First Global Leadership Forum for Construction Engineering and Management Programs

March 20-22, 2011
Dick and Sandy Alumni Center, Purdue University,
West Lafayette, Indiana, USA- 47907.

Sponsored By:
A Message from the Forum Chair

Dr. Makarand (Mark) Hastak, P.E., CCE
Professor and Head,
Division of Construction Engineering and Management,
Purdue University, West Lafayette, IN, USA.

This event was organized and sponsored by the Division of Construction Engineering and Management, College of Engineering, Purdue University with generous contribution and support from the Office of International Programs (IP) and the Global Engineering Program (GEP) at Purdue University. Their sponsorship of this event is much appreciated. Before we introduce you to the event report of the First Global Leadership Forum for Construction Engineering and Management Programs (GLF-CEM), I would like to thank all 28 delegates who made this event possible and congratulate them for the success of this event. I would also like to thank my co-chairs Dr. Simaan Abourizk and Dr. Geoffrey Shen, for providing their invaluable support in making this event successful. Thank you for giving me the honor to continue as the Chair for the GLF-CEM. I am looking forward to working with you in bringing the forum to the next level.

I am glad to announce that all the brainstorming sessions that occurred at the first meeting have successfully laid the foundation for the future of GLF-CEM. We have accomplished the previously stated objectives of establishing a body of academic leadership in the area of construction engineering and management to discuss and share issues of common concern in research, teaching, academic administration, and opportunities for collaboration.

We have documented the events and their outcomes in this report for your reference and use in the future events and discussions.

Sincerely,
Makarand (Mark) Hastak
Chair, GLF-CEM
## List of Delegates

<table>
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<tr>
<th>Name</th>
<th>Information</th>
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<tr>
<td>1 Dr. Simaan Abourizk</td>
<td>Professor of Civil Engineering and NSERC IRC in Construction Engineering, Canada Research Chair in Operation Simulation, Department of Civil and Environmental Engineering, University of Alberta, Edmonton, Alberta, Canada.</td>
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<td>2 Dr. Irtishad Ahmad</td>
<td>Professor and Chair, Dept. of Construction Management, Civil and Environmental Engg., Florida International University, Miami, FL, USA.</td>
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<td>3 Dr. Raid Al-Aomar</td>
<td>Associate Professor of Industrial Engineering, Director of MEM Program: Master of Engineering Management, College of Engineering &amp; Computer Science, Abu Dhabi University, UAE.</td>
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<td>4 Dr. Stuart Anderson</td>
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<td>5 Dr. Samuel Ariaratnam</td>
<td>Professor, Del E. Webb School of Construction, Arizona State University, Tempe, AZ, USA.</td>
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<td>6 Dr. David Ashley</td>
<td>Professor, Department of Civil and Environmental Engineering, University of Nevada, Las Vegas, USA.</td>
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<td>7 Dr.-Ing. Hans-Joachim Bargstädt</td>
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<td>9 Dr. Dongping Fang</td>
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<td>10 Dr. Thomas Froese</td>
<td>Professor and Associate Head, Civil Engineering, University of British Columbia, Vancouver, Canada.</td>
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<td>11 Dr. Jesus M. de la Garza</td>
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<td>12 Prof. Dr.-Ing. Fritz Gehbauer</td>
<td>Chairman, Institute of Technology and Management in Construction, University of Karlsruhe, Karlsruhe, Germany.</td>
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<td>Director of Construction Management Graduate Program, Professor of Civil Engg., Dept. of Civil and Environmental Engg., Vanderbilt University, Nashville, TN, USA.</td>
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<td>Dr. Lucio Soibelman</td>
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First Global Leadership Forum for CEM Programs at Purdue University

Agenda

Sunday March 20, 2011
6:00pm to 9:00pm
Reception

Monday March 21st, 2011
7:00am to 8:00am
Breakfast & Registration
8:00am to 8:30am
Introduction/ Kick-off
8:35am to 10:15am
Delegate presentations
10:15am to 10:25am
Break
10:25am to 12:05pm
Delegate presentations
12:05pm to 1:00pm
Lunch Break
1:00pm to 1:30pm
Guest Speaker- Dr. Mike Brzezinski, Interim Vice Provost for Global Affairs and Dean of International Programs, Purdue University (This speech had to be cancelled by the speaker due to health reasons).
1:35pm to 2:35pm
Delegate presentations
3:00pm to 5:00pm
Purdue Campus and Bowen Engineering Lab Tour
6:00pm to 9:00pm
Banquet w/ Speaker Dr. David Ashley, Professor of Civil Engineering and Former President of University of Nevada, Las Vegas

Tuesday March 22nd, 2011
7:00am to 8:00am
Breakfast
8:00am to 8:30am
Workshop Introduction
8:30am to 10:00am
Group Discussion/Workshop
10:00am to 10:15am
Break
10:15am to 10:45am
Group A Presentation on Workshop
Topics:
- Collaboration for R&D
- Collaboration for teaching

10:45am to 11:15am
Group B Presentation on Workshop
Topics:
- Exchange of faculty
- Exchange of students

11:15am to 11:45am
Group C Presentation on Workshop
Topics:
- Exchange of administration ideas
- Capitalize on strengths of this group (forum)

