



Young Structural Engineers Building Structures for the Poor

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Summary

Structures are key to the development of countries and society in general. The integrity and reliability of structural systems carry out and guarantee the base for the projection of communities and nations, and their economic and social growth. Developing countries today are developing their engineering forces and infrastructure leaders, both designers and builders, to put their skills in service to develop the foundations for their growth. Young structural engineers from any country can make a difference in this scenario through the application of their fresh knowledge of their profession in specific projects that need their help and collaboration today.

Keywords: Sustainability, young structural engineers, education, developing countries, infrastructures.

1. Introduction

The main motivation of this paper is grounded in the deep faith in young professionals and their determination to get the best out of their opportunities in the early stage of their careers. Providing safe and reliable structures in the best cost-time efficient manner has always been the scope of good structural engineers. To identify the needs of society, and mostly, to contribute throughout our profession in alleviating those needs, becomes a responsibility of any professional, but even more obvious in the role of structural engineers, since their service is being tested daily. Profound values and a deep sense of social service are required and demanded in the structural engineering profession, which is remarkably exposed to the public. The Engineer's Creed describes it as follows [1]:

As a Professional Engineer, I dedicate my
professional knowledge and skill to the
advancement and betterment of human welfare.

I pledge:

To give the utmost of performance;
To participate in none but honest enterprise;
To live and work according to the laws of man
and the highest standards of professional
conduct;
To place service before profit, the honor and
standing of the profession before personal
advantage, and the public welfare above all other
considerations.

In humility and need for Divine Guidance,
I make this pledge.



The importance of infrastructures for society is typically overlooked by those not engaged with either infrastructure [2] or transportation [3] networks and development. A solid/sound infrastructure is crucial for development and growth of societies in any country. Figure 1 shows a railroad bridge crossing a key river in the United States Midwest to illustrate the importance of reliability of structures for the welfare of society.

2. Sustained Program – Structural Engineers for the Poor

2.1 Lima, Peru

While the earthquake has brought much attention to the impoverished conditions and needs in Chinchá, it is only one example of the 3rd World problems facing this South American country. Peru is a country with a growing economy, but 80 percent of the population lives in poverty, a majority whom live in ‘shanty-towns,’ which develop in and around the capital city of Lima. These towns are populated with families who have migrated from the highlands of the Andes Mountains, who are in search of better lives. However, when they arrive in Lima, they find overcrowded conditions and are forced to settle in developing areas along the steeply sloped hills surrounding the city. These ‘shanty-towns’ develop from scratch and lack infrastructure and community design. For basic survival, the migrants are forced to build their own roads with very small wages. Because of the steep slopes, the houses must have a flat foundation constructed.

2.2 South America

The idea would be to unite the work of structural engineers in developed countries with concrete and clear projects in specific places of need. For a sustained program, a common link with SEA in other countries, or with similar non-profit associations with the same presence or aim, would allow for work to continue in projects in Lima, other cities of Peru, as well as other South American countries, like Ecuador, Brazil, Chile, and Colombia, where the help and time of young structural engineers can be used for helping the poor.

3. References

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