

Global Engineering for a Small Planet A Vision of Success

by

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Short Abstract:

As we enter the first half of the 21st century, the engineering profession must embrace a new mission statement—to contribute to the building of a more sustainable, stable, and equitable world. A new form of engineering education and practice is needed to cover a wide range of technical and non-technical issues in order to train global citizen engineers and whole persons, capable of operating in a multi-cultural world.

Long Abstract:

In the next two decades, almost two billion additional people are expected to populate the Earth, 95% of them in developing or underdeveloped countries. This growth will create unprecedented demands for energy, food, land, water, transportation, materials, waste disposal, earth moving, health care, environmental cleanup, telecommunication, and infrastructure. The role of engineers will be critical in fulfilling those demands at various scales, ranging from remote small communities to large urban areas, and mostly in the developing world. A simple question arises: Do today's engineering graduates and engineers have the skills and tools to address the global problems that our planet and humans are facing today, or will be facing within the next 20 years? Since the answer to that question is negative and we cannot solve tomorrow's problems with yesterday's tools and skills, a new epistemology of engineering practice and education is needed; one that is based on the idea of reflective and adaptive practice, system thinking, engagement, and a holistic approach to global problems. This new form of engineering education and practice must be designed to cover a wide range of technical and non-technical issues in order to train global citizen engineers and whole persons, capable of operating in a multi-cultural world. As we enter the first half of the 21st century, the engineering profession must embrace a new mission statement—to contribute to the building of a more sustainable, stable, and equitable world.