11:45am to 12:15pm
Group D Presentation on Workshop
Topics:
- Determine criteria for membership
  - Head/chair/coordinator- leadership role in the program?
- Future Role of this group
  - Next steps/mission statement/vision
  - Organizational structure
  - Frequency and location of meetings

12:15pm to 1:15pm
Lunch Break
1:15pm to 1:45pm
Guest Speaker- Dr. Leah Jamieson, John A. Edwardson Dean of Engineering, Purdue University.
1:45pm to 2:15pm
Closing up/Concluding Remarks
2:15pm
Adjourn
Background and Objective

This forum was intended to bring together professors from leading universities around the world who play a leadership and/or administrator role in their respective programs. The objective of this forum is to establish a body of academic leadership in the area of construction engineering and management to discuss and share issues of common concern in research, teaching, academic administration, and opportunities for collaboration. The first meeting, targeted for a small focus group of select individuals, was designed to be a brainstorming session to establish the mission, membership criteria, and goals for such a body. Twenty eight (28) delegates joined hands together to put the foundation blocks for establishing the GLF-CEM during the first meeting. This report documents the proceedings of the first meeting held at Purdue University.

All the delegates were asked to provide a factsheet documenting the CEM programs at their respective universities before the forum. The guidelines for factsheet and all programs factsheets submitted by delegates can be found in the forum proceedings. They also made presentations highlighting these details as well as a few unique features about their programs during the first full day of the Forum. They also shared their concerns on different issues such as lack of sustainable funding, unavailability of resources, high ratios of students to faculty, making over a completely new program, etc. In addition, two Professor Emeritus, Dr. Daniel Halpin and Dr. Issam Minkarah, discussed their past experience in leading CEM programs at their respective universities. Presentations from other delegates can be found online on the forum website.

During the banquet on March 21st, 2011, Dr. David Ashley offered some insights on academic leadership. He started with three kinds of path- traditional, administrative and non-academic, that pilot an individual to a key administrative position. He also explained a list of leadership categories and suggested that leaders are unique to their situations. Then his discussion led to the leadership dimensions- decision-making style, scope of action and knowledge. He also shared his experience at University of California at Berkeley, Ohio State University, University of California at Merced and University of Nevada at Las Vegas. He ended his discussion with innate qualities a leader should posses and suggested to use one’s capabilities appropriately and within the right context.
Workshop

On the second day of the event, a workshop was scheduled to lay foundations for the future of the forum. All the delegates were assigned to one of the four groups. Each group had specific guidelines and points for group discussion to enlighten next steps for the forum. Each group had 90 minutes for group discussion followed by 30 minutes of presentation to other groups. This session was very intense and in-depth discussions showed the concerted efforts made by all the delegates. It was this workshop session that captured the thoughts and desires of all the delegates, and established certain benchmarks of expectations from such a Forum. The group presentations, prepared on the spot during the workshop, are attached in Appendix A.

Minutes of Group-A Discussion

Subject: Collaboration for research and teaching

The task given to group A was to discuss how member universities could utilize the global platform provided by the GLF-CEM to share ideas in research and teaching. Their main tasks were to establish need of, state possibilities for and ways for the:

- Collaboration for R&D
- Collaboration for teaching

Group Participants: Dr. Raid Al-Aomar, Dr. Samuel Ariaratnam, Dr. Jesus M. de la Garza, Dr. Thomas Froese, Dr. Makarand Hastak, and Dr. Chang- Taek Hyun.

Group Discussion

At the start of the discussion, all the delegates in this group decided to first highlight the best practices in research and teaching in their respective programs. They also shared information about the collaboration among individual researchers and departments. Then they recommended ways to improve collaboration in teaching and research that would be helpful to set up guidelines for GLF-CEM.
Collaboration in Research

According to Dr. Froese, around 25% of all research activities are collaborative and therefore most of the researchers in Canada and around the world are interested in such collaborative research activities. Research in Information Technology systems is one of the major focus areas at University of British Columbia (UBC). Lack of collaborative works results into research with smaller goals. Major issues behind it are related to funding and how it would flow between countries. He also mentioned that though Canada has a good network of faculty, there are not many formal collaborations that exist among them. Moreover, most of the funding is received by the industry representatives and not the people from academia. UBC also has a general program called Go Global that provides Enriched Educational Experience (E3). UBC also has a project with Korea Advanced Institute of Science and Technology (KAIST) in Korea.

Dr. Hyun then mentioned about research opportunities in their program at University of Seoul (UoS). Unlike UBC, UoS has collaborative research projects with very vast scope and much healthier budgets. For example, one of their projects i-PgMIS is a $10M project where many universities from Korea are working together. Researchers from China and Hong Kong have also shown their interests in this project and he was hopeful that GLF-CEM would provide an opportunity for exchange of ideas between them. This collaboration for research projects is also possible with foreign universities. Students from UoS visited Hong Kong for such projects and this has created more interest in collaboration.

As per Dr. Al-Aomar, Abu Dhabi University (ADU) is new to research and mainly MSc. Students are involved in research. They are part-time practitioners and their research focuses more on their companies. Research environment is being created through research network established by faculty members on personal basis. Most of the funding available is directed to certain research areas, mainly areas covering social aspects. Whereas funding is available for collaborative research projects in Gulf Cooperation Council (GCC) countries.

