnam Institute for Building Science and Technology (IBST) in collaboration with ICCMC is hard at working trying to finish the writing of the Maintenance Code of VN so that the Code can be issued by the Ministry of Construction by the middle of 2003.

(Nguyen Tien Dich, Institute for Building Science and Technology, Vietnam)

Changes in ICCMC

An election of the new Executive Council members was held in April. As a result, the following members assumed their post on 1 July 2002 for a period of 2 years.

Prof Byun, Prof Yoshimura and Assoc. Prof Tan

New Chairman and Vice-chairmen

Chairman:	Prof Keun Joo Byun Yonsei University
Vice-Chairmen:	Prof Manabu Yoshimura Tokyo Metropolitan University
	Assoc. Prof Tan Kiang-Hwee National University of Singapore

Executive Council members

A/P Tan Kiang-Hwee, National University of Singapore
WG1 Coordinator

Dr Jang-Jay H. Kim, Sejong University
WG2 Coordinator

Dr Koji Takewaka, Kagoshima University
WG3 Coordinator

Prof Yew-Chaye Loo, Griffith University
WG4 Coordinator

Prof Nguyen Tien Dich, Institute for Building Science & Tech.
Prof Ekasit Limsuwan, Chulalongkorn University
Prof Hiroshi Mutsuyoshi, Saitama University
Prof Jongsung Sim, Hanyang University
Dr Tamon Ueda, Hokkaido University
Prof Taketo Uomoto, University of Tokyo

Immediate Past Chairman and Vice-chairmen

During the tenure of Prof Taketo Uomoto, Prof Yew-Chaye Loo and Dr Tamon Ueda as Chairman and Vice-Chairmen, **ACMC 2001** was released. Prof Uomoto initiated an introduction of fee-paying membership and was successful in getting several Japanese companies to join the committee as corporate members. Prof Loo led his editorial group in editing ACMC 2001 and a level 3 document while Dr Ueda together with WG coordinators and some members put together their efforts for the release these important publications.

The three professors remain a working force in ICCMC as its Executive Council members.

Individual and Representative Members:

Fifty-two individuals from 14 countries joined the committee as individual and representative members. This number includes 2 honorary members: Prof Hajime Okamura of Kochi University of Technology and Prof Joost Walraven of Delft University of Technology.

Corporate members

The following companies joined the committee as corporate members:

- Chiyoda Engineering Consultants Co., Ltd
- Daehan Consultants Co., Ltd, Korea
- Daelim Industrial Co., Ltd, Korea
- Daewoo Engineering and Construction Co., Ltd, Korea
- Denki Kagaku Kogyo Co., Ltd, Japan
- Dongil Engineering Consultants Co., Ltd, Korea
- Hyundai Development Company, Korea
- Hyundai Engineering & Construction Co., Ltd, Korea
- Kajima Technical Research Institute, Japan
- Korea Railroad Technical Corporation, Korea
- Obayashi Corporation, Japan
- Nippon Koei Co., Ltd
- Nishimatsu Construction Co., Ltd, Japan
- NKK, Japan
- SamBo Engineering Co., Ltd, Korea
- Samsung Corporation, Korea
- Shimizu Corporation, Japan
- ShinSung Engineering Consultants Co., Ltd, Korea
- Taiheiyo Cement Corporation, Japan
- Takenaka Civil Engineering & Construction Co., Ltd
- Tobishima Corporation, Japan

Women members

Among the 52 members, 2 are women. This issue of ICCMC News would like to introduce one of them who recently joined the Committee.

Suvimol Sujjavanich is an associate professor in the Department of Civil Engineering, Kasetsart University, Thailand. She obtained her Ph.D. from Oregon State University, USA. Her main interest is engineering material and strengthening/ rehabilitating structures. Her present research involves accelerating technique and durability of fly ash concrete, properties of metakaolin and latex-modified concrete. Dr Suvimol is a member of WG3 Maintenance.

ACMC 2001 Introduced at Conferences

June 2002

Dr Ueda gave an invited lecture "Asian Concrete Model Code – Its Role to the Region" at 17th Australasian Conference on the Mechanics of Structures and Materials (ACMSM 17) held at Griffith University, Gold Coast, Australia. At the same conference, **Dr Kuramoto** presented a level 3 document "An Overview of Performance-Based Seismic Code of Buildings in Japan".

October 2002

Dr Ueda gave an invited lecture "Asian Concrete Model Code – Its Role to the Region and Relation to ISO" at the Structural Engineers World Congress 2002, held in Yokohama, Japan.

