

**2010 Welcome Address of Dr. Patricia D. Galloway, P.E., CEO of Pegasus Global Holdings, Inc. and Chair of the Society for Social Management Systems (SSMS) at the SSMS Annual Conference, Kochi, Japan.**

Welcome to the 2010 Society for Social Management Systems Symposium. KUT and the Society for Social Management Systems have been organizing the international symposium related to social management systems annually since 2005. Social Management Systems is a scientific system which provides thinking as to how we are able to define the structure of socially involved problems and what kind of theoretical thinking we need to follow to create management systems which solve problems and evolve society, as well as new scientific fields which give us methodologies to create these management systems. As a Ph.D. graduate of KUT, it is an honor to give this opening address to such a distinguished and accomplished group of individuals. And as Chair of the Society, I wish to thank you for joining us at KUT, especially in a time of global economic problem to share ideas and knowledge relative to the development of comprehensive social management methods that take into account not only engineering aspects, including measurement and evaluation of various social changes, but also social scientific aspects including economics and sociology. This year's symposium will focus on Infrastructure Asset Management, Construction Management, Public Policy for local government, policy making and water resources; environmental management on both a country and municipal scale, technology integration management including social sciences; and regional vitalization management, business and a sustainable society.

We live in turbulent times and thus a danger exists in simply focusing on the economic problems rather than longer term societal needs. Thus, there is an ever increasing importance for the Society for Social Management Systems and

its theme to employ not only engineering solutions of the past, but combine creativity of meeting the needs of the population because of the social upheaval that is being caused. Those societal needs may still require traditional infrastructure to meet underdeveloped country needs, such as, a good transportation system, water or waste-water system, etc. But, it may also mean different types of infrastructure systems for developing and developed countries, differing country demographics and may be different than anything imagined in the last 20 years. Thus, it is the engineers who will be the ones who supply solutions to these needs and must use the current problems to satisfy those needs.

According to the World Economic Forum in January of this year in its Global Risk Report for 2010, the major economic risks included underinvestment in infrastructure and retrenchment from globalization in both developed and emerging countries. As the report notes, multiple studies across the world repeatedly highlighted that vast segments of our water, energy or transport infrastructure are structurally deficient or functionally obsolete, requiring considerable annual investments to avoid catastrophic failure. However, should the recovery progress without a commensurate improvement in employment, the risk of “retrenchment from globalization” could emerge more strongly. Rising protectionism, coupled with the macroeconomic instability and social unrest due to rising unemployment, adds to the pressure of the global outlook. The difficulties posed by the combination of weak fiscal positions and long-term pressures from current social spending trajectories are considerable. Advanced economies in particular must face the difficult task of reforming their social security systems. Many current models for health, pensions, education and unemployment protection were designed to meet the needs of the population in growing economies with comparatively short life expectancies. However, as we all know too well, this has changed dramatically. Today people are living longer and the share of retired people that will have to be supported by the working

populations keeps increasing placing huge strains on the costs and efficacy of social systems.

Last year I was not able to be with you for the symposium and the opening address was delivered by Dr. Kris Nielsen. Many of his personal insights that he shared with the conference attendees then remain true today and set the foundation for my opening remarks this year. I quote Dr. Nielsen:

*“In these times of economic constraints which are causing deteriorating social conditions all over the globe, we are faced with the reality that we will be challenged to provide many of the social management systems that we have so earnestly pursued. ....*

*The challenge with respect to fulfilling future infrastructure needs is the many risks and contradictions for infrastructure that is actually sustainable. It will be easy to forget about sustainability at the current time in the name of financial considerations that every country faces. Sustainability risk should be considered from a holistic perspective throughout all life-cycle phases, but especially the sums that are spent in the next few years will impact societies for decades....*

*... [this] can only happen when social science and engineering are integrated. For instance, the world has made significant progress over the last two decades translating a global vision of sustainability into practice. Today, the practice of sustainable development causes synergies and difficulties in communicating needs and promoting understanding. Dialog generally occurs now among individuals, governments, companies, and groups. Depending upon the geographic location, this dialog has been translated into action, creating a momentum that has become contagious. Every year statutory and regulatory requirements become stricter, and various acceptable standards are promulgated by numerous*