Just like UoS, it is possible to establish collaboration for research projects between Purdue University and any other foreign university. Typically, faculty members agree on a project based on their research interests with their counterparts from other university. Based on that, they write
a proposal to agencies that can fund the project. These funds, if received, are then used to hire a graduate or undergraduate student to work on the proposed project. There are also opportunities for undergraduate students from other universities to work for a funded research project at Purdue through different programs such as Summer Undergraduate Research Fellowship (SURF). Moreover, faculty also serves as the external committee member on the graduate student dissertation committees. Faculty establishes their contacts with other researchers through formal and informal networks. There are different general programs (e.g., Global Design Teams organized by the Global Engineering Program (GEP) as well as other programs offered through the Office of International Programs) that also provide opportunities for research collaboration with foreign universities.

**Recommendations for research collaboration**

After discussing current state of the art situation and opportunities for research at their respective universities, delegates made certain recommendations that GLF-CEM should consider to provide in the future. A certain need for a research network was felt during the discussion and GLF-CEM could fulfill this gap by acting as a venue for exchange of information and ideas. It can also help to find funding sources for various research initiatives. Different programs available at member universities (such as GEP at Purdue) can also be used to support such research collaborations. GLF-CEM can try to create synergy between current activities and proposed collaboration where activities need either high returns on value or little effort. Program leaders, members of GLF-CEM, can act as champions who bring ideas of their group to the forum, discuss them with other leaders and take back the outcomes to their group.

**Collaboration in teaching**

Dr. de la Garza shared information about a 3-credit graduate course that has created opportunities to interact with other universities. CII best practices course, developed at Virginia Tech (VT) in collaboration with the Construction Industry Institute (CII), discusses seven out of 14 best practices that are more popular. This course is taught by external people at VT and also available online for students from other universities. The popularity of this course is increasing and it is a very good example of establishing relationships with foreign universities though teaching.
UBC has very informal collaboration for teaching with other universities. Whereas UBS has student exchange program for universities in the region. Undergraduate students are co-advised by faculty at UoS, unlike graduate students who could be co-advised by faculty from different universities. There are also opportunities to serve as a visiting professor at UoS.

ADU has teaching collaboration with various industries through which their professionals teach courses at the university. They have also established curricula collaboration with Purdue-Calumet. One of the unique features at ADU is the 10-day intensive courses offered by the visiting professors. This course is finished in 10 days where all the students are required to dedicate their time during spring or winter break for these courses.

Purdue CEM program offers an undergraduate degree in Construction Engineering that is accredited by ABET (Accreditation Board for Engineering and Technology). The curriculum includes approximately 80% engineering courses and 20% management courses. Most of the engineering courses taken by the CEM undergraduate students are CEM or Civil courses and are taught by faculty with joint appointment between CEM and Civil Engineering. Many courses are designed at a level (i.e., 500 Level) that can also be taken by the graduate students. Purdue is also planning to add the CII course. Advisory Board of the division, that includes professionals from various leading construction companies and owner organizations, often suggest trend setting courses (such as Building Information Modeling (BIM)) and help to improve CEM course portfolio. Purdue also offers international courses through the study abroad program in several countries mostly during the summer semester.

**Recommendations for teaching collaboration**

All delegates agreed on recommendation of using the global platform provided by GLF-CEM to share faculty and their short intensive courses. Collaboration for teaching should be established to share curricula, course contents and to globalize special courses offered by industry experts. All delegates also recommended creating a network through GLF-CEM and central theme for the next meeting that can be course curriculum and list of courses offered at different universities.
Minutes of Group B Discussion

Subject: Exchange of faculty/students
The group B had the task of discussing how the platform of GLF-CEM can be used for the exchange of important resources. Their main tasks were to discuss the role that GLF-CEM could play for:

- Exchange of faculty
- Exchange of students

Group Participants: Dr. Irtishad Ahmad, Dr. Stuart Anderson, Dr.-Ing. Hans-Joachim Bargstädt, Dr. Khaled A El-Rayes, Dr. Dongping Fang, Dr. K. C. Iyer, and Dr. Charles Jahren.

Group Discussion
This group elected Dr. Jahren as the group leader at the start of the discussion. Then they agreed upon the idea of discussing each of the two topics one by one. Minutes of their discussion are as follows.

Exchange of Faculty
This group kicked off the discussion with a question asking what the purpose of the faculty exchange should be: teaching or research. Almost everyone agreed that the teaching component for exchange is easier than research as different universities already have opportunities for visiting professors to teach small crash courses. Though there is a challenge in this aspect as administrative processes need approval for the arriving exchange faculty. The ease in this approval process depends on the relationships between two institutions. A need was identified to establish a solid exchange agreement between the universities to clarify expectations and responsibilities.

Such crash courses could include seminars, short course modules and presentations. Or they can be offered as special distant learning courses where the faculty can start teaching the course in their original institute and travel to the host institution to interact with students during the exchange period. Group then discussed about the possible time and duration for such courses. Most of the delegates agreed that such courses can be taught during the breaks such as spring break, winter break or summer when faculty has lesser burden at their own universities. It was
suggested that the duration of such courses could be two weeks based on their experiences. This duration can be extended in the summer if needed. But only hindrance for faculty in this could be the progress of research activities and difficulty in supervising their students. Moreover, it was also discussed that the minimum lead time for such courses should be no less than six months as host institutions may require time to include that course in their curriculum. This time would also help them to publicize such courses and drawing more attention from students and others.

