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Guest Editors' Introduction

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GUEST EDITORS' INTRODUCTION

[Photos needed]

CHRISTELLE DIDIER AND JOSEPH R. HERKERT

Volunteerism and Humanitarian Engineering – Part II

This Part II of the *IEEE Technology and Society Magazine* Special Issue on Volunteerism and Humanitarian Engineering focuses on perspectives from and about activities conducted outside of the United States.

The first three articles in this issue describe the history and current philosophy of organizations akin to Engineers Without Borders (EWB) in three Western European Countries — France, Spain and Belgium.

Created in 1982, Ingenieurs Sans Frontieres (ISF), is the first institutional endeavor of humanitarian engineering in France. Although it does not belong to the actual World Federation of EWB, ISF is the oldest of the non-governmental organizations (NGOs) taking the name of “Engineers without Borders.” Simon Paye, an engineering graduate and Ph.D. student in sociology, analyses the evolution of this NGO over the past three decades. He identifies three periods and two changes: one from technical to political intervention and the other from actions focused on developing countries to educative action in developed countries. Following phases of amateur volunteer development aid and later professionalization that focused on larger projects with major financial sponsors, internal tensions developed that subsequently led to a self-described “crisis of ISF.” A new leadership team launched audits and consultations that led to the drafting of a new charter closer to the interests of the ISF local members. Ethical issues and the social responsibilities of engineers became central topics, thus marking the end of the professionalization trend of the second period and returning the central role to students. A new slogan appeared and a concrete program was developed around “the socially-responsible engineer.”

The second article, by Javier Canavate and Joseph M. Casasus, describes Engineers without Borders – Ingenieros sin Fronteras (ISF) – associations in Spain. This EWB organization in Spain was created by Erasmus University engineering students who had studied in France in the nineties and had been exposed to Ingenieurs Sans Frontieres .

The development of EWB in Spain also benefited from two other conditions. One was that the Spanish government allowed participation in the ISF social program to replace compulsory military service. The second contributing factor that encouraged the development of ISF in Spain was the participation of the 0.7 movement, which was social campaign working for 0.7% of the gross national product to be given by the Spanish government to cooperation actions.

Although the French and Spanish EWB federations are ideologically close, the Spanish organization chose a different path than its French counterpart. Today, the Spanish group is made up of 84 contracted staff. Most members are volunteer students but there are also university teachers and retired graduate engineers. Spanish EWB members work on many development projects. Still, the group’s mission and goals go far beyond technical aid. Ingenieros sin Fronteras in Spain aims to contribute to a social and political transformation and to an increasing awareness in order to generate alternatives to current development projects. Education for development is intended not solely to train humanitarian engineers, but also to contribute to reflection on the relationship between the engineering profession and society in both developing and developed countries. Educational programs concern not only engineering students but also the

general public, including primary and secondary schools.

Another important aspect of Ingenieros sin Fronteras, bearing witness to its evolution, is that it has become the most important organization related to humanitarian engineering in Spain. It is also one of the most important NGOs in the country. It has been a major player in the field of public policy for development aid, since 1997 through its involvement in the national committee for cooperation and development.

The third article in this issue, by chemical engineer Martin Meganck, describes three Belgian organizations that are all members (or provisional members) of EWB-International.

The first of the three Belgian organizations is located in the French speaking region of Wallonia (IAI-ISF). Created by the professional engineering organization FABI, it is not a student organization (although some of its first members were students from Louvain-la-Neuve Catholic University). Rather its members are active engineers working in developed countries who give technical help to projects in developing countries. In many cases this technical help is given from a distance. Volunteers are sent when necessary to frame the scope of the problem.

The two other Belgian associations are Flemish, located in the Dutch speaking region of Flanders. Both were created by professional engineering associations. Ingenieurs zonder Grenzen, created in 1992, is very similar to IAI-ISF in Walonia. It accompanies missions carried out by graduate engineers and retired engineers. The other Flemish association is now part of a larger organization called Ex-Change which offers expert consultancy to small and medium sized enterprises in developing countries in the field of sustainable development. Composed only of experts having at least ten years relevant experience, Ex-Change's philosophy is very far from the French and Spanish EWB NGOs. Little attention is given to engineering education and to the questioning of development aid.

Professional and business centered, the Belgian associations value professional competence and efficiency.

While there are variations between the EWB organizations in the three European counties examined in these first three articles, some common themes also are discernable.

All the European associations started in the late 1980s-1990s as if the idea that engineers had something to do in the field of development did not so much depend on the country and the commitment of individuals.

In all three countries, a common conclusion after the first years of activity is that amateurism (a "boy-scout attitude" and humanitarianism ideals) cannot be the answer to the needs of developing countries. But being more "professional" does not mean the same to all: it may mean compulsory heavy training for

volunteering students – or it can mean exclusion of students in favor of senior engineers.

Another common outcome is that the success of a project in the field of development aid lies in the existence of a local partner. Working with local partners is the best means to avoid "white elephants."

The EWB associations described in these first three articles have very different visions of their groups' fundamental missions beyond technical aid. Some may seek social and political transformation, and may see a need to emphasize ethics education. Others may wish simply to contribute to corporate social responsibility programs of private western companies.

The fourth article in this special issue, by Ted Burke, Anraoi de Paor, and Eugene Coyle, discusses engineering for people with disabilities. The article focuses on the authors' work over the past two decades at the National Rehabilitation Hospital laboratory in Dublin, Ireland, where undergraduate and graduate students have carried out a wide range of rehabilitation projects. While specific individuals benefit from the customized technology developed in the projects, the authors argue that the greatest benefits of such projects are the students' education in social implications of technology, and the careers in rehabilitation engineering successfully pursued by students in the program.

In contrast to previous articles' examples focusing on development projects or on the societal role of engineers, this fourth article illustrates how humanitarian engineering can take place in an engineering laboratory.

In another shift of emphasis, the final article in the issue by bioengineer Kenneth Foster, presents a review of telehealth projects in sub-Saharan Africa with particular emphasis on the role of cell phone technology. Foster outlines the uneven progress to date of cell phone telehealth in the region, as well as the growing trend toward small-scale individual projects conducted by students and other volunteer engineers. The article concludes with a case study of mobile telephone use in providing healthcare services in rural Malawi.

The idea for this Special Issue on Volunteerism and Humanitarian Engineering – Part II originated in the workshop "Engineering in Context" hosted by Carl Mitcham at the Colorado School of Mines in Spring 2008. Additional products from that workshop can be found in [1].

Reference

[1] S.H. Christensen, M. Meganck, and B. Delahousse, Eds., *Engineering in Context*, Denmark: Academica, 2009.

Callouts:

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Being more “professional” does not mean the same thing to everyone.

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