*organizations. On the flip side, the cost of compliance continues to drop to levels that governments and private sector firms find economical and acceptable – at least this is true for buildings. Infrastructure projects, however, have not made as much progress.”*

Today we are experiencing unprecedented times and broad changes are happening across the globe. The changes include demographics, changing GDP intensiveness and uneven growth, and an increase focus on education. For example, according to an article in Foreign Affairs by Jack Goldstone last month entitled the “The New Population Bomb”, the working age population in the U.S., Europe and Japan is expected to grow by only 15% over the next 40 years, a significant decrease from the 62% growth over the period 1950 to 2010. Moreover, the U.S. population over 60 will double by 2080 and will be akin to the aging population issues of Japan. Further, Goldstone noted that in 1950, the U.S., Canada and the EU accounted for 68% of Global GDP; today that figure is 47% and declining. The combined GDP of Europe, Canada and U.S might double by 2050; but the GDP of the rest of the world, including developing countries like India, China and South Korea with their massive population reservoirs, will grow by a factor of 5-reducing Western GDP to 30% of the total globe. These global shifts in demographics and GDP distribution and growth, together with a focus on education, in science and engineering in particular, and the build up of university systems in countries like Japan, China, India and South Korea will be a challenge too, but also an opportunity, for countries like Japan, Australia and the UK to have a broader community of researchers worldwide than existed in the past; a community that stimulates competition, increased sharing of ideas and breakthroughs.

According to the U.S. National Science Board’s 2010 Science and Engineering Indicators, both China and the EU closely equal the pool of science and engineering researchers that the U.S. has at its disposal. The growth of R&D in

the U.S. is around 5% that of South Korea is 10% and that of China over 20%. And according to the Organization for Economic Co-operation and Development, Korea and Japan spend 3.5% of their GDP on R&D, while the U.S. is spending 2.6%. We must begin to think of sustainable energy, environment, and economy as complex systems that can stimulate new innovations.

Creating the sustainable future in earnest is a task of global dimensions, one that will engage all nations and move the engineering community at large beyond geographical boundaries. As Dr. Bement, Director of the U.S. National Science Foundation said in his speech at the American Association for the Advancement of Science annual conference last month, *“Without question, we must give greater recognition to the importance of international research collaboration, not only to track the frontiers of science and engineering research but also to further “science diplomacy.”* We must recognize the increase importance of multidisciplinary research as new developments in research is occurring in all fields at an increasingly rapid rate, demanding quick responses and actions. However, in order to do so, we must have more concerted emphasis on interdisciplinary research. The pursuit of science and engineering has taught us that most things on the planet are interrelated, intertwined and interdependent. Our journey toward a sustainable future cannot help but move us in that direction.

Many years ago, Dr. Jonas Salk, the creator of the polio vaccine wrote succinctly about our generational task. He said, “Our greatest responsibility is to be good ancestors.” In order to be “good ancestors”, we must recognize that as engineers, we need to identify the broader impacts that our research has as a major contributor to formal and informal education, mentoring of our young, technological innovation and other societal benefits that might result from the research that go beyond knowledge. In doing so we must engage the public and the politicians at a national and local level in a conversation about science, engineering and technology; helping the “person on the street, or next door or the

workplace” understand what is special about engineering, scientific knowledge and technological capability and why they are so important to the health, safety, welfare and quality of life of their children and grandchildren. Science, engineering and technology affect people’s lives in unprecedented ways; and we need to hear what people think about that.

The challenges we will hear and the solutions offered in this symposium will allow each and every one of us to shape our thinking and assist in the decisions we will make when we leave this symposium. These decisions will impact the lives of the population we serve. It is that public trust that we hold dear and for which we cannot allow to falter. I encourage you to not only listen to the presentations you will hear from acclaimed engineers from around the world, but to engage in conversation that will maintain and lasting dialogue in our everlasting quest to improve the quality of life for everyone.

Again, I welcome you to the conference.

I assure you that each of you will have most valuable outcomes from the conference. You will be able to take back with you new ideas to incorporate into your work, you academic life and how you can interact with the public. Thank you for coming and enjoy the conference.