At the end, group discussed about different funding options to support faculty exchange. Most of the departments and universities may fund such courses if they are offered in summer. This would often cover not only salary but also the cost of lodging and other accommodation related expenses. It may or may not include airfare or offer part of travel expense. Also, it was suggested that longer lead time would allow the host to explore possible funding sources. Sometimes, industry partners would sponsor courses that are also beneficial for them.

**Exchange of Students**

The most important part in the student exchange is the coordination in credit and registrar system. It was felt that there is a need for better coordination so that student exchange programs can be run smoothly. Many universities like Tsinghua University in China offer short summer courses that are easier when it comes to credit acceptance and transfer. Universities in China offer such student exchange programs where host universities waive off tuition fees and put more emphasis on adding international experiences in their students’ learning process. There is Global Leaders Program that helps master students of construction management to get international experience in their learning process. University of Illinois at Urbana-Champaign (UIUC) has a travel abroad program for undergraduate students. There is another such global exchange program at UIUC through which international undergraduate students study three years in the home countries and come to UIUC for additional two years to finish their undergraduate degree and a master degree. There are some cultural exchange programs at different universities that send students in foreign countries for about two weeks.
**Recommendation for Exchange of Faculty and Students**

Below are the recommendations from group B for GLF-CEM on how it can assist member universities in exchange of faculty and students:

- The first step of establishing faculty exchange program is research alignment. Combining teaching and research responsibilities in the exchange programs would be more appealing for the partner universities and may lead to long term relationships between them.
- The GLF-CEM should facilitate a network for member institutions and their faculty to share their research interests and agenda. This can be done by more focused meetings (at least one week long) or encouraging the individual members to communicate.
- Forum members are encouraged to publicize promising exchange programs in their home universities to establish necessary administrative procedures.
- Forum members would share possible funding sources available in their institutions and countries.
- Forum members are encouraged to search for existing memorandum of understanding (MOU) between their universities or establish new ones to facilitate the exchange of undergrad students and non-research graduate students (Master students).
- The exchange of research oriented graduate (PhD) students would follow or be supported by faculty exchange. Any required MOU would be established to cover any involved lodging and accommodation expenses, credit transfer, etc. Additionally, involved faculty members need to check with their universities’ international offices.

**Minutes of Group C Discussion**

**Subject: How to Capitalize on the Strengths of the Global Leadership Forum**

Group C discussed two different issues during the workshop. These two issues were how to:

- Facilitate Exchange of administration ideas
- Capitalize on strengths of this group (forum)

**Group Participants:** Dr. Simaan Abourizk, Dr. Sanjiv Gokhale, Dr. Rong-Yau Huang, Dr. Issam Minkarah, Dr. Keith Molenaar, and Dr. William Rasdorf.
**Group Discussion**

The first task for this group was to define the subject matter to be discussed with respect to the two tasks mentioned above. The group assumed that the capitalization on strength would be with respect to administration. Thus these two tasks were viewed as a combined task.

Within the context of these notes the term “group” means the 6 individuals identified above. The team “forum faculty” means the entire group of faculty participating in the Leadership Forum at Purdue University.

**Administration**

The group interpreted “administration ideas” to mean the administration of the construction program itself. That is, how does one best administer a construction program (i.e., curriculum, students, and faculty)? How would the forum faculty achieve an effective exchange of ideas about the administrative aspects of their programs, divisions, or departments?

The group discussed the variety of programs that exist. These range from construction engineering programs (accredited by ABET) to construction management and construction science programs (accredited by American Council for Construction Education). The degrees include undergraduate and graduate and range from CE, CEM, MSCE, and MS to PhD. Construction administration may occur through a department head, through a head of the construction program, through a leader within or of the group itself, or it may be through group faculty governance.

At the highest organizational level it was suggested that the forum faculty could affiliate with an organization such as ASCE Construction Institute, CIB, or others to gain organizational legitimacy, to take advantage of the exposure so afforded, and to draw upon the resources available.
**Strengths of the Forum Faculty**

The number one idea put forth by the group was that the forum faculty could fulfill either an advocacy or an assessment role. This faculty could assist universities in setting standards and gaining or maintaining appropriate resources.

**Existential Advocacy**

It may be the case that construction programs at some universities might need an external advocate to justify their existence. The forum faculty could serve as such an advocate. Consider, for example, the case where two construction faculty members depart from a school. This group could assist that construction program in making the case with the department head and the dean that those two positions should be filled with new construction faculty and that the positions should be retained in construction. Another example would be one of growth. Many construction programs have only one or two faculty members and are looking to grow. This group could provide benchmarking and best practices from other construction programs throughout the world that would give the department chair or dean a broader view on the potential of construction programs.

**Peer Evaluation**

Dr. Gokhale identified industry review of construction programs as common. However, a review by peers is less common but could be highly desirable and valuable. Such a review would allow the program to obtain a critique by those in the academic community. This should be done periodically and at the request of the program. The forum faculty could play a role in this initiative.

**Program Assessment**

It is the case that periodically construction programs could use an external assessment. Such an assessment could be broad or it could be more focused on specific assessment needs defined by the host institution. That is, in addition to advocating for new faculty or for the existence of the program, the forum faculty might be invited to do a complete assessment, much like an ABET undergraduate program assessment. Alternatively, they might do a more focused assessment as directed by the host institution. Of course, this assessment would be at the graduate level so as
not to conflict with work already conducted by ABET. In some cases, this assessment might help in the ABET process, but care should be taken so it does not conflict.