Dr Ueda presented a paper "Construction Industry in Asia and Model Code for Maintenance" at the First *fib* Congress 2002, Osaka, Japan

Korea's Unified Code

As an effort for the unification of design codes and standard specifications of concrete structures for the civil and structural engineering fields in Korea, the Korea Concrete Institute had been assigned by The Ministry of Construction and Transportation of Rep. of Korea to make a unified concrete code and a concrete specification for use as Korean national code in both fields. The unified code and the specification have been published as a revised version of the previous codes and the standard specifications in 2002 and is scheduled to be revised further based on ISO as well as ACMC in near future.

(Ha-Won Song, Yonsei University, Korea)

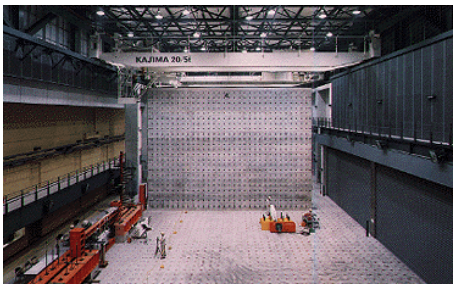
Our Corporate Members

The Construction Association of Korea said **Hyundai Engineering & Construction Co., Ltd**. with the value of 3,567 billion won earned the first place in the construction ability rating, which evaluated the construction abilities of a total of 10,300 construction companies. The second and third places were taken by **Daewoo Engineering & Construction Co. Ltd**. (3,479 billion won) and **Samsung Corporation** (3,173 billion won), respectively.

The rating is conducted and announced annually, and the rating sections are divided into civil engineering and construction, civil engineering, construction, industrial facility, and landscape architecture. The rating results are used as the basic information to select construction companies and as the criteria to qualify bidders. The rating is performed in consideration of the 60 percent of the last 3 years' average achievements, managerial performance, technical level, and credibility.

(Excerpt from The Seoul Economy Daily, August 2002)

Kajima Technical Research Institute, the core of Kajima Corporation's research and development establishment, studies and develops a wide range of advanced technologies to create the best possible environment for people.



The above large-size structural testing laboratory is used to examine the strength and quake-resisting behavior to be applied in civil engineering and various other construction works.

Using its reaction wall and reaction floor, large-scale loading tests can be conducted. Comprehensive facilities, including a combined load testing system for large panel elements and auxiliary equipment (e.g. large crane, specimen preparation yard), are provided.

This facility provides the basic information, to be applied in civil engineering and other construction works, such as nuclear power plants, large-span bridges, marine structures, high rise buildings, etc; and to clarify quake-resisting behavior, obtainable only through experimentation.

For more information, visit http://www.kajima.co.jp/tech/katri/index.html

Exchange Visit to China Academy of Building Research

Professor K.-J. Byun, Chairman, ICCMC, led a 4-member delegation to China from 6 to 9 October 2002. The other members of the delegation were vice-chairmen, Professor M. Yoshimura and A/P K. H. Tan, and former vice-chairman, A/P T. Ueda. The purpose of the trip was to establish connect with the authority in China that is responsible for the development of codes and standards for the construction industry.

The delegation visited the China Academy of Building Research (CABR), where they met Professors Z. Yuan and J. Wang, both vice-presidents of CABR, Professors J. Zhao and X. Tao, and other staff members. The CABR has a history of 50 years, and has three main functions: (a) conduct of major research programs; (b) establishment of codes and standard specifications related to structural engineering; and (c) assurance of construction quality and durability. Under the China Standards Law, codes and standards are divided into four types: national, specialty, local and enterprise standards. The first three need to be officially approved by the Government. The CABR plays an important role in establishing Technical Laws that are regularized by the Government.

The ICCMC delegation presented the objectives and status of the Asian Concrete Model Code (ACMC), and explained the rationale for the establishment of such a document. CABR is supportive of the initiative and has nominated Professor X. Tao as its representative to the ICCMC. The delegation also invited individuals to become members of ICCMC, and looked forward to seeing representatives from China at the coming November meeting in Seoul. It is grateful to the hospitality and support given by CABR during the visit.

(Tan Kiang-Hwee, National University of Singapore)

Joining ICCMC

ICCMC membership is open to anyone interested in concretes. Visit our website to apply on-line or write to Mrs Werawan (admin@iccmc.org) for more information.

ICCMC News is published twice a year and distributed free of charge. An electronic form is available at www.iccmc.org.