Synergy between GCSP and Aligned Programs

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Maximizing Impact through Synergy
Sharing a common vision, working together, tapping existing resources, etc
to prepare *the Global Engineers of the 21st Century*

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HONG KONG-BASED INTERNATIONAL
GRAND CHALLENGES SCHOLARS PROGRAM
WORKSHOP
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Framing the discussion to:

• Explore the synergies between aligned programs (e.g., Engineers Without Borders, EPICS, etc.) and the GCSP.
• Examine how the Grand Challenges can leverage and be leveraged by other frameworks (like the UN Sustainable Development Goals, etc.)

Maximize the impact of engineering innovation and education to deliver on a common vision for the world we share:

“Continuation of life on the planet, making our world more sustainable, secure, healthy, and joyful.”

POINTS for DISCUSSION- OUTLINE

• Other conceptions of critical challenges for the 21st century (e.g., UN SDGs). Complementary Vs. Contradictory.
• The 5 competencies align with the work/goals/missions of many other groups.
• GCSP and aligned organizations Supporting Each Other Vs Coexisting. Resources.
• A multicultural global perspective is crucial. Local context matters.
NAE GRAND CHALLENGES FOR ENGINEERING

14 Grand Challenges for a sustainable, economically robust, and political stable future

GLOBAL DIMENSION:
- The Grand Challenges are GLOBAL (one common planet)
- Preparing students to work on global problems - anywhere in the world!
- Global Awareness is not enough - deeper understanding of the local context is needed (cultural, political, social, ethical, economic)

GLOBAL ENGINEER of the 21st century

Five Components/Competencies:
1. Talent/Research/Creative
2. Multidisciplinary
3. Business/Entrepreneurship
4. Multicultural
5. Service Learning/Social Consciousness
Synergy with Similar Frameworks and Aligned Programs

**Synergy**: how to work together, be complementary, leverage and share resources, share knowledge and best practices, etc.

1) Frameworks consistent with the core mission of the GCSP

- **UN SDGs**, World Bank, USAID, UNESCO, OAS, etc.
- **Governments**: Grand Challenges Canada, the Baltic 2013 Action Plan, NITI Aayog (India)

2) Aligned Programs with goals similar to those of the NAE-GCSP (local/global impact)

- **EWB**, EPICS, MedLine, etc.
- Academic Institutions, Corporations, Professional Societies, Global/Regional Networks (e.g. IFEES, GEDC, SEFI, GINET-Global Innovation Network for E-ship and Tech., IUCCE- Indo Universal Collaboration for Engineering Education, ISTEC – Ibero-American Science and Technology Education Consortium, etc.)

- Research and Educational collaborative programs, student opportunities, etc
- Use the 5 Competencies as guide to establish areas of Synergy
"The Future We Want”
(name of 2012 resolution on which principles the SDGs were built on)


Formal name: "Transforming our World: the 2030 Agenda for Sustainable Development." or "2030 Agenda.”

The SDGs cover social and economic development issues including poverty, hunger, health, education, global warming, gender equality, water, sanitation, energy, urbanization, environment and social justice.

*Role of Engineering – The UNESCO Engineering Report (I and II)*
The 14 Grand Challenges:

- MAKE SOLAR ENERGY ECONOMICAL
- PROVIDE ENERGY FROM FUSION
- DEVELOP CARBON SEQUESTRATION METHODS
- MANAGE THE NITROGEN CYCLE
- PROVIDE ACCESS TO CLEAN WATER
- RESTORE AND IMPROVE URBAN INFRASTRUCTURE
- ADVANCE HEALTH INFORMATICS
- ENGINEER BETTER MEDICINES
- REVERSE-ENGINEER THE BRAIN
- PREVENT NUCLEAR TERROR
- SECURE CYBERSPACE
- ENHANCE VIRTUAL REALITY
- ADVANCE PERSONALIZED LEARNING
- ENGINEER THE TOOLS OF SCIENTIFIC DISCOVERY
Synergy with Similar Frameworks and Aligned Programs

**Synergy**: how to work together, be complementary, leverage and share resources, share knowledge and best practices, etc.

1) Frameworks consistent with the core mission of the GCSP

   UN SDGs

2) Aligned Programs with goals similar to those of the NAE-GCSP (local/global impact)

   **EWB** as a premier example of synergy with GCSP

   Edward will speak about EWB and provide us with examples of the work of the Hong Kong chapter while highlighting the GCSP competencies that overlap with EWB

*Research and Educational collaborative programs, student opportunities, etc*

*Use the 5 Competencies as guide to establish areas of Synergy*
Achieving SYNERGY in the GLOBAL DIMENSION
(GCSP Preparing students to work on global problems - anywhere in the world)

I) Key considerations:
- Diverse context (cultural, political, social, ethical, economic)
- Challenges are context-specific
- Solutions must be appropriate to the local context (context-sensitive) and include the people of the region.
- Technology should be integrated with society
- Diverse ways of understanding Globalization

II) Current approaches
(delivering a multicultural/global experience)

Abroad
- Study Abroad -Exchange programs (degree seeking, visiting, summer immersion)
- Projects and Co-op abroad
- Faculty-led overseas research
- Establishing campuses abroad

At home:
- Global Studies Courses, Workshop, Webinars Internships/Co-op with Multi-national Corp
- Research/Projects of global relevance
- Organizations with Global reach (i.e. EWB)
- Global oriented activity on/outside campus
Breakdown Session on Session E
“Synergy and Aligned Frameworks”

1) Are there organizations that are highly aligned with the vision of the GCSP that you are familiar with? What steps should be taken to partner with them for mutual benefit?

2) What other conceptual frameworks align with the Grand Challenges?

3) Are there ways that the GCSP could support and be supported by other visions of global challenges?

4) How might the GCSP work with and engage with large global organizations with similar goals, like such as the UN SDG’s, World Bank, USAID, etc.?

5) Are there similar organizations or conceptual visions in your country that the GCSP movement should engage with?
Thank You
Questions for Discussion and expected Outcomes from Breakout session to follow.

Challenges on working together, sharing resources, combined impact- will hear from EWB –HK Edward.
Innovation for Social Impact

Working Groups-Reflection Exercise:
Explore **Challenges, Opportunities**, and potential **Solutions** on one (or several) of the following proposed **Topics for Discussion**:

b. How to best identify and develop opportunities for impact.
c. Context-appropriate solutions in the developing world technology in low resource settings.
d. Key elements for successful partnerships.
e. Developing technologies, devices, and approaches (research and education) that address local and global challenges.
f. How to incorporate the local context and include the people of the region.
g. Local management of projects in complex (social, economical, political) environments involving multiple partners and sponsors.
h. Main rewards from Innovation initiatives.