**Research Assessment**
The assessment team could also identify research voids or research opportunities that would be appropriate for the construction faculty’s research program. Local conditions may identify opportunities. For example, North Carolina faces tornadoes, hurricanes, and flooding. Thus construction at NCSU could initiate a natural disaster construction research program or focus. Members of the forum faculty assessment team might assist in identifying such opportunities and advocating cooperation with other researchers working on similar programs.

**Assessment Protocol**
The forum faculty could develop a protocol for self study of the graduate programs. That is, what should be the measures for consideration of program assessment? The quality of the faculty, course content and scope, student standards, were identified as measures that might be included in the self-assessment, among others. As part of the protocol, the leadership group could provide benchmarking of metrics (e.g., student faculty ratios, ranges of research funding in programs, etc.)

**Information Exchange**
The idea of an information exchange mechanism emerged. The group felt that the first day of this forum provided an excellent opportunity to learn more from and about their colleagues and their construction programs. This exchange was felt to be very valuable. Such forums should be continued on a periodic basis and linked to a major societal meeting so as to facilitate travel and cost containment. These forums will also provide an opportunity for the exchange of ideas with our international colleagues.

**Graduate Student Committees**
The forum faculty could have its members serve as external PhD and MS committee members at other Universities. This is already being done in some institutions and this group could be used to formalize the process.
Benchmarking and Consistency

One need that many construction programs may have is to understand how they stand relative to other programs. Are their program initiatives, courses, etc., consistent with those of other programs? Are there important missing aspects to their program or are there opportunity being lost? By establishing and widely distributing an assessment protocol, construction programs would understand the broad scope of essential components of a program and would enable them to benchmark themselves. This would be especially useful when initiating a new program, but it could also be useful as a general assessment or benchmarking tool. The theme of the benchmarks should be used for advocacy and to demonstrate potential. The benchmarks should not be used to “weed out” low performing programs.

Administration Training

Provide training for new construction program administrators. These may be program coordinators, construction program heads, or civil engineering department heads. This idea is closely related to the advocacy idea suggested earlier. It suggests that semi-formal guidance be given, by experienced construction program leaders, to new leaders. This could take the form of a site visit, mentoring, or some other information exchange ideas.

Minutes of Group D Discussion

Subject: Future Role of this group

The task for this group was to define the future road map of the Global Leadership group and to discuss the following tasks.

- Determine criteria for membership
  - Head/chair/coordinator- leadership role in the program?

- Future Role of this group
  - Next steps/mission statement/vision
  - Organizational structure
  - Frequency and location of meetings
Group Participants: Dr. David Ashley, Dr. Fritz Gehbauer, Dr. Daniel Halpin, Dr. Ed Jaselskis, Dr. Mike Kagioglou, Dr. Geoffrey Shen, Dr. Lucio Soibelman,

Group Discussion
Where all other groups had discussed how GLF-CEM could provide a global platform for different purposes, this group focused on discussing about the need, objectives, scope and future developments needed to establish the GLF-CEM.

Need for GLF-CEM
Other model practices
Other majors such as mechanical engineering, electrical engineering, etc. have established leadership forums while Construction Engineering and Management lacks this type of a group. There are also regional gatherings and group models such as:

– ASCE has a Department Chairs meeting
  • Reason to talk to each other
    – Discuss program changes
    – Funding/resource issues
    – ABET changes

– European heads of construction program
  • Two day meeting -hosting institution with chairman that invites and convenes meeting
  • 4-5 presentations
  • No mission statement

– Lean Construction model
  • Governing body—created local chapters with industry connections in other countries
  • Forum in each country
  • A few selected major themes
Learning experience
There is a need to learn from each other and present what is going on around the world. There is also a need to bring in more people from around the world to expand the pool of ideas. Impact on global teaching or global research is also essential to be addressed in this group. An example could be to develop lectures from different parts of the world that could be offered using Skype or similar technology. An additional activity could include the promotion of facilities and funding to exchange students and faculty.

Develop Common Language
There is a need for common language for Construction Engineering and Management to define values within the major. There are abundant amount of acronyms (e.g. CI, CII, CIB, ABET, ACCE, etc.)\(^1\) that are unknown at the global level. Also the definition of organizational positions such as “Chair” is different within different countries. Besides, the values for academic achievements and industry experience are different within countries. For example, in some countries, 10 years of construction experience for a Director is more important than someone with lots of academic titles. Therefore this group should create a venue to discuss differences and develop a common language.

It should be clarified what is the value added by this forum and what will bring the group back together next year. This point should be addressed in the objectives section.

Objectives

Missions

- Educational Mission: How to create credible programs that promotes excellence within students and prepares them in practice and theory as global construction leaders. The objective could address both: a) industry needs, and b) academic needs.
- Organizational Mission: To prepare next generation of global construction leaders.

\(^1\) CI- Construction Industry  
CII- Construction Industry Institute  
CIB- International Council for Research and Innovation in Building and Construction  
ABET- Accreditation Board for Engineering and Technology  
ACCE- American Council for Construction Education
Aims of the Global Forum could be

- Sharing information about different programs around the world.
- Learn about trends and issues on a global level: This learning can happen through learning from differences as well as learning from novel approaches used by others.
- Share best practices with teaching and research on international project management such as development of international course(s).
- Facilitate the ability to share resources amongst programs (exchange students, courses, faculty), while the exchange of students may be in the form of multiple degrees.
- Develop standardized guidelines.

Scope

- It was discussed whether or not the scope of the global forum should include the entire built environment. However, this aspect would add a lot of complexity to the group.
- What are the trends?
- Provide a united voice to industrialists, research councils, industry associations, etc.
- Provide knowledge exchange, mobility of students and faculty
- Set research agenda—provide a bigger voice to international community
- May need industry component - however, one of the major challenges here is how to include industrial participants as their integration might add complexity and organizational issues.

Suggestions

The objective can be described under the term “Intellectual sponsorship” as suggested in the session. Also it is suggested that the name can be changed to “Global Alliance” instead of “Global Forum”. The scope of the organization should be defined in a fashion that it would not overlap with other existing groups (CRC research group, educational group, etc.).

Logistics

Organizational issues

The first question is whether this group should start from scratch or if it should go under other existing groups. It should be studied if there is a place where the group can naturally fit. The options are to be:
- Independent group: this independent group can still make the use of resources from existing groups
- Affiliation with existing groups: this could be done through affiliation with other organizations such as CIB, ASCE, CI, CII, etc. It could also include rotating affiliation with local organizations such as CRC Canada, etc.

The resolution was to follow a two-phase process:
- Phase 1: Initiate an independent group
- Phase 2: consider affiliation in the form of collaboration or merge

Members of the forum are leaders of their respective program. Therefore acceptance process needs to be developed; it means what type of program should be included within the organization and also whether to extend the forum to the industry as discussed within the objectives. For this expansion the forum should consider logistic difficulties of connection with multiple institutions and organizing them.

Organizational format should be developed as soon as possible through following format:
- Executive Committee: Considering heterogeneity within the groups including both international and diversity between focus areas.
- Working Groups
  - Collaboration for teaching and R&D
    - Develop teaching courses such as an international management course
  - Students/faculty exchange
  - Administrative exchange

Frequency of meetings
Annual meeting may be considered through meetings in conjunction with other major conferences (March/April/Summer 2012). In other cases, the location of meetings could be at universities since it would provide the opportunity to physically see the program and its facilities. Other countries should also be considered as the meeting host. One suggestion in this section was to consider other venues for meeting every 2-3 years so that the forum will consider
expansion to broader audience and include more than just heads of the construction programs. Another suggestion involved was to choose a focus for each forum (e.g. educational evaluation of programs (ABET, outcome oriented, etc.))

**Financial Issues**

Membership may be considered to cover the costs of meetings and other organizational costs ($100 to $500 for each participant program). A suggestion here was to base the membership on programs rather than individuals since most of the heads of the programs have access to funds.

**Future Steps**

**Form Executive Committee (Core)**

- 7 or 9 members: Country diversity and specialty diversity may be considered for selection of members as well as having leaders of the task groups within the executive committee
  - Following positions should be assigned: Chair, Vice chair, secretary, treasurer
  - Working group leads: as a next step to be considered later.
  - Dr. Hastak should be part of the core group

**Schedule meeting of the core group**

- Form executive committee (People who are interested should submit their request and resume to Dr. Hastak)
- Refine organizational goals and purpose
- Identify location for the next meeting and set the agenda
- Decide on membership/dues
- Other operational issues
Developments after the Forum

Based on the workshop discussions, a need to establish such an organization at global level was realized by all the delegates to solve various issues, to share ideas and resources, and to collaborate at teaching, research and administrative fronts. As an outcome of group D discussion during the workshop, it was decided that an executive committee would be formed to take care of future activities of the forum. Dr. Hastak has accepted to become the current chair of the forum and asked for show of interest from others who wanted to join the executive committee. Based on the responses from the delegates, an executive committee for the GLF-CEM has been formed and its members are as follows:

Executive Committee

1. Dr. Simaan Abourizk, University of Alberta, Edmonton, Alberta, Canada.
2. Dr. Irtishad Ahmad, Florida International University, Miami, FL, USA.
3. Dr. Hans-Joachim Bargstäd, Bauhaus-University Weimar, Weimar, Germany.
4. Dr. Dongping Fang, Tsinghua University, Beijing, China.
5. Dr. Bud Griffis, Polytechnic Institute of New York University, New York, USA.
6. Dr. Makarand (Mark) Hastak, Purdue University, West Lafayette, IN, USA.
7. Dr. Ed Jaselskis, Iowa State University, Ames, IA, USA.
8. Dr. Mike Kagioglou, University of Salford, Salford, UK.
9. Dr. Geoffrey Shen, The Hong Kong Polytechnic University, Hong Kong, China.
10. Dr. Lucio Soibelman, Carnegie Mellon University, Pittsburgh, PA, USA.

Establishing a steering group for GLF-CEM was the primary goal of the first meeting at Purdue. Executive committee has already been formed as an outcome of that. Other suggestions were received during workshop to set up working groups to support GLF-CEM. A “Global Advisory Committee” that includes all other delegates is proposed to fill this gap. These delegates are:

Global Advisory Committee

1. Dr. Raid Al-Aomar, Abu Dhabi University, UAE.
2. Dr. Stuart Anderson, Texas A&M University, College Station, Texas.
3. Dr. Samuel Ariaratnam, Arizona State University, Tempe, AZ, USA.
4. Dr. David Ashley, University of Nevada, Las Vegas, USA.
5. Dr. Khaled A El-Rayes, University of Illinois at Urbana-Champaign, Urbana, IL, USA.
6. Dr. Thomas Froese, University of British Columbia, Vancouver, Canada.
7. Dr. Jesus M. de la Garza, Virginia Tech, Blacksburg, VA, USA.
8. Prof. Dr.-Ing. Fritz Gehbauer, University of Karlsruhe, Karlsruhe, Germany.
9. Dr. Sanjiv Gokhale, Vanderbilt University, Nashville, TN, USA
10. Dr. Daniel Halpin, Purdue University, West Lafayette, IN, USA.
11. Dr. Rong-Yau Huang, National Central University, Taiwan.
12. Dr. Chang-Taek Hyun, University of Seoul, Korea.
13. Dr. K. C. Iyer, Indian Institute of Technology Delhi, Delhi, India.
14. Dr. Charles T Jahren, Iowa State University, Ames, IA, USA.
15. Dr. Issam Minkarah, University of Cincinnati, Cincinnati, OH, USA.
16. Dr. Keith Molenaar, University of Colorado, Boulder, Colorado, USA.
17. Dr. William J. Rasdorf, North Carolina State University, Raleigh, NC, USA.
18. Dr. Jorge Vanegas, Texas A&M University, College Station, Texas.

As per the current scenario, the executive committee will hold talks to finalize various essential details related to the GLF-CEM and will pass that on to other members. Important decisions are required on details such as membership criteria, frequency of meeting, organization structure and roles of different committees and members. Looking at the response of different universities and their representatives, the Global Leadership Forum for CEM Programs is determined to provide a global platform for all member institutions and their leaders for collaboration and consultation. Universities that had shown interest in the first Forum but could not attend were contacted again after the Forum with an invitation to participate as members of the group. Appendix B enlists the entire membership at the time of this report.
Acknowledgments

PhD students from Division of Construction Engineering and Management, Purdue University have contributed by documenting the proceeding of the event and providing their input for this paper. Two to three PhD students were assigned to each event including the workshop groups to document the proceedings. This report documents the First Global Leadership Forum for Construction Engineering and Management Programs. Their efforts during the forum at Purdue and after the event are very much appreciated. Their names are listed in Appendix C contributors to the minutes of the meeting. The assistance provided by different people from division of CEM, Office of International Program, Global Engineering Program, and Conference Department (all from Purdue University) is deeply appreciated for the success of this event.
Appendix A:
Workshop Group Presentations
Group A: Collaboration in Research and Teaching

Collaboration for Learning

- International Learning Experiences (Individuals/Groups)
- Specific Lectures
- Intensive courses
- Extended visits
- Focus of next meeting
- CII course
- Global Design Teams
- Exchange of Students
- Exchange of Faculty
- Exchange of Content of Course
- Exchange of Curricula
Collaboration for Research

- Network
- Research Topics
- Forms of Collaboration
- Research Resources

- Co-supervision
- External/subcontract/collaborative/joint
- Flow of research funds
Group B
Faculty and Student Exchange

CEM Global Leadership Forum

Faculty Exchange

• Most beneficial if aligned with research
• Teaching and student engagement can be a very welcome byproducts
• Consider range of short courses, noncredit, to full courses for a full semester
• Graduate level classes are probably easiest
• Challenges include funding, time durations, lead time and institutional arrangement.
• Can be done with little formality, especially for short visits.
Student Exchange

- Consider difference between undergraduate and graduate students
- Research focused student exchanges follows faculty model with low formality
- MOU would likely be required if there is an exchange of resources (such as host institution providing lodging for visiting student) and undergraduate exchange where credit transfer and tuition fee payment modes are important considerations
- No MOU req’d if no resource exchange needed
- Check with international office of home institution for possible resources and constraints

Overall Recommendations

- Strive for research alignment in order to provide motivation for future efforts.
- Teaching exchanges are likely to be welcome byproducts after research alignment is established
- Members of this forum could lead by example by starting at least one new international collaboration each.
  - Start with short visits first
  - Develop awareness of possible funding source from sending and host institutions
  - Consider developing MOUs to provide greater recognition
  - Encourage other colleagues to do the same
Group C

• Exchange administrative idea
• Capitalize on strengths of this group (forum)

Group C

• Common administrative challenges
• Graduate program administration
• External review function
Common Admin Challenges

- Many models for administration
  - Unique CEM programs
  - Programs within civil engineering
  - Co-existing with construction management
- Most programs have few faculty
- Poor communication of the value of CEM

Graduate Program Administration

- Variety of degree types and requirements
- Common PhD administrative structures
  - External committee members
  - Paper publication requirements to graduate
- MS coursework administrative issues
  - Professional practice aspects
  - Share best practices for industry collaboration
  - Recruiting and retaining graduate students
Invited External Peer Review

- Form group under ASCE Construction Institute
- Provide CEM program assessment and advocacy
  - Initiation or existence
  - Maintenance and growth
- Provide program benchmarking and consistency
- Develop protocol for external review
  - Assessment of resource needs
  - Program level rather than coursework level

Communicate the Value

- Capitalize on the new PE Construction Exam
- Capitalize on new ABET professional practice outcome criteria
- Utilize construction professionals on advisory boards
- Capitalize on fundraising opportunities from construction alumni
Group D: Future Role of this Group

Team members; Fritz Gehbauer, Geoffrey Shen (Lead), David Ashley, Mike Kagioglou, Lucio Soibelman (Scribe), Ed Jaselskis, Dan Halpin
**Need**

- **Definite Need!**
  - We can learn from each other—present what is going on in the world. Need to bring in more people from around the world.
  - Impact on Global teaching or global research
- **Need common language and cultural understanding**—lots of acronyms
  - Lots of acronyms (e.g., FTE, CI, CII, CIB, ABET, ACCE, etc.)
  - “Chair” mean different things in different countries
  - In some countries, 10 years of construction experience for a director is more important than someone with lots of academic titles

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**Need**

- **Encompass the entire built environment**
  - What are the trends?
  - Provide a united voice to industrialists, research councils, industry associations, etc.
  - Provide knowledge exchange-- mobility of students and faculty
  - Set research agenda—provide a bigger voice to international community
  - May need industry component
    - But, how to include industry participation....?
Need

• Other organizational models
  – ASCE has a Dept. Chairs meeting—what brings them back each year?
    • Reason to talk to each other
      – Discuss program changes
      – Funding/resource issues
      – ABET changes
  – European heads of construction program
    • Two day meeting/hosting institution with chairman that invites and convenes meeting
    • 4-5 presentations made
    • No mission statement
  – Lean Construction model
    • Governing body—created local chapters with industry connections with in other countries
    • Forum in each country
    • A few selected major themes

Educational Mission

• How do we prepare the student on theory and practice and prepare them to become global construction leaders?
Organizational Goal

- To prepare the next generation global construction leaders

Purpose

- Share information about our programs
- Learn about trends and issues on a global level
- Share best practices with teaching and research on international project management
- Facilitate the ability to share resources amongst programs (exchange students, courses, faculty)
Membership

• Members are leaders of their respective program
  – Acceptance process needs to be developed—i.e., what programs should be included?

Organization

• Is there a place where we have a natural fit?
  – Independent?
  – Affiliation?
    • With another organization (e.g. CIB, ASCE CI, CII)
    • Rotating affiliation with local organizations (CRC Canada)
  – Decision:
    • First phase keep it independent – Long term consider affiliation
Organization

- Executive committee
  - 7 or 9 members (ensure country diversity)
    - Chair, Vice chair, secretary, treasurer
    - Working group leads (later)
  - Meet more than once a year
- Working groups
  1. Collaboration for R&D and teaching
     1. Develop teaching course—develop international management course
  2. Faculty/student exchanges
  3. Administration exchange

Frequency and Location of Meetings

- Annual meeting in conjunction with a conference (March/April/Summer 2012)
- Location:
  - University host
  - Open to any country in the world
- Question: Should we try to reach a broader audience by using a different meeting venue (every 2-3 years) that includes more than just the heads of construction programs.
Financial Resources

- Provide a revenue stream to cover meeting and other organizational costs
  - Consider membership dues at the program level
    - Most leaders of programs have access to funds (not individually)

Next Steps

- Form Executive Committee (Core)
  - 7 or 9 members (country diversity)
    - Chair, Vice chair, secretary, treasurer
    - Working group leads (later)
    - Mark should be part of the core group

- Schedule meeting of the core group
  - Form executive committee
  - Refine organizational goals and purpose
  - Identify location for next meeting and set agenda
  - Decide on membership/dues.
  - Other operational issues
Appendix B:

Member Universities
<table>
<thead>
<tr>
<th>No.</th>
<th>Institute</th>
<th>Contact</th>
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<tbody>
<tr>
<td>1</td>
<td>Abu Dhabi University, UAE.</td>
<td>Dr. Raid Al-Aomar</td>
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<td>Dr. Clifford Schexnayder</td>
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<td>Dr. Samuel Ariaratnam</td>
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<td>3</td>
<td>Bauhaus-University Weimar, Weimar, Germany.</td>
<td>Dr.-Ing. Hans-Joachim Bargstädt</td>
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<td>Dr. Lucio Soibelman</td>
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<td>5</td>
<td>Columbia University, NY, USA.</td>
<td>Dr. Feniosky Pena-Mora</td>
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<td>6</td>
<td>Curtin University, Australia.</td>
<td>Dr. Peter Love</td>
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<td>7</td>
<td>Federal University of Rio Grande do Sul, Brazil.</td>
<td>Dr. Carlos Formoso</td>
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<td>Dr. Koshy Varghese</td>
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<td>Michigan State University, East Lancing, MI, USA.</td>
<td>Dr. Matt Syal</td>
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<td>Dr. Leonhard Bernold,</td>
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<td>37</td>
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<td>Dr. Jan Wium</td>
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</table>
|   | University of Texas, Austin, TX, USA. | Dr. Carlos Caldas  
   |   |                                   | Dr. James O'Connor  
   | 38 | University of Wisconsin, Madison, WI, USA. | Dr. Awad Hanna  
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Appendix C:

List of Contributors
List of contributors for this report:

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3. Dr. William J. Rasdorf (Group-C)
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